
*Municipal Class Environmental Assessment for
Road Improvements near Derry Road East and Alstep Drive:
Environmental Study Report*

Appendix A: Class EA Process



Bombardier Aerospace – Pearson

Municipal Class Environmental Assessment
for Road Infrastructure Upgrades:
Schedule C Class EA Process Overview (Draft)

Type of Document
DRAFT

Project Number
STR-2018-572

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January 7, 2020



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1. Introduction

EXP has been retained by Bombardier Aerospace (BA) to assist with its an industrial development on a parcel of land located 1890 Alstep Drive, Mississauga, Ontario. The land is owned by the Government of Canada and administered by the Greater Toronto Airports Authority (GTAA).

Upgrades to the local road infrastructure will be required to support the development and will involve completion of a Municipal Class EA. The Schedule C Class EA process to be followed for this project is described in this document. A summary of the process illustrated in Appendix A, followed by detailed scopes for selected EA studies in Appendix B. The draft Consultation and Communications Plan is provided in Appendix C.

2. Class EA Study Area

The study area for this Class EA is primarily along Derry Road East (865 m west and 450 m east of Bramalea Road) and Bramalea Road (600 south of Derry road East and 410 m north of Derry Road East). It also includes local three roads: Menkes Drive, Alstep Drive, Menway Court and Telford Way. The study area, depicted in Figure 1, was derived from the results of a Traffic Impact Study (TIS) undertaken in support of the BA development.

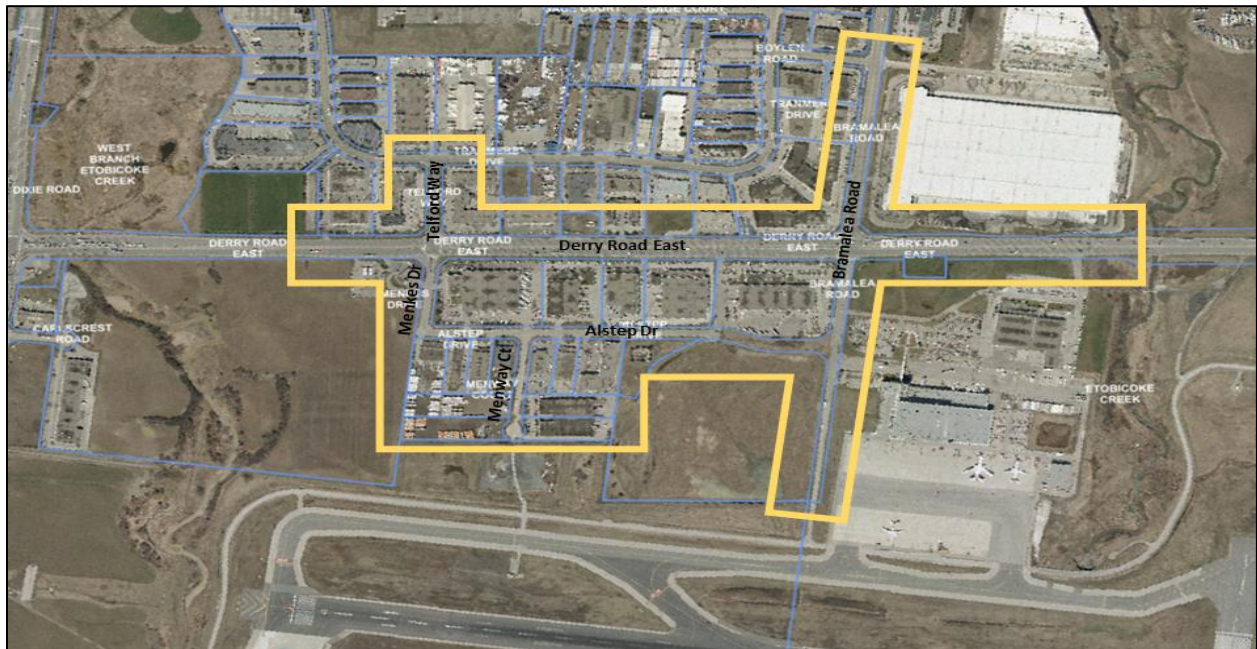


Figure 1 – Study Area

The boundary road network within the study area includes the following streets:

- **Derry Road (Regional Road 5)** - is an east-west Regional arterial road under jurisdiction of the Region of Peel. The road has an existing six-lane urban cross section with a posted speed limit of 60 km/h. Derry Road is signalized at Bramalea Road and Menkes Drive with auxiliary left-turn and right-turn only lanes on eastbound legs, and auxiliary left-turn only lane on westbound legs.
- **Bramalea Road** - is a north-south collector road under the jurisdiction of the City of Mississauga. The urban cross section varies from two lanes to a maximum of five lanes within the study area. North of Derry Road, the road has an existing five-lane urban cross section with auxiliary left and right turn lanes at the intersection. South of Derry Road the cross section tapered from four to two lanes. The road maintains a speed limit of 50 km/h. Bramalea Road is signalized at Derry Road with auxiliary left-turn lanes.

- **Drew Road** - is an east-west collector roadway under the jurisdiction of the City of Mississauga. Drew Road maintains a speed limit of 60 km/h. At its signalized intersection with Bramalea Road, Drew Road consists of a five-lane urban cross section with crosswalks, sidewalks on the south side of the road and auxiliary left turn lanes.
- **Menkes Drive** - is a north-south local road under the jurisdiction of the City of Mississauga. Menkes Drive maintains a speed limit of 50 km/h. It consists of a 3-lane urban cross section with sidewalk provided on the southeast side of its signalized intersection with Derry Road.
- **Telford Way** - is a north-south local road under the jurisdiction of the City of Mississauga. Telford Way maintains a speed limit of 50 km/h. It consists of a 3-lane urban cross section with sidewalk provided on the northwest side of its signalized intersection with Derry Road.
- **Alstep Drive** - is an east-west local industrial road under the jurisdiction of the City of Mississauga. Alstep Drive maintains a speed limit of 50 km/h. It consists of a 3-lane urban cross section with sidewalk provided on the north side of the road. Alstep drive will be extended to Bramalea Road.
- **Menway Court** - is a north-south local industrial road under the jurisdiction of the City of Mississauga. Menway Court maintains a speed limit of 50 km/h. It consists of a 3-lane urban cross section with sidewalk provided on the southeast side of its unsignalized intersection with Alstep Drive.

Parking restrictions apply on all of the streets noted above. Truck traffic is permitted all streets.

3. Class EA Milestones

A summary of the proposed Class EA consultation milestones is presented in Table 1. It should be noted that milestone dates are tentative and will be confirmed in consultation with BA, the Region of Peel, and the City of Mississauga.

Table 1: Summary of Proposed Class EA Consultation Milestones

Consultation Milestone / Event	Anticipated Date
Contact information database of public/agency/other stakeholders prepared	January 2020
Notice of Commencement	January 2020
Technical Advisory Committee (TAC) Meeting #1	March 2020
Notice of Public Information Centre # 1	April 2020
Public Information Centre # 1	April 2020
Technical Advisory Committee (TAC) Meeting #2	July 2020
Notice of Public Information Centre # 2	September 2020
Public Information Centre # 2	September 2020
Council Endorsement	November 2020
Notice of Completion	December 2020
Public Consultation and Communication Log	On-going
Inputs to Municipal Project Website	On-going

4. Class EA Process

This project is being undertaken as a Schedule C Class EA. The project proponents and tasks for each phase are described below.

4.1. Project Proponents

The co-proponents of this Schedule C Class EA include:

- Bombardier Aerospace (primary proponent);
- Region of Peel (co-proponent); and
- City of Mississauga (co-proponent).

Bombardier Aerospace has retained EXP Services Inc. as its consultant for the Class EA. A summary of the roles and responsibilities of each proponent is provided in Table 2.

Table 2: Proponent Roles and Responsibilities

Bombardier Aerospace Lead Proponent	Region of Peel Co-Proponent	City of Mississauga Co-Proponent
Responsible for all of the planning, design, and construction of the road improvements	EA process review Document review Access to relevant Peel data Hosting of project webpage (to be determined in consultation with City)	EA process review Document review Access to relevant City data Hosting of project webpage (to be determined in consultation with Region)

4.2. Phase 1: Problem / Opportunity Statement

The tasks to be undertaken for the Phase 1 (Problem / Opportunity Statement) include:

- **Project Kick-off:** EXP, Bombardier, the City and the Region meet regularly to discuss Bombardier’s proposed development at 1890 Alstep Drive, Mississauga, Ontario. The preliminary planning meeting for the Class EA occurred on Thursday, October 17, 2019 with the City and the Region.
- **Regular Proponent Meetings:** Regular project coordination meetings between EXP, Bombardier, the City and the Region will occur in Phase 1 to discuss the Class EA status, development of documents, and process next steps.
- **Public and Agency Consultation Plan:** A draft Public and Agency Consultation Plan for this Class EA has been prepared. It is provided in Appendix B, and elements of the plan will be noted in this Class EA process overview. In developing the plan, EXP will develop a stakeholder register in consultation with the City and the Region.
- **Background Review:** A background review of relevant planning and technical documents (e.g., road /pavement assessment reports, municipal plans, maps) and other related information will be undertaken. The review will consider future land use and community needs as well as existing and future corridor and intersection capacity deficiencies. The results will be summarized in the Phase 1 Interim Report.

- **Traffic Impact Study:** The Traffic Impact Study (TIS) prepared in support of Bombardier's proposed development at 1890 Alstep Drive will be integrated into the Class EA process. Relevant portions of the TIS will be used in preparation of the Phase 1 Interim Report.
- **Problem/Opportunity Statement Technical Memorandum:** A Problem/Opportunity Statement technical memorandum will be prepared based on the results of the background review and TIS. The memorandum will summarize the planning context, the rationale for the project (e.g., deficiencies in existing and future corridor and intersection capacities, as well as potential safety issues), and state the project's problem/opportunity statement. This memorandum will be incorporated into the Phase 1 Interim Report.
- **Phase 1 Interim Report:** The draft Phase 1 Interim Report will summarize the results of the Phase 1 activities, including:
 - Description of the Class EA project, including its study area, purpose and proponents;
 - Summary of the Phase 1 activities undertaken;
 - Summary of the relevant background information, including information gaps;
 - Rationale for the Class EA project (which will include integration of the Problem/Opportunity Statement Technical Memorandum); and
 - Defined problem/opportunity statement.
- **Notice of Commencement:** A Notice of Commencement will be issued for this project. It will include a description of the project based on the contents of the draft Phase 1 Interim report.
- **Project Webpage:** A project webpage will be established for the posting of study notices and public documents. Hosting of the webpage will be either on the City or Region's website (to be confirmed).

4.3. Phase 2: Identification and Evaluation of Alternative Solutions

The tasks to be undertaken for Phase 2 (Identification and Evaluation of Alternative Solutions) include:

- **Regular Proponent Meetings:** Regular project coordination meetings between EXP, Bombardier, the City and the Region will continue from Phase 1 into Phase 2 to discuss the Class EA status, development of documents, and process next steps.
- **Phase 2 Studies:** A number of studies will be undertaken that will support Phase 2 of this process¹. The studies include:
 - **Transportation Analysis:** An inventory of intersection layouts and conditions will be undertaken and summarized in the assessment of existing conditions. EXP will review, confirm, identify roadway capacity, traffic deficiencies and hence widening requirements using Synchro/ SimTraffic analysis within the Study Area. The study will also include a detailed operation analysis by utilizing using Synchro for the roadway network. The scope of the transportation analysis will be reviewed with the City and Region prior to its implementation. .
 - **Stage 1 Archaeological Assessment:** A Stage 1 Archaeological Assessment will be undertaken to evaluate the potential for archaeological resources within or adjacent to the study area. The Stage 1 report will identify which areas within the study area have archaeological potential and what methodologies subsequent Stage 2 Archaeological Assessments would require.
 - **Cultural Heritage Resource Assessment:** A Cultural Heritage Resource Assessment would be undertaken to determine the potential presence of cultural heritage in the study area. The assessment will include a desktop literature review and field survey results to

¹ Additional scope information is provided in Appendix B for the Stage 1 Archaeological Assessment, Natural Features Investigation, Background Hydrogeological Assessment, and the Geotechnical Investigation and Pavement Analysis.

- identify existing cultural heritage resources and potential impacts to them from the project.
- **Background Hydrogeological Assessment:** A desktop hydrogeological assessment along the road right-of-way within of the study area will be undertaken. The assessment will review the available geological and hydrogeological information and prepare geological mapping and groundwater contour mapping, which will be documented in a Hydrogeological Preliminary Assessment Report.
 - **Phase 1 Environmental Site Assessment:** A Phase 1 Environmental Site Assessment (ESA) will be undertaken as part of the Phase 2 studies.
 - **Natural Features Investigation:** The Natural Features Investigation undertaken will include a desktop background review, field surveys, and consultation with the relevant agencies.
 - **Geotechnical Investigation and Pavement Analysis:** A geotechnical assessment and pavement analysis of the roadways within the study area will be undertaken. The assessment will include a visual pavement condition survey, borehole investigations, and pavement structure analyses.
 - **Drainage and Stormwater Management:** EXP will review the opportunity to implement stormwater management (SWM) practices to evaluate address water quality, water quantity and erosion impacts for the proposed works. The SWM assessment and design will follow the Region's June 2014 *Guidelines for the Preparation of Stormwater Management Reports in Support of Municipal Class Environmental Assessments* (see Appendix D) and June 2019 (Version 2.1) *Public Works Stormwater Design Criteria and Procedural Manual*.
 - **Subsurface Utility Engineering Investigation:** A Subsurface Utility Engineering (SUE) Investigation to Quality Level B (QLB) will be undertaken to identify utilities in the study area. If required, Level A (test-hole) SUE investigations may be undertaken during Phase 3 of the Class EA or during detailed design.
 - **Selection of Alternative Solutions:** Based on the results from Phase 1 and the relevant Phase 2 studies noted above, the project team will identify alternative solutions for this Class EA. The selection process will include screening the alternative solutions to arrive at a short list of feasible alternative solutions.
 - **Evaluation of Short-listed Alternative Solutions:** Evaluation criteria will be developed and used to evaluate the short-listed alternative solutions. The evaluation criteria will consider factors such as the natural environment (e.g., natural heritage), the social environment (e.g., transportation and transit networks, accessibility, etc.), economic costs, and technical feasibility (e.g., construction complexity, feasibility of implementation, etc.).
 - **Technical Advisory Committee:** A technical advisory committee (TAC) will be formed for this project. The TAC will provide input into the project on key points in the process. The proposed membership of the TAC includes representatives from:
 - Bombardier Aerospace;
 - Greater Toronto Airports Authority;
 - City of Mississauga;
 - Department of Planning;
 - Department of Transportation and Works (Engineering & Construction and / or Transportation & Infrastructure Planning sections);
 - Region of Peel Department of Public Works;
 - Toronto and Region Conservation Authority (TRCA);
 - Ministry of Natural Resources and Forestry (MNR); and
 - Ministry of Environment, Conservation and parks (MECP).

- **Alternative Solutions Technical Memorandum:** A draft Alternative Solutions Technical Memorandum will be prepared describing the selection and evaluation of the alternative solutions. The draft report would be presented for discussion at the first Technical Advisory Committee (TAC) meeting and updated based on the feedback received from TAC.
- **TAC Meeting #1:** The purpose of TAC Meeting #1 would be to present the selection and evaluation of the alternative solutions for feedback. The meeting may also be used to review a draft version of the display boards for Public Information Centre #1.
- **Public Information Centre #1:** A Public Information Centre (PIC) would be held toward the end of Phase 2 to provide an update on the project to the public, including the identification and evaluation of alternative solutions and the recommended solution. Questions and comments received through the PIC would be answered by the project team. Depending on the feedback received through the Phase 2 consultation, the recommended solution will be updated as necessary and confirmed as the preferred solution. The notice and PIC materials would be posted on the project website.
- **Phase 2 Interim Report:** The Phase 2 Interim Report will expand upon the Alternative Solutions Technical Memorandum to summarize the results of Phase 2, including:
 - Results of Phase 2 background studies;
 - Description of alternative solutions considered;
 - Evaluation process for the alternative solutions and its results;
 - Description of the preferred solution; and
 - A review of the Phase 2 consultation undertaken and a summary of the feedback received.

Based on the results of Phase 2, the Class EA Schedule would be reviewed and confirmed. It is assumed, as of the writing of this document that the project will be a Schedule C. If so, then the project would continue into Phase 3. If it is determined that it is a Schedule B, then a Project File Report and Notice of Completion would be prepared for public review.

The need for air quality and noise impact assessments will be reviewed with the City and Region near the end of Phase 2. If deemed required, the air quality and noise impact assessments will be completed during Phase 3.

4.4. Phase 3: Identification and Evaluation of Alternative Designs

The tasks to be undertaken for Phase 3 (Identification and Evaluation of Alternative Designs) include:

- **Regular Proponent Meetings:** Regular project coordination meetings between EXP, Bombardier, the City and the Region will continue from Phase 2 into Phase 3 to discuss the Class EA status, development of documents, and process next steps.
- **Phase 3 Studies and Documentation:** A number of studies and documentation will be undertaken that will support Phase 3 of this process². The studies include:
 - **Update to the Natural Features Investigation:** The results of the Natural Features Investigation will be reviewed in Phase 3 to determine if additional natural heritage information is required for the evaluation of the alternative designs.
 - **Traffic Safety and Operations Analysis:** A traffic operations and traffic safety review of the study area will be conducted to identify existing design elements that may pose safety concerns and identify design options to address them.
 - **Draft Utility Impact Report:** Once the alternative designs have been identified and evaluated, a draft utility impacts report will be prepared describing the anticipated impacts to existing and planned utilities in the area.

² Additional scope information is provided in Appendix B for the Traffic Safety and Operations Analysis and the Tree Assessment.

- **Tree Assessment:** A tree assessment will be undertaken based on the recommended alternative design. The tree assessment will document the species, size, and health of trees in the study area. It will also determine applicable tree protection and mitigation measures, as well as provide a replacement/compensation plan for trees that are unavoidably impacted by construction.
- **Preliminary Drainage and stormwater Design:** Exp will prepare a preliminary Storm Drainage Plan based on the recommended alternative design. The plan will include all existing servicing in the study area and show the proposed storm sewer systems, including outlets and their connection to a legal and adequate outlet. The drainage plan will ensure that existing adjacent roads grading, driveways and other existing servicing plan are compatible with new design. A Drainage and Stormwater Management (SWM) Report will be prepared that describes existing and proposed conditions for roadway drainage and stormwater management. The SWM Report will follow the Region's June 2014 *Guidelines for the Preparation of Stormwater Management Reports in Support of Municipal Class Environmental Assessments* (see Appendix D) and June 2019 (Version 2.1) *Public Works Stormwater Design Criteria and Procedural Manual*.
- **Draft Property Impacts Report:** Once the alternative designs have been identified and evaluated, a draft property impacts report will be prepared describing the anticipated impacts to private property.
- **Identification of Alternative Designs:** Based on the results from Phase 2 and the relevant Phase 3 studies noted above, the project team will identify alternative designs for the preferred solution. The alternative designs will follow the City and Region's applicable road design standards and will be developed in consultation with the City and Region.
- **Evaluation of Alternative Designs:** Evaluation criteria will be developed and used to evaluate the alternative designs. The evaluation criteria will consider factors such as the natural environment, the social environment (including property acquisition), economic costs, and technical feasibility. The evaluation will result in recommended design concepts, which will be presented for comment to the TAC.
- **TAC Meeting #2:** The purpose of TAC Meeting #2 would be to update the TAC and obtain their feedback on: the project status; the confirmed alternative solution; identified alternative designs; evaluation of the alternative designs; and the recommended alternative designs. The meeting may also be used to review a draft version of the display boards for Public Information Centre #2. The evaluation and recommended alternative designs would be updated based on the feedback received from the TAC.
- **30% Design:** It is intended that the 30% design of the recommended alternative design would be prepared and included in the PIC #2 display materials. The 30% design will be undertaken in accordance with the Region's CAD design standards, as well as other applicable design standards. Additional details on the 30% Design scope is provided in Appendix B.
- **Public Information Centre #2:** A Public Information Centre (PIC) would be held toward the end of Phase 3 to provide an update on the project to the public, including the preferred alternative solution, the identification and evaluation of alternative designs and the recommended design. Questions and comments received through the PIC would be answered by the project team. Depending on the feedback received through the Phase 3 consultation, the recommended solution will be updated as necessary and confirmed as the preferred solution. The notice and PIC materials would be posted on the project website.
- **Approvals/Permits:** As part of the consultation process, we will identify the required permits and approvals and their processes. Efforts will be made to obtain "approvals in principle" with the agencies, allowing a smooth transition to detailed design and construction.
- **Phase 3 Interim Report:** The Phase 3 Interim Report will summarize the results of Phase 3 and include:
 - Results of Phase 3 background studies;
 - Description of alternative designs considered;

- Evaluation process for the alternative designs and its results;
- Description of the preferred designs; and
- A review of the Phase 3 consultation undertaken and a summary of the feedback received.

4.5. Phase 4: Environmental Study Report

The tasks to be undertaken for Phase 4 (Environmental Study Report) include:

- **Prepare Environmental Study Report:** A draft Environmental Study Report (ESR) will be prepared for the proponents' review and comment. The ESR will be build on the progress reports for each phase and will include:
 - A thorough documentation of the process followed;
 - A description of the recommended alternative design, including the project's 30% design;
 - A summary of the consultation that took place during the Class EA and how the feedback was addressed;
 - Possible impacts and proposed mitigation;
 - Anticipated property impacts; and
 - A summary of necessary permits and approvals.

A final ESR will be prepared based on comments from the proponents.

- **Notice of Completion and Public Review Period:** A notice of completion will be prepared and circulated to stakeholders advising them of the study's completion and the opportunity for public review. An electronic copy of the ESR and its appendices will be made available on the project website. Hard copies will be made available for public review in public venues (to be determined in consultation with the City and Region). Comments received will be reviewed and addressed as required. Following this third filing period a summary report of comments addressed will be prepared.

The key stakeholder agencies (e.g., TRCA, MECP) will be offered an opportunity to review the draft ESR. The proposed schedule may be extended to accommodate their review time if they feel that is required.

Part II Orders

If a member of the public, agency or other concerned individuals feel that significant outstanding issues have not been addressed in a class environmental assessment process and could be better addressed through an individual environmental assessment process, then they can ask for a higher level of assessment. This is known as a Part II Order (or "bump-up") request.

The Part II Order request is a legal mechanism under the Environmental Assessment Act (EAA). The request is submitted to the Minister for the Ministry of Environment, Conservation and Parks (MECP). The Minister's response to the request (often referred to as the Minister's decision) may include:

- The Minister may require a proponent to comply with Part II of the EAA and undertake a more rigorous EA before proceeding with a proposed undertaking (so, for example, if the Class EA was a Schedule C, an individual EA would be required);
- The Minister may deny the Part II Order request but impose conditions that the proponent would be required to fulfill when implementing the project; or
- The Minister may deny the Part II Order request with no additional conditions imposed on the proponent.

However, the Minister can also refer the matter to mediation before making a decision.

A Part II Order request process can take at least 4 to 8 months beyond the close of the Class EA review period, or longer (~ 12 months) depending on the number of other files the MECP is reviewing, the number of Part II Order requests received, and their complexity.

4.6. Phase 5: Implementation

Once the public review period for the ESR is completed, the project will proceed to implementation. This will include the detailed road design (60%, 90%, and 100%) in accordance with the applicable engineering design standards, TAC and Ontario Provincial Standards (OPSS).

The impact mitigation measures identified during the Class EA will be incorporated into the detailed design of the project.

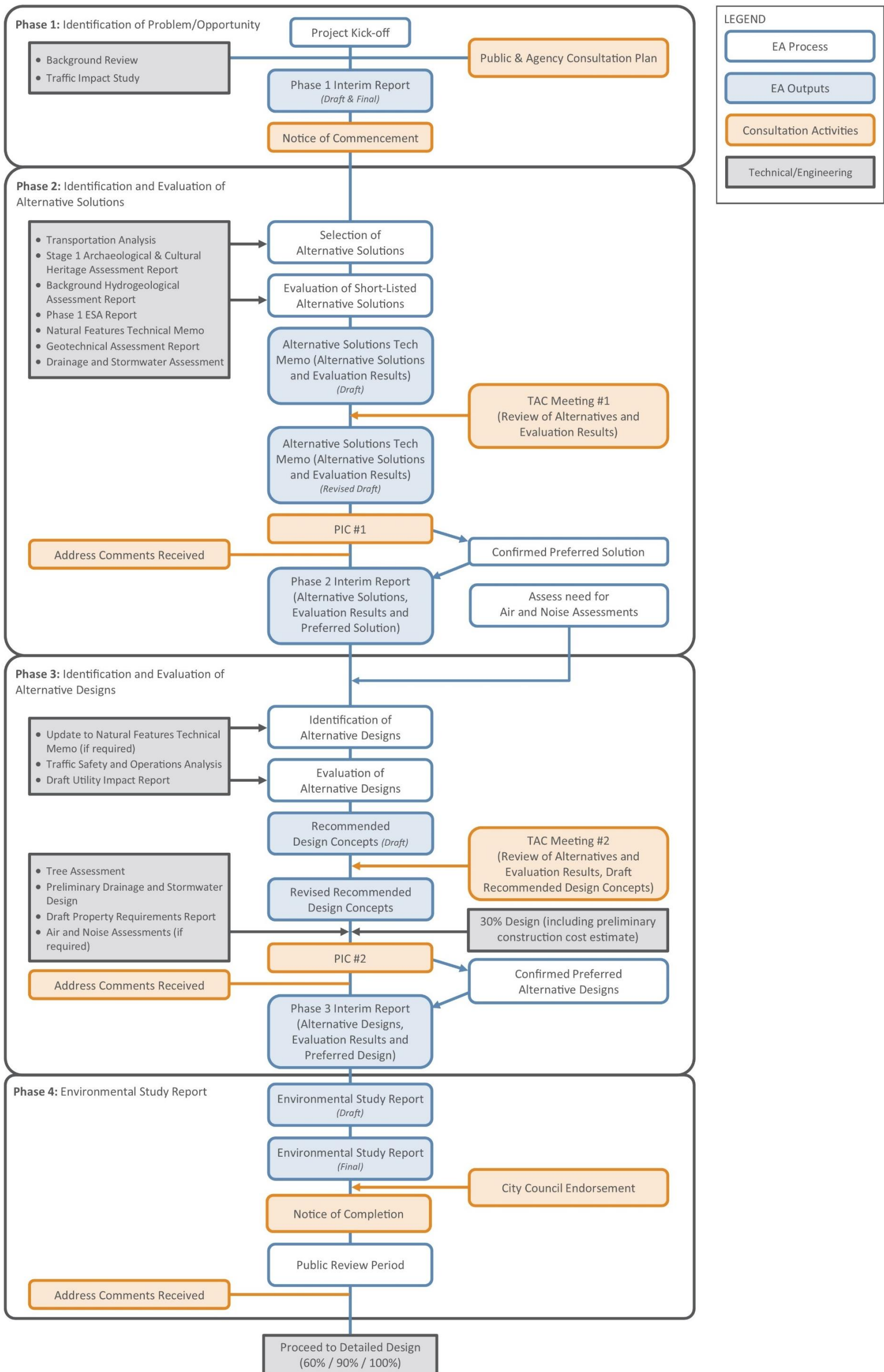
In addition to detailed design, implementation of the project will also include the following tasks:

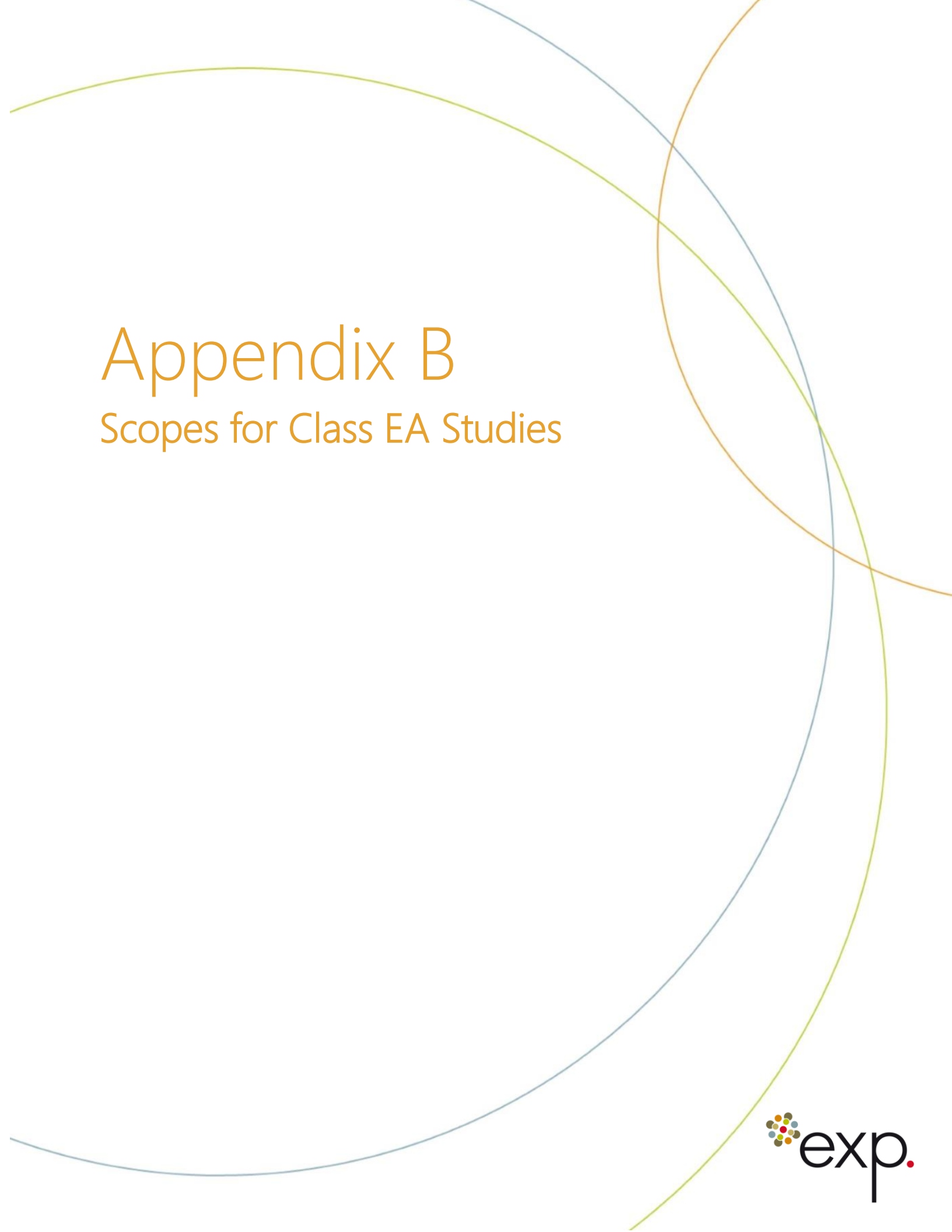
- **Construction Staging and Traffic Management Plan:** The draft construction staging plan and Traffic Management Plan will be finalized in the 60% detailed design submission.
- **Property Acquisition:** Property acquisitions identified during the Class EA process will be undertaken during detailed design and prior to construction. Any registered property plans required would be prepared by the City or Region's OLS. Property Impact Plans (PIP) would be prepared for negotiations with property owners where easements or acquisitions are required. The City/Region will be purchasing a portion of the property. The PIP's would show the locations of the proposed works and the property required.
- **Utility Coordination:** As the detailed design advances, potential conflicts with existing utilities will be reviewed. Utility conflict plans will be prepared and circulated to the affected utility service provider for consultation. Each affected utility company will be required to provide relocation design plans, cost estimates and a schedule for the completion of the relocation work.
- **Landscape Design Plans.** Landscape plans and associated details will be developed during detailed design to address the restored road condition. The landscaping plan will detail tree planting locations and specifications, in accordance with the Region's specifications for street trees. Specifications and quantities will be prepared for tendering purposes.
- **Approvals and Permits:** The necessary permits and approvals, as identified during the Class EA process, will be obtained prior to construction.

Appendix A

Project Class EA Process

BA Pearson Municipal Class EA Process Diagram





Appendix B

Scopes for Class EA Studies

Below are scopes of select Class EA Phase 2 and Phase 3 studies.

Phase 2

Stage 1 Archaeological Assessment

A Stage 1 Archaeological Assessment will be undertaken to evaluate the potential for archaeological resources within or adjacent to the study area. This will be completed by reviewing physiographic, land use and historical information and mapping for the subject area and relevant surrounding area, conducting a property inspection for the area to inspect its current condition, and by contacting the Ministry of Tourism, Culture and Sport (MTCS) to determine if there are any known archaeological sites within a 1 km radius of the study area.

If the study area retains archaeological potential, the Stage 1 report will identify what areas require further assessment and by what methodology they must be surveyed (i.e. pedestrian vs test pit survey). This assessment will follow the Standards and Guidelines for Consultant Archaeologists administered by the Ministry of Tourism, Culture and Sport.

Natural Features Investigation

The Natural Environment Report will include a desktop background review, field surveys, and consultation with the relevant agencies.

Consultation with pertinent agencies (such as TRCA and MECP) will be undertaken as part of the study to obtain feedback and comments regarding natural features and rare species in the study area and potential impacts upon them from the project.

Tasks to be undertaken as part of the investigation include:

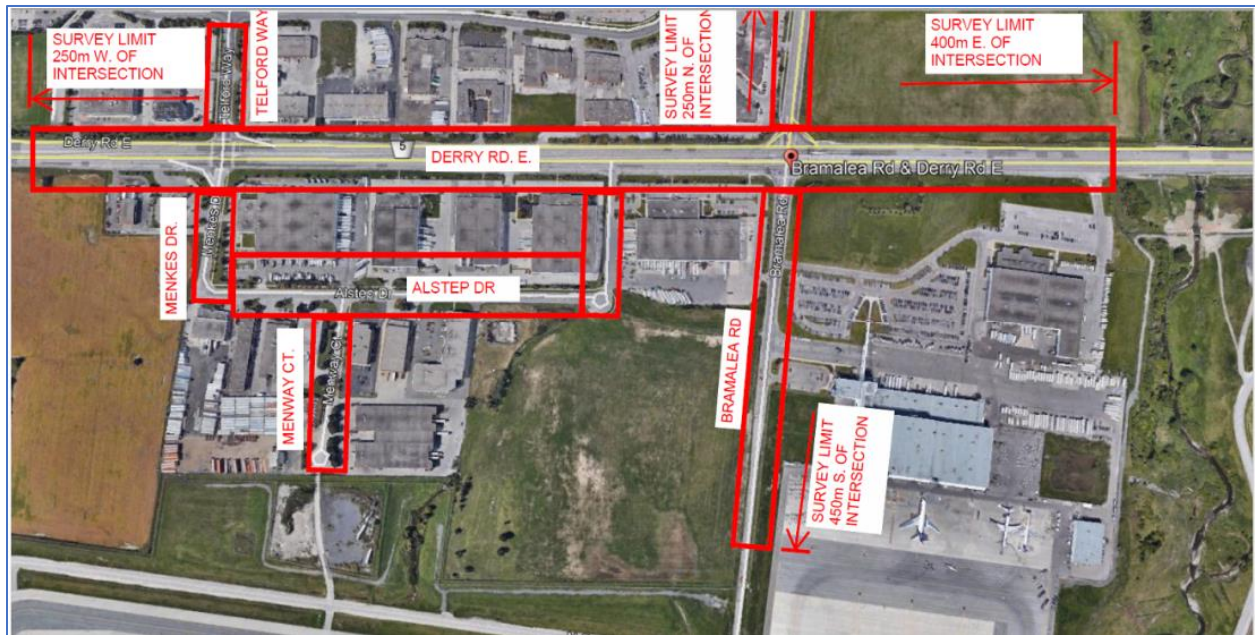
- Conduct background review of existing study reports, databases and other information sources;
- Consult with MECP and TRCA to obtain records of Species at Risk (SAR) and significant natural features, potential impact concerns, environmental protection and permitting requirements; and
- Conduct field surveys during appropriate times of the year to identify, inventory and characterize the study area's natural environment (e.g. flora, fauna, aquatic habitat, significant areas, etc.), as well determine presence of SAR and their habitat in study area.

Information collected from the background review, agency consultation and field work will be presented in a Natural Environment Report. The report will include a description of the natural features in the study area, including flora and fauna and sensitive or rare features. Recommendations will be provided that will protect or minimize impacts to the natural environment and ensure the project is in compliance with applicable environmental policy and legislation.

If deemed required, the study will be updated in Phase 3 of the Class EA in consideration of the design alternatives and potential impacts not anticipated during Phase 2.

Background Hydrogeological Assessment

A desktop hydrogeological assessment along the road right-of-way within of the study area will be undertaken, as per the figure below.



The objectives of desktop assessment would be to:

- Complete a policy and regulatory overview;
- Assess the existing hydrogeological settings within the study area noted above;
- Assess potential impacts from the project and provide mitigation recommendations;
- Evaluate the permitting and approvals needs; and,
- Prepare a Hydrogeological Assessment Report.

The tasks for the assessment include:

- Review available geological and hydrogeological information for the study area;
- Evaluate the information collected during previous investigations and regional data available;
- Preparation of site plans, geological mapping, and groundwater contour mapping for the area;
- Evaluate construction dewatering flow rates (construction);
- Assess potential impacts and recommend mitigation measures; and
- Prepare a Hydrogeological Preliminary Assessment Report.

The Hydrogeological Preliminary Assessment Report will utilize available information from other available technical studies, databases and mapping pertinent to the specific study area. This reporting will demonstrate an understanding of the existing conditions.

Geotechnical Investigation and Pavement Analysis

A geotechnical assessment and pavement analysis of the roadways within the study area (as per Background Hydrogeological Assessment) will be undertaken. The assessment will include a visual pavement condition survey, borehole investigations, and pavement structure analyses.

The visual pavement condition survey of the existing pavement will be carried out in accordance with the Ministry Manuals for Condition Rating of Flexible and Rigid Pavements will be carried out. Distress areas

in the flexible pavements will be identified and recorded. Pavement cores and granular base and subbase will be extracted for visual examinations and laboratory testing.

The assessment will include 11 boreholes placed on the road and 9 boreholes placed within the boulevard. Based on typical road improvements, the depth of the proposed boreholes will be approximately 2.0 m or refusal. If bedrock is encountered, no rock coring will be carried out, as the properties of the surficial highly weathered shale bedrock is well known.

Prior to carrying out the fieldwork, public utility companies will be contacted to locate potentially conflicting underground services at borehole locations.

Asphaltic concrete samples will be cored in each borehole location on the road for pavement structure analyses. The borings will be advanced to the indicated depths by means of a truck mounted drill rig adapted for soil sampling purposes. Drilling and sampling will conform to standard practice. No monitoring well or piezometer would be installed for groundwater monitoring. Groundwater levels will be recorded in the open boreholes during the fieldwork.

The locations and elevations of boreholes would be established in the field by EXP field staff. The entire fieldwork will be supervised by a qualified EXP geotechnical technician.

All asphalt and soil samples will be subjected to a careful visual examination in the field and preserved for selective laboratory analyses and testing, which may include:

- Natural moisture content;
- Grain size distribution analysis; and
- General and inorganic parameters (6 samples).

Based on the results of the field and laboratory testing, a detailed geotechnical report will be prepared including project introduction; site description; investigation procedure; pavement conditions and laboratory testing results; factual subsurface information and laboratory testing results; associated analyses of soil chemistry for general and inorganic parameters for soil disposal; recommended pavement structure, other road design and construction concerns.

Phase 3

Traffic Safety and Operations Analysis

A traffic operations and traffic safety review of the study area will be conducted to identify existing design elements that may pose safety concerns. The approach for the road safety review follows the standard methodology presented in TAC's Road Safety Audit Guide and includes the following tasks: .

- Data Collection:
 - Obtain five years collision data, the most recent roadway inventory data, vehicle speed and classification data, if available.
- Office review:
 - Conduct a traffic safety review to identify existing design elements that may pose safety concerns.
 - Analyze collision data in terms of the number of collisions by year, month, day of the week, hour of the day, severity, initial impact type, light condition, and road condition.
 - Recommend probable countermeasures using the latest information available.
 - Assess the accessibility, convenience and safety provided to pedestrian, bicycling and micro-transit along the study area.
 - Review, confirm, and identify roadway capacity, geometric deficiencies, and traffic deficiencies.
- Field Investigation:
 - Conduct a field investigation to gain further insight into the subject locations and to further verify or identify safety concerns in the area.
 - Conduct the review considering the Regional Policy and Standards, industry best practices, and traffic bylaws.
 - Review compliance with Accessibility for Ontario with Disabilities (AODA).
- Safety Analysis:
 - Conduct a detailed review of collisions to identify collision characteristics and trends and identify potential for safety improvement.
 - Identify high-risk locations within the study area.
 - Highlight factors that contribute to collisions and recommend countermeasure to reduce the collision risks.
 - Identify accommodations for vulnerable road users such as pedestrians and cyclist.
- Safety Technical Memo:
 - Provide a Traffic Safety and Operations Report summarizing the study.

Tree Assessment

A tree assessment will be undertaken based on the recommended alternative design. The tree investigation work will be conducted for the new street alignment within the road right-of-way (ROW) and adjacent properties. Impacts to the street trees and trees within the adjacent lots along the road construction limits are key Issues that will be considered during the Class EA and preliminary design stage.

Tree investigations and assessment will be conducted to determine tree protection and mitigation measures, as well as a plan for replacement/compensation of trees that are unavoidably impacted by construction.

An Arborist Report will be completed for the trees within the ROW and areas within 6m from the construction limits. Information on species, size, preliminary tree health assessment as well as potential

pruning requirements will be gathered. Prescriptions for tree replacement planting, fertilization, pruning, and tree saving and protection measures will also be part of the report. The arborist work will include:

- One site visit for the tree inventory, investigation and assessment;
- Preparation of Arborist Report, which will include the Tree Inventory, Tree Preservation Plan, and Tree Protection Recommendations: (tree removal and replacement or alternative construction methods).

30% Design

It is intended that the 30% design of the recommended alternative design would be prepared and included in the PIC #2 display materials. The 30% design will be undertaken in accordance with the Region's CAD design standards, as well as other applicable design standards, such as: .

- Ontario Traffic Manual (OTM) Roadside Safety manual;
- OPSs (Ontario Provincial Standards)
- Applicable guidelines from the TRCA, MNR and MECP;
- Canadian Highway Bridge Design Code (for road works approaching the bridges just east and west of the study area).

The 30% design would include the following components or tasks:

- Design of the horizontal and vertical alignment and urban cross sections, which would follow (as much as possible) the existing conditions, with adjustments where required by the design constraints encountered;
- Plan and profile drawings as required by all applicable standards;
- Preliminary landscape design;
- Identification and coordination of all utility relocations;
- All existing and proposed dry and wet utilities in plan and profile;
- Development of an earth cut/fill management plan;
- Detail cross sections every 20m and critical locations;
- Driveway access improvements;
- Identification of all additional lands required for the road design options and utility relocations works if required;
- Development of extensive construction and traffic safety and traffic staging strategies (including a draft staging plan / Traffic Management Plan); and
- Coordination with the City's and/or Region's Real Estate Division and local property owners (where required).

A preliminary construction cost estimate would be prepared with the 30% design.



Appendix C

Public and Agency
Consultation Plan (draft)



Appendix D

Region of Peel

Guidelines for Class EA

Stormwater Management Reports