City of Belleville
Sidney Street/College Street West Intersection Improvements and Sidney Street Widening Class Environmental Assessment and Preliminary Design

Draft Study Design Report

September 2018

BT Eng Project 18-033

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1.0 Study Introduction

The City of Belleville has initiated this Municipal Class Environmental Assessment (EA) for the Sidney Street and College Street West intersection widening and for the widening of Sidney Street from College Street West southerly to the CN Rail Bridge. This Study will provide recommendations to implement the preferred option including cross section alternatives, intersection alternatives, active transportation alternatives, and drainage. The EA will determine the property acquisition required to implement the project.

This report, the initial public document for the Municipal Class EA, presents a description of the work plan, alternatives, consultation plan and overall study process. It will define the key activities required to complete the study and outline the EA planning process. The draft Study Design will be circulated at the initiation of the study to various agencies, to the study's Technical Advisory Committee (TAC) and be available to the general public on the City's website.

1.1 Study Area

The Study Area is located in the City of Belleville, as illustrated in **Figure 1**. The Study Area includes the Sidney Street/College Street West intersection, technical investigations and environmental inventories will be focused within this Study Area, and the location where construction is anticipated.

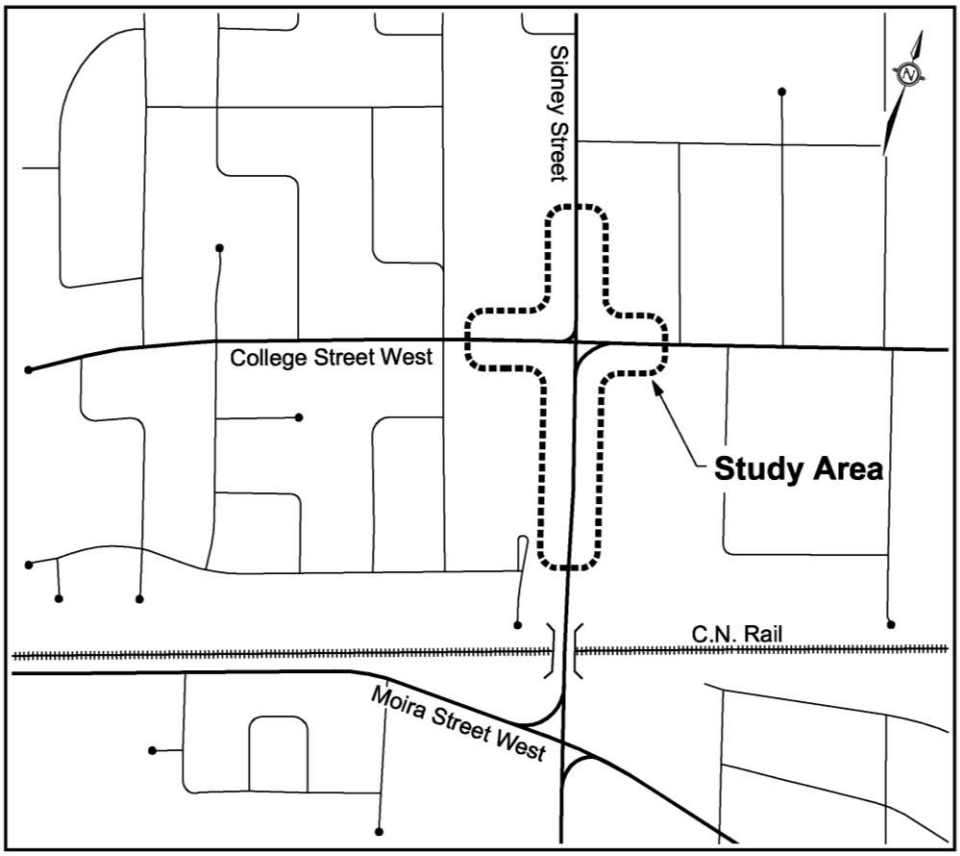

Figure 1: Study Area

2.0 Study Approach

This Study will be completed as a Municipal Schedule B EA Study meeting the requirements of the Municipal Class EA. The final document will be a Project File.

This project will complete all requirements under the Municipal Class EA by establishing the need and justification for the project, considering all reasonable alternatives with acceptable effects on the natural, social and cultural environments, and proactively involving the public in defining a Recommended Plan. Should the project trigger federal approvals, the documentation will include the planning process and recommended mitigation measures to satisfy federal requirements in principle.

2.1 Guiding Principles

The study approach includes the following Ministry of the Environment, Conservation and Parks (MECP) five guiding principles for EA studies, namely:

- Consider all reasonable alternatives;
- Provide a comprehensive assessment of the environment;
- Utilize a systematic and traceable evaluation of net effects;
- Undertake a comprehensive public consultation program; and
- Provide a clear and concise documentation of the decision-making process and the public consultation program.

2.2 Environmental Assessment Act Requirements

The Study will follow the Class EA process, thereby meeting the requirements of the Municipal Class EA (MEA October 2000 as amended in 2007, 2011 and 2015). The study is initiated as a Municipal Schedule B study, based on the range of anticipated effects and capital cost of the study.

This Schedule B project will include two Public Information Centres (PIC's) and conclude with the preparation of a Project File. Following this approach, the public will be provided a 30-day review period at the Study conclusion. As the initial step in the Class EA process this Study Design is made available to the public. This also achieves discretionary Step 1.2 of the Municipal Class EA process, as illustrated in **Figure 2**. The public and agencies will have this initial opportunity to comment on the proposed approach.

2.3 EA Phases

The Municipal Class EA Process is illustrated in **Figure 2**.

The following is the breakdown of tasks, by phase, for a Municipal Schedule B project:

Phase 1: Identify the Problem

Step 1: Identification and description of the problem or opportunity.

Step 2: Discretionary public consultation (Draft Study Design available on the City's website).

Phase 2: Alternative Solutions

Step 1: Identification of alternative solutions to the problem.

Step 2: Identify the study area and a general inventory of the natural, social and cultural environments.

Step 3: Identification of the net positive and negative effects of each alternative solution.

Step 4: Review and validation of alternative solutions.

Step 5: Consultation with review agencies and the public to solicit comment and input (PIC No.1).

Step 6: Selection or confirmation of the preferred solution to the problem or opportunity.

Phase 3: Alternative Design Concepts for the Preferred Solution

Not applicable for Schedule B projects

Phase 4: Environmental Study Report

Not applicable for Schedule B projects

Phase 5: Implementation

This will be a future phase after this EA Study.

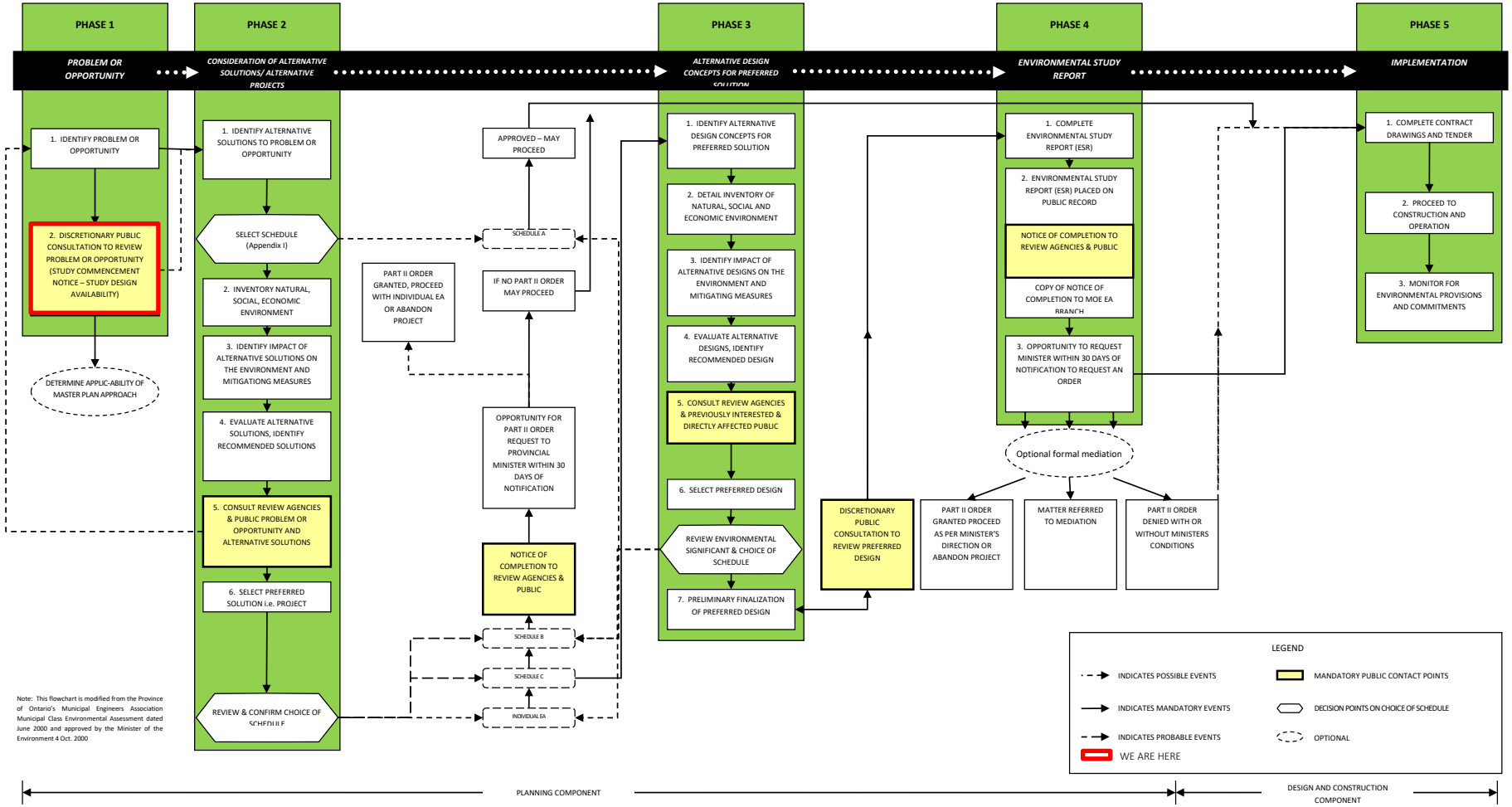

Figure 2: Municipal Class EA Process

3.0 Study Process

3.1 Public Consultation Approach

The study will use several techniques to proactively involve the public including two PICs and meetings with external agencies. Meetings will be organized with the stakeholders and may include adjacent land owners, MECP, Ministry of Tourism, Culture and Sport (MTCS), Ministry of Natural Resources and Forestry (MNRF), Quinte Conservation Authority (QCA), Indigenous Peoples, and other affected agencies. These meetings will be in addition to the progress meetings with the Technical Advisory Committee (TAC). These meetings will include representatives from the City of Belleville as a minimum.

The use of separate meetings with interest groups will ensure a high level of communication with the community, about potential issues and alternatives assessed.

Two PIC's will be held. The first public event will present the Draft Study Design, study goals, problem and opportunity statement, environmental inventories, traffic analysis and assessment of Planning Solutions. The second PIC will present the evaluation of alternatives and the Technically Preferred Alternatives for improvements. The PICs will be an integral component of the study - seeking input and comments from the public and stakeholders.

With respect to public involvement, the work program proposes the following key elements:

- Study commencement notice and PIC notices presented in the local newspaper.
- Maintaining and updating study mailing lists.
- Submission and review of a Draft and Final Study Design Report (Scoping Document), available on the City's web site for public review.
- The PICs will present the project Problem and Opportunity Statement, Draft Study Design (Work Plan), environmental evaluations, assessment of Planning Solutions and the Technically Preferred Alternative (TPA) for the corridor improvements. The consultant and City will be available to answer any questions or concerns during each PIC.

3.2 Work Program

The major elements of our technical work program include the following:

Task 1: Project Start-Up

Upon initiation of the project, we will meet to review study scope, budget and schedule, establish membership, meeting dates and role of the TAC and prepare all required agreements. The TAC will provide guidance into the technical elements of the study including the study issues, data collection, and weighting of factors and the evaluation of alternatives (see **Task 7**). A Consultation Plan will be prepared to describe the EA Process and consultation programme for the study, including a study mailing list which will be maintained throughout the project for agencies, stakeholders, Indigenous

Peoples and the public. The Notice of Study Commencement will be prepared for the City to place in the local newspaper and on their website.

Task 2: Information Gathering

The collection and organization of the data necessary for the analysis, evaluation and design activities will include:

- Assembly and review of study materials;
- Field reviews to assess aquatic and terrestrial habitat, general SAR inventories, and the collection of photographs to maintain a visual record of existing conditions;
- Collect reports and modelling data/output from the City's Transportation Master Plan;
- Review the Official Plan, relevant Official Plan Amendments and Secondary Plans;
- Gather existing natural/social environmental inventories and stormwater reports; and,
- Review of existing and projected traffic volumes and collision data as identified in any area traffic studies and the TMP.

Task 3: Transportation Analysis

The transportation analysis will involve the following key tasks:

- An initial review of the previous traffic modelling activities. Our team will provide an independent and objective professional assessment of the need and justification, which will be summarized in the Problem Statement;
- Documentation of existing profile of road users including all modes of travel (vehicular, bicycles, pedestrians and emergency services);
- Analysis of forecast traffic demands and future projections, and identification of level of service/forecasting and collision analysis for roadway links and intersections (building and documenting on previous forecasts) for land use development;
- Establish design criteria as required;
- Assessment of performance for each alternative (traffic operation and safety);
- Confirmation of the need and justification for roadway improvements and timing; and
- Identification of interim improvements required in the short term horizon.

Task 4: PIC No. 1

The first public event will be held as an early PIC for the public and stakeholders to attend. This format will allow open discussion with stakeholders as an event before the study presents any conclusions. The first PIC will present the Problem Statement, preliminary analysis of Planning Alternatives, draft property acquisition policy and interim improvements to the public. Preliminary recommendations for a basket of solutions will be presented.

A Notice for each PIC will be prepared for the City to place in the local newspaper and on their website and letters will be mailed.

Task 5: Inventory of Natural, Social and Cultural Environment

Social Environment: Areas of investigation will include existing and proposed land uses, land use policies and regulations, aesthetics, recreation facilities, and links with pedestrian and cycling facilities. The community plan of the existing and future land uses will be documented and form the baseline from which alternatives will be measured. This is expected to include dialogue with major land owners in the Study Area.

Natural Habitat Assessment: A desktop review of the natural habitat will be conducted and documented in the Project File. An inventory of Species at Risk (SAR) and their habitat will be completed.

Cultural Heritage: No designated heritage properties are located within the Study Area. A self-assessment REA checklist will be completed to consider the potential for heritage resources, including a field visit to assess the corridor for heritage potential.

Task 6: Technical Investigations

Utility Coordination: The design will be coordinated with utility companies to determine location and if relocation will be required. A utility composite plan will be completed.

Illumination: PHM-125 drawings will be prepared for the Sidney Street/College Street West intersection and, if a signalized intersection is recommended, for a new intersection at the Police Station/residential development entrances.

Geotechnical: BTE will be responsible for preparing a Terms of Reference for a Request for Quotations (RFQ) using the City's standards. BTE will contact a minimum of three geotechnical firms for quotes to undertake the geotechnical investigations.

Topographical Survey: BTE will verify the accuracy and completeness of the City's existing topographical surveys for any deficiencies, and update and supplement the survey information provided by the City.

Task 7: Development, Analysis and Evaluation of Alternatives

The consideration of all reasonable alternatives is a guiding principle for EA studies. Alternatives will be reviewed by the City.

The alignment, cross section, and intersection alternatives will be generated through discussions with the City, agencies and the general public. The list will be confirmed with the public, as required as part of the EA process, including the "Do Nothing" option.

Evaluation of Alternatives

This study will use a qualitative evaluation process and the Technically Preferred Alternative(s) will be presented to the public at PIC No. 2.

Task 8: PIC No. 2

The second PIC will present the qualitative evaluation of alternatives and preliminary preferred design (both intersections) to the public to receive feedback on the recommendations.

Task 9: Preparation of Project File

The preparation of the draft and final report will follow the format and content for a Project File accepted by MECP. The Project File will document the study methodology, findings, public involvement and recommendations. A draft version will be submitted to the City and external review agencies prior to the preparation of the final document. Presentations will be made to City Council.

Task 10: Public Review of Project File

A Notice of Study Completion will be prepared for the City to place in the local newspaper and on their website. The Consultant will be responsible for mailing letters to the mailing list. The public will be notified of the availability of the Project File for review. We will exceed the requirement of the Class EA by sending individual letters (or emails) to persons/ organizations on the contact lists maintained throughout the course of the studies. The Project File will be made available at several convenient locations for the public review. Allowance has been made for provisional consultation during the public review period to potentially address unforeseen concerns in an effort to expedite approvals.

Task 12: Preliminary Design

Preliminary drawings will be prepared, including plans, profiles, cross sections, utilities, constructability and staging, lighting and property. A composite utility plan will be created and sent to utility companies for review and input. It will also identify the need for temporary works and diversions during future construction. Cost estimates will be detailed for all design alternatives including life cycle costs.

Preliminary Design Development: The roadway and linear infrastructure designs will be generated through discussions with the City. The design considerations will include:

- Circulation to Utilities and identification of any necessary relocations;
- Review vertical and horizontal alignment, geometric design, TAC Guidelines, active transportation, grading and drainage, signage and speed limits;
- Review consistency of road and right-of-way (ROW) widths;
- Review and provide a recommendation for intersections;
- Depth of existing linear infrastructure;
- Service life of existing pavement structure; and
- Property impacts and requirements for road widening and easements.

3.3 Study Schedule

A draft schedule for this Study is shown below in **Table 1**.

Table 1: Draft Study Schedule

Tasks	Dates
Project Start-Up Meeting	September 2018
Information Gathering	September 2018
Study Design	September 2018
Study Commencement Notice	September 2018
Transportation Analysis	September – October 2018
PIC No. 1	October 2018
Technical Investigations	October 2018
Development of Alternatives	November – December 2018
Analysis and Evaluation of Alternatives	December 2019
PIC No. 2	January 2019
Preparation of Project File	Winter 2019
Public Review of Project File	Spring 2019
Preliminary Design	November 2018 to April 2019

4.0 Assessment of Planning Solutions

Alternative Planning Solutions represent alternative ways or methods of addressing the problem to be solved by the project. These reflect different strategies and include the "Do Nothing" approach (maintaining the status quo). Following the assessment of Alternative Planning Solutions, those alternatives judged to address the problem statement will be carried forward to form the Recommended Planning Solution. The recommended planning solution will address the safety of the travelling public, while providing the best overall balance between engineering objectives, life cycle costs, and other environmental, cultural, socio-economic, and land use planning objectives.

4.1 Preliminary Alternative Planning Solutions

In determining the preferred planning alternative for the City, Alternative Planning Solutions were developed and analyzed including:

1) Do Nothing,
2) Transportation Demand Management,
3) Limit Development, and
4) Provide New or Improved Transportation Infrastructure.

The "Do Nothing" Alternative – The Do Nothing Alternative must be considered, as mandated by the Class EA. It represents a baseline from which other approaches can be compared. This alternative does not provide improvements to vehicular or active transportation. It has no capital cost or environmental effects, and does not support the objectives of the study.

Transportation Demand Management (TDM) – This strategy would reduce vehicular demand, and encourage alternative work hours, work at home, more active modes of transportation (cycling and walking) and the use of transit. This alternative is not recommended to be carried forward as a standalone solution, and is considered as a complementary solution to the solution carried forward.

Limit Land Use Planning – This strategy would be an approach that would limit any new residential, commercial or industrial development and therefore reduce the generation of new trips. This alternative does not provide a solution for existing delays and safety concerns, on the existing transportation network. In addition, restricting development does not align with the City's planning objectives.

Provide New or Improved Transportation Infrastructure – This strategy would be to improve the existing Sidney Street/College Street West intersection to accommodate active transportation and to widen Sidney Street. This solution is consistent with the City's Official Plan.

4.2 Preliminary Assessment of Planning Solutions

Based on existing and projected traffic demands, the "Do Nothing" and Limit Land Use Planning alternatives are not recommended to be carried forward. These alternatives do not provide a solution to the existing traffic demand or roadway condition.

TDM is not carried forward as a standalone solution, but will be incorporated with the Provide New or Improved Transportation Infrastructure alternative as a Recommended Solution.

Provide new or improved infrastructure is recommended to be carried forward as the preferred planning solution. The Preliminary design alternatives are described in **Section 5.0**.

5.0 Preliminary Design Alternatives

Preliminary design alternatives are site specific design solutions, generated to implement the recommended planning solution.

The extensive list of preliminary design alternatives includes:

Alignment Alternatives

Three alignment alternatives are considered for the widening of Sidney Street including:

- Alternative 1: Widening to the east
- Alternative 2: Widening on the centre
- Alternative 3: Widening to the west

Cross-Section Alternatives

Preliminary cross-section alternatives were developed, as illustrated in **Figure 3** to **Figure 5**. The alternatives include:

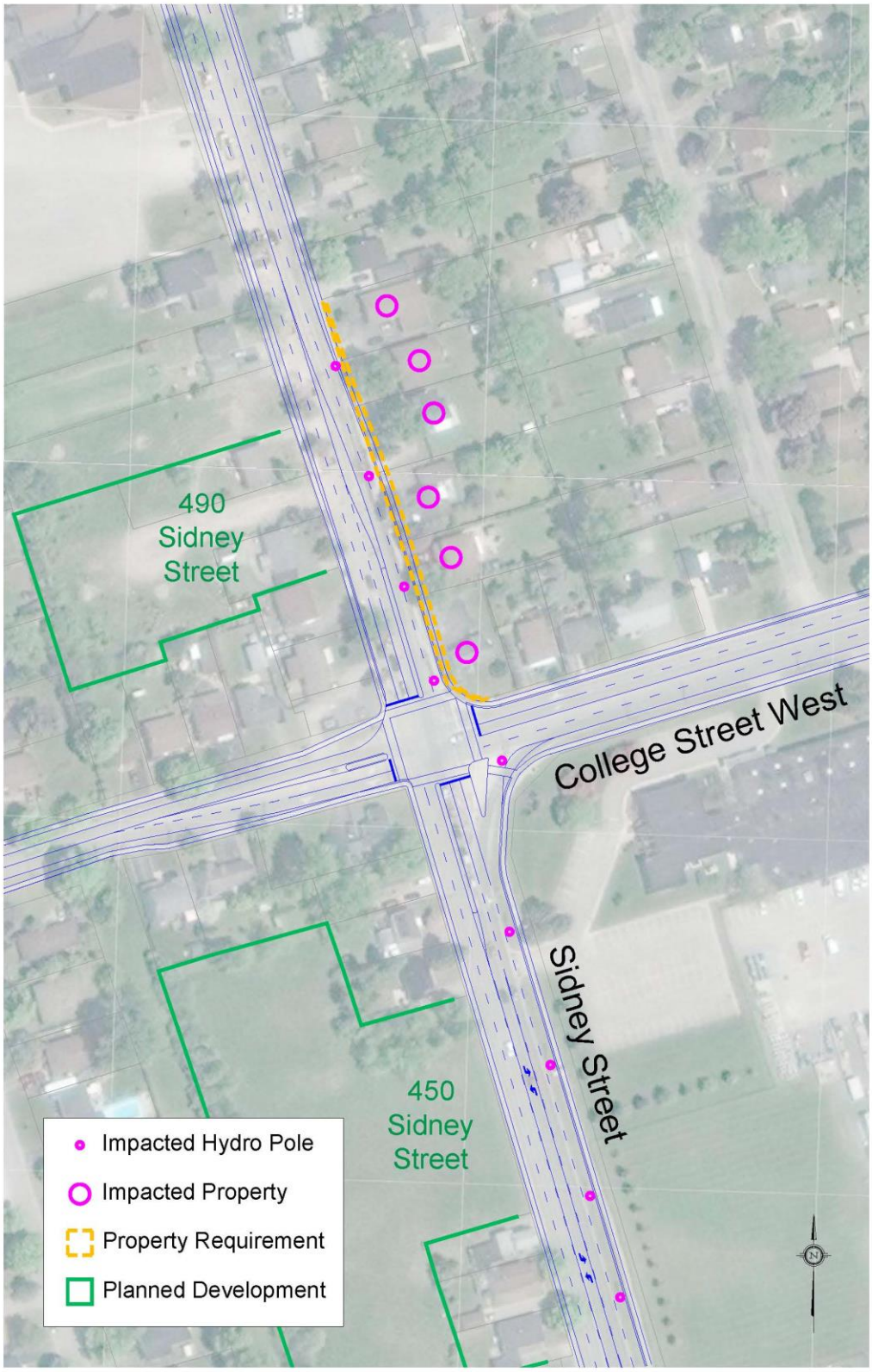

Figure 3: Cross Section Alternative 1: Widening to the East

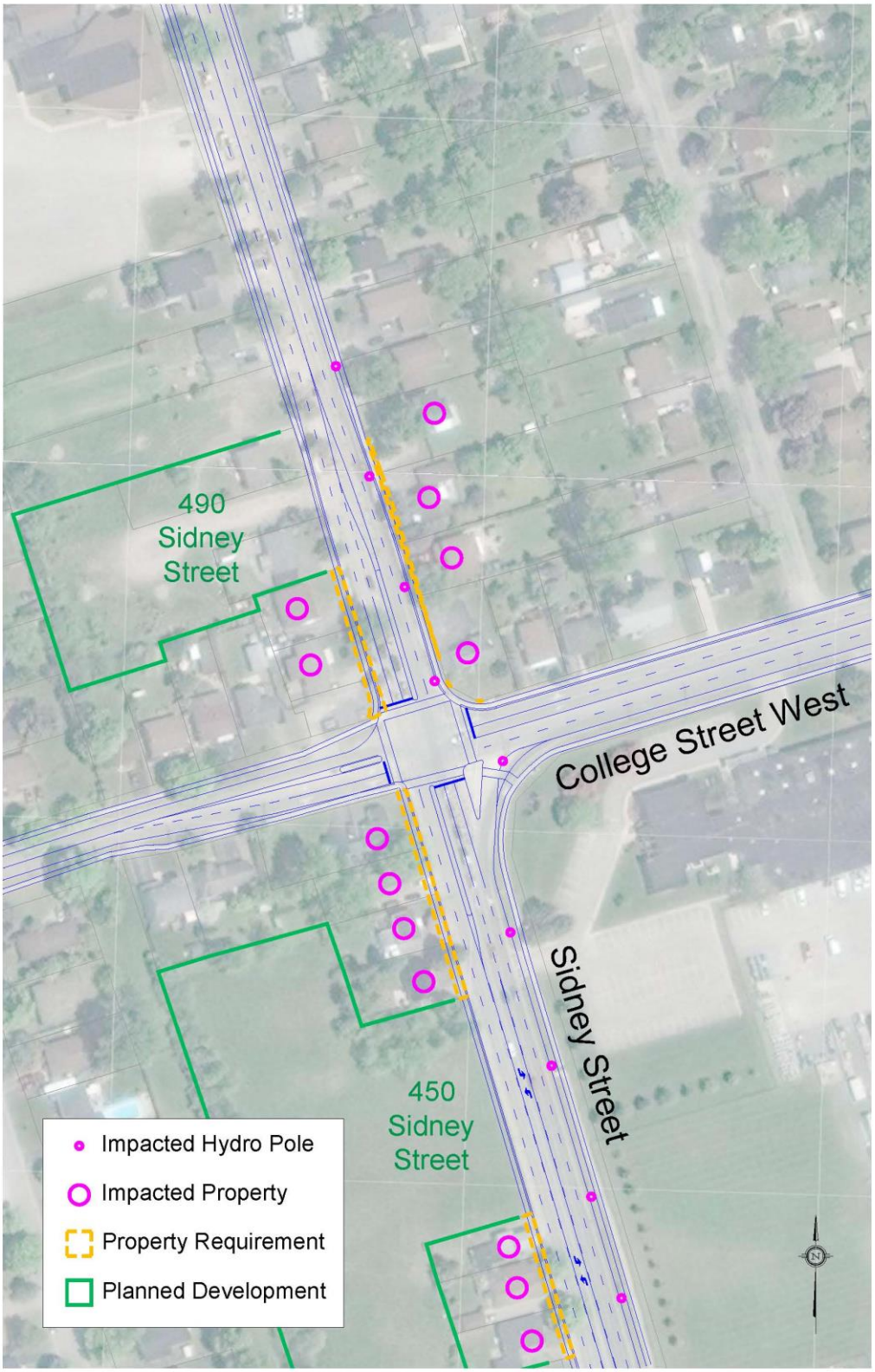

Figure 4: Cross Section Alternative 2: Widening on the Centre

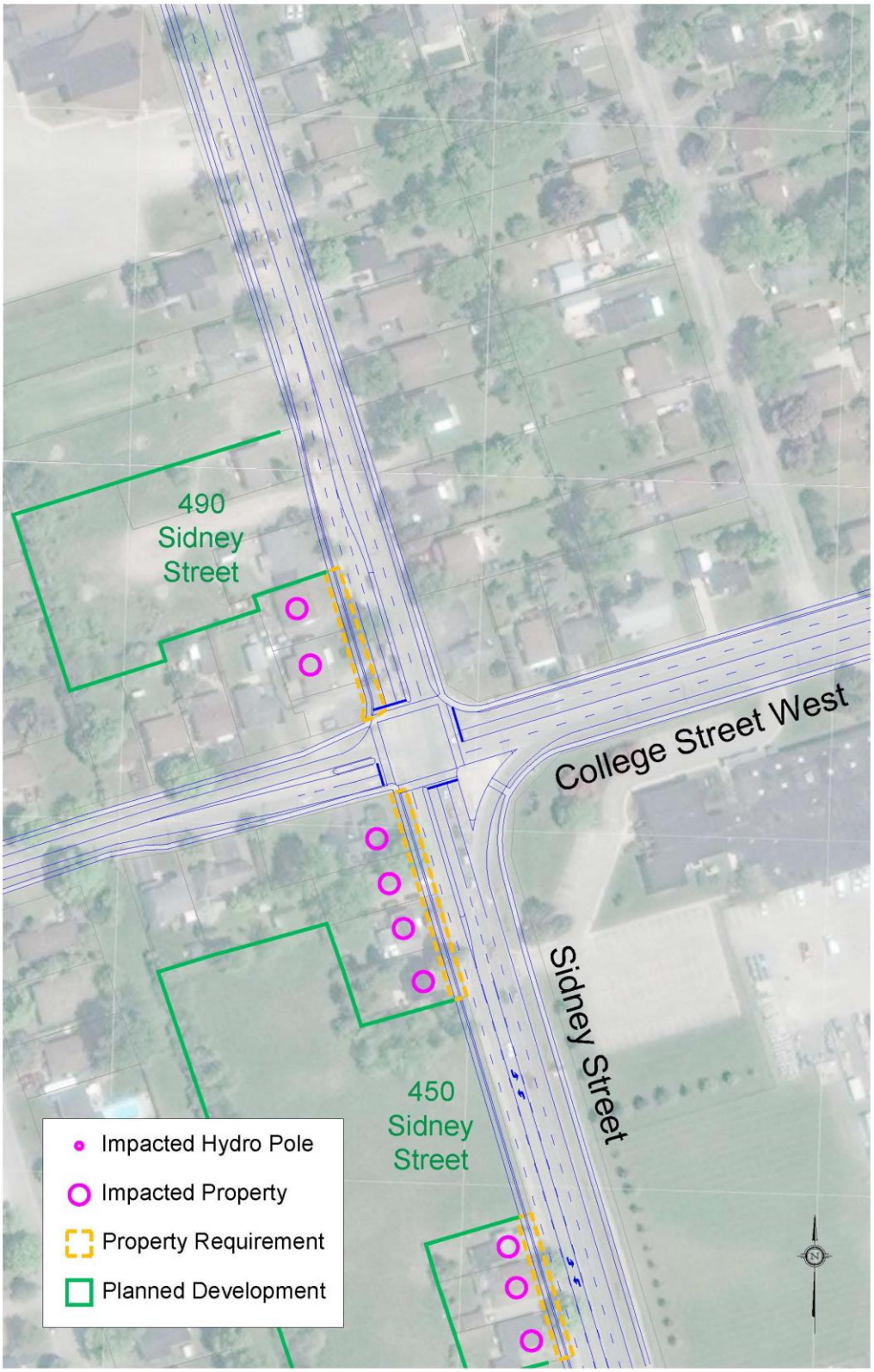

Figure 5: Cross Section Alternative 3: Widening to the West

Intersection Alternatives

The Sidney Street/College Street West intersection is currently a 4-way signalized intersection. Intersection alternatives at Sidney Street/College Street West will consider:

- Introduction of dedicated left turn lanes
- Skewed alignment to remove jogged approaches
- Mid-block median U-turns where intersection spacing exceeds TAC guidelines (we typically provide this type of treatments on high volume urban arterials)
- Roundabout (**Figure 6**)

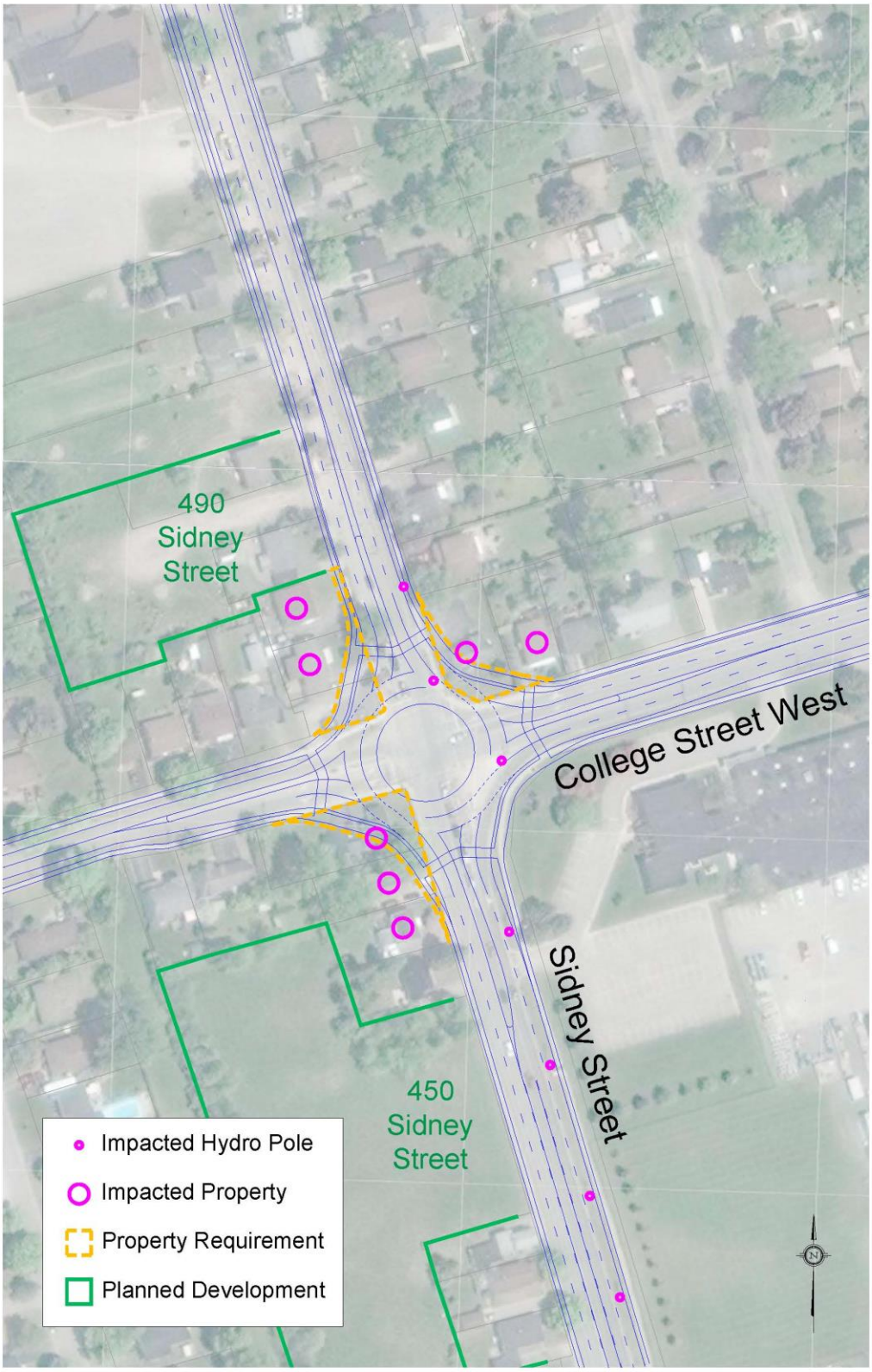

Figure 6: Intersection Alternative: Roundabout Example

Pedestrian and Cyclist Alternatives

- 1.5 m sidewalks (1 or 2 sides of the right-of-way)
- Shared bike lanes (4.3 to 4.5 m width)
- Bike lanes

5.1 Coarse Screening of Preliminary Design Alternatives and Design Criteria

The long list of Preliminary Design Alternatives described in the preceding section may be coarse-screened should technical, agency design criteria or economic issues preclude their use for this study. Those carried forward will then be subjected to a traceable and quantifiable evaluation to rank the combined alternatives. The technical evaluation will consider a qualitative evaluation methodology. Following the evaluation of alternatives the Technically Preferred Alternative will be determined, and refined, to ensure it meets the design criteria.

5.2 Preliminary Design Considerations

The existing conditions in the study area present a variety of issues and constraints including:

Sidney Street

- Utility relocations for right-of-way widening to accommodate a TWLTL or widened intersection
- Noise and visual intrusion to adjacent land uses and isolated residential properties
- Accommodating pedestrian and cycling trips and access to transit
- Vulnerable road users (pedestrian and bicyclists)
- Traffic generators including new residential apartments and Police Station
- Potential property acquisitions (sliver widenings or buyouts)

Sidney Street/College Street West Intersection

- Active transportation through intersection
- AODA compliance (pedestrian signals, tactile warning devices or roundabout pedestrian crossings)
- Conventional or roundabout intersection control
- Emergency services vehicles movement through intersection

General Issues for Study Area

- Existing and planned utilities (Bell, Veridian, Cogeco, Union Gas)
- Physical roadside design elements to reduce travel speeds through modifying driver behaviour
- Lack of active transportation facilities along the corridor for pedestrian and cyclists (considering on road cycling or off road cycling (raised cycle track or multi-use pathway) within the corridor
- Emergency Services travel corridor
- Stormwater management for increased impervious area
- Public input into the decision-making process
- Potential to improve the aesthetics, personal safety and security and lighting of the area

- Potential to utilize the redevelopment site to allow a wider boulevard from a sidewalk or Multi-use pathway
- Safety of use of free-flow right turn lanes for cyclists and pedestrians

Glossary of Terms

• **AADT**	Annual Average Daily Traffic – the average 24-hour, two-way traffic per day for the period from January 1st to December 31st.
• **Alignment**	The vertical and horizontal position of a road.
• **Alternative**	Well-defined and distinct course of action that fulfils a given set of requirements. The EA Act distinguishes between alternatives to the undertaking and alternative methods of carrying out the undertaking.
• **Alternative Planning Solutions**	Alternative ways of solving problems or meeting demand (Alternatives to the Undertaking).
• **Alternative Design Concepts**	Alternative ways of solving a documented transportation deficiency or taking advantage of an opportunity. (Alternative methods of carrying out the undertaking).
• **Alternative Project**	Alternative Planning Solution, see above.
• **Bump-Up**	The act of requesting that an environmental assessment initiated as a class EA be required to follow the individual EA process. The change is a result of a decision by the proponent or by the Minister of Environment to require that an individual environmental assessment be conducted.
• **Canadian Environmental Assessment Act (CEAA)**	The CEAA applies to projects for which the federal government holds decision-making authority. It is legislation that identifies the responsibilities and procedures for the environmental assessment.
• **Class Environmental Assessment Document**	An individual environmental report documenting a planning process which is formally submitted under the EA Act. Once the Class EA document is approved, projects covered by the class can be implemented without having to seek further approvals under the EA Act provided the Class EA process is followed.

• **Class Environmental Assessment Process**	A planning process established for a group of projects in order to ensure compliance with the Environmental Assessment (EA) Act. The EA Act, in Section 13 makes provision for the establishment of Class Environmental Assessments.
• **Corridor**	A band of variable width between two locations. In transportation studies a corridor is a defined area where a new or improved transportation facility might be located.
• **Criterion**	Explicit feature or consideration used for comparison of alternatives.
• **Cumulative Effects Assessment**	Cumulative Effects Assessment assesses the interaction and combination of the residual environmental effects of the project during its construction and operational phases on measures to prevent or lessen the predicted impacts with the same environmental effects from other past, present, and reasonably foreseeable future projects and activities.
• **Detail Design**	The final stage in the design process in which the engineering and environmental components of preliminary design are refined and details concerning, for example, property, drainage, utility relocations and quantity estimate requirements are prepared, and contract documents and drawings are produced.
• **DFO**	Department of Fisheries and Oceans.
• **EA**	Environmental Assessment
• **EA Act**	Ontario Environmental Assessment Act (as amended by S.O. 1996 C.27), RSO 1980.

• **Environment**	• Air, land or water, • Plant and animal life, including human life, • The social, economic and cultural conditions that influence the life of humans or a community, • Any building structure, machine or other device or thing made by humans, • Any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities, or • Any part or combination of the foregoing and the interrelationships between any two or more of them, in or of Ontario.
• **Environmental Effect**	A change in the existing conditions of the environment which may have either beneficial (positive) or detrimental (negative) effects.
• **ESR**	Environmental Study Report. The final documentation for Schedule C project, defining the project, consultation process, preferred solution and mitigation measures.
• **Evaluation**	The outcome of a process that appraises the advantages and disadvantages of alternatives.
• **Evaluation Process**	The process involving the identification of criteria, rating of predicted impacts, assignment of weights to criteria, and aggregation of weights, rates and criteria to produce an ordering of alternatives.
• **External Agencies**	Include Federal departments and agencies, Provincial ministries and agencies, conservation authorities, municipalities, Crown corporations or other agencies other than MTO.
• **Factor**	A category of sub-factors.
• **General Arrangement**	Structural plan of the bridge and proposed works including elevations and cross-sectional views of the bridge.

• **Individual Environmental Assessment**	An environmental Assessment requiring the submission of a document for approval by the Minister, pursuant to the EA Act and which is neither exempt from the EA Act nor covered by a Class EA approval.
• **MECP**	Ministry of the Environment, Conservation and Parks.
• **Mitigating Measure**	A measure that is incorporated into a project to reduce, eliminate or ameliorate detrimental environmental effects.
• **Mitigation**	Taking actions that either remove or alleviate to some degree the negative impacts associated with the implementation of alternatives.
• **MNRF**	Ministry of Natural Resources and Forestry.
• **MTCS**	Ministry of Culture, Tourism and Sport.
• **MTO**	Ministry of Transportation Ontario.
• **PIC**	Public Information Centre.
• **Planning Alternatives**	Planning alternatives are “alternative methods” under the EA Act. Identification of significant transportation engineering opportunities while protecting significant environmental features as much as possible.
• **Planning Solutions**	That part of the planning and design process where alternatives to the undertaking and alternative routes are identified and assessed. Also described as “Alternative Project” under the federal EA Act.
• **Project**	A specific undertaking planned and implemented in accordance with the Class EA including all those activities necessary to solve a specific problem.
• **Proponent**	A person or agency that carries or proposes to carry out an undertaking, or is the owner or person having charge, management, or control of an undertaking.
• **Public**	Includes the general public, interest groups, associates, community groups, and individuals, including property owners.

• **Realignment**	Replacement or upgrading of an existing roadway on a new or revised alignment.
• **Recommended Plan**	That part of the planning and design process, during which various alternative solutions are examined and evaluated including consideration of environmental effects and mitigation; the recommended design solution is then developed in sufficient detail to ensure that the horizontal and vertical controls are physically compatible with the proposed site, that the requirements of lands and rights-of-way are satisfactorily identified, and that the basic design criteria or features to be contained in the design, have been fully recognized and documented in sufficient graphic detail to ensure their feasibility.
• **Screening**	Process of eliminating alternatives from further consideration, which do not meet minimum conditions or categorical requirements.
• **Sub-factor**	A single criterion used for the evaluation. Each sub-factor is grouped under one of the factors.
• **Technical Advisory Committee**	The Advisory Committee will include the City and Consultant. It will act as the decision-making body for the study recommendations.
• **TMP**	Transportation Master Plan
• **Traceability**	Characteristics of an evaluation process which enables its development and implementation to be followed with ease.
• **Undertaking**	In keeping with the definition of the Environmental Assessment Act, a project or activity subject to an Environmental Assessment.