

Wayne Gretzky Parkway North Extension Environmental Assessment



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WAYNE GRETZKY PARKWAY NORTH EXTENSION ENVIRONMENTAL ASSESSMENT

Prepared for:



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Executive Summary

Project Overview

The City of Brantford (the City) initiated a Schedule C Municipal Class Environmental Assessment (Class EA) study for the Wayne Gretzky Parkway North Extension. A northern extension of the Wayne Gretzky Parkway was identified in the 2020 Transportation Master Plan (TMP) to optimize the transportation network as an inter-regional travel route accessing the provincial highway network to and from the northern part of the city. The Wayne Gretzky Parkway currently serves as a major north-south connection through the city. The corridor also conveys traffic from downtown Brantford to Highway 403 and other major east-west transportation corridors, including the future east-west collector road within the Powerline Block Plans development.

The City's long-term growth strategy, outlined in the Municipal Comprehensive Review (MCR), directs greenfield development to the northern and eastern borders, particularly within the Boundary Expansion Lands annexed from the County of Brant in 2017. This expanded area is designated to accommodate future growth, including intensification within existing urban areas. As illustrated on Schedule 2 of the City's Official Plan Envisioning Our City: 2051, the proposed Powerline East and Powerline Central Block Plans are adjacent to the study area. The TMP recommends extending the Wayne Gretzky Parkway north of Powerline Road to support the expected growth in these areas.

Municipal Class Environmental Assessment

The Wayne Gretzky Parkway North Extension study was conducted in compliance with Class EA guidelines as a Schedule 'C' project (Phases 1-4), involving significant infrastructure improvements such as road extension, intersection modifications, and operational enhancements.

The study assessed the need for new intersection, their locations, configurations, and specifications, including the potential use of roundabouts to enhance traffic safety and support active transportation. It also considered road and area drainage, property acquisition, environmental impacts, and mitigation measures. Input from First Nations, agencies, neighbouring municipality, community groups, and the public was incorporated into the Study to ensure a comprehensive planning and decision-making process.

Study Area

The project study area, as shown in Figure ES-1, is located in the City of Brantford, a single-tier municipality geographically located within the County of Brant. The study area is to the north of Highway 403 and includes Park Road North, Governors Road, Powerline Road and Wayne Gretzky Parkway. The study area land use is primarily rural and agricultural north of Powerline Road and more urbanized residential / commercial south of Powerline Road.

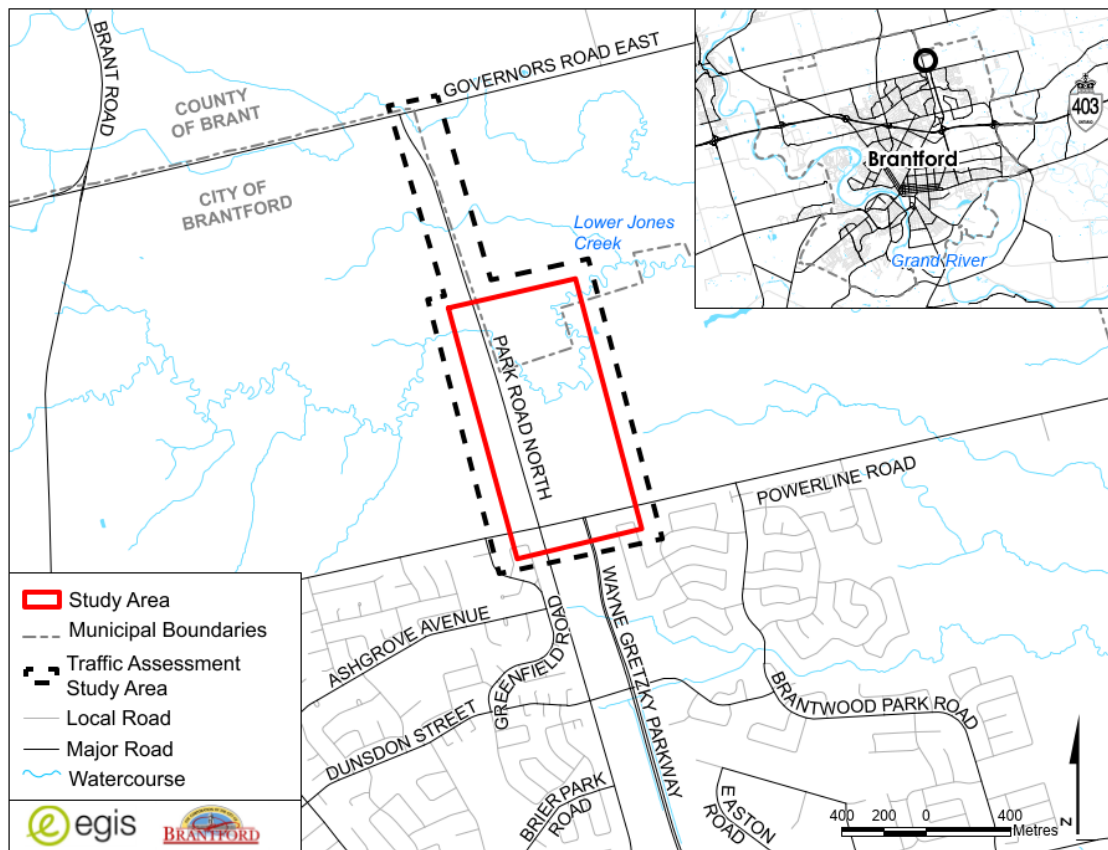


Figure ES-1: Study Area Key Plan

Study Consultation Process

Consultation is a key component of the Class EA process, especially for Schedule “C” projects. Engaging with members of the community, right holders and stakeholders was essential to gather balanced and objective feedback on the study, which was then incorporated into the evaluation and identification of the recommended preferred solution(s) and design concept(s).

At the onset of the study (Phase 1), a Stakeholder Contact List was developed and updated regularly throughout the project to ensure accurate and current information, including additions, removals, and revisions as needed.

The contact list included:

- Federal and Provincial Agencies and Stakeholders;
- Municipal and County of Brant Staff;
- City Mayor, Council, Committees and Neighbourhood Associations;
- Member of Parliament;
- Member of Provincial Parliament;

- Potentially affected First Nations;
- Conservation Authority (GRCA);
- Emergency services;
- Utilities;
- School boards and school bus transportation;
- Development Communities (Block Plan Developers);
- Interest groups; and
- Nearby residents, property owners, and local businesses.

All identified stakeholders were contacted throughout the duration of the study via notices and Public Information Centres. Additional communication and workshop sessions were undertaken with key stakeholders as follows:

- County of Brant;
- Grand River Conservation Authority;
- Development Communities;
- Potentially affected Property Owners (Park Road North and Powerline Road);
- Utility companies through Municipal Consent process; and
- First Nations - Consultation was conducted throughout the study in accordance with the City's Indigenous communication and engagement policies. The following First Nations were consulted and engaged throughout the Class EA study:
 - Mississaugas of the Credit First Nation, and
 - Six Nations of the Grand River.

Key consultation events were conducted during the study to promote transparency, inform agencies and stakeholders, and encourage public participation. All notices were sent out via email and/or mailout through Canada Post, as required. In addition, notices were posted on the City of Brantford's website, and other social media platforms in consultation with the City's communication guidelines. The notices were also published in the following local newspapers:

- Notice of Study Commencement - May 4, 2023
- Notice of Public Information Centre #1 - February 7, 2024
- Notice of Public Information Centre #2 - September 12, 2024
- Notice of Completion - January 8, 2026

In compliance with the Class EA process, the City and Egis hosted two in-person Public Information Centres (PICs) at the Walter Gretzky Municipal Golf Course, 320 Balmoral Drive, Brantford as follows:

- PIC #1 - February 21, 2024
- PIC #2 – October 2, 2024

Problem and Opportunity Statement

The Wayne Gretzky Parkway is a major arterial roadway that serves the City of Brantford (City) as a significant north-south travel route for accessing the Alexander Graham Bell Parkway (Highway 403).

The North Expansion Lands, north of Powerline Road, are anticipated to have high population and employment growth that require increased traffic capacity on the existing transportation network. The Transportation Master Plan Update (TMP 2020) identified the extension of Wayne Gretzky Parkway north of Powerline Road to provide relief to the anticipated (2051) capacity constraints to:

- service future growth,
- provide capacity relief to the King George Road corridor and north/south travel demands for the North Expansion Lands, and
- be consistent with the future vision for the area and proposed adjacent developments.

The project presents an opportunity to optimize the transportation network to accommodate the current and future travel demands, while minimizing potential impacts to the environment and climate change by:

- extending the Wayne Gretzky Parkway north of Powerline Road,
- providing a parallel route to connect travel demand back to the Highway 24 corridor for inter-regional travel via Governors Road and future provincial connecting link roadways; and
- improving multi-modal connectivity and enhancing active transportation infrastructure to improve pedestrian and cycling travel choices.

Evaluation Process

An evaluation framework was developed in collaboration with the City, incorporating technical considerations and environmental components that align with the broad definition of the environment as outlined in the Class EA and the Environmental Assessment Act. This framework was also informed by feedback from relevant agencies, stakeholders, First Nations, interested parties (including area residents, business and development communities), and the public. Six categories were established to guide the evaluation of Alternative Solutions: Transportation/Engineering, Land Use Planning Objectives, Natural Environment, First Nations/Cultural Environment, Social Environment, and Economic Environment. Among the considerations, First Nations input and interests are incorporated into more than one category wherever applicable. The criteria for each category were based on key objectives outlined in

the City's policies and those of governing agencies (such as Ministry of the Environment, Conservation and Parks (MECP), Ministry of Citizenship and Multiculturalism (MCM), GRCA, etc.), as well as the TMP, Active Transportation Master Plan (ATMP), and Official Plan (OP), which supported the planning and decision-making processes.

The evaluation of alternative solutions/design concepts was conducted using the Reasoned Argument method, comparing the differences in impacts and providing a clear rationale for selecting the technically preferred solution(s) /design concept(s). The evaluation considered both the positive and negative potential impacts of each alternative, based on the proposed criteria. This relative comparison helped determine the technically preferred alternatives.

The same evaluation process was carried out in Phases 2 & 3 of the study.

Development and Evaluation of Alternative Solutions (Phase 2)

As part of the Class EA, several studies were conducted to support the evaluation, including the Transportation Assessment Study, which assessed and reviewed the recommendations from the 2020 TMP. The Transportation Assessment Study considered existing traffic conditions at the key intersections (along Park Road North and Wayne Gretzky Parkway), estimated and examined future population and employment growth and expected future traffic volumes, analyzed impacts of projected future traffic volumes, and identified infrastructure improvements to address the deficiencies and accommodate future traffic growth for the horizon year of 2051.

To address the Problem and Opportunity Statement, the following Alternative Solutions were developed and evaluated, following the completion of appropriate studies and consultation.

Table ES-1: Evaluation of Alternative Solutions

Alternative Solutions	Evaluation Summary	Recommendation
1. Do Nothing	- The proposed solution does not align with the City's policy objectives. - It will fail to accommodate future traffic volumes, resulting in continued and worsening traffic congestion. - The solution does not provide opportunities to enhance Active Transportation or improve Transit infrastructure.	Not Recommend
2. Limit Development of Surrounding Lands	- The proposed solution does not align with the Provincial Policy Statement, Provincial Priorities and the City's policy objectives.	Not Recommend

Alternative Solutions	Evaluation Summary	Recommendation
	- Insufficient accommodation of future traffic volumes from the surrounding area, leading to continued and worsening traffic congestion. - The solution fails to improve both existing and future connectivity, hindering the ability to effectively move people and goods throughout the city. - Will not address the growing transportation needs of the community in the long term.	
3. Improve Alternative Roadways	- The proposed solution does not align with the City's policy objectives. - Will not accommodate the future traffic volumes required to support anticipated population and employment growth, limiting its effectiveness in meeting long-term transportation needs. - This alternative is expected to result in increased construction impacts, further complicating the development process. - Limited opportunities to address existing traffic congestion along Park Road North and King George Road, which are expected to persist or worsened. - Offers minimal potential to connect to future developments or enhance public facilities, particularly in terms of Active Transportation infrastructure.	Not Recommend
4. Construct New Wayne Gretzky Parkway North Extension with Creek Crossing prove Alternative Roadways	- The proposed solution aligns with the City's policy objectives. - Effectively accommodates future traffic volumes, supporting the anticipated population and employment growth. - Improves multi-modal connectivity, enhancing both pedestrian and cyclist infrastructure, which in turn promotes active transportation. - Considerable impacts on the environment and First Nation land uses, raising concerns regarding environmental preservation and cultural sensitivity.	Not Recommend

Alternative Solutions	Evaluation Summary	Recommendation
	- May require extensive land use changes and property acquisitions including from the County, which could disrupt local communities. - The associated capital costs are prohibitive, making the implementation of this solution a financially challenging endeavor.	
5. Construct New Wayne Gretzky Parkway North Extension without Creek Crossing	- The proposed solution aligns with the City's policy objectives. - Accommodates future traffic volumes, supporting the expected growth in population and employment. - Improves multi-modal connectivity, enhancing infrastructure for both pedestrians and cyclists, thus promoting active transportation. - No creek crossing required, which reduces the impact on the natural environment and minimizes disruption to First Nation land use. - Impacts to adjacent land use due to property acquisition requirements, potentially affecting residents and businesses. - Moderate to high capital costs, making it a significant financial investment.	Recommended

Recommended Preferred Solution

Following a comprehensive evaluation process, incorporating the diverse expertise, knowledge, and input from various disciplines, agencies, stakeholders, First Nations, development Communities, and the public, the recommended Preferred Solution was Alternative 5: Construct New Wayne Gretzky Parkway North Extension without Creek Crossing. The proposed solution aligns with the City's policy objectives outlined in the Transportation Master Plan (TMP), Active Transportation Master Plan (ATMP), and Official Plan (OP), as well as the Problem and Opportunity Statement developed for this study. It effectively addresses future growth, alleviates anticipated capacity constraints and operational deficiencies projected for 2051, and resolves congestion along the King George Road corridor. The solution also meets the north-south travel demands of the North Expansion Lands and supports the proposed adjacent developments and planned development trajectory.

Additionally, the recommended solution enhances multi-modal connectivity, improving infrastructure for both pedestrians and cyclists to promote active transportation. By avoiding the need for a creek crossing, the solution minimizes environmental impact and reduces potential

disruptions to First Nation land use. However, it does result in increased impacts to adjacent land uses due to property acquisition requirements, which could affect residents and businesses. The project also involves moderate to high capital costs, representing a significant financial investment.

Development and Evaluation of Design Concepts (Phase 3)

Phase 3 of the Class EA process involves the evaluation of alternative methods for implementing the Preferred Solution, referred to as Alternative Design Concepts. The objective of this phase was to identify the most viable and sustainable design concept that minimizes adverse impacts while addressing the needs of the community. Public and stakeholder consultation played a crucial role in this phase, ensuring that feedback was incorporated into the final decision-making process.

A two-stage approach was adopted to evaluate the proposed design concepts. Stage 1 involved establishing the recommended alignment, while Stage 2 focused on selecting the optimal intersection control methods for the alignment. The final recommended design concept combined both the recommended alignment with the appropriate intersection control method for each intersection.

Stage 1: Alignment Concepts

Five alignment concepts were considered for the northern extension of Wayne Gretzky Parkway, which were as follows:

Table ES-2: Proposed Alignment Concepts

Alignment Concept	Description of Proposed Alignment Concepts
1	Extend Wayne Gretzky Parkway north of Powerline Road with a curved transition back to Park Road North prior to Lower Jones Creek. This concept includes Park Road North access for remaining residents. This concept does not accommodate a future east-west collector (Figure ES-2).
2	Extend Wayne Gretzky Parkway north of Powerline Road to a new intersection (signalized or roundabout) at Park Road North prior to Lower Jones Creek. This concept would maintain Park Road North access but does not accommodate a future east-west collector (Figure ES-3).
3	Extend Wayne Gretzky Parkway north of Powerline Road with a curved transition to Park Road North, forming a new four-leg junction with the future east-west collector. This concept considers terminating Park Road North, south of the future east-west collector (Figure ES-4).
4	Extend Wayne Gretzky Parkway north of Powerline Road to a new three-leg junction with the proposed east-west collector, continuing perpendicular to Park Road North

Alignment Concept	Description of Proposed Alignment Concepts
	and connecting at a new three-leg junction. This concept includes terminating Park Road North, south of the future junction (Figure ES-5).
5	Extend Wayne Gretzky Parkway north of Powerline Road to a new three-legged junction with the proposed east-west collector, continuing perpendicular to Park Road North and connecting at a new four-leg junction. This concept maintains connection to Park Road North at the future four-leg junction (Figure ES-6).



Figure ES-2: Proposed Alignment Concept #1



Figure ES-3: Proposed Alignment Concept #2

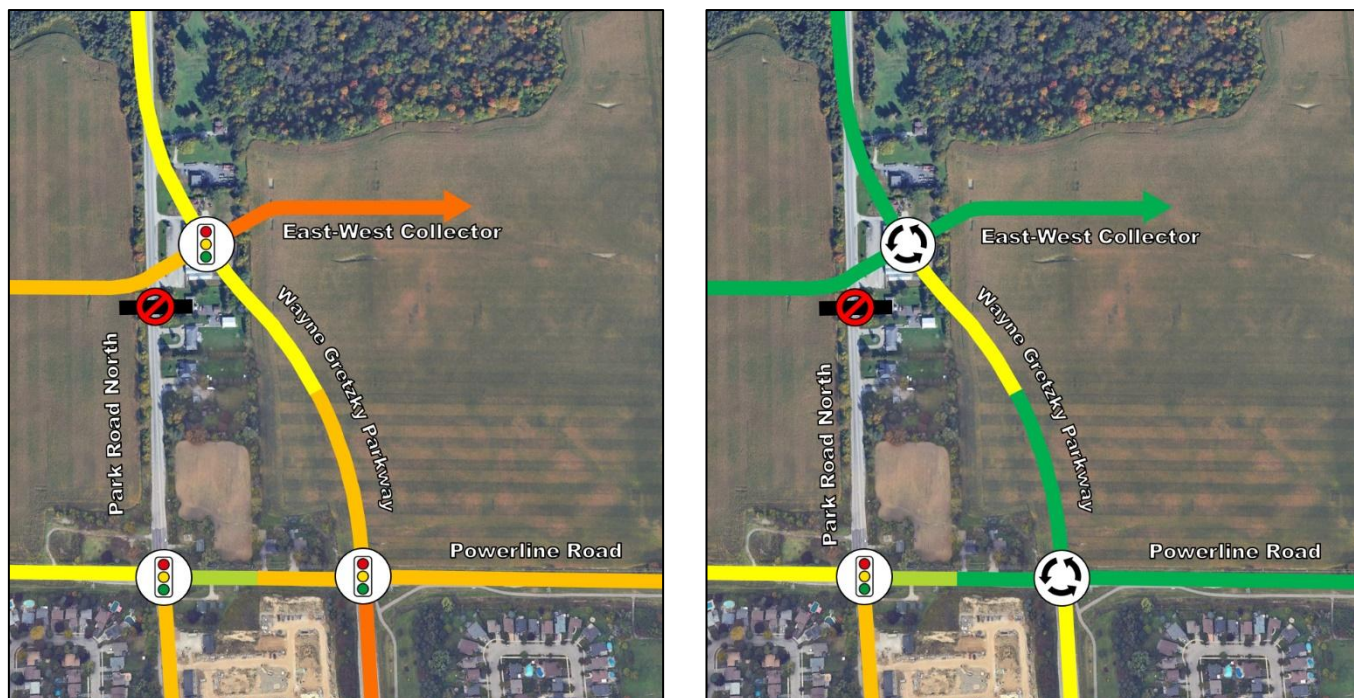


Figure ES-4: Proposed Alignment Concept #3 (A&B)

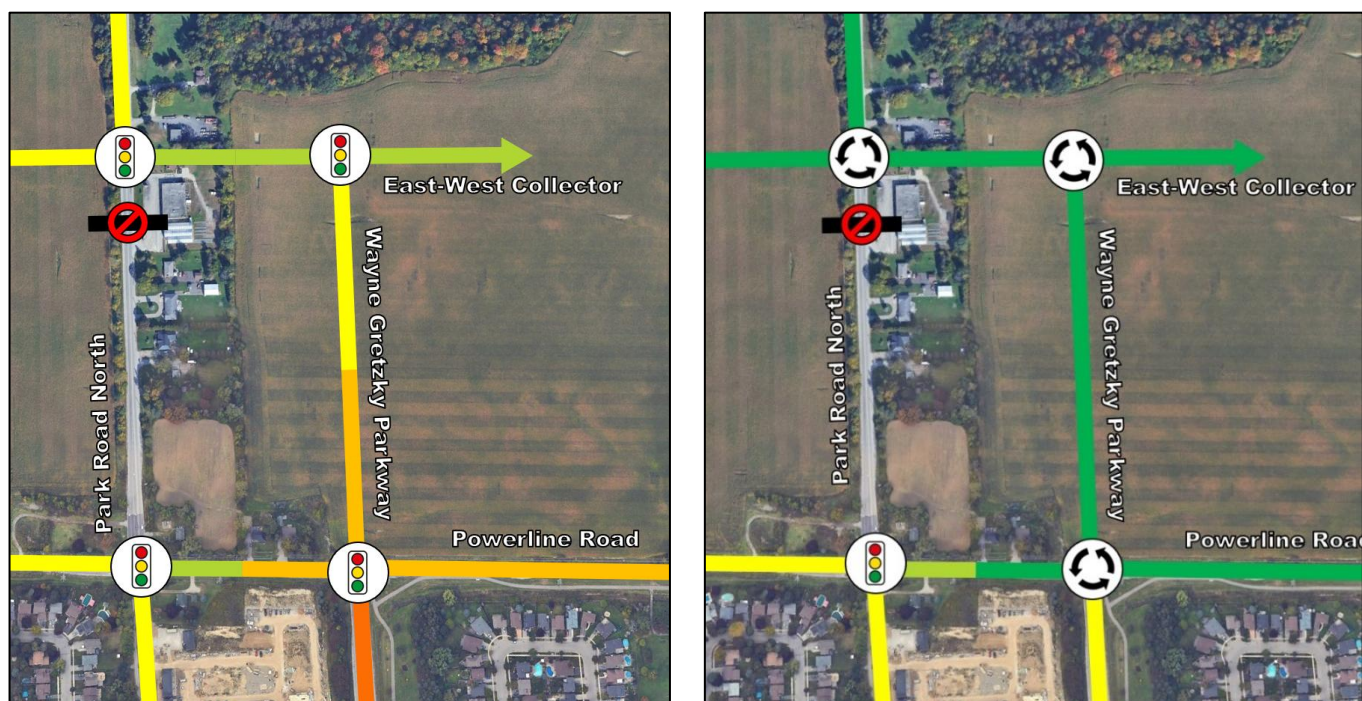


Figure ES-5: Proposed Alignment Concept #4 (A&B)

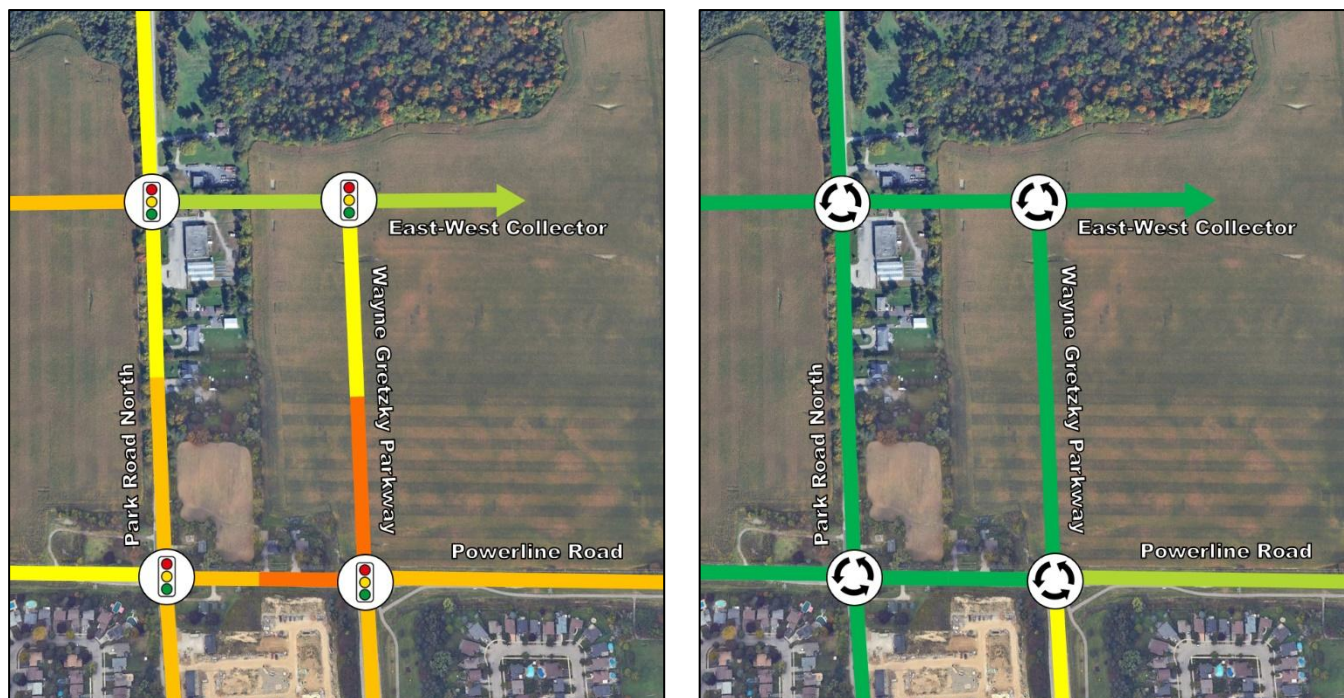
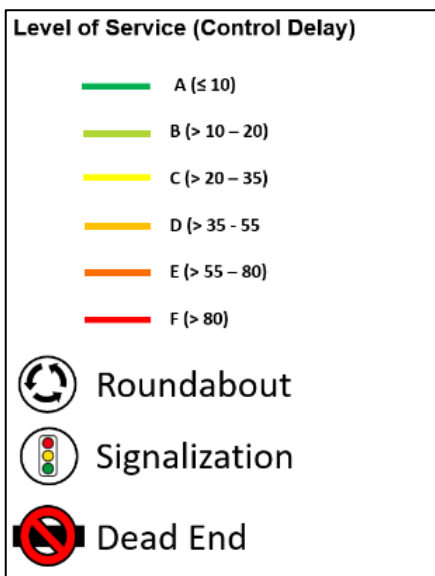


Figure ES-6: Proposed Alignment Concept #5 (A&B)



* Legend for the above illustrated figures

Alignment Concepts 1 and 2 fail to align with the planning and policy objectives of both the City and the study. These concepts did not accommodate the future east-west collector or meet the anticipated traffic needs for future block plans development, among other issues. As a result, Alignment Concepts 1 and 2 were not advanced for further evaluation.

The following table provides a summary of the alignment concepts considered, along with the combined recommendations based on the evaluation completed.

Table ES-3: Evaluation of Alignment Concepts

Alignment Concept	Evaluation Summary	Recommendation
3. Extend Wayne Gretzky Parkway with a curved transition to Park Road North, forming a new four-leg intersection (Signalized or Roundabout) with the future east-west collector	- Accommodates anticipated development traffic and new east-west collector road. - Achieves acceptable levels of service. - Eliminates through traffic along Park Road North. - Provides adequate setback from Lower Jones Creek and Coldwater Spring Wetland Complex. - Provides continuous link for new extension, in accordance with intent of City's policy documents (Official Plan, TMP, ATMP). - Requires the acquisition of multiple parcels of land (+/- 4 properties). - Limits access to Park Road North for remaining properties, according to the area property owners' concerns. - Roundabout option requires large diameter roundabout at Powerline Road and Wayne Gretzky Pkwy.	Recommended
4. Extending Wayne Gretzky to a new three-leg intersection with the east-west collector, continuing perpendicular to Park Road North and connecting at a new three-leg intersection	- Accommodates anticipated development traffic and new east-west collector road. - Achieves acceptable levels of service. - Eliminates through traffic along Park Road North. - Potential reduction to property acquisition requirements when compared to Concept #3. - Requires property acquisition (1-4 properties).	Not Recommend

Alignment Concept	Evaluation Summary	Recommendation
	- Limits connectivity via Park Road North for remaining properties, according to the area property owners' concerns. - Requires larger overall construction footprint. - Does not achieve minimum recommended separation between intersections, according to transportation engineering requirement. - Discontinuous extension (arterial road transitioning to collector road) does not align with intent of City's policy documents (Official Plan, TMP).	
5. Extending Wayne Gretzky Parkway to a new three-legged intersection with a proposed east-west collector, continuing perpendicular to Park Road North and connecting at a new four-leg intersection	- Accommodates anticipated development traffic and new east-west collector road. - Achieves acceptable levels of service. - Maintains connectivity via Park Road North for the area traffic. - Provides redundant connection to Park Road North. - Reduces through traffic on Park Road North via WGP Extension. - Potential reduction to property acquisition requirements when compared to Concept #3. - Requires property acquisition (1-4 properties). - Requires larger overall construction footprint. - Discontinuous extension does not align with intent of City's policy documents (Official Plan, TMP). - Does not achieve minimum recommended separation between intersections. - May not effectively reduce traffic volumes along Park Road North between new intersection and Powerline Road.	Not Recommend

Upon completion of the evaluation process, incorporating the expertise and input from various disciplines regarding the proposed alignment concepts, it is recommended that **Alignment Concept #3** (illustrated in Figure ES-4) be the preferred alignment. This alignment concept will consist of extending Wayne Gretzky Parkway along a curved path to rejoin Park Road North prior to Lower Jones Creek, thereby creating a new four-leg junction with the future east-west

collector. This concept also proposes terminating Park Road North south of the future east-west collector while retaining Park Road North and Powerline Road as a signalized intersection.

This alignment is deemed most effective in addressing future growth projections, alleviating anticipated capacity constraints and operational deficiencies by 2051, accommodating travel demands for the North Expansion Lands including the incorporation of an east-west collector, and aligning with the future vision for the area and proposed adjacent developments.

Stage 2: Intersection Control Methods

The second stage of the evaluation process focused on identifying the optimal intersection control methods for the recommended alignment concept established in the previous stage. The proposed intersection control methods under consideration for Wayne Gretzky Parkway and Powerline Road, as well as for east-west collector intersection, included traffic signals and roundabouts.

To support the evaluation of proposed intersection control methods, a Traffic Analysis Memorandum (Egis, March 5, 2025) was prepared to analyze traffic operations at each intersection and aid in selecting the preferred Design Concept. This analysis involved assessing turning movement volumes and adjusting intersection configurations to ensure acceptable levels of service. Both the Wayne Gretzky Parkway at Powerline Road intersection and the future east-west collector were evaluated as signalized intersections and roundabouts.

As part of the Intersection Control optimization process, four scenarios were developed, along with a sensitivity analysis, for the recommended Alignment Concept #3 outlined below (Scenarios 1 and 2a-c). Additionally, separate scenarios were created to assess the proposed alignment concept provided by the Development Communities, following their roundabout spacing inquiry later in the process (Scenarios 3a and 3b). These scenarios include a corresponding sensitivity analysis comparison (Scenarios 2c and 3b). Table ES-4 summarizes the scenarios developed, along with their evaluations, including those based on the proposed alignment concept provided by the Development Communities.

Table ES-4: Proposed Alignment Concepts

Scenario No.	Scenario Description	Rationale
1	- Powerline Road: 2x 2-lanes - Wayne Gretzky Parkway (WGP): ▪ 2x 2-lane ▪ 2-lane roundabout at Powerline and WGP	- Significant westbound queues at the Powerline Road and Park Road North intersection often extend to the WGP roundabout, leading to congestion on its north and east approaches.

Scenario No.	Scenario Description	Rationale
	2-lane roundabout at WGP and East-West Collector - Park Road North - no connection with east-west collector. Road would simply serve existing properties.	
2a	- Powerline Road: 2x 2-lanes - WGP: 2x 1-lane north of the WGP - east-west collector 1-lane roundabout - WB LT Lane with Protected Phase at the intersection of Powerline Road & Park Rd N - Park Road North - no connection with east-west collector. Road would simply serve existing properties.	- Eastbound queues at the Powerline Road and WGP roundabout occasionally spill back to the Park Road North intersection. - Queues also form on the western approach to the WGP and east-west collector roundabout.
2b	- Similar to Sc. 2a, with the exception of: - EB and NB RT Lane at the Powerline Rd & WGP roundabout - EB RT Lane at the east-west collector x WGP roundabout - 2x 1-lanes + median + LT Lane between WGP and Brantwood Park Rd (750 m)	- Eastbound traffic flow has improved on the western approach to the Powerline Road and WGP roundabout. - Eastbound traffic flow has improved on the western approach to the east-west collector and WGP roundabout.
2c	- Similar to Sc. 2b, with the addition of: +20% demand for the purposes of determining the threshold at which a queue build-up from the WGP / Powerline Road roundabout will reach the WGP/ east-west collector roundabout at the critical (evening) peak hour	- Future travel demand can increase by 20% over the forecasted traffic without causing significant congestion.
3a	- Similar to Sc. 2b, with the exception to: - Repositioning of the east-west collector roundabout further	- Performance similar to Scenario 2b.

Scenario No.	Scenario Description	Rationale
	south (developer's proposed alignment (345 m offset from Powerline Road)) Optimization of the roundabout diameter from 60 to 40 meters	- Does not meet the TAC Guideline for intersection spacing requirement of 400 meter.
3b	- Similar to Sc. 3a, with the addition of: +15% demand for the purposes of determining the threshold at which a queue build-up from the WGP / Powerline Road roundabout will reach the WGP/ east-west collector roundabout at the critical (PM) peak hour	- Future road capacity will be limited to 15% over the forecasted traffic demand, when operational deficiencies can be observed beyond this traffic volume.

Recommended Design Concepts

Following a comprehensive evaluation process, which incorporated the expertise, knowledge, and input from various disciplines, agencies, stakeholders, First Nations, development Communities, and the public, Alignment Concept #3 was identified as the preferred alignment with the construction of a 2-lane roundabout at the Wayne Gretzky Parkway and Powerline Road intersection, and a 1-lane roundabout at the future east-west collector intersection. These alignment and intersection control methods were determined to be the most effective in addressing future growth projections, mitigating anticipated capacity constraints and operational deficiencies by 2051, accommodating travel demands for the North Expansion Lands (including the east-west collector), and aligning with the area's long-term vision and proposed adjacent developments.

Additional analysis of the proposed roundabout at the Wayne Gretzky Parkway and proposed east-west collector indicates that a single lane roundabout will provide sufficient capacity leading to the horizon year. Analysis of turning movements for the design vehicle (Wb-20) indicates that a single lane roundabout is navigable with provision of a truck apron. As such, the initial recommendation was to proceed with a single lane roundabout in the proposed solution, with acquisition of sufficient ROW to implement a future two-lane roundabout. However, through subsequent discussion the City has indicated their preference for a two-lane roundabout at the new intersection in order to "future proof" the extension.

Further, the road network north of the proposed Wayne Gretzky Parkway Extension will be reviewed in the City's upcoming TMP update, within which future project(s) may require improvements to north segments of Park Road North and Governors Road, resulting in the

need for additional capacity along the extension. The future traffic volumes projection will be further reviewed and confirmed through the TMP Update currently conducted at the city.

Future Design

The recommended design for the northern extension of the Wayne Gretzky Parkway considers transportation needs for all modes, vehicular, pedestrian, cyclist, and transit, along with potential impacts on the natural environment, cultural heritage, First Nations, aesthetics, community, property impacts, operations, and capital construction and maintenance costs. It achieves the project's transportation service goals (2020 TMP and 2023 ATMP) while addressing the broader impacts and incorporating appropriate mitigation measures.

The typical cross-sections for Wayne Gretzky Parkway between Powerline Road and the future east-west collector roundabout is illustrated in Figure ES- 7.

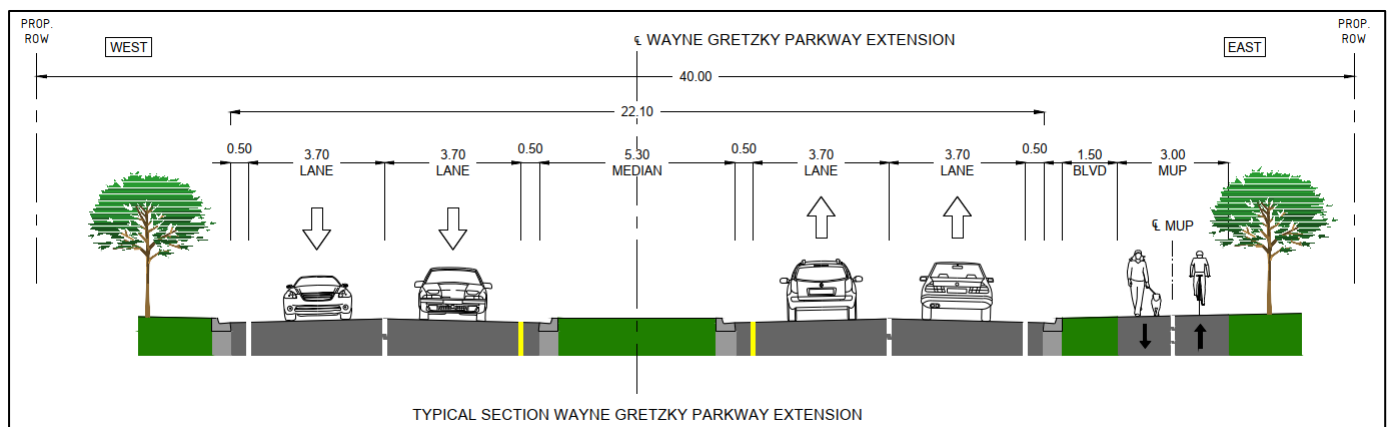


Figure ES-7: Proposed Typical Cross-section

Preliminary Cost Estimate

Based on a preliminary cost estimate, the recommended extension is estimated at \$8.5M. This preliminary cost estimate includes costs for removals, road work including intersections, active transportation, utility relocation, drainage and stormwater management and landscaping; however, property acquisition costs are not included in the estimate.

The extent of cost sharing with development communities (including land dedication for road network, stormwater management facilities within the development and storm sewer systems, etc.) will be confirmed during Detailed Design.

The estimated costs are preliminary and will be reviewed and confirmed during Detailed Design.

Potential Environmental Impacts and Mitigation

As part of the design process for the Wayne Gretzky Parkway North Extension, careful consideration must be given to the implementation of mitigation measures to address potential impacts. These measures will be integrated into the preliminary and detailed design to minimize negative effects on the environment, cultural heritage, social environment, First Nations and surrounding properties. Key areas of focus include managing impacts to the natural environment, reducing disruptions to land use, preserving cultural and heritage resources, minimizing the increase in noise and air emissions, and addressing any traffic or operational challenges that may arise.

Throughout the Detailed Design phase, efforts will be made to incorporate effective mitigation strategies, such as providing environmental buffers/compensation, protecting public safety, and appropriate traffic management solutions. Furthermore, opportunities to minimize property acquisition, limit disruptions, and reduce long-term maintenance costs will be explored. The goal is to ensure that the final design not only meets transportation objectives but also respects and protects the surrounding community and environment, aligning with the project's overall vision for sustainable development and responsible planning.

Timing of Improvements

Upon Council approval, this Environmental Study Report (ESR) is to be filed and placed on the public record for a minimum of 30 calendar days, for review by the public, review agencies and First Nations. After the review period, provided that no Section 16 Order requests are received, the City may proceed to Phase 5 of the Class EA process – Implementation (design and construction).

Timelines for design and construction completion are to be confirmed during the implementation phase.

Future Commitments

This ESR outlines aspects that will be further reviewed and verified during the Detailed Design phase. Several of these actions will address concerns raised by property owners, review agencies and First Nations throughout the Class EA process. Action items to be addressed during the Detailed Design phase include but are not limited to:

- Resolution of outstanding property impacts;
- Continued consultation;
- Additional studies (i.e. Stage 2 AA, etc.);
- Design considerations, and
- Coordination of permits and approvals.

The recommended design concept will require partial or full property acquisitions to accommodate the proposed extension of Wayne Gretzky Parkway north of Powerline Road. This may impact property owners, potentially disrupting use of their land or property. Although efforts have been and will be made to minimize the scope of property acquisition, it is a necessary step to achieve the desired outcomes and ensure the project's long-term success. During the Detailed Design phase, opportunities to reduce property requirements and consider temporary or permanent grading easements, rather than permanent property takings, should be explored where feasible.

Property requirements identified are preliminary and will be finalized during detailed design. The City's Real Estate department, with consultation with the Legal department, will engage with individual property owners to further discuss land acquisition needs, property appraisals, and other relevant matters.

Acronyms and Abbreviations

AA	Archaeological Assessment
AODA	Accessibility for Ontarians with Disabilities Act (AODA).
ARA	Archaeological Research Associates Ltd.
ATMP	City's Active Transportation Master Plan
BH	Borehole
BHA	Butternut Health Assessment
BHR	Built Heritage Resources
BMP	Best Management Practices
CEAA	Canadian Environmental Assessment Act
CHAR	Cultural Heritage Assessment Report
CHL	Cultural Heritage Landscapes
City	City of Brantford
COSSARO	Committee on the Status of Species at Risk Ontario
County	County of Brant
EA	Environmental Assessment
EAA	Ontario Environmental Assessment Act
EASR	Environmental Activity and Sector Registry
ECA	Environmental Compliance Approval
EIS	Environmental Impact Study
ESA	Endangered Species Act
ESC	Erosion and Sediment Control
ESR	Environmental Study Report
ESQS	Excess Soil Quality Standards (ESQS)
FAQ	Frequently Asked Questions
FWCA	Fish and Wildlife Coordination Act
GIS	Geographic Information System
GRCA	Grand River Conservation Authority
HCCC	Haudenosaunee Confederacy Chiefs Council
HDI	Haudenosaunee Development Institute (HDI)
IA	Impact Assessment
IPZ	Intake Protection Zone
LID	Low Impact Development

LOS	Level of Service
MCFN	Mississaugas of the Credit First Nation
MBCA	Migratory Birds Convention Act
Class EA	Municipal Class Environmental Assessment
MCM	Ministry of Citizenship and Multiculturalism
MCR	Municipal Comprehensive Review
MEA	Municipal Engineers Association
MECP	Ministry of the Environment, Conservation and Parks
MNR	Ministry of Natural Resources
MTO	Ontario Ministry of Transportation
MUP	Multi-use Pathways
MW	Monitoring Well
NHIC	Natural Heritage Information Centre
NSA	Noise Sensitive Areas
OHA	Ontario Heritage Act
OP	City's Official Plan
O.Reg.	Ontario Regulation
PIC	Public Information Centre
PLOS	Pedestrian Level of Service
PPS	Provincial Policy Statement
PSW	Provincially Significant Wetland
PTTW	Permit-to-take-Water
ROW	Right-of-Way
SAR	Species at Risk
SARA	Species at Risk Act
SAP	Sample Analysis Plan
SCS	Site Condition Standards
SNGR	Six Nations of the Grand River
SPP	Source Water Protection Plan
TAC	Transportation Association of Canada
TDP	Transportation Demand Management
TMP	City's Transportation Master Plan

1.0 Introduction

The City of Brantford (the City) initiated a Schedule C Municipal Class Environmental Assessment (Class EA) study for the Wayne Gretzky Parkway North Extension. A northern extension of the Wayne Gretzky Parkway was identified in the 2020 Transportation Master Plan (TMP) to optimize the transportation network as an inter-regional travel route accessing the provincial highway network to and from the northern part of the city.

The Wayne Gretzky Parkway currently serves as a major north-south connection through the city. The corridor also conveys traffic from downtown Brantford to Highway 403 and other major east-west transportation corridors, including the future East-West Collector Road within the Powerline Block Plans development.

1.1 Study Purpose

To support the City's planning and decision-making, this Class EA examined the feasibility of extending the Wayne Gretzky Parkway to the north. The purpose of the study was to identify and evaluate alternative solutions to extend transportation services through the North Expansion Lands, improve and expand the overall transportation network, service the Designated Greenfield Areas development, and improve city and regional traffic in the future.

The study focused on assessing the locations, configurations, and specifications of the intersections in the study area, including potential implementation of roundabouts. The investigation aimed to enhance intersection performance for traffic safety and active transportation, as well as to examine road and area drainage, property acquisitions, and the environmental impact and mitigation for project implementation. Consideration also was given to the natural, cultural, and social impacts, with valuable input being gathered from First Nations, agencies, neighbouring municipality, community groups, and the public, ensuring a comprehensive planning and decision-making process.

1.2 Study Background

The City's long-term growth strategy, as described in the Municipal Comprehensive Review (MCR), focuses on directing most of the greenfield development to the northern and eastern borders of the City, particularly within the Boundary Expansion Lands annexed from the County of Brant in 2017. The expanded settlement is intended to accommodate growth in the North Expansion Lands, in addition to the anticipated growth through intensification within existing built-up areas. As illustrated on Schedule 2 of the City's Official Plan Envisioning Our City: 2051, the proposed Powerline East and Powerline Central Block Plans are adjacent to the study area. The TMP recommends extending the Wayne Gretzky Parkway north of Powerline Road to support the expected growth in these areas.

1.3 Study Area

The project study area, as shown in Figure 1-1, is located in the City of Brantford, a single-tier municipality geographically located within the County of Brant. The study area is to the north of Highway 403 and includes Park Road North, Governors Road, Powerline Road and Wayne Gretzky Parkway. The study area land use is primarily rural and agricultural north of Powerline Road and more urbanized residential / commercial south of Powerline Road.

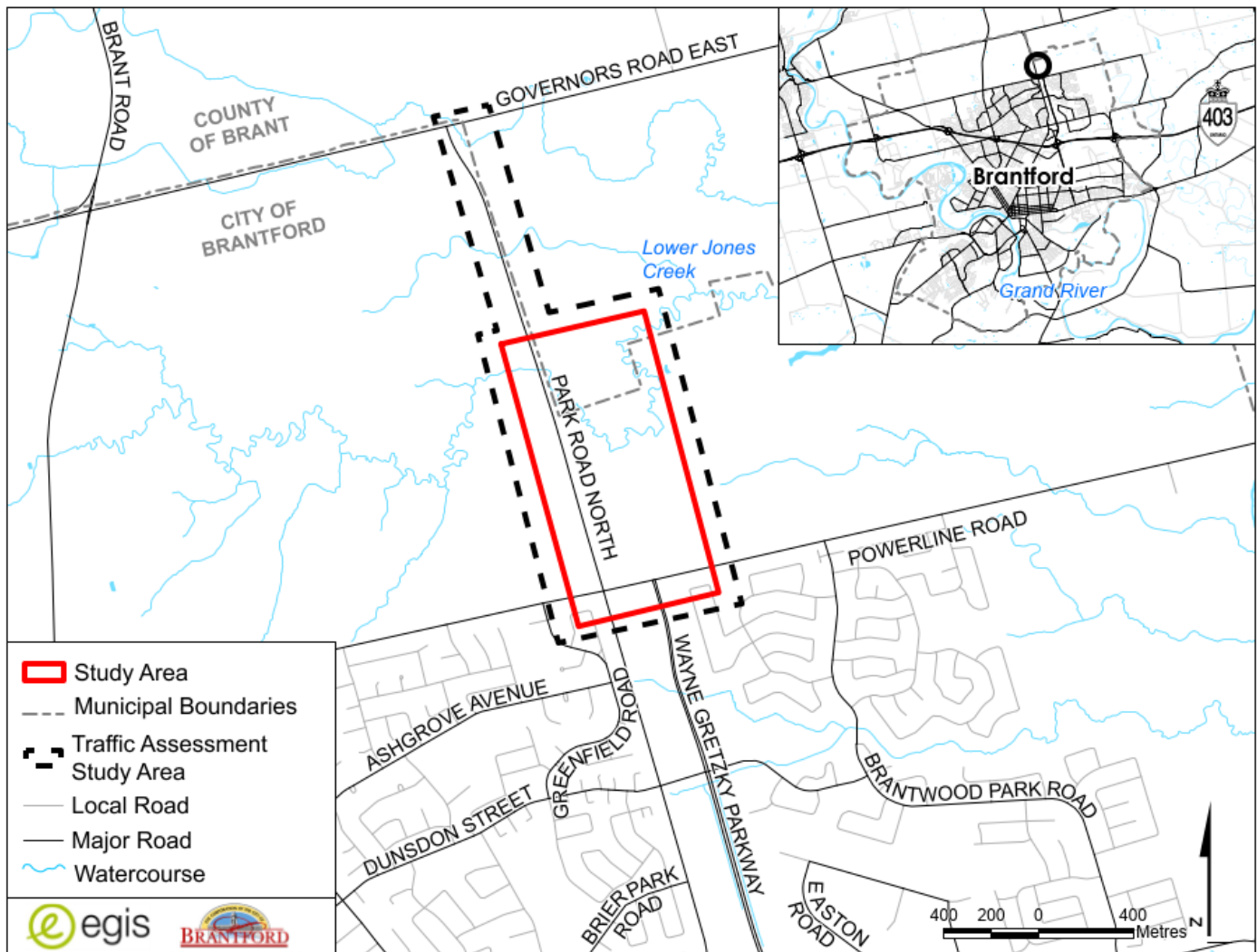


Figure 1-1: Study Area Key Plan

2.0 Environmental Assessment Process

This section provides an overview of the Ontario Environmental Assessment Act, the Municipal Class Environmental Assessment process, and the Canadian Environmental Assessment Act, 2012, in relation to the Wayne Gretzky Parkway North Extension Class EA.

2.1 Ontario Environmental Assessment Act

Ontario's Environmental Assessment Act (EAA) was passed in 1975 and was proclaimed in 1976. The EAA requires proponents to examine and document the environmental effects that could result from major projects or activities and their alternatives. Municipal undertakings became subject to the EAA in 1981. The EAA's comprehensive definition of the environment is:

- Air, land or water;
- Plant and animal life, including human life;
- The social, economic and cultural conditions that influence the life of humans or community;
- Any building, structure, machine or other device or thing made by humans;
- Any solid, liquid, gas, odour, heat, sound, vibration, or radiation resulting directly or indirectly from human activities, and
- Any part of a combination of the foregoing and the interrelationships between any two or more of them, in or of Ontario.

The purpose of the EAA is the betterment of the people as a whole, or any part of Ontario, by providing for the protection, conservation and wise management of the environment (RSO 1990, c.18, s.2). It is the objective of the EAA proponents to ensure that decisions result from a rational, objective, transparent, replicable, and impartial planning process.

To meet the requirements of Ontario's EAA, class environmental assessments were approved by the Minister of the Environment in 1987 as a means of obtaining project-specific approval under the Ontario EAA. The Class EA approach streamlines the planning and approvals process for projects that are:

- Recurring;
- Similar in nature;
- Usually limited in scale;
- Predictable in the range of environmental impacts, and
- Responsive to mitigation.

2.2 Municipal Class Environmental Assessment Process

The Class EA, prepared by the Municipal Engineers Association (MEA) (October 2000, amended 2011, 2015, 2017, 2023 and 2024) is an approved process that applies to municipal infrastructure projects including roads, stormwater management, water, and wastewater. This process offers a thorough planning approach to assess alternative solutions and design concepts, evaluating their impacts based on a defined set of criteria (e.g. transportation/engineering, policies, environmental, social, First Nations/cultural, economic consideration) and determine mitigating measures to arrive at a preferred alternative/design concept for addressing the problem and opportunity statement. The Class EA process includes a thorough public consultation element, engaging a range of provincial and municipal agencies, First Nations, and the public at each phase of the study.

Phase 1 – Problem and Opportunity: Establish the vision and identify the problem or opportunity statement.

Phase 2 – Alternative Solutions: Identify alternative solutions to address the problem or opportunity statement considering the existing environment, and establish the preferred solution considering agency, stakeholders, First Nations and Public input.

Phase 3 – Alternative Design Concepts for Preferred Solution: Examine alternative design concepts to successfully implement the preferred solution, based on the existing environment, consultation input, anticipated environmental impacts, and methods of mitigating negative effects on the environment.

Phase 4 – Environmental Study Report: Study is documented in an Environmental Study Report (ESR) which summarizes the background, problem or opportunity statement, alternative solutions, alternative design concepts, and the consultation process. The ESR is then placed on public record for a minimum 30 calendar days for review and an opportunity for Section 16 requests.

Phase 5 – Implementation: Proceed to detailed design and the preparation of contract/tender documents followed by construction, operation, and monitoring.

Projects subject to the Class EA process are classified into the following four “Schedules” based on the degree of the expected impacts.

- **Exempted Projects (formerly known as Schedule “A/A+”):** Projects are limited in scale, have minimal adverse effects and include the majority of municipal maintenance and operational activities. These projects are pre-approved and may proceed directly to Phase 5 for implementation without following the other phases. However, the public is to be advised prior to project implementation, though there is no ability for the public to request a Section 16 Order.

- **Eligible for Screening to Exempt:** Certain projects may qualify for exemption based on the outcomes of a screening process. Proponents have the option to complete the applicable screening process to determine whether the project is eligible for exemption from the Act or if it should proceed under the relevant Schedule B or C process. Projects eligible for screening are outlined in the MCEA document. To proceed with an exemption, proponents must thoroughly and accurately complete the necessary screening process(es) as specified in the MCEA.
- **Schedule “B”:** Projects have the potential for some adverse environmental effects. The municipality is required to undertake a screening process (Phases 1 and 2) involving mandatory contact with directly affected public and relevant review agencies to ensure that they are aware of the project and that their concerns are being addressed. Schedule “B” project require that a Project File report be prepared and submitted for review by the public and review agencies. If there are no outstanding concerns, then the municipality may proceed to Phase 5 for implementation.
- **Schedule “C”:** Projects have the potential for significant environmental effects and must proceed under the full planning and documentation procedures specified in the Class EA Document (Phases 1 to 4). Schedule “C” projects require that an Environmental Study Report be prepared and submitted for review by the public and review agencies. If there are no outstanding concerns, then the municipality may proceed to Phase 5 for implementation.

Figure 2-1 illustrates the Class EA planning and design process with the phases required for each schedule. The process includes the following five phases:

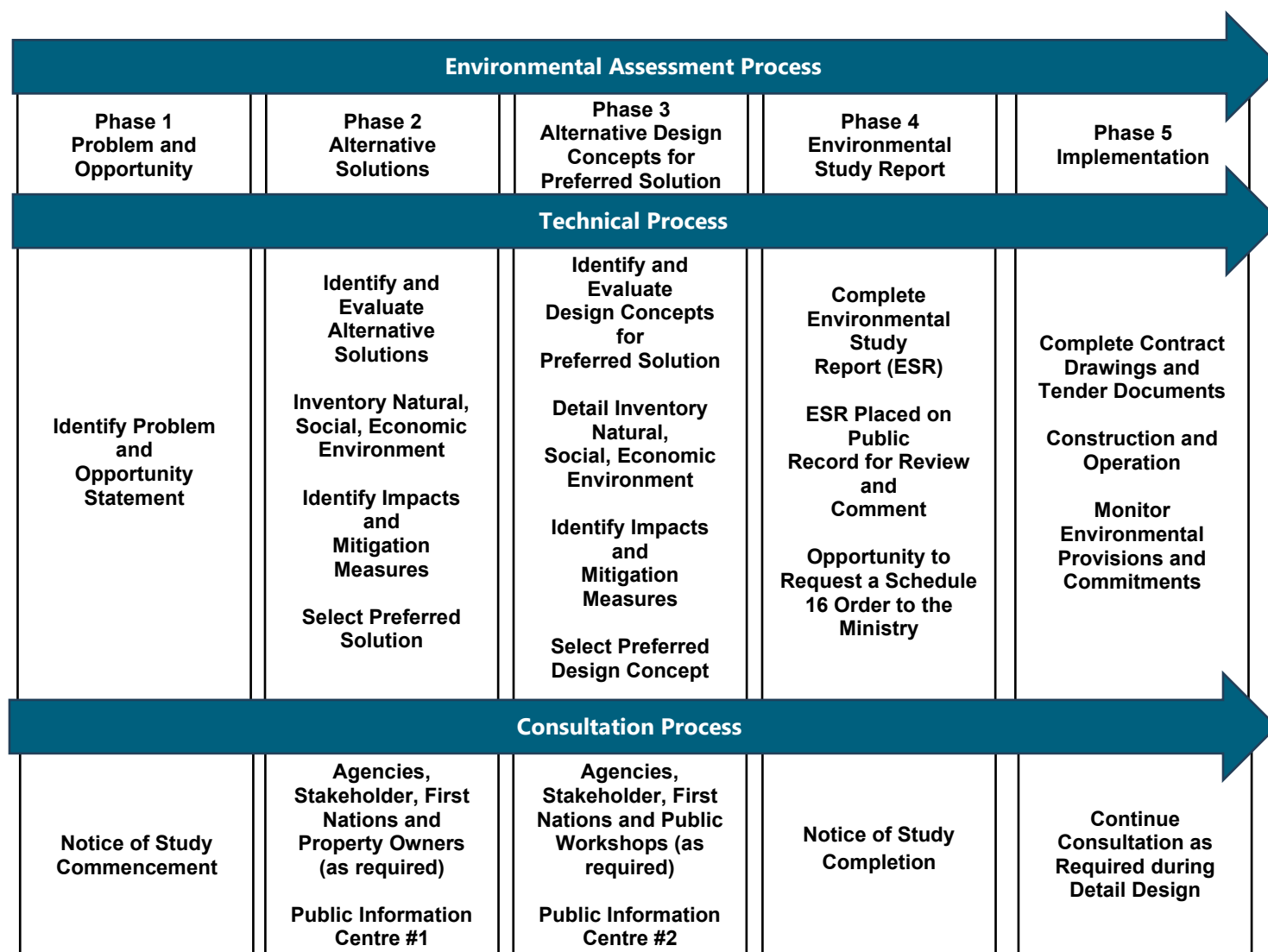


Figure 2-1: Municipal Class Environmental Assessment Process

The Wayne Gretzky Parkway North Extension EA study was carried out in accordance with MCEA guidelines. Due to the proposed infrastructure improvements, such as a potential road extension, intersection modifications, and other operational upgrades within the existing network, the project is classified as a Schedule 'C' undertaking, which includes Phases 1 through 4. Schedule 'C' projects involve the construction of new facilities or major modifications to existing ones. It's important to note that Phase 5 is not included within the scope of this study.

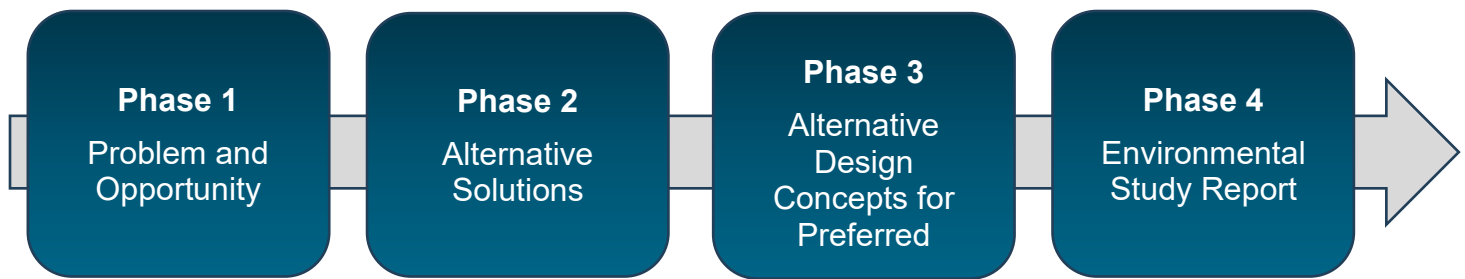


Figure 2-2: Schedule C Class EA Process

2.2.1 Environmental Study Report

This ESR has been prepared to fully document the Class EA process followed in accordance with the requirements for a Schedule 'C' project. It describes the problem/opportunity being addressed, provides a comprehensive description of the study area's existing conditions related to project constraints and considerations, details the alternative solutions and the methods by which they were evaluated, and presents the preferred design solution. Also discussed in relation to the preferred solution are the potential environmental, social, cultural, and economic impacts, recommended impact mitigation measures, monitoring requirements, and other future work commitments.

Upon completion of the Environmental Study Report, the report is placed on public record for a minimum of 30 calendar days to allow for review. A Notice of Completion, signaling the start of this review period, has been made available on the City's website (Brantford.ca/WGPEExtension) and sent directly to local stakeholders, residents, technical agencies, First Nations and other interested parties as noted on the project mailing list. During the 30-day review period, hard copies of the report can be provided upon request.

2.2.2 Section 16 Order Requests

The Class EA process incorporates an appeal mechanism, where the Minister of the Environment, Conservation and Parks holds the authority to issue an Order under Section 16 of the Environmental Assessment Act. This Section 16 Order grants the Minister the discretion to mandate the proponent of a project undergoing the Class EA process to:

- Undertake an Individual EA (s. 16(1) of the order) to obtain approval before proceeding with the project;
- Fulfill additional requirements beyond those specified in the Class EA, which may encompass conditions such as further studies, ongoing monitoring, and/or additional consultation (s. 16(3) of the order), or
- Issue an order within 30 days giving a Notice of Satisfactory Response which permits the proponent to proceed with the project.

If a request for a Section 16 Order is submitted, the project proponent cannot proceed with the project until the Minister reaches a decision on the request.

Section 16 (6) Order request can be submitted to the “Minister of Environment, Conservation and Parks on the grounds that the order may prevent, mitigate or remedy adverse impacts on the existing Aboriginal and treaty rights”. The Minister will not consider any requests that are not based on these grounds. The Section 16 Order process has also been amended to include an additional 30-day window for the Ministry to decide if the Minister should take any action. During the additional 30 days the Minister will decide if the project will be elevated (Section 16 Order granted) or if it will be approved with conditions. If the Minister advises the proponent that the project will be approved but with conditions, the Minister has more time to draft these conditions. If there is no response from the Minister within the additional 30-days, the proponent may proceed with the project.

A Section 16(6) Order request cannot be filed solely for the purpose of delaying or halting the planning and execution of a project within the Class EA process. Before submitting a Section 16(6) Order request, the concerned party should make every effort to address any issues directly with City of Brantford.

The Notice of Completion advises the public and other stakeholders of their right to request a Section 16 Order, outlining the procedures, timelines, and submission requirements for such a request. For further information regarding Section 16 Order Requests, visit MECP’s website at the following address: [Section 16 Order Requests](#).

2.3 Canadian Environmental Assessment Act

Under the Canadian Environmental Assessment Act, 2012 (CEAA, 2012), a federal environmental assessment may be required for projects that fall under the “designated project” category, as outlined in the project list of the Regulations Amending the Regulations Designating Physical Activities, 2013. This list helps ensure that federal environmental assessments are concentrated on major projects with the highest potential for significant adverse environmental impacts on matters of federal jurisdiction.

The Wayne Gretzky Parkway North Extension EA study does not constitute a “designated project” and is therefore not subject to an environmental assessment under the CEAA (2012).

3.0 Problem and Opportunity Statement

The Wayne Gretzky Parkway is a major arterial roadway that serves the City of Brantford (City) as a significant north-south travel route for accessing the Alexander Graham Bell Parkway (Highway 403).

The North Expansion Lands, north of Powerline Road, are anticipated to have high population and employment growth that require increased traffic capacity on the existing transportation network. The Transportation Master Plan Update (TMP 2020) identified the extension of Wayne Gretzky Parkway north of Powerline Road to provide relief to the anticipated (2051) capacity constraints to:

- service future growth;
- provide capacity relief to the King George Road corridor and north/south travel demands for the North Expansion Lands, and
- be consistent with the future vision for the area and proposed adjacent developments.

The project presents an opportunity to optimize the transportation network to accommodate the current and future travel demands, while minimizing potential impacts to the environment and climate change by:

- extending the Wayne Gretzky Parkway north of Powerline Road;
- providing a parallel route to connect travel demand back to the Highway 24 corridor for inter-regional travel via Governors Road and future provincial connecting link roadways; and,
- improving multi-modal connectivity and enhancing active transportation infrastructure to improve pedestrian and cycling travel choices.

4.0 Consultation Process

4.1 Consultation Approach

Consultation is a key component of the Class EA process, especially for Schedule “C” projects. Engaging with members of the community, right holders and stakeholders was essential to gather balanced and objective feedback on the study, which was then incorporated into the evaluation and identification of the recommended preferred solution(s) and design concept(s).

- A consultation program was developed specifically for this study under the following basis;
- Present clear and concise information at key stages of the study process;
- Solicit community, regulatory and municipal staff input;
- Identify concerns related to the undertaking;
- Consider stakeholder comments when developing the technically preferred solution, and
- Meet Class EA consultation requirements.

Consultation early and throughout the Class EA process attempts to meet the growing expectation on the part of the public that they will be consulted regarding decisions made by public decision-making bodies.

All communication and consultation throughout the study will be carried out in accordance with the Accessibility for Ontarians with Disabilities Act (AODA).

4.1.1 Stakeholder Contact List

At the onset of the study (Phase 1), a Stakeholder Contact List was developed and updated regularly throughout the project to ensure accurate and current information, including additions, removals, and revisions as needed.

The contact list included:

- Federal and Provincial Agencies and Stakeholders;
- Municipal and County of Brant Staff;
- City Mayor, Council, Committees and Neighbourhood Associations;
- Member of Parliament;
- Member of Provincial Parliament;
- Potentially affected First Nations;

- Conservation Authority (GRCA);
- Emergency services;
- Utilities;
- School boards and school bus transportation;
- Development Communities (Block Plan Developers);
- Interest groups; and
- Nearby residents, property owners, and local businesses.

The Stakeholder Contact List is provided in Appendix A.

All identified stakeholders were contacted throughout the duration of the study via notices and Public Information Centres. Workshop meetings were also held with the following major stakeholders, as further discussed in Section 4.3:

- County of Brant;
- Grand River Conservation Authority;
- Development Communities;
- Potentially affected Property Owners (Park Road North and Powerline Road), and
- Utility companies through Municipal Consent process.

First Nations consultation was conducted for this study in accordance with the City's Indigenous communication and engagement policies, as outlined in Section 4.4. The following First Nations were consulted and engaged throughout the Class EA study:

- Mississaugas of the Credit First Nation (MCFN), and
- Six Nations of the Grand River (SNGR).

4.1.2 Study Website

A study website (Brantford.ca/WGPExtension) was created for the study and launched in May 2023, to coincide with the issuance of the Notice of Study Commencement. The study website was updated throughout the course of the study and provided information on the study background, study notifications, links to related studies, frequently asked questions (FAQ), ways to get involved, Public Information Centre (PIC) presentations and contact information to allow those interested in the study an opportunity to contact the project team.

4.2 Project Notifications

Key consultation events were conducted throughout the study to promote transparency, inform agencies and stakeholders, and encourage public participation. A summary of the key notifications circulated during the study is provided in Table 4-1.

Table 4-1: Class EA Notifications

Notifications	Date
Notice of Study Commencement	May 4, 2023
Notice of Public Information Centre #1	February 7, 2024
Notice of Public Information Centre #2	September 12, 2024
Notice of Completion	January 8, 2026

All notices were sent out via email and/or mailout through Canada Post, as required. Notices were also posted on the City of Brantford's website, and other social media platforms in consultation with the City's communication guidelines. The notices were also published in the following local newspapers:

- Civic News via Expositor Brantford;
- Two Row Times, and
- Turtle Island News

Notices were also distributed to First Nations throughout the study, in accordance with the guidance provided by the City and the Ministry of the Environment, Conservation and Parks (MECP) in response to the Notice of Study Commencement. Further details regarding the consultation with First Nations are outlined in Section 4.4.

All notifications are included in Appendix B, while all consultation responses, including emails exchanged by the project team and a corresponding summary table, are provided in Appendix C for Agencies and Stakeholders.

4.2.1 Notice of Study Commencement

A Notice of Study Commencement was issued on May 4, 2023, to the stakeholder contact list and posted on the City's website and social media. The notice was also distributed through a Canada Post mail drop on May 4, 2023, and published in local newspapers as outlined in Table 4-2:

Table 4-2: Notice of Commencement Newspaper Advertisements

Newspaper	Date
Civic News via Expositor Brantford	May 4 and 11, 2023
Two Row Times	May 4 and 11, 2023
Turtle Island News	May 4 and 11, 2023

Following the study commencement, any individual who expressed interest in the project and requested, were added to the project mailing list (mail or email) to receive regular updates on the study progress.

4.2.2 Public Information Centre #1

In compliance with the Class EA process, the City and Egis hosted an in-person Public Information Centre (PIC) #1 on February 21, 2024, from 5:00 to 7:00 pm, at the Walter Gretzky Municipal Golf Course, 320 Balmoral Drive, in Brantford, Ontario. A formal presentation was delivered by Egis at 5:15 pm followed by an open question-and-answer period.

The Notice of PIC was distributed via email on February 7, 2024, to the stakeholder contact list and posted on City's website and social media. The notice was also circulated via email to City Council and MP/MPP on February 7, 2024. The notice was also distributed through a Canada Post mail drop on February 7, 2024, and published in local newspapers as outlined in Table 4-3.

Table 4-3: Notice of Public Information Centre #1 Newspaper Advertisements

Newspaper	Date
Civic News via Expositor Brantford	February 10, 2024
Two Row Times	February 14, 2024
Turtle Island News	February 14, 2024

Prior to the PIC, a list of Frequently Asked Questions (FAQ) was posted on the City's website to provide additional information and clarification, as well as the PIC presentation was made available on the City's website ([Brantford.ca/WGPExtension](https://brantford.ca/WGPExtension)) to provide information and allow further opportunity for public input and comment.

Approximately 25 members of the public attended the in-person PIC, in addition to City staff and Councillors. Regrettably, there were no attendees from the First Nations at the PIC. At this time, we have received a total of 16 comments, one (1) written comment sheet, three (3) emails and the remainder during the PIC open discussion following the presentation.

The purpose of the in-person PIC #1 was to share information related to the study background, Class EA process, existing study area conditions, project overview and understanding, evaluation of alternative solutions, identify recommended alternative solution and next steps in the Class EA process, as well as provide an opportunity for attendees to share comments and concerns pertaining to the study.

Members of the public were encouraged to provide feedback on the Study via comment sheets provided at the PIC or by submitting an email following the PIC #1. No comment deadline was provided to ensure lines of communication remained open throughout the Class EA process.

Key public feedback received from PIC #1 is summarized as follows:

- Traffic concerns on Powerline Road and Park Road North relating to the construction of the new high school.
- Concerns with the implementation of roundabouts and the ability for transport trucks and farming equipment to navigate them.
- Several residents expressed concerns pertaining to increased noise levels from increased traffic volumes, as well as construction related impacts.
- Concerns with current traffic noise levels along Wayne Gretzky Parkway south of Powerline Road. The extension will undoubtedly bring more traffic and noise, as will increased traffic on Powerline Road feeding onto the parkway with the construction of the new high school.
- Several residents expressed their concerns and frustrations with respect to the timing of the Powerline Road and Wayne Gretzky Parkway Extension studies and implementation. They questioned why the studies and proposed construction of an extension and infrastructure improvements were not completed prior to the construction of the new high school.
- Several concerns were raised pertaining to the new high school such as safe access of the students (i.e., lack of sidewalks/Multi-use Pathways (MUP) along Powerline Road), bus parking, access during construction, etc. for the new school until the completion of Park Road North and Wayne Gretzky Extension.

Comments were considered in assessing and understanding the existing conditions, needs, and opportunities for the proposed extension. They were also used in the development of

alternative solutions, evaluation criteria, and in completing the evaluation of alternative solutions.

The Notice of PIC, presentation material, formal written comments and corresponding summary table can be found in Appendix E.

4.2.3 Public Information Centre #2

In compliance with the Class process, the City and Egis hosted an in-person Public Information Centre (PIC) #2 on October 2, 2024, from 5:00 to 7:00 pm, at the Walter Gretzky Municipal Golf Course, 320 Balmoral Drive, in Brantford, Ontario. A formal presentation was delivered by Egis at 5:15 pm followed by an open question-and-answer period.

The Notice of PIC was distributed via email on September 12, 2024, to the stakeholder contact list and posted on City’s website and social media. The notice was also circulated via email to City Council and MP/MPP on September 13, 2024. The notice was also distributed through a Canada Post mail drop on September 12, 2024, and published in local newspapers as outlined in Table 4-4.

Table 4-4: Notice of Public Information Centre #2 Newspaper Advertisements

Newspaper	Date
Civic News via Expositor Brantford	September 12, 2024
Two Row Times	September 18, 2024
Turtle Island News	September 18, 2024

Prior to the PIC, a list of FAQ was posted on the City’s website to provide additional information and clarification, as well as the PIC presentation was made available on the City’s website (Brantford.ca/WGPExtension) to provide information and allow further opportunity for public input and comment.

Approximately fourteen (14) members of the public attended the in-person PIC, in addition to City staff and Councillors. Regrettably, there were no attendees from the First Nations at the PIC. At this time, we have received a total of five (5) comments, one (1) written comment sheet, four (4) emails and the remainder during the PIC open discussion following the presentation.

The purpose of the in-person PIC #2 was to share information related to updated study background, Class EA process, project overview and understanding, evaluation of alternative design concepts including alignments and intersection control methods, identify recommended

design concepts and next steps in the Class EA process, as well as provide an opportunity for attendees to share comments and concerns pertaining to the study.

Members of the public were encouraged to provide feedback on the Study via comment sheets provided at the PIC or by submitting an email following the PIC #2. Similar to previous PIC, no comment deadline was provided to ensure lines of communication remained open throughout the Class EA process.

Key public feedback received from PIC #2 is summarized as follows:

- Inquiries pertaining to the ownership of the land North of Powerline Road;
- General concerns pertaining to potential property impacts along Park Road North and Powerline Road with the extension of Wayne Gretzky Parkway;
- Inquiries regarding pedestrian, cycling facilities and other Active Transportation Infrastructure;
- The estimated timeline for the design process and construction.
- Inquiry as to why the proposed extension parallel to Park Road North, crossing Lower Jones Creek was eliminated in Phase 2 of the study;
- In favour of a roundabout at the intersection of Park Road North and Powerline Road;
- The submission of the Stage 1 Archaeological Assessment to the Ministry of Citizenship and Multiculturalism (MCM); and,
- Opposition to the recommended preferred design concept.

Comments were considered in assessing and understanding the needs, and opportunities for the proposed extension. They were also used in the development of design concepts, evaluation criteria, and in completing the evaluation of design concepts.

The Notice of PIC, presentation material, formal written comments and corresponding summary table can be found in Appendix E.

4.2.4 Notice of Completion

Following MECP review of the ESR, a Notice of Study Completion will be issued to the stakeholder contact list and posted on the City's website and social media. The notice will be distributed through a Canada Post mail drop and published in local newspapers as outlined in Table 4-5.

Table 4-5: Notice of Completion Newspaper Advertisements

Newspaper	Date
Civic News via Expositor Brantford	January 8, 2026
Two Row Times	January 14, 2026
Turtle Island News	January 14, 2026

The Notice of Completion will be issued to announce the start of the 30-day public review period for the Environmental Study Report (ESR) prepared as part of this study. It will inform interested parties that they can submit comments to the project team within 30 calendar days from the beginning of the review period. The notice will also indicate that a Section 16 request can be made to the MECP to seek an order for a more detailed study (i.e., an individual or comprehensive EA approval) or to impose conditions (e.g., requiring additional studies). Such requests will only be considered on the grounds that they “may prevent, mitigate, or remedy adverse impacts to constitutionally protected Aboriginal and treaty rights.” Requests based on other grounds will not be considered.

Responses received during the 30-day public review period will be summarized in the ESR following the review period.

4.3 Stakeholder Workshop Meetings and Consultation

Key City staff, County of Brant (County), Grand River Conservation Authority (GRCA), Development Communities, and potentially impacted residents were consulted throughout Phase 1 to 4 of the Class EA process. Key milestone meetings were as follows (Table 4-6).

Table 4-6: Agencies, Stakeholders and Public Meetings

Meeting	Attendees	Date
Start-up Meeting	City of Brantford	March 8, 2023
	GRCA and County	June 14, 2023
	Development Community	June 22, 2023
Site walkthrough	City Staff, County, and GRCA	July 18, 2023
Phase 2 Workshop	City, County, and GRCA	October 4, 2023
Phase 2 Workshop	Development Community	October 19, 2023
Phase 2 Workshop	Park Road North Residents	November 2, 2023

Meeting	Attendees	Date
Phase 3 Workshop	City, County, and GRCA	July 24, 2024
	Development Community	July 25, 2024
	Park Road North Residents	August 14, 2024

4.3.1 Start-up Meetings

A start-up meeting was hosted by the City PM and Egis to introduce the study, and to provide and an opportunity for attendees to participate in the project's planning process and provide input/feedback. Meeting minutes were prepared for each start-up meetings, distributed to the attendees, and can be found in Appendix F.

4.3.2 Site Walkthrough

On July 18, 2023, a site walkthrough was conducted with representatives from the City of Brantford, County, GRCA, and Egis. The walkthrough began at the intersection of Wayne Gretzky Parkway and Powerline Road and concluded at the Lower Jones Creek culvert crossing on Park Road North. The purpose was to assess existing conditions, review key features along the route, and identify considerations for the proposed study. This collaborative effort provided a comprehensive understanding of the study area and allowed all parties to discuss and address any concerns or observations.

4.3.3 Phase 2 Workshops

Phase 2 workshop meetings were organized to provide stakeholders with the opportunity to review the results of investigative findings, proposed alternative solutions, and evaluation criteria, as well as to offer input on the study area. These workshops served as a platform for attendees to engage in detailed discussions and provide feedback, which was instrumental in enhancing the understanding of existing conditions. The insights gathered from the workshops were crucial in identifying key needs and opportunities for the potential extension of Wayne Gretzky Parkway and played a significant role in guiding the development and evaluation of alternative solutions. Key feedback received through the Phase 2 workshop meetings is summarized in Table 4-7.

Table 4-7: Stakeholder Key Feedback Phase 2 Workshop Meetings

Stakeholder	Comments/Concerns
City Staff County of Brant GRCA	The City's Project Development team noted the Catholic high school (and daycare) within Centre Block should proceed prior to the approval of the central block plan. The anticipated opening is in September 2026. Main access will be from Powerline Road and Old Farm Road. A second temporary access to Park Road North is being recommended to provide an alternative route to the school during construction along Powerline Road.
	It was noted that complaints have been received from residents along Park Road North, north of Powerline Road, regarding current traffic volumes, as well as future traffic volumes resulting from the North Expansion Lands development. The City requests that criteria be updated to reflect the concerns of existing residents under Land Use and Property Impacts (Social Environment), with specific attention given to resident input.
	Densities in the Official Plan represent minimum targets. It is anticipated that densities will be increased, potentially up to double the levels outlined in the Official Plan.
Development Communities	Development Communities noted their concept block plans are being drafted and include the transportation network, public uses, and developable areas. It is anticipated that the draft block plans will be ready for circulation by the first or second week of November.
	Natural heritage, and archaeological reports were being finalized and awaiting a response from the Ministry. Once they've received a response, reports will be shared with First Nations and Egis.
	It was noted that the north side of the proposed east-west collector road would most likely not be a second intersection, but they can consider other options such as a Cul-De-Sac.

Stakeholder	Comments/Concerns
Park Road North Residents	Inquiries were made regarding the location of the alignment for the Wayne Gretzky Parkway Extension, along with concerns about potential impacts on existing residential dwellings along Park Road North.
	Property owners proposed extending Wayne Gretzky Parkway north behind the Park Road North properties, with the road extension reconnecting to Park Road North just beyond the last property before the creek. This approach would allow all residents to remain along Park Road North.
	Local businesses raised concerns about their ability to operate if the road were to pass through their property lines.
	Coordination of construction timing is necessary to ensure the Wayne Gretzky Parkway North Extension can be completed concurrently with the development of the new school.
	Residents expressed concerns about traffic volumes and noise along Park Road North, north of Powerline Road, as well as anticipated future traffic volumes resulting from the North Expansion Lands development.

Meeting minutes were prepared for each workshop meeting, distributed to the attendees, and can be found in Appendix F.

4.3.4 Phase 3 Workshops

Phase 3 workshop meetings were convened to offer stakeholders an opportunity to review the results of updated and supplementary investigations, as well as proposed design concepts, including alignment options and intersection control strategies. Attendees were also invited to provide feedback on the recommended design concepts. The input gathered during these sessions played a critical role in evaluating the current conditions, identifying areas for improvement, and refining both the design concepts and the associated evaluation criteria. Key feedback received through the Phase 3 workshop meetings is summarized in Table 4-8.

Table 4-8: Stakeholder Key Feedback Phase 3 Workshop Meetings

Stakeholder	Comments/Concerns
City Staff County of Brant GRCA	GRCA noted that the further the setback from Lower Jones Creek, the less concern they have regarding slope stability issues.
	GRCA mentioned that moving the intersection with the east-west collector further north would create additional constraints for the Powerline Road East Block Plan, as it falls under GRCA's regulatory requirements.
	The City acknowledged public concerns regarding transport trucks navigating roundabouts.
	The City suggested that one alternative could be for the Development Communities to consider property swaps for individuals who do not wish to relocate.
	The City recommended an Alternative 6, which would involve refining Alternative 3 to align with the plans in the Powerline Central Block Plan.
	The County expressed a preference for Alternative 3
Development Communities	- Arutip Engineering inquired if one of the controls in the Environmental Assessment (EA) is avoiding a new crossing at Lower Jones Creek. - Egis stated that crossing the Lower Jones Creek was ruled out during Phase II due to environmental concerns, First Nations, and engineering issues.
	- Arutip Engineering inquired about stormwater management measures and facilities. - Stormwater management for the road drainage is being taken into consideration, but details regarding location and partnerships will be identified during Preliminary/Detail Design.
	Stafford Homes noted their team is currently examining slope stability per the GRCA's requirements.

Stakeholder	Comments/Concerns
Development Communities (cont.)	- Arutip Engineering inquired if the preference is roundabouts over signalized intersections. - Roundabouts are preferred over signalized intersections from an operational standpoint, however no final decisions have been made at this time.
	- Stafford Homes inquired if the project team reviewed combining signalized intersections and roundabouts. - Standard practice to implement one type of intersection treatment rather than both.
	Mattamy Homes inquired about the possibility of eliminating Park Road North between the east-west collector and Powerline Road.
	Arutip Engineering confirmed Alternative 3 as their preference because it mimics what is shown in their Block Plans.
Park Road North and Powerline Road Residents	A property owner reported experiencing flooding during storm events and inquired whether this could be linked to the environmental assessments and developments in the area.
	A resident requested that the traffic counts from the Traffic Impact Study conducted for the Powerline East Block Plan be included in the Traffic Impact Study for this Environmental Assessment.
	Several residents raised concerns about traffic speeds on Park Road North.
	A resident expressed a preference for signalized intersections over roundabouts, citing ease of maneuverability for their trucks.
	A resident voiced concerns about obstructed views on both sides of Park Road North, as well as an increase in noise levels.

Stakeholder	Comments/Concerns
Park Road North and Powerline Road Residents (cont.)	Several residents expressed worries that the extension could negatively affect their property values and requested the City assess the potential impact on their home values without the Wayne Gretzky Parkway extension.
	A resident highlighted that the project would also have impacts on their livelihood, as their business has been operating at this location for thirty years.
	A resident asked about the status of the Highway 424 project, which aims to connect Highway 401 and Highway 403, linking Brantford and Cambridge.

Meeting minutes were prepared for each workshop meeting, distributed to the attendees, and are included in Appendix F.

4.3.5 Phase 4 Meetings and Presentations

A Phase 4 workshop will be scheduled with the City to review and present the findings of the ESR. The workshops will provide an opportunity for City Staff to discuss the findings, provide feedback, and ensure alignment with the proposed recommendations and considerations for the study.

4.3.5.1 Council Presentation

A Committee of Whole was held on May 13, 2025, followed by a City Council meeting on May 27, 2025, where a report was presented on the for the Wayne Gretzky Parkway North Extension EA. Borth City Council and the Committee of Whole had the opportunity to ask questions regarding the EA consultation, public engagement, the project impacts and provide feedback on the recommended alternative solution and design concept.

The City Council and Committee of the Whole approved moving forward with the release of the ESR and issuing a public notice for the final public review period. This period gives the public, First Nations and review agencies, stakeholders, developers, interested parties and the public an opportunity to review the ESR and provide feedback on the project's planning process, potential impacts and proposed mitigation measures.

4.4 First Nation Engagement

4.4.1 Consultation Approach

Engaging with First Nations was an important way of acknowledging interest in the stewardship of their heritage. The City of Brantford and Egis worked collaboratively with First Nations throughout this study to provide information, solicit input, and gather perspectives on the evaluation of alternatives and design concepts. This collaboration aimed to:

- Regular consultation through the study fostered trust and positive relationships between the City, project team and First Nations, ensuring open communication and understanding;
- Engaging with First Nations ensures that their rights, cultural practices, and traditional knowledge are respected and integrated into the decision-making process;
- Allow the project team to share information pertaining to the Class EA study, and
- Collaboration allows First Nations to provide input on environmental, social, and cultural factors that may be impacted by the project, ensuring these considerations are properly addressed and mitigated.

In alignment with City Council directives and the City's Indigenous communication and engagement policies, this study engaged the MCFN and SNGR.

First Nations who may have an interest in the study area were also confirmed through correspondence from MECP's response letter to the Notice of Commencement. Through this letter, MECP delegated the procedural aspects of right-based consultation to the City. Under current City Council directives, the City consults with the Six Nations of the Grand River Elected Council, as the elected officials of the Haudenosaunee Nation. All engagement with the Haudenosaunee Confederacy Chiefs Council (HCCC) or the Haudenosaunee Development Institute (HDI) is deferred through the Six Nations of the Grand River Elected Council.

At the outset of the study, both MCFN and SNGR expressed strong interest in participating in the Class EA process. They requested to receive project updates and notifications, take part in workshop meetings, attend site visits related to natural environment and archaeological assessments, and have the opportunity to review study reports and the ESR throughout the duration of the process.

The City of Brantford was committed to maintaining regular communication with MCFN and SNGR throughout the study to foster and strengthen relationships between First Nations.

4.4.2 Notifications

All notifications, including the Notice of Study Commencement, Notice of Public Information Centres, and Notice of Completion, were circulated to First Nations via both email and mail. Prior to the issuance of the Notice of Study Commencement, the City engaged in consultation with First Nations to inform them about the upcoming Class EA. First Nations were formally invited to participate in the study by submitting feedback through direct correspondence with the project team and by engaging in the online Public Information Centre. To ensure consistent and coordinated outreach throughout the process, all written communication with First Nations was managed by the City of Brantford. A summary of the key notifications distributed to First Nations is provided in Table 4-9 and included in Appendix D.

Table 4-9: First Nations Notifications

Notifications	Date
Notice of Study Commencement	May 4, 2023
Notice of Public Information Centre #1	February 7, 2024
Notice of Public Information Centre #2	September 13, 2024
Notice of Completion	TBD

Additionally, invitations were extended to MCFN and SNGR to designate a representative to attend and participate in the Natural Heritage and Stage 1 & 2 Archaeological Assessment field investigations, where they would have the opportunity to observe, provide input, and ensure their perspectives were considered throughout the investigations.

Table 4-10: First Nations Field Work Notifications

Consultation Event	Date
Notification of Natural Heritage Field Investigation (email)	July 21, 2023
Notification of Stage 1 Archaeological Assessment (email)	August 3, 2023
Natural Heritage Field Investigation – Attended by SNGR	August 2, 2023
Stage 1 Field Visit – Attended by SNGR	August 9, 2023

Consultation Event	Date
Notification of Stage 2 Archaeological Assessment	November 12, 2024, November 19, 2023 and November 21, 2023
Stage 2 Field Investigation – Attended by SNGR and MCFN	November 25 and 29, 2025

MCFN respectfully declined the invitation to attend the Natural Heritage and Stage 1 Archaeological Assessment. However, MCFN requested to receive copies of the draft Natural Heritage Assessment and Stage 1 & 2 Archaeological Assessment reports for their review. The City circulated the reports to First Nations at key milestones through the study.

4.4.3 Workshop Meetings and Consultation

Key milestone meetings were scheduled with MCFN and SNGR throughout Phases 1 through 4 of the study. Detailed meeting minutes were prepared for each session and distributed to the First Nations. These meeting minutes are included in Appendix F.

4.4.3.1 Start-up Meetings

A start-up meeting was held on June 19, 2023 with SNGR to introduce the study, and to provide and an opportunity for SNGR to participate in the project's planning process and provide input/feedback. MCFN respectfully declined the invitation to attend a start-up meeting. Key feedback received from SNGR is summarized in Table 4-11.

Table 4-11: First Nations Key Feedback Startup Meeting

First Nations	Comments/Concerns
Six Nations of the Grand River	SNGR indicated that the environment and preserving environmental features should be placed first and a new crossing be avoided if possible.
	A key consideration for the Wayne Gretzky Parkway north extension should be conservation of the natural environment. Natural heritage consists of all plants, wildlife, fish, species at risk (SAR) and non-human beings.
	SNGR requested that during the evaluation process of the alternative solutions /design concepts, that environmental

First Nations	Comments/Concerns
	criteria be given a higher weighting in relation to other criteria. SNGR indicated that there may be no known species at risk within the area, however, it is noted that all species are worth protection regardless of protection status.
	• SNGR requested that should a crossing be recommended over Lower Jones Creek, consideration should be given to waterway conservation and restoration such as planting trees, creating habitats (bat/bird boxes, logs for turtles, etc.), as well as considering softer erosion control techniques (green techniques) in place of other forms of mitigation such as ripraps.

4.4.3.2 Phase 2 Workshops

Phase 2 workshop meetings were held with SNGR on November 2, 2023, in person, and with MCFN on November 9, 2023, virtually, to provide both groups with an opportunity to review the results of investigative findings, proposed alternative solutions, and evaluation criteria, as well as to offer input on the study area. These workshops facilitated in-depth discussions and allowed participants to provide valuable feedback, which significantly contributed to the understanding of existing conditions. The insights gathered were essential in identifying key needs and opportunities for the potential extension of Wayne Gretzky Parkway and played a pivotal role in guiding the development and evaluation of alternative solutions. Key feedback and/or concerns received through the Phase 2 workshop meetings is summarized in Table 4-12.

Table 4-12: First Nations Key Feedback Phase 2 Workshop Meeting

First Nations	Comments/Concerns
Mississaugas of the New Credit First Nation	• MCFN stated they appreciate that the Natural Environment was weighed highly.
	• Based on feedback from First Nations and other stakeholders, the “First Nations” category will be updated to include sustenance species, harvesting, and seedlings, as well as the Social Environment category to include First Nations Land.

First Nations	Comments/Concerns
Six Nations of the Grand River	• SNGR noted concerns about butternut trees present in the study area and inquired if an assessment would be completed.
	• SNGR expressed interest in reviewing the list of plants collected during field investigations
	• SNGR requested that all mitigation measures for Chimney Swifts be applied and emphasized their preference for mitigation measures that enhance habitat for all species.
	• SNGR indicated that if the preferred alignment impacts the creek bed, they would like it to be classified as a Cultural
	Heritage Landscape (CHL), due to the First Nations' use and the economic value of the natural features
	• SNGR stated that they appreciate the high weighting given to the Natural Environment.

4.4.3.3 Phase 3 Workshops

Phase 3 workshop meetings were held with MCFN on August 12, 2024 virtually and with SNGR on August 14, 2024, in person, to provide both groups with an opportunity to review the results of additional investigative findings, proposed design concepts, and evaluation criteria, as well as to offer input on the study area. These workshops facilitated in-depth discussions and allowed participants to provide valuable feedback, which significantly contributed to the selection of the preferred design concept. Key feedback and/or concerns received through the Phase 3 workshop meetings is summarized in Table 4-13.

Table 4-13: First Nations Key Feedback Phase 3 Workshop Meeting

First Nations	Comments/Concerns
Mississaugas of the New Credit First Nation	• MCFN inquired about the location of the Butternut trees and whether they'll be impacted.
	• MCFN inquired about a Multi-Use Pathway/trail infrastructure for the school.

First Nations	Comments/Concerns
	MCFN inquired about the types of transportation modes that will be eligible on Wayne Gretzky Parkway.
	MCFN inquired about the timeline for Stage 2 Archaeological Assessment.
	The Stage 2 Archaeological Assessment fieldwork is anticipated for Fall 2024.
	MCFN noted their preference for Alternative 3.
Six Nations of the Grand River	SNGR inquired about the offset of buffer distance between the proposed alignments and Lower Jones Creek, expressing their preference for a 60-meter buffer.
	SNGR noted that they heard an Eastern Wood-Pewee in the study area during the initial natural heritage field investigation.
	SNGR noted that the project team should take into consideration species outside of legislative requirements.
	SNGR inquired about the number of Whitetail Deer captured within the study area.
	The City of Brantford stated they will be seeking SNGR's input and comments on the Terrestrial Impact Assessment (IA).
	SNGR requested a meeting to strictly review the Terrestrial IA Report with Egis's natural science team.
	The City of Brantford noted no comments have been received from SNGR on the Stage 1 Archaeological Assessment.
	SNGR expressed concern about the Butternut trees and requested that the proposed alignments be adjusted to avoid impacting.
	SNGR inquired about the measurement for the setbacks for the Butternut.

4.4.3.4 Phase 4 Workshops

In Phase 4, MCFN and SNGR were provided with a courtesy preview of the draft ESR for any additional input or comments prior to issuance of the Notice of Study Completion. The written reviews by MCFN and SNGR were supported by the proponent to fully accommodate the Indigenous communities' staff time, resources and workflow scheduling. The City and Egis worked diligently to review and address all comments received during this review period.

Key feedback and/or concerns received through First Nations review of the draft ESR is summarized in Table 4-14.

Table 4-14: First Nations Key Feedback on Draft ESR

First Nations	Comments/Concerns
Mississaugas of the New Credit First Nation	Questions regarding water quality monitoring in Jones Creek and potential impacts from stormwater runoff.
	Inquiries about flooding risk, including consideration of events exceeding the 100-year flood and full build-out conditions.
	Requests for clarification on maintenance duration and locations of new plantings, including hedgerow trees.
	Interest in reviewing compensation planting details during the detailed design phase.
	Suggestions to consider potential enhancements to the natural heritage system at Cold Spring.
Six Nations of the Grand River	Support for the preferred alignment and avoidance of Lower Jones Creek crossing, while emphasizing the need for comprehensive mitigation to address remaining environmental impacts
	Concern regarding stormwater management, with a clear preference to avoid direct discharge into natural watercourses and protect water quality, hydrology, and drinking water sources.

First Nations	Comments/Concerns
	Requests for clarification on buffers/setbacks to woodlands, wetlands, creeks, and groundwater features, with a consistent recommendation for a 60 m setback.
	Emphasis on expanding wildlife studies beyond Species at Risk to include all wildlife, using multi-season and multi-year surveys to inform mitigation.
	Significant concern regarding inadequate herpetofauna (reptiles and amphibians) surveys and strong recommendations for targeted surveys and mitigation measures.
	Requests for proactive, holistic mitigation that exceeds minimum legislative requirements and applies the full mitigation hierarchy (avoid, minimize, mitigate, offset).
	Concerns regarding vegetation removal, tree and snag loss, and impacts to wildlife habitat, including requests for higher tree and snag replacement ratios.
	Interest in culturally significant plant species, seed collection, and early access for Indigenous-led harvesting and restoration activities.
	Requests for clear, detailed wildlife mitigation measures, including eco-passages, exclusion fencing, habitat compensation, and timing of installation prior to construction.
	Requests for clarification on alignment evaluation, weighting of natural environment criteria, and justification for the preferred alternative.
	Support for native planting, pollinator meadows, invasive species management, and long-term maintenance and monitoring commitments.
	Requests for detailed erosion and sediment control measures, frequent inspections, and accountability during construction.

First Nations	Comments/Concerns
	• Strong emphasis on long-term post-construction monitoring (5–10 years), with adaptive management triggers to assess mitigation effectiveness.
	• Encouragement for continued engagement, transparency, and collaboration with Six Nations through EA completion, design, construction, and monitoring phases.

The City and Egis prepared formal written responses to the comments received from MCFN and SNGR and circulated these responses back to each community for their review and consideration. The City is committed to continuing to maintain regular communication with MCFN and SNGR throughout the remainder of the MCEA process and throughout the preliminary and detailed design phases.

5.0 Planning and Policy Content

Prior to developing solutions to address the study requirements for the Wayne Gretzky Parkway Extension, it is important to understand the needs of the corridor. In establishing the project need and defining the study problem statement, this section identifies the study area conditions within a planning policy context. This report has been prepared to address policies and guidelines from legislation relevant to municipal development within the City of Brantford.

5.1 Federal Policies

5.1.1 Species at Risk Act

The Species at Risk Act (SARA) prohibits the killing, harming, harassing, capturing, or taking of an individual of a species that is listed as an extirpated, endangered, or threatened species in Schedule 1 of the Act. It also prohibits the damage or destruction of the habitat of a species that is listed as endangered or threatened; or extirpated species provided that a recovery strategy has recommended the reintroduction of the extirpated species into the wild in Canada. SARA applies primarily to Federal lands, except for migratory birds and aquatic species which are protected throughout Canada by other acts and regulations (see below).

5.1.2 Migratory Bird Convention Act

The federal Migratory Birds Convention Act, 1994 (MBCA) protects migratory birds and their nests (S.4). Published in Part 1 of the Canada Gazette on June 1, 2019, proposed updates to the MBCA Regulations were released. Proposed prohibitions under the Regulations are as follows:

Section 5 (1) – A person who does not hold a permit authorizing one or more of the following activities or who is not otherwise authorized by these Regulations to carry out that activity must not:

- a) Capture, kill, take, injury or harass a migratory bird;
- b) Destroy, take or disturb an egg; or
- c) Damage, destroy, remove, or disturb a nest, nest shelter, eider duck shelter or duck box.

Proposed exemptions under the Regulations are as follows:

Section 5 (2) – However, the following may be damaged, destroyed, removed or disturbed without a permit:

- a) A nest shelter, eider duck shelter or duck box that does not contain a live bird or viable egg;
- b) A nest that was built by a species that does not appear in a Table to Schedule 1 if that nest does not contain a live bird or a viable egg; and
- c) A nest that was built by a species that appears in a Table to Schedule 1 if the following conditions are met:
 - i. The person who damages, destroys, removes or disturbs that nest provided written notice to the Minister a number of months beforehand that corresponds to the number of months set out in column 4 of the relevant Table to that schedule for the species, and
 - ii. The nest has not been used by migratory birds since the notice was received by the Minister.

5.1.3 Fisheries Act

The Fisheries Act protects fish and fish habitats (s34) within Canadian waters. Under the recently amended fish and fish habitat protection provisions of the Fisheries Act, any works, undertaking or activity of project must incorporate measures to avoid causing the death of fish and the harmful alteration, disruption, or destruction (HADD) of fish habitat. To assist proponents with determining if their project will comply with the fish and fish habitat provisions, DFO has outlined several measures to protect fish and fish habitat as well as several standards and codes of practices. If it is determined that a project can't completely implement the measures to protect fish and fish habitat and if the standards and codes of practice don't apply or are considered non-applicable to the Project, then it is recommended that the proponent request a review of the Project by DFO. If it has been determined that a project can't avoid and/or mitigate impacts that will cause death of fish, a HADD to fish habitat and/or aquatic species at risk protected under the Species at Risk Act, an Authorization under the Fisheries Act may be required.

5.1.4 Impact Assessment Act

On August 28, 2019, the *Impact Assessment Act* (IAA) replaced the *former Canadian Environmental Assessment Act, 2012* (CEEA, 2012). The *Impact Assessment Act* outlines a process for assessing the impacts of major projects and projects carried out on federal lands or outside of Canada. Impact assessment is a planning and decision-making tool used to assess the positive and negative environmental, economic, health and social effects of proposed projects and impacts to Indigenous groups and rights of Indigenous peoples.

The projects and activities that are subject to the IAA are very similar to those that were subject to an environmental assessment under the CEEA, 2012. The Project List focuses federal impact assessments on projects that have the most potential for adverse environmental effects in areas

of federal jurisdiction. However, some changes have been made to the “Project List”, such as new thresholds or projects have been introduced or increased. Under the IAA, only those projects designated by the Physical Activities Regulations or designated by the MECP on a discretionary basis may be subject to federal environmental assessment.

5.2 Provincial Policies

5.2.1 Provincial Policy Statement

The Ontario Provincial Policy Statement (PPS, 2024) consolidates the previous 2020 PPS and the Growth Plan for the Greater Golden Horseshoe (2020) into a unified land use planning framework. The consolidation of the two documents aims to streamline development processes and address Ontario’s housing supply and affordability challenges. It identifies housing and growth targets, expanding settlement boundaries, and changes for the use of employment and agricultural lands. Under the 2024 PPS, municipalities are required to keep their zoning by-laws and official plans up to date, establish permitted uses, minimum densities, heights and other development standards to accommodate growth.

One of the visions in the 2024 PPS is to promote strategic growth areas and transit-oriented development. Municipalities are encouraged to identify strategic growth areas, including major transit station areas (MTSAs) and frequent transit corridors. The intent of these areas is to achieve the specified minimum population density targets while supporting transit-oriented development.

5.2.2 Ontario Heritage Act

The Ontario Heritage Act (OHA) grants municipal councils the power to designate heritage properties that hold cultural heritage value or interest, based on their historical, architectural, and/or contextual significance within the community. Both the province and municipalities are empowered to protect significant individual properties and heritage areas under the OHA. Once designated under this Act, these properties are shielded from demolition, and a Heritage Permit is required for any alterations to the property.

Administered by the Ministry of Citizenship and Multiculturalism (MCM), the Act ensures the conservation of cultural heritage resources such as buildings, sites, and archaeological assets. Any potential impacts to these resources must be avoided or mitigated.

5.2.3 Endangered Species Act

The Endangered Species Act, 2007 (ESA) protects habitat and individuals of wildlife species designated as threatened, endangered, or extirpated in Ontario. Provincial species at risk (SAR)

are identified and assessed by the Committee on the Status of Species at Risk in Ontario (COSSARO).

The ESA protects species and their habitats by prohibiting anyone from killing, harming, harassing, or possessing protected species, as well as prohibiting any damage or destruction to habitat of protected species. All listed species are provided with general habitat protection under the ESA aimed at protecting areas that species depend on to carry out their life processes, such as reproduction, rearing, hibernation, migration or feeding. Some species have had detailed habitat regulations passed that go beyond the general habitat protection to define specifically the extent and character of protected habitats.

Activities that may impact a protected species or its habitat require the prior issuance of a permit from the MECP, unless the activities are exempted under a Regulation. Ontario Regulation 242/08 identifies activities which are exempt from the permitting requirements of the ESA subject to rigorous controls that include registration of the activity and preparation of mitigation.

5.2.4 Planning Act

The Planning Act outlines the framework for land use planning in Ontario. It identifies how land can be developed, what is protected, and who the managing authority is. Its purpose is to establish a system for land use planning that balances environmental protection and promote social well-being and economic growth. Under the Planning Act, municipalities are required to develop Official Plans to guide future development, regulate land use through zoning, and manage land division within their jurisdictions. Official Plans must adhere to provincial policies and promote sustainable economic development.

5.2.5 Clean Water Act, 2006

The Clean Water Act (2006) aims to protect existing and future sources of drinking waters including but not limited to rivers, lakes, and underground aquifers. As a requirement of the Municipal Class EA process, proponents are required to include reference to the Clean Water Act (2006) and must identify in the process whether a project is, or could potentially be occurring, within a vulnerable area. An objective of the Clean Water Act seeks to stop contaminants from getting into sources of drinking water and the construction work associated with road improvements could pose a risk.

5.2.6 Source Water Protection Act

As part of the Clean Water Act (2006), the Source Water Protection Act establishes a framework to protect the quality and quantity of drinking water sources across Ontario. It outlines the prevention of contamination and depletion of drinking water sources through

planning, monitoring, and regulation by mandating the creation of Source Protection Plans (SPP). A SPP identifies and assesses threats to the quality and quantity of drinking water sources to propose strategies that mitigate or eliminate any risks to these sources.

The Source Water Protection Act has allowed the City of Brantford to adopt land use regulations and zoning by-laws to manage activities, including the construction of new roadway infrastructure, that could threaten the City's drinking water sources.

The study area falls within the Grand River Source Protection Plan prepared under the Clean Water Act, 2006 and additional information regarding source water protection policies and vulnerable areas within the study area is outlined in Section 8.6.

5.2.7 Safe Water Drinking Act

The Safe Water Drinking Act (SDWA) was introduced in 2002 in response to the Walkerton water tragedy in 2000. The purpose of the act is to protect human health by ensuring access to safe drinking water, provide a clear accountability structure for water system owners and operators, and increase transparency and public access to water quality information. It also outlines appropriate drinking water standards, licensing and accreditation requirements for conducting water tests, certifications, annual reporting on water quality and system performances, inspection requirements, and enforcements and violations from the MECP. Under the Safe Drinking Act (2002), municipalities are legally responsible for their drinking water systems.

5.2.8 Conservation Authority Regulations and Policy

The Conservation Authorities Act is the enabling legislation that provides the legal basis for the creation of conservation authorities ("CAs") in Ontario. Generally, the Conservation Authorities Act directs CAs to perform several critical functions regarding watershed planning and management including the prevention, elimination, or reduction of loss of life and property from flood hazards and erosion hazards, as well as the conservation and restoration of natural resources. Section 28 of the Conservation Authorities Act empowers CAs to make regulations in the area under its jurisdiction, including the prohibition, regulation or permitting for development if the control of flooding, erosion, or the conservation of land may be affected by the development.

The study area falls under the jurisdiction of the GRCA. Through the Conservation Authorities Act, the GRCA has the responsibility to regulate activities in natural and hazardous areas (i.e., areas in and near rivers, streams, floodplains, wetlands, and slopes). The study area contains Lower Jones Creek and its associated floodplain, slope hazards and wetlands. As such, the GRCA will review the Class EA under Ontario Regulation 686/21, acting on behalf of the Province regarding natural hazards identified in Section 3.1 of the Provincial Policy Statement

(PPS, 2020), as a public body under the Planning Act, as well as in accordance with Ontario Regulation 41/24 and GRCA's Board approved policies.

5.2.9 Transportation Plan for the Greater Golden Horseshoe

In February 2022 the MTO released a Transportation Plan for the Greater Golden Horseshoe as part of Ontario's thirty-year strategic framework aimed to enhance mobility, reduce congestion, and support economic growth in the Greater Golden Horseshoe. The purpose of the plan is to provide a safe, inclusive, and interconnected transportation system that will accommodate the population growth by fighting gridlock and improving road performance, improving local transit connections and fare integration across Ontario, supporting more sustainable and active transportation infrastructure, and enhancing transportation corridors and access to major ports, airports and border crossings to support the movement of goods.

5.3 Municipal Policies

5.3.1 City of Brantford Official Plan

The City of Brantford Official Plan (consolidated April 2024) is the guiding document for the City, establishing the City's vision, principles, and policies for land use planning. The Official Plan provides insight into land use designations and specific to this project, policies relating to growth management and transportation and mobility. The Official Plan identifies how the city will manage its growing population, emphasising the importance of land use and infrastructure investments. This strategy allows for the City to achieve a balance between urban and rural areas, while ensuring the agricultural and natural landscapes are protected. In addition, the Official Plan emphasizes the development of a comprehensive transportation network including the construction and rehabilitation of roads, having access to transit, and new cycling and pedestrian infrastructure. Policies are identified for the integration of transportation and land use planning to ensure transit services are accessible to everyone including employment areas, and new developments such as those identified in the North Expansion Lands.

Under the City's Official Plan, the Wayne Gretzky Parkway is classified as a major arterial road serving as a connector between the City's core and Highway 403. It is part of a Schedule 'C' Municipal Class EA which also includes connecting the parkway to Park Road North, integrating a new east-west collector road, and implements new multi-modal infrastructure. The aim of this is to alleviate congestion on King George Road, accommodate the expected population growth from the Powerline East and Powerline Central Block Plan areas, and provide a parallel route to Highway 24 view Governors Road.

5.3.2 City of Brantford Transportation Master Plan 2021 Update

The City's Transportation Master Plan which provides the long-term direction for the development of the transportation network and supporting policies. The TMP is designed to address current transportation challenges to ensure a safe, efficient, accessible, sustainable, and multi-modal transportation network as the City of Brantford continues to grow. The TMP provides mode-share targets for the City and the associated programs and policies aimed at meeting those targets, as well as the future road network infrastructure improvements such as the widening of Powerline Road and the extension of Wayne Gretzky Parkway. The TMP identified the Wayne Gretzky Parkway Extension as a new 4-lane road that would assist in diverting long distance trips from King George Road, to provide relief to the forecast capacity issue in the area of Highway 403. The connection of travel demand back to the Highway 24 corridor using Governors road would also relieve congested sections on King George Road. The purpose of the new road connection is to relieve congestion and provide better access to key areas in the City, including downtown and the North Expansion Lands.

5.3.3 City of Brantford Active Transportation Master Plan

The City of Brantford Active Transportation Master Plan (ATMP) was reviewed in conjunction with the City's TMP. The ATMP includes a more in-depth assessment of the existing and planned pedestrian, and cyclist infrastructure within the City. The ATMP addresses and supports the TMP recommendations in regard to identifying gaps within the existing network and ways to maintain and improve the network. The aim of the ATMP is to support and further encourage active modes of transportation, while creating a safer and more connected community by developing dedicated and secure infrastructure for pedestrians and cyclists. The Wayne Gretzky Parkway is part of the infrastructure development and provides opportunity to introduce new facilities including but not limited to potential bike lanes, multi-use paths, and trails.

5.3.4 City of Brantford Roundabout Installation Policy

The City of Brantford Roundabout Policy provides guidelines to determine if a roundabout is the appropriate intersection control for arterial or collector roadways in new subdivisions or capital improvement projects, and provides a standardized procedure for the planning, design and implementation of such. The policy's stated goal is to develop a set of procedures to screen and assess whether subject intersections should be roundabout controlled and providing guidance on the initiation, planning, review and approval phases of the selection process.

Per the policy, roundabouts should be considered the preferred intersection control for new developments unless all way stop, or signal control is proven to be a superior choice.

6.0 Land Use and Growth

6.1 Land Use

The City of Brantford Official Plan designates the lands within and surrounding the study area as follows:

- **Residential Designation** – designated target of 60 resident and jobs combined per hectare. May include “a full range of residential dwelling types, as well as supporting land uses intended to serve local residents.” Permitted uses include, but are not limited to low-rise, mid-rise and high-rise residential buildings, retirement homes and communal housing, home occupations, bed and breakfast establishments, day-care facilities, and small-scale places of worship. The “Residential Designation” lands also known as the “North Expansion Lands” currently consist largely of un-serviced agricultural lands, vacant lands, residential and commercial uses.
- **Intensification Corridor Designation**– provide significant opportunities for creating vibrant, pedestrian and transit-oriented places through investment in infrastructure, residential intensification, infill, and redevelopment, with particular attention to urban design. The purpose of the intensification corridor is to strengthen transit routes between major nodes of commerce and employment within the City. Permitted uses include but are not limited to auto-focused uses such as automotive service centres and repair shops, townhouse dwellings,
- **Core Natural Areas Designation/Designated Greenfield Area** – comprises the environmental features and an associated 30 metre buffer, as well as portions of the Natural Heritage System for the Growth Plan for the Greater Golden Horseshoe located within Brantford, that the City shall protect and conserve.

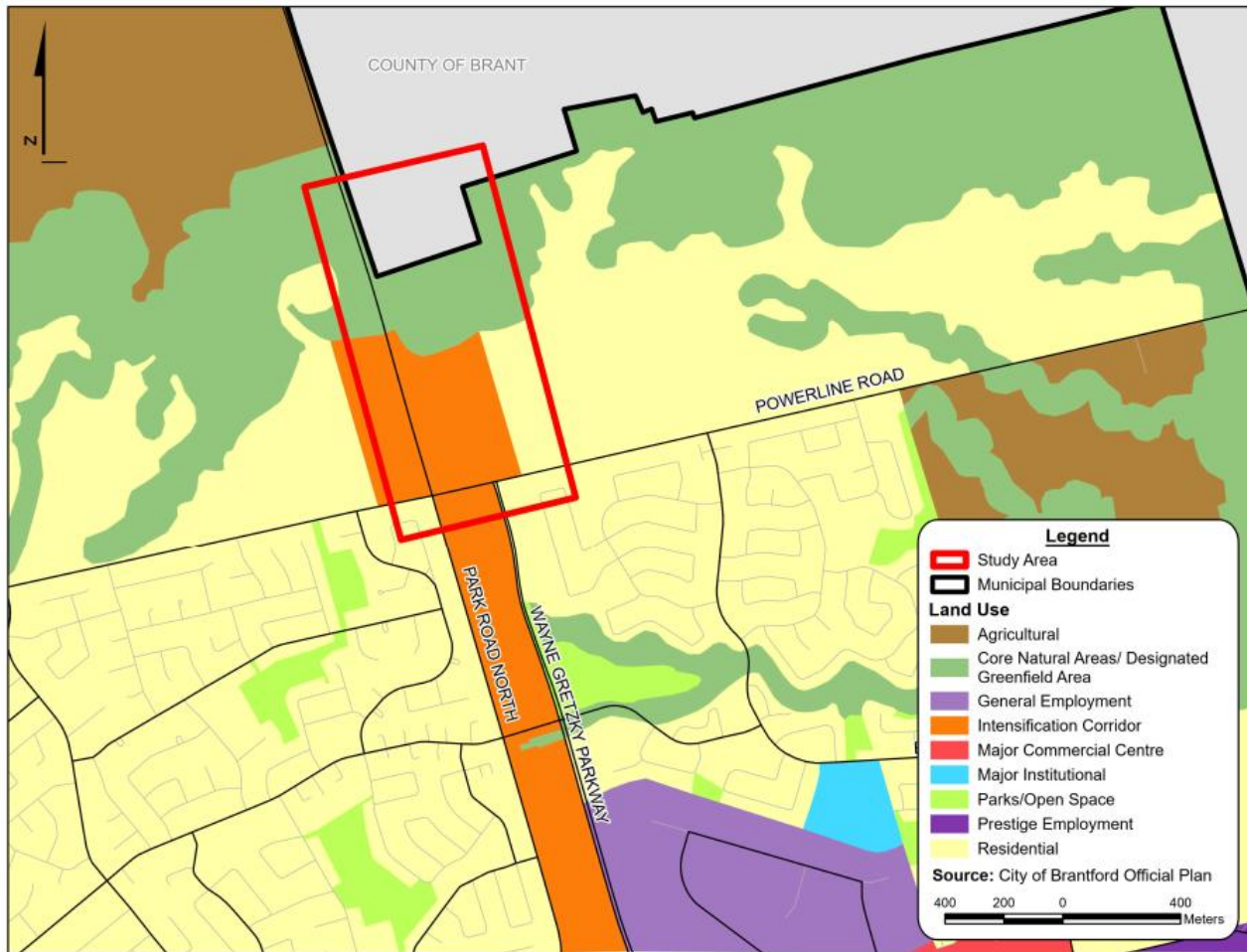


Figure 6-1: Land Use Plan (Source: City of Brantford Official Plan)

6.1.1 Natural Heritage Features

Using the provincial NHIC (2023a) and GO (2023b) databases, as well as the City of Brantford Official Plan (2024a), the following natural heritage features have been identified in the study area:

- Watercourse – Lower Jones Creek, (GO, 2024);
- Provincially Significant Wetlands – Cold Spring Creek Wetland Complex (NHIC, 2024);
- Regulation Limit and Floodplain (GRCA, 2023);
- MNR Woodlands (GRCA, 2023);
- Wooded Areas (NHIC, 2024); and

- Natural Heritage System – Core Natural Area Designation - Schedule 6 (City of Brantford, 2024).

6.1.2 Residential

There are several existing residential dwellings are situated along the Park Road North, predominantly along the northbound lane north of Powerline Road, ceasing prior to Lower Jones Creek. Furthermore, several dwellings are situated within the study area, particularly at the intersection of Powerline Road and Park Road North. Larger neighbourhoods/ communities are located within the southern portion of the study area and south of Powerline Road. Surrounding lands to the Wayne Gretzky Parkway are also zoned residential and are in the development process. Block Plans are currently being prepared, known as Powerline East Block Plan, and Powerline Central Block Plan.

6.1.3 Commercial Developments

Several commercial properties have been delineated along Park Road North in proximity to the culverts on Lower Jones Creek; of note are R & M Walgraeve Greenhouse & Garden Centre and Noble Automotive Service.

6.1.4 Agricultural Lands

Agricultural lands are prominently situated within the study area, spanning both the western side of Park Road North and the area north of Powerline Road. These lands primarily feature row crops, likely subject to annual or seasonal rotation. Despite their current active cultivation, they are designated as "Residential" and earmarked for future development known as the North Expansion Lands.

6.1.5 First Nation Lands

First Nations possess a traditional and distinct perspective on the natural environment derived from their deep connection to the lands, customs, and lifestyles. Consequently, they offer valuable insight in identifying solutions and implementing measures to alleviate impacts on natural and cultural resources. Collaboratively, the City of Brantford is engaging with the MCFN and SNGR to ensure that the project is planned, reviewed, and executed in accordance with the requirements of both MCFN and SNGR.

6.2 Land Development

The City of Brantford has seen significant growth in recent years, growing to a population of 104,688 in 2021 (per statistics Canada recent census data). The Greater Golden Horseshoe 2051 growth forecasts expect modest population and employment growth (estimated

population of 165,000 by 2051) within the City, primarily fueled by in-migration from the Greater Toronto and Hamilton Areas. Much of this growth is anticipated to be accommodated through urban intensification and the currently undeveloped expansion lands annexed from the County of Brant in 2017.

To ensure growth is effectively managed, the City's Official Plan requires preparation of Block Plans for Community Areas within the annexed lands. Schedule 2 of the Official Plan identified the following eight areas where Block Plans must be completed prior to approval of development within those areas:

- Powerline West;
- Powerline Central;
- Powerline East;
- Balmoral;
- Lynden Garden;
- Tutela Height West;
- Tutela Heights South, and;
- Tutela Heights East.

As illustrated in [Schedule 2](#) of the Official Plan, the Powerline Central and Powerline East Block Plan Areas lie within or adjacent to the study area (Figure 6-2). The development of these Block Plan Areas is anticipated to be the primary study area traffic generator aside from background traffic growth.

The Official Plan also established Block Plan policies (Policy 5.1.f to 5.1.j) and includes a [Comprehensive Block Plan Terms of Reference](#) which provided the criteria and processes to developing the Block Plan Areas. The Official Plan also requires the Designated Greenfield Area, for which the study Block Plan areas form a part, be planned to achieve a minimum density of 52 resident and jobs combined per hectare by the year 2051.

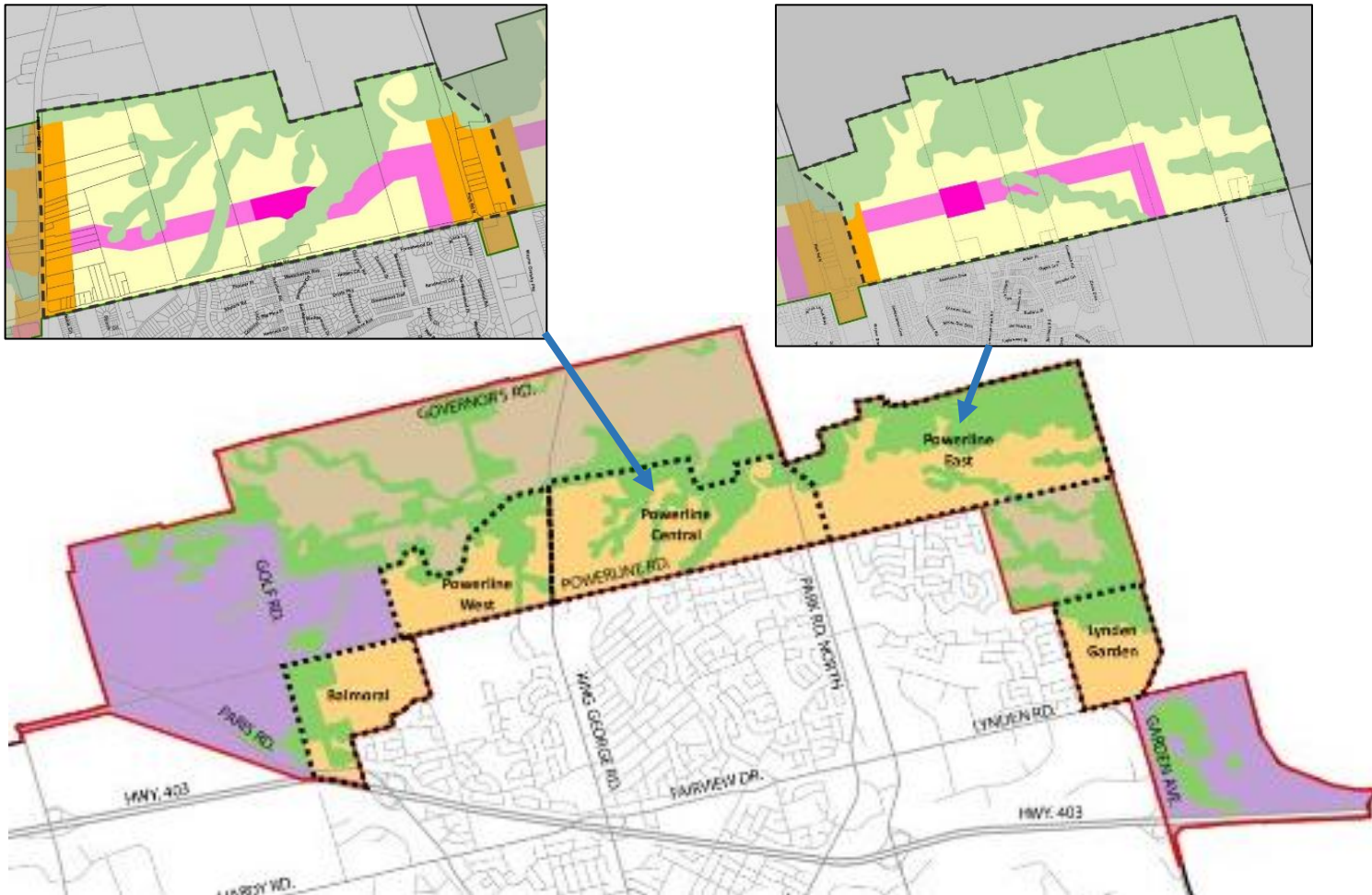


Figure 6-2: Proposed Block Plans (Source: City of Brantford Official Plan)

In addition to the above noted proposed developments, information has been provided for this study with respect to a proposed high school and daycare north of Powerline Road opposite Old Farm Road.

It is important to note that while the Official Plan provided a minimum density target for the Designated Greenfield Lands which was considered as part of the TMP, there is a significant degree of uncertainty at this stage in the Block Plan process. As part of this study, Egis has consulted with Development Communities, however, at the time of drafting this report no changes in density have been considered in the analysis based on information available.

7.0 Transportation

As part of the Class EA process, a comprehensive Transportation Assessment Study was undertaken to document existing transportation infrastructure within the study area, including the road network, intersections, active transportation routes, and transit services. The study included an assessment of current and projected traffic operations to identify existing deficiencies and future challenges, as well as to evaluate potential impacts and corresponding mitigation measures under various scenarios.

A broader study area was identified for the transportation study and is generally bounded by Park Road North to west, Powerline Road to the south and Governors Road East to the north. The Wayne Gretzky Parkway North Extension EA study corridor and the broader transportation study area is shown in Figure 7-1.

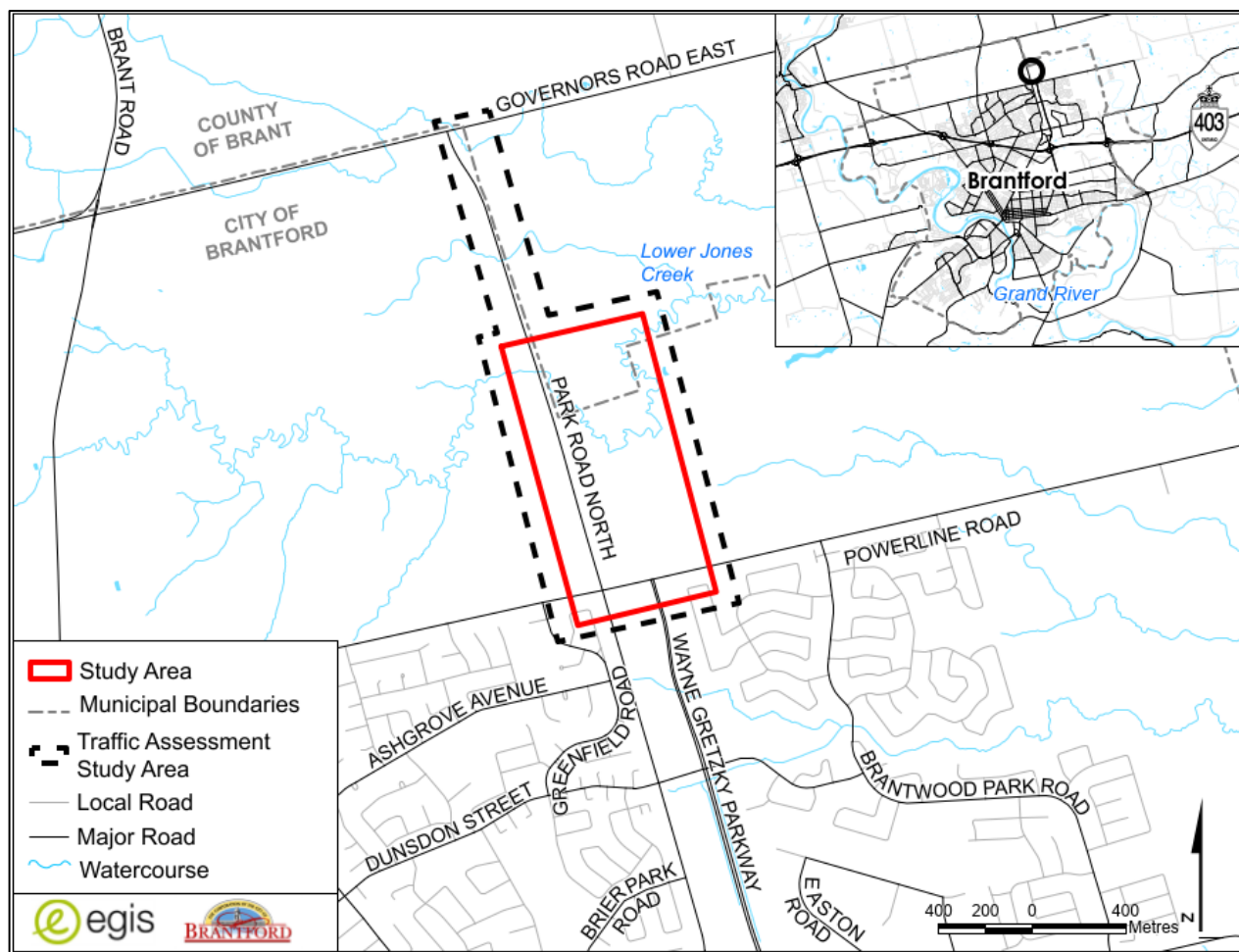


Figure 7-1: Traffic Assessment Study area

Refer to the Transportation Assessment Study Report (Egis, January 2024) in Appendix G for further details pertaining to traffic operations within the study area.

7.1 Existing Road Network

The project study area is located in the City of Brantford, a single -tier municipality geographically located within the County of Brant. The study area is to the north of Highway 403 and includes Park Road, Governors Road, Powerline Road and Wayne Gretzky Parkway. The study area land use is primarily rural and agricultural north of Powerline Road and more urbanized residential / commercial south of Powerline Road.

The City's Official Plan has established a road classification system intended to maintain and develop appropriate hierarchy of its roads. The existing road networks within the study area are as follows:

- **Wayne Gretzky Parkway** - the roadway is classified as a major arterial with a posted speed limit of 70 km/h. It features a four-lane cross-section and functions as a key north-south corridor, providing a connection from Colborne Street East in the south to Highway 403 and Powerline Road in the north.
- **Powerline Road** - is classified as a minor arterial with a posted speed limit of 60 km/h. It generally features a two-lane cross-section and functions as an important east-west corridor in the northern part of the city. The roadway connects key north-south routes, including Paris Road and Wayne Gretzky Parkway, and serves both local and regional traffic. Under 2051 traffic projections, the corridor is anticipated to approach capacity, particularly between Paris Road and Wayne Gretzky Parkway.
- **Park Road North** – the roadway runs north-south (nominally) from Governors Road in the north to the intersection with Cobden Street in the south where Park Road North becomes West Street. Park Road North is classified as a minor arterial roadway, generally has a two-lane cross section within the study limits and has a posted speed limit of 60 km/h and 50 km/h north of and south of Powerline Road, respectively.
- **Governors Road** - the roadway runs in an east-west direction, generally parallel to the northern municipal boundary. Beyond the municipal limits, it falls under the jurisdiction of the County of Brant and is designated as County Road 5. It is classified as a Major Arterial and typically features a two-lane cross-section with a statutory speed limit of 80 kilometres per hour (km/h), switching to 60 kilometers per hour prior to King George Road. As a Major Arterial, the roadway primarily serves to facilitate the efficient movement of higher volumes of traffic over longer distances, connecting local roads to regional transportation networks.

The corridors within the study area have three (3) signalized intersections at Governors Road East and Park Road North, Powerline Road and Park Road North and Powerline Road and Wayne Gretzky Parkway. Figure 7-2 illustrates the study intersections, lane configurations, and traffic control at each of the intersections.

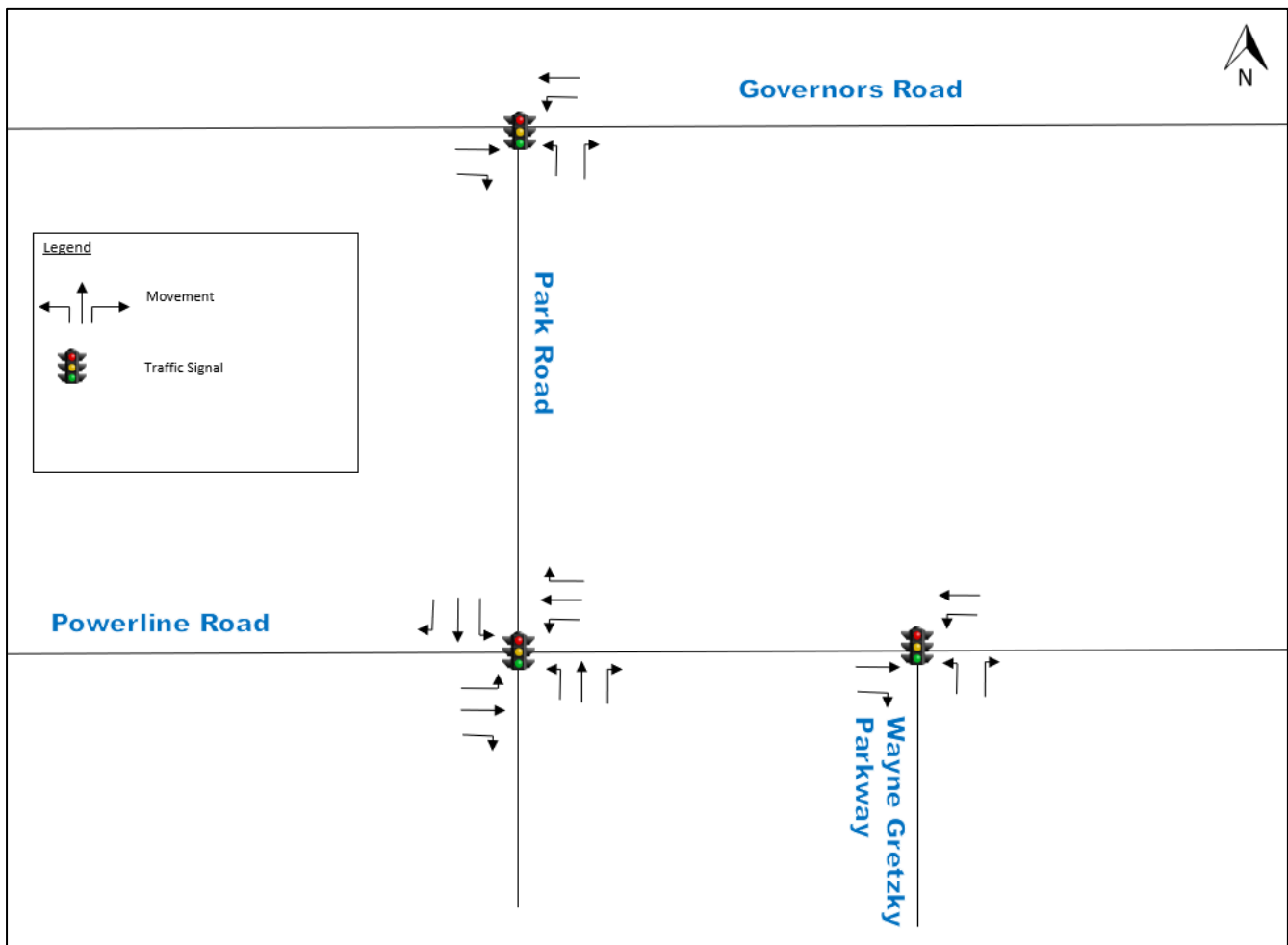


Figure 7-2: Study Area Intersection Network

7.1.1 Active Transportation

There is a well-developed active transportation network, south of Powerline Road which includes a residential sidewalk network, a shared use path along the west side of Wayne Gretzky Parkway, and bike lanes on Dundas Street and Brantwood Park Road.

In Brantford, the active transportation network surrounding Powerline Road and Wayne Gretzky Parkway has been enhanced to support pedestrians and cyclists. The Wayne Gretzky Parkway

features a dedicated multi-use trail on the east side of the parkway and south of Powerline Road that facilitates safe pedestrian and cyclist movement alongside the roadway. This trail is integral to Brantford's broader active transportation network, connecting various neighborhoods and key destinations. There is also dedicated bike lanes/routes on Dundas Street and Brantwood Park Road.

Overall, the proposed extension of Wayne Gretzky Parkway presents an opportunity to improve accessibility and better integrate with existing active transportation networks. As part of the design, there is potential to incorporate continuous, Accessibility for Ontarians with Disabilities Act (AODA) compliant sidewalks/multi-use pathways along the entire corridor to enhance connectivity and accessibility for all users.

7.1.2 Transit

Brantford Transit provides fixed-route bus service across the city, including routes that serve the area around Powerline Road and Wayne Gretzky Parkway. These corridors are supported by transit services that connect residential neighborhoods to key destinations such as educational institutions, commercial areas, and employment centers. Notably, transit routes along Wayne Gretzky Parkway provide north-south connectivity and link to major east-west routes, including those operating along or near Powerline Road. Transit stops in this area are strategically located to provide accessible service coverage, and ongoing improvements to the transit network are guided by the City's Transportation Master Plan and Active Transportation strategies to better integrate multimodal travel options, including connections to cycling and pedestrian infrastructure. However, the subject area is not currently serviced by transit.

7.2 Existing Traffic Volumes and Operation Condition

In support of the Transportation Assessment Study, Turning Movement Count (TMC) data was used to develop the existing study area traffic volumes. The existing (2023) traffic volumes were developed for weekday a.m. and p.m. peak hours by applying 2.0% growth per annum to older counts and projecting the volumes up to the year 2023. Volumes were then balanced accordingly with respect to area accesses and parking facilities.

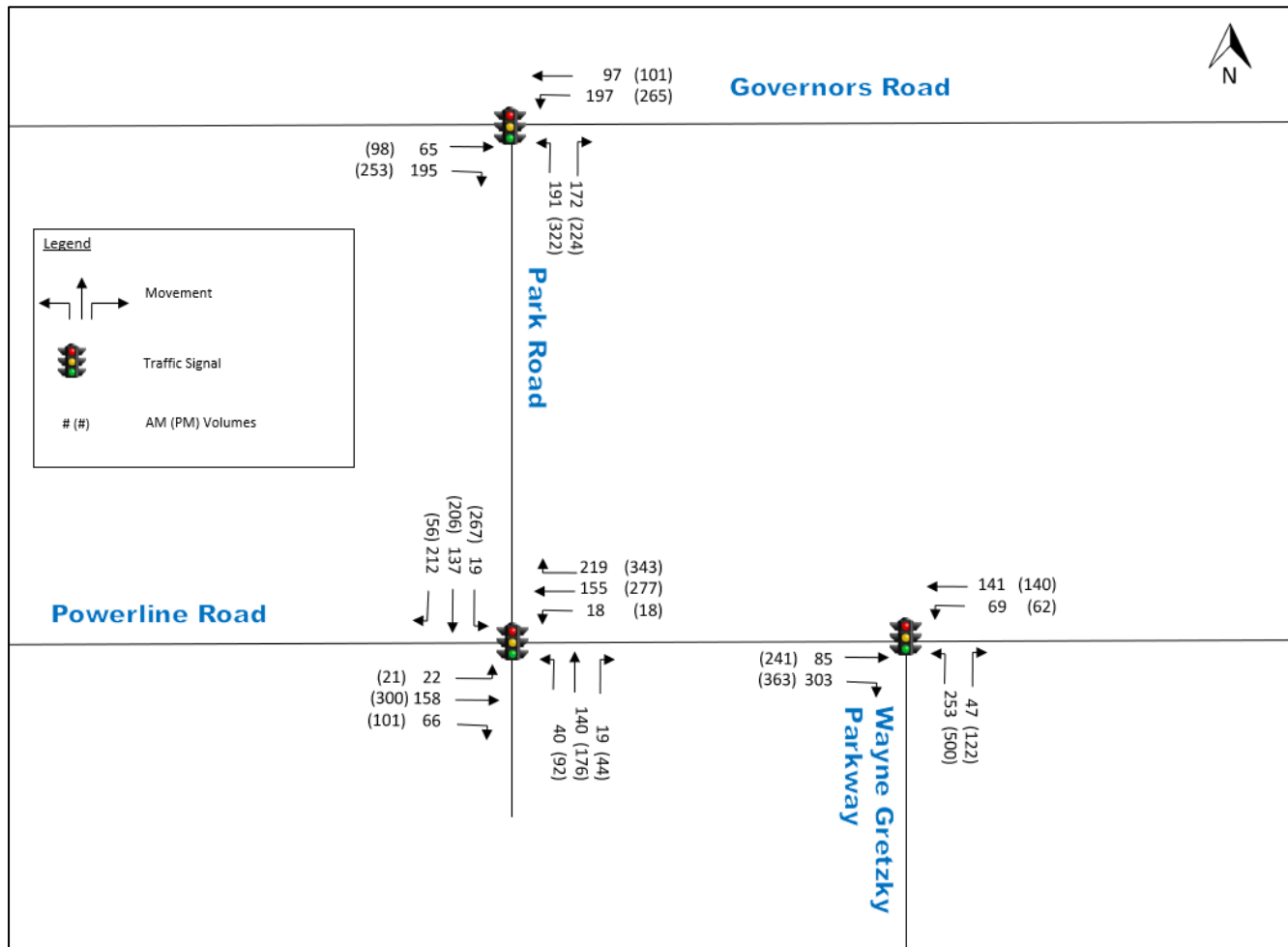


Figure 7-3: Existing (2023) Traffic Volumes

Intersection operations performance metrics are reported in terms of Level of Service (LOS), delays, volume-to-capacity (v/c) ratios, and 95th percentile queues. LOS is based on the average control delay per vehicle for a given movement. Delay is an indicator of how long a vehicle must wait to complete a movement and is represented by a letter between 'A' and 'F', with 'F' being the longest delay and 'A' being the shortest. Volume-to-Capacity (V/C) relates the volume of vehicles on a road to the total capacity that road has. While LOS is based on control delay any roadway exceeding a V/C of 1.0 is assigned a LOS F regardless of delay. LOS criterion for signalized intersections based on the Highway Capacity Manual (HCM) 6th Edition, is illustrated in Table 7-1.

Table 7-1: Definition of LOS for a Signalized Intersection

Level of Service (LOS)	Control Delay (s/veh)	Description
A	≤ 10	Free flow
B	> 10 - 20	Stable flow (slight delays)
C	> 20 - 35	Stable flow (acceptable delays)
D	> 35 - 55	Approaching unstable flow (tolerable delays)
E	> 55 - 80	Unstable flow (intolerable delays)
F*	> 80	Forced flow (jammed)

*V/C > 1.0 indicates LOS F

The assessment was conducted using a city-wide transportation demand model developed in PTV VISUM (macro level modelling), a Windows-based multimodal transportation modeling software. Intersection level traffic operations assessments were completed utilizing Synchro 11 for signalized intersections and ARCADY for roundabouts.

The existing road network within the study area generally operates at acceptable levels (Figure 7-4), with most movements achieving a Level of Service (LOS) of D or better. The only exception is the eastbound and westbound shared through-left turn lanes at the Powerline Road and Park Road North intersection, which operate at LOS E. Several movements across the network are operating near capacity, with volume-to-capacity (v/c) ratios exceeding 0.90. As population growth and traffic volumes increase, targeted mitigation measures will likely be necessary to maintain acceptable service levels for all modes of transportation.

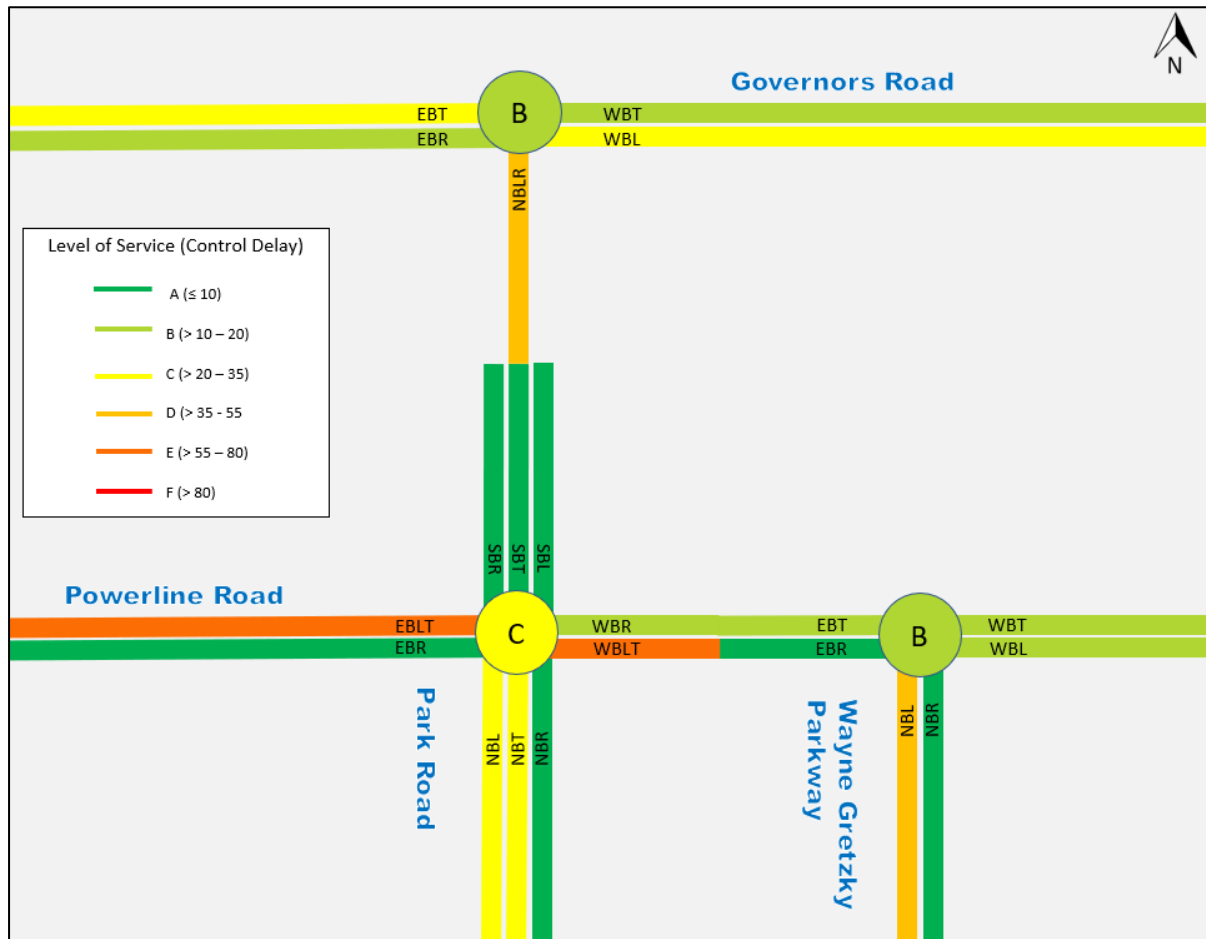


Figure 7-4: Study Network Critical Movement LOS – Existing (2023) Condition

7.3 Future Travel Demands

To forecast future vehicular travel demand during peak hours, the City's strategic model (VISUM) was used, taking into account urban and infrastructure developments projected for 2051 at the city level.

Globally, significant growth is forecasted in 2051, compared to existing conditions there will be an approximate increase of +199% during the AM Peak and +189% during the PM Peak. The assumed volume projections are consistent with the 2051 recommended road network outlined in the TMP. These projections account for the full build-out of block plan developments, existing intensification areas, and incorporate anticipated changes resulting from Transportation Demand Management (TDM) strategies and mode share shifts. Additionally, the TMP model was updated to reflect traffic volumes associated with the new high school and daycare, which were not included in the City's original baseline TMP model.

Future traffic analysis is further discussed through the evaluation of alternative solutions (Section 9.4) and design concepts (Section 10.2.4).

8.0 Physical and Environmental Conditions

This section presents an overview of the background information (secondary source information) and the results of the field investigations undertaken specifically for this study. The following sections provide a summary of the existing natural, socio-economic, and cultural environments of the study area. This information was used to support the development and evaluation of alternative solutions and design concepts, as well as the identification of potential impacts and mitigating measures.

8.1 Natural Environment

An Existing Conditions and Environmental Impact Study (EIS) was conducted by Egis to support the decision-making process for the potential northern extension of the Wayne Gretzky Parkway. The purpose of this EIS report was to characterize the significance and sensitivity of existing natural features within the study area, as well as adjacent lands within 120 meters (m) of the area proposed for the extension. The potential for significant wildlife habitat and other features that form the City's natural heritage system were considered during the development of the EIS. If identified, impacts on these natural features within the Study Area as a result of the proposed development were outlined, and, if applicable, mitigation measures for each were provided. As this project is not yet in its Preliminary Design phase, impact assessments and recommended mitigation measures are subject to change following the Preliminary and Detailed Design phases.

A single field investigation was conducted on August 2, 2023, to inspect the study area for any natural environmental features (e.g., fish habitat, ecological land classification, SAR bat habitat, etc.). The purpose of this field investigation was to collect supplemental data regarding the study area, with the intent of adding to data previously collected by other consultant agencies. The field investigation included a walkthrough of the study area, with all incidental observations noted and SAR trees identified, a fisheries and benthic organisms survey, and an evening targeted acoustic bat survey to document existing conditions and species present in association with the study area. Areas within the study area where access was not permitted or was inaccessible were observed using binoculars. The study area was inspected for hollow and snag trees that may be suitable for bat maternity roosting habitat, as well as Butternut and Black Ash (*Fraxinus nigra*).

Additional fieldwork was completed on May 28, May 29, July 11, and July 25, 2024. This included targeted surveys for SAR bats, Common Nighthawk (*Chordeiles minor*), and Chimney

Swifts (*Chaetura pelagica*), as well as a Butternut Health Assessment within the Project area. It should be noted that the wooded area within the Study Area presents suitable habitat to support the Eastern Red Bat (*Lasiurus borealis*), Hoary Bat (*Lasiurus cinereus*), and Silver-haired Bat (*Lasionycteris noctivagans*), three (3) species which were uplisted to 'Endangered' status under the ESA as of January 31, 2025. These species were not included within the scope of the 2023 investigations as SAR but were considered during the 2024 investigations. Similar to the Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*), these three (3) species are not dependant on large diameter snag trees for roosting.

The natural environmental constraints are presented within the study area are mapped in Figure 8-1.

Refer to the Natural Heritage Existing Conditions and Impact Assessment Report (Egis, August 2024) in Appendix H for greater detail on the natural heritage existing conditions and potential impacts within the study area.

8.1.1 Landscape Ecology

The study area is situated within the St. Thomas 7E-2 Ecodistrict within the Lake Erie – Lake Ontario Ecoregion, which is the most southern, densely populated, and biologically diverse ecoregion within the province. Ecoregion 7E is home to several provincially significant plant, animal and vegetation communities, many of which are at risk or rare.

The St. Thomas Ecodistrict is associated with the Eastern Temperate Deciduous Forest Vegetation Zone (Baldwin et al., 2018). However, cropland and pasture cover most of the landscape with deciduous forests only occurring in relatively small areas which are typically associated with parks, natural heritage areas (i.e., Areas of Natural and Scientific Interest, provincially significant wetlands, etc.). Common tree species encountered in fresh to moist areas include sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), white ash (*Fraxinus americana*), yellow birch (*Betula alleghaniensis*), silver maple (*Acer saccharinum*), black ash (*Fraxinus nigra*), American elm (*Ulmus americana*), bur oak (*Quercus macrocarpa*), American basswood (*Tilia americana*), red maple (*Acer rubrum*), eastern hop-hornbeam (*Ostrya virginiana*), green ash (*Fraxinus pennsylvanica*), black cherry (*Prunus serotina*), bitternut hickory (*Carya cordiformis*), Manitoba maple (*Acer negundo*), balsam poplar (*Populus balsamifera*), Butternut (*Juglans cinerea*), and large-toothed aspen (*Populus grandidentata*). While northern red oak (*Quercus rubra*) and white oak (*Quercus alba*) are found in drier areas.

Since St. Thomas is southern, and so close to lakes Erie and Huron it is able to support many temperate tree species more commonly found in the United States, such as: tulip tree (*Liriodendron tulipifera*), blue ash (*Fraxinus quadrangulata*), pawpaw (*Asimina triloba*), black

gum (*Nyssa sylvatica*), Kentucky Coffee-tree (*Gymnocladus dioica*), swamp white oak (*Quercus bicolor*), shellbark hickory (*Carya laciniosa*), sassafras (*Sassafras albidum*), and pignut hickory (*Carya glabra*) (Wester et al., 2018).

8.1.2 Sub-watershed Study

In 2020, a subwatershed study titled *North Brantford and Tutela Heights Subwatershed Study* was completed by consultants GM BluePlan Engineering, Ecosystem Recovery Inc., and Plan B Environmental Impact Statement. The study was conducted to support growth planning in the City of Brantford, following the 2017 transfer of lands from the County of Brant (known as the Boundary Adjustment Lands).

A Phase 1 update to the study was completed by Aquafor Beech in November 2024. This update focused on long-term management planning for water resources and natural heritage systems within the study area, and included the following:

- Characterization of the existing drainage features, areas, linkages, and functions as well as natural features, areas, and related hydrologic functions;
- Characterization of the hydrology of the existing watercourses;
- General strategies for protection and/or restoration of the natural and drainage features;
- Consideration of potential impacts of proposed land uses and development; and
- Guidance on further studies needed to complete a more thorough review and evaluation of the subwatershed, which will form the basis for an implementation and monitoring plan that will be used to help guide and direct development.

8.1.3 Fish and Aquatic Systems

The study area contains Lower Jones Creek, which is a tributary of Fairchild Creek. Lower Jones Creek meanders through woodlands within the forested portions located centrally. It is also associated with the PSW Cold Creek Wetland Complex, which runs through the study area. Lower Jones Creek is considered to support both cool- and cold-water fish (Blue Plan, 2020). Groundwater seeps contribute cold water to in-channel flows, allowing temperature-sensitive fish species (e.g., Brook Trout) to be supported. The substrate observed within Lower Jones Creek appeared to be mud.

During the 2023 site visit, Egis electrofished a portion of Lower Jones Creek slightly east of the culvert that runs under Park Road North. The following fish species were observed:

- Western Blacknose Dace (*Rhinichthys obtusus*);

- Johnny Darter (*Etheostoma nigrum*);
- Common Shiner (*Luxilus cornutus*);
- White Sucker (*Semotilus atromaculatus*), and
- Creek Chub (*Catostomus commersonii*).

Egis also identified Lower Jones Creek as having potentially suitable spawning habitat for Creek Chub, White Sucker, Blacknose Dace and Johnny Darter downstream of the culvert.

The Ministry of Natural Resources (MNR) also have surveyed Lower Jones Creek with data being available on Aquatic Resources Area, Line, and Segment (ARA) from 2004, where the following species were recorded as also being present:

- Fathead Minnow (*Pimephales promelas*)

Egis also undertook a benthic macroinvertebrate sampling survey, as described, to characterize the invertebrate species present within Lower Jones Creek. Benthic species were identified to the genus level, and the most commonly observed species were as follows: aquatic earthworms (*Oligochaeta*), snails and limpets (*Gastropoda*), midges (*Chironomidae*), caddisflies (*Trichoptera*). With scuds (*Amphipoda*) and sowbugs (*Isopoda*) occurring occasionally.

8.1.4 Vegetation

During the 2023 field investigation, a total of 89 different plant species were observed, 42 of which were woody species, and 47 herbaceous species were identified as being present within the study area (Appendix H).

The vegetation within the study area is predominantly composed of agricultural fields cultivated with annual row crops, terrestrial habitats adjacent to the Lower Jones Creek corridor, and established treed hedgerows/fencerows located behind properties along the eastern boundary of Park Road North.

SNGR supplied their catalog of plant species, emphasizing those of particular cultural significance to the community. Egis' biologists carefully reviewed and conducted a thorough assessment of the list to identify any potential impacts and develop appropriate mitigative measures to safeguard these culturally important plant species for the First Nations community.

8.1.4.1 Invasive and Noxious Plant Species

There were no species listed as 'Restricted' under the Invasive Species Act, 2015 observed during the 2023 field investigation.

The following plant species are listed as 'Noxious' under the Weed Act, 1990, were observed within the study areas during the 2023 field investigations.

- Canada thistle (*Cirsium arvense*);
- common sow thistle (*Sonchus oleraceus*);
- European buckthorn (*Rhamnus cathartica*); and
- spotted knapweed (*Centaurea stoebe*).

8.1.4.2 Significant Woodlands

The woodland corridor associated with Lower Jones Creek is considered to be a significant woodland under this Provincial definition according to MNR NHA mapping (MNR, 2023a), as well as according to the Municipality of the City of Brantford – Schedule 6 (2024).

8.1.4.3 Significant Wetlands

There is significant wetlands present within the study area, as they meet the criteria outlined in the MNR NHRM (2005). The study area contains a portion of the Cold Spring Creek Wetland Complex (PSW) (Figure 8-1) that is roughly 81 ha in size and is part of the Fairchild Creek subwatershed (GRCA, 2019).

8.1.5 Wildlife and Wildlife Habitat

Characteristic wildlife of the Lake Erie – Lake Ontario Ecoregion (7E) include midland painted turtle, eastern gartersnake (*Thamnophis sirtalis*), Green Heron (*Butorides virescens*), Eastern Kingbird (*Tyrannus tyrannus*), striped skunk (*Mephitis mephitis*), white-tailed deer (*Odocoileus virginianus*), and Virginia opossum (*Didelphis virginiana*) (Wester et al., 2018). Many of Ontario's species at risk are found within this Ecoregion.

Table 8-1 lists the species observed during the field investigation. Habitats present within the study area represented appropriate breeding/nesting/foraging habitat for several of the species observed. Additional wildlife species are known to occur within the study area based on the findings of the Stafford-Goldman Partnership Development Lands Powerline Road East and Central Blocks – Natural Heritage Summary (September 2023).

It is important to note that species observed within the study area may carry importance and value (cultural, medicinal, sustenance) to First Nations (ex. medicinal/edible plants, deer, turkeys, turtles, fish, and other fur-bearing species that may be targeted by hunters/anglers) and should be considered throughout the design process regardless of a lack of applicable legislation (MBCA, FWCA, ESA, and SARA).

Table 8-1: Species Observed within the Study Area

Common Name	Scientific Name	Applicable Legislation
Birds		
American Crow	<i>Corvus brachyrhynchos</i>	None
American Goldfinch	<i>Spinus tristis</i>	MBCA
American Robin	<i>Turdus migratorius</i>	MBCA
Barn Swallow	<i>Hirundo rustica</i>	MBCA, SARA
Black-capped Chickadee	<i>Poecile atricapillus</i>	MBCA
Blue Jay	<i>Cyanocitta cristata</i>	FWCA
Canada Goose	<i>Branta canadensis</i>	MBCA
Cedar Waxwing	<i>Bombycilla cedrorum</i>	MBCA
Chipping Sparrow	<i>Spizella passerine</i>	MBCA
Common Grackle	<i>Quiscalus quiscula</i>	None
Common Raven	<i>Corvus corax</i>	FWCA
Common Yellowthroat	<i>Geothlypis trichas</i>	MBCA
Eastern Kingbird	<i>Tyrannus tyrannus</i>	MBCA
Eastern Phoebe	<i>Sayornis phoebe</i>	MBCA
European Starling	<i>Sturnus vulgaris</i>	None
Gray Catbird	<i>Dumetella carolinensis</i>	MBCA
House Wren	<i>Troglodytes aedon</i>	MBCA
House Sparrow	<i>Passer domesticus</i>	None
Indigo Bunting	<i>Passerina cyanea</i>	MBCA
Mourning Dove	<i>Zenaida macroura</i>	MBCA
Northern Cardinal	<i>Cardinalis cardinalis</i>	MBCA
Northern Flicker	<i>Colaptes auratus</i>	MBCA

Common Name	Scientific Name	Applicable Legislation
Osprey	<i>Pandion haliaetus</i>	FWCA
Pileated Woodpecker	<i>Dryocopus pileatus</i>	MBCA
Red-tailed Hawk	<i>Buteo jamaicensis</i>	FWCA
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	None
Rock Pigeon	<i>Columba livia</i>	None
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	MBCA
Song Sparrow	<i>Melospiza melodia</i>	MBCA
Swamp Sparrow	<i>Melospiza georgiana</i>	MBCA
Yellow Warbler	<i>Setophaga petechia</i>	MBCA
Reptiles and Amphibians		
Green Frog	<i>Rana clamitans</i>	None
Northern Leopard Frog	<i>Lithobates pipiens</i>	None
northern redbelly snake	<i>Storeria occipitomaculata occipitomaculata</i>	None
Mammals		
American beaver	<i>Castor canadensis</i>	FWCA
big brown bat	<i>Eptesicus fuscus</i>	FWCA
eastern chipmunk	<i>Tamias striatus</i>	FWCA
Little Brown Myotis	<i>Myotis lucifugus</i>	FWCA, ESA
raccoon	<i>Procyon lotor</i>	FWCA
red squirrel	<i>Sciurus vulgaris</i>	FWCA
silver-haired bat	<i>Lasionycteris noctivagans</i>	FWCA
Tri-coloured Bat	<i>Perimyotis subflavus</i>	FWCA, ESA

Common Name	Scientific Name	Applicable Legislation
Arthropods		
Monarch	<i>Danaus plexippus</i>	FWCA
green darner	<i>Anax junius</i>	None
rusty crayfish	<i>Faxonius rusticus</i>	None

8.1.5.1 Mammals

During Egis's 2023 field program, two Species at Risk (SAR) mammal species, the Little Brown Myotis and Tri-coloured Bat, were observed within the study area. In 2024, the Silver-haired Bat, also listed for protection under the ESA and SARA, was recorded, along with the Big Brown Bat. Additionally, other mammals, like the American Beaver, hold cultural significance for Indigenous Communities, though they are not protected under ESA and SARA. Habitat for all species within the study area will be considered, and impacts will be mitigated where possible.

Wildlife not observed during the field investigations but known to be in the broader area, such as white-tailed deer (important for Indigenous Communities), may use the study area for habitat and movement corridors.

A localized wildlife corridor was identified along Park Road North, which intersects the Cold Spring Creek PSW and surrounding woodlands. Road mortalities observed in this area suggest that wildlife are crossing the road to access natural features, and opportunities for safe wildlife passage will be explored in Section 12.2.

8.1.5.2 Reptiles and Amphibians

During Egis's 2023 field visit to the Cold Spring Creek PSW Complex, reptile and amphibian species observed included the Northern Redbelly Snake, Northern Leopard Frog, and Green Frog. These species are not listed under the ESA and do not have habitat protection, though individuals are protected under the FWCA.

Lower Jones Creek was found to offer suitable habitat for turtle species, including areas for thermoregulation, feeding, and predator protection due to abundant vegetation. However, no turtle nesting features, or evidence of nesting activity were observed along the creek or Park Road North.

The valleyland and wetlands associated with Lower Jones Creek likely provide habitat for various reptile and amphibian species, though the specific area of impact was not suitable due to the absence of surface water.

8.1.5.3 Nesting Birds

An incidental breeding bird survey conducted in August 2023 during the field investigation identified 31 bird species protected under the MBCA or Provincial FWCA, including raptors. The survey took place near the end of the breeding season, but it is expected that most species observed nest within the study area. Although not observed during the survey, Eastern Wood-Pewee, identified by NRSI in the Lower Jones Creek valleyland, is considered to have suitable breeding habitat in the riparian valley forest, which is recognized as candidate Significant Wildlife Habitat.

Barn Swallows were observed foraging over the study area, and suitable nesting habitats, such as old barns and culverts, were found, including near the Lower Jones Creek Culvert. However, no nesting evidence was seen. The surrounding agricultural fields offer foraging habitat, but no nesting was observed at nearby houses or buildings. Barn Swallows are listed as 'Special Concern' under the ESA but do not receive provincial habitat protection.

8.1.5.4 Significant Wildlife Habitat

Based on the Significant Wildlife Habitat (SWH) Criteria Schedules for Ecoregion 7E (MNR, 2015), candidate SWH was determined to be present within the study area for the following categories:

- Bat Maternity Colonies;
- Woodland Raptor Nesting Habitat;
- Amphibian Breeding Habitat (Woodland);
- Woodland Area Sensitive Bird Breeding Habitat; and,
- Special Concern and Rare Wildlife Species for Eastern Wood-Pewee and Monarch.

8.1.6 Species at Risk

Background information obtained from sources indicate that SAR and their habitat are potentially present within the study area. SAR information presented in this section is based on background information and field investigations (targeted or general) completed in 2023 and 2024 and it is important to note that species may move into the study area pending the timeframe of the design process between now and construction.

8.1.6.1 Vascular Plants

Butternut – Butternut is a medium – sized tree that is commonly found in a variety of habitats, but grow best on well-drained, fertile soils of stable slopes and bottomlands in small groups or individually and are not typically abundant.

A total of four (4) Butternuts were observed during the 2023 field investigation throughout the study area (Figure 8-1) by Egis, and a Butternut Health Assessment (BHA) was conducted during the 2024 field season which confirmed the presence of these individuals. Four (4) Butternuts were confirmed within the Project limits based on the 2024 field investigation; all were identified as ‘Category 2’ trees. Under *O.Reg 830/21, Section 23, Category 2 Butternut trees are ‘not affected by butternut canker or the butternut tree is affected by butternut canker but the degree to which it is affected is not as advanced as a Category 1 butternut tree and retaining the tree could support the protection or recovery of butternut trees in the area in which the tree is located’.*

Butternuts are listed as ‘Endangered’ under the ESA and SARA and therefore receive habitat protection, depending on the health of the individuals. An assessment of the four (4) butternut trees health was completed as well as a scoring of the individuals features to determine if any of the trees appeared to represent hybrids. All four (4) trees were confirmed to be pure butternuts based on the hybrid scoring matrix.

Black Ash - During the 2023 field investigation, no Black individuals were observed, however, previous studies by NRSI Inc. (2020) observed individuals and considered the study area (within the Lower Jones Creek valley and associated PSW) to be suitable habitat for the species (exact number not reported). This species was not found along fencerow habitat associated with the southern portion of the study area as this area is not suitable for the species life processes.

8.1.6.2 Invertebrates

Monarchs - One (1) Monarch was observed on Park Road North during the 2023 site visit, likely foraging. Additionally, Monarch’s host species Common Milkweed (*Asclepias syriaca*) was also observed as being present.

8.1.6.3 Reptiles and Amphibians

Midland Painted Turtle - No Midland painted turtle were observed during 2023 site visit, however, Lower Jones Creek and Cold Spring Creek PSW are anticipated to provide habitat for the species. Though the gravel shoulder of Park Road North may be used by nesting turtles no evidence of turtle nesting activity (i.e., predated nests) was observed in 2023.

Snapping Turtle - No Snapping Turtles were observed during 2023 field investigation; however, Lower Jones Creek and Cold Spring Creek PSW are anticipated to provide habitat for the species. Though the gravel shoulder of Park Road North may be used by nesting turtles no evidence of turtle nesting activity (i.e., predated nests) was observed in 2023.

Eastern Hog-nosed Snake - No Eastern Hog-nosed Snake were observed during the 2023 field investigation, however, there is suitable habitat present within the study area in the form of woodlands and riparian areas adjacent to the existing wetlands.

8.1.6.4 Birds

Barn Swallow - Barn Swallow were observed during Egis's 2023 field investigation foraging within the study area over the forested ravine associated with Cold Spring Creek PSW. While the species was observed within the study area no evidence of nesting activity was observed, though a detailed examination of all houses/structures located in the southern portion of the study area was not completed as part of the field investigations.

Chimney Swift - No Chimney Swift were observed during Egis's 2023 or 2024 field visit, however, there were several houses located along Park Road North within the study area that appeared to contain un-capped chimneys, which may provide suitable nesting habitat for Chimney Swift. Additionally, there were no targeted Chimney Swift surveys completed in 2023 as the timing of the site visit was outside of the species general breeding window. Targeted surveys were completed in July 2024, and no individuals of this species were observed exiting the buildings or within the general study area.

Common Nighthawk - During the 2023 field visit, two buildings located along Park Road North were observed to have flat gravel roofs that Common Nighthawk may use for nesting. Additionally, there are recent observations on iNaturalist nearby within the northern limit of the City of Brantford illustrating that individuals are nearby.

No Common Nighthawk were observed during the 2023 or 2024 field visits. Targeted Common Nighthawk surveys were not completed during the 2023 field investigation, though were included during the 2024 site visit which was within the general breeding window for this region.

Eastern Wood-pewee - No Eastern Wood-pewee individuals were observed during the 2023 site visit; however, targeted breeding surveys were not part of Egis's 2023 field investigations. Additionally, individuals were heard and observed regularly during NRSI Inc's 2020 field program during targeted surveys within the Lower Jones Creek valleyland.

Golden-winged Warbler - No Golden-winged Warblers were observed during the 2023 field visit; however, targeted surveys were not complete, and the site visit was outside of the species

breeding period. Additionally, suitable habitat was present within the study area along the existing hedgerows/fencerows and terrestrial areas adjacent to the Lower Jones Creek corridor.

Grassland SAR Birds - Neither Eastern Meadowlark or Bobolink were observed during Egis's 2023 field investigation, however, targeted breeding bird surveys were not completed, and the site visit was completed outside of the breeding season for these species.

Red-headed Woodpecker - No Red-headed Woodpecker were observed to be present during the 2023 field visit, however this species is generally conspicuous if present. Unfortunately, Red-headed Woodpecker has significantly declined in recent years and is often absent from habitat that is otherwise suitable for the species.

Wood Thrush - No individuals were observed during the 2023 site visit, however, there is suitable habitat that may be utilized by Wood Thrush within the forested habitats associated with the Lower Jones Creek corridor.

8.1.6.5 Mammals

Several high-quality trees with potential maternity roosting habitat for bats, such as those with cavities, large DBH, and peeling bark, were observed within the study area, particularly in the forested valleyland of Cold Spring Creek PSW. This area also provides suitable foraging habitat for SAR bat species. The structures in the study area may serve as roosting sites for species like the Little Brown Myotis, Northern Myotis, and Tri-coloured Bat. While a comprehensive snag survey was not conducted during the 2023 field visit due to the leaf-on period, a targeted SAR bat survey was completed in July 2024.

Hoary Bats and Eastern Red Bats - These species typically roost among the foliage of trees and occasionally in shrubs in both deciduous and coniferous forests of any age class. Trees used as maternity roosts by these species tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. Habitat for these species is present within the forested habitat within the study area. Both of these species are scheduled to be uplisted to 'Endangered' under the ESA as of January 31, 2025. These species were not observed during both the 2023 and 2024 acoustic surveys within the study area, however their signatures were picked up on an EchoMeter device during acoustic surveys to the south in 2024 as part of the EIS for Powerline Road (Egis, 2025). Due to the connectivity of suitable habitat between the Powerline Road area and the subject study area, it can be assumed these species are likely present within the general study area.

Little Brown Myotis - The Little Brown Myotis, an 'Endangered' species under both the ESA and SARA, roosts in large trees and anthropogenic structures like houses and barns. During the 2023 site visit, several large trees with high cavity snags, suitable for roosting, were observed

within the study area. Active monitoring confirmed the presence of this species, with Little Brown Myotis signatures detected on EchoMeter devices along Park Road North in the Localized Wildlife Corridor, which includes the Cold Spring Creek Wetland Complex (PSW). However, during the 2024 targeted surveys, no observations of the species were made within the study area or in relation to the nearby structures.

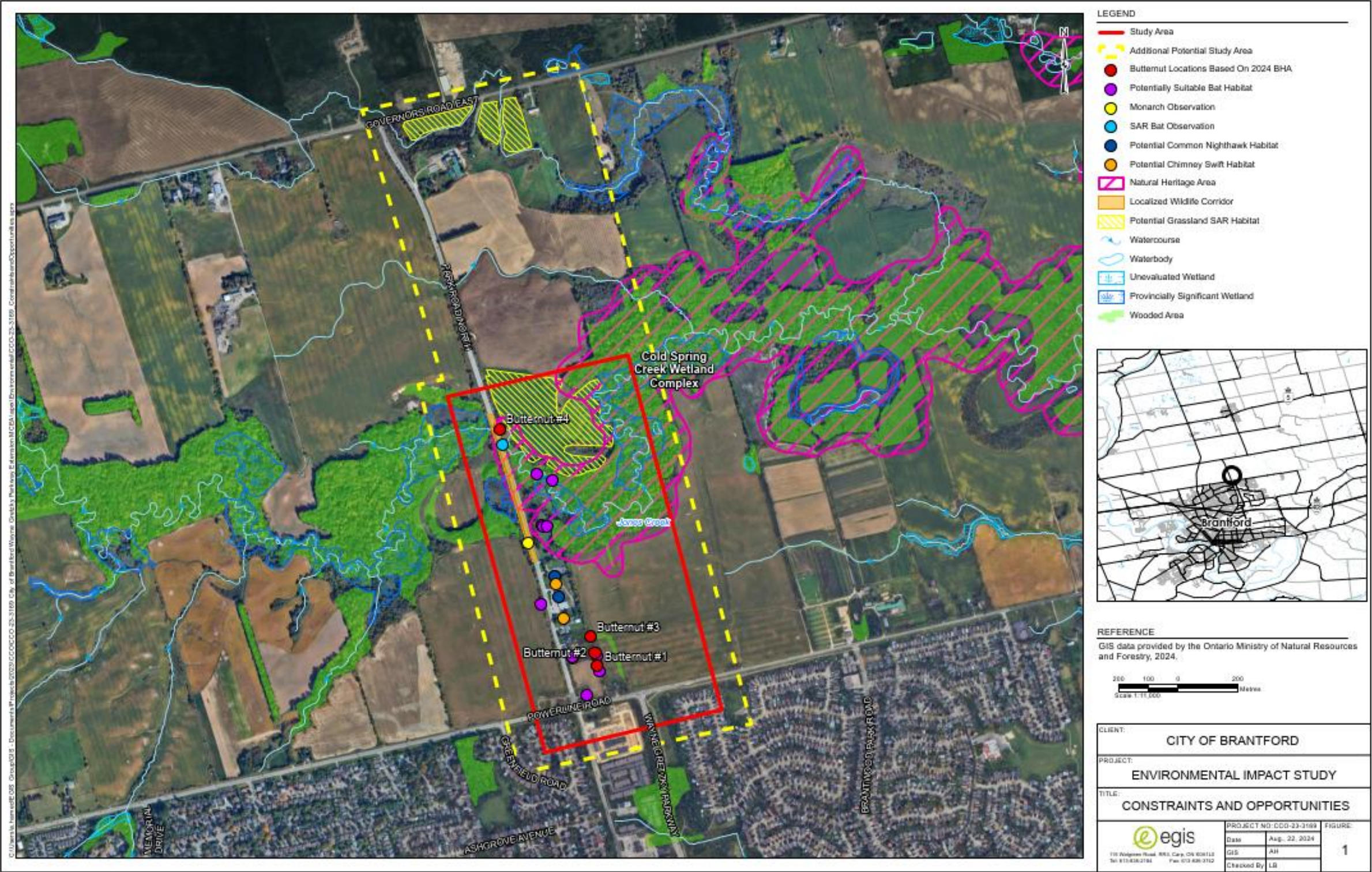
Northern Myotis - The Northern Myotis, listed as 'Endangered' under both the ESA and SARA, roosts in tree cavities and under loose bark in both deciduous and coniferous forests, as well as in anthropogenic structures like barns and houses. Suitable habitat for this species exists within the study area's forested areas and structures. However, no observations of this species were made during the 2023 and 2024 acoustic surveys.

Silver-haired Bat - The Silver-haired Bat, which roosts in tree cavities or small hollows in old-growth forests with clusters of snag trees, is scheduled to be uplisted to 'Endangered' under the ESA as of January 31, 2025. Although not observed during the 2023 acoustic survey, Silver-haired Bat signatures were detected during the 2024 survey along Park Road North in the Localized Wildlife Corridor, which includes the forested valleyland and Cold Spring Creek Wetland Complex PSW within the study area.

Tri-colored Bats - Tri-colored Bats roost in a variety of forested habitats, typically in trees with early decay stages, cavities, loose bark, or leaves, and occasionally use anthropogenic structures for roosting and maternity colonies. The species was observed during the 2023 acoustic survey in the forested valleyland of the study area but was not detected in the 2024 survey, including around the structures. Tri-colored Bats are listed as 'Endangered' under both the ESA and SARA.

During the 2023 and 2024 surveys, active surveys using the EchoMeter Touch 2 Pro detected the Little Brown Myotis and Tri-colored Bat flying over Park Road North. The 2024 survey also observed a Silver-haired Bat, which is set to be uplisted to 'Endangered' as of January 31, 2025, and will be protected under the ESA and SARA. No observations of SAR bats were made in association with the structures located within the study area during the 2024 acoustic surveys, which took place within the appropriate time of year in which to make exit observations. As individuals and colonies frequently switch roosts during their active season, it is acknowledged that the completed surveys are not conclusive as to whether or not these structures functioned as bat roosts during 2024, therefore additional surveys will be recommended during detailed design and prior construction.

Figure 8-1: Natural Heritage Opportunities and Constraints



8.2 Cultural Heritage Resources

8.2.1 Archaeological Resources

Archaeological Research Associates Ltd. (ARA) carried out a Stage 1 & 2 Archaeological Assessment of lands with the potential to be impacted by the northern extension of Wayne Gretzky Parkway.

8.2.1.1 Stage 1 Archaeological Assessment

The Stage 1 assessment was conducted in August 2023 under Project Information Form #P007-1503-2023. The investigation encompassed the entire study area. All field observations were made from accessible public areas; accordingly, no permissions were required for property access. At the time of assessment, the study area consisted of a variety of extant structures, roadways and driveways, watercourses, agricultural fields and numerous grassed, overgrown and wooded areas.

The Stage 1 assessment determined that the study area comprises a mixture of areas of archaeological potential, areas of no archaeological potential and previously assessed lands of no further concern. The areas of no archaeological potential included disturbed lands such as roadways, ditched areas, building footprints, driveways and parking areas, as well as permanent wetlands on the west side of Park Road North. The areas of archaeological potential included agricultural fields as well as various grassed, overgrown and wooded areas.

It was recommended that all areas of archaeological potential that could be impacted by the project be subject to a Stage 2 property assessment in accordance with Section 2.1 of the 2011 Standards and Guidelines for Consultant Archaeologists (S&Gs). The City of Brantford also informed ARA that the MCFN had made a request to incorporate a requirement for monitoring and mitigation measures during the construction of the Wayne Gretzky Parkway extension within the previously assessed lands that were not recommended for any further work. Accordingly, it was recommended that all construction activities within these lands be subject to Stage 2 monitoring as a precautionary measure. The identified areas of no archaeological potential do not require any additional assessment. If any in-water work is planned within the watercourses, the Criteria for Evaluating Marine Archaeological Potential checklist should be completed during the preliminary design.

Refer to Figure 8-2 and Figure 8-3 for a visual representation of the Stage 1 Archaeological Assessment findings. The detailed Stage 1 Archaeological Assessment Report (ARA, October 2024) is available in Appendix I for further reference.

8.2.1.2 Stage 2 Archaeological Assessment

The Stage 2 assessment was conducted in November 2024 under Project Information Form #P1146-0036-2024. The investigation encompassed the majority of the study area. The areas of archaeological potential that were previously identified within the R&M Walgraeve Garden Centre property at 721-723 Park Road North were not surveyed due to permission to enter not being granted. At the time of assessment, the study area consisted of part of an agricultural field, parts of two roadways, residential lands, commercial lands and various grassed, overgrown and wooded lands.

The Stage 2 assessment did not result in the identification of any archaeological materials. Given that the areas of archaeological potential within the R&M Walgraeve Garden Centre property could not be surveyed, the Stage 2 assessment remains incomplete. It is recommended that the outstanding areas be subject to a Stage 2 property assessment in accordance with Section 2.1 of the 2011 Standards and Guidelines for Consultant Archaeologists. All construction activities within the previously assessed lands located at 281 Powerline Road be subject to Stage 2 monitoring as a precautionary measure as requested by MCFN.

Please refer to Figure 8-4 for a visual representation of the Stage 2 Archaeological Assessment findings. The detailed Stage 2 Archaeological Assessment Report (ARA, February 2025) is available in Appendix J for further reference.

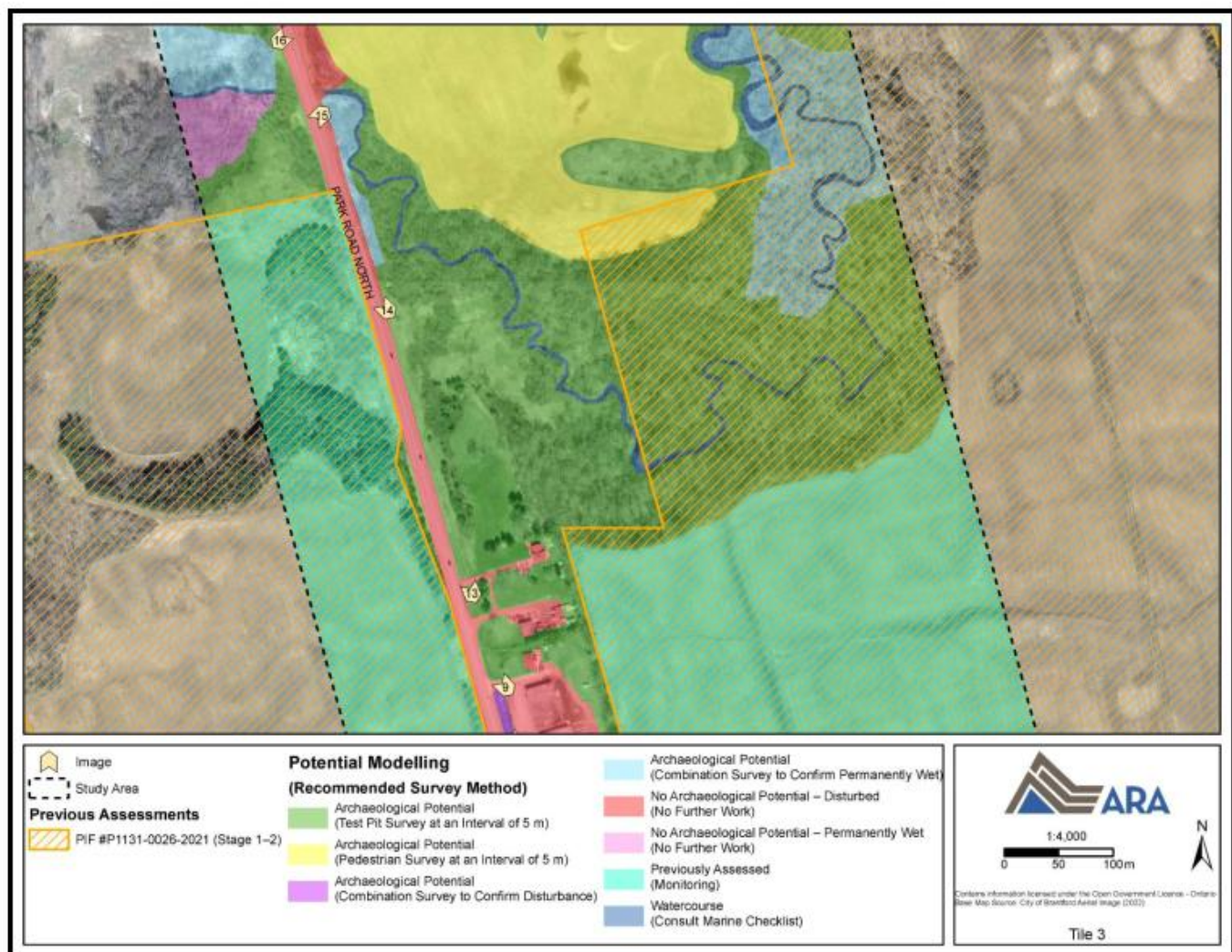


Figure 8-2: Stage 1 Archaeological Assessment Findings (Northern Portion)

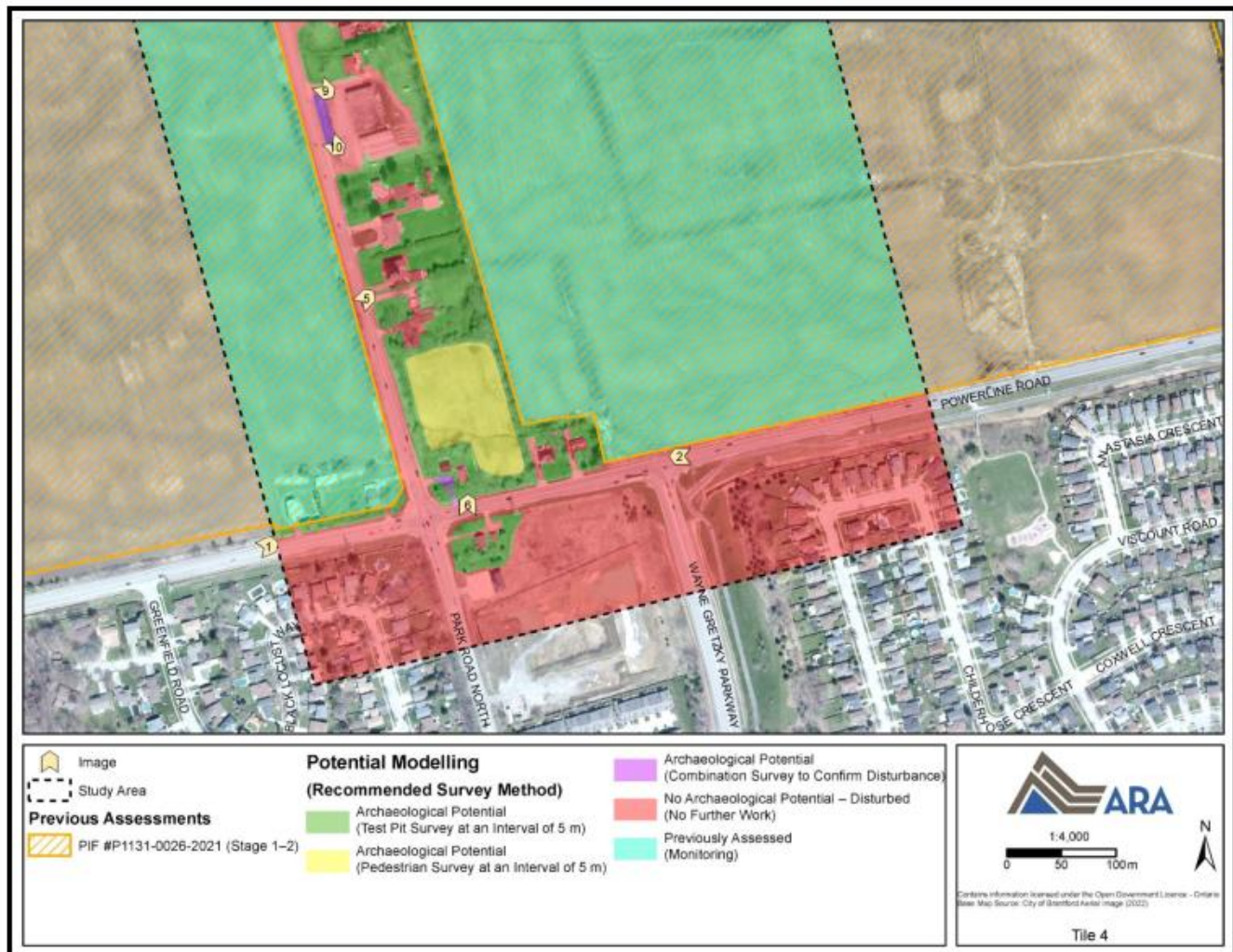


Figure 8-3: Stage 1 Archaeological Assessment Findings (Southern Portion)

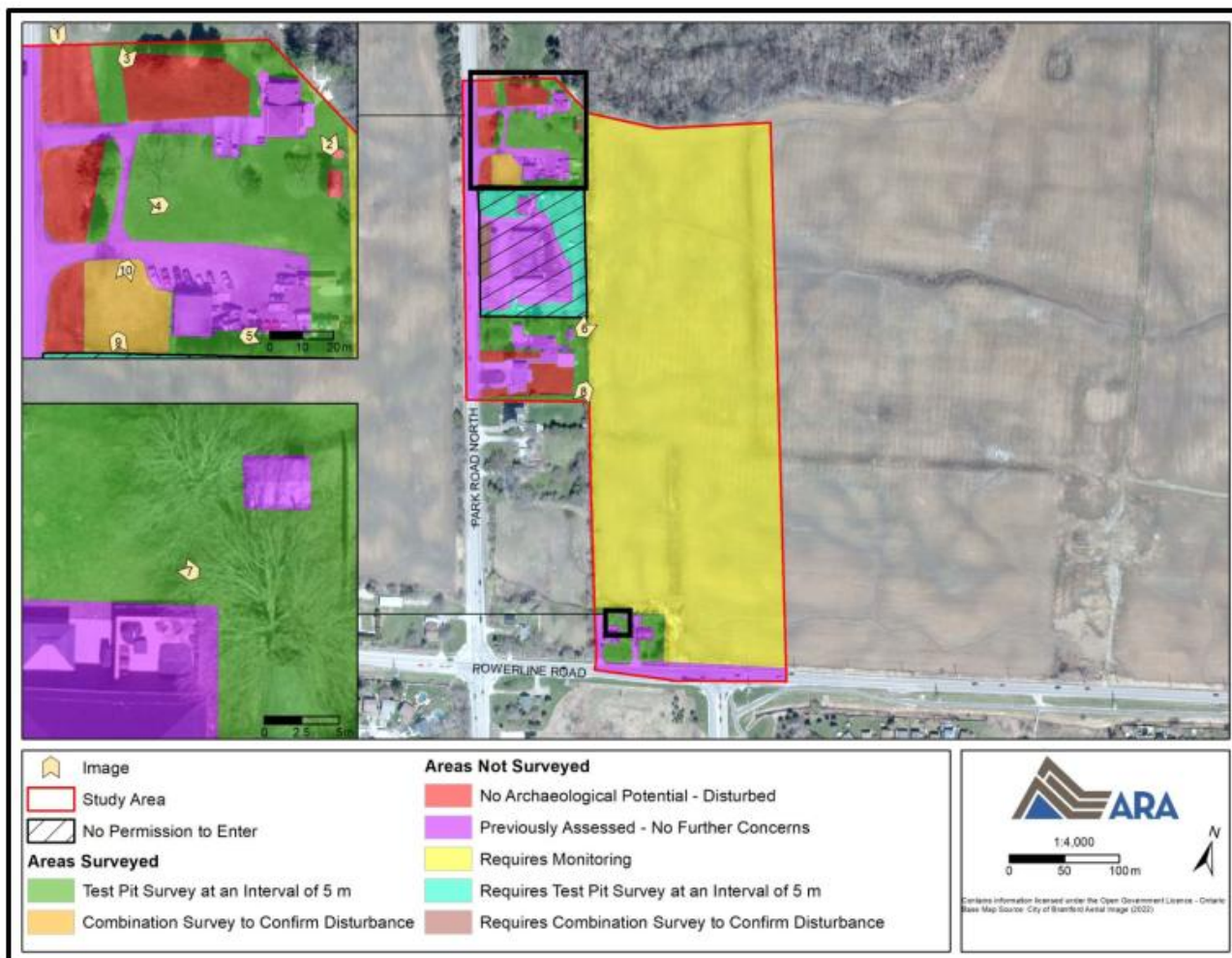


Figure 8-4: Stage 2 Archaeological Assessment Findings

* Note: zoomed in details provided for black squares

8.2.2 Built Heritage Resources and Cultural Heritage Landscapes

A Built Heritage Resources & Cultural Heritage Landscape Resource Assessment: Existing Conditions and Preliminary Impact Assessment Report (CHAR) was identified as being required for the subject study area. The CHAR was conducted in order to identify and document known or potential Built Heritage Resources (BHRs) and Cultural Heritage Landscapes (CHLs) and to provide a preliminary impact assessment of the proposed construction activities.

The findings of the historical background research and review of secondary source materials, including historical mapping, indicate that the study area has a rural land use history dating back to the early nineteenth century. A review of federal, provincial, and municipal registers, inventories, and databases revealed no previously identified cultural heritage features within or adjacent to the study area. During field investigations, one (1) potential Built Heritage Resource (BHR) was identified. It is not anticipated that the proposed scope of work will result in any direct or indirect impacts to BHR-1. Where possible, all construction activities should be carried out in a manner that avoids any impacts to BHR-1.

Based on the results of the assessment, the following recommendations have been developed:

- No direct or indirect impacts to the identified potential BHR has been identified. Construction activities and staging should be suitably planned and undertaken to ensure no impacts to the potential BHR, and
- Should future work require an expansion of the study area or if the scope of work changes during detail design, a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources.

Refer to the CHAR (Egis, December 2023) in Appendix K for additional information on the assessment carried out within the study area.

8.3 Geotechnical Investigation

A geotechnical investigation was carried out between December 2-6, 2024, which consisted of advancing boreholes using a 6" solid stem auger to respective borehole depths. The pavement structure was documented, outlining the asphalt, base and subbase depths including the underlying subsoil stratigraphy.

Egis placed six boreholes in midlane locations and three boreholes in the new boulevard area (off the existing road platform). The midlane boreholes were drilled to investigate the existing pavement platform. Two Powerline Road boulevard boreholes were drilled to investigate proposed widening and realignment of Powerline Road. One of the boulevard boreholes was installed with a monitoring well (BH-9/MW-9) in the southeast boulevard area of Powerline Road and Wayne Gretzky Parkway. BH-9/MW9 was drilled as part of the environmental sampling protocol. The borehole record for BH-9/MW-9 has been provided in this report for additional data. Three hand augers were advanced in the agricultural field just north of the Wayne Gretzky Parkway and Powerline Road intersection. The hand augers were drilled as part of the environmental sampling protocol. The borehole records for the three hand augers have been provided in this report for additional data. To assess asphalt depth, four asphalt core holes were advanced within the project limits. Additionally, as part of the hydrogeological study,

one monitoring well was installed to a depth of 4.6 m near the southeast boulevard at Wayne Gretzky Parkway and Powerline Road.

Results of the site investigation revealed varying existing pavement thicknesses across different sections, groundwater levels below surface grade, and documented pavement distresses such as surface deformations and cracking through a photographic survey.

The complete Pavement Design Report (Egis, June 2025) is attached in Appendix L.

8.4 Limited Soils Classification

Egis undertook a Limited Soil Characterization Report (SCR) to provide preliminary data pertaining to the characterization of excess soil for the Wayne Gretzky Parkway North Extension.

Egis developed a Sampling and Analysis Plan (SAP), which proposed the drilling of one (1) borehole, the advancement of three (3) hand-augered boreholes, and collection of soil samples for analysis of contaminants of potential concern (COPCs). A total of four (4) soil samples were collected to preliminarily identify the environmental quality of the soils within the study area. All soil samples were submitted for laboratory analysis of the minimum parameters under the Rules for Soil Management and Excess Soil Quality Standards (i.e., benzene, toluene, ethylbenzene, and xylenes (BTEX), petroleum hydrocarbons (PHCs) in the F1 to F4 fraction ranges (F1-F4), metals, pH, sodium adsorption ratio (SAR) and electrical conductivity (EC)). Soil samples collected from within the field that most recently have been used for agricultural purposes were also submitted for analysis of organochlorine (OC) pesticides.

Soil results for the purposes of the limited SCR were compared to the Site Condition Standards (SCS) and Excess Soil Quality Standards (ESQS) outlined in Ontario Regulation (O. Reg.) 406/19: On-Site and Excess Soil Management prepared by MECP under the Environmental Protection Act, as amended. The SCS and ESQS reviewed for comparison were:

- Table 1: Full Depth Background Site Condition Standards, Agricultural and Other Property Use and Residential/Parkland/Institutional/Industrial/Commercial/ Community Property Use (Table 1 AO SCS and Table 1 RPIICC SCS);
- Table 2.1: Volume Independent Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Agricultural and Other Property Use, Residential/Parkland/Institutional Property Use and Industrial/Commercial/ Community Property Use (Table 2.1 AO ESQS, Table 2.1 RPI ESQS and Table 2.1 ICC ESQS); and

- Table 3.1: Volume Independent Full Depth Excess Soil Quality Standards in a Non-Potable Ground Water Condition, Residential/Parkland/Institutional Property Use and Industrial/Commercial/ Community Property Use (Table 3.1 RPI ESQS and Table 3.1 ICC ESQS).

Analytical data comparison was limited to the criteria listed above. Soil samples that meet Table 1 are considered 'clean', soil samples that were found to be greater than Table 1 but less than Table 3.1 ICC are considered 'impacted', and soil samples that exceed Table 3.1 ICC are considered 'contaminated'.

Of the four (4) borehole locations sampled during the investigation, only the borehole sample collected near the intersection of Powerline Road and Wayne Gretzky Parkway (i.e., borehole BH-9) had exceedances of the Table 3.1 ESQS; however, these exceedances were of salt-related parameters (EC and SAR). This sample also exhibited concentrations of PHCs (F4 and F4G) that exceeded the Table 1 SCS. No visual or olfactory evidence of potential soil impacts (i.e., staining, odours, deleterious material, etc.) were observed during sample collection.

Based on the findings of this Limited SCR, it is our opinion that soil within borehole BH-9 can be beneficially reused within the Project Area or removed to a receiving site that accepts salt-impacted material that otherwise meets the Table 2.1 or 3.1 ESQS. All other soil can also be reused within the Project Area or removed to a receiving site that accepts material that meets the Table 1 SCS.

Refer to the Limited Soil Characterization Report (Egis, January 13, 2025) in Appendix M for additional information on the investigation carried out within the study area

8.5 Hydrogeological Investigation

The objective of the Hydrogeological Investigation was to investigate the hydrogeological conditions of the study area, estimate requirements for groundwater dewatering/control and determine the need for an Environmental Activity and Sector Registry (EASR) or Permit-to-take-Water (PTTW) with the MECP.

Based on recommended Design Concept for the Wayne Gretzky Parkway North Extension, the following assumptions were made in calculating groundwater inflow into the excavation trenches during construction:

- The excavation will be completed in 50 m long, 2.5 m wide trench segments, where only one trench will be opened at one time throughout construction.
- The excavation will be approximately 5 m deep.

- The aquifer is unconfined and in steady state.
- Groundwater flow into the excavation is at a steady state.

Based on review of the borehole/hand auger elevations, the ground surface at the site ranged between 212.92 (BH-2) to 227.12 (BH-9 (MW)) m asl. For the purpose of determining groundwater inflow rate, the proposed excavation depth has been assumed to be approximately 5 m below ground surface. Assuming a worst-case scenario, the worst-case groundwater elevation of 225.55 m asl was selected for design purposes (BH-9 (MW)).

To maintain a stable and dry excavation, the water level in the water bearing zone must be lowered 1.0 m below the deepest point in the excavation.

Groundwater seepage from the overburden into the trench segment area of excavation was estimated using analytical methods. Stormwater contribution to the excavation was estimated based on an incidental 2-year precipitation event (2-hour 2-year storm) with an intensity of 15.6 mm/hr as determined from the City of Brantford “*Design and Construction Manual, Linear Municipal Infrastructure Standards*” IDF curve, dated February 2025.

The radius of influence was calculated using the Sichart and Kryieleis Equation (1930) and estimated to be approximately 3 m from the edge of excavation.

Based on the results of the groundwater seepage assessment, the estimated groundwater volume entering the excavation is approximately 4,684 L per day. Applying a 2.5 safety factor to the seepage volumes, along with the contribution from a 2-year storm event, yields a total short-term design dewatering rate of approximately 15,610 L per day. As a result, an EASR/PTTW with the MECP will not be required prior to the commencement of construction activities. However, this shall be confirmed during the detailed design phase and reports updated.

Refer to the Hydrogeological Investigation Report (Egis, January 2025 and revised June 17, 2025) in Appendix N for additional information on the investigation carried out within the study area.

8.6 Source Water Protection

The Clean Water Act (2006) mandates that communities safeguard their drinking water supplies through preventive measures. This involves developing collaborative, science-based watershed protection plans that are locally driven.

The Grand River Source Protection Plan (GR SPP) identifies the Wayne Gretzky Parkway North Extension study area as being outside any designated Wellhead Protection Area.

However, GR SPP mapping shows that the northern portion of the study area falls within an Intake Protection Zone 3 (IPZ) with an Intrinsic Vulnerability Score ranging from 1 to 4, which is considered “low.” It is also important to note that an IPZ with an Intrinsic Vulnerability Score greater than 8, classified as “high”, is located just south of the study area, and south of Powerline Road across Park Road North, Wayne Gretzky Parkway and further east at Brantwood Park Road.

Additionally, according to the MECP Source Protection Information Atlas, the study area is not situated within any Highly Vulnerable Aquifers (HVAs) or Significant Groundwater Recharge Areas (SGRAs), which are typically more susceptible to groundwater contamination (i.e., quality concerns). However, mapping indicates that the section of Lower Jones Creek within the northern limits of the study area falls within IPZ-3 and has an Intrinsic Vulnerability Score of 3.

A key element of this assignment is the examination of both existing and proposed stormwater drainage patterns. Stormwater runoff from roadways is a known contributor to non-point source pollution, which can adversely affect the water quality of receiving watercourses. Vehicular pollutants, including oil, grease, heavy metals, nutrients, and sediments, are directly correlated with traffic volume. Furthermore, the impervious nature of new roadway cross-section has the potential to increase peak flows and alter surface runoff, potentially reducing groundwater recharge. Section 8.7 outlines the Drainage and Stormwater Management Assessment conducted for this study, ensuring that the preferred design concept prioritizes the protection of surface water integrity. The final design for the Wayne Gretzky Parkway North Extension must address both quantity and quality concerns to comply with GR SPP regulations, as well as City and GRCA standards. To mitigate risks to the drinking water source, Best Management Practices (BMPs) for safeguarding source water must be incorporated into both the preliminary and detailed design phases.

The Hydrogeological Investigation identified twenty-six (26) records within a 500-meter radius of the study area, suggesting that the use of groundwater for water supply purposes is likely in the region. The preliminary estimated zone of influence from the dewatering activities extends approximately 3 meters from the edge of the excavation. Due to the shallow and short-term nature of the proposed construction dewatering, the impact on groundwater is not anticipated to be significant in terms of either size or duration. However, this should be confirmed during the detailed design.

8.7 Drainage and Stormwater Management Assessment

The proposed extension is primarily to be located outside the footprint of existing roadways within undeveloped agricultural land slated to be developed. Park Road North has primarily a rural cross-section within the study limit, the roadway is drained by roadside ditch and culvert

systems with ultimate discharge to the Lower Jones Creek or municipal infrastructure along Powerline Road. Powerline Road at Wayne Gretzky Parkway is primarily a semi-urban cross-section within the study limit, drainage features in the corridor consist of curb and gutter, catchbasins, roadside ditches and cross-culverts which ultimate discharge to the Lower Jones Creek or municipal infrastructure. The study area also falls within the North Brantford Subwatershed and there is one watercourse, referred as Lower Jones Creek, crossing within the study limit.

The objective of the stormwater management and drainage assessment will be to evaluate the drainage characteristics within the proposed north extension Right of Way (ROW) limits under existing and proposed conditions, as well as to advance an integrated approach to facilitate the extension with no adverse impacts to the receiving drainage systems.

The catchment characterization for the Wayne Gretzky Parkway North Extension project involved delineating the area into various catchments using LiDAR data and proposed plans. Pre-development drainage was analyzed, identifying seven catchment areas and six external drainage areas contributing to the overall drainage pattern. Each catchment's runoff characteristics were detailed, including land use and flow directions towards four main outlets.

Further details pertaining to Stormwater Management and Drainage Assessment are discussed in Section 12.5 for the recommended design concept for Wayne Gretzky Parkway North Extension, as well as refer to the Stormwater Management and Drainage Brief (Egis, January 2025 and revised March 2025) in Appendix O for a more comprehensive overview of the assessment conducted within the study area.

8.8 Noise Assessment

The objective of this assessment was to predict sound levels related to the project's operational noise and assess mitigation measures to minimize any potential impacts. Sound impacts are evaluated by comparing the future sound levels with and without the proposed undertaking. Sound levels are measured as the 24-hour equivalent sound level based on the Average Annual Daily Traffic (AADT). If the predicted changes are equal to or greater than 5 dBA, or if the future sound levels with the undertaking are equal to or greater than 65 dBA, mitigation measures within the roadway right-of-way must be investigated.

The Noise Assessment was conducted based on eight (8) Noise Sensitive Areas (NSAs) identified along the Park Road North, Powerline Road, and Wayne Gretzky Parkway corridor. The identified NSAs consist mainly of residential dwellings and subdivisions on both the east and west sides of the roadway. The maximum area of investigation, as defined in the MTO's Environmental Guide for Noise, is 600 m perpendicular from the closest edge of the pavement,

which forms the boundaries of this assessment. The closest NSA to the edge of the pavement has been identified for the various segments under investigation. Once the nearest NSA is identified within the 600 m search radius, it is considered representative for the worst-case roadway impacts, with sound levels decreasing at greater setbacks. Only one receptor was assessed south of Powerline Road and east of Park Road North, identified as NSA 7. The stacked townhouses located at 677 Park Road North include no backyards, with residents having access only to elevated balconies or terraces less than 4 m in depth. Apartment balconies above the ground floor do not qualify as NSAs, per MTO guidelines, and were therefore excluded from this assessment.

Future build and no-build (i.e., do-nothing scenario) traffic data were provided for Wayne Gretzky Parkway North and the surrounding roadways, including Park, Powerline, and Governors Roads, as well as the East-West Collector. The provided future traffic data are for the year 2051, which aligns with the Brantford Transportation Master Plan.

The future build sound levels did not exceed the absolute sound level criteria of 65 dBA at any receptors. The relative increase in future sound levels was not determined for NSA 1, NSA 2, and NSA 5, as there are no existing residences that will experience a change in sound levels due to the undertaking. The relative increase in future sound levels resulting from the undertaking triggered the 5 dB criteria for four receptors in NSA 4. Additional noise mitigation strategies are discussed in Section 12.4.3.

For greater detail pertaining to the assessment, refer to the Environmental Noise Assessment Report (RWDI, December 1, 2025) in Appendix P.

8.9 Air Assessment

The objective of the air assessment is to predict air quality impacts as it relates to the project. The assessment was undertaken for two scenarios:

- Future No-Build scenario for the project year 2051; and
- Future Build scenario for the project year 2051.

The No-Build scenario represents Wayne Gretzky Parkway and the other existing roads within the study area (Park Road North, Powerline Road, Governors Road) without the proposed extension of Wayne Gretzky Parkway for the project year 2051. The 2051 Build scenario includes the proposed extension of Wayne Gretzky Parkway, with two lanes in each direction eventually merging into one lane in each direction approaching Governors Road. A two-lane “East-West Collector” road is included in both the No-Build and Build scenarios as it is expected to be built for access to future residential developments regardless of the proposed

extension of Wayne Gretzky Parkway. Additionally, in the 2051 Build Scenario, Powerline Road is widened from one lane to two lanes in each direction.

The emission modelling was based on the US EPA's roadway emissions model, MOVES4, and the dispersion modelling was based on the US EPA's dispersion model, AERMOD. The background concentrations were estimated using air quality monitoring data collected by MECP and Environment and Climate Change Canada (ECCC).

Air contaminants assessed as part of the study included PM2.5, PM10, CO, NO₂, acetaldehyde, acrolein, 1,3-butadiene, benzene, benzo(a)pyrene and formaldehyde. For the year 2051, MOVES4 estimated zero emissions of 1,3-butadiene due to US EPA updates of the toxic fractions of VOCs in vehicle exhaust; therefore, emissions results for 1,3-butadiene were not quantified for the 2051 Future No-Build and Future Build scenarios.

The percentages of electric vehicles in the future Ontario fleet were conservatively estimated by applying current Ontario fleet data for passenger cars and passenger trucks and current MOVES default data for commercial trucks to future years.

The proposed project is expected to have minor impact on local air contaminant levels at the receptors, with the maximum predicted cumulative concentrations for most contaminants and averaging periods less than current respective thresholds. For the 2051 No-Build Scenario, annual and 24-hour average benzo(a)pyrene concentrations exceed their respective AAQC thresholds for both scenarios but are attributed to high ambient background concentrations. The average background benzo(a)pyrene concentration for the annual averaging period exceeds the AAQC on its own and the average background benzo(a)pyrene concentration for the 24-hour averaging period is over 80% of the AAQC threshold.

The 2051 Future Build scenario is predicted to have minor air quality impacts and to be relatively comparable to the Future No-Build scenario; therefore, the project is not expected to have a significant impact on local air quality. No mitigation measures are recommended beyond those which are already in place through phased-in federal regulations for on-road vehicle and engine emissions, which are expected to reduce NO₂ and other tailpipe emissions beyond the horizon year used for emission factors in the present study. Refer to the Air Quality Assessment Report (RWDI, November 5, 2025) in Appendix Q for greater detail pertaining to the assessment.

8.10 Climate Change

The MECP finalized a 'guide,' Consideration of Climate Change in Environmental Assessment In Ontario (November 21, 2017), which, together with their code of practices, sets out the

MECP's expectations for considering climate change in the preparation, execution, and documentation of environmental assessment studies and processes. The guide defines "climate consideration" in a project as incorporating methods to reduce greenhouse gas emissions, develop a resilient design, and preserve local ecological integrity amidst changing climates.

The potential for the project to impact climate change was assessed by calculating the total annual emissions for the No-Build and Build scenarios in 2051. This analysis focused on the emissions of greenhouse gases, carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), in terms of CO₂e (CO₂ equivalent).

This analysis included the emissions from modelled roadways within the study area. In order to assess the effect of the project on regional air quality, annual project-related emissions were compared with the annual total Ontario-wide emissions of the same pollutants from transportation and other sources.

The increase in greenhouse gas emissions from the project compared to the regional provincial emissions of greenhouse gas CO₂e is very low and therefore the project is not expected to have a significant impact on the regional air quality. Specifically, the increase is 0.08% from the 2051 No-Build to Build scenarios.

8.11 Utilities

Existing utilities along the Park Road North and Powerline Road corridor have been identified based on available information provided by the utility companies and visual observations during field. The existing utilities along the Park Road North corridor consist of overhead lines and hydro poles will be relocated as necessary to accommodate the preferred design.

As part of the consultation process, the project team was made aware of plans for GrandBridge Energy to complete a number of pole relocations within the study area, namely along with Park Road North corridor from Powerline Road to Governors Road. At the time of preparing this report, GrandBridge Energy was in the process of obtaining Municipal Consent for the proposed relocations. Proposed pole locations may fall within areas impacted by the proposed extension of Wayne Gretzky Parkway North or associated intersection improvements. Efforts to mitigate impacts will be taken where possible, however proposed timelines for pole relocation may not allow for full coordination. Future relocations may be required as part of the proposed extension, depending on ultimate alignment and configuration.

The location and alignment of current utilities/municipal services will undergo further examination to identify potential impacts. Verification of utility impacts will need to be further

confirmed during the Preliminary/Detailed Design stages, within which impacts, and relocation requirements will be coordinated with applicable utility companies. It should be noted that the limited long-term planning of utility relocations may impeded the extent of coordination that can be completed at this stage. Further coordination will be required as the project approaches the implementation phase.

9.0 Alternative Solutions

The Class EA process requires documentation and examination of all reasonable alternative solutions to address the problem and opportunity statement. The following sections describe the evaluation methodology for reviewing each proposed alternative solutions, the identification and review of alternative solutions, and the identification of the recommended preferred solution(s). Following consultations with agencies, stakeholders, First Nations, interested parties, and the public, the recommended preferred solution was refined to incorporate feedback, and a final preferred solution was selected.

9.1 Development of Alternative Solutions

A full range of alternative solutions, as described below, were identified and compared to the “do nothing” (base case) alternative. The following alternative solutions were developed and evaluated after appropriate studies and consultation had been completed.

Alternative 1 – Do Nothing: No change made within the Study Area (status quo). No changes to the existing transportation network within the study area. No changes to existing conditions.

Alternative 2 – Limit Development of Surrounding Lands: Implement planning policies which would limit population and employment growth in the North Expansion Lands to ease the future traffic constraints.

Alternative 3 – Improve Alternative Roadways: Improve adjacent north-south and/or east-west corridors to provide capacity relief to the King George Road corridor and north-south travel demands from the North Expansion Lands, as well as accommodate future growth. This could include improvements to corridors such as Park Road North and Powerline Road.

Alternative 4 – Construct New Wayne Gretzky Parkway North Extension with Lower Jones Creek Crossing: Construct a new extension of Wayne Gretzky Parkway to the north from Powerline Road crossing over Lower Jones Creek.

Alternative 5 – Construct New Wayne Gretzky Parkway North Extension without Lower Jones Creek Crossing: Construct a new extension of Wayne Gretzky Parkway to the north from Powerline Road and connecting to Park Road North. This alternative would not transition over Lower Jones Creek.

9.2 Evaluation Methodology

The evaluation of alternative solutions was undertaken to address the Problem Statement identified for this project (Section 3.0) and to consider all aspects of the Class EA study. The overall assessment and evaluation process followed two basic concepts:

1. **Assessment of Alternatives:** the potential benefits of each alternative are assessed against a comprehensive set of criterion for Transportation/Engineering, Land Use Planning Objectives, Natural Environment, First Nations/Cultural Environment, Social Environment and Economic Environment.
2. **Evaluation of Alternatives:** A comparative evaluation of alternatives to identify a recommended technically preferred solution.

An evaluation framework was developed in collaboration with the City, including technical considerations and environmental components that address the broad definition of the environment as described in the Class EA and EAA, as well as based on comments received from relevant agencies, stakeholders, First Nations, interested parties (including area residents, business and development communities), and the public. As stated above, six categories were established to aid in the evaluation of Alternative Solutions: Transportation/Engineering, Land Use Planning Objectives, Natural Environment, First Nations/Cultural Environment, Social Environment, and Economic Environment (Table 9-1). Among the considerations, First Nations input and interests are incorporated into more than one category wherever applicable. The criteria for each category were established based on key objectives outlined in the City and governing agencies policies (OP, TMP, ATMP, GRCA, etc.), and the North Brantford and Tutela Heights Sub-watershed Study, which support planning and decision-making processes.

Table 9-1 identifies the evaluation criteria and rationale, as well as the criteria measures and corresponding descriptions. The evaluation of the alternative solutions (Table 9-2) was carried out using the Reasoned Argument method of comparing differences in impacts and provides a clear rationale for the selection of the technically preferred solution(s). The evaluation of alternative solutions considers the positive and negative potential impacts associated with each of the alternative solutions in consideration of the criteria listed in Table 9-1. This evaluation is a relative comparison to be used to determine which alternative was technically preferred.

Each criterion evaluated was summarized using the following rankings from Not Preferred to Preferred:

Not Preferred – Fails to address the Problem and Opportunity Statement; consequently, it does not achieve the City's objectives for this assignment.

Less Preferred – Partially addresses the Problem and Opportunity Statement; ultimately falls short of meeting the City's objectives for this assignment.

Preferred – Addresses the Problem and Opportunity Statement and aligns with the City's objectives for this assignment.



Table 9-1: Proposed Evaluation Criteria

Criterion	Criteria Measure	Description of Criteria Measures
Transportation/Engineering	Existing and Future Transportation Network	- Addresses existing and future capacity demands along the corridor, and intersection Levels of Service (LOS) deficiencies, congestion/delays and other operational needs. - Provides capacity relief to King George Road corridor and north/south travel demands for the Northern Expansion Lands.
	Connectivity – Existing and Future	- Provides connectivity to the City's existing road network. - Provides connectivity with future planned road network to service North Expansion Lands.
	Active Transportation	- Ability to safely address pedestrian and cyclist objectives in the corridor (i.e., sidewalks, bike lanes, on-road routes, MUP, etc.).
	Transit Service	- Services existing transit travel demands and accommodates future transit network/improvements.
	Traffic Safety	- Enhances traffic safety for all users based on the opportunity to reduce congestion and potential for collisions.

Criterion	Criteria Measure	Description of Criteria Measures
	Constructability	- Ease/complexity of construction (i.e., bridges, existing intersections, etc.). - Ease/complexity of North Expansion Lands to connect to extension (i.e., proposed intersection geometry and locations, etc.).
	Existing Infrastructure	- Minimizes impact on existing infrastructure (i.e., sewers, watermain, roadways, stormwater management, utilities, etc.).
	Durability/ Service Life	- Anticipated years in service prior to rehabilitation.
	Phasing and Implementation	- Impact to existing traffic operations during construction (i.e., staging, detours, etc.). - Ease of project implementation (regulatory approvals).
Land Use Planning Objectives	City Policies	- Consistent with the proposed transportation system and function of roads in the long term (i.e., City of Brantford Transportation Master Plan Update (2020) and Active Transportation Master Plan), as well as meets the requirements of the City of Brantford Official Plan to adequately support City growth and development.
Natural Environment	Environmentally Sensitive Areas	- Minimizes impacts environmentally sensitive areas such as Provincially Significant Wetlands, Areas of Natural and Scientific Interest (ANSIs), etc.
	Terrestrial Habitat (Wildlife and Vegetation)	- Minimizes impact to wildlife habitats and movement corridors. - Minimizes impacts to vegetation communities (i.e., vegetation and tree removal).

Criterion	Criteria Measure	Description of Criteria Measures
	Fisheries/Aquatic Impacts	- Minimizes impacts to fish communities and aquatic habitats.
	Species at Risk	- Minimizes impacts/opportunities for mitigation of SAR and SAR Habitat (i.e., SAR Birds, Bats, Turtles and Trees).
	Existing Watercourses	- Minimizes potential to impact existing watercourses or waterbody including the Lower Jones Creek and its tributaries. - Minimizes potential to impact to GRCA Regulated areas (i.e., floodplain, meander belt, slope stability, etc.)
	Ground and Surface Water Quality/Quantity	- Minimize potential impacts to surface water and ground water resources and quality.
	Climate Change Mitigation	- Minimizes effects on Climate Change including Greenhouse Gas Emissions and extreme weather events.
First Nations/ Cultural Environment	Natural Resources – Hunting, Harvesting and Seedling Cultivating	- Potential Impacts to First Nations natural resources and their ability to access.
	Archaeological Resources	- Minimizes potential impacts to archaeological resources or areas with potential resources.
	Built Heritage Resources and Cultural Heritage Landscapes	- Minimizes potential to impact known built heritage resources and cultural heritage landscapes.
Social Environment	Land Use	- Minimizes impacts to residents, community facilities, businesses and recreational facilities.
	Property Requirements	- Minimizes property acquisition and potential impacts to existing properties and access.
	Noise and Vibration	- Minimizes potential to increase noise in Noise Sensitive Areas (NSAs) (e.g.,

Criterion	Criteria Measure	Description of Criteria Measures
		residential properties backing onto the roadway).
	Air Quality	- Improvements to air quality.
	Aesthetics	- Improves visual appearance / aesthetics and maintains privacy of existing residence and communities.
Economic Environment	Capital Costs	- Capital costs associated with the proposed improvements and value to the City (cost/benefit)
	Operation and Maintenance Costs	- Costs associated with operation and maintenance (O&M) of any additional infrastructure (Life-Cycle Costs).

9.3 Evaluation of Alternative Solutions

The detailed evaluation for the proposed Alternative Solutions is presented in Table 9-2 using the evaluation criteria identified in Table 9-1. Each criterion evaluated was summarized using the “Not Preferred” to “Preferred” ranking method.

Table 9-2: Evaluation of Alternative Solutions

Criteria Measure	Description of Criteria Measures	Alternative 1 Do Nothing	Alternative 2 Limit Development of Surrounding Lands	Alternative 3 Improve Alternative Roadways	Alternative 4 Construct New Wayne Gretzky Parkway North Extension with Creek Crossing	Alternative 5 Construct New Wayne Gretzky Parkway North Extension without Creek Crossing
		Rationale				
Transportation/ Engineering						
Existing and Future Transportation Network	Addresses existing and future capacity demands along the corridor, and intersection Levels of Service (LOS) deficiencies, congestion/delays and other operational needs.	- Not consistent with City planning policies. Does not address anticipated transportation needs. Does not improve network connectivity for all travel modes.	- Does not improve network connectivity for all travel modes. - Not consistent with City planning policies.	- Potential to provide capacity in other corridors however does not improve network connectivity	- Provides additional capacity and accommodates infrastructure improvements required to support existing communities and the development of the North Expansion Lands - Ability to maintain and/or maximize opportunities for improved access into existing and proposed residential and commercial properties.	- Provides additional capacity and accommodates infrastructure improvements required to support existing communities and the development of the North Expansion Lands - Ability to maintain and/or maximize opportunities for improved access into existing and proposed residential and commercial properties.
	Provides capacity relief to King George Road corridor and north/south travel demands for the North Expansion Lands.	- Traffic congestion will continue to increase on Park Rd N with insufficient capacity to meet future travel demands.	- Potential to marginally limit increase in congestion by limiting additional trips. No opportunity to address existing congestion.	- Minor localized capacity improvements will improve corridor capacity, limited potential to address future demand.	- Improves corridor capacity and reduces delays/queuing. - Improves network redundancy by providing alternate route options.	- Improves corridor capacity and reduces delays/queuing. - Improves network redundancy by providing alternate route options.
Connectivity – Existing and Future	Provides connectivity to the City's existing road network.	- Does not improve existing connectivity.	- Does not improve existing connectivity	- May improve existing connectivity through localized improvements	- Improves network connectivity for all travel modes.	- Improves network connectivity for all travel modes.
	Provides connectivity with future planned road network to service North Expansion Lands.	- Reduces potential connectivity for future roadways due to limited access and increased roadway congestion.	- Does not improve future connectivity	- Limited opportunity for new connections. May improve future connectivity through localized improvements.	- Improved connectivity and access to expansion lands.	- Improved connectivity and access to expansion lands.

Criteria Measure	Description of Criteria Measures	Alternative 1 Do Nothing	Alternative 2 Limit Development of Surrounding Lands	Alternative 3 Improve Alternative Roadways	Alternative 4 Construct New Wayne Gretzky Parkway North Extension with Creek Crossing	Alternative 5 Construct New Wayne Gretzky Parkway North Extension without Creek Crossing
		Rationale				
Active Transportation	Ability to safely address pedestrian and cyclist objectives in the corridor (i.e., sidewalks, bike lanes, on-road routes, MUP, etc.).	- No opportunity to improve accommodation, address active transportation needs.	- No opportunity to improve accommodation, address active transportation needs.	- Limited opportunities for improving public facilities (e.g., sidewalks, bike lanes) to encourage and promote alternative modes of transportation (e.g., walking, cycling).	- Provides opportunities for improved public facilities (e.g., sidewalks, bike lanes) to promote alternative modes of transportation (e.g., walking, cycling). - Provide a multi-modal vision of “sustainable mobility” that can accommodate vehicles, transit, cyclists and pedestrians in a healthy community.	- Provides opportunities for improved public facilities (e.g., sidewalks, bike lanes) to promote alternative modes of transportation (e.g., walking, cycling). - Provide a multi-modal vision of “sustainable mobility” that can accommodate vehicles, transit, cyclists and pedestrians in a healthy community.
Transit Service	Services existing transit travel demands and accommodates future transit network/improvements.	- No opportunity to improve transit network.	- No opportunity to improve transit network.	- Limited potential for improvements to transit network. No improvements to connectivity.	- Opportunity to expand transit network and improve connectivity to expansion lands. - Increased network redundancy within expansion lands. Transit won’t cross over the Lower Jones Creek.	- Opportunity to expand transit network and improve connectivity to expansion lands. - Increased network redundancy.
Traffic Safety	Enhances traffic safety for all users based on the opportunity to reduce congestion and potential for collisions.	- Does not address existing or potential safety concerns. Increased potential for collisions as congestion increases. - No potential to improve emergency service response times due to increased roadway congestion and associated travel times along Park Road North and Powerline Road.	- Does not address existing or potential safety concerns. - No potential to improve emergency service response times due to increased roadway congestion and associated travel times along Park Road North and Powerline Road.	- Potential for minor localized improvements only. - Potential reductions in travel demand would not be sufficient to offset the traffic congestion increases over time; therefore, low potential to improve emergency service response times.	- Moderate improvements to safety and comfort, as traffic congestion will be reduced. - The extension will improve road network connectivity which will result in better response times for emergency service vehicles (fire, police, and ambulance).	- Moderate improvements to safety and comfort, as traffic congestion will be reduced. - The extension will improve road network connectivity which will result in better response times for emergency service vehicles (fire, police, and ambulance).

Criteria Measure	Description of Criteria Measures	Alternative 1 Do Nothing	Alternative 2 Limit Development of Surrounding Lands	Alternative 3 Improve Alternative Roadways	Alternative 4 Construct New Wayne Gretzky Parkway North Extension with Creek Crossing	Alternative 5 Construct New Wayne Gretzky Parkway North Extension without Creek Crossing
		Rationale				
Constructability	Construction complexity, including staging and traffic disruption during construction (i.e., new crossings, existing intersections, etc.).	- No new construction.	- No new construction.	- Work within existing corridor, retrofit improvements may present challenges and increase complexity.	- Various alternative alignments present varying degree of complexity. - High construction complexity anticipated due to the construction of the crossing over Lower Jones Creek.	- Various alternative alignments present varying degree of complexity. - Moderate-high construction complexity anticipated.
	Ease/complexity of North Expansion Lands to connect to extension (i.e., proposed intersection geometry and locations, etc.).	- Limited opportunity for connection to northern expansion lands based on existing corridor and network geometry.	- Limited opportunity for connection to northern expansion lands based on existing corridor and network geometry.	- Limited opportunity for connection to northern expansion lands based on existing corridor.	- Increased alternatives for connection to expansion lands, new intersection locations.	- Increased alternatives for connection to expansion lands, new intersection locations.
Existing Infrastructure	Minimizes impact on existing infrastructure (i.e., sewers, watermains, roadways, stormwater management, utilities, etc.).	- No impacts to existing infrastructure.	- No impacts to existing infrastructure.	- Improvements may require relocation of existing infrastructure. - No opportunity for improved connections to expansion lands. - Low to moderate increase in storm water runoff volumes due to potential increase in paved surface areas and associated salt distribution.	- May require relocation along existing corridor to facilitate connections. - Improved access to existing infrastructure for expansion lands. - Higher increase in storm water runoff volumes due to increase in paved surface areas and associated salt distribution if not properly mitigated.	- May require relocation along existing corridor to facilitate connections. - Improved access to existing infrastructure for expansion lands. - Higher increase in storm water runoff volumes due to increase in paved surface areas and associated salt distribution if not properly mitigated.
Durability/ Service Life	Anticipated years in service prior to rehabilitation.	- Reduced service life for existing roads associated with increased demand	- No change in anticipated service life for existing network	- Improvements will provide opportunity to design for extended service life. Service life of adjacent roadways may be reduced.	- Improvements will provide opportunity to design for extended service life. - Improved service life for adjacent network.	- Improvements will provide opportunity to design for extended service life. - Improved service life for adjacent network.
Phasing and Implementation	Impact to existing traffic operations during construction (i.e., staging, detours, etc.).	- No construction related impacts.	- No construction related impacts.	- Construction staging required to limit construction impacts. - Existing network expected to experience temporary delays	- Majority of construction can be completed without impacts to existing road network. However, temporarily impact	- Majority of construction can be completed without impacts to existing road network. However, temporarily impact

Criteria Measure	Description of Criteria Measures	Alternative 1 Do Nothing	Alternative 2 Limit Development of Surrounding Lands	Alternative 3 Improve Alternative Roadways	Alternative 4 Construct New Wayne Gretzky Parkway North Extension with Creek Crossing	Alternative 5 Construct New Wayne Gretzky Parkway North Extension without Creek Crossing
		Rationale				
				and changes in traffic operations during construction.	to existing traffic operations when constructing or reconfiguring intersections.	to existing traffic operations when constructing or reconfiguring intersections.
	Ease of project implementation (regulatory approvals).	- No regulatory approval requirements.	- No regulatory requirements. Does not align with the objectives of City planning policies, unlikely to be approved.	- Moderate consultation and regulatory approval requirements.	- Extensive consultation and regulatory approval requirements.	- Extensive consultation and regulatory approval requirements.
Technical / Engineering Evaluation		Less Preferred	Less Preferred	Not Preferred	Preferred	Preferred
Land Use Planning Objectives						
City Policies	Consistent with the proposed transportation system and function of roads in the long term (i.e., City of Brantford Transportation Master Plan Update (2020) and Active Transportation Master Plan), as well as meets the requirements of the City of Brantford Official Plan to adequately support City growth and development.	- Does not address the City's existing policy objectives for transportation and growth for maintaining an appropriate road network to accommodate commercial, industrial and private vehicular traffic.	- Does not address existing and planned land uses in the City's Official Plan.	- In the short-term it will address City's existing policy objectives for transportation and growth for maintaining an appropriate road network. However, this alternative will not meet the City's long-term planning objectives for transportation and growth.	- Addresses the City's existing policy objectives for transportation and growth for maintaining an appropriate road network to accommodate service needs. - Fulfill objectives for development and economic growth in the study area and North Expansion Lands.	- Addresses the City's existing policy objectives for transportation and growth for maintaining an appropriate road network to accommodate service needs. - Fulfill objectives for development and economic growth in the study area and North Expansion Lands.
Land Use Planning Objectives Evaluation		Not Preferred	Not Preferred	Less Preferred	Preferred	Preferred
Natural Environment						
Environmentally Sensitive Areas	Minimizes impacts environmentally sensitive areas such as Provincially Significant Wetlands, Areas	- No impacts to environmentally sensitive areas.	- No impacts to environmentally sensitive areas.	- Low to moderate potential to impact environmental sensitive area (Cold Springs Creek Wetland Complex and	- High potential to impact environmental sensitive areas (Cold Springs Creek Wetland Complex and Provincially	- Low to moderate potential to impact environmental sensitive area (Cold Springs Creek Wetland Complex and

Criteria Measure	Description of Criteria Measures	Alternative 1 Do Nothing	Alternative 2 Limit Development of Surrounding Lands	Alternative 3 Improve Alternative Roadways	Alternative 4 Construct New Wayne Gretzky Parkway North Extension with Creek Crossing	Alternative 5 Construct New Wayne Gretzky Parkway North Extension without Creek Crossing
		Rationale				
	of Natural and Scientific Interest (ANSIs), etc.	- Proposed North Development Lands could have its own impacts on environmentally sensitive areas.	- Proposed North Development Lands could have its own impacts on environmentally sensitive areas.	Provincially significant woodlands associated with Lower Jones Creek).	significant woodlands associated with Lower Jones Creek) with the crossing of Lower Jones Creek.	Provincially significant woodlands associated with Lower Jones Creek) pending the selection of the preferred alignment.
Terrestrial Habitat (Wildlife and Vegetation)	Minimizes impact to wildlife habitats and movement corridors.	- No impacts to wildlife habitats and movement corridors.	- No impacts to wildlife habitats and movement corridors. - Development could have its own impacts on environmentally sensitive areas.	- Low potential to impact wildlife habitats and movement corridors due to its proximity to potential roadway improvements.	- High potential to impact wildlife habitats and movement corridors pending the selection of the preferred road alignment and crossing Lower Jones Creek;.	- Moderate potential to impact wildlife habitats and movement corridors pending the selection of the preferred road alignment if not properly mitigated.
	Minimizes impacts to vegetation communities (i.e., vegetation and tree removal).	- No impacts to vegetation and trees.	- No impacts to vegetation and trees. - Development could have its own impacts on vegetation and tree removal.	- Low to moderate potential to impact vegetation and trees removal due to its proximity to potential roadway improvements. - Moderate potential to impact existing vegetation and trees along frontages of residential dwelling along Park Road North and Powerline Road, as well as some forested areas.	- High potential to impact vegetation and trees due to the extension of Wayne Gretzky Parkway to the north and construction of a crossing over Lower Jones Creek & Cold Springs Creek Wetland Complex which could result in higher removal of vegetation and trees. - Study area consists mainly of agricultural lands and several residential dwelling along Park Road North.	- Moderate potential to impact vegetation and trees removal due to the extension of Wayne Gretzky Parkway to the north. - Study area consists mainly of agricultural lands and several residential dwelling along Park Road North.
Fisheries/ Aquatic Impacts	Minimizes impacts to fish communities and aquatic habitats.	- No impacts to fish communities and aquatic habitats.	- No impacts to fish communities and aquatic habitats. - Development could have its own impacts on fish communities and aquatic habitats.	- Low potential to impact fish communities and aquatic habitats as there is only one watercourse crossing along Park Road North within Municipal Boundaries and none along Powerline Road within the study area limits.	- Crossing of Lower Jones Creek would result in higher impacts to fish communities and aquatic habitat.	- Lower potential to impact fish communities and aquatic habitats as there is only watercourse crossing along Park Road North which may need to be extended or replaced pending the proposed alignment.

Criteria Measure	Description of Criteria Measures	Alternative 1 Do Nothing	Alternative 2 Limit Development of Surrounding Lands	Alternative 3 Improve Alternative Roadways	Alternative 4 Construct New Wayne Gretzky Parkway North Extension with Creek Crossing	Alternative 5 Construct New Wayne Gretzky Parkway North Extension without Creek Crossing
		Rationale				
Species at Risk	Minimizes impacts/opportunities for mitigation of SAR and SAR Habitat (i.e., SAR Birds, Bats, Turtles and Trees).	- No impacts to SAR and SAR Habitat.	- No impacts to SAR and SAR Habitat. - Development could have its own impacts on SAR and SAR habitat.	- Low to moderate potential to impact to SAR and SAR habitat. - SAR Bats and Butternut Trees potential impacts could be encountered as a result of vegetation and tree removal required to undertake roadway improvements.	- Moderate to high potential to impact to SAR and SAR habitat. - SAR Bats and Butternut Trees are presented within the study area and therefore the Wayne Gretzky Parkway north extension could potentially impact SAR if not properly mitigated.	- Moderate to high potential to impact to SAR and SAR habitat. - SAR Bats and Butternut Trees are presented within the study area and therefore the Wayne Gretzky Parkway north extension could potentially impact SAR if not properly mitigated.
Existing Watercourses	Minimizes potential to impact existing watercourses or waterbody including the Lower Jones Creek and its tributaries.	- No impacts to existing watercourses or waterbodies.	- No impacts to existing watercourses or waterbodies. - Development could have its own impacts on existing watercourses or waterbodies.	- Low to moderate potential to impact existing watercourse with the extension or replacement of the watercourse crossing on Park Road North to accommodate the potential roadway improvements.	- High potential to impact Lower Jones Creek through the construction of a watercourse crossing.	- Low to moderate potential to impact Lower Jones Creek pending the selection of the preferred alignment. - The existing Lower Jones Creek Culvert crossing Park Road North may need to be extended or replaced pending the selection of the preferred alignment,
	Minimizes potential to impact to GRCA Regulated areas (i.e., floodplain, meander belt, slope stability, etc.)	- No anticipated impacts to GRCA Regulated areas.	- No anticipated impacts to GRCA Regulated areas. - Development could have its own impacts on GRCA Regulated areas.	- Low potential to impact GRCA Regulated areas due to slight increase in proposed paved surface area and potential culvert extension crossing Park Road North.	- Moderate potential to impact flooding and erosion due to increased paved surface area of the new road alignment if not properly mitigated.. - High potential to negatively impact GRCA Regulated areas with the construction of a new crossing over Lower Jones Creek & Cold Springs Creek Wetland Complex.	- Moderate potential to impact flooding and erosion due to increased paved surface area of the new road alignment if not properly mitigated.. - Low to Moderate potential to negatively impact GRCA Regulated areas should the existing Lower Jones Creek Culvert crossing Park Road North need to be extended or replaced pending the selection of the preferred alignment.

Criteria Measure	Description of Criteria Measures	Alternative 1 Do Nothing	Alternative 2 Limit Development of Surrounding Lands	Alternative 3 Improve Alternative Roadways	Alternative 4 Construct New Wayne Gretzky Parkway North Extension with Creek Crossing	Alternative 5 Construct New Wayne Gretzky Parkway North Extension without Creek Crossing
		Rationale				
Ground and Surface Water Quality/Quantity	Minimize potential impacts to surface water and ground water resources and quality.	- Potential impacts to surface water and ground water resources and quality.	- No impacts to ground and surface water quality/quantity.	- No impacts to ground and surface water quality/quantity. - Development could have its own impacts on ground and surface water quality/quantity	- Low potential to impact groundwater and surface water quality. - Appropriate mitigation measures will be required based on the proposed roadway improvements.	- Moderate to high potential impact to groundwater and surface water quality with the development of a new road and watercourse crossing. - Appropriate mitigation measures will be required, pending the selection of preferred alignment.
Climate Change Mitigation	Minimizes effects on Climate Change including Greenhouse Gas Emissions (GHG) and extreme weather events.	- Potential increase in Climate Change impacts resulting from increased long-term congestion.	- Potential for Climate Change improvements resulting from reduced carbon footprint from development.	- Lower potential for sustainability improvements to the community.	- Increased potential to improve local sustainability as the extension of Wayne Gretzky Road will allow for the efficient multi-modal travel (i.e., car, bus, cycling, pedestrian)	- Increased potential to improve local sustainability as the extension of Wayne Gretzky Road will allow for the efficient multi-modal travel (i.e., car, bus, cycling, pedestrian)
Natural Environment Evaluation		Preferred	Preferred	Less Preferred	Not Preferred	Preferred
First Nations/ Cultural Environment						
First Nations Natural Resources – Hunting, Harvesting and Seedling Cultivating	Minimizes impacts to First Nations natural resources and their ability to access.	- No impacts to First Nations natural resources and their ability to access.	- This alternative could potentially help protect First Nations natural resources lands by reducing development.	- Low to moderate potential to impact First Nations natural resources in localized areas as a result of potential roadway improvements (i.e., right-of-way widening and interchange improvements).	- Higher potential to impact First Nations natural resources as a result of construction of the new road alignment and watercourse crossing.	- Moderate to high potential to impact First Nations natural resources a result of construction of the new road alignment. - Consideration will need to be given to selecting a preferred road alignment that minimizes

Criteria Measure	Description of Criteria Measures	Alternative 1 Do Nothing	Alternative 2 Limit Development of Surrounding Lands	Alternative 3 Improve Alternative Roadways	Alternative 4 Construct New Wayne Gretzky Parkway North Extension with Creek Crossing	Alternative 5 Construct New Wayne Gretzky Parkway North Extension without Creek Crossing
		Rationale				
						impacts to First Nations natural resources.
Archaeological Resources	Minimizes potential impacts to archaeological resources or areas with potential resources.	- No impacts to archaeological resources and/or areas with potential archaeological resources.	- No impacts to archaeological resources and/or areas with potential archaeological resources.	- Low to moderate potential to impact archaeological resources and/or areas with potential archaeological resources through roadway improvements (i.e., widening of roadways, intersections, etc.).	- High potential to impact archaeological resources and/or areas with potential archaeological resources through the extension of Wayne Gretzky Parkway over Lower Jones Creek.	- Moderate to impact archaeological resources and/or areas with potential archaeological resources through the extension of Wayne Gretzky Parkway. - Development lands have been cleared through a Stage 2 Archaeological Assessment.
Built Heritage Resources and Cultural Heritage Landscapes	Minimizes potential to impact known built heritage resources and cultural heritage landscapes.	- No impacts to built heritage and cultural heritage resources.	- No impacts to built heritage and cultural heritage resources.	- Moderate potential to impact built heritage and cultural heritage resources through road improvements (i.e., widening of roadways, intersections, etc.). - CHAR/CHER has not been undertaken for outside of study area. Therefore, additional impacts are unknown.	- Low to moderate potential to impact built heritage and cultural heritage resources through road improvements through the extension of Wayne Gretzky Parkway. - However, based on the CHAR, no direct or indirect impacts to identified potential BHRs and CHLs have been identified. - Construction activities and staging should be appropriately planned and undertaken to avoid impacts to potential BHRs and CHLs.	- Low to moderate potential to impact built heritage and cultural heritage resources through road improvements through the extension of Wayne Gretzky Parkway. - However, based on the CHAR, no direct or indirect impacts to identified potential BHRs and CHLs have been identified. - Construction activities and staging should be appropriately planned and undertaken to avoid impacts to potential BHRs and CHLs.
First Nations/ Cultural Environment Evaluation		Preferred	Preferred	Less Preferred	Not Preferred	Not Preferred

Criteria Measure	Description of Criteria Measures	Alternative 1 Do Nothing	Alternative 2 Limit Development of Surrounding Lands	Alternative 3 Improve Alternative Roadways	Alternative 4 Construct New Wayne Gretzky Parkway North Extension with Creek Crossing	Alternative 5 Construct New Wayne Gretzky Parkway North Extension without Creek Crossing
		Rationale				
Social Environment						
Land Use	Minimizes impacts to residents, community facilities, businesses and recreational facilities.	- No impacts to land use. - However, long-term impacts on land use due to increase in traffic congestion and longer travel times.	- Limits Development Communities who currently purchased North Development lands.	- Short-term impact to residents, community facilities, businesses and recreational facilities during construction. - Long-term impacts on land use due to increase in traffic congestion and longer travel times.	- Long-term improvements for residents, community facilities, businesses and recreational facilities as the Wayne Gretzky Parkway north extension would help alleviate traffic congestion and delays within the City's road network. - Development Communities own majority of study area. - Pending selection of the proposed road alignment, the extension will need to connect to Park Road North which may have impacts on existing residential/agricultural properties north of Lower Jones Creek. - Existing residential dwellings on Park Road North south of Lower Jones Creek would be maintained.	- Long-term improvements for residents, community facilities, businesses and recreational facilities as the Wayne Gretzky Parkway north extension would help alleviate traffic congestion and delays within the City's road network. - Development Communities own majority of study area. - Pending selection of the proposed road alignment, the extension will need to connect back to Park Road North which may have impacts on existing residential properties south of Lower Jones Creek.
Property Requirements	Minimizes property acquisition and potential impacts to existing properties and access.	- No property requirements/ acquisitions required for this alternative.	- No property requirements/ acquisitions required for this alternative.	- Potential to impact property in localized areas due to roadway improvements (i.e., right-of-way widening and interchange improvements). - Temporary disruption to driveways/access.	- High potential for impacts on private properties to accommodate the new road extension. However, North Development Lands will benefit from the extension to better service development land.	- High potential for impacts on private properties to accommodate the new road extension. However, North Development Lands will benefit from the extension to better service development land.

Criteria Measure	Description of Criteria Measures	Alternative 1 Do Nothing	Alternative 2 Limit Development of Surrounding Lands	Alternative 3 Improve Alternative Roadways	Alternative 4 Construct New Wayne Gretzky Parkway North Extension with Creek Crossing	Alternative 5 Construct New Wayne Gretzky Parkway North Extension without Creek Crossing
		Rationale				
				- Low to moderate potential for property acquisition requirements.	- Land acquisition would be required north of the creek to connect Wayne Gretzky Parkway extension back to Park Road North. - Very high potential to affect accessing adjacent properties during construction.	- Higher potential to require property acquisition to connect Wayne Gretzky Parkway extension back to Park Road North. - Very high potential to affect accessing adjacent properties during construction.
Noise and Vibration	Minimizes potential to increase noise in Noise Sensitive Areas (NSAs) (e.g., residential properties backing onto the roadway).	- High potential to increase noise in association with increased traffic volumes/congestion	- Potential to limit development will not have a significant reduction in travel demands. - Moderate potential to increase noise would be expected.	- Improved traffic flow may decrease noise levels for the short term, but increased traffic volumes/congestion in the long term will increase noise levels.	- Improved traffic flow may decrease noise levels. - Potential for higher public transit ridership thus reducing number of vehicles on the road. - Noise mitigation measures can be implemented in accordance with City's Noise Policy.	- Improved traffic flow may decrease noise levels. - Potential for higher public transit ridership thus reducing number of vehicles on the road. - Noise mitigation measures can be implemented in accordance with City's Noise Policy.
Air Quality	Improvements to air quality.	- Increase traffic congestion within the study area will increase emissions and decrease air quality.	- No significant change to Air Quality anticipated. - However, in the long-term, congestion in the study area from current and future traffic conditions will increase emissions.	- Low potential to change Air Quality which would require mitigation. - There would be a slight reduction in congestion which may aid in the reduction of emissions within the study area.	- Moderate potential to change Air Quality which would require mitigation. - However, reduced congestion within the study area would aid in the reduction of emissions.	- Moderate potential to change Air Quality which would require mitigation. - However, reduced congestion within the study area would aid in the reduction of emissions.
Aesthetics	Improves visual appearance/aesthetics and maintains privacy of existing residence and communities.	- No impacts to existing communities or infrastructure that would negatively impact the existing aesthetics of the study area.	- Aesthetics of the study area anticipated to be altered with proposed development. However, this alternative could potentially help reduce the aesthetic impact through	- Potential for impacts to existing communities aesthetics through roadway improvements (i.e., widening of roadways, intersections, etc.).	- Higher impacts to the aesthetics of the existing study area through the extension of the new road and crossing.	- Moderate impacts to the aesthetics of the existing study area through the extension of the new road.

Criteria Measure	Description of Criteria Measures	Alternative 1 Do Nothing	Alternative 2 Limit Development of Surrounding Lands	Alternative 3 Improve Alternative Roadways	Alternative 4 Construct New Wayne Gretzky Parkway North Extension with Creek Crossing	Alternative 5 Construct New Wayne Gretzky Parkway North Extension without Creek Crossing
		Rationale				
			limiting development of surrounding lands.			
Social Environment Evaluation		Not Preferred	Less Preferred	Not Preferred	Preferred	Preferred
Economic Environment						
Capital Costs/Cost Benefit	Capital costs associated with the proposed improvements and value to the City (cost/benefit)	- No capital cost/cost benefit.	- No capital cost/cost benefit.	- Moderate capital costs while providing only localized improvements. Low return on investment and less value to the City. Low cost/benefit.	- Higher capital costs associated with new roadway and structure construction.	- Moderate to high capital costs associated with new roadway construction; however, this alternative offers the most substantial enhancements to all modes of traffic. Highest return on investment, greatest cost/benefit.
Operational and Maintenance Costs	Costs associated with operation and maintenance (O&M) of any additional infrastructure (Life-Cycle Costs).	- No change to continuous cost for existing operation and maintenance. - Traffic congestion/demand expected to increase considerably with adjacent development which in turn will cause existing infrastructure to age quicker.	- No change to continuous cost for existing operation and maintenance. - Traffic congestion/demand expected to increase considerably with adjacent development which in turn will cause existing infrastructure to age quicker.	- Moderate increase in operational and maintenance costs associated with localized improvements within the corridor.	- Additional operational and maintenance costs associated with maintaining a new roadway, structure and MUP.	- Additional operational and maintenance costs associated with maintaining a new roadway and MUP.
Economic Environment Evaluation		Less Preferred	Preferred	Less Preferred	Not Preferred	Less Preferred

9.4 Recommended Preferred Solution

The following table provides a summary of the alternative solutions considered, along with the combined recommendations based on the evaluations completed in previous section.

Table 9-3: Recommended Preferred Solution(s)

Alternative Solutions	Evaluation Summary	Recommendation
#1 - Do Nothing	- The proposed solution does not align with the City's policy objectives. - It will fail to accommodate future traffic volumes, resulting in continued and worsening traffic congestion. - The solution does not provide opportunities to enhance Active Transportation or improve Transit infrastructure.	Not Recommend
#2 - Limit Development of Surrounding Lands	- The proposed solution does not align with the Provincial Policy Statement, Provincial Priorities and the City's policy objectives. - Insufficient accommodation of future traffic volumes from the surrounding area, leading to continued and worsening traffic congestion. - The solution fails to improve both existing and future connectivity, hindering the ability to effectively move people and goods throughout the city. - Will not address the growing transportation needs of the community in the long term.	Not Recommend
#3 - Improve Alternative Roadways	- The proposed solution does not align with the City's policy objectives. - Will not accommodate the future traffic volumes required to support anticipated population and employment growth, limiting its effectiveness in meeting long-term transportation needs.	Not Recommend

Alternative Solutions	Evaluation Summary	Recommendation
	- This alternative is expected to result in increased construction impacts, further complicating the development process. - Limited opportunities to address existing traffic congestion along Park Road North and King George Road, which are expected to persist or worsened. - Offers minimal potential to connect to future developments or enhance public facilities, particularly in terms of Active Transportation infrastructure.	
#4 - Construct New Wayne Gretzky Parkway North Extension with Creek Crossing prove Alternative Roadways	- The proposed solution aligns with the City's policy objectives. - Effectively accommodates future traffic volumes, supporting the anticipated population and employment growth. - Improves multi-modal connectivity, enhancing both pedestrian and cyclist infrastructure, which in turn promotes active transportation. - Considerable impacts on the environment and First Nation land uses, raising concerns regarding environmental preservation and cultural sensitivity. - May require extensive land use changes and property acquisitions including from the County, which could disrupt local communities. - The associated capital costs are prohibitive, making the implementation of this solution a financially challenging endeavor.	Not Recommend
#5 - Construct New Wayne Gretzky	- The proposed solution aligns with the City's policy objectives.	Recommended

Alternative Solutions	Evaluation Summary	Recommendation
Parkway North Extension without Creek Crossing	- Accommodates future traffic volumes, supporting the expected growth in population and employment. - Improves multi-modal connectivity, enhancing infrastructure for both pedestrians and cyclists, thus promoting active transportation. - No creek crossing required, which reduces the impact on the natural environment and minimizes disruption to First Nation land use. - Impacts to adjacent land use due to property acquisition requirements, potentially affecting residents and businesses. - Moderate to high capital costs, making it a significant financial investment.	

In addition, the Transportation Assessment Study concluded that, with the expected future growth in the study area, driven by the development of the Block Plan Areas and broader city-wide expansion, maintaining current conditions would likely result in significant operational challenges, such as long delays and traffic congestion. While the widening of Park Road North to a four-lane cross-section would mitigate some capacity constraints, particularly along Park Road North, congestion is still projected to persist along boundary corridors such as Powerline Road.

Extending Wayne Gretzky Parkway north to connect with Park Road North demonstrated significant operational improvements. The proposed changes result in notable reductions in volume-to-capacity (v/c) ratios across the network, particularly along Powerline Road near Park Road North and along Park Road North itself. As a Major Arterial that connects directly to Highway 403, the extension would provide a more direct and efficient route for northbound traffic between Highway 403 and Governors Road. In contrast, a “do-nothing” approach or simply widening other roads fails to address the core issue, the lack of continuous north-south connectivity between the city’s municipal boundary and Highway 403. While some capacity

constraints remain west of King George Road, these are expected to be addressed through the Environmental Assessment being completed for the potential widening of Powerline Road.

Therefore, following a comprehensive evaluation process, incorporating the diverse expertise, knowledge, and input from various disciplines, agencies, stakeholders, First Nations, Development Communities, and the public, the recommended Preferred Solution was

Alternative 5: Construct New Wayne Gretzky Parkway North Extension without Creek Crossing. The proposed solution aligns with the City's policy objectives outlined in the TMP, ATMP, and OP, as well as the Problem and Opportunity Statement developed for this study. It effectively addresses future growth, alleviates anticipated capacity constraints and operational deficiencies projected for 2051, and resolves congestion along the King George Road corridor. The solution also meets the north-south travel demands of the North Expansion Lands and supports the proposed adjacent developments and planned development trajectory.

Additionally, the recommended solution enhances multi-modal connectivity, improving infrastructure for both pedestrians and cyclists to promote active transportation. By avoiding the need for a creek crossing, the solution minimizes environmental impact and reduces potential disruptions to First Nation land use. However, it does result in increased impacts to adjacent land uses due to property acquisition requirements, which could affect residents and businesses. The project also involves moderate to high capital costs, representing a significant financial investment.

10.0 Design Concepts for Preferred Solution

The Class EA process requires the examination of alternative methods for implementing the Preferred Solution, referred to as Alternative Design Concepts in Phase 3. The goal of Phase 3 was to determine the most suitable and sustainable design concept that minimized negative impacts while meeting the needs of the community. Public and stakeholder consultation was also an important part of Phase 3, ensuring that feedback was considered in the final decision-making process.

A two-stage approach was developed to evaluate the proposed design concepts. Stage 1 established the recommended alignment, while Stage 2 determined the optimal intersection control method(s) for this alignment. The final recommended design concept integrated both the recommended alignment and the chosen intersection control method for each intersection.

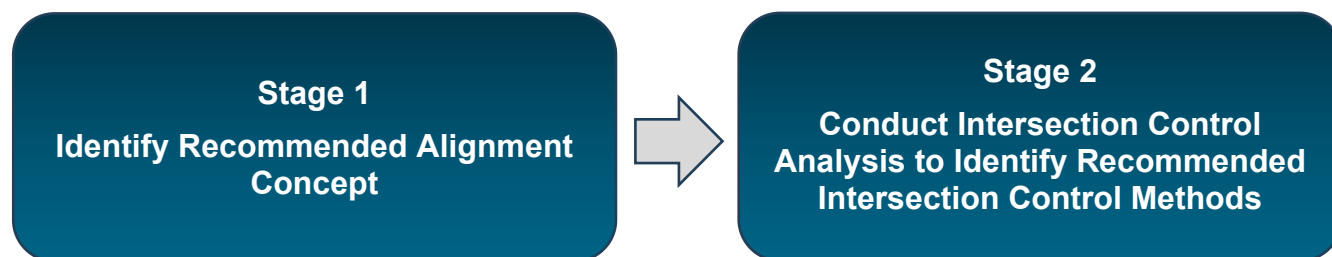


Figure 10-1: Proposed Design Concepts Two-Stage Approach

The following sections outline the methodology employed to evaluate each design concept, the assessment of these concepts, and the identification of the preliminary recommended design concept(s) for each stage.

10.1 Establishment of Proposed Alignment Concepts (Stage 1)

10.1.1 Development of Alignment Concepts

Five alignment concepts were considered for the northern extension of Wayne Gretzky Parkway, which were as follows:

Table 10-1: Proposed Alignment Concepts

Alignment Concepts	Description of Proposed Alignment Concepts
1	Extend Wayne Gretzky Parkway north of Powerline Road with a curved transition back to Park Road North prior to Lower Jones Creek. This concept includes Park Road North access for remaining residents. This concept does not accommodate a future east-west collector (Figure 10-2).
2	Extend Wayne Gretzky Parkway north of Powerline Road to a new intersection (signalized or roundabout) at Park Road North prior to Lower Jones Creek. This concept would maintain Park Road North access but does not accommodate a future east-west collector (Figure 10-3).
3	Extend Wayne Gretzky Parkway north of Powerline Road with a curved transition to Park Road North, forming a new four-leg junction with the future east-west collector. This concept considers terminating Park Road North, south of the future east-west collector (Figure 10-4).
4	Extend Wayne Gretzky Parkway north of Powerline Road to a new three-leg junction with the proposed east-west collector, continuing perpendicular to Park Road North and connecting at a new three-leg junction. This concept includes terminating Park Road North, south of the future junction (Figure 10-5).
5	Extend Wayne Gretzky Parkway north of Powerline Road to a new three-legged junction with the proposed east-west collector, continuing perpendicular to Park Road North and connecting at a new four-leg junction. This concept maintains connection to Park Road North at the future four-leg junction (Figure 10-6).

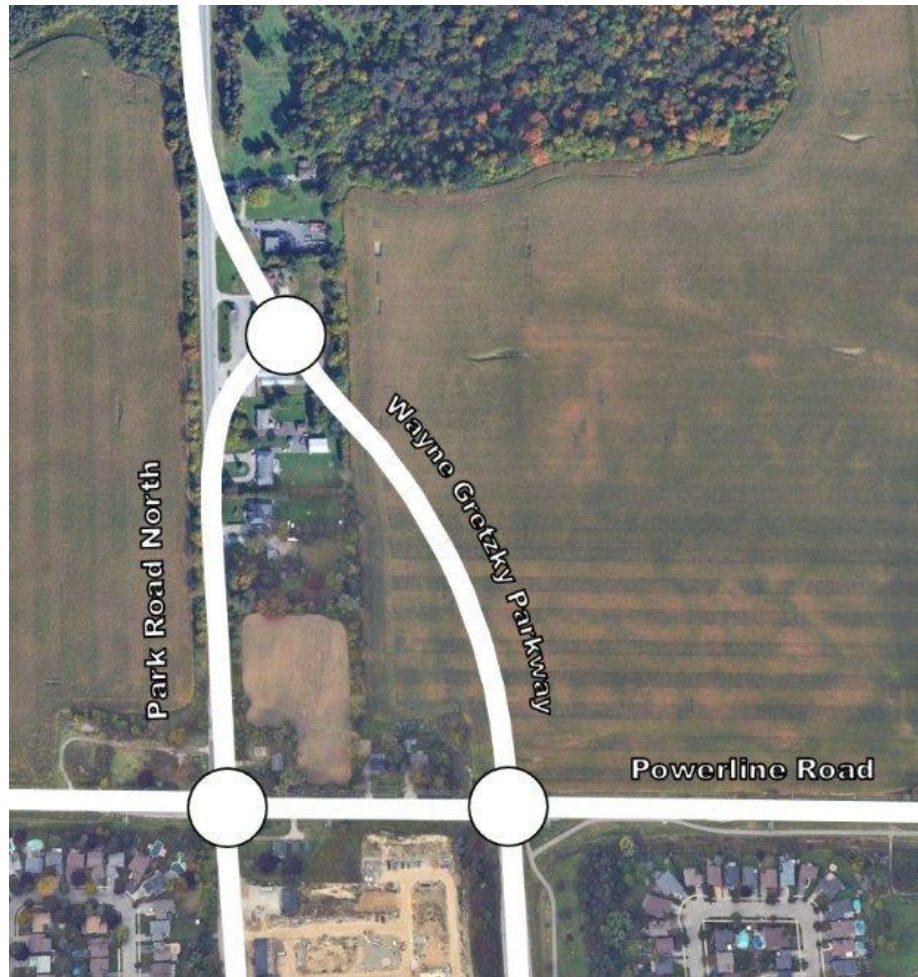


Figure 10-2: Proposed Alignment Concept #1

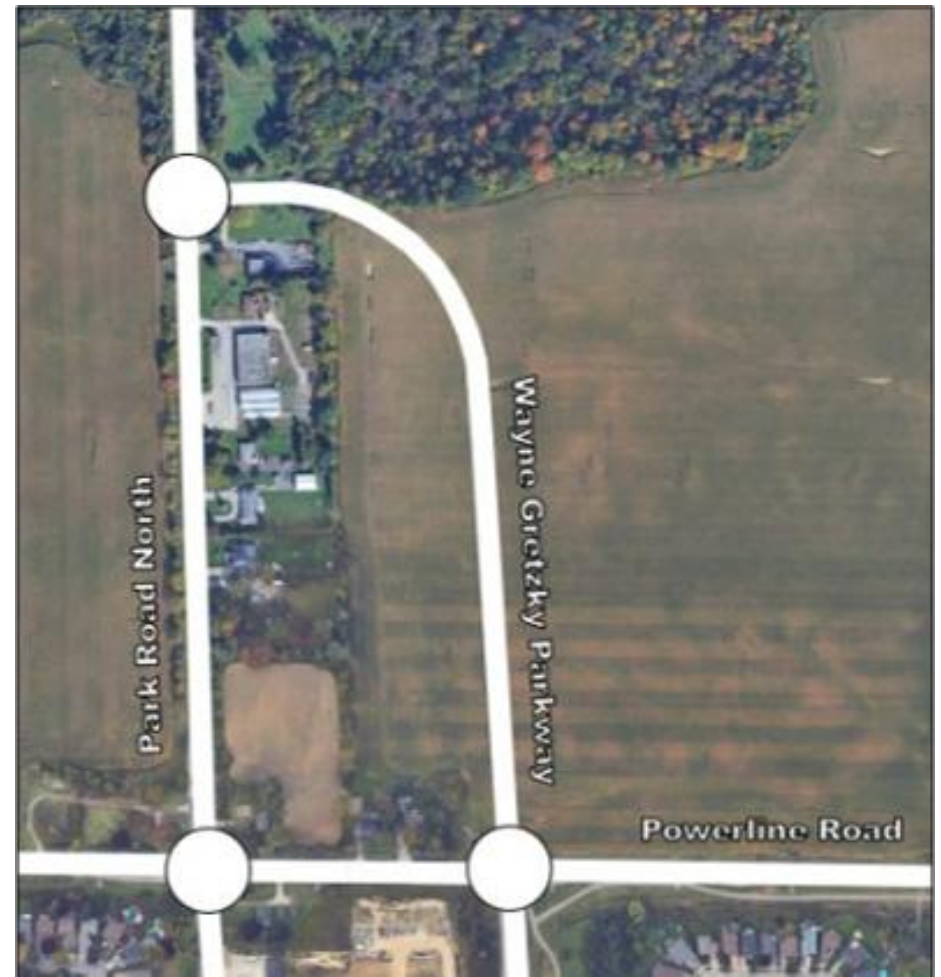


Figure 10-3: Proposed Alignment Concept #2

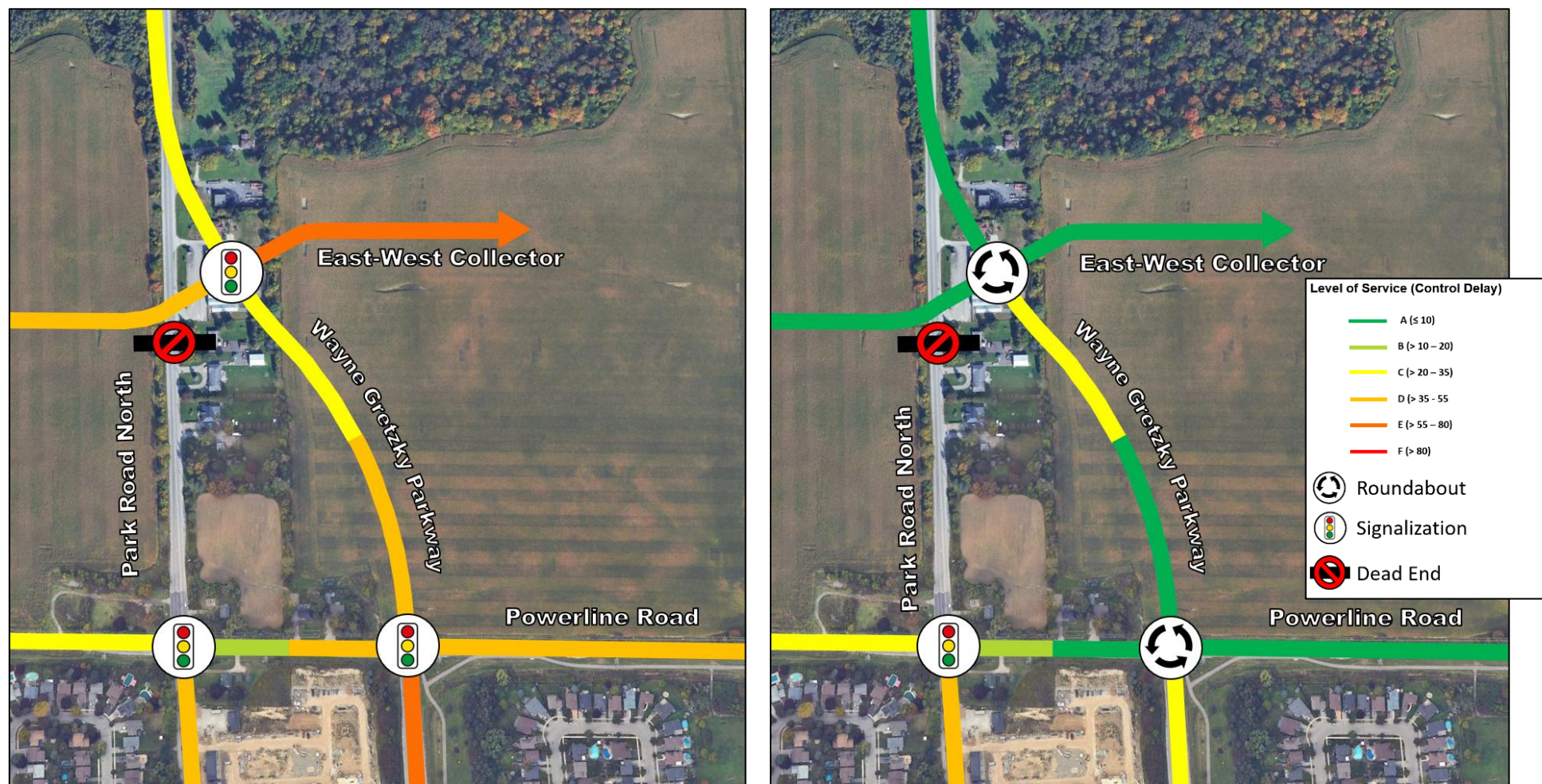


Figure 10-4: Proposed Alignment Concept #3 (A&B)

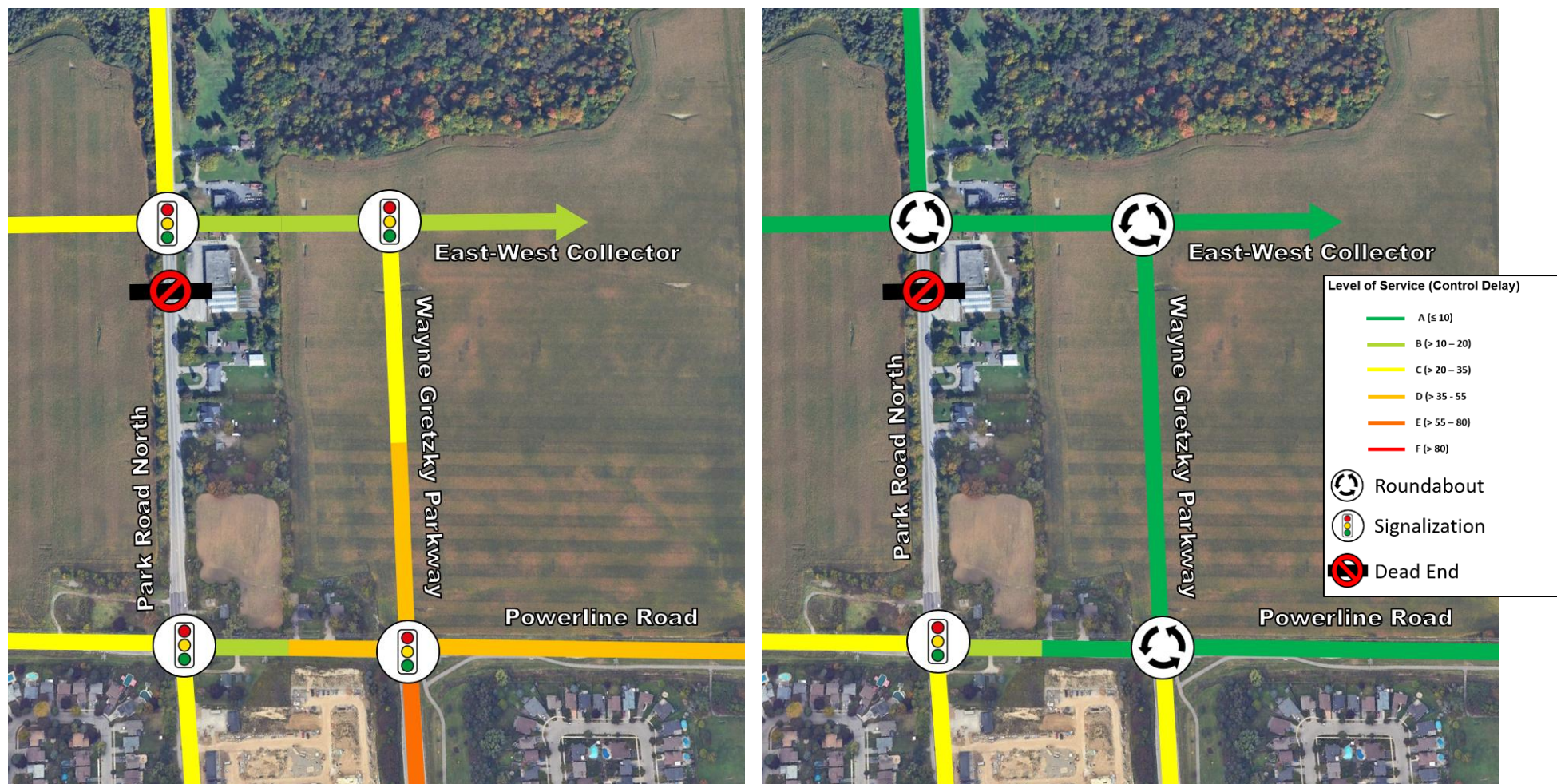


Figure 10-5: Proposed Alignment Concept #4 (A&B)

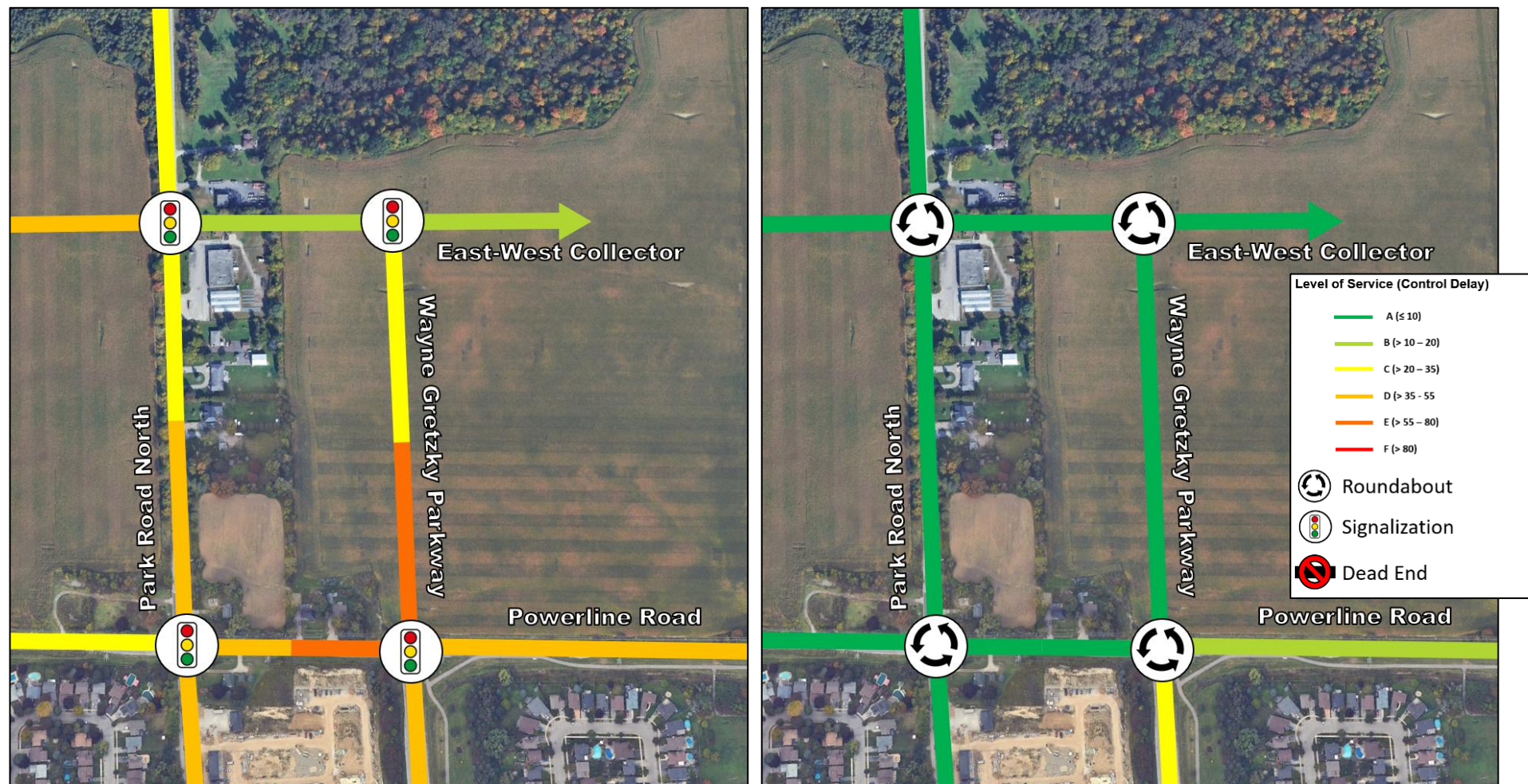


Figure 10-6: Proposed Alignment Concept #5 (A&B)

10.1.2 Evaluation Methodology

For Stage 1, the same evaluation framework that was used to assess the alternative solutions identified in Phase 2 (Section 9.0) was applied to aid in identifying and selecting the preferred alignment concept for the Wayne Gretzky Parkway North Extension. The proposed alignment concepts were assessed using screening criteria, including, but not limited to, compatibility with the City's, County's, and Provincial objectives and policies, the ability to serve planned developments, the capacity to accommodate future travel demand and provide strategic multi-modal connections linking future planned destinations, impacts on public safety, considerations related to First Nations, potential effects on the natural environment (vegetation and wildlife, water resources, species-at-risk, and fisheries), cultural heritage, and costs (capital and maintenance).

The evaluation of the proposed alignment concepts considered the positive and negative potential impacts associated with each, in light of the criteria listed in Table 10-2. This evaluation provided a relative comparison that was used to determine the technically preferred alignment concept.

Not Preferred – Fails to address the Problem and Opportunity Statement; consequently, it does not achieve the City's objectives for this assignment.

Less Preferred – Partially addresses the Problem and Opportunity Statement; ultimately falls short of meeting the City's objectives for this assignment.

Preferred – Addresses the Problem and Opportunity Statement and aligns with the City's objectives for this assignment.



Table 10-2: Proposed Evaluation Criteria

Criterion	Criteria Measure	Description of Criteria Measures
Transportation/ Engineering	Existing and Future Transportation Network	- Addresses existing and future capacity demands along the corridor, and intersection Levels of Service (LOS) deficiencies, congestion/delays and other operational needs.

Criterion	Criteria Measure	Description of Criteria Measures
	Connectivity – Existing and Future	- Provides connectivity to the City's existing road network. - Provides connectivity with future planned road network to service North Expansion Lands.
	Road Geometry	- Ease/complexity of proposed extension (i.e., alignment configuration, proposed intersection geometry, etc.).
	Active Transportation	- Ability to safely address pedestrian and cyclist objectives in the corridor (i.e., sidewalks, bike lanes, on-road routes, MUP, etc.).
	Transit Service	- Services existing transit travel demands and accommodates future transit network/improvements.
	Traffic Safety	- Enhances traffic safety for all users based on the opportunity to reduce congestion and potential for collisions.
	Utility Impacts	- Minimizes utility relocations.
	Constructability/ Implementation	- Impacts to existing traffic operations during construction, including staging, detours, and traffic disruption (i.e., existing intersections, etc.).
Land Use Planning Objectives	City Policies	- Consistent with the proposed transportation system and function of roads in the long term (i.e., City of Brantford Transportation Master Plan Update (2020) and Active Transportation Master Plan), as well as meets the requirements of the City of Brantford Official Plan to adequately support City growth and development.

Criterion	Criteria Measure	Description of Criteria Measures
Natural Environment	Environmentally Sensitive Areas	- Minimizes impacts to environmentally sensitive areas such as Provincially Significant Wetlands (PSW – Cold Spring Creek Wetland Complex), Provincially significant woodlands associated with tributaries, Areas of Natural and Scientific Interest (ANSIs), etc.
	Minimizes Impacts to Vegetation, Wildlife and Aquatic Species and Habitat.	- Minimizes impacts to vegetation communities (i.e., vegetation and tree removal), wildlife habitats and movement corridors and fish communities and aquatic habitats.
	Species at Risk	- Minimizes impacts/opportunities for mitigation of SAR and SAR Habitat (i.e., SAR Birds, Bats, Turtles and Trees).
	Existing Watercourses	- Minimizes potential to impact to GRCA Regulated areas (i.e., floodplain, meander belt, slope stability, etc.)
	Stormwater Management	- Provides Drainage and Stormwater Management Improvements
	Climate Change Mitigation	- Minimizes effects on Climate Change including Greenhouse Gas Emissions (GHG) and extreme weather events.
First Nations/ Cultural Environment	First Nations Natural Resources – Hunting, Harvesting and Seedling Cultivating	- Minimizes impacts to First Nations natural resources and their ability to access.
	Archaeological Resources	- Minimizes potential impacts to archaeological resources or areas with potential resources.
	Built Heritage Resources and Cultural Heritage Landscapes	- Minimizes potential to impact known built heritage resources and cultural heritage landscapes.
Social Environment	Property Requirements	- Minimizes property acquisition and potential impacts to existing properties, businesses and access.

Criterion	Criteria Measure	Description of Criteria Measures
	Noise and Vibration	- Minimizes potential to increase noise in Noise Sensitive Areas (NSAs) (e.g., residential properties backing onto the roadway).
	Air Quality	- Improvements to air quality.
	Aesthetics	- Improves visual appearance / aesthetics and maintains privacy of existing residence and communities.
Economic Environment	Capital Costs	- Capital costs associated with the proposed improvements and value to the City (Cost benefit)
	Operation and Maintenance Costs	- Costs associated with operation and maintenance (O&M) of any additional infrastructure (Life-Cycle Costs).

10.1.3 Evaluation of Alignment Concepts

The detailed evaluation for the proposed Alignment Concepts is presented in Table 10-3 using the evaluation criteria identified in Table 10-2. Each criterion evaluated was summarized using the “Not Preferred” to “Preferred” ranking method.

Alignment Concepts 1 and 2 fail to align with the planning and policy objectives of both the City and the study. These design concepts did not accommodate the future east-west collector or meet the anticipated traffic needs for future block plans. In addition, these design concepts would have resulted in significant impacts to the surrounding natural environment, including potential encroachment into sensitive areas and loss of mature vegetation, among other issues. As a result, Alignment Concepts 1 and 2 were not advanced for further evaluation (Table 10-3) within this study.

Table 10-3: Evaluation of Proposed Alignment Concepts

Criteria Measure	Description of Criteria Measures	Alignment Concept #3 Extending Wayne Gretzky Parkway with a curved transition to Park Road North, forming a new four-leg intersection (Signalized or Roundabout) with the future east-west collector	Alignment Concept #4 Extending Wayne Gretzky to a new three-leg intersection with the east-west collector, continuing perpendicular to Park Road North and connecting at a new three-leg intersection	Alignment Concept #5 Extending Wayne Gretzky Parkway to a new three-legged intersection with a proposed east-west collector, continuing perpendicular to Park Road North and connecting at a new four-leg intersection
Transportation/ Engineering				
Existing and Future Transportation Network	Addresses existing and future capacity demands along the corridor, and intersection Levels of Service (LOS) deficiencies, congestion/delays and other operational needs.	- It can accommodate anticipated development traffic and helps alleviate traffic congestion. - Can achieve acceptable levels of service. - Improvements to multi-modal travel to help reduce vehicular congestion.	- It can accommodate anticipated development traffic and helps alleviate traffic congestion. - Can achieve acceptable levels of service. - Improvements to multi-modal travel to help reduce vehicular congestion. - Does not achieve minimum separation between intersections; - Additional junction does not provide “continuous” transition to Park Road North. - Requires portion of East West Collector between intersections to function as Arterial Roadway.	- It can accommodate anticipated development traffic and helps alleviate traffic congestion. - Can achieve acceptable levels of service. - Improvements to multi-modal travel to help reduce vehicular congestion. - Does not effectively reduce traffic volumes along Park Road North between new intersection and Powerline Road. - Does not achieve minimum separation between intersections. - Additional junction does not provide “continuous” transition to Park Road North. - Requires portion of East West Collector between intersections to function as Arterial Roadway.
Connectivity – Existing and Future	Provides connectivity to the City's existing road network.	- Limits access to Park Road North for remaining properties; however, it may be able to provide a redundant connection to Park Road North pending spacing configuration at the newly proposed Park Road North and Wayne Gretzky Parkway North extension.	- Limits connectivity via Park Road North for remaining properties but eliminates through traffic along Park Road North. - Does not provide a redundant connection to Park Road North.	- Through traffic would be able to continue along Park Road North which will provide a redundant connection.
	Provides connectivity with future planned road network to service north expansion lands.	- Accommodates a new east-west collector road and provides connectivity to/from the north expansion lands and future road network.		
Road Geometry	Complexity of proposed extension (i.e., alignment configuration, intersection geometry, etc.).	- Reduced overall construction footprint compared to other alignment concepts. - Roundabout option requires large diameter roundabout at Powerline Road and Wayne Gretzky Pkwy.	- Requires larger overall construction footprint compared to Alignment Concept #3. - Perpendicular connections improve functionality of proposed intersections. - Addition of two three-leg intersections introduces added complexity to network.	- Requires larger overall construction footprint compared to Alignment Concept #3. - Perpendicular connections improve functionality of proposed intersections. - Addition of one three-leg and one four-leg intersection introduces added complexity to network.

Criteria Measure	Description of Criteria Measures	Alignment Concept #3 Extending Wayne Gretzky Parkway with a curved transition to Park Road North, forming a new four-leg intersection (Signalized or Roundabout) with the future east-west collector	Alignment Concept #4 Extending Wayne Gretzky to a new three-leg intersection with the east-west collector, continuing perpendicular to Park Road North and connecting at a new three-leg intersection	Alignment Concept #5 Extending Wayne Gretzky Parkway to a new three-legged intersection with a proposed east-west collector, continuing perpendicular to Park Road North and connecting at a new four-leg intersection
			- Roundabout option requires large diameter roundabout at Powerline Road and Wayne Gretzky Pkwy. - Signalized option requires additional auxiliary lanes at Powerline Road and Wayne Gretzky Pkwy.	- Roundabout option requires large diameter roundabout at Powerline Road and Wayne Gretzky Pkwy. - Signalized option requires additional auxiliary lanes at Powerline Road and Wayne Gretzky Pkwy.
Active Transportation (AT)	Ability to safely address pedestrian and cyclist objectives in the corridor (i.e., sidewalks, bike lanes, on-road routes, MUP, etc.).	- Provides opportunity to incorporate dedicated active transportation (AT) facilities for pedestrians and cyclists along the Wayne Gretzky Parkway North extension, and to establish a connecting link to the existing multi-use path/trail at Powerline Road and Wayne Gretzky Parkway. - Addition of one new intersection requires added accommodation for pedestrian / cyclists crossings.	- Provides opportunity to incorporate dedicated active transportation (AT) facilities for pedestrians and cyclists along the Wayne Gretzky Parkway North extension, and to establish a connecting link to the existing multi-use path/trail at Powerline Road and Wayne Gretzky Parkway. - This will substantially decrease traffic volumes along Park Road North between the new intersection and Powerline Road, thereby mitigating safety concerns for pedestrians and cyclists within the existing Park Road North corridor. - Addition of two new intersections requires added accommodation for pedestrian / cyclist crossings.	- Provides opportunity to incorporate dedicated active transportation (AT) facilities for pedestrians and cyclists along the Wayne Gretzky Parkway North extension, and to establish a connecting link to the existing multi-use path/trail at Powerline Road and Wayne Gretzky Parkway. - Through traffic will continue to utilize Park Road North, which may not effectively mitigate traffic volumes and will fail to address safety concerns for pedestrians and cyclists along the current Park Road North corridor. - Addition of two new intersections requires added accommodation for pedestrian / cyclist crossings.
Transit Service	Service existing transit travel demands and accommodate future transit network/ improvements.	- All alignment concepts have an opportunity to expand transit network and improve connectivity to northern expansion lands.		
Traffic Safety	Enhance traffic safety for all users based on the opportunity to reduce congestion and potential for collisions.	- Improvements for all users as a result of reduced congestion and the incorporation of designated facilities (i.e., sidewalks/cyclist lanes/multi-use pathways) to minimize conflicts with motorized vehicles. - Reduces the number of intersections in comparison to Alignment Concepts 4 & 5 which has the ability to help reduce potential for collisions.	- Improvements for all users as a result of reduced congestion and the incorporation of designated facilities (i.e., sidewalks/cyclist lanes/multi-use pathways) to minimize conflicts with motorized vehicles. - Eliminates through traffic along Park Road North which will aid in reducing traffic and improving safety for all users.	- Improvements for all users as a result of reduced congestion and the incorporation of designated facilities (i.e., sidewalks/cyclist lanes/multi-use pathways) to minimize conflicts with motorized vehicles with except to existing residents along Park Road North.
Utility Impacts	Minimizes utility relocations	- Roundabout option requires large diameter roundabout at Powerline Road and Wayne Gretzky Pkwy which may require utility relocation. - New intersection at Park Road North and Wayne Gretzky Parkway North extension may also require utility relocation.		

Criteria Measure	Description of Criteria Measures	Alignment Concept #3 Extending Wayne Gretzky Parkway with a curved transition to Park Road North, forming a new four-leg intersection (Signalized or Roundabout) with the future east-west collector	Alignment Concept #4 Extending Wayne Gretzky to a new three-leg intersection with the east-west collector, continuing perpendicular to Park Road North and connecting at a new three-leg intersection	Alignment Concept #5 Extending Wayne Gretzky Parkway to a new three-legged intersection with a proposed east-west collector, continuing perpendicular to Park Road North and connecting at a new four-leg intersection
Constructability/Implementation	Impacts to existing traffic operations during construction, including staging, detours, and traffic disruption (i.e., existing intersections, etc.).	- Majority of construction can be completed without impacts to existing road network; however, temporarily impact to existing traffic operations when constructing or reconfiguring intersections. - Signalized option requires significant modifications to existing intersection configuration at Powerline and Wayne Gretzky Pkwy.	- Majority of construction can be completed without impacts to existing road network; however, temporarily impact to existing traffic operations when constructing or reconfiguring intersections. - Signalized option requires significant modifications to existing intersection configuration at Powerline and Wayne Gretzky Pkwy. - Powerline Road and Park Road North to remain a signalized intersection with this alignment concept which will result in less impacts to existing traffic in comparison to Alignment Concept #3.	- Majority of construction can be completed without impacts to existing road network; however, temporarily impact to existing traffic operations when constructing or reconfiguring intersections. - Signalized option requires significant modifications to existing intersection configuration at Powerline and Wayne Gretzky Pkwy. - Powerline Road and Park Road North could potentially be converted into a roundabout which will result in higher impacts to existing traffic in comparison to the other two alignment concepts.
Technical / Engineering Evaluation		Preferred	Less Preferred	Less Preferred
Land Use Planning Objectives				
City Policies	Consistent with the proposed transportation system and function of roads in the long term (i.e., City of Brantford Transportation Master Plan Update (2020) and Active Transportation Master Plan), as well as meets the requirements of the City of Brantford Official Plan to adequately support City growth and development.	- Provides continuous link for new extension, in accordance with intent of City's policy documents (Official Plan, TMP, ATMP).	- Discontinuous extension does not align with the intent of City's policy documents (Official Plan, TMP, ATMP).	- Discontinuous extension does not align with the intent of City's policy documents (Official Plan, TMP, ATMP).
Land Use Planning Objectives Evaluation		Preferred	Preferred	Preferred
Natural Environment				

Criteria Measure	Description of Criteria Measures	Alignment Concept #3 Extending Wayne Gretzky Parkway with a curved transition to Park Road North, forming a new four-leg intersection (Signalized or Roundabout) with the future east-west collector	Alignment Concept #4 Extending Wayne Gretzky to a new three-leg intersection with the east-west collector, continuing perpendicular to Park Road North and connecting at a new three-leg intersection	Alignment Concept #5 Extending Wayne Gretzky Parkway to a new three-legged intersection with a proposed east-west collector, continuing perpendicular to Park Road North and connecting at a new four-leg intersection
Environmentally Sensitive Areas	Minimizes impacts to environmentally sensitive areas such as Provincially Significant Wetlands (PSW) – Cold Spring Creek Wetland Complex), Provincially significant woodlands associated with tributaries, Areas of Natural and Scientific Interest (ANSIs), etc.	- The potential impact on environmentally sensitive areas, including Lower Jones Creek, the Cold Springs Creek Wetland Complex, and the provincially significant woodlands near Lower Jones Creek, is anticipated to be low. An adequate setback from these sensitive areas will be established, with First Nations' preference for a 60-meter setback taken into consideration. - No difference between alignment concepts is expected, as the proposed alignments are anticipated to have a similar level of impact environmentally sensitive areas.		
Minimizes Impacts to Vegetation, Wildlife and Aquatic Species and Habitat.	Minimizes impacts to vegetation communities (i.e., vegetation and tree removal), wildlife habitats and movement corridors and fish communities and aquatic habitats.	- Minor impacts are expected on existing vegetation and trees along the frontages and rear yards of residential properties on Park Road North and Powerline Road, as well as the removal of cultivated fields. - No impacts are anticipated on fish communities, aquatic habitats, or the localized wildlife corridor along Park Road North, which intersects the Cold Spring Creek PSW and the associated woodlands and valleyland. This is due to the proposed alignment being set back from these natural features.	- This option requires a larger overall construction footprint compared to Alignment Concept #3, leading to a slightly higher impact on existing vegetation and trees along the frontages and rear yards of residential properties on Park Road North and Powerline Road, as well as an increased removal of cultivated fields. - No impacts are anticipated on fish communities, aquatic habitats, or the localized wildlife corridor along Park Road North, which intersects the Cold Spring Creek PSW and the associated woodlands and valleyland. This is due to the proposed alignment being set back from these natural features.	- This option requires a larger overall construction footprint compared to Alignment Concept #3, leading to a slightly higher impact on existing vegetation and trees along the frontages and rear yards of residential properties on Park Road North and Powerline Road, as well as an increased removal of cultivated fields. - No impacts are anticipated on fish communities, aquatic habitats, or the localized wildlife corridor along Park Road North, which intersects the Cold Spring Creek PSW and the associated woodlands and valleyland. This is due to the proposed alignment being set back from these natural features.
Species at Risk	Minimizes impacts/opportunities for mitigation of SAR and SAR Habitat (i.e., SAR Birds, Bats, Turtles and Trees).	- Minor impacts anticipated to SAR Bats and Birds due to clearing of trees and cultivated fields, as well as the demolition of the existing structures; however, impacts can be mitigated through the detail design and construction stages. - Four (4) trees identified within the study area were confirmed to be pure butternuts. However, based on their location and the proposed alignment, no impact to these trees is anticipated.	- This option requires a larger overall construction footprint compared to Alignment Concept #3, leading to slightly higher potential to impact SAR Bats and Birds due to clearing of trees and cultivated fields, as well as the demolition of the existing structures; however, impacts can be mitigated through the detail design and construction stages. - Four (4) trees identified within the study area were confirmed to be pure butternuts. However, based on their location and the proposed alignment, no impact to these trees is anticipated.	- This option requires a larger overall construction footprint compared to Alignment Concept #3, leading to slightly higher potential to impact SAR Bats and Birds due to clearing of trees and cultivated fields, as well as the demolition of the existing structures; however, impacts can be mitigated through the detail design and construction stages. - Four (4) trees identified within the study area were confirmed to be pure butternuts. However, based on their location and the proposed alignment, no impact to these trees is anticipated.

Criteria Measure	Description of Criteria Measures	Alignment Concept #3 Extending Wayne Gretzky Parkway with a curved transition to Park Road North, forming a new four-leg intersection (Signalized or Roundabout) with the future east-west collector	Alignment Concept #4 Extending Wayne Gretzky to a new three-leg intersection with the east-west collector, continuing perpendicular to Park Road North and connecting at a new three-leg intersection	Alignment Concept #5 Extending Wayne Gretzky Parkway to a new three-legged intersection with a proposed east-west collector, continuing perpendicular to Park Road North and connecting at a new four-leg intersection
Existing Watercourses	Minimizes potential to impact to GRCA Regulated areas (i.e., floodplain, meander belt, slope stability, etc.)	- No impacts are anticipated to GRCA Regulated areas. Proposed alignment concepts have been set back an adequate distance to avoid impacts on the floodplain, meander belt, slope stability, and other regulated features.		
Stormwater Management	Provides Drainage and Stormwater Management Improvements	- All alignment concepts will be designed with an urban cross-section, including curb and gutter, to ensure appropriate stormwater management within the road pavement.		
Climate Change Mitigation	Minimizes effects on Climate Change including Greenhouse Gas Emissions (GHG) and extreme weather events.	- Enhancements in multi-modal transportation can slightly lessen reliance on automobiles, increase the usage of non-auto modes, and offer modest benefits in addressing climate change impacts. - All alignment concepts will help minimize the generation of greenhouse gas and carbon sinks by improving AT facilities to reduce auto dependency. - Reduction in road congestion helps decrease the amount of travel time for vehicles spent on the road.		
Natural Environment Evaluation		Preferred	Less Preferred	Not Preferred
First Nations/ Cultural Environment				
First Nations Natural Resources – Hunting, Harvesting and Seedling Cultivating	Minimizes impacts to First Nations natural resources and their ability to access.	- Impacts to First Nations natural resources and their ability to access will be mitigated through the avoidance of Environmentally Sensitive Areas (Lower Jones Creek, the Cold Springs Creek Wetland Complex and the Provincially significant woodlands near Lower Jones Creek). - All alignment concepts are expected to avoid impacts on butternut trees.		
Archaeological Resources	Minimizes potential impacts to archaeological resources or areas with potential resources.	- The extension of the Wayne Gretzky Parkway might have minor effects on archaeological resources. Areas that could be disturbed and were not cleared under the Stage 1 Archaeological Assessment will need to undergo a Stage 2 Archaeological Assessment to evaluate potential impacts and establish appropriate mitigation measures.		
Built Heritage Resources and Cultural Heritage Landscapes	Minimizes potential impacts to known built heritage and cultural heritage resources.	- No impacts are anticipated to occur on Built Heritage Resources and Cultural Heritage Landscapes with respect to proposed alignment concepts. - Construction activities and staging should be appropriately planned and undertaken to avoid impacts to potential BHRs and CHLs.		
First Nations/ Cultural Environment Evaluation		Preferred	Less Preferred	Less Preferred

Criteria Measure	Description of Criteria Measures	Alignment Concept #3 Extending Wayne Gretzky Parkway with a curved transition to Park Road North, forming a new four-leg intersection (Signalized or Roundabout) with the future east-west collector	Alignment Concept #4 Extending Wayne Gretzky to a new three-leg intersection with the east-west collector, continuing perpendicular to Park Road North and connecting at a new three-leg intersection	Alignment Concept #5 Extending Wayne Gretzky Parkway to a new three-legged intersection with a proposed east-west collector, continuing perpendicular to Park Road North and connecting at a new four-leg intersection
Social Environment				
Property Requirements	Minimizes property acquisition and potential impacts to existing properties and access.	- There is a higher potential for impacts on private properties and businesses to accommodate the proposed alignment. - Requires the acquisition of multiple parcels of land (+/- 4 properties).	- Requires property acquisition (1-4 properties). - Potential reduction to property acquisition requirements when compared to Alignment Concept #3.	- Requires property acquisition (1-4 properties). - Potential reduction to property acquisition requirements when compared to Alignment Concept #3.
Noise and Vibration	Minimizes potential to increase noise in Noise Sensitive Areas (NSAs) (e.g., residential properties backing onto the roadway).	- Noise levels are expected to increase due to future traffic volumes and the extension of Wayne Gretzky Parkway being closer to properties. - Potential to eliminates or reduce through traffic along Park Road North will help reduce noise levels for remaining property owners. - Noise levels are expected to increase due to future traffic volumes and the extension of Wayne Gretzky Parkway being closer to properties.	- Eliminates through traffic along Park Road North and will therefore reduce noise levels for remaining Park Road North properties. - Noise levels are expected to increase due to future traffic volumes and the extension of Wayne Gretzky Parkway being closer to properties.	- Through traffic will also be maintained along Park Road North and will therefore increase noise levels for remaining Park Road North properties. - Noise levels are expected to increase due to future traffic volumes and the extension of Wayne Gretzky Parkway being closer to properties.
Air Quality	Improvements to air quality.	- Moderate improvements in air quality are anticipated due to increased active transportation and transit use, as well as reduced traffic congestion. - Active transportation and transit service enhancements, resulting from reduced traffic congestion, can decrease dependence on automobiles and lead to air quality improvements.		
Aesthetics	Improves visual appearance/aesthetics and maintains privacy of existing residence and communities.	- Visual aesthetics for residents of Park Road North and Powerline Road are expected to decline, as the new roadway extension and intersection configurations will be constructed in close proximity to existing residential dwellings and businesses. - For all alignment concepts, visual aesthetics can be improved through tree plantings and streetscaping treatments within the proposed ROW.		
Social Environment Evaluation		Not Preferred	Preferred	Less Preferred
Economic Environment				
Capital Costs/Cost Benefit	Capital cost associated with the proposed improvements and value to the City (Cost benefit).	- Lowest anticipated capital cost compared to Alignment Concept #4 and #5.	- Higher anticipated capital cost compared to Alignment Concept #3 but lower than #5 due to longer road network and additional intersection.	- Highest anticipated capital cost compared to Alignment Concept # 3 and #4 due to longer road network and two additional intersections.

Criteria Measure	Description of Criteria Measures	Alignment Concept #3 Extending Wayne Gretzky Parkway with a curved transition to Park Road North, forming a new four-leg intersection (Signalized or Roundabout) with the future east-west collector	Alignment Concept #4 Extending Wayne Gretzky to a new three-leg intersection with the east-west collector, continuing perpendicular to Park Road North and connecting at a new three-leg intersection	Alignment Concept #5 Extending Wayne Gretzky Parkway to a new three-legged intersection with a proposed east-west collector, continuing perpendicular to Park Road North and connecting at a new four-leg intersection
Operational and Maintenance Costs	Cost associated with operation and maintenance of the road and active transportation infrastructure (Life-Cycle Costs).	- Moderate increase in operating costs with additional roadway and active transportation facilities to maintain.	- Higher operating costs are anticipated compared to Alignment Concept #3, as this alignment includes a longer stretch of roadway, two new intersections, and active transportation facilities to maintain.	- Higher operating costs are anticipated compared to Alignment Concept #3, as this alignment includes a longer stretch of roadway, two new intersections, and active transportation facilities to maintain.
Economic Environment Evaluation		Preferred	Less Preferred	Not Preferred

10.1.4 Recommended Preferred Alignment Concept

The following table provides a summary of the alternative alignment designs considered, along with the combined recommendations based on the evaluations completed in previous section.

Table 10-4: Recommended Preferred Alignment Concept

Alignment Concept	Evaluation Summary	Recommendation
#3 - Extend Wayne Gretzky Parkway with a curved transition to Park Road North, forming a new four-leg intersection (Signalized or Roundabout) with the future east-west collector.	- Accommodates anticipated development traffic and new east-west collector road. - Achieves acceptable levels of service. - Eliminates through traffic along Park Road North. - Provides adequate setback from Lower Jones Creek and Coldwater Spring Wetland Complex. - Provides continuous link for new extension, in accordance with intent of City's policy documents (Official Plan, TMP, ATMP). - Requires the acquisition of multiple parcels of land (+/- 4 properties). - Limits access to Park Road North for remaining properties, according to the area property owners' concerns. - Roundabout option requires large diameter roundabout at Powerline Road and Wayne Gretzky Pkwy.	Recommended
#4 - Extend Wayne Gretzky to a new three-leg intersection with the east-west collector, continuing perpendicular to Park Road North and	- Accommodates anticipated development traffic and new east-west collector road. - Achieves acceptable levels of service. - Eliminates through traffic along Park Road North.	Not Recommend

Alignment Concept	Evaluation Summary	Recommendation
connecting at a new three-leg intersection.	- Potential reduction to property acquisition requirements when compared to Concept #3. - Requires property acquisition (1-4 properties). - Limits connectivity via Park Road North for remaining properties, according to the area property owners' concerns. - Requires larger overall construction footprint. - Does not achieve minimum recommended separation between intersections, according to transportation engineering requirement. - Discontinuous extension (arterial road transitioning to collector road) does not align with intent of City's policy documents (Official Plan, TMP).	
#5 - Extend Wayne Gretzky Parkway to a new three-legged intersection with a proposed east-west collector, continuing perpendicular to Park Road North and connecting at a new four-leg intersection.	- Accommodates anticipated development traffic and new east-west collector road. - Achieves acceptable levels of service. - Maintains connectivity via Park Road North for the area traffic. - Provides redundant connection to Park Road North. - Reduces through traffic on Park Road North via WGP Extension. - Potential reduction to property acquisition requirements when compared to Concept #3.	Not Recommend

Alignment Concept	Evaluation Summary	Recommendation
	- Requires property acquisition (1-4 properties). - Requires larger overall construction footprint. - Discontinuous extension does not align with intent of City's policy documents (Official Plan, TMP). - Does not achieve minimum recommended separation between intersections. - May not effectively reduce traffic volumes along Park Road North between new intersection and Powerline Road.	

It is recommended that Alignment Concept #3 (illustrated in Figure 10-4, page 103) be selected as the preferred alignment. This alignment concept will consist of extending Wayne Gretzky Parkway along a curved path to rejoin Park Road North prior to Lower Jones Creek, thereby creating a new four-leg junction with the future east-west collector. This concept also proposes terminating Park Road North south of the future east-west collector while retaining Park Road North and Powerline Road as a signalized intersection.

This alignment is deemed most effective in addressing future growth projections, alleviating anticipated capacity constraints and operational deficiencies by 2051, accommodating travel demands for the North Expansion Lands including the incorporation of an East/West collector, and aligning with the future vision for the area and proposed adjacent developments.

10.2 Establishment of Intersection Control Methods (Stage 2)

10.2.1 Development of Intersection Control Methods

The second stage of the evaluation process focused on identifying the optimal intersection control methods for the recommended alignment concept established in the previous stage. The proposed intersection control methods under consideration for Wayne Gretzky Parkway and Powerline Road, as well as for east-west collector intersection, included traffic signals and roundabouts.

10.2.2 Evaluation Methodology

The second stage of the evaluation process involved identifying the recommended intersection control methods for Wayne Gretzky Parkway and Powerline Road, Powerline Road and Park Road North, and the new three-leg intersection with the east-west collector. A similar evaluation framework to that used in the selection of the preferred Alignment Concept (Section 10.1.2) was applied. The proposed intersection control methods were assessed using a refined list of screening criteria within the categories of Transportation/Engineering (including safety, capacity to handle future travel demand, and provision of strategic multi-modal connections to planned destinations), City, County, and Provincial objectives and policies, Natural Environment, Social Environment (including potential impacts, noise, and air quality), First Nations/Cultural Heritage, and Economic factors.

Similar to the first stage, the evaluation of the proposed intersection control methods considered the positive and negative potential impacts associated with each method, in light of the criteria listed in Table 10-5. This evaluation provided a relative comparison that was used to determine which intersection control methods were technically preferred for the recommended Alignment Concept #3.

As identified in Section 10.1.2, each category that was evaluated was summarized using the following rankings from Not Preferred to Preferred.

Table 10-5: Proposed Evaluation Criteria

Criterion	Criteria Measure	Description of Criteria Measures
Transportation/Engineering	Transportation Network Capacity	- The volume to capacity ratio (v/c) measures the ratio between the anticipated traffic demand and the roadways capacity. An acceptable v/c is considered as less than 0.85. A v/c of 1.0 indicates roadway above capacity.
	Level of Service/Delay	- Level of Service (LOS) is a performance metric indicating the delay drivers can expect at an intersection. LOS provides a high-level indicator of expected traffic operations at an intersection.
	Road Geometry	- Complexity of proposed intersection geometry.

Criterion	Criteria Measure	Description of Criteria Measures
	Large Vehicles	- The ability for the design to accommodate transport trucks and farm vehicles/equipment.
	Active Transportation	- Ability to safely address pedestrian and cyclist objectives in/out of the intersection (i.e., sidewalks, bike lanes, on-road routes, MUP, etc.) to encourage active transportation, healthy lifestyles and an active community.
	Traffic Safety	- Enhances traffic safety for all users based on the opportunity to reduce congestion and potential for collisions. Improvement in terms in "Collision Severity".
	Constructability/Implementation	- Impacts to existing traffic operations during construction of intersection, including staging, detours, and traffic disruption.
	Utility Impacts	- Minimizes utility relocations.
Land Use Planning Objectives	City Policies	- Consistent with the proposed transportation system and function of roads in the long term (i.e., City of Brantford Transportation Master Plan Update (2020) and Active Transportation Master Plan), as well as meets the requirements of the City of Brantford Roundabout Installation Policy.
Natural Environment	Environmentally Sensitive Areas	- Minimizes impacts to environmentally sensitive areas such as Provincially Significant Wetlands (PSW – Cold Spring Creek Wetland Complex), Provincially significant woodlands associated with tributaries, Areas of Natural and Scientific Interest (ANSIs), etc.
	Minimizes Impacts to Vegetation, Wildlife and Aquatic, SAR Species and Habitat.	- Minimizes impacts to vegetation communities (i.e., vegetation and tree removal), wildlife habitats and movement

Criterion	Criteria Measure	Description of Criteria Measures
First Nations/ Cultural Environment		corridors, SAR Species and fish communities and habitats.
	Climate Change Mitigation	- Minimizes effects on Climate Change including Greenhouse Gas Emissions (GHG) and extreme weather events.
	First Nations Natural Resources – Hunting, Harvesting and Seedling Cultivating	- Minimizes impacts to First Nations natural resources and their ability to access.
	Archaeological Resources	- Minimizes potential impacts to archaeological resources or areas with potential resources.
Social Environment	Built Heritage Resources and Cultural Heritage Landscapes	- Minimizes potential impacts to known built heritage resources and cultural heritage landscapes.
	Property Requirements	- Minimizes property acquisition and potential impacts to existing properties and access.
	Noise and Vibration	- Minimizes potential to increase noise in Noise Sensitive Areas (NSAs) (e.g., residential properties).
Economic Environment	Air Quality	- Improvements to air quality (i.e., reduction in idling vehicles).
	Capital Costs	- Capital costs associated with the proposed improvements and value to the City (Cost benefit)
	Operation and Maintenance Costs	- Costs associated with operation and maintenance (O&M) of any additional infrastructure (Life-Cycle Costs).

10.2.3 Evaluation of Intersection Control Methods

The detailed evaluation for the proposed Intersection Control Methods is presented in Table 10-6 using the evaluation criteria identified in Table 10-5. Each criterion evaluated was summarized using the “Not Preferred” to “Preferred” ranking method.

Table 10-6: Evaluation of Proposed Intersection Control Methods for Recommended Alignment Concept #3

Criteria Measure	Description of Criteria Measures	Intersection Control Method #3A Signalized Intersections at Powerline Road and Wayne Gretzky Parkway, and new four-leg intersection with the future east-west collector and Park Road North	Intersection Control Method #3B Roundabout Intersections at Powerline Road and Wayne Gretzky Parkway, and new four-leg junction with the future east-west collector and Park Road North
Transportation/ Engineering			
Existing and Future Transportation Network	The volume to capacity ratio (v/c) measures the ratio between the anticipated traffic demand and the roadways capacity. An acceptable v/c is considered as less than 0.85. A v/c of 1.0 indicates roadway above capacity.	- Several movements are expected to operate with a volume-to-capacity (v/c) ratio greater than 0.85 at both intersections during the afternoon peak hour. Additionally, several movements at the Wayne Gretzky Parkway and Powerline Road intersection are expected to operate at or above capacity.	- South leg expected to operate with a v/c of 0.92 at the Wayne Gretzky Parkway at Powerline Road roundabout. All other approaches at both roundabout locations operating at acceptable levels of service.
Level of Service/Delay	Addresses existing and future capacity demands at intersection Levels of Service (LOS) deficiencies, congestion/delays and other operational needs.	- Intersection of Wayne Gretzky Parkway at Powerline Road, converted to a four-leg intersection operates poorly during the afternoon peak with several movements operating at LOS E and F. The modelled configuration for this intersection includes dedicated auxiliary lanes on all approaches except for a dedicated westbound right turn lane which was shown to have minimal volumes. - The new intersection of Wayne Gretzky Parkway at the future east-west Collector operates at generally acceptable levels of service. There are several movements operating near capacity, including the westbound left and northbound left movements which are both operating at LOS E. However, 95th percentile queues and delays are still shown to be minimal.	- Both Wayne Gretzky Parkway at Powerline Road and at the future east-west collector operate well as roundabouts with mostly levels of service A. - The south approach at Powerline Road is operating at a LOS C with a 95th percentile queue of approximately 391 m. - Overall traffic can be improved with the implementation of roundabouts. However, further analysis is required to confirm acceptable roundabout operations are achievable.
Road Geometry	Complexity of proposed intersection geometry.	- Easier to design and implement with existing technology and infrastructure.	- Roundabouts have specific geometric design and traffic control features to enhance safety and capacity of intersections. - Roundabout option requires large diameter roundabout at Powerline Road and Wayne Gretzky Parkway, as well as at the future east-west collector operate to accommodate future traffic volumes.
Large Vehicles	The ability for the design to accommodate the transport trucks and farm equipment.	- Signalized intersections can be designed with larger turning radii and dedicated lanes to accommodate larger vehicles such as trucks and farm equipment; however, significant modifications would be	- Roundabouts can be designed with larger turning radii and truck apron areas to accommodate the wide turns required by larger vehicles. This design will help prevent trucks from encroaching into adjacent lanes. Central islands will include truck aprons (raised or

Criteria Measure	Description of Criteria Measures	Intersection Control Method #3A Signalized Intersections at Powerline Road and Wayne Gretzky Parkway, and new four-leg intersection with the future east-west collector and Park Road North	Intersection Control Method #3B Roundabout Intersections at Powerline Road and Wayne Gretzky Parkway, and new four-leg junction with the future east-west collector and Park Road North
		required to existing intersection configuration at Powerline and Wayne Gretzky Parkway. - This design can facilitate smooth turns and minimize potential conflicts. Allow for more flexibility in accommodating larger vehicles with appropriate lane widths, turning lanes, and truck apron areas.	paved areas) that allow larger vehicles to make wide turns without impacting the central island or adjacent lanes.
Active Transportation	Ability to safely address pedestrian and cyclist objectives in/out of the intersection (i.e., sidewalks, bike lanes, on-road routes, MUP, etc.) to encourage active transportation, healthy lifestyles and an active community.	- Active transportation facilities can safely and effectively be implements for all intersection approaches. - Potentially requires long walk times to accommodate walking speeds as low as 0.8 m/s and long crossing distance.	- Active transportation facilities can safely and effectively be implements for all intersection approaches. - Pedestrian crossing treatments expected to have minimal impacts on traffic operations.
Traffic Safety	Enhance traffic safety for all users based on the opportunity to reduce congestion and potential for collisions. Improvement scenarios are compared in terms of "Collision Severity".	- Traffic signals provide clear and predictable phases for each movement, which can improve coordination and reduce uncertainty for drivers. - Improvements can be made for all users as a result of reduced congestion and the incorporation of designated facilities (i.e., sidewalks/cyclist lanes/multi-use pathways) to minimize conflicts with motorized vehicles.	- Roundabouts tend to have fewer high-speed, right-angle, and head-on collisions, leading to a lower overall severity of collisions. - Slow-moving traffic and the design of roundabouts can improve safety for pedestrians and cyclists through the incorporation of designated facilities (i.e., sidewalks/cyclist lanes/multi-use pathways) to minimize conflicts with motorized vehicles. - Drivers unfamiliar with roundabouts may experience confusion or difficulty navigating, leading to potential safety issues; however, this can be mitigated through the design by incorporating proper line work and signage.
Constructability/ Implementation	Impacts to existing traffic operations during construction of intersection, including staging, detours, and traffic disruption.	- Easier to construct in terms of land use and basic infrastructure requirements. - However, significant modifications to existing intersection configuration at Powerline and Wayne Gretzky Pkwy will be required to accommodate future traffic volumes.	- Generally, more challenging to construct due to the need for more land, complex geometric design, extensive earthworks, and additional aesthetic considerations. However, they can offer long-term benefits.

Criteria Measure	Description of Criteria Measures	Intersection Control Method #3A Signalized Intersections at Powerline Road and Wayne Gretzky Parkway, and new four-leg intersection with the future east-west collector and Park Road North	Intersection Control Method #3B Roundabout Intersections at Powerline Road and Wayne Gretzky Parkway, and new four-leg junction with the future east-west collector and Park Road North
Utility Impacts	Minimizes utility relocations.	- Less likely to require utility relocation in comparison to roundabouts due to the required footprint area.	- Roundabout option requires large diameter roundabout at Powerline Road and Wayne Gretzky Parkway which may require utility relocation pending geometry.
Technical / Engineering Evaluation		Less Preferred	Preferred
Land Use Planning Objectives			
City Policies	Consistent with the proposed transportation system and function of roads in the long term (i.e., City of Brantford Transportation Master Plan Update (2020) and Active Transportation Master Plan), as well as meets the requirements of the City of Brantford Roundabout Installation Policy.	- Does not aligned with the City Roundabout Installation Policy.	- Aligns with the City Roundabout Installation Policy.
Land Use Planning Objectives Evaluation		Less Preferred	Preferred
Natural Environment			
Environmentally Sensitive Areas	Minimizes impacts to environmentally sensitive areas such as Provincially Significant Wetlands (PSW – Cold Spring Creek Wetland Complex), Provincially significant woodlands associated with tributaries, Areas of Natural and Scientific Interest (ANSIs), etc.	- The potential impact on environmentally sensitive areas, including Lower Jones Creek, the Cold Springs Creek Wetland Complex, and the provincially significant woodlands near Lower Jones Creek, is anticipated to be low. An adequate setback from these sensitive areas will be established, with First Nations' preference for a 60-meter setback taken into consideration.	
Minimizes Impacts to Vegetation, Wildlife and Aquatic, SAR Species and Habitat.	Minimizes impacts to vegetation communities (i.e., vegetation and tree removal), wildlife habitats and movement corridors, SAR Species and fish communities and habitats.	- Minor impacts are expected on existing vegetation and trees along the frontages and rear yards of residential properties on Park Road North and Powerline Road. - Proposed signalized intersections avoid impacts to butternut trees.	- This option requires a larger overall construction footprint compared to signalized intersections, leading to a slightly higher impact on existing vegetation and trees along the frontages and rear yards of residential properties on Park Road North and Powerline Road.

Criteria Measure	Description of Criteria Measures	Intersection Control Method #3A Signalized Intersections at Powerline Road and Wayne Gretzky Parkway, and new four-leg intersection with the future east-west collector and Park Road North	Intersection Control Method #3B Roundabout Intersections at Powerline Road and Wayne Gretzky Parkway, and new four-leg junction with the future east-west collector and Park Road North
		- Minor impacts anticipated to SAR Bats and Birds due to clearing of trees and cultivated fields, as well as the demolition of the existing structures; however, impacts can be mitigated through the detail design and construction stages.	- Roundabout intersections avoid impacts to butternut trees. - This option requires a larger overall construction footprint leading to slightly higher potential to impact SAR Bats and Birds due to clearing of trees and cultivated fields, as well as the demolition of the existing structures; however, impacts can be mitigated through the detail design and construction stages.
Climate Change Mitigation	Minimizes effects on Climate Change including Greenhouse Gas Emissions (GHG) and extreme weather events.	- Signalized intersections can be optimized to reduce emissions through advanced technologies, but they often still result in higher levels of idling and stop-and-go driving, which can contribute to increased fuel consumption and emissions.	- Roundabouts are generally more effective at mitigating climate change compared to signalized intersections due to their ability to reduce idling time, improve traffic flow, and lower fuel consumption. Their design helps to maintain a more consistent vehicle speed, which is beneficial for reducing greenhouse gas emissions.
Natural Environment Evaluation		Preferred	Less Preferred
First Nations/ Cultural Environment			
First Nations Natural Resources – Hunting, Harvesting and Seedling Cultivating	Minimizes impacts to First Nations natural resources and their ability to access.	- Impacts to First Nations natural resources and their ability to access are mitigated through the avoidance of Environmentally Sensitive Areas (Lower Jones Creek, the Cold Springs Creek Wetland Complex and the Provincially significant woodlands near Lower Jones Creek). - All intersections are expected to avoid impacts on butternut trees.	
Archaeological Resources	Minimizes potential impacts to archaeological resources or areas with potential resources.	- The extension of the Wayne Gretzky Parkway might have minor effects on archaeological resources. Areas that could be disturbed and were not cleared under the Stage 1 Archaeological Assessment will need to undergo a Stage 2 Archaeological Assessment to evaluate potential impacts and establish appropriate mitigation measures.	
Built Heritage Resources and Cultural Heritage Landscapes	Minimizes potential impacts to known built heritage and cultural heritage resources.	- No impacts are anticipated to occur on Built Heritage Resources and Cultural Heritage Landscapes. - Construction activities and staging should be appropriately planned and undertaken to avoid impacts to potential BHRs and CHLs.	
First Nations/ Cultural Environment Evaluation		Preferred	Less Preferred

Criteria Measure	Description of Criteria Measures	Intersection Control Method #3A Signalized Intersections at Powerline Road and Wayne Gretzky Parkway, and new four-leg intersection with the future east-west collector and Park Road North	Intersection Control Method #3B Roundabout Intersections at Powerline Road and Wayne Gretzky Parkway, and new four-leg junction with the future east-west collector and Park Road North
Social Environment			
Property Requirements	Minimizes property acquisition and potential impacts to existing properties and access.	- Construction of signalized intersections could be completed with limited impacts outside existing ROW, reducing need for property acquisition.	- Roundabout option requires a large diameter roundabout at Powerline Road and Wayne Gretzky Parkway, as well as at the future east-west collector to accommodate future traffic volumes, which will have higher property impacts when compared to signalized intersections.
Noise and Vibration	Minimizes potential to increase noise in Noise Sensitive Areas (NSAs) (e.g., residential properties backing onto the roadway).	- Vehicles frequently stop and start at traffic signals, leading to noise from acceleration and deceleration, including engine noise, tire friction, and exhaust sounds. This can result in higher overall noise levels at the intersection. - Vehicles idling at red lights contribute to continuous engine noise, which can increase noise pollution, particularly in high-traffic areas. - Higher potential to impact existing residents on Park Road North and Powerline Road and/or sensitive areas, where the cumulative effect of engine noise and vehicle acceleration/deceleration can impact the quality of life. - Potential to eliminates through traffic along Park Road North will help reduce noise levels for remaining property owners.	- Vehicles in roundabouts move continuously with less frequent stopping, which generally results in smoother, more consistent engine operation and reduced noise from acceleration and deceleration. - Roundabouts can reduce traffic congestion, and queuing, which in turn can decrease the noise generated from prolonged vehicle idling and high-density traffic conditions. - Eliminates through traffic along Park Road North and will therefore reduce noise levels for remaining Park Road North properties.
Air Quality	Improvements to air quality (i.e., reduction in idling vehicles).	- At signalized intersections, vehicles frequently stop and start, leading to higher levels of emissions due to idling and rapid acceleration. This results in increased production of pollutants such as nitrogen oxides, carbon monoxide, and particulate matter.	- Roundabouts facilitate continuous traffic movement with fewer stops, reducing the frequency of idling and rapid acceleration. This generally results in lower emissions of pollutants such as nitrogen oxides, carbon monoxide, and particulate matter compared to signalized intersections. - The design of roundabouts minimizes vehicle idling, which helps decrease the production of emissions associated with stationary engines.
Social Environment Evaluation		Less Preferred	Preferred

Criteria Measure	Description of Criteria Measures	Intersection Control Method #3A Signalized Intersections at Powerline Road and Wayne Gretzky Parkway, and new four-leg intersection with the future east-west collector and Park Road North	Intersection Control Method #3B Roundabout Intersections at Powerline Road and Wayne Gretzky Parkway, and new four-leg junction with the future east-west collector and Park Road North
Economic Environment			
Capital Costs/Cost Benefit	Capital cost associated with the proposed improvements and value to the City (Cost benefit).	- The initial capital cost of installing a signalized intersection includes the cost of traffic signal equipment (lights, controllers, sensors), installation, and infrastructure modifications. This can be relatively lower compared to roundabouts.	- The construction cost of a roundabout can be higher than that of a signalized intersection due to the need for substantial land acquisition, geometric modifications (which will be required for the Wayne Gretzky Parkway and Powerline Road intersection to avoid hydro tower relocation), and potentially complex design and construction.
Operational and Maintenance Costs	Cost associated with operation and maintenance of the road and active transportation infrastructure (Life-Cycle Costs).	- Regular maintenance and potential upgrades to signal equipment can incur ongoing costs.	- Generally, roundabouts require less maintenance compared to traffic signals, as they do not rely on electronic components.
Economic Environment Evaluation		Preferred	Less Preferred

10.2.4 Recommended Preferred Intersection Control Method

The suitability of potential signalized versus roundabout intersection designs was assessed for the recommended Alignment Concept #3. The assessment focused on comparing signalized intersections and roundabouts to determine the most effective approach for improving traffic flow and safety. By examining the benefits and limitations of each method, the evaluation aimed to provide a well-informed recommendation that enhances operational efficiency and meets the needs of all stakeholders.

The evaluation identified roundabouts as the recommended intersection control method for Wayne Gretzky Parkway and Powerline Road, as well as for the new four-leg intersection at the future east-west collector. Roundabouts have been shown to significantly reduce the overall severity of collisions, decrease delays, improve traffic flow, lower speeds, and enhance safety for all users. They also offer advantages in terms of environmental factors, conditions for pedestrians and cyclists, and lower operating and maintenance costs. This recommendation also aligns with the City's Roundabout Installation Policy.

However, due to the complexity of the proposed design concepts, including closely spaced intersections, potential roundabouts, and the evaluation of a possible connection between Park Road North and the future east-west collector road, a more detailed analysis was required beyond what standard static traffic assessment methods could provide. Poor performance at a signalized intersection could result in spillback effects, disrupting upstream traffic and affecting overall network performance. To address this, a microsimulation analysis was conducted using VISSIM to evaluate traffic operations at each intersection and support the selection of the preferred Design Concept. The analysis included assessing turning movement volumes and refining intersection configurations to maintain acceptable levels of service. Both the Wayne Gretzky Parkway/Powerline Road intersection and the future east-west collector were modeled and evaluated as roundabouts.

The assessment was conducted using a city-wide transportation demand model developed in PTV VISUM, a Windows-based multimodal transportation modeling software. The strategic modeling with the City-wide VISUM Model feeds into the microscopic dynamic model built in VISSIM. Ensuring all relevant data from the city's strategic model is incorporated.

To forecast future vehicular travel demand during peak hours, the City's strategic model (VISUM) was used, taking into account urban and infrastructure developments projected for 2051 at the city level. It was determined that the assumed volume projections were consistent with the TMP's 2051 recommended road network. This included full build-out of the block plan developments and existing intensifications, as well as Transportation Demand Management (TDM) and mode share changes. As previously discussed, the TMP model was also updated to

include traffic from the additional high school and daycare as it was not accounted for in the City's baseline TMP model.

The base network model encompassed the intersections of Powerline Road with Park Road North and Wayne Gretzky Parkway, as well as the intersections along the Park Road North/Wayne Gretzky Parkway corridor, south of the Core Natural Area located north of Powerline Road. An initial scenario was developed and evaluated using the transportation model. Based on identified performance issues, improvements were developed and incorporated into a subsequent scenario. Further refinements were made and tested in the next iteration to address persistent issues. This iterative process continued until acceptable conditions were achieved for both analysis periods. The final option was evaluated under conditions that fall within the margin of error of the travel demand forecast. This scenario tests the potential impact on performance if traffic volumes exceed projections.

On November 27, 2024, BA Consulting Group Ltd., representing the Block Plan developers, submitted a memorandum to the City indicating that the Powerline East Functional Road Plan places the southern entrance of the Wayne Gretzky Parkway and East-west Collector road roundabout approximately 345 meters north of Powerline Road. In contrast, this study proposes the roundabout to be located approximately 415 meters north of Powerline Road. Additionally, the Powerline East Functional Road Plan shows the Wayne Gretzky Parkway and Powerline Road intersection operating with standard traffic signal control, whereas this study suggests a roundabout for that intersection. In further review of the developer's block plan, it was confirmed that the actual distance is 390 meters from the center of the proposed east-west collector roundabout to the center of the Powerline Road alignment. Applicable geometric design guidelines recommend a minimum spacing of 400 meters between intersections.

As part of the Intersection Control optimization process, four scenarios were developed, along with a sensitivity analysis, for the recommended Alignment Concept #3 outlined below (Scenarios 1 and 2a-c). Additionally, separate scenarios were created to assess the proposed alignment concept provided by the Development Communities, following their roundabout spacing inquiry later in the process (Scenarios 3a and 3b). These scenarios include a corresponding sensitivity analysis comparison (Scenarios 2c and 3b). Table 10-7 summarizes the scenarios developed, along with their evaluations, including those based on the proposed alignment concept provided by the Development Communities.

Table 10-7: Proposed Optimization

Scenario No.	Scenario Description	Rationale
1	- Powerline Road: 2x 2-lanes - Wayne Gretzky Parkway (WGP): ▪ 2x 2-lane ▪ 2-lane roundabout at Powerline and WGP ▪ 2-lane roundabout at WGP and East-West Collector - Park Road North - no connection with east-west collector. Road would simply serve existing properties.	- Significant westbound queues at the Powerline Road and Park Road North intersection often extend to the WGP roundabout, leading to congestion on its north and east approaches.
2a	- Powerline Road: 2x 2-lanes - WGP: ▪ 2x 1-lane north of the WGP ▪ east-west collector 1-lane roundabout ▪ WB LT Lane with Protected Phase at the intersection of Powerline Road & Park Rd N - Park Road North - no connection with east-west collector. Road would simply serve existing properties.	- Eastbound queues at the Powerline Road and WGP roundabout occasionally spill back to the Park Road North intersection. - Queues also form on the western approach to the WGP and east-west collector roundabout.
2b	- Similar to Sc. 2a, with the exception of: ▪ EB and NB RT Lane at the Powerline Rd & WGP roundabout ▪ EB RT Lane at the east-west collector x WGP roundabout - 2x 1-lanes + median + LT Lane between WGP and Brantwood Park Rd (750 m)	- Eastbound traffic flow has improved on the western approach to the Powerline Road and WGP roundabout. - Eastbound traffic flow has improved on the western approach to the east-west collector and WGP roundabout.

Scenario No.	Scenario Description	Rationale
2c	- Similar to Sc. 2b, with the addition of: ▪ +20% demand for the purposes of determining the threshold at which a queue build-up from the WGP / Powerline Road roundabout will reach the WGP/ east-west collector roundabout at the critical (evening) peak hour	- Future travel demand can increase by 20% over the forecasted traffic without causing significant congestion.
3a	- Similar to Sc. 2b, with the exception to: ▪ Repositioning of the east-west collector roundabout further south (developer's proposed alignment (345 m offset from Powerline Road) ▪ Optimization of the roundabout diameter from 60 to 40 meters	- Performance similar to Scenario 2b. - Does not meet the TAC Guideline for intersection spacing requirement of 400 meter.
3b	- Similar to Sc. 3a, with the addition of: ▪ +15% demand for the purposes of determining the threshold at which a queue build-up from the WGP / Powerline Road roundabout will reach the WGP/ east-west collector roundabout at the critical (PM) peak hour	- Future road capacity will be limited to 15% over the forecasted traffic demand, when operational deficiencies can be observed beyond this traffic volume.

Modeling results indicated that both scenarios (2b and 3a) are operationally acceptable under anticipated future traffic conditions. However, sensitivity analysis reveals that operational deficiencies can be observed when traffic volumes exceed a 20% increase for the alternative in which intersection spacing is greater than 400 meters, and a 15% increase where intersection spacing is less than 400 meters. The final decision on the roundabout location should take these factors into consideration, ensuring that the City is comfortable with the applicable margin of safety should future 2051 traffic volumes exceed current forecasts. The future traffic volumes projection will be confirmed through the TMP Update currently conducted at the city.

In addition, the analysis of the proposed roundabout at the Wayne Gretzky Parkway and proposed east-west Collector indicates that a single lane roundabout will provide sufficient capacity leading to the horizon year. As such, the initial recommendation was to proceed with a

single lane roundabout in the proposed solution, with acquisition of sufficient ROW to implement a future two-lane roundabout. However, through subsequent discussion the City has indicated their preference for a two-lane roundabout at the new intersection in order to “future proof” the extension. Further, the road network north of the proposed Wayne Gretzky Parkway Extension will be reviewed in the City’s upcoming TMP update, within which future project(s) may require improvements to north segments of Park Road North and Governors Road, resulting in the need for additional capacity along the extension. The future traffic volumes projection will be further reviewed and confirmed through the TMP Update currently conducted at the city.

11.0 Recommended Design Concept Overview

Following a comprehensive evaluation process, which incorporated the expertise, knowledge, and input from various disciplines, agencies, stakeholders, First Nations, interested parties (including area residents, business and development communities), and the public, Alignment Concept #3 was identified as the preferred alignment with a 2-lane roundabout at the Wayne Gretzky Parkway and Powerline Road intersection, and a 2-lane roundabout at the future east-west collector intersection. This alignment and intersection control methods were determined to be the most effective in addressing future growth projections, mitigating anticipated capacity constraints and operational deficiencies by 2051, accommodating travel demands for the North Expansion Lands (including the east-west collector), and aligning with the area's long-term vision and proposed adjacent developments. The preferred design concept provides a continuous link for the new extension, in accordance with intent of relevant City policy documents (Official Plan, TMP, ATMP).

11.1 Design Criteria

The geometric design for the recommended design concept was prepared in accordance with the approved design criteria and is based on applicable standards and manuals. Design criteria relevant to this functional design is summarized in Table 11-1. At the time of preliminary and detailed design, any changes to design standards and/or industry best practices are to be taken into consideration.

Table 11-1: Design Criteria

CRITERIA	Units	DESIGN GUIDELINES	NOTES	REFERENCE
CLASSIFICATION				
Roadway Classification		UAD-80	Urban Arterial - Divided	
Design / Posted Speed	km/h	80 / 70	Design speed 10 km/h > Posted Speed	Brantford Design Guide (BDG) - Table 1
ADT	vehicle	> 8,000		
Min. Intersection Spacing	m	400	To suit adjacent development E/W Collector	TAC Section 9.4.2.1
CROSS SECTION				
Right-of-way width	m	40		BDG Standard Drawing H-108
Platform Width	m	20.8 - 22.1		BDG Standard Drawing H-108

CRITERIA	Units	DESIGN GUIDELINES	NOTES	REFERENCE
Lanes (per direction)		2		
Lane Cross Fall	%	2.5		BDG Table 2
Lane Width - Through	m	3.4 - 3.7		
Lane Width - Aux. *	m	3.25		TAC Section 4.3.2
Median Width	m	-		
Shoulder Width	m	-	Fully Paved Shoulder	
HORIZONTAL				
Superelevation Rate (Max)	%	2.0		BDG Table 2
Horizontal Radius - Minimum *	m	450	Min. Radius for Reverse Crown (+0.02 m/m)	TAC Table 3.2.3
Horizontal Curve Length (Min./Desired)*	m	240 / 480	Min. curve length is 3x Design Speed, Desirable 2x Min.	TAC Section 3.2.6.1
Stopping Sight Distance*	m	130		TAC Table 2.5.2
VERTICAL				
Road Grade - Maximum	%	6.0		BDG Table 2 / TAC Table 3.3.1
Road Grade - Minimum (Desirable/Absolute*)	%	0.5 / 0.0		BDG Table 2 / TAC Section 3.3.2.5
Grade at Intersections – Maximum	%	3.0	For Minor Approach: Match cross fall of major approach	BDG Table 2
Vertical Curve Min. Stopping Sight Distance	m	85-140		BDG Table 2, TAC Tables 3.3.2 & 3.3.4
K Factor - Crest Curves (SSD)*		26		TAC Table 3.3.2
K Factor - Sag Curves (Headlight / Comfort Control)*		30 / 12-16	Roadway anticipated to be illuminated	TAC Tables 3.3.4 & 3.3.5
Vertical Curve Length (Min.)*	m	80	Desirable not less than design speed	TAC Section 3.3.5.1

Design standards per City of Brampton Design and Construction Manual, Linear Municipal Infrastructure Standards - Roads and Transportation (V10, Feb 2025) unless otherwise noted.

*Denotes standard per TAC Geometric Design Guidelines

11.2 Typical Cross-Section

The typical cross-section for the recommended design concept for the Wayne Gretzky Parkway North Extension between Powerline Road and the proposed east-west collector road is illustrated in Figure 11-1.

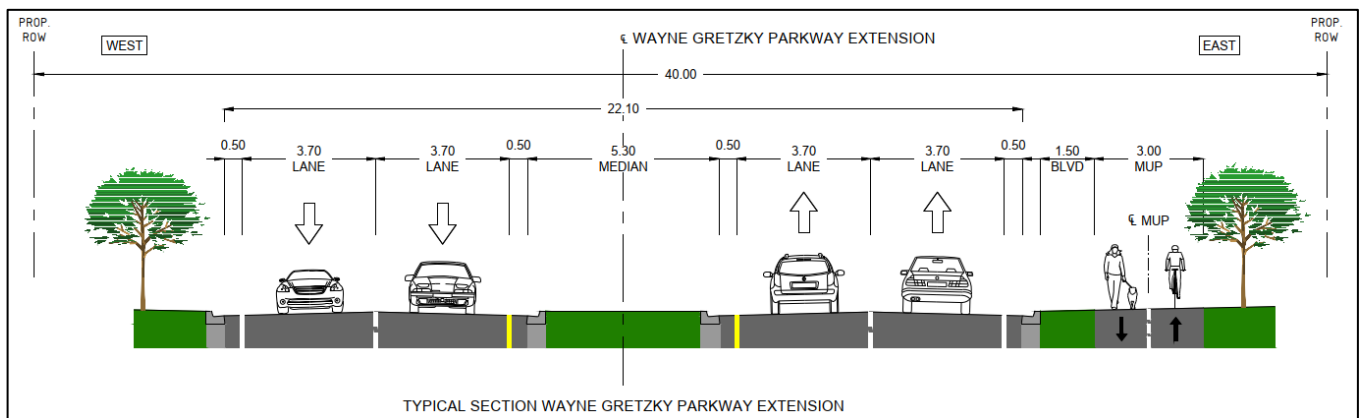


Figure 11-1: Typical Cross-section

11.3 Active Transportation

While current pedestrian and cycling infrastructure is limited along Wayne Gretzky Parkway, Powerline Road, and surroundings, the City TMPs, and Active Transportation Master Plan recommend improved active transportation facilities and network connections along the corridor. As part of this Class EA Study, existing conditions for pedestrians and cyclists were reviewed to identify opportunities for improvement. This included existing sidewalks, crossings and connections to surrounding area facilities to understand the deficiencies and identify need for improvements in the preferred solution for the corridor. On-going plans for facilities proposed in the TMP and the multi-modal transportation network proposed for the North Expansion Lands (Block Developments) were also reviewed.

The proposed roadway and roundabouts incorporate dedicated active transportation facilities for pedestrians and cyclists along the Wayne Gretzky Parkway North extension. Additionally, a connecting link will be established to the existing multi-use path/trail at Powerline Road and Wayne Gretzky Parkway to expand the City's AT network and provide opportunities for connections to proposed developments in the North Expansion lands.

11.4 Property Requirements

Proposed property impacts resulting from the recommended alignment and intersection geometry are illustrated in Figure 11-2. During the preliminary and detailed design,

opportunities to reduce property requirements and to use temporary or permanent grading easements instead of permanent property takings should be reviewed where feasible.

Property requirements identified are preliminary and will be finalized during detailed design. The City's Real Estate department to engage with individual property owners to further discuss land acquisition needs, property appraisals, and other relevant matters.

11.5 Stormwater Management and Drainage Assessment

The objective of the stormwater management and drainage assessment was to evaluate the drainage characteristics within the north extension Right of Way (ROW) limits under proposed conditions, as well as to advance an integrated approach to facilitate the extension with no adverse impacts to the receiving drainage systems. The recommendations and guidelines provided by the MECP, MTO, GRCA, and the City were considered in developing the Best Management Practices (BMPs) to achieve the necessary statutory requirements.

The study area was delineated into catchments using the available LiDAR data and proposed conceptual plan based on the drainage characteristics and stormwater outlet locations under existing and proposed conditions. External areas that contribute to the overall site drainage were also identified.

Stormwater management strategies for the extension are anticipated to include both quantity and quality controls. Quantity control will be achieved through roadside ditches designed to store and regulate runoff before releasing it to existing outlets. Quality control will involve BMPs such as directing runoff to vegetated areas, maintaining minimal slopes, and utilizing check dams and riprap to promote infiltration and sediment filtration. The goal will be to achieve an "Enhanced" level of protection by removing 80% of total suspended solids, ensuring the proposed works exceed both quality and quantity control requirements. Further exploration of feasible quantity and quality control methods will be undertaken in future design phases.

The hydraulic analysis assessed the capacity of the proposed drainage infrastructure. Future ditches were evaluated using conservative assumptions to ensure they could manage runoff from a 100-year storm. The analysis confirmed that the proposed roadside ditches will have sufficient capacity to convey stormwater, preventing overtopping and ensuring effective drainage for the roadway extension.

Refer to the Stormwater Management and Drainage Brief (Egis, January 2025, revised March 2025) in Appendix O for a more comprehensive overview of the assessment conducted within the study area.

Figure 11-2: Property Impact Plan



11.6 Preliminary Cost Estimate

Based on a preliminary cost estimate, the recommended extension is estimated at \$8.5 M. This preliminary cost estimate includes costs for removals, road work, active transportation, utility relocation, drainage and stormwater management and landscaping; however, property acquisition costs are not included in the estimate.

The extent of cost sharing with Development Communities (including stormwater management facilities within the development and storm sewer systems) will be confirmed during detailed design.

This estimated cost is preliminary and will be reviewed and confirmed during the detailed design phase.

12.0 Potential Impacts and Mitigation Measures

To address potential impacts on the transportation/engineering, land use planning objectives natural environment, First Nations/cultural environment, and socio-economic environment identified during the Class EA process, it is recommended that the following mitigation measures be incorporated into the preliminary and detailed design phases and implemented during construction. These measures are intended to minimize adverse impacts and protect public safety, First Nations interests, and the natural, social, and cultural heritage environment.

12.1 Transportation/ Engineering

12.1.1 Constructability/Implementation

The new extension is primarily located outside the footprint of existing roadways within undeveloped agricultural land slated to be developed, which will allow a portion of construction to be completed with no disruption to adjacent traffic. However, the nature of the required work is such that traffic disruption and delays cannot be entirely avoided. This is most notable when considering the work planned at the intersection of Wayne Gretzky Parkway and Powerline Road.

The construction staging for the proposed Wayne Gretzky Parkway extension will maintain two lanes of traffic (one lane in each direction) including pedestrian movements equal to pre-construction levels during construction, wherever feasible. However more extensive lane closures may be required as deemed necessary, in addition to short term lane reductions, traffic diversion and/or detours, along Powerline Road, Park Road North and Wayne Gretzky Parkway south of the proposed extension.

- During detailed design, a traffic management plan will be developed to determine how traffic and pedestrian access will be accommodated during construction and how access to properties adjacent to Powerline Road and Park Road North will be maintained.
- The City will need to coordinate construction with Development Communities and ensure appropriate mitigation measures are implemented during construction.

12.1.2 Infrastructure – Sewer and Water

The Wayne Gretzky Parkway North Extension will be a major arterial road. Typically, the City will associate watermain and sewer infrastructure with collector and local roads wherever possible.

- Servicing will need to be assessed further through future land development, in conjunction with adjacent development applications and City planning directives.

12.1.3 Utilities

Existing and proposed utilities (i.e. GrandBridge Energy) conflict with proposed extension of Wayne Gretzky Parkway and connection to Park Road North, as well as potential conflicts at the intersection of Powerline Road and Wayne Gretzky Parkway.

- A Utility Relocation Plan is to be developed during detailed design, as required.
- All utility information must be updated prior to construction to ensure accuracy and finalize any required relocations, in coordination with utility companies.

12.1.4 Streetscaping and Landscape

Existing landscape features and vegetation within the future construction footprint are anticipated to be impacted with the extension of Wayne Gretzky Parkway to the north. City has the opportunity to enhance aesthetic throughout the new corridor, with the inclusion of landscaped features and plantings within the right-of-way. Mitigation measures may include:

- Enhanced aesthetic potential along the corridor through the incorporation of landscaped boulevards within the right-of-way, where feasible.
- Identify and preserve significant or mature trees and vegetation where possible. In areas where preservation is not feasible, consider transplanting or relocating important plant species to minimize ecological disruption.
- Create buffer zones or green corridors between the road extension and sensitive environmental areas, using natural vegetation to help absorb runoff, reduce noise, and maintain habitat connectivity.
- Native plants shall be incorporated into the future landscape where possible, to enhance natural environment with biodiversity and preserve species of First Nations interests.

12.1.5 Geotechnical

Water has a damaging effect on most of the materials used in road construction. Groundwater can weaken and degrade the pavement structure, which can develop into deformations, cracking and potholes. Likewise, saturation of the pavement sub-layers will reduce the moduli of elasticity of the sub-layers giving rise to early rutting and cracking that require early maintenance. In general, sub-soil drainage systems (ditching or subdrains) should be provided to prevent the water table from rising and affecting the pavement materials.

12.2 Natural Environment

12.2.1 Vegetation/ Tree Removal

The proposed road improvements are not expected to result in the removal of high-quality vegetation, as the majority of the design footprint is situated within a maintained agricultural field, primarily planted with corn and soybeans, as observed during field investigations. While the treed habitat potentially impacted by the extension is small in scale, it may provide important ecological services, such as nesting and roosting habitats for birds and bats, which are present in the study area. However, no federally or provincially significant species will be affected by the planned road improvements. Additionally, no restricted plant species, as defined by the Invasive Species Act (2015), were identified within the study area, and no large stands of noxious plants were observed. Mitigation measures may include:

- A Restoration and Protection Plan should be developed during the detailed design phase, encompassing the replanting of native species to restore natural habitats, enhance biodiversity (i.e., using native species for pollinators such as Monarchs and bees), and preserve visual aesthetics. Plant species should be selected based on their suitability to the local environment, ensuring they thrive with minimal maintenance.
- It is recommended to include the planting of native tree species along the new road alignment to maintain connectivity with the larger wooded habitat to the north of the study footprint.
- Implement measures to protect trees and vegetation that are not being removed, such as tree barriers or protective fencing, to prevent damage during construction.
- The City is supportive of incorporating invasive species management as part of the overall environmental mitigation strategy for the project. To prevent the introduction or spread of invasive, noxious, or otherwise undesirable vegetation species, the *Clean Equipment Protocol for Industry* (Halloran, Anderson, and Tassie, 2013) should be followed. In addition, best management practices (BMPs) for invasive species removal, followed by native plant re-vegetation and appropriate post-removal monitoring, will be considered during the detailed design phase and included in contract documents where applicable. These measures will help ensure long-term ecological restoration and contribute to improved post-construction site conditions. This includes mitigation such as:
 - Work shall occur in a manner to prevent the spread of invasive species and noxious vegetation to, from and within the Working Area;
 - Soil from areas impacted by invasive species shall not be stockpiled for reuse;
 - Debris, including earth clods and invasive and noxious vegetation material attached to the outside surfaces of equipment, is prohibited from entering the

Working Area. Equipment coming on-site shall be inspected as close to the site entrance as possible for debris. If present, debris shall be completely removed prior to the equipment proceeding to the Working Area and shall be collected and managed by disposal to a licensed waste disposal site as non-hazardous solid industrial waste prior to the equipment proceeding to the Working Area, and

- Equipment shall also be inspected for debris prior to leaving the Working Area. Any debris shall be removed and managed as specified above and in a manner that prevents equipment from coming into further contact with standing, sprayed or cut invasive or noxious vegetation.

12.2.2 Wildlife and Migratory Birds

The proposed extension may result in the displacement of wildlife and migratory birds within the study area. While the impacted habitats are of lower quality, providing fewer habitat opportunities for species, they still play a crucial role in the ecosystem by offering important services, such as nesting and roosting sites, particularly within the treed hedgerow located within the project footprint. Indirect impacts to wildlife species are anticipated as a result of the project and will require mitigation measures. Where avoidance of habitat impacts is not feasible, strategies for minimizing, mitigating, and compensating for these impacts will be implemented to reduce displacement and support the conservation of wildlife in the affected area. Mitigation measures may include:

- As per the mitigation hierarchy, avoidance has been chosen as the mitigation measure in protecting wildlife and wildlife habitat in the current recommended design concept. Specifically, the highest quality habitat observed within the study area for all wildlife species (Lower Jones Creek, the PSW, and associated woodland to the north) has been avoided, and the current project footprint is well outside (>30 m) of this area.
- Pending the timeframe of the Project, surveys may need to be completed again, as outlined in Section 13.3 of this report, to update any changes in the presence or absence of species. This information should aid in further impact assessments and recommendations.
- The Contractor shall not destroy active nests (nests with eggs or young birds) or wound or kill birds of species protected under the MBCA (1994) and/or Regulations under that Act. When active nests are encountered, the proponent's Contract Administrator must be contacted.
- Vegetation clearing should not take place within the breeding bird nesting window for this region (April 1 to September 15 of any year).

- If vegetation removal must occur within the breeding bird nesting window (April 1 to September 15 of any year), the proponent must retain a qualified avian specialist to conduct a nesting survey no more than 24 hours prior to vegetation clearing. If migratory birds exhibiting breeding behavior or their nests are encountered at any time of year at any location included in this report, work should not continue at the location of the nest until:
 - After it has been determined by an avian specialist that the young have fledged and vacated the nest and work area; or
 - An avian specialist determines a suitable buffer distance at which work may continue to prevent disturbance of the bird(s); and
 - Where a buffer distance has been implemented, an avian specialist must undertake monitoring during construction to ensure migratory birds and their eggs are not disturbed, destroyed, or taken; and
 - Targeted "nest searches" should be avoided, as this may result in harm/harassment of nesting birds and be in contravention of the MBCA and its regulations.
- Incorporate wildlife corridors/passages to support local biodiversity and ensure that the corridor does not disrupt natural ecosystems, if feasible and warranted. The need for these measures will be assessed during the detailed design phase. However, they may not be deemed warranted by the City and assessments due to the limited habitat south of the project footprint, which consists of a dense urban area. As a result, species movement from north to south is unlikely. Instead, wildlife is more likely to move east-west, taking advantage of the higher-quality treed habitat located north of the project area.

12.2.3 Surface Water and Fish Habitat

The study area includes Lower Jones Creek and the associated PSW Cold Spring Creek Wetland Complex, which runs through the northern portion of the area. The recommended conceptual design has been developed to avoid crossing Lower Jones Creek and the PSW Cold Spring Creek Wetland. However, there remains a potential for impacts to water quality within these water bodies if the existing hydrology and drainage features are not adequately considered during the design process and incorporated into the final design. Assuming that impacts to the site's overall hydrology are fully mitigated during the detailed design phase, no residual impacts to fish or fish habitat within Lower Jones Creek, north of the proposed extension, are anticipated as a result of the planned development. Nevertheless, potential impacts to the watercourse and PSW during construction will require careful management and mitigation measures to minimize any disturbance to these sensitive environmental features.

- A minimum buffer zone of 30 m from any water or wetland feature is recommended to avoid impacts to the sites water resources as per Section 5.6.1 of The City of Brantford Official plan.
- All lands cleared as part of development should be revegetated as soon as possible to stabilize disturbed soils and prevent the mobilization of sediment-laden surface runoff.
- An erosion and sediment control (ESC) plan should be developed and all applicable measures to mitigate erosion and sediment transport. The ESC is to be maintained until disturbed soils are stabilized by successful revegetation or other permanent means of soil stabilization.
- ESC measures shall be put in place prior to any solid disturbance and shall remain effective at all times, including seasonal and other shut down periods.
- Daily inspection of erosion and sediment control (ESC) measures during active construction by a qualified Canadian Certified Inspector of Sediment and Erosion Control. Inspections should include oversight during any potential dewatering activities, continue throughout the full construction period, and extend briefly into the post-construction phase to ensure site stabilization. All disturbed areas shall be immediately restored after a disturbance or upon completion of the works. The disturbed areas shall be restored to an equivalent or better condition than existed prior to the commencement of construction.
- Work shall be scheduled to avoid wet or windy periods that may increase erosion and sedimentation where practical.
- Equipment shall arrive on site in clean conditions and it to be maintained free of fluid leaks.
- Equipment refueling and maintenance shall take place at locations as far away as practicable from a waterbody and in a manner that prevents any sediment and other deleterious substances from entering a waterbody. An emergency spill kit shall be kept on site to address any fluid leaks or spills from equipment.
- Natural areas to be retained, should be isolated by sturdy construction fencing or similar barriers at least 1 m in height during construction in order to ensure their retention.

12.2.4 Species at Risk

SAR protected under the ESA or Species at Risk Act have the potential to be present and may be impacted by the works associated with the proposed Project component and are discussed below.

Vascular Plants: Four (4) butternut trees were observed within the study area and were confirmed to be pure butternuts based on the hybrid scoring matrix. However, it is not anticipated the proposed development will impact these individuals, as the currently known footprint will be well outside the established root harm protection zone. If any proposed activity may harm or remove a living Butternut tree, an ESA authorization is needed to obtain for the activity (such as, a permit), or, the activity may be eligible for a conditional exemption under Part V of Ontario Regulation 830/21.

Reptiles and Amphibians: No amphibian SAR are known from the area and habitat for amphibian species was not observed to exist within the currently known project footprint. As such, no impacts to SAR reptiles and amphibians are anticipated due to the proposed development. Should the area of proposed development change during the preliminary and detailed design, further targeted surveys for reptiles and amphibians may be recommended with additional mitigation measures.

Birds: During Egis's 2023 field investigation, several bird species were observed in the study area.

Barn Swallow were observed during Egis's 2023 field investigation foraging within the study area over the forested ravine associated with Cold Spring Creek PSW. While the species was observed within the study area no evidence of nesting activity was observed, though a detailed examination of all houses/structures located in the southern portion of the study area was not completed as part of the field investigations. It is not anticipated that Barn Swallow individuals or their nests will be impacted due to project works assuming all standard mitigation measures implemented. The Barn Swallow is listed as 'Special Concern' under the ESA and does not receive protection of habitat provincially.

Potential nesting habitat for the Common Nighthawk and Chimney Swift exists within the study area where flat-topped gravel roofs and potentially open-capped chimneys were observed. Targeted surveys were conducted for these species in 2024, and no visual or audial observations were taken at these times. It is recommended that updated targeted surveys for these species take place as part of the detailed design, pending the timeframe of the Project. It is not anticipated that individuals of these species or their nests will be impacted due to project works assuming all standard mitigation measures implemented. As this species receives Critical Habitat Protection where it occurs in Canada, should they be observed at a later date, the project will comply with all applicable legislative (Federal and Provincial) requirements. At this time, the addition of habitat compensation measures for the Chimney Swift (i.e., the installation of chimney swift towers) is not required.

Treed habitats for Eastern Wood-Pee-wee, Wood Thrush, Golden-winged Warbler, and Red-headed Woodpecker are present. Though the Wood Thrush has suitable habitat within the

study area, it is limited to the forested habitat to the north, which is not currently included in the area of impact. Limited removal of trees within the treed hedgerow is anticipated to be included in the scope of this project. This limited vegetation removal still holds the capacity to impact important habitat for the Eastern Wood-Pee-wee, Golden-winged Warbler, and Red-headed Woodpecker, which are known to nest within sparser treed habitat such as is present here. As such updated breeding bird surveys are recommended as part of the detailed design, pending the timeframe of the Project. The Red-headed Woodpecker is listed as 'Endangered' under the ESA and therefore receives protection of habitat under this act, while the Eastern Wood-Pee-wee, Golden-winged Warbler, and Wood Thrush are listed as 'Special Concern' under this act and therefore do not.

Mammals: Although no bats were observed exiting/entering these potential roosting structures during the targeted acoustic surveys, it should be assumed that these structures provide bats with roosting habitat as they exhibit suitable conditions for this life function and bats may switch roosting sites from previous years. All three (3) bats species observed within the study area have been listed as 'Endangered' under the ESA as of January 2025 and therefore receive protection of habitat provincially. It is recommended that the design try to avoid suitable roosting habitat for bat species during detailed design where practical. All suitable roosting habitat for bats which must be removed (buildings and trees) to make way for the proposed development is recommended to be compensated for through the proper implementation of bat boxes, or other suitable roosting structures. No impacts to SAR reptiles and amphibians are anticipated due to the proposed development. Should the area of proposed development change during the preliminary and detailed design, further targeted surveys for reptiles and amphibians may be recommended and additional mitigation measures will be considered at this time, including but not limited to those described below.

Recommended mitigation measures to protect this SARA prior to, during, and after project works are as follows:

- **SAR Awareness Training:** This training shall be provided for any Contractor and all staff working on site if project works, including vegetation removals, occur between April 1 and October 31 of any year (i.e., when SAR may be present and active). All participants involved in construction activities should be trained in the identification and life cycles of the SAR that may be encountered during project activities. The training should focus on the identification of SAR likely or possible to be present within the study area, including:
 - SAR Bats (Little Brown Myotis, Northern Myotis, Hoary Bat, Silver-haired Bat, Eastern Red Bat, Tri-colored Bat);
 - SAR Birds (Eastern Wood-Pee-wee, Golden-winged Warbler; Red-headed Woodpecker, Common Nighthawk, Chimney Swift, Barn Swallow);

- SAR Snakes (Eastern Hog-nosed Snake), and
 - SAR Insects (Monarch).
- **Daily Site Inspections for SAR:** For the duration of the Project works, a thorough sweep of the construction zone before works are to begin to encourage any SAR on-site to move away between April 1 and October 31 of any year (i.e., when SAR may be present and active). Site inspections shall be undertaken throughout the workday to determine if SAR have entered the work area. The following mitigation measures are required if SAR enter the site and to prevent adverse impacts to the SAR:
 - **Temporary Work Stoppage during SAR Encounter:** If any SAR or their nest is observed during the site inspection or at any other time, the Contractor shall immediately halt construction. SAR that are encountered within the work zone should be allowed a reasonable amount of time to leave the work area, and
 - **Report SAR Observations within the Work Area to the MECP:** Report the SAR observation to MECP – Hamilton District within 24 hours of the observation to seek advice on how to proceed if a SAR is encountered within or adjacent to the work area. All SAR observations and any relocation shall be documented. SAR should only be handled by qualified professionals who have knowledge of the species and the correct approvals to undertake SAR handling.
- During the active season for turtles and snakes (April 1 to October 31), a thorough sweep of the construction zone should be conducted before works are to begin to encourage any SAR on-site to move away:
 - If turtle eggs are encountered or unearthed during the construction activities, all operations must immediately stop within 5 m of the turtle eggs;
 - If a turtle is encountered that has already begun to nest (i.e., digging and/or sitting in a nest pit), construction activities should stop within 10 m of the turtle, and the turtle be allowed to finish nesting and leave the area of its own accord, and
 - All exposed soils and/or stockpiled topsoil, sand, and gravel must be encircled with temporary turtle fencing or completely covered with geotextile to prevent turtles from accessing and nesting in the materials from May 1 to July 15 of any year.
- Updated targeted entry/exit surveys for SAR bats within the area of impact may need to take place, pending the timeframe of the Project with a focus on the one (1) snag tree located within the Project footprint as well as observed potentially suitable

buildings located there in accordance with the with the MNRs *Survey methodology – use of buildings and isolated trees by species at risk bats* (2014);

- If suitable structures for SAR bats cannot be avoided through the design, habitat compensation is recommended through the addition of structures such as bat rocket boxes, to be installed as per the BMPs;
- All clearing of trees as well as the demolition of the existing structures should be completed outside of the active bat maternity window (April 1st to September 30th of any year) to avoid killing, harming, and harassing SAR bats that may be roosting there, or alternatively targeted acoustic surveys should take place prior to clearing to ensure no bats will be impacted by project works;
- Vegetation clearing should take place outside of the core bird breeding window for this region (April 1 – September 15 of any year). If vegetation clearing must take place prior to September 15 or after April 1, a qualified avian biologist must perform a sweep of the proposed works area prior to construction to ensure no species are nesting there, though as human error can be a factor in these searches, adhering to the timing window is recommended;
- In order to assist in the protection and further propagation of the Butternut, collection of seeds from trees identified within the study area by interest groups may be explored as part of the PD, and
- Should it be determined through further investigation that the chimneys which are located within the area of impact are being used by Chimney Swifts / are suitable as nesting habitat for this species, permitting from the MECP through obtainment of an Overall Benefits Permit (OBP) may be required for the completion for project works.

12.2.5 Groundwater/ Hydrology

The estimated daily construction dewatering withdrawal for the project is 15.6 m³/day. If the dewatering withdrawal for the project changes to exceed 50 m³/day, an EASR authorization will be required by MECP. The EASR would apply to the entire project, and construction would need to be staged to ensure that total dewatering demand does not surpass the 400 m³/day threshold at any given time. Should simultaneous dewatering activities push the total water withdrawal beyond this limit, a PTTW from MECP will be required to authorize the extraction of such volumes.

Groundwater in the area is considered likely to be used for water supply purposes. The estimated zone of influence from the dewatering activities is approximately 3 meters from the edge of the excavation. Given the shallow and short-term nature of the proposed dewatering, the extent and duration of the groundwater influence are expected to be minimal, with no significant impact on surrounding water supplies.

The impact of dewatering activities on the water quantity of Lower Jones Creek and the PSW is anticipated to be minimal. However, dewatering discharge directed to nearby tributaries could potentially alter the physical, chemical, and thermal characteristics of the receiving streams. Additionally, any contaminated groundwater extracted during dewatering will require treatment before discharge or disposal to prevent adverse environmental effects.

- Dewatering assumptions are preliminary and conceptual at this time. Review and confirm hydrogeological conditions, dewatering estimates and radius of influence, during the detailed design and verify if private well surveys are warranted.
- If deemed required, conduct a private well survey before construction to establish baseline water levels and quality, and monitor them before, during, and after construction.
- If dewatering effluent is proposed for discharge into the municipal sewer system, it must meet the water quality criteria of the receiving sewer. Alternatively, if the effluent is to be returned to the natural environment, a comprehensive Environmental Management Plan must be developed and implemented throughout the construction phase.
 - Discharge at least 30 m away from water bodies including PSW, where feasible.
 - Temporary ESC measures to be installed at discharge points.
 - Contractor to record daily water taking volumes and register on Regulatory Self-Report System as required.

12.2.6 Source Water Protection

The Grand River Source Protection Plan (GR SPP) identifies the Wayne Gretzky Parkway North Extension study area as being outside any designated Wellhead Protection Area. However, GR SPP mapping shows that the northern portion of the study area falls within an Intake Protection Zone 3 (IPZ) with an Intrinsic Vulnerability Score ranging from 1 to 4, which is considered “low.” It is also important to note that an IPZ with an Intrinsic Vulnerability Score greater than 8, classified as “high”, is located just southeast of the study area, and south of Powerline Road across Park Road North, Wayne Gretzky Parkway and further east at Brantwood Park Road.

Additionally, according to the MECP Source Protection Information Atlas, the study area is not situated within any Highly Vulnerable Aquifers (HVAs) or Significant Groundwater Recharge Areas (SGRAs), which are typically more susceptible to groundwater contamination (i.e., quality concerns). However, mapping indicates that the section of Lower Jones Creek within the northern limits of the study area falls within IPZ-3 and has an Intrinsic Vulnerability Score of 3.

The use of road salt and snow plowing, which are necessary for maintaining safe outdoor surfaces, could pose a potential risk to water quality. Runoff from these activities may come into contact with salt and plowed snow, potentially carrying harmful chemicals that could reach drinking water sources in the surrounding area. Consequently, proper mitigation measures will need to be considered to protect water quality in the nearby Intake Protection Zones. Prevent potential source water protection impacts, mitigation measures may include:

- The detailed design for the Wayne Gretzky Parkway North Extension must address both quantity and quality concerns to comply with GR SPP regulations, as well as City and GR standards.
- To mitigate risks to the drinking water source, Best Management Practices (BMPs) for safeguarding source water must be incorporated into the detailed design phases and construction such as:
 - The additional impervious surface resulting from the extension of Wayne Gretzky Parkway will reduce groundwater infiltration. To address these impacts and ensure balanced water quantity, the stormwater management strategy will be thoroughly reviewed and refined during the detailed design phase.
 - In addition, the implementation of Low-Impact Development (LID) strategies are to be considered, such as permeable pavement, vegetated swales, and bioretention areas, to manage runoff and reduce contamination risks to water sources, if feasible.
 - Establish vegetated buffer zones around water bodies and protection areas to filter runoff, reduce nutrient loading, and protect water quality.
- The use of road salt for winter maintenance of the proposed Wayne Gretzky Parkway North Extension may impact source water protection areas. In accordance with best management practices and the Clean Water Act, the City of Brantford has established guidelines to ensure effective winter maintenance, reduce salt accumulation in roadside snowbanks, and minimize environmental salt runoff.

12.2.7 Stormwater Management

Additional impervious surfaces may result in increased quantity and quality concerns pertaining to runoff.

- Stormwater Management and Drainage Brief prepared for this study shall be reviewed and updated during the detailed design phase to address potential changes in drainage patterns and to mitigate the impacts of increased runoff quantity and quality resulting from additional paved surfaces.

- As stated in Section 14.2.6, LID strategies are to be considered during the detailed design.

12.2.8 Existing Watercourses/ Surface Water

Lower Jones Creek and the associated PSW Cold Spring Creek Wetland Complex are situated in the northern portion of the study area. During construction, there is potential for adverse impacts on Lower Jones Creek, the Coldwater Springs Complex PSW, and surface water in the surrounding area due to the movement of contaminants, foreign objects, or sediment. These impacts could degrade water quality and disrupt the ecological integrity of these sensitive environmental features. Therefore, careful management and mitigation strategies will be essential to minimize these risks and protect the health of the creek and wetland complex throughout the construction process.

- A minimum buffer zone of 30 m from any water or wetland feature is recommended to avoid impacts to the sites water resources as per Section 5.6.1 of The City of Brantford Official. In addition, First Nations has also indicated that they prefer a 60 m buffer from any water or wetland feature, if feasible.
- Appropriate erosion and sediment control measures to be installed prior to construction and maintained throughout construction to prevent soil erosion and sediment runoff into nearby water bodies. An Erosion and Sediment Control Plan shall be prepared during detailed design and submitted to City and GRCA for approval;
- The construction site and staging area will be monitored, and waste materials collected on a regular basis to prevent the accumulation of litter and construction debris in nearby woods, fields, watercourses, wetlands, and water bodies.
- Mobile equipment refueling will take place no closer than 30 m from any watercourse to prevent water contamination due to accidental fuel spills. For non-mobile equipment, refueling will be carried out in a controlled manner to prevent fuel spillage, and drip pans will be placed under parked equipment at all times.
- Equipment shall not be parked or operated within any drainage course. Equipment operating near any watercourse must be in good working condition, properly maintained, and free of excess oil and grease to reduce the risk of contaminant leakage.
- Should a spill occur, proper containment, cleanup, and reporting in accordance with provincial and federal requirements must be completed to protect surface water resources. The Contractor is required to have a spill kit available on-site in the event of a spill. All spills that may have an adverse effect should be reported to the MECP) Spills Action Centre (1-800-268-6060) in accordance with provincial and federal legislation.

12.2.9 Management of Excess Material

The proposed project is expected to generate excess soil during construction, with the potential for the removal of contaminated soils. Proper management and disposal procedures will be necessary to ensure that any contaminated soils are identified and handled in accordance with environmental regulations. This will help prevent the spread of contaminants and protect surrounding ecosystems and public health.

- As a result, O.Reg. 406/19: On-Site and Excess Soil Management (as amended) regulations will be followed for all soil taken off site, which provides for the transportation and processing of hazardous and non-hazardous waste.

12.2.10 Climate Change

The increase in greenhouse gas emissions from the proposed project, when compared to the regional provincial emissions of CO₂, is minimal, with an increase of only 0.08% from the 2051 No-Build to Build scenarios. As a result, the project is not expected to have a significant impact on regional air quality. However, there may be a potential increase in CO₂ levels during and after construction, which will need to be managed to minimize any long-term environmental effects. Proper mitigation measures need to be considered to ensure that any emissions remain within acceptable limits and do not adversely affect air quality in the area.

- The proposed detailed design recommendations for the Wayne Gretzky Parkway North Extension can directly support climate change policies through the incorporation of:
 - Implement Low Impact Development (LID) strategies where feasible, such as Implement measures such as permeable pavements, and bioswales to manage stormwater runoff and reduce urban heat island effects. To be further assessed during the detailed design phase.
 - Incorporate green spaces, trees, and vegetation along the corridor to enhance carbon sequestration, improve air quality, and provide wildlife habitats.
 - Utilize environmentally friendly and sustainable construction materials with a lower carbon footprint, such as recycled or locally sourced materials, to reduce overall environmental impact.
 - Implement advanced stormwater management solutions to minimize flooding risks, enhance water quality, and reduce pressure on local water treatment systems.
 - Provides continuous active transportation improvements through the proposed corridor such as dedicated lanes and paths for cyclists and pedestrians to promote sustainable transportation and reduce reliance on motor vehicles.

- To mitigate potential effects during the construction phase of the project, the following best practices will be implemented:
 - Develop and implement an erosion and sediment control plan to prevent soil erosion and sediment runoff into nearby water bodies.
 - Implement water spraying or dust suppressants on construction sites and haul routes to minimize airborne dust and particulate matter.
 - Implement an environmental monitoring program to track potential impacts on air quality, water quality, noise levels, and biodiversity, and adjust mitigation measures as necessary.
 - Develop and implement a Traffic Management and Detour Plans to minimize disruptions, manage congestion, and provide clear detour routes for motorists and pedestrians.
 - Use energy-efficient construction equipment and vehicles and prioritize low-emission technologies to minimize carbon emissions during construction.

12.3 First Nations/ Cultural Environment

12.3.1 First Nations Natural Resources

Certain species observed within the study area have been identified as culturally, medicinally, and economically significant to First Nations groups and may be impacted during construction. These species, which are important for hunting, harvesting, and seedling cultivating activities, could be affected by the proposed project. The potential disruption to these resources underscores the need for careful planning and mitigation measures to minimize impacts on First Nations' natural resources and economic activities. Efforts will be made to ensure that any adverse effects on these species are minimized, and appropriate measures are taken to preserve their availability for cultural and economic use by First Nations communities. Mitigation measures may include:

- In order to assist in the protection and further propagation of plant species which may be of particular interest/value to First Nations, the collection of seeds within the study area prior to construction commencing by First Nations interest groups may be explored as part of the preliminary and detailed design.
- The further propagation of these plant species and the collection of seeds by First Nations interest groups should be discussed in greater detail with First Nations during the detailed design phase.

12.3.2 Archaeology Resources

The study area identified archaeological potential, prompting the necessity for a Stage 2 archaeological assessment, as outlined under PIF #P1146-0036-2024. This assessment

aimed to further evaluate the area for potential archaeological materials. Upon completion of the Stage 2 fieldwork, the assessment did not result in the identification of any archaeological materials. Based on the findings, it is recommended that no further archaeological assessment is required for the areas assessed under the aforementioned PIF.

During the preparation for the Stage 2 assessment, the City was informed that access to the properties located at 721 & 723 Park Road North was not granted. As the City does not currently own these parcels, it fully respects the property owners' right to withhold permission for entry. Consequently, the Stage 2 assessment was unable to be conducted on these properties.

The final assessment reports have been submitted to the MCM for review and registration. These reports are currently awaiting review, and once accepted, will be formally registered with the Ministry in accordance with regulatory requirements.

- Archaeological concerns have not been fully addressed until:
 - the archaeological assessment of the project area is complete, and
 - all archaeological sites identified by the assessment are either of no further cultural heritage value or interest (as per Section 48(3) of the Ontario Heritage Act) or that mitigation of impacts has been accomplished through excavation or an avoidance and protection strategy.
 - Until the above conditions have been met, the findings and recommendations of the AAs should be considered preliminary.
- A Stage 2 archaeological assessment by test pit/pedestrian survey is required prior to any proposed impacts to 721 & 723 Park Road North.
- Should previously undocumented archaeological resources be discovered during construction, 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 an archaeological assessment, in compliance with Section 48(1) of the Ontario Heritage Act.
- The Funeral, Burial and Cremation Services Act requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30/11 the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery and Procurement, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (at archaeology@ontario.ca) to ensure

that the archaeological site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.

12.3.3 Built Heritage Resources and Cultural Heritage Landscapes

The Cultural Heritage Assessment conducted for the study area has provided key insights regarding the heritage significance of the region. The assessment confirms that the study area is not located within or adjacent to any Heritage Conservation Districts designated under Part V of the Ontario Heritage Act. Additionally, the area does not contain any properties that are individually designated under Part IV of the Ontario Heritage Act, nor does it feature any properties listed within the City of Brantford's heritage inventory. The assessment did, however, identify one (1) potential Built Heritage Resource (BHR 1) at 313 Powerline Road within the study area. This resource has been recognized for its possible heritage value, though it has not been formally designated or listed under any heritage protection framework at this stage.

- No direct or indirect impacts have been identified for potential BHR 1. Construction activities and staging should be suitably planned and undertaken to ensure no impacts to the potential BHR 1.
- Should future work require an expansion of the study area or if the scope of work changes during detail design, a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources.

12.4 Social Environment

12.4.1 Property Requirements

The recommended design concept will necessitate partial or full property acquisitions to facilitate the proposed extension of Wayne Gretzky Parkway north of Powerline Road. This could have impacts on affected property owners, including the potential for disruption to their use of the land or property. While efforts will be made to minimize the extent of property acquisition, it remains a necessary component to achieve the desired outcomes and ensure the long-term viability of the project.

- Property requirements will be formally defined and confirmed during the detailed design phase.
- The City will meet with individual landowners during the design process to discuss details in efforts to reach an amicable agreement with the impacted property owners.

12.4.2 Land Use and Accessibility

The proposed construction project is expected to result in several impacts on residents and local businesses. During construction, increased travel delays and possible temporary

detours are anticipated, particularly during the development of the roundabouts at Wayne Gretzky Parkway and Powerline Road, and the connection to Park Road North. These disruptions may affect the flow of traffic and cause inconvenience for commuters, residents, and other road users.

Additionally, there may be potential impacts to driveway and business access both during and after construction. Access to properties may be temporarily altered or restricted, requiring coordination with residents and business owners to minimize disruption and ensure continued access. Efforts will be made to communicate these changes in advance and provide alternative routes or solutions where possible. The goal is to balance construction needs with minimal inconvenience to the community while maintaining safety and accessibility throughout the project.

- A Communication Plan shall be developed during detailed design and implemented construction to ensure timely and appropriate communications with emergency services, residents and property owners, and the public and area businesses regarding construction schedules, potential disruptions, detours, temporary disruptions to driveway access and other matters;
- Advance notice will be provided prior to any work that may impact access, including mitigation measures/temporary arrangement, and
- Limit construction to Monday to Friday during normal working hours, if feasible.

12.4.3 Noise

The future sound levels resulting from the proposed Wayne Gretzky Parkway North extension did not exceed the 65 dBA criteria at any receiver. However, changes in sound levels become perceptible at 3 dB difference. Therefore, noise mitigation was considered because the increase in future sound levels compared to the no-build scenario exceeded 5 dB for four receivers in NSA 4, located directly west of the proposed extension. As a result, noise mitigation measures, such as a noise barrier, were investigated for the future scenario at NSA 4. However, through the analysis it was determined that the barrier is not expected to achieve the required 5 dB reduction at first-row receivers, making it technically infeasible, and therefore not further investigated.

- It is recommended that this be verified during the detailed design phase and confirm if any other mitigation measures can be implemented to reduce future noise levels.

Construction activities for the proposed project are expected to cause temporary noise impacts, which may be noticeable at times in nearby NSAs. While these impacts will be short-term, they could still disrupt residents and other sensitive receptors during certain stages of construction.

Additionally, construction vibrations may affect surrounding structures, depending on their proximity and the nature of the work. These vibrations will be closely monitored to ensure any potential structural impacts are promptly identified and addressed. Noise concerns during construction can be mitigated as follows:

- There should be explicit indication that Contractors are expected to comply with all applicable requirements of the contract and City of Brantford noise by-laws (Chapter 554 – Noise Control);
- All equipment should be properly maintained to limit noise emissions. As such, all construction equipment should be operated with effective muffling devices that are in good working order which is mandated by the City of Brantford noise control By-Law;
- Monitor and maintain haul routes to minimize movement over rough ground and potholes which in turn can generate noise;
- All equipment shall be kept in good working order as deterioration may increase equipment sound levels;
- A documented, regular inspection and maintenance program must be implemented;
- Vehicle on-site speed limits must be met and will be enforced;
- In the presence of persistent noise complaints, all construction equipment should be verified to comply with MOE NPC-115 guidelines;
- In the presence of persistent complaints, alternative noise control measures may be required, where reasonably feasible;
- Idling vehicles will be kept to a minimum;
- Notifying the public in advance of works that may cause excessive noise and vibration, and
- Conduct construction Monday to Friday during normal working hours.

12.4.4 Air Quality

The Future Build scenario (2051) predicts only minor air quality impacts, with results comparable to the Future No-Build scenario. As such, the extension of Wayne Gretzky Parkway to the north is not anticipated to significantly affect local air quality in the long term. No mitigation measures are recommended beyond those which are already in place through phased-in federal regulations for on-road vehicle and engine emissions, which are expected to reduce CO₂ and other tailpipe emissions beyond the horizon year used for emission factors in the present study. In addition, the proposed extension will improve traffic flows and encourage use of active transportation within the local vicinity which will minimize the air quality impact.

During construction, there may be temporary, localized air quality impacts in the immediate project area, primarily due to dust and combustion byproducts from construction equipment and vehicles. These impacts are expected to be short-lived and will be managed to minimize any potential disruptions to nearby residents and the environment. To help reduce these emissions during construction, the following measures will be implemented:

- An Air Quality Management Plan should be required as part of the construction tendering process in order to minimize potential air quality impacts during construction.
- Best Management Practices should be followed during construction to reduce any air quality impacts such as:
 - Use of reformulated fuels, emulsified fuels, exhaust catalyst and filtration technologies, cleaner engine repowers, and new alternative-fueled trucks to reduce emissions from construction equipment;
 - Regular cleaning of construction sites and access roads to remove construction-caused debris and dust;
 - Dust suppression on unpaved haul roads and other traffic areas susceptible to dust, subject to the area being free of sensitive plant, water or other ecosystems that may be affected by dust suppression chemicals;
 - Covered loads when hauling fine-grained materials;
 - Prompt cleaning of paved streets/roads where tracking of soil, mud or dust has occurred;
 - Tire washes and other methods to prevent trucks and other vehicles from tracking soil, mud or dust onto paved streets or roads;
 - Covered stockpiles of soil, sand, and aggregate, as necessary, and
 - Compliance with posted speed limits and, as appropriate, further reductions in speeds when travelling sites on unpaved surfaces.

13.0 Cumulative Effects Assessment

Cumulative effects were considered in planning and evaluating the Wayne Gretzky Parkway North Extension MCEA through an integrated review of existing conditions, planned developments, and other infrastructure projects within and near the study area. The assessment examined how the proposed project, in combination with past, present, and future activities, could affect natural, social, cultural, and technical environments.

Municipal planning initiatives, including approved and proposed developments, roadway improvements, servicing infrastructure, and stormwater management works, were reviewed to inform the assessment. Relevant policy and planning documents, such as the City of Brantford Official Plan, TMP, ATMP, watershed studies, and Federal and Provincial Policies, were also considered to ensure alignment with broader land-use and infrastructure objectives.

Technical studies were undertaken as part of the ESR. These included environmental impact assessments, traffic and stormwater studies, geotechnical investigations, hydrogeological studies, source water protection, air quality and noise assessments, and cultural heritage studies. These studies helped identify potential cumulative interactions and informed the development of mitigation measures.

An integrated, multi-service infrastructure approach will be applied during the preliminary and detailed design phases to minimize the magnitude and duration disturbance. This includes coordinating roadway, drainage, stormwater, and utility works within a single construction footprint, where feasible, as well as aligning with adjacent and future developments to limit repeated disruption to sensitive environmental features and local communities.

Recommended mitigation measures include avoiding sensitive features, minimizing vegetation removal, implementing erosion and sediment controls, staging construction, and conducting post-construction monitoring. These measures aim to reduce both short-term and long-term cumulative impacts during construction and operation.

Cumulative effects are documented throughout the ESR, particularly in Sections 8.0 (Physical and Environmental Conditions), 9.0–10.0 (Evaluation of Alternatives and Design Concepts), and 12.0 (Potential Impacts and Mitigation Measures), with supporting technical studies provided in Appendices G–Q.

14.0 Implementation and Future Detailed Design Considerations

14.1 Project Schedule

As part of the Class EA process, this ESR is to be filed and placed on the public record for at least 30 calendar days for review by the public and review agencies. After the review period, provided that no Section 16 Order requests are received, the City may proceed to Phase 5 of the Class EA process for project implementation— design and construction.

Timeline for proposed construction is to be confirmed during detailed design. Construction timing is anticipated to follow the timing outlined in the City's Capital Plan. The property impacts resulting from the road extension will be confirmed during the detailed design phase. Land acquisition will not commence until the design details and land acquisition needs are finalized, and the City has further consulted with impact property owners.

14.2 EA Lapse of Time

According to the Municipal Class EA document (October 2000, amended 2024), "If the period of time from the latter of (i) the issuance the Notice of Completion in the public record or (ii) a decision on an order request under section 16, to the proposed commencement of construction for the project exceeds ten (10) years, the proponent shall review the planning and design process and the current environmental setting to ensure that the project and the mitigation measures are still valid given the current planning context. The review shall be recorded in an addendum to the ESR which shall be placed on the public record."

A Notice of Addendum shall be placed on the public record with the ESR and shall be issued to the public, First Nations and to the review agencies for a minimum of 30-days. This notice will inform the public of their right to request a Section 16 Order within the 30-day review period. If no request for a Section 16 Order is received, the proponent may proceed with implementation and construction.

14.3 Future Commitments

As part of the Class EA process for the Wayne Gretzky Parkway North Extension, certain elements were identified for further review and confirmation during the detailed design and construction phase. The following items were noted for consideration during this phase:

1. Property Requirements
 - a. Property requirements identified in this report and shown on the Conceptual Design and Potential Property Impact drawings are preliminary and will be finalized during detailed design.

- b. During the detailed design phase, the design should be thoroughly reviewed to identify opportunities for reducing the need for property acquisition at constrained locations.
- c. The City will maintain ongoing consultations with individual landowners throughout the design process to address property impacts and work towards reaching a mutually agreeable solution with affected property owners.
- d. Consult with property owners prior to and during construction to ensure timely and effective communication with residents and property owners regarding construction schedules, potential disruptions, temporary driveway access restrictions, and other relevant matters.

2. Road Design

- a. During detailed design, any updates to design standards or industry best practices that differ from those used at the time of the EA will be taken into consideration.
- b. Access to existing driveways along Park Road North and Powerline Road to be verified during the detailed design phase once individual driveway designs are finalized and property acquisition approved.
- c. Confirm the preferred pavement design and select the preferred asphalt mix (City standard Marshall mix or Superpave) during preliminary and detailed design.
- d. The City to fulfil design requirements by preparing contract drawings and specifications.

3. Intersection Design

- a. Refine design parameters and intersection geometry.
- b. Prepare profile design at intersections and approaches.
- c. During detailed design coordinate with the Powerline EA intersections and approach configurations.
- d. During detailed design, any updates from the adjacent development east-west collector alignment or land configuration.
- e. Confirm preferred Active Transportation crossings (locations and type).
- f. Ensure intersection configurations align with AODA standards.
- g. The roundabouts will need to be designed to accommodate large vehicles, such as transport trucks and farm vehicles. These vehicles should be able to safely maneuver in any direction using the “truck apron” around the center island; semi-mountable external curbs; and paved boulevards. Signs will be required to be set back to provide adequate clearance.

4. Active Transportation Facilities

- a. Review City's ATMP and standards during detailed design to ensure the proposed design conforms to the most recent City guidelines and objectives.
- b. During the detailed design phase, ensure that the proposed active transportation (AT) facilities effectively integrate with existing AT infrastructure on Powerline Road and Wayne Gretzky Parkway, while also providing safe access to the new high school and daycare.
- c. Detailed design should be prepared taking into consideration the Powerline Road EA.
- d. The detailed design should be developed in coordination with the findings and recommendations of the Powerline Road Environmental Assessment (EA).

5. Transit Facilities

- a. Transit facilities to be identified and implemented in accordance with City of Brantford Transit standard and the City Official Plan (Envisioning Our City 2051) policies.
- b. The delineation of proposed bus stop locations, through the use of signage, tactile warnings, operations or changes in elevation with active transportation facilities, will be verified during the detailed design phase. This includes consideration of turning movements / roundabout navigation for the applicable design vehicles (articulated buses) when navigating the proposed alignment.
- c. Future transit plans to effectively servicing new developments in the Northeast Expansion Areas and East Expansion Areas.

6. Streetscaping and Landscaping

- a. A Streetscaping and Landscaping to be incorporated into the detailed design, including individual tree protection and re-planting locations.
- a. Consideration to be given to maintaining the existing Wayne Gretzky Parkway streetscape typology to provide consistency through the road corridor, with the addition of boulevard space for enhanced aesthetics.

7. Drainage and Stormwater Management

- a. As the proposed project is in vicinity of the GRCA Regulated Areas, GRCA will require the following be completed during the detailed design phase:
 - i. Prepare an updated stormwater management brief demonstrating that post-development quality and quantity control, peak flow and infiltration are controlled to pre-development levels.

- ii. If Park Road North is widened beyond Lower Jones Creek, north of the developable limits of the Block Plans, consultation with the GRCA prior to and during detailed design will be required to verify any potential impacts to the wetland and whether a hydraulic analysis is necessary for any potential river crossing and proposed grading in the Lower Jones Creek valley.

8. Utilities

- a. A Utility Relocation Plan to be developed during the Preliminary Design and detailed design phases.
- b. During the detailed design phase, coordinate with utility companies (i.e., Grandbridge) as required to define any potential impacts to existing or future services and obtain approvals for potential relocations.
- c. All utility information must be updated prior to construction to ensure accuracy and finalize any required relocations, in coordination with utility companies.

9. Natural Environment

- a. During the detailed design, opportunities to reduce the design footprint and minimize impacts to natural features should be further reviewed.
- b. A Restoration and Protection Plan should be prepared in accordance with City, GRCA and MECP standards.
- c. It is the responsibility of the proponent to ensure that SAR are not killed, or harmed, and that their habitat is not damaged or destroyed through the proposed activities to be carried out on the site. If the proposed activities can not avoid impacting protected species and their habitats, then the proponent will need to apply for an authorization under the ESA.
- d. Typically, surveys for birds, bats and other mobile wildlife are not considered valid for more than 3-5 years, and such surveys may need to be completed again, pending the timeframe of the Project. Revised survey effort may be required as part of the detailed design phase, once more details of the final roadway configuration and full area of impact (i.e. toe of slopes etc.) is known and the timeline for construction been finalized. The goal of these potential additional surveys would be to update any changes in the presence or absence of species noted in this report and provide updated recommendations and mitigation measures as required (based on species use of the area or changes in legislation) as part of the Project where applicable. This includes but is not necessarily limited to:
 - i. Targeted acoustic exit/entrance bat surveys, to be conducted with a focus on the one (1) suitable snag tree and building observed to be suitable as

- roosting habitat within the Project footprint and in accordance with the with the MNRs Survey methodology – use of buildings and isolated trees by species at risk bats (2014). Given the known occurrence of several SAR bats in the study area the potential exists for bats to colonize existing suitable habitat given the anticipated long lifecycle of the Project (i.e. multiple years to construction occurs);
- ii. An in-depth investigation of the buildings within the area of impact for signs of bat presence/suitability as bat habitat, in conjunction with acoustic surveys;
 - iii. Multi-season (spring and summer) breeding bird surveys following the Ontario Bird Breeding Atlas Protocol, for areas within and directly adjacent to the proposed new municipal road;
 - iv. Targeted evening surveys for Chimney Swifts and Common Nighthawks taking place at the structures observed to contain suitable nesting habitat for these species during the core nesting period within the region for these species, and
 - v. A general site investigation throughout the area if impact for observations such as suitable snake habitat, SAR plants, and plant species which may be of particular significance to Indigenous communities etc.
- e. Incorporate wildlife corridors/passages to support local biodiversity and ensure that the corridor does not disrupt natural ecosystems, if feasible and warranted. The need for these measures will be assessed during the detailed design phase. However, they may not be deemed warranted by the City and assessments due to the limited habitat south of the project footprint, which consists of a dense urban area. As a result, species movement from north to south is unlikely. Instead, wildlife is more likely to move east-west, taking advantage of the higher-quality treed habitat located north of the project area.
- f. As of June 5, 2025, the Province of Ontario passed Protecting Ontario by Unleashing our Economy Act, 2025 which included amendments to the Endangered Species Act, 2007 (ESA) that are now in force, and the creation of the Species Conservation Act, 2025 which is not yet in effect. These changes are intended to streamline permit applications and approvals to help projects proceed faster, while continuing to provide important protections for species at risk and their habitats. During the detailed design, regulations are to be reviewed and any new requirements or opportunities that arise from these regulatory updates should be incorporated into the project, as required.

10. Archaeological Assessment

- a. Confirm the Stage 1 & 2 archaeological assessment, under PIF #P007-1503-2023 and P1146-0036-2024 have currently been submitted to the Ministry of Citizenship and Multiculturalism and are awaiting review and registration.
- b. A Stage 2 archaeological assessment, involving test pits and a pedestrian survey, is required at 721 & 723 Park Road North as soon as feasible during the detailed design phase and prior to any ground-disturbing activities.
- c. Conduct archaeological monitoring during construction as requested by First Nations and outlined in the Stage 1 archaeological assessment. Coordinate with First Nations before and throughout construction to offer opportunities for their participation in the monitoring process.

11. Excess Soil Management

- a. Activities involving the management of excess soil to be conducted in accordance with O. Reg. 406/19 as applicable for on-site and excess soil management during construction.
- b. During the detailed design phase, confirm the total volume of excess soil expected to be generated during construction and conduct additional subsurface investigations and reporting, including soil and groundwater sampling and analysis, as required to comply with O. Reg. 406/19 (as amended).
- c. The Contractor will be responsible for characterization of the soil and ensuring the appropriate number of bulk and leachate samples are collected and analyzed in order to meet the testing requirements outlined by the chosen reuse sites, and to ensure that the applicable reporting requirements are met, as applicable

12. Hydrogeological

- a. Based on the results of the groundwater seepage assessment, an EASR/PTTW is not expected to be required before starting construction activities. However, the dewatering assumptions outlined in the Hydrogeological Report and this ESR are considered conceptual. As such, dewatering requirements will need to be further reviewed and confirmed during the detailed design stage.

13. Noise

- a. During preliminary and detailed design verify the location of the proposed extension and roundabouts and confirm if any other temporary or permanent mitigation measures can be implemented to reduce future noise levels.

14. Continued Consultation and Coordination

- a. Ongoing consultation with relevant government agencies and County to ensure alignment with regulatory requirements and project objectives.
- b. Continuous engagement with stakeholders to address concerns and gather feedback throughout the detailed design and construction.
- c. Coordinate with Development Communities as required to determine their status, timelines, and any impacts to the study.
- d. Consult with affected property owners including those where property is required or where access to their property will be impacted.
- e. Continue regular communication with First Nations to ensure their interests, rights, and traditional knowledge are considered in the planning and design processes.
- f. Continue to address inquiries and feedback from all parties in a timely manner to promote transparency and foster trust throughout the detailed design and construction phases.

15. Anticipated Permits and Approvals

- a. As the proposed project will take place within the GRCA Regulated Area, it may be subject to permitting under O. Reg. 41/24 under the Conservation Authorities Act, which prohibits or restricts site alterations near water and wetlands in order to protect from flooding, erosion, and other hazards. Lands that fall within 120 m of a wetland or watercourse requires that an EIS to be completed to ensure that there are no negative impacts on these natural features.
- b. Ontario Endangered Species Act (ESA), 2007 permit requirements to be confirmed during detailed design for potential impacts to SAR bats habitat from vegetation removals. An Information Gathering Form will need to be submitted to MECP.
- c. Environmental Compliance Approval (ECA) will be required from MECP for stormwater management facilities.
- d. Confirm if an EASR and/or PTTW under the Ontario Water Resources Act based on required water takings.

16. Constructability, Staging and Detours

- a. Prepare a Traffic Management to determine how vehicular and pedestrian traffic will be accommodated during construction, as well as how access to properties adjacent to the construction zone will be maintained.
- b. Coordinate with Development Communities to implement construction staging areas, as well as be completed in a logical sequence to reduce overall construction time, while maintaining safety and accessibility throughout the project.

17. Construction Monitoring

Construction monitoring is essential to characterize and monitor the quality of the surrounding environment, identify potential negative effects and refine mitigation measures, ensure compliance with environmental regulations, and prevent long-term adverse impacts on the environment.

A comprehensive monitoring program should be developed in the detailed design phase for the proposed extension of Wayne Gretzky Parkway. This program will be designed to monitor impacts to the environment during the various stages of construction and following construction completion. The key elements of the comprehensive monitoring program will include, but are not limited to, the following:

- a. Establish clear objectives of the monitoring plan, such as ensuring environmental protection, regulatory compliance, and the mitigation of construction-related impacts on surrounding communities and ecosystems.
- b. Detail the applicable environmental regulations, permits, and standards that must be adhered to throughout the project, ensuring all necessary approvals are in place.
- c. Define which construction activities to be monitored, such as environmental protection, excavation, dewatering, stormwater management, water quality, traffic and noise.
- d. Specify the frequency and timing of surveys, the location of monitoring sites and the methods of data collection, analysis and evaluation.
- e. Define how information will be shared with City and stakeholders, including First Nations, GRCA, MECP, utilities, etc. This should include regular reporting schedules and mechanisms for addressing concerns.
- f. Include provisions for monitoring post-construction activities, particularly to assess the effectiveness of mitigation measures and ensure that the project does not result in long-term environmental impacts.

Appendix A – Stakeholder Contact List

Appendix B – Study Notifications

Appendix C – Agencies and Stakeholders Consultation

Summary of Comments and Responses		
Stakeholder/Agency	Comments Received	How It Was Addressed / Response Sent
Notice of Commencement		
Hydro One	General acknowledgment of the study. Hydro One has existing high voltage Transmission facilities within your study area.	No further action required. Will continue to consult throughout EA.
Resident	A resident requested that noise barrier be installed along the north end of Wayne Gretzky Parkway. They noted that the existing wooden fence provides little sound protection, making it difficult for residents to enjoy their outdoor spaces due to constant traffic noise, which persists into the night. The concern is especially significant for senior residents who are less mobile and unable to seek quieter areas. The resident emphasized that noise barriers would be essential, particularly if an expansion leads to increased traffic.	As part of the Municipal Class Environmental Assessment (MCEA) process, a Noise and Vibration Impact Assessment will be undertaken. Mitigation measures identified in the impact assessment report will take into consideration applicable municipal and regional noise policies and by-laws, and recommendations made by stakeholders and property owners. We have added you to the project contact list and you will be notified of future milestone events including the Notice of Public Information Centre and Notice of Study Completion. In addition, more details and updates pertaining to this study are posted on the City of Brantford project website.
Developer Community		No further action required. Will continue to consult throughout EA.
Bell Canada	General acknowledgment of the study.	No further action required. Will continue to consult throughout EA.
Developer Community	Acknowledgement of Notice of Commencement	No further action required. Will continue to consult throughout EA.
Rogers	Request to be removed from mailing list.	We have removed your contact information from the study mailing list.
Developer Community	Acknowledgement of Notice of Commencement	No further action required. Will continue to consult throughout EA.
Developer Community	Acknowledgement of Notice of Commencement	No further action required. Will continue to consult throughout EA.
Ministry of Environment, Conservation and Parks	Thank you for circulating the Notice of Commencement for this project. Could you please provide us with the Project Information Form?	Acknowledgement of responses and provided requested Project Information Form.

	Please find attached the Instructions for Providing Class EA Notices to MECP document for your reference.	
School Board	Acknowledgement of Notice of Commencement	No further action required. Will continue to consult throughout EA.
Resident	We are interested in any information that you have regarding the WG Parkway extension and how this development will affect us in the future.	Thank you for your interest in the Wayne Gretzky Parkway North Extension study. We are currently in the early stages of this project. We have added you to the project contact list and you will be notified of future milestone events including the Notice of Public Information Centre and Notice of Study Completion. In addition, more details and updates pertaining to this study are posted on the City of Brantford project website: https://www.brantford.ca/en/your-government/wayne-gretzky-parkway-north-extension-municipal-class-environmental-assessment.aspx
Ministry of Transportation	I acknowledge receipt of the NOSC for this project on behalf of MTO Project Delivery West. Please include Siva Tharmabala, Project Engineer, on your mailing list going forward. He will be your contact for MTO delivery.	Thank you for providing this information. We have updated the project contact list to include Siva Tharmabala as the contact for MTO delivery. Siva will be notified of future milestone events including the Notice of Public Information Centre and Notice of Study Completion. If you have any other questions or concerns, please do not hesitate to contact one of the Project Team members.
Ministry of Transportation	Request to be included on all future circulations to MTO.	We have updated the project contact list to also include Allan Hodgins. Please note that Kevin DeVos requested that we send all further communitaction to Siva Tharmabala. We will notify MTO of future milestone events including the Notice of Public Information Centre and Notice of Study Completion.
Engineering Firm	Thanks for notice. I'm the Group Manager for the Powerline East and Powerline Central landowner groups that are situated immediately east and west of future WGP, north of Powerline Road.	A Stage 1 Archaeological Assessment will be undertaken as part of this study and is being scheduled to be undertaken this spring. Pending the findings of the Stage 1, a Stage 2 Archaeological Assessment maybe warranted, however, is only provisional at this time.

	Can you tell whether or not archeological assessments are included in the EA scope? And if so, to what extent? Just Stage 1/2?	We will continue to notify you of future milestone events including the Notice of Public Information Centre (PIC) and Notice of Completion.
Resident	Inquired why they didn't receive Notice? What would this work entail? What kind of equipment would be used? I feel you're a little short on details here.	As per the Notice of Study Commencement you should have received early May 2023, the City of Brantford (City) has retained McIntosh Perry Consulting Engineers Ltd (McIntosh Perry) to conduct a Schedule 'C' Municipal Class Environmental Assessment (MCEA) Study for the Wayne Gretzky Parkway North Extension project (the Project). The anticipated time of completion for this assignment is Summer 2024.
Resident	A resident expressed concerns about increased traffic on Park Road North due to the proposed new high school, describing the road as already dangerous for pedestrians and residents accessing their driveways. They voiced frustration over rising property taxes without noticeable improvements in infrastructure or communication from the City. While not opposed to the new school, the resident emphasized the need for a more comprehensive approach to traffic management and service development before moving forward with construction.	Email sent from to development group in relation to high school which is outside the scope of work for this assignment. Spoke to resident about this email during the first Workshop Meeting with residents of Park Road North.
Resident	A resident expressed support for the Wayne Gretzky Parkway extension, noting increasing traffic near their home on Park Road. They inquired whether northbound traffic would still be required to turn at Powerline Road and suggested considering a roundabout at that intersection. They also asked about the anticipated timeline for the project's completion.	As part of the Municipal Class Environmental Assessment (MCEA) process, a Traffic Impact Study will be undertaken for the recommended extension of Wayne Gretzky Parkway and the future east-west roads connection, north of Powerline Road, which will form several new intersections. The roundabouts will be considered as an alternative to signalized and all-way stop controlled intersection where appropriate design standards can be met and there is a clear design/socio-economic benefit to the installation. This will include the intersection of Wayne Gretzky Parkway and Powerline Road, and intersections north of Powerline Road as part of extension of Wayne Gretzky Parkway. As the project progress, the project team will provide more information and notification at key milestone events including the Notice of Public Information Centre and Notice of Study

		Completion. The anticipated time of completion for this assignment is Summer 2024.
Ministry of Citizenship and Multiculturalism	Please find attached our initial advice on the above referenced undertaking. General response letter. Please note that the responsibility for administration of the Ontario Heritage Act and matters related to cultural heritage have been transferred from the Ministry of Tourism, Culture and Sport (MTCS) to the Ministry of Citizenship and Multiculturalism (MCM). Individual staff roles and contact information remain unchanged. Please continue to send any notices, report and/or documentation to both Karla Barboza and emailer.	We have updated the project contact list to ensure that yourself and Karla Barboza will continue to receive updates and documentation throughout the project. We will notify MCM of future milestone events including the Notice of Public Information Centre and Notice of Study Completion.
Ministry of Transportation	Further to Kevin’s email, Allan Hodgins, and Jeremiah Johnston (cc’d herein) should be included for MTO’s Corridor Management Section, and I should be removed from the list.	Thank you for providing this information. We have updated the project contact list accordingly.
Brantford Police Services Board	Please remove the Brantford Police Service Board from your mailing list.	Removed from the Contact list.
Notice of Completion		

Appendix D – First Nations Notifications and Consultation

Appendix E – Public Information Centre #1 & #2 Material and Presentation

Summary of PIC #1 Comments and Responses

Comment No.	Stakeholder	Input/Comments	Response
GENERAL COMMENTS RECEIVED FOLLOWING PIC PRESENTATION			
1	Attendee	Traffic concerns on Powerline Road and Park Road North relating to the construction of the new high school.	The City confirmed that the construction of the new high school is moving forward ahead of this project due to higher-level decision making process and commitments. The high school construction will follow a site plan process. A Traffic Study and Noise Study are being completed as part of the EA process to determine necessary mitigation measures for both Powerline Road and Wayne Gretzky MCEA studies.
2	Attendee	Will this EA have a streamlined assessment process based on the premier’s new Environmental Assessment legislation?	The City is unaware of the project being impacted by the premier’s new legislation.
3	Attendee	Concerns with the widening of Powerline Road and the conflicts with the existing utilities (i.e., hydro towers and poles. It was noted that hydro poles were just recently installed.	Egis acknowledged the constraints within the corridor and confirmed that the Powerline Road Transportation Capacity Environmental Assessment study will be assessing existing conditions of the Powerline Road corridor to add in the development of proposed alternative solutions and design concepts, as well as how to mitigate any impacts to the natural, socio and economic environment including existing utilities.
4	Attendee	Concerns with the implementation of roundabouts and the ability for transport trucks and farming equipment being able to navigate roundabouts.	The City and Egis staff identified that as part of the MCEA study, a Traffic Impact Study will be undertaken for the recommended extension of Wayne Gretzky Parkway and the future east-west roads connection(s), north of Powerline Road. The results of traffic investigations will indicate the need for new intersections and/or updates to existing intersections. In accordance with the City of Brantford directives, roundabouts will be considered as an alternative to signalized and all-way stop-controlled intersections where appropriate design standards can be met, and there is a clear design/socio-economic benefit to the installation. As part of the review of potential alternatives, design consideration will be given to the movement of applicable design vehicles (farm equipment, transport trucks, etc.) through existing/new intersections as well as along the travel corridors of Park Road North and Powerline Road.

Comment No.	Stakeholder	Input/Comments	Response
5	Attendee	Several residents expressed concerns pertaining to increased noise levels from increased traffic volumes, as construction related impacts.	Egis confirmed that a Traffic Impact Study and Noise Impact Assessment will be undertaken as part of the Wayne Gretzky Parkway North Extension MCEA. These studies will help identify any potential impacts and how to effectively mitigate them.
6	Attendee	Concerns with current traffic noise levels along Wayne Gretzky Parkway south of Powerline Road. The extension will undoubtedly bring more traffic and noise, as will increased Powerline Road traffic feeding onto the parkway with the construction of the new high school.	The City acknowledged that they have received concerns pertaining to noise levels along Wayne Gretzky Parkway South of Powerline Road. The City identified that the area south of Powerline Road is outside of the study limits for this project. However, they will take note of the concerns and follow up with the City's Transportation Services department to determine if any future studies and/or mitigation measures are being proposed.
7	Attendee	Several residents expressed their concerns and frustrations with respect to the timing of the Powerline Road and Wayne Gretzky Parkway Extension studies and implementation. They questioned why the studies and actual construction of extension and infrastructure improvement were not completed prior to the construction of the new high school.	The City reiterated that due to the fast tracking of the new high school development, it will not be possible to align the implementation schedule with this project. The prospective roadway extension is subject to the requirements of the Environmental Assessment process and will therefore follow a separate timeline. Egis iterated that the City must perform due diligence by undertaking the MCEA process by which municipal infrastructure projects are planned in accordance with the Environmental Assessment Act. The MCEA must be completed prior to proceeding to the design and implementation phase. The MCEA, design and tendering process will take approximately 2-3 years.
8	Attendee	How long is the Environmental Assessment process expected to last?	The duration of a Schedule C MCEA is not fixed and can vary depending on several unique factors. In this case, the timeline will be influenced based on regulatory requirements, environmental considerations, and the level of public and stakeholder involvement. Subject to the study findings and associated MECA requirements, the MCEA process is expected to conclude in late 2024 or early 2025.
9	Attendee	Several concerns were raised pertaining to the new high school such as safe access of the students (i.e., lack of sidewalks/Multi-use Pathways (MUP) along	City development staff are currently working on several planning/design details in effort to finalize the high school design. As part of this planning and design process, City development staff are working towards approving internal

Comment No.	Stakeholder	Input/Comments	Response
		Powerline Road), bus parking, access during construction, etc. for the new school until the completion of Park Road North and Wayne Gretzky Extension.	infrastructure improvement works such as minor improvements to Powerline Road, turning lanes, signals, sidewalks/MUP, etc.
10	Attendee	How can the members of the public and interest groups continue to communicate with the project team?	A comment form can be filled out and sent to the Project Team, or an email can be sent to one of the Project Team members. All comments will be logged and incorporated into the evaluation process.
11	Attendee	What will be the location of the alignment for the Wayne Gretzky extension?	Egis noted that the project is in its preliminary stage, which consists of identifying and evaluating multiple Alternative Solutions (e.g., do nothing, limiting development, improving alternative roads, extending Wayne Gretzky Parkway North, etc.). During Phase 3 of the MCEA, Alternative Design Concepts (i.e., alignments) will be identified and evaluated.
12	Attendee	What is the potential for expropriation of homes and businesses along Park Road North and what would be the process.	Egis reiterated that the study is in the preliminary stages and the overall footprint and extent of impacts are not yet known. As the project progresses, the number of properties, if any, that need to be fully or partially acquired will be recommended. If acquisition is deemed necessary, the City will meet with individual landowners as early as possible to discuss details to reach amicable agreements. The City noted that should property acquisition be required, the City's goal is to have open discussions with property owners and reach amicable agreements.
COMMENT SHEETS			
13	Attendee	PIC was informative. Based on the options/alternatives presented, I would look to further investigation into Alternatives 4 and 5, as it appears clear that improvements are required to service future development in the area.	Egis acknowledged the resident's comments and thanked them for attending.
EMAIL CORRESPONDENCE			

Comment No.	Stakeholder	Input/Comments	Response
14	Resident/Attendee	In follow up to Comment No. 6, the resident of a condo (633 Park Road North) that backs onto Wayne Gretzky Parkway submitted a written comment following the PIC. There is a wooden fence separating us from the road, but the distance it is less than ten yards from the road to the beginning of our back decks. The often continuous and loud noise is such that none of us can sit out back on our decks. Many of my condo community residents are elderly and cannot get around as accessibly. The noise affects their quality of life. Many of them moved in long before the amount of traffic existed behind them, so the argument cannot be made that they should have known the amount of noise they would have to manage when they moved in. Many condo owners really appreciated the speed limit being moved from 80 km down to 60 km to try to help the noise and safety situation, but very few drivers honour that change. The road does not seem to be monitored, so drivers continue to drive 80 km (and above) all hours of the day and night. I have no fundamental issues with the extension whatsoever, as long a sound barrier is erected where the condos back on to the parkway at the Powerline Road end of Park Road North. The extension will undoubtedly bring more traffic and noise, as will increased Powerline Road traffic feeding onto the parkway with the building of the new Catholic high school.	The City has since shared with the resident that the City's Transportation Services team will set up a noise sensor on the Wayne Gretzky Parkway to monitor the situation. The sensor will help to collect noise data and provide better understanding of the noise levels and pattern of noise changes. It takes a few weeks to gather the data for noise analysis. We will be in touch with you in about three months to share the findings.
15	Resident	Concerns with the construction of the new high school prior to the construction of Powerline Road and Wayne Gretzky Parkway. Would like consideration to be given to having no intersection at Wayne Gretzky Parkway and Park Road North, and making Park Road North into a non-thru-way. The new road with its added traffic will make it practically impossible for us to continue farming since we use Park Road North as a connection when bringing manure out of the fields or crops in from the field. At least make sure the intersections are large enough for farm equipment, as well as also the need to access properties we farm on Powerline Rd. and Highway 24.	As part of the Municipal Class Environmental Assessment (MCEA) process, a Traffic Impact Study will be undertaken for the recommended extension of Wayne Gretzky Parkway and the future east-west roads connection(s), north of Powerline Road. The results of traffic investigations will indicate the need for new intersections and/or updates to existing intersections. In accordance with the City of Brantford directives, roundabouts will be considered as an alternative to signalized and all-way stop-controlled intersections where appropriate design standards can be met, and there is a clear design/socio-economic benefit to the installation. As part of review of potential alternatives, design consideration will be given to the movement of applicable design vehicles (farm equipment,

Comment No.	Stakeholder	Input/Comments	Response
			transport trucks, etc.) through existing / new intersections as well as along the travel corridors of Park Road North and Powerline Road.
16	Indigenous Communities-Haudenosaunee Development Institute	We are opposed to this project as it will impair, infringe and otherwise interfere with established Haudenosaunee rights and interests that are recognized with our Constitution as well as section 35 of the Constitution Act, 1982. We look forward to hearing from you as to how and when the City of Brantford will commence engagement consistent with 1.2.2 of the Provincial Policy Statement and the MCEA User Guide 2023.	The City's Management and Legal team will be further assessing this response and corresponding as required. For the Wayne Gretzky Parkway North Extension Environmental Assessment, it is the City's PM and Egis's understanding that no direct communication should be initiated with Haudenosaunee Development Institute (HDI) and Haudenosaunee Confederacy Chiefs Council (HCCC).

Summary of PIC #2 Comments and Responses

Comment No.	Stakeholder	Input/Comments	Response
GENERAL COMMENTS RECEIVED FOLLOWING PIC PRESENTATION			
1	Attendee	Inquiry pertaining to the ownership of the land North of Powerline Road.	Egis confirmed much of the land North of Powerline Road is owned by Development Communities which are currently in the process of preparing and submitting block plans.
2	Attendee	Inquiry pertaining to the possibility of terminating Park Road North, south of the future east-west collector intersection.	Egis noted that the termination of Park Road North south of the future east-west collector intersection is being considered for Design Concepts #3 and #4.
3	Attendee	General concerns pertaining to potential property impacts along Park Road North and Powerline Road with the extension of Wayne Gretzky Parkway.	The number of properties that need to be fully or partially impacted are being assessed and will be determined during the detailed design phase. If acquisition is deemed necessary, the City will meet with individual landowners as early as possible to discuss details to reach amicable agreements.
4	Attendee	Will the project include pedestrian, cycling facilities or other Active Transportation infrastructure?	This Study includes provisions for additional AT facilities and will consider key findings and recommendations of the ATMP and TMP to identify opportunities to extend the City's Active Transportation Network along the Wayne Gretzky Parkway north extension, as well as connect to existing AT on Powerline Road and Wayne Gretzky Parkway.
5	Attendee	What is the estimated timeline for the design process and construction?	Following the EA study completion, the detailed design of the Wayne Gretzky Parkway North Extension is planned in 2025, with the earliest potential for construction in 2027. This timeline is subject to change based on funding availability, resource availability, and future budget approval.
6	Attendee	Inquiry as to why the proposed extension parallel to Park Road North, crossing Lower Jones Creek, was eliminated in Phase 2 of the Study.	Governing agencies and stakeholders have noted challenges with crossing Lower Jones Creek due to its status as a regulated watercourse and slope stability issues, making this option difficult to pursue. It was also noted that consideration needed to be given to long-term effects on the environment and First Nations, as well as ensure compliance with municipal and provincial standards.
COMMENT SHEETS			
7	Attendee	In favour of a roundabout at the intersection of Park Road North and Powerline Road and inquired as to why it's not the preferred option. Also noted the active transportation infrastructure north of the east-west collector tying into Wayne Gretzky Parkway and Park Road North should be designed for a multi-use path that is three (3) metres wide.	The Project Team acknowledged the preference for a roundabout at the intersection of Park Road North and Powerline Road, which will be further considered through the Powerline Road Transportation Capacity Environmental Assessment. In addition, measures will be incorporated into the design concept to extend Active Transportation Facilities north of Powerline Road and along the Wayne Gretzky Parkway extension, as well as the future east-west collector.

Comment No.	Stakeholder	Input/Comments	Response
EMAIL CORRESPONDENCES			
8	Agency	The Ministry of Citizenship and Multiculturalism (MCM) noted the Stage 1 Archaeological Assessment will need to be submitted by a licensed archaeologist for MCM’s review prior to the issuance of the Notice of Completion. MCM also noted that further archaeological stages must be completed at the earliest convenience during the detail design phase and prior to construction.	Stage 1 Archaeological Assessment is currently being updated based on First Nation comments and will be submitted to MCM.
9	Agency	The Ministry of Transportation (MTO) has no comments on this EA. The subject property is located beyond our limits of permit control and therefore MTO review, approval and permits will not be required.	No response required.
10	Resident	Opposed to the recommended preferred design concept, and recommending the proposed extension continue north parallel to Park Road North, crossing Lower Jones Creek.	We appreciate your concerns about the alignment of the proposed extension, particularly regarding its impact on residents and businesses. While the extension is crucial for noise reduction, safety, and traffic flow, we also need to consider its long-term effects on the environment and First Nations, as well as ensure compliance with municipal and provincial standards. The governing agencies have noted challenges with crossing Lower Jones Creek due to its status as a regulated watercourse and slope stability issues, making this option difficult to pursue. The City and Egis are dedicated to finding a solution that benefits everyone, and your feedback will help guide this process. We will consider various factors in the Environmental Assessment and strive to meet community needs in our design concept.
11	Resident	Concerns with property impacts from the recommended preferred design concept and requested confirmation on the timeline of construction and meeting minutes from the PIC.	Confirmation the project is still in the planning stages, and exact property requirements for the road extension and intersection improvements will be determined during the detailed design phase, which is anticipated for 2025, with construction potentially starting in 2027. This timeline is subject to change based on funding availability, resource availability, and future budget approval.
12	Agency	GRCA have reviewed the PIC 2 boards and have no concerns with the proposed alternative. See some detailed design considerations attached.	Follow up on an earlier conversation and for your record, please see the attached updated natural environment study report, with detailed field investigation result included.
13	Agency	MNR provided a general response letter pertaining to permitting requirements	The EA team will review the provided Information Package and confirm if any MNR interests are identified in the EA.
14	Resident	Knowing the EA was to be completed in 2024, inquires pertaining to timeline of what happens when the City moves forward with this project.	The EA for the Wayne Gretzky Parkways is still actually on going. We need to finalize a few studies going through the winter and now are preparing the final Environmental Study Report (ESR) which will be put on public record for 30 days.

Comment No.	Stakeholder	Input/Comments	Response
			During this time, the public will be able to provide any final comments. The ESR will probably not be placed on public record until early spring. You will receive a notice once it is.
15	Resident	Concerns that the recommendation for the Gretzky extension had already been sent to City Council. Since we had previously been kept informed and were told the EA would not be completed until the spring, this step felt unexpected. Could you provide clarity on the anticipated timeline once the matter goes to City Council on the 27th?	The WGP Extension Environmental Assessment (EA) is still underway. The final Environmental Study Report (ESR) is being prepared and will be released for a 30-day public review period this summer, during which the public can access the report and submit final comments. A Notice of Completion will be issued with instructions for viewing the report and providing input. City Council received an update and approved moving forward with releasing the ESR for public review—this does not mean the EA is complete, only that the process can proceed to its next step. After the review period and final EA approval by the Ministry of Environment, Conservation and Parks, the project may advance to detailed design as early as next year, subject to budget approval. Property impacts identified in the EA will be confirmed during detailed design, and any required land acquisition will be coordinated by the City’s Real Estate team before construction begins.
16	Developer	Met with City on July 10 to discuss several East and Central Block issues we discussed the roundabout location. At that time, the City indicated that they would be reaching out to the Group to discuss this further.	A VISSIM microsimulation was completed to assess complex intersections, potential roundabouts, and design options for the Wayne Gretzky Parkway extension. Iterative modeling refined configurations to achieve acceptable traffic operations. Additional scenarios tested a developer-proposed roundabout location, which performed adequately under baseline conditions but showed greater congestion risk with future growth, becoming constrained with a 15% traffic increase compared to the City’s preferred location, which can accommodate up to 20%. Given updated growth projections, TAC spacing guidelines, and long-term network needs, the City is prioritizing maximizing roundabout spacing. The draft ESR and Transportation Study Report are under agency review and available for preliminary review.
17	Resident	The resident attended the recent Public Information Centre for the Powerline Road Municipal Class EA and discussed the potential for incorporating bioswales in the medians of the Gretzky Parkway extension and Powerline Road widening. They provided examples of successful bioswale installations, including Craigflower Road in View Royal, BC, and the new Cainsville Community Centre in the County of Brant. They have shared contacts from both jurisdictions for follow-up on performance and maintenance. The resident highlights that	Thank you for your input and follow up. We will review and document your comments for further consideration. The EA studies are typically high level. The detailed design features, i.e. infiltration swales, will be reviewed and considered during the design stage.

Comment No.	Stakeholder	Input/Comments	Response
		bioswales can protect aquatic habitat, support native terrestrial plantings, and make roadway medians more functional while reducing environmental impacts.	
18	City	City send out an email to interested parties that indicating that they understand at ta neighbourhood meeting lately, there were inquiries about the Wayne Gretzky Parkway Extension EA project status. The project has the draft EA report (ESR) shared for agency and First Nations preview, and continues collaborating with reviewers addressing their comments. The ESR has been revised recently and will be provided for public review as soon as we receive clearance with the previews. We anticipate providing the ESR for public reviews early in the new year, pending on the project discussions currently underway. You will receive individual notification for study completion and the associated public review details. The notice will also be posted on the city's project website and in newspapers. Thank you for your continued support. The city will remain in contact through out the project stages, for updates on the design of the road extension and any requirement for land acquisition well in advance of construction.	
19	Developer	Any roundabout design information, desired cross-section details, or stormwater guidance from the MCEA would be helpful as we advance our first Functional Servicing & Stormwater Management Report submission.	The project takes longer to progress through the final stage of the EA process. The team has the draft EA report (ESR) shared for agency and First Nations preview and continues collaborating with the reviewers addressing their comments. The same draft ESR was shared in August with the area developers through their consultant for an early review. We hope to file for study completion and provide the ESR for public reviews early in the new year, pending on the discussions with First Nations currently underway. Upon completion of the EA, we will progress to preliminary design phase, when we shall be able to share more specifics in the design with your team

Appendix F – Start-up and Workshop Meeting Minutes

Appendix G – Transportation Study

Appendix H – Natural Heritage Existing Conditions and Impact Assessment Report

Appendix I – Stage 1 Archaeological Assessment Report

Appendix J – Stage 2 Archaeological Assessment Report

Appendix K – Cultural Heritage Assessment Report

Appendix L – Pavement Design Report

Appendix M – Limited Soil Characterization Report

Appendix N – Hydrogeological Investigation Report

Appendix O – Stormwater Management and Drainage Brief

Appendix P – Environmental Noise Assessment Report

Appendix Q – Air Quality Assessment Report