PROJECT FILE REPORT

The City of Niagara Falls

Municipal Class Environmental Assessment
Dorchester Road & Oldfield Road
Intersection Improvements

OCTOBER 2023

Associated Engineering

75 YEARS

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REVISIONS PAGE

Municipal Class Environmental Assessment Dorchester Road & Oldfield Road Intersection Improvements	
Client:	Engineer:
The City of Niagara Falls	Associated Engineering (Ont.) Ltd.

Revision/ Issue	Date	Description	Prepared by/ Reviewed by	Client Review
1	2022-09-14	Project File Report Draft	DM/AL	
2	2023-03-27	Revised Draft – to MECP	AL	
3	2023-05-17	Final Project File Report	AL	
4	2023-10-12	Final Project File Report _AODA	AL	
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EXECUTIVE SUMMARY

INTRODUCTION

Associated Engineering (Ont.) Ltd. (Associated) was retained by the City of Niagara Falls (City) to assist with the completion of a Municipal Class Environmental Assessment (MCEA) for the Dorchester Road and Oldfield Road intersection improvements (the Study). The Study developed and evaluated alternative solutions for the improvements of the intersection to address deficiencies, public safety, and future needs and requirements. In accordance with the Municipal Engineers Association's (MEA) Municipal Class Environmental Assessment (MCEA) process, this Study follows the planning process for a Schedule B.

The Study Area, as shown in **Figure E-1-1**, includes the intersection of Dorchester Road and Oldfield Road, located entirely within the City of Niagara Falls. The intersection is located east of the Queen Elizabeth Way (QEW) and Hydro Canal, south of McLeod Road (Regional Road 49) and north of the Welland River. The intersection of Dorchester and Oldfield currently operates as an All-Way Stop Control (AWSC) with a 'Y' configuration consisting of north (Dorchester Road), southwest (Dorchester Road) and east (Oldfield Road) approaches. There are no active transportation facilities at the intersection. The surrounding land use consists of mature residential subdivisions to the north, new residential subdivisions to the east and commercial/industrial to the southwest. A Hydro One corridor traverses north of the intersection.

Figure E-1-1: Dorchester Road and Oldfield Road Study Area

STUDY OBJECTIVES

As part of this Study, the need for safety, operational, and geometric improvements to the intersection of Dorchester Road and Oldfield Road is being investigated. While considering this need, a context sensitive approach is to be undertaken taking into consideration the adjacent land uses and local community interests.

The purpose of the Study was to develop alternatives and determine the preferred solution in addressing the deficiencies, public safety, and future needs and requirements at the intersection in accordance with the MEA MCEA guidelines. In developing alternatives, the Study Team took into consideration the objectives of the Study: address traffic safety and operational deficiencies due to ongoing and planned development; improve geometric deficiencies at the intersection; and improve active transportation connectivity including cyclist and pedestrian facilities.

The alternatives proposed to achieve the study objectives are outlined in **Section 5** as are the evaluation of the alternatives and the identification of the preferred alternative(s).

PHASE I: IDENTIFICATION OF PROBLEMS AND OPPORTUNITIES

The Problem and Opportunity Statement provides a clear statement of the problem and opportunities that need to be addressed for a specific undertaking. The various analyses (e.g. traffic assessment, archaeological assessment, natural environment assessment) and existing conditions provide input for and contribute to the identification and description of the problem or opportunity. The prevailing deficiencies within the Study Area can be summarized by the following statement.

Problem and Opportunity Statement

The intersection of Dorchester Road and Oldfield Road is a three-legged intersection with an all-way stop control (AWSC) and experiences a typical daily traffic volume of approximately 3,000 vehicles (2021). Based on the findings of the transportation assessment for the intersection, traffic volumes are expected to increase significantly in the future due to planned development (Riverfront Community) and projected growth within the area. Under future traffic volumes, capacity issues and traffic delays are expected at the intersection with various traffic movements experiencing a failing Level of Service (LOS). Along with operational issues, the existing intersection lacks active transportation facilities and connectivity as well has an unconventional geometric layout.

Through the completion of this Municipal Class Environmental Assessment, intersection alternatives will be developed and evaluated to improve future traffic operations, accommodate future development in the area, improve active transportation facilities and connectivity to existing and planned facilities, and continue to accommodate transit and large vehicles from the industrial properties to the southwest ensuring the safety of all road users.

PHASE II: IDENTIFICATION AND EVALUATION OF ALTERNATIVE SOLUTIONS

The Alternative Solutions that have been developed for the *Dorchester Road and Oldfield Road Intersection Improvements* study, include:

- Alternative 1: Do Nothing
- Alternative 2: All-way Stop Control (AWSC) with Geometric Improvements
- Alternative 3: Signalized with Geometric Improvements
- Alternative 4: Roundabout

Each of these alternatives are discussed and evaluated in **Section 5**.

Evaluation of Alternatives

Each alternative solution to address the problem statement and achieve the project objectives was compared and

evaluated using seven (7) criteria, as summarized in **Table E-1-1**. Each criterion was given a weighting factor based on importance and relevance to the decision-making process.

Table E-1-1: Evaluation Criteria

Evaluation Criteria	Weight	Performance Measure
Vehicular Transportation	28%	• Anticipated traffic performance • Impacts to existing and future traffic conditions • Safety • Compatibility and connectivity with the local road network • Ability and need to accommodate planned developments
Active Transportation	28%	• Statistical level of safety • Feeling of safety • Level of Accessibility • Compatibility and connectivity with the local road network • Ability and need to accommodate planned developments
Natural Environment	5%	• Potential encroachment to designated natural areas • Impacts to significant wildlife and their habitat, including Species at Risk (SAR) • Impacts to vegetation communities • Change in quantity and quality of stormwater runoff • Impacts to air quality due to vehicle travel and congestion
Socio-Economic Environment	10%	• Impacts to private properties and possible need for land acquisition • Opportunity to improve urban design and streetscaping • Potential for increase in traffic noise • Opportunity to promote active transportation and healthy choices • Impacts of construction on local road users
Cultural Environment	4%	• Displacement or disruption of built and cultural heritage features or archaeological resources
Engineering/ Constructability	10%	• Key considerations for design and construction • Impacts on existing utilities and need for utility relocation or implementation • Future maintenance
Cost Consideration	15%	• Construction Capital costs • City's operating costs

Details of the evaluation process is provided in **Section 5.3.**

Selection of Preferred Solution

Based on the evaluation completed, *Alternative 2 – All Way Stop Control (AWSC) with Geometric Improvements* is identified as the preferred solution for the intersection of Dorchester Road and Oldfield Road. As evident in the results, *Alternative 4 – Roundabout* comes in a close second for preferred solution. Although the roundabout provides better intersection operation, reduces speeds and addresses the peak delays and queues expected in the future, it has greater impacts to utilities and property and has a significantly higher capital construction cost compared to an AWSC intersection with geometric improvements. With the proposed geometric improvements and inclusion of dedicated turning lanes, the AWSC intersection will also be able to address peak delays and queues expected in the future as well as provide active transportation facilities and connectivity.

Full details of the preferred solution are provided in **Section 7**.

Public Consultation

Throughout the project, stakeholders, including the public and property owners, Indigenous communities, authorities, agencies and utilities were given a variety of opportunities to review and comment on the project process, key findings, proposed alternatives and recommended solution. Numerous consultation activities were undertaken as part of the Study, including:

- Development of a stakeholder contact list, which was updated throughout the Study;
- Communication with Indigenous communities by mail and/or email;
- Development of a page on the City's *Let's Talk* website with Study updates and contact information (https://letstalk.niagarafalls.ca/dorchester-and-oldfield-road-intersection-improvements);
- Project notices;
- Public Information Centre (PIC);
- Consultation with key stakeholders; and
- Public release of this Project File Report.

Details of public and stakeholder consultation and communication throughout the study are provided in **Section 6**.

CONCLUSIONS AND RECOMMENDATIONS

The preferred solution includes maintaining the intersection as an all-way stop control (AWSC) with geometric improvements. Key features of the preferred solution include:

- Dedicated left turn lane on the southwest approach for northbound vehicles and dedicated right turn lane on the north approach for southwest bound vehicles;
- On-road bicycle lanes (1.5m wide) on the north approach (Dorchester Road) and east approach (Oldfield Road) to tie into bicycle lanes on Dorchester Road and Oldfield Road;
- Sidewalks extended on both sides along the north approach (Dorchester Road) and the existing sidewalk extended on the north side of the east approach (Oldfield Road);
- Inclusions of on-road bicycle lanes (1.5m wide) to accommodate future active transportation along the southwest approach (Dorchester Road); and
- Crosswalks, including proper sidewalk ramps and tactile warning plates in accordance with AODA and TAC requirements, provided on the north approach and southwest approach (Dorchester Road).

The preliminary design of the intersection improvements has been prepared for the preferred solution. Following the completion of the MCEA study, detailed design, permitting and construction will be undertaken to implement the preferred solution and remedy the identified problems.

During the MCEA study, recommendation for additional works and implementation measures were identified. These items should be taken into consideration during the detailed design and include, but are not limited to, the following items:

- Confirm design criteria for intersection;
- Finalize alignments, cross-sectional details and all associated appurtenances (i.e.: signage, pavement markings, surface treatment, etc.);
- Complete geotechnical investigation;

- Complete excess soil planning and management in accordance with O.Reg. 406/19 and the MECP's guidance document *Management of Excess Soil – A Guide for Best Management Practices*;
- Identify potential detour routes and construction staging/phasing of the proposed works;
- Confirm and obtain required approvals and necessary permits;
- Coordinate with the Region of Niagara (Region) planned underground infrastructure works with intersection works;
- Confirm utility impacts and relocation requirements, and coordinate relocation designs, schedule, and cost with affected utility agencies;
- Identify property impacts, and coordinate need for temporary construction easements with Infrastructure Ontario (IO), if required;
- Develop a Communication Plan to communicate the intersection improvement construction to affected stakeholders and the public;
- Consult with emergency service providers, transit providers, and school transportation services regarding impacts of construction on service routes and develop alternative routes, as necessary;
- Finalize capital cost estimate(s) of the project; and
- Ensure construction is coordinated with other planned and ongoing activities in the vicinity of the Study Area by the City, Region and private developers.

Prior to construction, a final PIC will be held to provide information to the public and adjacent property owners and businesses of the upcoming construction work including construction schedule, construction staging, and implementation details.

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LIST OF ABBREVIATIONS

AODA – Accessibility for Ontarians with Disabilities Act

AWSC – All-Way Stop Control

EAA – Environmental Assessment Act

ELC – Ecological Land Classification

EPA - Environmental Protection Area

ESC – Erosion and Sediment Control

GHG – Greenhouse Gas

HVA - Highly Vulnerable Aquifers

ICD – Inscribed Circle Diameter

IO – Infrastructure Ontario

IPZ - Intake Protection Zones

LCCA - Life Cycle Cost Analysis

LOS - Level of Service

MCEA – Municipal Class Environmental Assessment

MEA – Municipal Engineers Association

MECP - Ministry of the Environment, Conservation and Parks

MNFCN - Mississauga of the New Credit First Nation

NPCA – Niagara Peninsula Conservation Authority

OP – Official Plan

OPG – Ontario Power Generation

OTM – Ontario Traffic Manual

PIC – Public Information Centre

PFR – Project File Report

PPS – Provincial Policy Statement

PSW - Provincially Significant Wetland

ROW – Right-of-Way

SAR – Species at Risk

SGRA - Significant Groundwater Recharge Areas

SPP – Source Protection Plan

STMP – Sustainable Transportation Master Plan

TAC - Transportation Association of Canada

TMP – Transportation Master Plan

v/c – Volume to capacity ratio

WHPA - Wellhead Protection Areas

1 INTRODUCTION

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1.1 Description of Study Area

The Study Area, as shown in **Figure 1-1**, includes the intersection of Dorchester Road and Oldfield Road, located entirely within the City of Niagara Falls. The intersection is located east of the Queen Elizabeth Way (QEW) and Hydro Canal, south of McLeod Road (Regional Road 49) and north of the Welland River. The intersection of Dorchester and Oldfield currently operates as an All-Way Stop Control (AWSC) with a 'Y' configuration consisting of north (Dorchester Road), southwest (Dorchester Road) and east (Oldfield Road) approaches. There are no active transportation facilities at the intersection. The surrounding land use consists of mature residential subdivisions to the north, new residential subdivisions to the east and commercial/industrial to the southwest. A Hydro One corridor traverses north of the intersection.

Figure 1-1: Study Area

1.2 Study Objectives

As part of this Study, the need for safety, operational, and geometric improvements to the intersection of Dorchester Road and Oldfield Road is being investigated. While considering this need, a context sensitive approach is to be undertaken taking into consideration the adjacent land uses and local community interests.

The purpose of the Study was to develop alternatives and determine the preferred solution in addressing the

deficiencies, public safety, and future needs and requirements at the intersection in accordance with the MEA MCEA guidelines. In developing alternatives, the Study Team took into consideration the objectives of the Study:

- Address traffic safety and operational deficiencies due to ongoing and planned development;
- Improve geometric deficiencies at the intersection; and
- Improve active transportation connectivity including cyclist and pedestrian facilities.

The alternatives proposed to achieve the study objectives are outlined in **Section 5** as are the evaluation of the alternatives and the identification of the preferred alternative(s).

1.3 Related Studies and Adjacent Projects

There are numerous studies that were reviewed by the Study Team because of their significance to the Dorchester Road and Oldfield Road Intersection Study Area.

Provincial Policy Statement (2020)

The *Provincial Policy Statement* (PPS) 2020 promotes densities and mixed land uses that support active transportation, transit and the efficient movement of goods. The PPS sets out the policy direction to guide land use planning and development in Ontario that support three key areas: building strong communities, wise use and management of resources, and protecting public health and safety.

The PPS also calls for safe, energy efficient transportation systems that facilitate movement of people and goods and support projected needs. It highlights the importance of connectivity of transportation systems, integration of transportation and land use planning to support sustainable transportation choices, and efficient use of existing infrastructure.

The Study Area is located within a Settlement Area under the PPS for the City of Niagara Falls.

Official Plan for the City of Niagara Falls

The *Official Plan for the City of Niagara Falls* (the Plan) (City of Niagara Falls, amended to April 2019) is intended to guide growth and development to the year 2031. The population during this planning period is expected to reach 106,800 with employment for 53,640 people. It is the intent of the Plan to focus new growth to accommodate these people and jobs in a sustainable fashion that makes for an orderly and effective use of land and infrastructure, creates compact, livable communities and protects the City's natural heritage and agricultural lands.

In terms of municipal infrastructure and transportation, the Plan aims to have a transportation system which is integrated, safe and efficient, facilitating the movement of people and goods within and outside of the City. The needs of all users in the City must be considered in transportation, including pedestrians, bicyclists, transit users, those with disabilities, automobiles, trucks, local residents and visitors.

City of Niagara Falls' Sustainable Transportation Master Plan (STMP)

The City's *Sustainable Transportation Master Plan (STMP*) (Aecom, 2011) provides a vision for future transportation that is consistent with community values and a plan to achieve that vision in a sustainable manner. The STMP also provides key input into updating the City's Official Plan (OP) and growth management strategy, the framework for developing more detailed improvements to the transportation systems and the overall implementation strategy, staging plans and

actions necessary to implement the recommendations of the STMP. The plan advocates for active transportation to be present on all streets in the City wherever possible.

In accordance with the STMP, City arterial roads shall accommodate two to four lanes of traffic and provide direct access to adjoining properties. The road allowance may accommodate transit routes and/or cycling facilities. Active transportation shall be a more continuous, comprehensive and integrated multi-modal system of on-road cycling facilities, off-road multi-use trails, and various pedestrian improvements. The system shall be interconnected and provide a range of route alternatives and access to significant local destination points, while accommodating specific needs of the residents of the City.

Region of Niagara Official Plan

The *Regional Official Plan* (Niagara Region, 2014) is a long-range, community planning document used to guide the physical, economic and social development of Niagara. In terms of transportation, among the Region's objectives is "to ensure that transportation infrastructure contributes to the development of vibrant communities; recognizes the historical context within which it is developed and enhances the public realm by designing pleasing streetscapes and supporting active transportation".

Region of Niagara Transportation Master Plan (TMP) – How We Go

The *How We Go – Transportation Master Plan* for the Region of Niagara (Niagara Region, 2017) sets out a strategic vision to guide the planning, development and renewal of a multi-modal transportation system in a manner that is consistent with projected needs and aligned with the region's growth and with the overall vision for a sustainable Niagara Region through to 2041.

The TMP included numerous background reports, including the *Strategic Cycling Network Development Technical Paper*, which explored opportunities to expand the scope of bikeway implementation and to target strategic infill corridors outside of the road capital program. The conceptual route for the Port Robinson to Chippawa cycle route traverses along Dorchester Road from McLeod Road to Chippawa Creek Road. Two (2) infill projects are identified along Dorchester Road, including on-road bike lanes along Dorchester Road, between McLeod Road and Oldfield Road, and a shared signed route along Dorchester Road, between Oldfield Road and Chippawa Creek Road.

Riverfront Community Transportation Assessment

The *Riverfront Community Transportation Assessment* (Paradigm Transportation Solutions Ltd, 2018) was prepared to support the planned Riverfront development by identifying key transportation system needs and deficiencies. The development is located generally south of Oldfield Road, west of the Thundering Waters Gold Course and Stanley Avenue Industrial Business Park, north of the Welland River and east of the Ontario Power Generation (OPG) Hydro Canal. The initial findings and recommendations suggested that for the Dorchester Road and Oldfield intersection, widening of the west approach to provide separate left and right turn lanes, while maintaining the existing AWSC. An alternative configuration for the intersection as a single lane roundabout could also be considered.

Dorchester Road Reconstruction

The City has recently completed the reconstruction of Dorchester Road between McLeod Road and Oldfield Road. Road improvements included a new asphalt roadway structure, sidewalks and a roadway cross-section which includes on-road bike lanes. Consideration of these improvements have been considered during the development of intersection alternative solutions and preparation of the preliminary design of the preferred solution.

2 STUDY PROCESS

The *Dorchester Road and Oldfield Road Intersection Improvements* MCEA is considered to be a Schedule 'B' undertaking pursuant to the MCEA document (MEA, 2000 as amended in 2007, 2011, and 2015). The MCEA process is a process used for the planning of municipal infrastructure projects (roads, water and wastewater, and transit) to ensure that project planning and predesign proceeds in accordance with the *Environmental Assessment Act* (EAA). A Schedule 'B' project includes public and review agency consultation, an evaluation of alternatives, an assessment of the impacts of the preferred solution, and identification of measures to mitigate any adverse impacts. **Figure 2-1** is an excerpt from the MCEA document and illustrates the process followed in the typical planning and design of projects covered by a MCEA. A further description of the MCEA process is provided in subsequent sections.

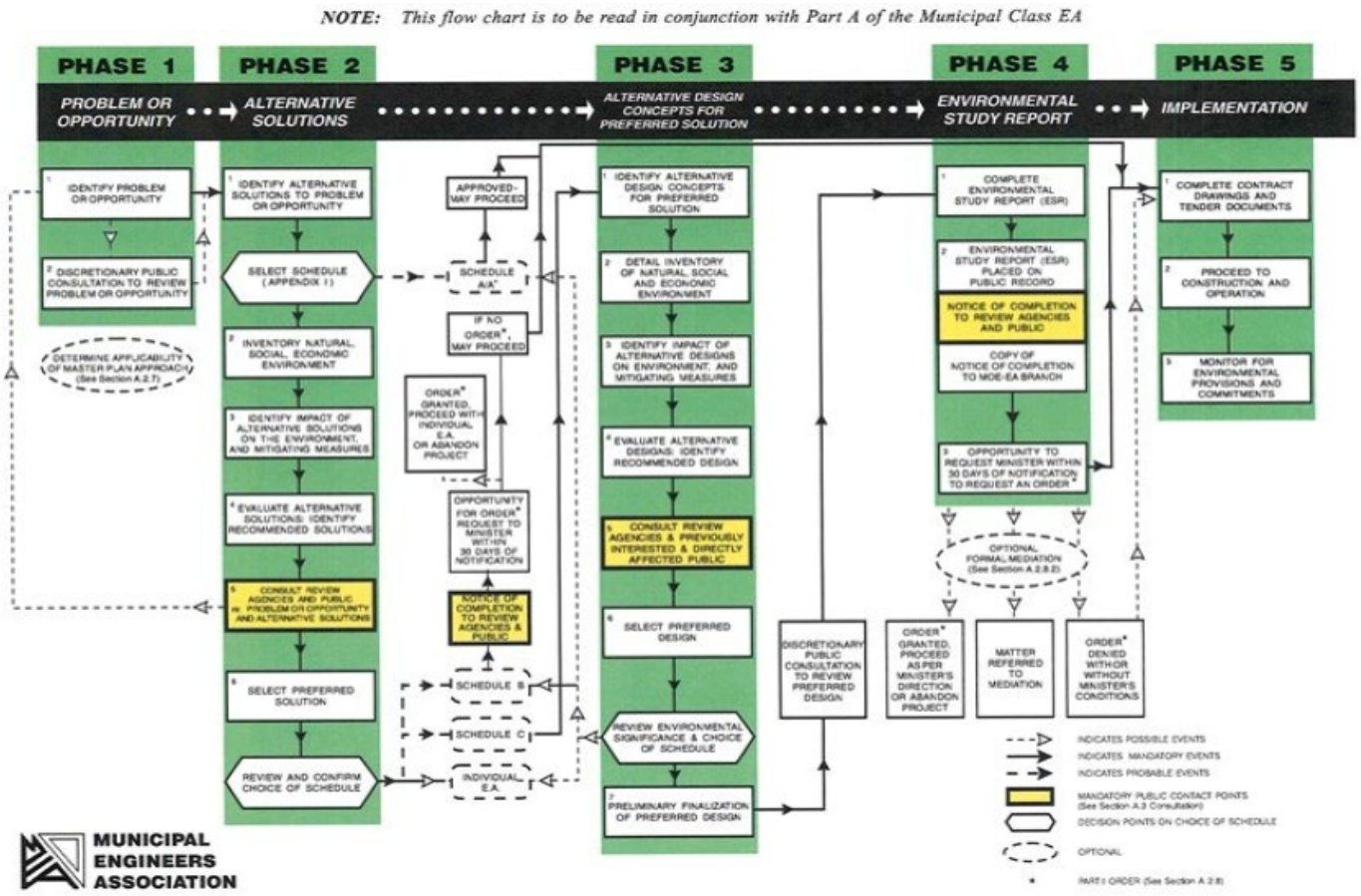


Figure 2-1: MEA MCEA Process

2.1 The Municipal Class Environmental Assessment Process

Every municipality in Ontario is subject to the provisions of the EAA and its requirements to conduct an Environmental Assessment for most public works projects. The MEA's MCEA document provides municipalities with a five-phase planning procedure approved under the EAA which provides direction on how to plan and undertake all municipal projects that recur frequently, are usually limited in scale, and have a predictable range of environmental impacts. Projects considered by the MCEA process include municipal roads and bridges, wastewater, storm water management,

water, and transit. The MCEA document also requires that the decision-making process followed by the municipalities in the planning and implementation of infrastructure is transparent and provides opportunity for public and stakeholder involvement.

Table 2-1 illustrates the steps followed in the planning and design of projects covered under the MCEA process. This table summarizes steps considered essential for compliance with the requirements of the EAA. With increasing complexity and higher likelihood for adverse environmental impacts, projects are required to complete additional planning steps, termed 'Phases' by the MCEA document, prior to obtaining approval to proceed with a proposed project. The MCEA document provides the following description of the five phases potentially requiring completion before MCEA projects can be approved.

Table 2-1: Phases of the MCEA Process

Phase	Description
Phase 1	Identify the problem (deficiency) or opportunity.
Phase 2	Identify alternative solutions to address the problem or opportunity by taking into consideration the existing environment and establish the preferred solution considering public and review agency input.
Phase 3	Examine alternative methods of implementing the preferred solution, based upon the existing environment, public and review agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects.
Phase 4	Document, in an Environmental Study Report a summary of the rationale, and the planning, design and consultation process of the project as established through the above phases and make such documentation available for scrutiny by review agencies and the public.
Phase 5	Complete contract drawings and documents and proceed to construction and operation; monitor construction for adherence to environmental provisions and commitments. Where special conditions dictate, also monitor the operation of the completed facilities.

Based on the MCEA document, projects are classified as either Schedule 'A', 'A+', 'B' or 'C' projects. Each of these classifications require a different level of review to complete the requirements of the MCEA, and thus comply with the EAA, as noted below.

Schedule 'A' projects are limited in scale, have minimal adverse environmental effects, and include a number of municipal maintenance and operational activities. These projects are pre-approved and may be implemented without following the MCEA process.

Schedule 'A+' projects are limited in scale and have minimal adverse environmental effects. 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.

Schedule 'B' projects have the potential for some adverse environmental effects. The proponent (i.e. The City of Niagara Falls in the case of this MCEA) is required to undertake a screening process involving mandatory contact with

directly affected public, Indigenous groups and relevant government agencies to ensure that they are aware of the project and that their concerns are addressed. A Schedule 'B' activity requires the proponent to conduct two mandatory points of public contact during Phase 2. Additionally, the proponent may elect to undertake a discretionary public consultation at the end of Phase 1 to present the problem or opportunity identified.

Phases 1 and 2 of the MCEA process must be followed and a Project File Report (PFR) must be prepared and submitted for review by the public. A Notice of Completion must be submitted to review agencies and the public and a period of 30 calendar days are provided for comment and input on the PFR.

As long as there are no outstanding concerns raised by the public and/or relevant government agencies, the proponent may proceed to project implementation. However, should a person or party have a concern or objection, they are expected to consult with the proponent to try to resolve the concern.

Schedule 'C' projects are those that have the potential for significant adverse environmental impact and must proceed under the full planning and documentation procedures (Phases 1 to 5) specified in the MCEA document. A Schedule 'C' project is required to complete an Environmental Study Report (ESR), as opposed to a PFR for Schedule 'B' undertakings.

The proponent is required to undertake consultation during multiple phases during the MCEA involving mandatory contact with directly affected public, Indigenous groups and relevant government agencies to ensure that they are aware of the project and that their concerns are addressed. Schedule 'C' projects involve 4 points of mandatory public contact: twice during Phase 2, once during Phase 3 and again during Phase 4 after the ESR document is placed on public record. Schedule 'C' projects require that an ESR be prepared and submitted for review by the public. Similar to Schedule 'B' undertakings, should a person or party have a concern or objection, they are expected to consult with the proponent to try to resolve the concern.

2.2 Study Documentation

This PFR documents the planning and design process followed to determine the recommended undertaking and environmentally significant aspects for the *Dorchester Road and Oldfield Road Intersection Improvements* MCEA Study, in accordance with the procedures for Schedule 'B' projects, setting out the planning and decision-making process, including consultation with interested and affected parties and technical agencies, which has been followed to arrive at the preferred solution. The PFR also sets out the mitigating measures proposed to avoid or minimize environmental impacts.

The PFR is organized chronologically in such a way as to clearly demonstrate that the appropriate steps in Phases 1 and 2 have been followed. The report is intended to be a traceable and easily understood record of the proponent's decision-making process. The PFR generally describes the following:

- The problem or opportunity and other background information;
- A description/inventory of the environment;
- The alternative solutions considered, and the evaluation process followed to select the preferred solution;
- The mitigating measures and follow-up commitments, which will be undertaken to minimize environmental impacts including any monitoring necessary during construction; and
- The consultation process and an explanation of how concerns raised by interested and affected parties have been addressed in developing the project.

2.3 30 Day Public Review and Section 16(6) Order

Public, review agency and Indigenous consultation is a key part of the MCEA process. In a Schedule 'B' project, such as the intersection improvements considered under this MCEA Study, the proponent is required to provide opportunity for the public to be consulted about the proposed project. Consultation is intended to inform interested and affected parties about the proposed project, the various alternative solutions considered and their anticipated environmental impacts, as well as the preliminary preferred solution. It is also intended that the public be given opportunity to provide input or raise concerns prior to completion of the MCEA process. It is intended that issues be identified early into the project by means of public involvement and that resolutions between the proponent and the person or party with the objection be achieved through consultation.

It is incumbent on the public that concerns about the environmental effects of a proposed project, or the planning process being followed are brought to the attention of the proponent early in the planning process, when the proponent has greater flexibility to accommodate changes in the project development and the process. Interested persons may provide written comments to the proponent at any point during the study process and up to 30 calendar days from issuance of Notice of Completion.

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

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

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

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

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

Nick Golia
Senior Project Manager
City of Niagara Falls
4310 Queen Street
Niagara Falls, ON L2E 6X5
ngolia@niagarafalls.ca

Visit the MECP's website for more information on requests for orders under Section 16 of the *Environmental Assessment Act* at: https://www.ontario.ca/page/class-environmental-assessments-section-16-order

2.4 Study Organization and Study Team

The City of Niagara Falls retained Associated to conduct the *Dorchester Road and Oldfield Road Intersection Improvements* MCEA Study. The Study Team, as outlined in **Table 2-2** consisted of City of Niagara Falls staff, Associated staff, and sub-consultants providing specific knowledge and expertise to address the requirements for this project in accordance with the *Environmental Assessment Act*.

Table 2-2: Study Team

Team Member	Role	Organization
Nick Golia	Proponent (Project Manager)	City of Niagara Falls
Andrea LaPlante, P. Eng.	Prime Consultant (Project Manager)	Associated Engineering (Ont.)
Domenico Di Flavio, CET	Transportation Planner	Associated Engineering (Ont.)
Lisa Merritt, M.Sc.	Archaeologist	Archaeological Services Inc.
Austin Adams, EP	Ecologist	Palmer Environmental

2.5 Study Schedule and Consultation Process

As part of the planning process, several steps have been completed to inform government agencies, Indigenous groups, affected landowners and the local community/general public of the nature and scope of the project and to solicit any comments.

The following table (**Table 2-3**) outlines the key milestone dates of the project to date and projected to completion, including dates of notification to interested and affected parties and agencies. Further consultation process details are provided within **Section 6** of this report.

Table 2-3: Key Milestone Dates

Schedule Item	Date
Initiate MCEA Study	November 2021
Notice of Study Commencement	January 14/21, 2022
Notice of Public Information Centre	June 24/30, 2022
Public Information Centre	July 6, 2022
Completion of Project File Report	October 2023
Notice of Study Completion	November 16, 2023
Project File Report 30 Day Review Period	November 16 to December 16, 2023
Detailed Design	2024
Construction	2025

PHASE I: IDENTIFICATION OF PROBLEMS AND OPPORTUNITIES

3 PROBLEM AND OPPORTUNITY STATEMENT

The Problem and Opportunity Statement provides a clear statement of the problem and opportunities that need to be addressed for a specific undertaking. The various analyses (e.g. traffic assessment, archaeological assessment, natural environment assessment) and existing conditions provide input for and contribute to the identification and description of the problem or opportunity. The prevailing deficiencies within the Study Area can be summarized by the following statement.

Problem and Opportunity Statement

The intersection of Dorchester Road and Oldfield Road is a three-legged intersection with an all-way stop control (AWSC) and experiences a typical daily traffic volume of approximately 3,000 vehicles (2021). Based on the findings of the transportation assessment for the intersection, traffic volumes are expected to increase significantly in the future due to planned development (Riverfront Community) and projected growth within the area. Under future traffic volumes, capacity issues and traffic delays are expected at the intersection with various traffic movements experiencing a failing Level of Service (LOS). Along with operational issues, the existing intersection lacks active transportation facilities and connectivity as well has an unconventional geometric layout.

Through the completion of this Municipal Class Environmental Assessment, intersection alternatives will be developed and evaluated to improve future traffic operations, accommodate future development in the area, improve active transportation facilities and connectivity to existing and planned facilities, and continue to accommodate transit and large vehicles from the industrial properties to the southwest ensuring the safety of all road users.

PHASE II: IDENTIFICATION & EVALUATION OF ALTERNATIVE SOLUTIONS

4 EXISTING CONDITIONS

4.1 Transportation Facilities and Road Infrastructure

4.1.1 Roadway Network

The Study Area encompasses the intersection of Dorchester Road and Oldfield Road, which is located east of the Queen Elizabeth Way (QEW) and OPG Hydro Canal, south of McLeod Road (Regional Road 49) and north of the Welland River in the City of Niagara Falls, as identified in **Figure 1-1**. The intersection currently operates as an All-Way Stop Control (AWSC) with a "Y" configuration consisting of north (Dorchester Road), southwest (Dorchester Road) and east (Oldfield Road) approaches. **Figure 4-1** are photos of the existing conditions at the intersection.

Dorchester Road (North Approach)

Within the Study Area, Dorchester Road (north approach) is a north-south arterial roadway with a posted speed of 50km/h. The road cross-section, in the vicinity of the intersection, consists of two 4.75 m wide travel lanes with curb and gutter and no formal active transportation facilities. The typical daily traffic volume (2020) is 2,700 vehicles.

Dorchester Road (Southwest Approach)

Within the Study Area, Dorchester Road (southwest approach) is a northeast-southwest arterial roadway with a posted speed of 60km/h. The road cross-section, in the vicinity of the intersection, consists of two 3.75 m wide travel lanes and no formal active transportation facilities. The typical daily traffic volume (2020) is 1,500 vehicles.

Oldfield Road (East Approach)

Within the Study Area, Oldfield Road (east approach) is an east-west arterial roadway with a posted speed of 50km/h. The road cross-section, in the vicinity of the intersection, consists of two 3.5 m wide travel lanes, 1.5 m bike lanes on both sides and a sidewalk separated by a boulevard on the north side that terminates approximately 15m prior to intersection. The typical daily traffic volume (2020) is 1,600 vehicles.

On-Street Parking

There are no special provisions for on-street parking near the Dorchester Road and Oldfield Road intersection. Parking is prohibited anytime on both sides of Oldfield Road as signed and parking on Dorchester Road is subject to the unsigned regulations of the City's Parking and Traffic By-Law 89-2000 – which generally permits parking up to 12 hours except within 10 metres of an intersection.

a) Dorchester Road (north approach looking south)

b) Dorchester Road (north approach looking north)

c) Oldfield Road (east approach looking west)

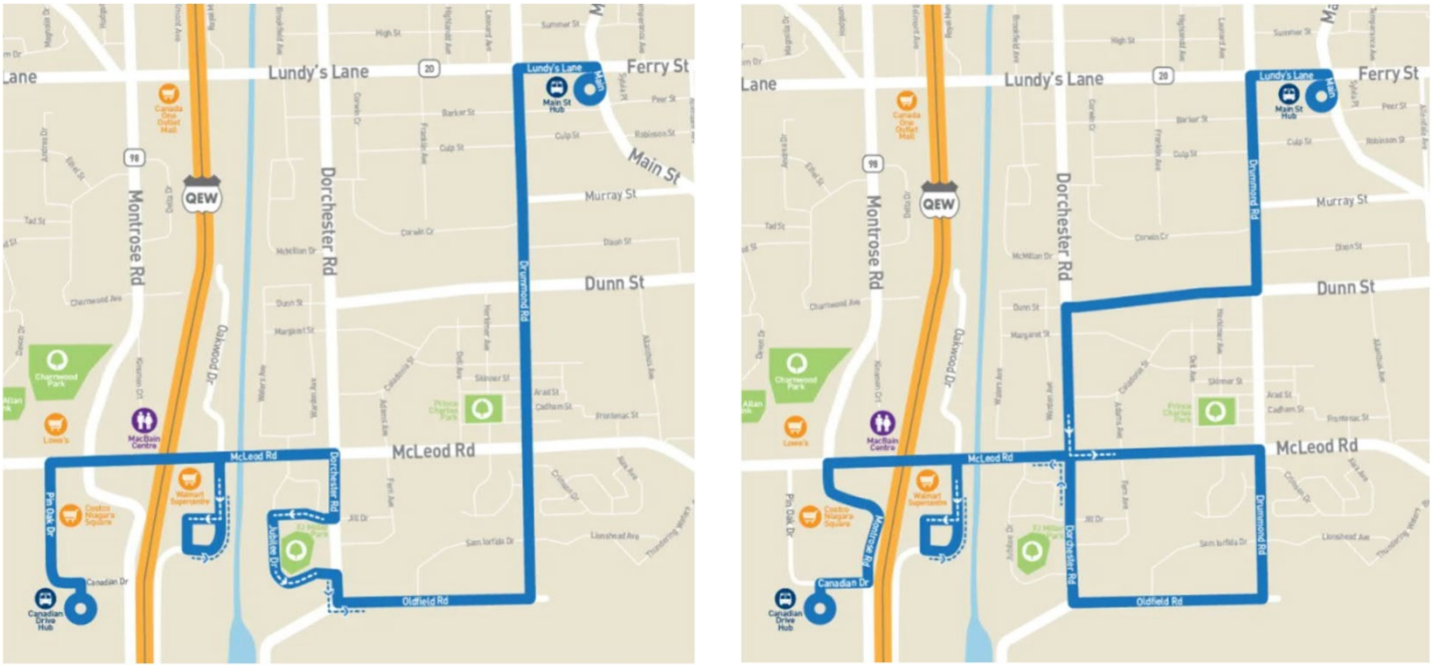
d) Dorchester Road (southwest approach looking east)

Figure 4-1: Existing Intersection Conditions

4.1.2 Existing Transit and Active Transportation

Transit

The Study Area and adjacent neighbourhood is serviced by two bus routes operated by Niagara Falls Transit. Route 103 operates Monday to Saturday in the daytime with hourly frequencies. Route 203 operates Monday to Saturday evenings, Sundays and holidays with 30-minute frequencies. The closest bus stops to Dorchester Road and Oldfield Road are located at Dorchester Road and Jubilee Drive to the north and Cole Court and Oldfield Road to the east. A snapshot of Routes 103 and 203 are shown in **Figure 4-2**.



a) Route 103 to Main & Ferry **b) Route 203 to Canadian Drive**

Figure 4-2: Existing Transit Routes

A future bus stop is earmarked for the southern section of Dorchester Road to service the Riverfront Community when constructed.

Active Transportation

Conventional bike lanes (including reserved lane signage) exist on both sides of Oldfield Road approaching Dorchester Road as shown in **Figure 4-3**. Sidewalks with a landscaped buffer also exist on the north side of Oldfield Road, and west side of Dorchester Road terminating approximately 60 m north of Oldfield Road. No cycling facilities are provided on Dorchester Road (north and southwest approaches).

Future off-road multi-use trails are planned adjacent to the Study Area, including the Millennium Trail to the west of the intersection and Fern Park Trail to the east. Both trail systems will be located within the Hydro One corridor north of the intersection and will connect to the existing and future active transportation facilities on Dorchester Road.

Figure 4-3: Active Transportation on Oldfield Road

4.2 Transportation Analysis

A Transportation Assessment of the Study Area was completed to identify and highlight capacity and operational deficiencies and identify future needs and requirements to address future traffic volumes and active transportation. The analysis assessed current and future conditions of the intersection and evaluated alternatives required to improve the operation of the intersection.

The Transportation Assessment Report completed by Associated is provided in **Appendix A** and summarized below.

4.2.1 Traffic Data Collection and Related Studies

Historical and up-to-date traffic data was obtained from the City of Niagara Falls. The most recent turning movement counts were collected on a typical weekday in September 2019 at the intersection. The most recent traffic count data along Dorchester Road (between Jubilee Drive and Oldfield Road, and Oldfield Road and Chippawa Parkway) and Oldfield Road (between Dorchester Road and Drummond Road) were collected in October 2020.

In addition, the City of Niagara Falls provided the *Riverfront Community Transportation Assessment* prepared by Paradigm Transportation Solutions Limited in April 2018. The study provided key information related to future development in the surrounding area in terms of future traffic generation and yearly growth.

4.2.2 Traffic Safety

Collision and Safety Review

The City provided a summary of collisions reported within the Study Area for the complete 5-year period beginning in January 2016 and ending in December 2020 – the City also included available collision summaries for the year 2021. The collision results were grouped by property damage only (PDO) and personal injury collisions. There were no fatalities reported during the 5-year assessment period in the study area.

There was a total of 6 collisions occurring during the 5+ year assessment period at the study intersection and approaches, corresponding to an average rate of approximately 1.2 collisions per year. This rate is exceptionally low

and no patterns were identified that could otherwise provide justification for implementation of a specific mitigating safety countermeasure.

Roadside Safety Review

There is an existing steel-beam guiderail on the west side of Dorchester Road approaching the study intersection from the north and southwest, which appears to be protecting the steep roadside slope, culvert end and ditch on that side of the road. Roadside safety requirements will be reassessed subject to selection of the preferred alternative during the MCEA process, which could result in significant changes to the road cross-section and roadside slope at the time of build-out. Roadside safety requirements will conform to the *TAC Geometric Design Guide, 2017*.

4.2.3 Base Year (2021) Traffic Operations

Traffic Volumes

To be consistent with the *Riverfront Community Transportation Assessment* prepared by Paradigm Transportation Solutions Limited in April 2018, a 1.0% annual growth rate was applied to all approaches at Dorchester Road and Oldfield Road intersection. The most recent turning movement count (TMC) data from 2019 was projected to the base year of 2021 using the growth rate of 1.0% per year.

The residential subdivision north of Oldfield Road between Dorchester Road and Drummond Road was fully constructed and occupied in 2020. In consultation with the City, the majority of the subdivision, from Drummond Road up to and including Cole Court, was completed prior to 2019. The remaining development was constructed and occupied post-2019 and consisted of seven townhouse buildings totalling 39 units. Traffic generated by these 39 units would not have been accounted for in the most recent available TMC (data collected in 2019).

Therefore, the base year 2021 traffic volumes were estimated by adding the traffic generated from the remaining residential subdivision constructed post-2019 and the observed traffic data projected to 2021 (using 1% growth) as illustrated in **Figure 4-4**.

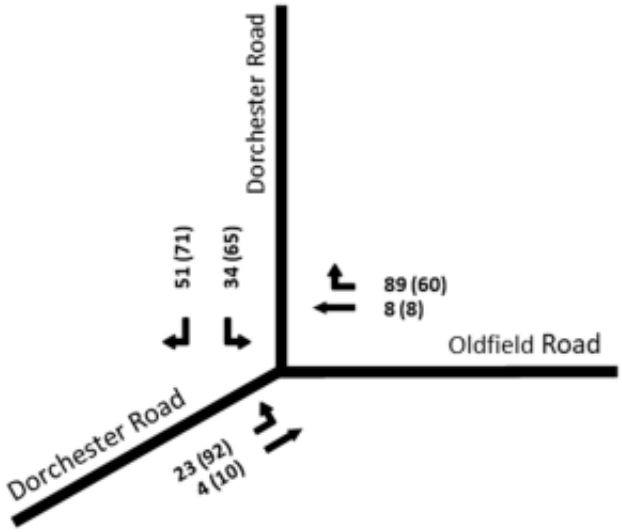


Figure 4-4: Base Year 2021 AM(PM) Peak Traffic Volumes

Traffic Operation Assessment – Existing Conditions

Traffic operation and performance was assessed by undertaking capacity analysis using Synchro 11 software and applying the Highway Capacity Manual (HCM) methodology and reporting on the following three (3) standard performance measurements: Level of Service (LOS), capacity expressed as the volume to capacity (v/c) ratio, and 95th percentile queue length.

The capacity analysis was conducted for the weekday AM and PM peak periods. The results of the capacity analysis for the base year 2021 indicated that all movements operated at a LOS A and no improvements are necessary under existing traffic conditions from an operational perspective.

Traffic Operation Assessment – Proposed Alternatives

Three (3) intersection control alternatives were evaluated to support the development and evaluation of alternatives for the MCEA study: all-way stop control (AWSC) (existing condition); traffic signal; and roundabout (refer to Section 5 for additional information for each alternative). As a starting point, a basic lane configuration and signal timing plan was considered for the assessment, that is all approaches are shared through/turning lanes and no protected turn phases.

The capacity analysis was conducted for the weekday AM and PM peak periods. The results of the capacity analysis for the base year 2021 indicated that for a signalized intersection all movements operated at a LOS B or better and v/c ratio well below 0.85, while for the roundabout all movements operated at a LOS A.

4.2.4 Future Traffic Operations

The future traffic conditions considered two horizon years: 2031 corresponding to 10-years from present day, and 2041 corresponding to 20-years from present day. To be consistent with the *Riverfront Community Transportation Assessment* prepared by Paradigm Transportation Solutions Limited in April 2018, a 1.0% annual growth rate was applied to all approaches at Dorchester Road and Oldfield Road intersection.

4.2.4.1 Horizon Year 2031 Traffic Operations

Traffic Volumes

The horizon year 2031 traffic volumes were estimated by adding the base year 2021 traffic volumes, traffic growth over a 10-year period, and the traffic generated from the Riverfront Community Phase 1 development as illustrated in **Figure 4-5**.

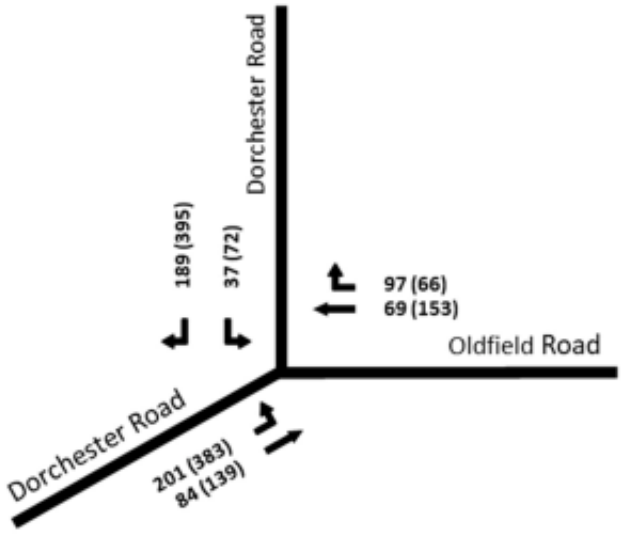


Figure 4-5: Horizon Year 2031 AM (PM) Peak Traffic Volumes

Traffic Operation Assessment

The capacity analysis was conducted for the weekday AM and PM peak periods. In summary, Dorchester Road and Oldfield Road is expected to operate satisfactorily during the weekday AM peak hour for all intersection alternatives; however, the eastbound approach is failing during the weekday PM peak hour operating at LOS F with AWSC and v/c over 1.0 with signal control. The roundabout option provides the best operational performance during both peak periods with all movements operating at LOS A.

4.2.4.2 Horizon Year 2041 Traffic Operations

Traffic Volumes

The horizon year 2041 traffic volumes were estimated by adding the base year 2021 traffic volumes, traffic growth over a 20-year period, and the traffic generated from the Riverfront Community Phase 1 development as illustrated in **Figure 4-6.**

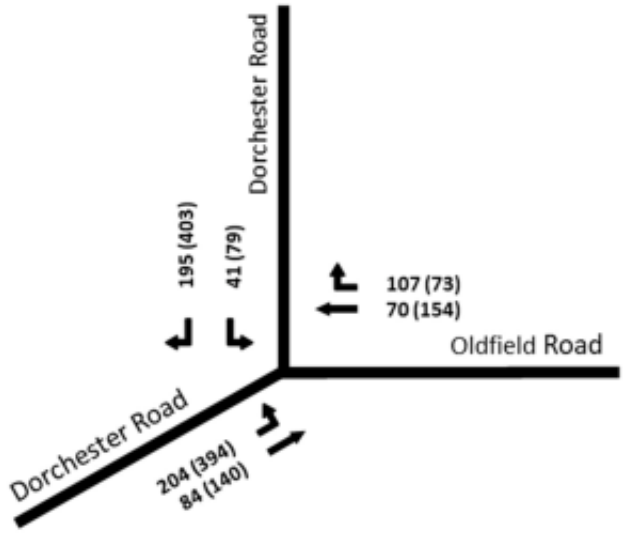


Figure 4-6: Horizon Year 2041 AM (PM) Peak Traffic Volumes

Traffic Operation Assessment

The capacity analysis was conducted for the weekday AM and PM peak periods. In summary, Dorchester Road and Oldfield Road is expected to operate very similarly to the horizon year 2031 traffic conditions. During the weekday PM peak hour, the eastbound approach operates at LOS F as an AWSC intersection and with a v/c over 1.0 as a signalized intersection. The roundabout option still provides the best operational performance during both peak periods with all movements operating at LOS A.

4.2.5 Needs Identification

Based on the traffic operations assessment, the eastbound approach at Dorchester Road and Oldfield Road is expected to have significant capacity concerns in the future horizon years under the existing stop-control and lane configuration; therefore, opportunities to improve the level of service include alternate intersection control and auxiliary lanes.

Traffic Signal Justification

Traffic signals provide more efficient operation by alternating the right-of-way for extended periods and only when actuated by minor-road demand. The technical justification for traffic signals is primarily based on the vehicular volume threshold criteria specified in the *Ontario Traffic Manual, Book 12: Traffic Signals, 2012* (OTM Book 12). For future volumes, Justification 7 is applied.

The justification analysis identified low compliance with the justification threshold, indicating signalization was not warranted at this location.

Lane Configuration Improvements

Due to the relatively high eastbound left-turning volumes and high delays reported in the traffic analysis, an exclusive left-turn lane is proposed to increase capacity and separate the turning volumes from the through traffic. The results of the capacity analysis for the horizon years 2031 and 2041 with the proposed improvements indicate the exclusive left-turn lane for the eastbound approach provides sufficient capacity to bring the traffic operations to acceptable levels of service for the horizon years 2031 and 2041. A minimum storage length of 105m is recommended to accommodate the anticipated queues.

Southbound Right-Turn Analysis

Supplementary microsimulation analysis was undertaken for the southbound right-turns using SimTraffic 11 software given the relatively high volume for this movement in the future PM peak scenario. The analysis showed the benefits of installing a southbound auxiliary (right-turn) lane could decrease delay by as much as 11 seconds per vehicle. The analysis further showed that storage of the auxiliary lane would need to be approximately 24 metres - or a standard 30 metres.

Roundabout Justification

The roundabout justification framework specified in the TAC *Canadian Roundabout Design Guide, 2017* requires a 2-stage process be undertaken, consisting of a screening phase and an assessment phase. In this initial screening phase, a number of qualitative and quantitative factors related to suitability and feasibility are considered and evaluated and where one or more of these factors can preclude or "screen out" installation of a roundabout.

One of these quantitative factors in the initial screening phase is comparing the life cycle cost of implementing a roundabout with implementation of an alternative intersection control measure (i.e., signals), also known as the Life Cycle Cost Analysis (LCCA). Generally, if the LCCA shows that a roundabout will cost more than the alternative measure, it is screened out. The LCCA for the intersection, comparing a roundabout versus a signalized intersection with left-turn lane, showed that the roundabout will have a greater life cycle cost than the signalized option (approximately $860,000 versus $720,000).

4.3 Socio-Economic Environment

4.3.1 Land Use and Ownership

As indicated in **Figure 4-7,** taken from the City of Niagara Falls' Official Plan, the land use north of the intersection along Dorchester Road is classified as Residential. Southwest of the intersection along Dorchester Road is classified as Light Industrial and considered part of the QEW Employment Corridor. East of the intersection along Oldfield Road is classified as residential north of Oldfield Road and conservation-open space as it is an Environmental Protection Area south of Oldfield Road. The Study Area is located within the City's Urban Area and adjacent to the Riverfront Secondary Plan Area.

The existing right-of-way (ROW) for Dorchester Road and Oldfield Road are City owned, with the Hydro Corridor north of the intersection owned by the Province of Ontario. All other adjacent property is privately owned.

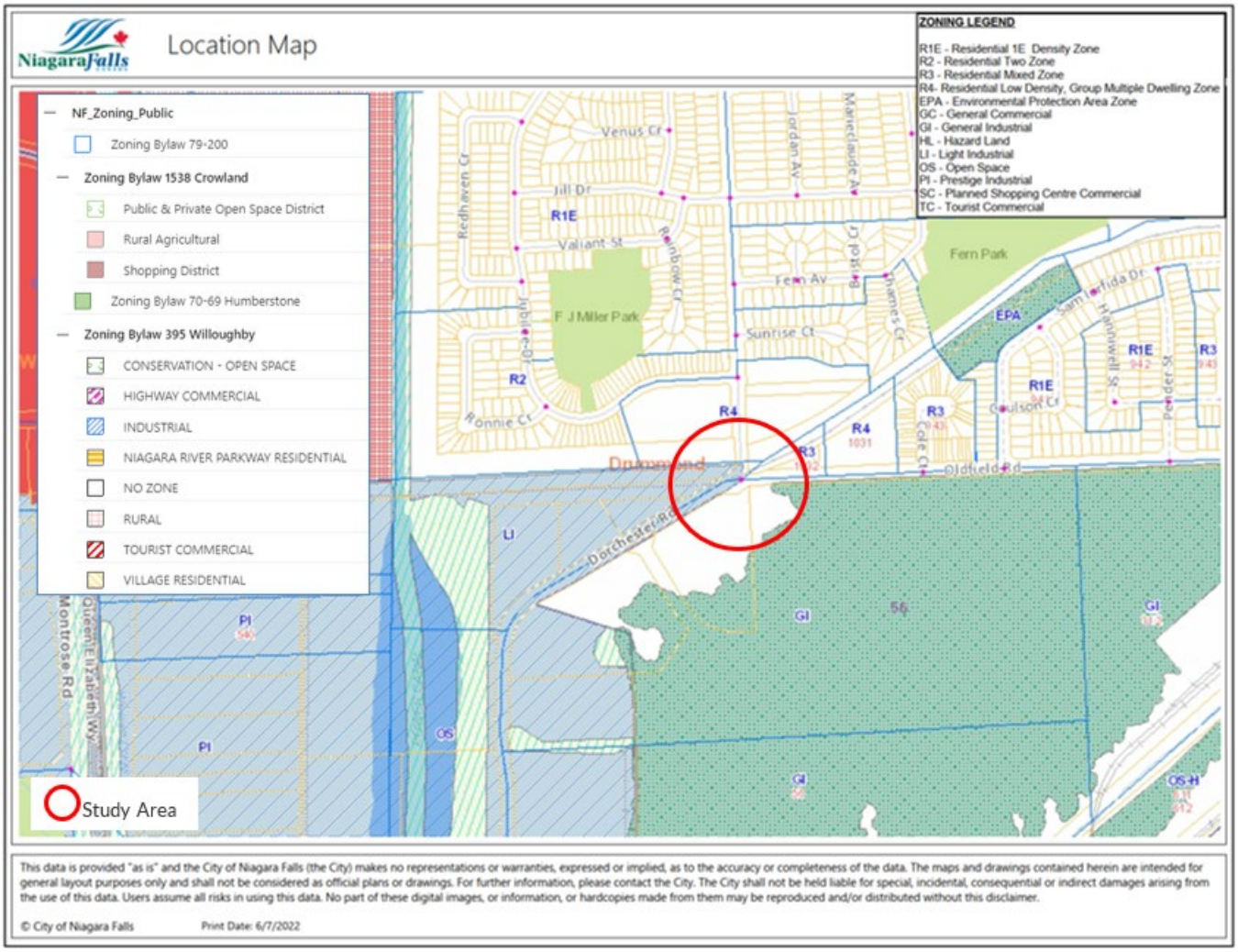


Figure 4-7: Land Use Designation (Niagara Falls Official Plan)

4.3.2 Adjacent Developments and Projects

Adjacent to the Study Area, the Riverfront Community is a planned residential community that will be developed to the south of the intersection. Consideration regarding the Secondary Plan for this development and projections made in the *Riverfront Community Transportation Assessment* (Paradigm Transportation Solutions Limited, April 2018) were incorporated into the development and evaluation of alternatives.

Additionally, Dorchester Road Reconstruction was recently completed. The project included full road reconstruction of Dorchester Road from the Hydro Corridor (north of Oldfield Road) to south of McLeod Road. The reconstruction entailed widening the road to a 10 m road platform, including installation of new curb and gutter, two 3.5m wide travel lanes, on-road bike lanes, and 1.5m wide concrete sidewalks on both sides of the street.

4.4 Utilities and Municipal Services

4.4.1 Utilities

As part of the Study, utility companies were contacted to confirm their plant locations within the study corridor. The following summarizes existing plant locations:

- Bell Canada
  - Bell structure along south side of Dorchester Road (southwest approach)
  - Bell cables on east and west side of Dorchester Road (north approach)
  - Bell pedestal on east side of Dorchester Road (north approach)
- Hydro One
  - Corridor east and west of Dorchester Road (north approach)
- Niagara Peninsula Energy
  - Hydro poles and aerial cable along south side of Dorchester Road (southwest approach)
  - Hydro poles and aerial cable along south side of Oldfield Road
  - Hydro poles and aerial cable along east side of Dorchester Road (north approach)
  - Hydro vault northeast quadrant of intersection
- Enbridge Gas
  - Along Dorchester Road existing gas mains are located at the north approach and southwest approach
- Cogeco
  - Underground Coaxial Plant from pole to pole south of Oldfield Road and Dorchester Road (southwest approach)
  - Main trunk fiber placed in hydro trench along Dorchester Road (north approach)

4.4.2 Municipal Services

Within the Study Area, there are existing municipal services and underground infrastructure owned by the City and Region.

Transmission Watermain

There is an existing 1050mm CPP trunk watermain, owned by the Region, that traverses through the intersection from the west Hydro corridor, into a valve chamber located in the northwest quadrant of the intersection and carries along the north side of Oldfield Road.

The Region has indicated that the isolation valves inside the valve chamber may need replacement.

Distribution Watermain

An existing 300mm diameter PVC watermain, owned by the City, is located along the south side of Dorchester Road (southwest approach) and west side of Dorchester Road (north approach). A 250mm PVC watermain ties into the 300mm watermain at the intersection and traverses along the north side of Oldfield Road.

Trunk Sanitary Sewer

There is a trunk sanitary system, owned by the Region, that traverses through the intersection. A 1200mm diameter concrete sanitary sewer conveys flows along Oldfield Road toward the intersection. From the intersection, a 1375mm diameter concrete sanitary sewer conveys flows northwest into the Hydro Corridor and ultimately west to the South Side High Lift Pumping Station.

The Region has indicated that the trunk sewer is scheduled to be rehabilitated in the near future using a cured-in-lace pipe method.

Sanitary Sewer System

There is a 250mm diameter sanitary sewer collection system, owned by the City, on Dorchester Road (north approach) that conveys flows south along Dorchester Road and outlets to the Region's trunk sanitary system at a maintenance hole chamber located in the southeast quadrant of the intersection.

Storm Sewer System

The existing roads are a mix of rural and urban cross-sections which directs storm runoff through a system of both ditches and underground sewers. Dorchester Road (southwest approach) has roadside ditches that convey runoff in a general northwest direction. Dorchester Road (north approach) has catchbasins and a 450mm diameter storm sewer that conveys runoff northerly. Oldfield Road has a roadside ditch along the south side as well as catchbasins and a 450mm diameter storm sewer that conveys runoff easterly.

There is also an existing 750mm diameter CSP culvert that crosses the southwest approach and conveys runoff northwesterly, and two (2) 600mm diameter CSP culverts that cross the north approach and convey runoff westerly.

4.5 Pavement and Geotechnical Characteristics

A geotechnical investigation of the intersection area will be completed during detailed design of the preferred solution. To provide a general understanding of the subsurface conditions in the Study Area, the Geotechnical Report prepared by EXP Services Inc. in July 2022 for the Dorchester Road Reconstruction project was reviewed.

An average asphalt thickness of the existing roadway was 140mm with 535mm of granular fill consisting predominately of crusher run limestone. Native silty clay was encountered below the pavement structure and extended to borehole termination depth. Where groundwater was encountered, depths ranged from 4.3 to 4.6m below existing pavement surface.

4.6 Source Water Protection

Under the MECP 2006 *Clean Water Act*, municipalities are required to conform to Source Protection Plans (SPPs) to protect surface and groundwater sources to municipal drinking water systems. The Study Area for this project is within the Niagara Peninsula Source Protection Plan. The SPP identifies where there is potential for significant threat to the quality and quantity of groundwater through delineation of Wellhead Protection Areas (WHPAs), Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), and Intake Protection Zones (IPZs).

The Study Area is located outside the IPZ and is not considered vulnerable to drinking water threats. A Groundwater Protection HVA Area is mapped immediately south of the intersection (**Figure 4-8**).

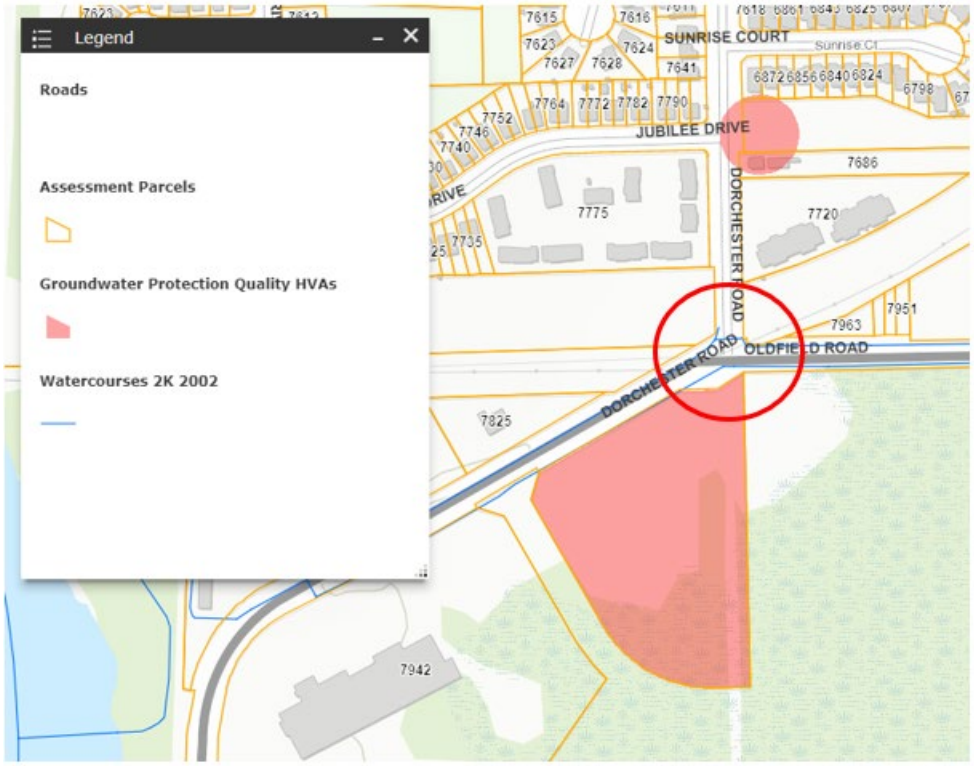


Figure 4-8: Groundwater Protection Areas

4.7 Natural Environment

4.7.1 Natural Environment Assessment

Palmer Environmental (PECG) was contracted to complete a Natural Environment Assessment. The Technical Memo prepared by PECG summarizing the Natural Environment Assessment is provided in **Appendix B** and outlined below.

The objectives of the assessment are to inventory and evaluate the existing natural heritage features and ecological functions within the Study Area, including Ecological Land Classification (ELC) mapping, Species at Risk (SAR) habitat screening and assessment, evaluation of sensitive natural features, and assessment of wildlife habitat. Field investigations to assess the natural heritage environmental conditions were undertaken by PECG in April 2022.

Vegetation Communities and Flora

The Study Area is located within an urban setting and is largely comprised of anthropogenic lands. The southeastern portion of the intersection is within/adjacent to a Provincially Significant Wetland (PSW), identified as the Niagara Falls Slough Forest Wetland Complex (Ministry of Natural Resources and Forestry [MNRF], 2022). No other natural heritage areas were observed within the Study Area during the 2022 field investigations. Two (2) vegetation communities were identified within the Study Area, in addition to anthropogenic land types, including Green Ash Mineral Deciduous Swamp (SWD2-2) and Gray Dogwood Mineral Thicket Swamp (SWT2-9).

The communities are heavily influenced by non-native species with 50% being non-native species to Ontario. No SAR plants were observed.

Wildlife Observations

The following incidental wildlife were recorded during the 2022 field investigations (all within the wetland communities): American Robin (*Turdus migratorius*), Blue Jay (*Cyanocitta cristata*), Western Chorus Frog (*Pseudacris triseriata*), and tracks from White-tailed Deer (*Odocoileus viriginianus*).

Species at Risk (SAR)

Through review of existing records, site surveys and habitat screening, the following SAR have potential suitable habitat within the general Study Area:

- Little Brown Myotis (*Myotis lucifugus*) – Endangered
- Northern Myotis (*Myotis septentrionalis*) – Endangered
- Eastern Small-footed Myotis (*Myotis leibii*) – Endangered
- Tri-colored Bat (*Perimyotis subflavus*) – Endangered

4.7.2 Niagara Peninsula Conservation Authority

Portions of the Study Area are within Niagara Peninsula Conservation Authority (NPCA) regulated areas (**Figure 4-9**). Within the NPCA regulated area is the Niagara Falls Slough Forest Wetland Complex PSW located to the southeast of the intersection (as identified above). This wetland is identified as an Environmental Protection Area (EPA) according to the City's Official Plan (Schedule A).

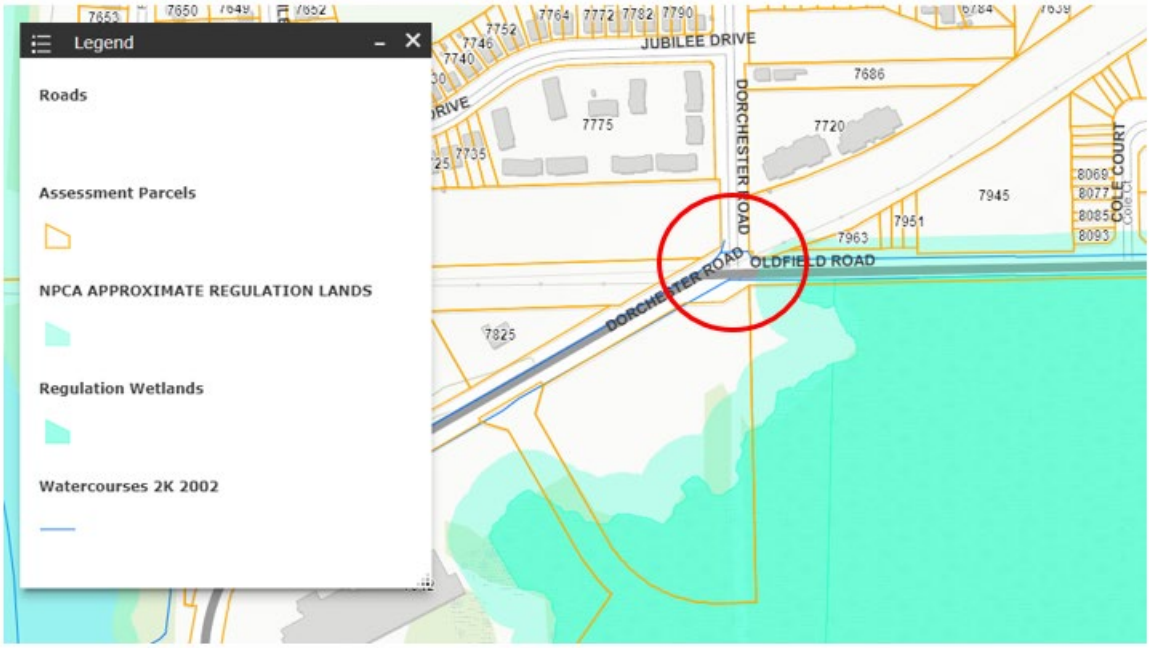


Figure 4-9: NPCA Regulated Areas

4.8 Cultural Environment

4.8.1 Archaeological Assessment (Stage 1)

Archaeological Services Inc. (ASI) was contracted to conduct a Stage 1 Archaeological Assessment for the *Dorchester Road and Oldfield Road Intersection Improvements* Study. The Stage 1 Archaeological Assessment Report prepared by ASI is provided in **Appendix C**.

The archaeological field work was completed in April 2022, in order to gain first-hand knowledge of the geography, topography, and current conditions and to evaluate and map archaeological potential of the Study Area. The Study Area meets the following criteria indicative of archaeological potential:

- Previously identified archaeological sites (AgGs-298);
- Water sources: primary, secondary, or past water source (Welland River, Warren Creek); and
- Early historic transportation routes (Dorchester Road).

The property inspection determined that parts of the Study Area exhibit archaeological potential. These areas will require Stage 2 archaeological assessment prior to any construction activities. Parts of the Study Area have been previously assessed and do not require further archaeological assessment. A part of the Study Area is located within the permanently low-lying wet areas of the Niagara Falls Slough Forest Wetland Complex and has poorly drained soils, and does not retain potential. These areas do not require further survey.

The remainder of the Study Area has been subjected to deep soil disturbance events due to twenty-first century residential development north of Oldfield Road, twentieth century residential development west and east of Dorchester Road, construction of right-of-ways, and the twenty-first century rail storage and parking yard. These areas do not retain archaeological potential and do not require further survey.

In light of the results, ASI recommended:

- Parts of the Study Area exhibit archaeological potential. These lands require Stage 2 archaeological assessment by test pit survey at five metre intervals prior to any proposed construction activities on these lands;
- The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance, low and wet conditions, or being previously assessed. These lands do not require further archaeological assessment; and
- Should the proposed work extend beyond the current Study Area, further archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

5 ALTERNATIVE SOLUTIONS

5.1 Identification of Alternative Solutions

Under Phase 2 of the MCEA planning and design process, reasonable and feasible solutions to address the needs, opportunities, and problem (as summarized in **Section 3**) are identified and examined. Alternative solutions are different ways of potentially solving the problem or addressing the opportunity.

The Alternative Solutions that have been developed for the *Dorchester Road and Oldfield Road Intersection Improvements* study, include:

- Alternative 1: Do Nothing
- Alternative 2: All-way Stop Control (AWSC) with Geometric Improvements
- Alternative 3: Signalized with Geometric Improvements
- Alternative 4: Roundabout

Each of these alternatives are discussed and evaluated in the following sections.

5.1.1 Alternative 1: Do Nothing

The EAA requires the consideration of the "Do Nothing" alternative. This alternative is included to provide a baseline scenario in which to compare all other alternatives and consider what will happen if no action is taken to improve the intersection. This assumes that the intersection condition as it exists at the present time will continue, including maintaining the AWSC, intersection configuration/geometry, and active transportation facilities. No improvements are proposed to remedy the identified concerns and deficiencies of the intersection.

5.1.2 Alternative 2: All-way Stop Control (AWSC) with Geometric Improvements

To improve the geometry of the intersection to better function as a T-intersection and provide better sightlines for roadway users, modifications to the horizontal alignments of the intersection approaches is recommended. The proposed geometric improvements as shown in **Figure 5-1**, consider the location of existing utility infrastructure and existing City-owned right-of-way limits. The intersection will continue to function as an AWSC, which include several advantages and disadvantages as summarized in **Table 5-1.**

Key components of this alternative include:

- Dedicated left turn lane on the southwest approach for northbound vehicles with a minimum storage length of 105m as per recommendations made in the Transportation Assessment;
- Dedicated right turn lane on the north approach for southwest bound vehicles with a storage length of 30m as per recommendations made in the Transportation Assessment;
- The north approach (Dorchester Road), southwest approach (Dorchester Road), and east approach (Oldfield Road) will have an urban cross-section complete with 3.5m wide travel lanes, curb and gutters;
- On-road bicycle lanes (1.5m wide) will be provided on the north approach (Dorchester Road) and east approach (Oldfield Road) to tie into bicycle lanes on Dorchester Road and Oldfield Road;
- Sidewalks will be extended on both sides along the north approach (Dorchester Road) to tie into sidewalks constructed as part of Dorchester Road reconstruction being completed by the City and future Millennium Trail head and Fern Park trail;

- The existing sidewalk on the north side of the east approach (Oldfield Road) will be extended to the intersection;
- To accommodate future active transportation along the southwest approach (Dorchester Road), on-road bicycle lanes (1.5m wide), as well as a sidewalk on the south side, have been included; however, confirmation of active transportation facility types will be made at the time of road upgrades along Dorchester Road;
- Crosswalks, including proper sidewalk ramps and tactile warning plates in accordance with AODA and TAC requirements, will be provided on the north approach and southwest approach (Dorchester Road); and
- The south approach, which is a private driveway access, will also function as a stop-control approach.

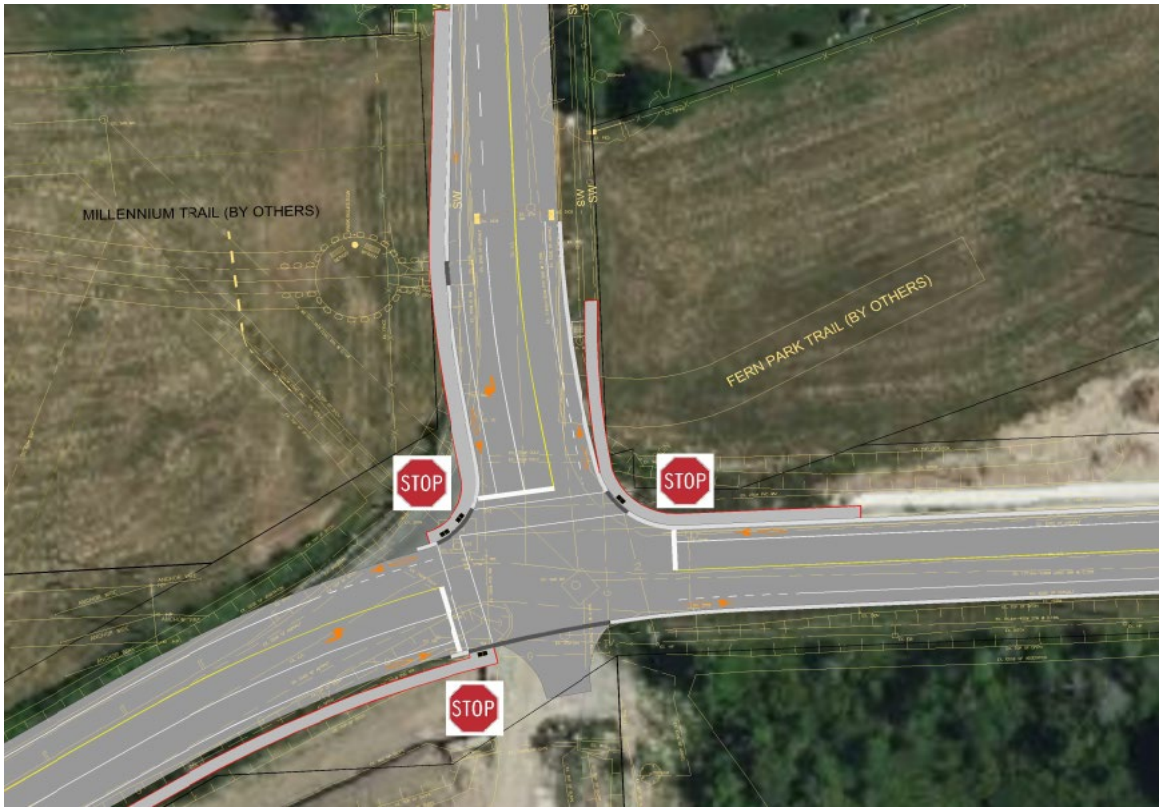


Figure 5-1: Alternative 2 – All-way Stop Control with Geometric Improvements Layout

Table 5-1: Advantages and Disadvantages of Alternative 2

Advantages	Disadvantages
• Improves visibility of the traffic control device for all movements • Provides crosswalk facility on north and southwest approach (Dorchester Road) • Sidewalk extension on north side of Oldfield Road improves pedestrian accessibility • Provides cyclist facilities on all approaches to tie into existing/proposed facilities • Pedestrian crossings are controlled • Provides dedicated turning lanes to minimize delay and improve operation of intersection • Less maintenance than traffic control signals • Lowest construction cost • No impact to surrounding property	• Vehicle idling will affect air quality • Lane closures during construction • No change in vehicle noise • Unable to access Regional chamber without lane closures • Minor utility impacts

5.1.3 Alternative 3: Signalized with Geometric Improvements

Similar to Alternative 2, Alternative 3 will include improvements to the geometry of the intersection to better function as a T-intersection and provide better sightlines for roadway users. Alternative 3, however, will operate as a signalized intersection. The proposed geometric improvements are shown in **Figure 5-2**. There are several advantages and disadvantages to implementing a signalized intersection as summarized in **Table 5-2.**

Key components of this alternative include:

- Dedicated left turn lane on the southwest approach for northbound vehicles with a minimum storage length of 105m as per recommendations made in the Transportation Assessment;
- Dedicated right turn lane on the north approach for southwest bound vehicles with a storage length of 30m as per recommendations made in the Transportation Assessment;
- The north approach (Dorchester Road), southwest approach (Dorchester Road), and east approach (Oldfield Road) will have an urban cross-section complete with 3.5m wide travel lanes, curb and gutters;
- On-road bicycle lanes (1.5m wide) will be provided on the north approach (Dorchester Road) and east approach (Oldfield Road) to tie into bicycle lanes on Dorchester Road and Oldfield Road;
- Sidewalks will be extended on both sides along the north approach (Dorchester Road) to tie into sidewalks constructed as part of Dorchester Road reconstruction being completed by the City and future Millennium Trail head and Fern Park;
- The existing sidewalk on the north side of the east approach (Oldfield Road) will be extended to the intersection;
- To accommodate future active transportation along the southwest approach (Dorchester Road), on-road bicycle lanes (1.5m wide), as well as a sidewalk on the south side, have been included; however, confirmation of active transportation facility types will be made at the time of road upgrades along Dorchester Road;
- Crosswalks, including proper sidewalk ramps and tactile warning plates in accordance with AODA and TAC requirements, will be provided on the north approach and southwest approach (Dorchester Road); and
- The south approach, which is a private driveway access, will also be controlled with the signals.

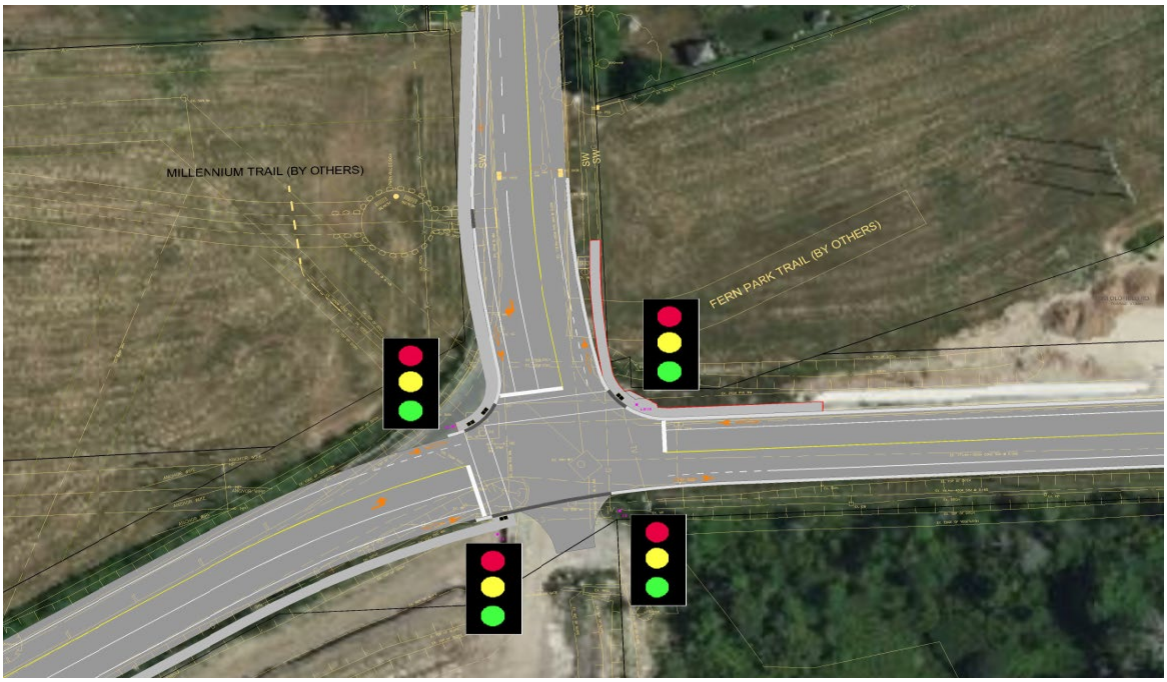


Figure 5-2: Alternative 3 – Signalized with Geometric Improvements Layout

Table 5-2: Advantages and Disadvantages of Alternative 3

Advantages	Disadvantages
• Improves visibility of the traffic control device for all movements • Provides controlled pedestrian crossings • Provides crosswalk facility on north and southwest approaches (Dorchester Road) • Sidewalk extension on north side of Oldfield Road improves pedestrian accessibility • Provides cyclist facilities on all approaches to tie into existing/proposed facilities • Provides dedicated turning lanes to minimize delay and improve operation of intersection • No impact to surrounding property	• Introduces minor delays to traffic during off peak hours • Vehicle idling will affect air quality • Lane closures during construction • No change in vehicle noise levels • Unable to access Regional chamber without lane closures • Will require signal maintenance • Minor utility impacts

5.1.4 Alternative 4: Roundabout

Considering the existing geometry of the intersection and its approaches, this location lends itself to the inclusion of a roundabout. To accommodate the heavy trucks and bus traffic, a single-lane roundabout with an ICD (Inscribed Circle Diameter) of 40m is proposed as shown in **Figure 5-3**. There are several advantages and disadvantages when implementing a roundabout intersection as summarized in **Table 5-3**.

Roundabouts are an alternative method of traffic control to traffic signals or stop/yield controlled signage. A roundabout is a type of circular intersection where vehicles travel counterclockwise around a central island. Vehicles entering the roundabout must yield to circulating traffic. When a roundabout is being considered for installation,

criteria which shall be considered include: safety benefits, capacity and operational impacts, community benefits, pedestrian and cyclist considerations, design elements, property requirements, life cycle cost benefit comparisons to higher-order controls such as traffic signals, and public education requirements.

Key components of this alternative include:

- Designated operating space will be provided for pedestrian and cyclists that will tie into on road bike-lanes and pedestrian sidewalk;
- On-road bicycle lanes (1.5m wide) will be provided on the north approach (Dorchester Road) and east approach (Oldfield Road) to tie into bicycle lanes on Dorchester Road and Oldfield Road;
- Sidewalks will be extended on both sides along the north approach (Dorchester Road) to tie into sidewalks constructed as part of Dorchester Road reconstruction being completed by the City and future Millennium Trail head and Fern Park trail;
- The existing sidewalk on the north side of the east approach (Oldfield Road) will be extended to the intersection;
- To accommodate future active transportation along the southwest approach (Dorchester Road), on-road bicycle lanes (1.5m wide), as well as a sidewalk on the south side, have been included; however, confirmation of active transportation facility types will be made at the time of road upgrades along Dorchester Road;
- Crosswalks, including proper sidewalk ramps and tactile warning plates in accordance with AODA and TAC requirements, will be provided at all crossing points of the intersection; and
- The private access to the south will access the roundabout via curb cut.

Figure 5-3: Alternative 4 – Roundabout Layout

Table 5-3: Advantages and Disadvantages of Alternative 4

Advantages	Disadvantages
• Reduces approach speeds in all directions which facilitates improved gap acceptance resulting in improved capacities • Eliminates potential left-turn conflicts • Provides crossing facility at all approaches • Shortest continuous crossing for pedestrians • Roundabouts have been proven to reduce the frequency and severity of collisions • Roundabouts operate with lower delays and shorter queues than other forms of control • Creates an aesthetically pleasing focal point within a community • Less maintenance than traffic signals • Provides accessibility to Regional chambers due to centre island • Sidewalk extension on all approaches improves pedestrian accessibility • ICD is designed to accommodate transport trucks and busses	• Highest construction cost alternative but lower life cycle cost than signals • Roundabouts may be more challenging for pedestrian with vision impairment or mobility challenges • Cyclists consideration requires off-road treatments further increasing construction costs, property and utility impacts • May require public education and outreach prior to construction as roundabouts are still not a familiar form of traffic control for many drivers, cyclists, and pedestrians • Significant disruption during construction • Significant utility impacts • Requires land acquisition

5.2 Active Transportation Facilities at Intersections

Active transportation is a key consideration in roadway design. The following components are important factors that impact the design of active transportation:

- Application of Ontario Traffic Manual (OTM) Book 18: Cycling Facilities to identify a preferred level of separation for cyclists;
- Complete Streets design considerations; and
- Existing and planned active transportation facilities and routes.

Referencing OTM Book 18 and the pre-selection nomograph for urban context, **Figure 5-4**, the study area intersection warrants a designated operating space for cyclists which can include bicycle lanes, contraflow bicycle lanes or buffered bicycle lanes. Therefore, for all alternatives conventional on-road bicycle lanes have been incorporated.

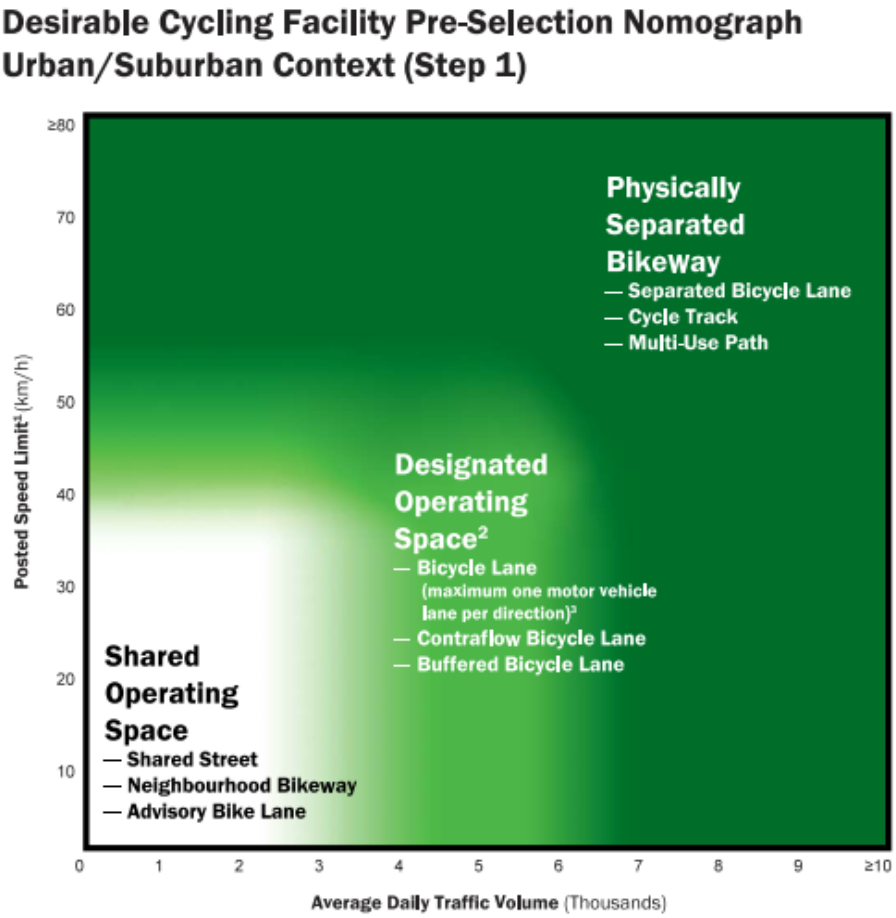


Figure 5-4: Cycling Infrastructure Pre-selection

5.2.1 Pedestrian and Cyclist Experience at Intersections

There are four components that make up a pedestrian and cyclist experience at an intersection including: statistical level of safety, feeling of safety (security), level of accessibility, and convenience.

Safety is the priority when considering the design of pedestrian and cyclist facilities at an intersection. Statistically, roundabouts (particularly single-lane) are safer for pedestrians and cyclists than traffic signals. Roundabouts reduce vehicle speeds, giving pedestrians, cyclists and drivers more time to judge gaps and react to each other, with the vehicle speed more compatible with typical on-road cyclist speeds. Also, crossing distances for pedestrians are less with roundabouts compared to conventional intersections, and users only need to watch for traffic in one direction at a time.

Signalized intersections provide a feeling of safety or security for pedestrians due to the signal telling them when it's 'safe' to cross. However, most crashes involving pedestrians occur when drivers turn left or right across the crosswalk while the pedestrian has a 'walk' indication. They have greater vehicle-pedestrian conflict points and vehicle speeds are often much greater in a signalized intersection.

5.3 Evaluation Process

5.3.1 Evaluation Criteria

Each alternative solution to address the problem statement and achieve the project objectives was compared and evaluated using seven (7) criteria, as summarized in **Table 5-4**. Each criterion was given a weighting factor based on importance and relevance to the decision-making process.

Table 5-4: Evaluation Criteria

Evaluation Criteria	Weight	Performance Measure
Vehicular Transportation	28%	• Anticipated traffic performance • Impacts to existing and future traffic conditions • Safety • Compatibility and connectivity with the local road network • Ability and need to accommodate planned developments
Active Transportation	28%	• Statistical level of safety • Feeling of safety • Level of Accessibility • Compatibility and connectivity with the local road network • Ability and need to accommodate planned developments
Natural Environment	5%	• Potential encroachment to designated natural areas • Impacts to significant wildlife and their habitat, including Species at Risk (SAR) • Impacts to vegetation communities • Change in quantity and quality of stormwater runoff • Impacts to air quality due to vehicle travel and congestion
Socio-Economic Environment	10%	• Impacts to private properties and possible need for land acquisition • Opportunity to improve urban design and streetscaping • Potential for increase in traffic noise • Opportunity to promote active transportation and healthy choices • Impacts of construction on local road users
Cultural Environment	4%	• Displacement or disruption of built and cultural heritage features or archaeological resources
Engineering/ Constructability	10%	• Key considerations for design and construction • Impacts on existing utilities and need for utility relocation or implementation • Future maintenance
Cost Consideration	15%	• Construction Capital costs • City's operating costs

5.3.2 Summary of Evaluation Process

To provide an impartial, traceable and consistent evaluation, as required by the MCEA process, the following method was used to illustrate the highest and lowest impact of each alternative relative to the evaluation criteria. The alternatives were evaluated against the seven (7) criteria using a five-point scale as summarized below (**Table 5-5**), ranging from most desirable (50) to least desirable (10).

Table 5-5: Evaluation Scale

Rating	Numerical Rating	Colour Code
Most Desirable	50	Dark Green
Better Choice	40	Light Green
Adequate Choice	30	Yellow
Worse Choice	20	Orange
Least Desirable	10	Red

5.3.3 Evaluation Matrix

The Evaluation Matrix (**Table 5-6**) compares the four (4) study alternatives utilizing the evaluation criteria to determine the preferred alternative. A weighted sum was determined for each alternative for each of the seven (7) criteria and then totalled to determine an overall score for each alternative. The alternatives were then ranked, with the highest scoring alternative deemed to be the preferred.

5.3.4 Preferred Solution

Based on the evaluation completed and summarized in **Table 5-6**, *Alternative 2 – All Way Stop Control (AWSC) with Geometric Improvements* is identified as the preferred solution for the intersection of Dorchester Road and Oldfield Road. As evident in the results, *Alternative 4 – Roundabout* comes in a close second for preferred solution. Although the roundabout provides better intersection operation, reduces speeds and addresses peak delays and queues expected in the future, it has greater impacts to utilities and property and has a significantly higher capital construction cost compared to an AWSC intersection with geometric improvements. With the proposed geometric improvements and inclusion of dedicated turning lanes, the AWSC intersection will also be able to address peak delays and queues expected in the future as well as provide active transportation facilities and connectivity.

Table 5-6: Evaluation Matrix

Criteria	Alt 1: Do Nothing	Alt 2: AWSC with Geometric Improvements	Alt 3: Signalized with Geometric Improvements	Alt 4: Roundabout
Vehicular Transportation Criteria Weight: 28%	• Operation of intersection will diminish with future planned developments • Future peak hour delays are expected with eastbound left/through lane having LOS F (2031 & 2041) • Vehicle speed remains unchanged • Geometry of intersection remains unchanged	• Intersection will operate satisfactorily with future planned developments • Future peak hour delays are expected; however, improved with dedicated turning lanes • Dedicated eastbound left turn lane and through lane have LOS D (2031 & 2041) and southbound right turn lane reducing delay by 11 seconds per vehicle • Vehicle speed remains unchanged	• Intersection will operate satisfactorily with future planned developments • Future peak hour delays are minimized (v/c for all movements less than 0.85); however, delays during off-peak hours are increased • Traffic signal justification analysis resulted in low compliance with justification threshold	• Intersection will operate well with future planned developments • Low delays during future peak hours, as well as off peak hours • All movements have LOS A (2031 & 2041) • Statistically the safest type of intersection for all road users • Reduces approach speeds in all directions • Geometry of roundabout controls vehicle speeds • Lowest conflict points for all options
	Worse Choice (5.6)	Better Choice (11.2)	Adequate Choice (8.4)	Most Desirable (14)
Active Transportation Criteria Weight: 28%	• Lacking pedestrian facilities and connectivity • No dedicated facilities for cyclists	• Active transportation facilities provided and connected to existing and planned facilities surrounding study area • Longer crossing distances for pedestrians (crossing 3 lanes of traffic for each approach) • Controlled pedestrian crossings • Designated operating space for cyclists	• Active transportation facilities provided and connected to existing and planned facilities surrounding study area • Longer crossing distances for pedestrians (crossing 3 lanes of traffic for each approach) • Controlled pedestrian crossings • Pedestrians feel safest with signalized crossings • Designated operating space for cyclists	• Shortest crossing distances for pedestrians, pedestrians only have to look in one direction at a time • Designated operating space for cyclists and pedestrians • Statistically the safest type of intersection for all road users
	Least Desirable (2.8)	Better Choice (11.2)	Better Choice (11.2)	Most Desirable (14)
Natural Environment Criteria Weight: 5%	• No impacts to natural areas • No change in stormwater runoff (quality/quantity) • Vehicle idling will affect air quality	• No impact to natural areas • Minor potential impact to roadside vegetation • No negative impact to stormwater runoff (quality/quantity) • Vehicle idling will affect air quality	• No impact to natural areas • Minor potential impact to roadside vegetation • No negative impact to stormwater runoff (quality/quantity) • Vehicle idling will affect air quality	• Minor impact to natural areas • Impact to roadside vegetation • Impact to stormwater runoff (quality/quantity) due to increase in impervious surface • Smoother and more uniform traffic flow will reduce emissions and fuel consumption • Minor impacts to wetlands
	Most Desirable (2.5)	Better Choice (2)	Better Choice (2)	Adequate Choice (1.5)
Socio-Economic Environment Criteria Weight: 10%	• No property impacts • No change in vehicle noise • No opportunity for streetscaping • No connectivity to promote active transportation • No inconvenience due to construction activities	• Potential minor property impacts for grading • No change in vehicle noise • Minor opportunity for streetscaping • Promotes active transportation • Moderate inconvenience during construction with staged lane closures	• Potential minor property impacts for grading • Similar vehicle noise as stop control • Minor opportunity for streetscaping • Promotes active transportation • Unwarranted signal may negatively impact road users • Moderate inconvenience during construction with staged lane closures • Perceived safety of signalized intersection for all road users	• Moderate property impacts/ acquisition to accommodate roundabout on Hydro One and private lands • Vehicle noise lower due to smooth uniform traffic flow • Significant opportunity for streetscaping within central island • Will require public education program to ensure all road users are comfortable with operation of roundabout • Promotes active transportation • Moderate inconvenience during construction
	Adequate Choice (3)	Most Desirable (5)	Most Desirable (5)	Better Choice (4)

Criteria	Alt 1: Do Nothing	Alt 2: AWSC with Geometric Improvements	Alt 3: Signalized with Geometric Improvements	Alt 4: Roundabout
Cultural Environment Criteria Weight: 4%	• No impact	• No impact; maintains all works within disturbed ROW	• No impact; maintains all works within disturbed ROW	• Minor impact outside of ROW; need for Stage 2 AA
	Most Desirable (2)	Most Desirable (2)	Most Desirable (2)	Better Choice (1.6)
Engineering/ Constructability Criteria Weight: 10%	• No issues with existing utilities or construction • Accessibility of regional chambers/manholes remains challenging • Status quo for maintenance • No constructability concerns due to no construction	• Minor utility impacts requiring pole relocations • Accessibility of regional water chamber improved; sanitary manhole remains challenging • Status quo for maintenance	• Minor utility impacts requiring pole relocations • Accessibility of regional water chamber improved; sanitary manhole remains challenging • Will require signal maintenance	• Significant utility impacts requiring pole and hydro vault relocations • Accessibility of regional water and sanitary chambers improved due to location in central island • Will require minor landscaping maintenance (central island) • Grading along northeast quadrant may require retaining wall
	Most Desirable (5)	Better Choice (4)	Adequate Choice (3)	Worst Choice (2)
Cost Consideration Criteria Weight: 15%	• No capital cost • Eventual cost to City to rehabilitate asphalt surface • No operating costs	• Moderate capital cost • No operating costs	• High capital cost • Operating costs of signal infrastructure	• Highest capital cost • No operating costs • Estimated life cycle cost 1.1 times greater than signalized intersection (within recommended 1.5 times threshold)
	Most Desirable (7.5)	Better Choice (6)	Adequate Choice (4.5)	Worst Choice (3)
OVERALL	Although doing nothing is the lowest-cost alternative, it will not address peak hour delays for future conditions or improve active transportation amenities and connectivity	Maintaining the AWSC with geometric improvements improves future peak hour delays with LOS D and active transportation amenities and connectivity; it has minor impact on utilities and no impact on property	A signalized intersection will improve future peak hour delays (v/c < 0.85) but introduce delays during off peak hours; improve active transportation amenities and connectivity, but has a greater capital and maintenance cost than AWSC; transportation assessment results identified signals are not warranted	The roundabout alternative will address peak hour delays (all movements LOS A), provide the best operational performance and improve safety of pedestrians and cyclists, as well as vehicle noise and speeds; however, will have the greatest impact on utilities and property and have the highest capital cost
RECOMMENDATION	**NOT RECOMMENDED (28.4)**	**RECOMMENDED (41.4)**	**NOT RECOMMENDED (36.1)**	**NOT RECOMMENDED (40.1)**
RANKING	**4**	**1**	**3**	**2**

6 CONSULTATION AND COMMUNICATIONS

Public and stakeholder consultation is a key feature of the MCEA process. Through an effective consultation program, the proponent can generate meaningful dialogue between the project planners and the public, property owners, Indigenous communities, authorities, and agencies allowing an exchange of ideas and the broadening of the information base, leading to better decision-making.

6.1 Summary of Consultation Activities

Throughout the project, stakeholders, including the public and property owners, Indigenous communities, authorities, agencies and utilities, were given a variety of opportunities to review and comment on the project process, key findings, proposed alternatives and recommended solution. Numerous consultation activities were undertaken as part of the Study, including:

- Development of a stakeholder contact list, which was updated throughout the Study;
- Communication with Indigenous communities by mail and/or email;
- Development of a page on the City's *Let's Talk* website with Study updates and contact information (https://letstalk.niagarafalls.ca/dorchester-and-oldfield-road-intersection-improvements);
- Project notices;
- Public Information Centre (PIC);
- Consultation with key stakeholders; and
- Public release of this Project File Report.

6.2 Project Notices

6.2.1 Notice of Study Commencement

The Notice of Study Commencement was prepared and issued January 14, 2022. The Notice was published in the *Niagara Falls Review* on January 14 and 21, 2022 and posted on the City's website. Contact letters including the Notice were mailed/emailed directly to relevant stakeholders including Indigenous communities, regulatory agencies, authorities, utilities, and local interest groups. In addition, the Notice was mailed to all residents and property owners in the vicinity of the Study Area.

The purpose of the Notice was to introduce the project (purpose and objectives), outline the MCEA process, request public involvement and identify contact persons. Contact information for the City's Project Manager and Associated's Project Manager were made available to the public to elicit any initial feedback on the project. Several comments were received from interested parties following the distribution of the Notice.

A summary list of the stakeholder register, Notice of Commencement published and mailed to all residents/property owners, and a sample copy of the cover letter sent to stakeholders are provided in **Appendix D**. Received comments and Study Team responses are provided in **Appendix E**.

6.2.2 Notice of Public Information Centre

A Notice of Public Information Centre was prepared and issued June 24, 2022. The Notice was published in the *Niagara Falls Review* on June 24 and 30, 2022 and posted on the City's website. Contact letters including the Notice were mailed/emailed directly to relevant stakeholders including Indigenous communities, regulatory agencies,

authorities, and local interest groups. In addition, the Notice was mailed to all residents and property owners in the vicinity of the Study Area.

The Notice provided a description of the project, details of the PIC, and included a request for comments and input. Contact information for the City's Project Manager and Associated's Project Manager were made available to the public to encourage the submission of comments.

The Notice of PIC published and mailed to all residents/property owners, and a sample copy of the cover letter sent to stakeholders are provided in **Appendix D**.

6.2.3 Notice of Completion

The Notice of Study Completion was prepared and issued June 1, 2023. The Notice was published in the *Niagara Falls Review* on June 1, 2023 and posted on the City's website. Contact letters including the Notice were mailed/ emailed directly to relevant stakeholders including Indigenous communities, regulatory agencies, authorities, utilities, and local interest groups. In addition, the Notice was mailed to all residents and property owners in the vicinity of the Study Area.

The Notice informs the public and stakeholders of the completion of the MCEA and provides the locations where interested parties can review the completed Project File Report (PFR). The notice also informs the public of the 30-day review period associated with the conclusion of the MCEA process.

Subject to comments received as a result of the Notice and the receipt of all necessary approvals, the City intends to proceed with the detailed design and construction as documented in this PFR.

The Notice of Completion published and mailed to all residents/property owners, and a sample copy of the cover letter sent to stakeholders are provided in **Appendix D**.

6.3 Public Engagement

The main opportunities for consultation during Phases 1 and 2 of the Study process included:

- Public Information Centre;
- Release of information on project website; and
- Distribution of notices, letters, and emails at key milestones.

Comments received from in-person and email communications with the public were compiled and considered in the completion of the Study. All comments received and Study Team responses are provided in **Appendix E**.

6.3.1 Public Information Centre

A PIC took place on July 6, 2022, at the McBain Community Centre, 7150 Montrose Road in the City of Niagara Falls, from 5:00pm to 7:00pm to present study details. Representatives of the Study Team from the City and Associated were in attendance to answer any questions that attendees had.

The PIC presented the following elements:

- Background information on the MCEA process;
- Background information on the Study;

- Problem/opportunity being considered for the Study;
- Description of the existing conditions of the Study Area;
- Description of alternative solutions for the Study Area;
- Evaluation of the alternative solutions for the Study Area;
- Identification of the recommended preferred solution; and
- Next steps in the MCEA process.

In addition, all material presented at the PIC was made available on the City's *Let's Talk* website. Through the website, interested parties were able to provide comments on the Study information and alternatives. The public comment period was two (2) weeks, from July 6 to July 21, 2022.

A copy of the PIC display panels, sign-in sheet, and comment form are provided in **Appendix F**. A Summary Report of the PIC is also provided in **Appendix F**.

Comments were received via comment form during the PIC or the proceeding two (2) week comment period from members of the public. Key themes from the comments were identified and are summarized in **Table 6-1** and provided in **Appendix E**. A copy of the response letters from the Study Team are provided in **Appendix E**.

Table 6-1: Public Information Centre Comment Summary

Theme	Comment Summary
Traffic	• Request for further traffic calming measures • Concerns regarding potholes at Dorchester Road & Oldfield Road • Concerns that money could be better used rehabilitating roads and sidewalks • Concerns with heavy truck traffic on Dorchester Road
Active Transportation	• Inquired on active transportation in the area for students travelling to and from school • Comment that a bicycle lane would compliment the new bike / walking trail nearby • Area is not cyclist friendly – wants this to be a priority • For success of active transportation, suggested that large vehicles should be rerouted from Dorchester Road • Suggested that sidewalks should be extended down Dorchester Road to Oldfield Road since walkers use the bike lane
Wildlife	• Further loss of tree canopy and displacement of wildlife / must include walkable paths and bike lanes for access to nature, green spaces, and parks • Concerns regarding environmental and land usage
Signage	• Ensure clear signage and potential arrows or chevrons for trucks and transports down Oldfield Road to Drummond Road • Concerns with too many stop signs and lights in the City

6.4 Consultation with the Ministry of the Environment, Conservation and Parks

An acknowledgement letter was provided from the MECP in response to the Notice of Commencement provided to the MECP West Central Region. Several areas of interest were provided for consideration and have been included in this PFR. The draft version of the PFR was provided to the MECP in March 2023 with subsequent comments provided in April 2023, which were addressed throughout this PFR.

MECP correspondence is provided in **Appendix E**.

6.5 Indigenous Communities Consultation

As required as part of the MCEA process, to satisfy the Crown's legal duty to consult Aboriginal communities, Indigenous communities were contacted at project initiation with the Notice of Commencement. As per the acknowledgement letter provided by the MECP, First Nations contacted included Six Nations of the Grand River Territory, Haudenosaunee Confederacy Chiefs Council, and Mississauga of the New Credit First Nation (MNCFN).

No responses were received from the Indigenous communities. The identified communities will be notified of the PFR release, and the City is committed to working with Indigenous Communities should any issues arise. Continued communication with the identified communities will occur during detailed design and into implementation as required.

All correspondence to the Indigenous communities is provided in **Appendix G**.

7 IMPLEMENTATION OF THE PREFERRED SOLUTION

Based on the feedback received during the PIC, the recommended preferred solution was confirmed and will be progressed to detailed design and construction. This section provides a summary of the key design features and considerations of the preferred solution.

7.1 Intersection Design Features of Preferred Solution

Maintaining the AWSC and providing geometric improvements at the intersection of Dorchester Road and Oldfield Road will include the following:

- Dedicated left turn lane on the southwest approach for northbound vehicles with a minimum storage length of 105m;
- Dedicated right turn lane on the north approach for southwest bound vehicles with a storage length of 30m;
- The north approach (Dorchester Road), and east approach (Oldfield Road) will have an urban cross-section complete with 3.5m wide travel lanes, curb and gutters;
- The southwest approach (Dorchester Road) will maintain a rural cross-section with shoulders and roadside ditching;
- On-road bicycle lanes (1.5m wide) will be provided on the north approach (Dorchester Road) and east approach (Oldfield Road) to tie into bicycle lanes on Dorchester Road and Oldfield Road;
- Sidewalks will be extended on both sides along the north approach (Dorchester Road) to tie into sidewalks constructed as part of Dorchester Road reconstruction being completed by the City and future Millennium Trail head and Fern Park trail;
- The existing sidewalk on the north side of the east approach (Oldfield Road) will be extended to the intersection;
- To accommodate future active transportation along the southwest approach (Dorchester Road), on-road bicycle lanes (1.5m wide) have been included; confirmation of active transportation facility types (bike lanes and sidewalks) will be made at the time of road upgrades along Dorchester Road;
- Crosswalks, including proper sidewalk ramps and tactile warning plates in accordance with AODA and TAC requirements, will be provided on the north approach and southwest approach (Dorchester Road); and
- The south approach, which is a private driveway access, will also function as a stop-control approach.

Preliminary plan drawings of the preferred solution are provided in **Appendix H**.

7.2 Linear Infrastructure

Within the Study Area, there are existing municipal services and underground infrastructure owned by the City as well as the Region of Niagara as identified in **Section 4.4.2**.

The City has not identified the need to replace any of the existing underground infrastructure within the Study Area. The Region has indicated that the trunk sanitary sewer will undergo rehabilitation in the near future, while the isolation valves in the existing valve chamber require replacement. Coordination with the Region during detailed design will occur to confirm works and coordinate timing with the proposed intersection works.

Drainage improvements will be required as part of the intersection works. It is anticipated that the roadside ditches will be maintained along the southwest approach (Dorchester Road) and convey runoff as per the existing drainage

patterns. New culverts will be installed to suit the intersection works. The north approach (Dorchester Road) and east approach (Oldfield Road) will require adjustment of existing catchbasins to suit the new road works.

7.3 Utilities

Potential impact to utilities will be evaluated during detailed design, including the need for either temporary or permanent relocation. Coordination will occur throughout detailed design and construction with all affected utilities to confirm conflicts, relocations and/or proximity guidelines.

Upon initial review of the existing utilities and proposed works, it is anticipated that the following impacts to utilities will need to be addressed:

- Existing hydro poles owned by Niagara Peninsula Energy will require relocation;
- Existing street lighting poles owned by the City will require relocation; and
- Shared utilities on relocated hydro poles will need to be relocated.

7.4 Property Requirements

The proposed intersection improvement works are anticipated to be constructed within existing property limits. No private property acquisition is expected. However, as detailed design progresses if property acquisition is required, the City will coordinate requirements with the private property owner(s). Any private property disturbed as a result of construction will be restored to their current state.

Temporary construction easements may be required on Hydro One lands, to facilitate the construction of the intersection works. Coordination with Infrastructure Ontario (IO) will occur during detailed design, as required.

7.5 Construction Staging and Phasing

Construction staging and traffic management plans for the intersection works will be developed during detailed design. Initial construction ahead of the intersection works may involve utility relocations. It is expected that construction of the intersection works will require lane closures and periodic short-term full road closures for certain construction operations; however, full road closures will be kept to a minimum. As part of the construction contract, the successful contractor will be required to prepare full traffic management plans to ensure that the public and emergency vehicles can traverse the area at all times.

Coordination with other area construction projects that may be proceeding at the same time will be required.

7.6 Proposed Construction Schedule and Cost Estimate

Upon completion of the MCEA study, the following schedule has been tentatively identified:

- Detailed Design – 2024
- Utility Relocations – Fall 2024
- Project Tendering – Spring 2025
- Construction – 2025

The preliminary cost estimate to implement the preferred solution is approximately $1 Million. This estimate includes road works, underground linear infrastructure works and utility relocations; however, this estimate excludes

property acquisitions, if required. See **Appendix I** for details of the preliminary cost estimate.

7.7 Detailed Design Commitments and Considerations

This section provides a list of specific commitments to be carried forward into Phase 5 of the MCEA process – Implementation Phase (i.e. completion of contract drawings and tender documents, construction and operation and the monitoring for environmental provisions and commitments). Additional works to be completed during the detail design phase of this project, prior to construction, include but are not limited to, the following:

- Confirm design criteria for intersection;
- Finalize alignments, cross-sectional details and all associated appurtenances (i.e.: signage, pavement markings, surface treatment, etc.);
- Complete geotechnical investigation;
- Complete excess soil planning and management in accordance with O.Reg. 406/19 and the MECP's guidance document *Management of Excess Soil – A Guide for Best Management Practices*;
- Identify potential detour routes and construction staging/phasing of the proposed works;
- Confirm and obtain required approvals and necessary permits;
- Coordinate with the Region of Niagara planned underground infrastructure works with intersection works;
- Confirm utility impacts and relocation requirements, and coordinate relocation designs, schedule, and cost with affected utility agencies;
- Identify property impacts, and coordinate need for temporary construction easements with Infrastructure Ontario (IO), if required;
- Develop a Communication Plan to communicate the intersection improvement construction to affected stakeholders and the public;
- Consult with emergency service providers, transit providers, and school transportation services regarding impacts of construction on service routes and develop alternative routes, as necessary;
- Finalize capital cost estimate(s) of the project; and
- Ensure construction is coordinated with other planned and ongoing activities in the vicinity of the Study Area by the City, Region and private developers.

7.8 Approval Requirements

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

- Portions of the Study Area fall within NPCA regulatory lands; therefore, additional consultation and permitting may be required under Ontario Regulation 155/06.

8 POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES

This section describes the potential effects on the environment as a result of the undertaking and the mitigation measures and commitments made to either minimize or offset these effects. Mitigation of potential effects was considered throughout the MCEA process; however, despite efforts to reduce effects, not all can be avoided. It is expected that the recommended mitigation measures will be further refined during detailed design of the project.

8.1 Transportation

The proposed intersection improvements at Dorchester Road and Oldfield Road support the transportation goals of the MCEA project. The incorporation of active transportation facilities and improved pedestrian facilities will improve safety for pedestrians and cyclists. The inclusion of dedicated turn lanes at the intersection will improve traffic delay and operation of the intersection. The geometric improvements will improve safety and sight lines at the intersection.

During construction, there will be numerous transportation impacts including traffic delays, detours, short-term obstruction of entrances/driveways and disruption to pedestrian/cyclist movements. To help alleviate these impacts the following mitigation measures are proposed:

- Prepare Construction Phasing Plan and Detour Plan during detailed design to be included in contract package;
- Ensure successful contractor develops a Traffic Management Plan including adequately signed detour route(s);
- Develop a Communication Plan during detailed design that will be followed during construction identifying who, when and how the public and stakeholders will be notified of road closures and detours;
- Inform property owners adjacent to the Study Area prior to construction;
- Consult with school transportation providers and transit providers and inform them of construction phasing and detour routes in advance and throughout construction;
- Consult with emergency service providers and inform them of construction phasing and detour routes in advance and throughout construction; and
- Maintain continuity of pedestrian walkway system as much as possible.

8.2 Natural Environment

Based on the Study Area, the proposed works will occur mostly within the existing ROW limits. The proposed works may result in minor encroachment into the edge of the wetland (thicket/swamp communities), which may include the removal of individual edge trees (to be confirmed during detailed design). Potential impacts to the overall function of these communities are not expected. Potential loss of edge areas and potential additional impacts associated with runoff and sedimentation are the primary concern and therefore, erosion and sediment control will be necessary.

Potential impacts to SAR and wildlife due to construction activity include minor impacts to potential habitat and individuals. The primary concern for SAR impacts is associated with the PSW and unevaluated wetland. In these areas, construction activities such as vegetation removal, grading, use of machinery, noise/activity, and other nearby disturbances, should be avoided and/or minimized to the greatest extent feasible. Impacts to wildlife are associated with construction works and are therefore considered short-term. If the proposed activities cannot avoid impacting protected species and their habitat then an authorization under the *Endangered Species Act* would be required.

During detailed design, mitigation measures will be detailed and coordinated. These measures typically include standard mitigation to be applied across the whole Study Area, as well as site-specific measures. Specific mitigation measures applicable to the environmental conditions of the preferred alternative will be finalized during the detailed design stage. The following general mitigation and enhancement measures are recommended for consideration through subsequent design phases:

- To minimize the potential for erosion and off-site transport of sediment into surface water features and the natural environment, the project will implement Best Practices related to erosion and sediment control (ESC). ESC measures used by the contractor on all construction should meet guidelines as outlined in the *Erosion and Sediment Control Guideline for Urban Construction*, December 2006 (ESC Guideline) (Greater Golden Horseshoe Conservation Authorities, 2006).
- Environmental protection, specifically ESC fencing, will be installed along the limits of the construction area at predetermined sensitive areas prior to the commencement of construction (includes prior to vegetation removal).
- Where feasible and necessary, trees proposed to be retained will be protected by tree protection fencing (TPF), which is to be placed at the dripline or in a location to minimize encroachment into the root zone and protect the trunk. Fencing provides protection from potential damage during construction activities such as the use of machinery near trees and branches, and stockpiling of materials over the root zone. ESC fencing can be combined with TPF.
- All ESC measures will be inspected for placement and installation prior to commencement of any construction activities.
- Vegetation clearing (including tree removals) should not occur between April 1 to September 30, to avoid the breeding bird season and the maternity roosting period for Endangered Bats. Vegetation clearing outside of the breeding bird season (generally late April to late July) will prevent nest destruction, complying with the *Migratory Birds Convention Act*. The winter season, during frozen ground conditions, is the ideal period for tree and vegetation removal, as feasible. In the event that tree removal must occur within the breeding bird window a qualified biologist must screen the area. Clearing in identified nesting areas would be prohibited until such time that it has been confirmed that the young have fledged. If tree removals need to occur within the maternity roosting period for Endangered Bats (April 1 to September 30), a qualified ecologist must screen for potential snag trees that may be used for roosting; further investigation may be required should potential roost trees be identified.
- Prior to work near any type of open water wetland, if construction activities occur within the period of April to July, areas with standing water that may support amphibians are to be protected with ESC fencing.
- In the unlikely event that SAR are encountered, work will stop and the MECP will be contacted for direction.
- All activities, including the maintenance of construction machinery, should be controlled to prevent the entry of petroleum products, debris, rubble, concrete or other deleterious substances into the natural environment. Refueling should not occur within 30 m of the wetland communities.
- All exposed and newly constructed surfaces are to be stabilized using appropriate means in accordance with the characteristics of the exposed soils and adjacent lands. These surfaces should be fully stabilized and re-vegetated as quickly as possible following the completion of the works.
- Construction practices to control the spread of invasive species will be implemented.

8.3 Air Quality, Dust and Noise

Impacts of air quality during project construction are not considered to be significant. Although dust impacts from heavy construction equipment may impact air quality, this is not a recurring activity as it will be limited to the

construction period. Contract provisions will minimize impacts to adjacent properties during construction. Therefore, the impacts from construction on air quality are not considered significant.

Provisions to minimize air quality impacts during construction include removal of construction-caused debris and dust through regular cleaning and maintenance of construction sites and access roads; dust suppression using non-chloride dust suppressants on unpaved roads, subject to the area being free of sensitive plant, water, or other ecosystems that may be affected by dust suppression chemicals; and prompt cleaning of paved streets/roads where tracking of soil, mud or dust has occurred.

There will be construction noise generated during the intersection improvement works due to the required use of heavy machinery and other construction equipment. Measures will be taken to manage construction noise including maintaining equipment to prevent unnecessary noise. Any initial noise complaint will trigger verification that noise control measures are in effect. If persistent noise complaints occur, alternative noise control measures will be considered. Mitigation measures to minimize the potential for construction noise impacts will be written into the contract documentation for the contractor and include:

- There should be explicit indication that Contractors are expected to comply with all applicable requirements of the contract and local noise by-laws.
- 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.
- 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.
- Idling vehicles will be kept to a minimum.
- In the presence of persistent noise complaints, all construction equipment should be verified to comply with MOE NPC-115 guidelines.

8.3.1 Surface Water

During construction there is a potential impact to surface water quality due to sedimentation and through the introduction of harmful substances to the storm collection system and natural environment. To mitigate this construction impact, an erosion and sediment control plan (ESCP) will be developed. This plan will include measures for managing fuel, excess materials, debris, and water flows into and out of the site appropriately.

8.4 Socio-Economic and Cultural Environment

The proposed intersection improvement works will result in temporary disruption and/or inconvenience to users of the roadway and adjacent properties. Construction impacts include traffic delays and infiltration of traffic into surrounding neighbourhoods due to delays and/or detours. During detailed design, potential detour route(s) will be reviewed and finalized and presented to the public prior to construction.

Methods to mitigate disruptions to property owners will include detailing a construction phasing/detour plan. The plan will consider minimizing periods of disruption to property owners. During construction, property owners will be notified well in advance of road closures and detours, if required.

8.4.1 Archaeological Potential

Based on the Stage 1 Archaeological Assessment, implementation of the preferred solution should not impact areas identified having archaeological potential. However, if these areas are determined to be impacted during detailed design, a Stage 2 archaeological assessment by test pit survey at five metre internals will be required, prior to construction activities.

During construction, in the event that archaeological resources or remains are found, alteration of the site must cease immediately, and a licenced consultant archaeologist must be notified to carry out archaeological fieldwork, in compliance with sec. 48(1) of the *Ontario Heritage Act*. The contract for this work should include a provisional item for Archaeological findings and the Contractor must be aware of the protocol to be followed should resources be encountered.

More information is provided in the completed Stage 1 Archaeological Assessment report in **Appendix C**.

8.5 Climate Change Considerations

Climate change is an issue that has and continues to evolve on a global scale. Governments at all levels are acknowledging the need to take actions that reduce greenhouse gas (GHG) emissions into the atmosphere to mitigate the effects of climate change. Project impacts and resiliency to climate change were taken into consideration during the study. Considering how a project contributes to climate change, through its greenhouse gas emissions or its effects on the natural environment, is important to the planning process as it allows proponents to consider climate mitigation measures to avoid, minimize, or offset such effects. As well, considering how climate change may affect a project, such as through increased flooding or drought, is also critical to the planning process through enabling proponents to make informed decisions around how to design a project to withstand such environmental conditions. Approaches for considering and addressing climate change in project planning are through 1) Reducing a project's effect on climate change; and 2) Increasing the project's resilience to climate change.

Upon review of this Study's undertaking, it is determined that the project is minor in scale and will not have significant climate change impact. However, key elements that were/will be factored into the intersection improvements and related infrastructure improvements that could serve to reduce the overall effect on climate change include:

- GHG reduction initiatives including reduced use of GHG producing materials, specifying local materials to reduce related fuel consumption, and inclusion of recycled materials, where feasible;
- Provision of active transportation features in the preferred solution. Encouraging active transportation through increased pedestrian and cyclist facilities supports the reduced use of vehicular traffic and GHG emissions; and
- Improving traffic delay will reduce vehicle idling and GHG emissions.

8.6 Construction Considerations

In summary, the following potential environmental impacts may occur during the construction phase. As such, the following measures detailed in **Table 8-1** are proposed to mitigate any adverse impacts.

Table 8-1: Construction Impacts and Proposed Mitigation Measures

Construction Impacts	Proposed Mitigation Measures
Traffic delays	• Prepare construction phasing plan/detour plan
Obstruction to entrances/driveways	• Inform property owners prior to construction
Delayed response time of emergency service vehicles	• Consult with emergency service providers and inform them of construction phasing and/or detour routes in advance and throughout construction
Disruption of pedestrian movements through Study Area	• Maintain continuity of pedestrian walkway system as much as possible • Provide alternative walkway routes where necessary
Approval and coordination with affected utilities	• Conflicts with utilities will be reviewed during the detailed design phase • Relocation or protection of utilities will be required
Air quality impacts from construction equipment	• Develop a dust control plan, use water, and dust suppressants during construction, keep idling of construction equipment to a minimum, address and monitor air quality complaints
Noise disturbance to residents	• Develop a noise control plan, construction must conform to Municipal Noise By-Laws, keep idling of equipment to a minimum, address and monitor noise complaints
Temporary disruption and/or inconvenience to users of the roadway	• Notify public of construction scheduling and detours/road closures • Schedule construction so as to minimize period of disruption
Impacts to surface water quality due to sedimentation and introduction of deleterious substances to storm collection system/natural environment	• Develop an Erosion and Sediment Control Plan (ESCP), include measures for managing water flows into and out of the site, manage fuel, excess materials, and debris appropriately

8.7 Monitoring and Maintenance

The mitigation measures identified in this report shall be written into the contract specifications. During construction, the City's contract administrator shall ensure that full-time monitoring/inspection of the project works be undertaken to ensure that all environmental commitments identified in this report are adhered to by the Contractor(s) and other subsequent agency approvals are met. After a period of one year following completion of the construction (i.e. post construction), a final inspection should be undertaken to ensure the effectiveness of the identified mitigation measures.

Recommended effects monitoring during the construction period includes:

- Monitoring of traffic flow to ensure the minimization of delays;
- Public complaints monitoring and follow-up regarding construction disturbances;
- Monitoring of vegetation removal; and
- Monitoring of the effectiveness of SWM controls to ensure erosion and sedimentation effects are minimized.

9 CONCLUSIONS AND RECOMMENDATIONS

This study was carried out as a Schedule B project under the Municipal Class Environmental Assessment (MCEA) for Municipal Transportation Projects and is subject to the requirements of the *Environmental Assessment Act*. This document provides relevant information with respect to Phases I and II of the Environmental Assessment Process. Subsequent phases of the process will involve completion of contract drawings and documents for all proposed works together with appropriate monitoring requirements.

9.1 Conclusions

The intersection of Dorchester Road and Oldfield Road is a three-legged intersection with an all-way stop control (AWSC) and experiences a typical daily traffic volume of approximately 3,000 vehicles (2021). Based on the findings of the transportation assessment for the intersection, traffic volumes are expected to increase significantly in the future due to planned development (Riverfront Community) and projected growth within the area. Under future traffic volumes, capacity issues and traffic delays are expected at the intersection with various traffic movements experiencing a failing Level of Service (LOS). Along with operational issues, the existing intersection lacks active transportation facilities and connectivity as well has an unconventional geometric layout.

The City of Niagara Falls initiated a MCEA study to determine the optimal solution to improve future traffic operations, accommodate future development in the area, improve active transportation facilities and connectivity to existing and planned facilities, and continue to accommodate transit and large vehicles from the industrial properties to the southwest ensuring the safety of all road users.

The preferred solution includes maintaining the intersection as an all-way stop control (AWSC) with geometric improvements. Key features of the preferred solution include:

- Dedicated left turn lane on the southwest approach for northbound vehicles and dedicated right turn lane on the north approach for southwest bound vehicles;
- On-road bicycle lanes (1.5m wide) on the north approach (Dorchester Road) and east approach (Oldfield Road) to tie into bicycle lanes on Dorchester Road and Oldfield Road;
- Sidewalks extended on both sides along the north approach (Dorchester Road) and the existing sidewalk extended on the north side of the east approach (Oldfield Road);
- Inclusions of on-road bicycle lanes (1.5m wide) to accommodate future active transportation along the southwest approach (Dorchester Road); and
- Crosswalks, including proper sidewalk ramps and tactile warning plates in accordance with AODA and TAC requirements, provided on the north approach and southwest approach (Dorchester Road).

The preliminary design of the intersection improvements has been prepared for the preferred solution. Following the completion of the MCEA study, detailed design, permitting and construction will be undertaken to implement the preferred solution and remedy the identified problems.

9.2 Recommendations

During the MCEA study, recommendation for additional works and implementation measures were identified. These items should be taken into consideration during the detailed design and include, but are not limited to, the following items:

- Confirm design criteria for intersection;
- Finalize alignments, cross-sectional details and all associated appurtenances (i.e.: signage, pavement markings, surface treatment, etc.);
- Complete geotechnical investigation;
- Complete excess soil planning and management in accordance with O.Reg. 406/19 and the MECP's guidance document *Management of Excess Soil – A Guide for Best Management Practices*;
- Identify potential detour routes and construction staging/phasing of the proposed works;
- Confirm and obtain required approvals and necessary permits;
- Coordinate with the Region of Niagara planned underground infrastructure works with intersection works;
- Confirm utility impacts and relocation requirements, and coordinate relocation designs, schedule, and cost with affected utility agencies;
- Identify property impacts, and coordinate need for temporary construction easements with Infrastructure Ontario (IO), if required;
- Develop a Communication Plan to communicate the intersection improvement construction to affected stakeholders and the public;
- Consult with emergency service providers, transit providers, and school transportation services regarding impacts of construction on service routes and develop alternative routes, as necessary;
- Finalize capital cost estimate(s) of the project; and
- Ensure construction is coordinated with other planned and ongoing activities in the vicinity of the Study Area by the City, Region and private developers.

Prior to construction, a final PIC will be held to provide information to the public and adjacent property owners and businesses of the upcoming construction work including construction schedule, construction staging, and implementation details.

CLOSURE

This report was prepared for The City of Niagara Falls to satisfy the requirements of the MCEA process and *Environmental Assessment Act* and to set the stage for the detailed design and construction of the Preferred Solution for the Study Area discussed herein.

The services provided by Associated Engineering (Ont.) Ltd. in the preparation of this report were conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty expressed or implied is made.

Respectfully submitted,
Associated Engineering (Ont.) Ltd.

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