PORTS TORONTO
Environmental Assessment
PROPOSED RUNWAY EXTENSION AND INTRODUCTION OF JETS AT BILLY BISHOP TORONTO CITY AIRPORT

AECOM

PortsToronto

Environmental Assessment of a Proposed Runway Extension and Introduction of Jets at Billy Bishop Toronto City Airport Final Study Design Report

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Acronym

AAC..... Agency Advisory Committee
ACRP ..... Airport Cooperative Research Program-Transportation Research Board
ADSB ..... Archaeological Sites Database
AHT..... Aquatic Habitat Toronto
ANSI..... Areas of Natural and Scientific Interest
APU..... Auxiliary Power Unit
AZR..... Airport Zoning Regulations
BBTCA ..... Billy Bishop Toronto City Airport
BHZ..... Bird Hazard Zone
BIA ..... Business Improvement Area
BQNB..... Bathurst Quay Neighbourhood Plan – City of Toronto
CEA Agency..... Canadian Environmental Assessment Agency
CEAA ..... Canadian Environmental Assessment Act
CH4..... Methane
CHAR..... Cultural Heritage Assessment Report
CO2..... Carbon Dioxide
Council ..... Toronto City Council
CS100 ..... Jets proposed by Porter Airlines
CWB..... Community Well-Being
CWS..... Canadian Wildlife Service
CWSP ..... Central Waterfront Secondary Plan – City of Toronto
DFO ..... Fisheries and Oceans Canada
EA ..... Environmental Assessment
EBPP..... East Bayfront Precinct Plan – City of Toronto
EC..... Environment Canada
ELC..... Ecological Land Classification
ESA..... Endangered Species Act
FAA..... U.S. Federal Aviation Administration
FLAP ..... Fatal Light Awareness Program
GA..... General Aviation
GBE ..... Government Business Enterprise
GHG..... Greenhouse Gas
GTA..... Greater Toronto Area
GTHA..... Greater Toronto Hamilton Area
HEAT..... Habitat and Environmental Assessment Tool
HIA..... Heritage Impact Assessment
ICAO ..... International Civil Aviation Organization
INM ..... Integrated Noise Model
LDN..... Average Sound Pressure Level over a whole day
LDPP..... Lower Don lands Precinct Plan – City of Toronto
LIO ..... Land Information Ontario
MEZ ..... Marine Exclusion Zone
MNRF..... Ministry of Natural Resources and Forestry
MOECC..... Ministry of the Environment and Climate Change

MTCS ..... Ministry of Tourism, Culture and Sport
N70 ..... Degree of Speech Interruption
NEF ..... Noise Exposure Forecast
NHIC ..... Natural Heritage Information Centre
NO2 ..... Nitrous Oxide
NPD ..... Noise-Power-Distance
NRVIS ..... Natural Resources Values Information System
OBBA ..... Ontario Bird Banding Association
OEAA ..... Ontario Environmental Assessment Act
ORNAMENT ..... Ontario Road Noise Analysis Method for Environment and Transportation
Q400 ..... Turbo Propeller Planes currently used by Porter Airlines and Air Canada
RESA ..... Runway End and Safety Area
SAC ..... Stakeholder Advisory Committee
SAR ..... Species at Risk
STEAM ..... Sound from Trains Environmental Analysis Method
TNIP ..... Australian Transparent Noise Information Package
TP312 ..... Aerodrome Standards and Recommended Practices
TPA ..... Toronto Port Authority
TPH ..... Toronto Public Health
TRCA ..... Toronto and Region Conservation Authority
TTP ..... Tommy Thompson Park
TTPBRS ..... Tommy Thompson Park Bird Research Station
UP ..... Union to Pearson Express
US EPA ..... United States Environmental Protection Agency
YTZ ..... Billy Bishop Toronto City Airport

1. Study Background and Purpose

1.1 Background and Introduction to the Billy Bishop Toronto City Airport

PortsToronto, formerly the Toronto Port Authority, was established by the Federal Government under the Canada *Marine Act* in 1999. They are a federally assigned Government Business Enterprise (GBE)[1] that provides regulatory controls of marine and air transportation in the port and harbour, grants permits for powered boating activities, oversees land development and engages in trade development for the port's terminals. PortsToronto is responsible for managing the entire Toronto Harbour area, including the Billy Bishop Toronto City Airport (BBTCA), formerly called the Toronto City Centre Airport (**Figure 1-1**).

PortsToronto operates in accordance with the Canada Marine Act and its Letters Patent[2], in addition to a series of specific bylaws, policies and procedures. PortsToronto's Letters Patent outlines the activities that can be undertaken by the organization. PortsToronto is responsible for the management of the movement, navigation, and berthing of vessels using the port and harbour to ensure safety and compliance with by-laws and regulations and the effective management of land operations in accordance with their Letters Patent. PortsTorono monitors navigable channels and navigational aids to comply with standards of the St. Lawrence Seaway. PortsToronto is responsible for the provision of services concerning navigation in the port and harbour of Toronto which includes the safe operation of various smaller watercraft under the Navigable Waters Protection Act.

According to the Canada Marine Act, PortsToronto is obliged to "manage the marine infrastructure and services in a commercial manner that encourages, and takes into account, input from users and the community in which a port or harbour is located" (Canada Marine Act, Section 4(f), 1998, p. 4). As such, in managing the BBTCA, PortsToronto must consider and assess proposed changes to the BBTCA operations and infrastructure in consultation with local communities and stakeholders.

1.2 Study Background

PortsToronto operates the BBTCA under the conditions of an agreement called the Tripartite Agreement which was originally drafted and signed in 1983 by the City of Toronto, Transport Canada and PortsToronto. The Tripartite Agreement details the conditions under which the BBTCA operates; such as the flight curfew, the noise limitations, the prohibition of the use of jet aircraft, the prohibition against any lengthening of the operational portion of the runway and the rights and responsibilities of each signatory. Without the consensus of all three signatories, no changes can be made to the Tripartite Agreement.

In 2013, Porter Airlines submitted a proposal to the City of Toronto, copying PortsToronto, requesting to introduce jet aircraft at the BBTCA. Part of this proposal included an extension of the land mass at each end of the main runway in order to lengthen the operational portion of the runway to accommodate the use of the requested jet aircraft for scheduled flight operations. As the Tripartite Agreement does not allow the use of jet aircraft for scheduled commercial travel or the lengthening of the operational portion of the runway, the terms of the Tripartite Agreement would need to be amended to approve Porter's proposal. In 2013 the City of Toronto undertook a review of the

1. *According to the CPA Canada Public Sector Accounting Handbook (ISBN: 0-88800-287-4) a government business enterprise is a separate legal entity that has been delegated by the federal government the financial and operational authority to carry on a business that may sell goods and services to individuals and organizations outside of the government, maintain its own operations and meet its liabilities from revenues received from sources outside of the government.*
2. *http://www.portstoronto.com/About-TPA/Governance/Letters-Patent.aspx*

potential impacts of Porter's Proposal, which were presented to the public and to Toronto City Council in late 2013 and early 2014. In consideration of the outcome of the City's review and concerns raised by some members of the community regarding existing airport operations, and prior to entering into negotiations to amend the Tripartite Agreement, the City of Toronto, in an April 1, 2014, City of Toronto Council resolution (City of Toronto, 2014), requested, in part, that further study and analysis of the effects of jet aircraft at the BBTCA and associated mitigation measures be completed. This request consisted of four key components and included:

1. Commencement of an Airport Master Plan for the BBTCA;
2. Development of a Precinct Plan for the Bathurst Quay neighbourhood (now called the Bathurst Quay Neighbourhood Plan);
3. Commencement of design work for the proposed runway extension; and
4. Completion of an environmental assessment.

Items 1 to 3 are further described in **Section 2.1**. Item 4, the completion of an environmental assessment (EA), is proposed to be completed through the studies described in this report.

1.3 Purpose of the Environmental Assessment

PortsToronto is undertaking this EA at the request of the City of Toronto to identify the effects of the proposed changes on the surrounding environment and to inform their position related to the proposal.

It is important to note that this EA is not an approval of Porter Airline's proposal, nor does it imply support for or against any aspect of the proposal. The result of the EA will be information that will allow all stakeholders to objectively consider the proposal and to make a decision for themselves on the choices that need to be made in terms of impacts, benefits, and mitigation measures associated with the potential implementation of the proposal.

The EA will address one of many requests made by Toronto City Council on April 1, 2014, in debating the City's position on the request to amend the Tripartite Agreement.

1.4 Purpose of the Study Design Report

This Study Design Report outlines the framework for the preparation of the EA. It has been prepared with input from stakeholders, including members of the public, agencies and interest groups, as described in **Section 4**.

The purpose of this Study Design Report is three-fold:

1. Outline the study process that PortsToronto proposes to follow for the EA and provide a focus for early engagement.
2. Document, for stakeholder review and comment, the planning decisions that have been made on a preliminary basis with respect to:
   - the scenarios to be assessed by the EA;
   - the measures to assess the effects of the proposal; and
   - the methods for conducting the effects assessment.
3. Provide the basis for moving the study forward once stakeholder comments regarding the above have been considered.

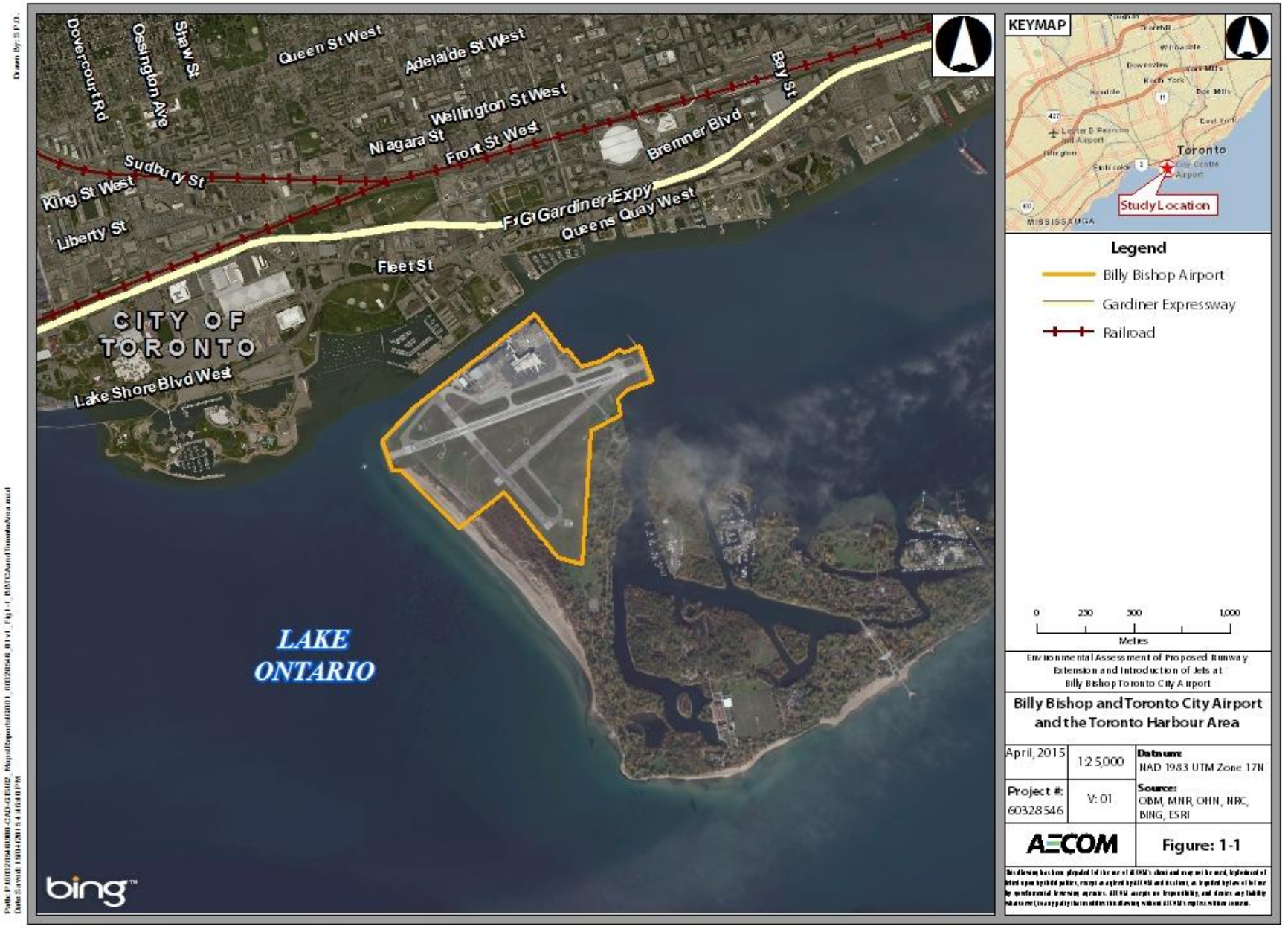

Figure 1-1: Billy Bishop and Toronto City Airport and the Toronto Harbour Area

The scope of the EA will focus on the following effects assessment studies:

- Air Quality;
- Public Health;
- Noise;
- Marine Navigation;
- Marine Physical Conditions and Water Quality;
- Built Form and Land Use;
- Archaeology and Built Heritage;
- Socio-Economic Conditions;
- Natural Environment; and,
- Transportation.

The study will follow the evaluation process and decisions outlined in this document; however, it is possible that during the EA, PortsToronto will determine that minor changes to the process are required based on new and directly applicable information from the Study Team or through discussions with a regulatory authority or agency. These changes to the process may include modifications or additions to the impact assessment evaluation methodologies or to the engagement methods, for example. If this should occur, affected parties will be notified of the proposed changes.

Up to this point, numerous meetings with a broad range of stakeholders and agencies have been held to review objectives, define the scope of the various studies and to determine the assessment methods. This Study Design has been informed and guided by many contributors and commenters. A list of stakeholders and agencies engaged throughout the process is presented in **Section 4**.

The work defined in the following subsections of this Study Design Report will result in a comprehensive analysis of the airport's existing and potential future operations and the local environment which may impact upon or be impacted by potential changes in operating procedures and changes to infrastructure at the BBTCA.

1.5 What has Changed in this Document?

Since August of 2014, PortsToronto has undertaken significant consultation activities with members of the public, with stakeholders, with agencies and with the City of Toronto and Waterfront Toronto to develop the scope of work for the EA study that describes herein the studies to be undertaken as part of the EA, the methodologies for undertaking those studies, and the means for reporting on the results of those studies. This Study Design document has been developed with input and feedback on a multitude of issues and concerns raised by hundreds of people, agencies and stakeholder groups throughout the past 12 months. On April 20, 2015 a draft of this document was released for public review and comment. In addition, Waterfront Toronto hired a third party peer reviewer to review and comment on the draft Study Design. The peer reviewer provided draft and final comments on the draft Study Design to PortsToronto. This document has been updated to address the comments received from the public, stakeholders and agencies during the 30-day review period, as well as comments received from the peer reviewer. Comments received on the Draft Study Design since its release are reflected throughout this document and its appendices. The key changes made to the Study Design methods are summarized in the table below. The details of every comment received on the draft Study Design and the response to each individual comment are included in **Appendix C**.

Subject Area	Summary of Comments Received	Summary of Changes Made
EA Process	A number of requests were made for the EA to assess different scenarios than those detailed in the Draft Study Design Document, including a scenario in which no airport exists in the future, and a scenario in which the airport does not grow beyond current conditions.	The Study Design has been updated in Section 3.1.1 and 3.1.2 to clarify the details of the scenarios to be assessed, including identifying the ways in which the scenarios proposed for review align with the April 1, 2014 resolution of Toronto City Council. As noted by the peer reviewer, "This approach, which includes the consideration of two (2) alternative scenarios (future baseline without the project, and future with the proposed runway extension and jet aircraft), is reasonable and consistent with best practice when no specific federal or provincial EA process is triggered."

Subject Area	Summary of Comments Received	Summary of Changes Made
	Clarification has been requested on how the outcome of this EA will be used by decision-makers.	The Study Design has been updated in Section 5 to explain that the proposal constitutes infrastructure and operational changes that cannot be undertaken without amendments to the Tripartite Agreement, and as such, any of the proposed changes presented in this document that are not currently allowed under the Tripartite Agreement will require agreement from the City of Toronto, Transport Canada, and PortsToronto to be included in an amended agreement before being implemented. This section also indicates that the EA is not a decision-making mechanism, but a decision-support tool for the three signatories of the Tripartite Agreement to refer to in deciding whether or how to amend the Agreement.
Air Quality	It was requested that the Study Area be altered to include areas to the north of the draft Study Area, and that more sensitive receptors be placed to the north of the Gardiner Expressway.	The Study Area for the air quality impact assessment has been developed to assess the areas where receptors could be most affected by potential changes to emissions that could result from the introduction of jet aircraft at BBTCA. Two sensitive receptor locations have been added to the north of the Gardiner Expressway in Wards 19 and 20 in the Air Quality Study Area figure presented in Section 3.3.2 and Appendix B.
	It was requested that different meteorological conditions be considered in the assessment of both noise and air quality impacts.	The Study Design has been updated in Appendix B, Attachment A, for both air quality and noise. The air quality methodology has been updated to indicate that air quality modelling will be based on 1-year of hourly meteorological data process using CALMET software. As such, this covers a wide range of weather conditions With respect to noise, the assessment methodologies are generally based on a standard weather condition. However, the Noise Assessment Report will include information on the sensitivity of the measured noise levels to weather conditions, and on the frequency of certain key weather conditions, such as those associated with temperature inversions, low cloud and fog.
	Questions were asked about the composition of reported black particulate matter (sometimes referred to by respondents as “soot”) that appeared to be collecting on balconies and boat parts in the Central Waterfront area.	After the release of the draft Study Design, the Study Team became aware of an analysis of the black soot undertaken by the MOECC at the request of Toronto Public Health. The Study Design has been updated in Appendix B, Attachment A, in the air quality section to include review of, and reference to the results of this lab analysis in the methodology for the assessment of black soot.
Noise	More details on the assessment methodology were requested.	The Study Design has been updated in Appendix B, Attachment A, to clarify the sources of and methods for data collection, the software to be used to model existing conditions, and the methods to be employed to project future conditions.
	It was requested that noise monitoring equipment be installed at 34 Little Norway Crescent.	This equipment has been installed and noise readings have been taken from that location.
Public Health	A number of questions were asked about how impacts of the proposal would be assessed with regard to public health.	The draft Study Design proposed to assess public health as part of the Noise and Air Quality disciplines. The Study Team has engaged, and continues to engage, Toronto Public Health regarding the criteria to be used for this assessment. As a result of the comments received, the Study Design has been updated to make public health a separate discipline assessment in Section

Subject Area	Summary of Comments Received	Summary of Changes Made
		3.3.3 and Appendix B, Attachment A. Details of the methods for assessment have been included in Attachment B, and include impacts associated with both noise effects and changes to air quality.
Livability and Sense of Place on the Waterfront	Questions were asked about how the proposal could affect the waterfront revitalization efforts, and how those impacts may alter the anticipated future balance of uses and users along the waterfront.	The Study Design has been updated in Section 3.6 to add clarity to a section that describes the assessment methodology proposed to determine how impacts on specific waterfront uses could alter the overall balance of uses in the Central Waterfront area.
Transportation	It was requested that commercial/delivery vehicles be accounted for in the transportation impact assessment, and that the Study Area be enlarged to include Fleet Street.	The Study Design has been updated in Appendix B, Attachment A, to reflect that fuel delivery and other and commercial vehicles will be accounted for in the transportation and safety impact assessments, and the Study Area has been enlarged, as shown in Section 3.3.11.1 and Appendix B, to include the Fleet Street and Bathurst Street intersection.
Socioeconomic Environment	More detail was requested regarding methodological details of the social impact assessment and existing conditions survey methodology.	The draft Study Design indicated that specific survey questions would be developed in the winter/spring 2015. Following the release of the draft Study Design, these details were developed by socio-economic specialists experienced in creating surveys. The draft surveys have been presented to the SAC as well as the City of Toronto for review and comments have been incorporated into revisions. The Study Design has been updated in Appendix B, Attachment A, to clarify and provide more details about the information to be obtained from respondents and methods, as well as potential respondents.
	Details on the methods proposed to assess economic impacts were requested.	The Study Design has been updated in Appendix B, Attachment A, to clarify how the existing economic models will be used to support a qualitative assessment of the likely direction of economic effects, which will be based on social impacts.
	It was requested that construction impacts be considered on the social and economic environment.	The Study Design has been updated in Section 3 to clarify that effects will be assessed for both the construction and operations phases of the project.
Natural Environment	Additional methodological details for the aquatic environment section.	The Study Design has been updated in Appendix B, Attachment A, to provide more detail and clarity on the methods employed to survey aquatic habitat.

1.5.1 Third Party Peer Review

As a result of comments received during the development of the Draft Study Design, and as a step to further enhance the transparency of the overall environmental assessment process, PortsToronto is funding a third party peer review, which Waterfront Toronto is leading as the master developer of waterfront revitalization. Waterfront Toronto has led the selection and oversight of an independent consultant to conduct this review. The peer reviewer has reviewed the Study Design to evaluate whether: 1) the study methodology follows Federal and Provincial EA processes and best practices; 2) a sound agency, public and stakeholder engagement process was undertaken; and 3) agency, public and stakeholder comments have been adequately addressed. The Peer Review's comments and recommendations and PortsToronto's responses to those comments are provided in **Appendix C**.

2. Regulatory Environment

An EA is typically triggered by a requirement under the Canadian *Environmental Assessment Act* (CEAA) or the Ontario *EA Act*. As is further detailed in **Section 2.2** and **2.3**, the proposal is not subject to the requirements of either Act. Because there are no regulatory requirements defining the EA process for this proposal, the scope of work was developed based on engagement with stakeholders and on experience with other EAs at both the Provincial and Federal levels. This proposed approach blends the key elements of both the Federal and Provincial EA processes, taking into consideration input from stakeholders.

2.1 Co-ordinated Planning Process

As outlined above, on April 1, 2014, Toronto City Council (Council) adopted Item EX40.1 "Request to Amend the Tripartite Agreement for Billy Bishop Toronto City Airport" with amendments. This council resolution included a number of requirements that PortsToronto must fulfill, and these requirements were to be completed in three phases, prior to Council considering the requested amendments to the existing Tripartite Agreement. Additional details on the three phases and how they relate to the Scenarios being assessed in this EA are provided in **Section 3.1.2**.

The four key components of the requirements outlined in the first phase include the:

1. Commencement of an Airport Master Plan for the BBTCA;
2. Commencement of the Preliminary Runway Design;
3. Development of the Bathurst Quay Neighbourhood Plan (by City of Toronto staff); and
4. Completion of an environmental assessment.

The first two items are being undertaken by PortsToronto concurrently alongside this EA and are described in the following subsections. The third item is being undertaken by the City of Toronto, also concurrently with the first two items. The fourth component (environmental assessment) is the subject of this Study Design Report.

PortsToronto will finalize the draft 2015 Master Planning Exercise and design documents in order to provide the details of the elements for the EA to assess. The impacts of those elements will be determined by the EA, and could affect the final design or operational elements of the airport. As a result, PortsToronto has committed to waiting to finalize the Master Plan and Preliminary Runway Design until after the impact assessment studies for the EA are complete.

2.1.1 BBTCA Master Plan

PortsToronto's 2012 Master Plan describes the existing infrastructure at the BBTCA, provides aviation forecasts, infrastructure requirements and recommendations for the phasing and implementation of airport improvements. The 2012 Master Plan is a planning framework used to ensure that short-term developments do not impede longer term objectives at the BBTCA (WSP, 2014). The 2012 Master Plan was prepared under conditions outlined in the current Tripartite Agreement and as such, provides a framework for the future anticipated growth of the airport.

PortsToronto is currently undertaking the 2015 Master Planning Exercise to document future passenger volumes and the conceptual design of the airport should an extension of the land mass at each end of the main runway by 200 metres and commercial jets be permitted at the BBTCA through an amendment to the Tripartite Agreement. Key considerations regarding the construction of the land mass extension and details regarding operational changes, such as revised passenger volumes, established through the 2015 Master Planning Exercise are being incorporated into this EA for the purposes of the effects assessments. The 2015 Master Planning Exercise has included consultation with aviation and community stakeholders, as well as a public consultation session in the spring of 2015. The Exercise is anticipated to be completed in 2015.

2.1.2 Preliminary Runway Design

As per the April 1, 2014, request from Toronto City Council, PortsToronto is undertaking a runway design, among other initiatives, to identify the conceptual design details of the proposed 200-metre land mass extension at both ends of the main runway. The runway design will be based on the requirements of TP 312 - 4th Edition as this has been the standard in place since 1993 and throughout the past 16 months of runway design activities.

On July 31, 2015, Transport Canada announced the release of TP 312 - 5th Edition which will be in effect as of September 15, 2015. It has been confirmed by Transport Canada that airports that have begun runway design and construction under TP 312 - 4th Edition, can continue to plan and build to this Edition standard, in accordance with the details laid out in Transport Canada Advisory Circulars. Further, airports already in the design process may consider the merits of the two versions according to what best suits the airport's unique needs. In addition, airports that may not meet the time limitations set out in Transport Canada Advisory Circulars may be given a favourable consideration on a case by case basis, and granted a ministerial exemption to continue to build to the TP 312 - 4th Edition.

As such, the Environmental Assessment will consider the effects of the proposal and compliance with TP 312 - 4th Edition. PortsToronto is committed to the safe operations of all the facilities it manages, including the BBTCA. All operations will continue to comply with the applicable legislation.

Initial investigations by the design team supporting PortsToronto in the design of the proposed runway extension included two alternative design options. The first was based on a runway extension using lakefill, and the second was based on a runway extension through over-water decking supported by piles or piers. Upon further investigation by the design team, it was confirmed that the second option would not be feasible due to the force and height of waves in the vicinity of the outer harbour. As such, the EA will evaluate the impacts associated with the first runway design alternative.

The EA will also assess the potential impacts associated with the inclusion of a runway end safety area (RESA) in the future runway design. The RESA is a level graded area which extends beyond the runway threshold to provide an additional measure of safety in the event of an aircraft undershooting or overrunning the runway. RESAs are required where the runway length exceeds 1,200 meters or where a runway is utilized by scheduled passenger operations utilizing aircraft with more than nine seats.

In 2010, Transport Canada identified the requirement to implement a RESA at qualifying airports as an additional safety consideration. The installation of a RESA at the BBTCA would result in an amendment to the Tripartite Agreement (WSP Group, 2014), but will be required to comply with Transport Canada regulations. The RESA at the BBTCA would consist of a land mass extension at both ends of the main runway (Runway 06-26) which includes lakefilling in the Toronto Harbour within the Marine Exclusion Zone (MEZ). Although not required under the CEAA, an EA report for lakefilling in the area where the RESA will be required, "Lakefill within Marine Exclusion Zone (Keep-out-Area) Toronto Harbour", was completed in January, 2013 (Dillon Consulting, 2013).

Transport Canada has confirmed that runway approach lighting will not be a requirement at BBTCA if the proposal is approved, because the proposal does not result in a change in the type of runway approach at the airport. BBTCA is a non-precision approach airport, and this will not change as a result of the proposed changes to operations or the runway.

2.1.3 Bathurst Quay Neighbourhood Plan

In January 2015, the City of Toronto commenced the Bathurst Quay Neighbourhood Plan (BQNP) study in order to identify a long-term plan for the community immediately adjacent to the BBTCA. As per the study's website, the study will identify improvements relating to:

- Public realm;
- Transportation;
- Pedestrian and cycling connections and facilities; and
- Parks and open spaces.

Although this study is being conducted by the City of Toronto separate from the two studies previously described, it is linked to the 2015 Master Planning Exercise insofar as the study will recognize the interrelationship of the neighbourhood and the airport, and aims to develop an approach to address access issues at the airport (City of Toronto, 2015). The BQNP is scheduled to be finalized in 2015.

2.1.4 Other Relevant Planning Processes

In order to understand the future context in which the proposed changes at BBTCA could take place, PortsToronto will consult additional relevant planning documents, including, but not limited to:

- City of Toronto Official Plan;
- City of Toronto Parks Plan 2013 - 2017;
- Creative City Planning Framework;
- Toronto Bike Plan;
- Clean Water, Clear Choices;
- Making Waves – Central Waterfront Secondary Plan II;
- The Toronto Waterfront Scan and Environmental Improvement Strategy Study;
- Toronto Waterfront Aquatic Habitat Restoration Strategy;
- Recreational Fisheries Plan;
- Port Lands Profile;
- West Don Lands Precinct Plan;
- East Bayfront Precinct Plan;
- Villiers Island Precinct Plan; and
- Port Lands Acceleration Initiative – Film Studio District.

These documents cover a variety of topics relating to:

- Land use development;
- Transportation;
- Pedestrian and cycling connections and facilities;
- Parks and open space;
- Environmental sustainability;
- Waterfront revitalization;
- Waterfront planning; and
- Precinct planning and urban development.

2.1.5 Summary of Master Plan, Preliminary Runway Design and Environmental Assessment

The Study Team has received many questions relating to the relationship between the Master Plan, Preliminary Runway Design and the Environmental Assessment. The purpose of the following table is to highlight the components of the project that fall under the jurisdiction of each process.

2015 Master Planning Exercise	Preliminary Runway Design	Environmental Assessment
Will determine changes to: - Number of daily commercial slots; - Total passengers/year; - Total annual aircraft movements; - Total annual non-commercial aircraft movements; - Passengers in peak hour; - Groundside infrastructure; - Control or approach surfaces; - Airport safety as it relates to Transport Canada's regulations that guide airport design and operation; - Marine Exclusion Zone; - Volume of fuel trucks or other delivery trucks; - Demand, operations and functional improvements to the existing Passenger Pick-up/drop-off zone; - Flight paths, heights; and, - Growth opportunities and market demand.	Will confirm key conceptual design details such as: - Runway extension; - Parallel taxiway; - Starter strip; - Jet blast fence; - Potential noise barrier (to be confirmed); - Localizer antenna and associated shelter; - Rock break walls; and - Parallel Taxiway A, relocation of Glide Path 26, and relocation of marine radar.	Will assess impacts of: - Changes identified in the 2015 Mater Planning Exercise - Changes identified in the 2012 Master Plan - Design details developed through the Preliminary Runway Design

The 2015 Master Planning and Preliminary Runway Design documents will provide the details of proposed changes at the BBTCA that will be assessed for impacts by the Environmental Assessment. Any identified impacts could affect the final design or operational elements of the airport if the Environmental Assessment identifies the requirement for mitigation measures. As a result, PortsToronto has committed to waiting to finalize the 2015 Master Planning Exercise and Preliminary Runway Design until after the effects assessment studies for the Environmental Assessment are complete.

2.2 Canadian Environmental Assessment Act

The Federal EA process generally involves a review of a project's impacts completed by or on behalf of the proponent, a Federal ministry or agency. The process involves the determination of impacts and associated mitigation measures, a cumulative effects assessment and First Nation and Métis consultation (Government of Canada, 2014).

The process consists of the Canadian Environmental Assessment Agency (CEA Agency) approving a Project Description at the initial stages of the EA and reviewing the final Environmental Study Report after the EA has been conducted. In rare cases, the CEA Agency may determine that public hearings are required to assess whether impacts of the proposed project are acceptable in consideration of the project's benefits. In these cases, the CEA Agency will make a decision on the justification of a project after consideration of all material submitted at the hearing.

The Federal EA process is outlined in the Canadian Environmental Assessment Act (CEAA). The CEAA is triggered when a proposed project is described in the Act's *Regulations Designating Physical Activities* or if the Minister of the

Environment determines that an EA is required. In a letter dated February 25, 2015, the CEA Agency confirmed that the proposal "is not described in the *Regulations*". This means that the proposal is not subject to a Federal EA. A copy of this letter is provided in **Appendix A**.

The CEA Agency also indicated that due to the proposal's location, in part, on federal lands (owned by Transport Canada); there is a requirement to comply with Section 67 of CEAA 2012, as follows:

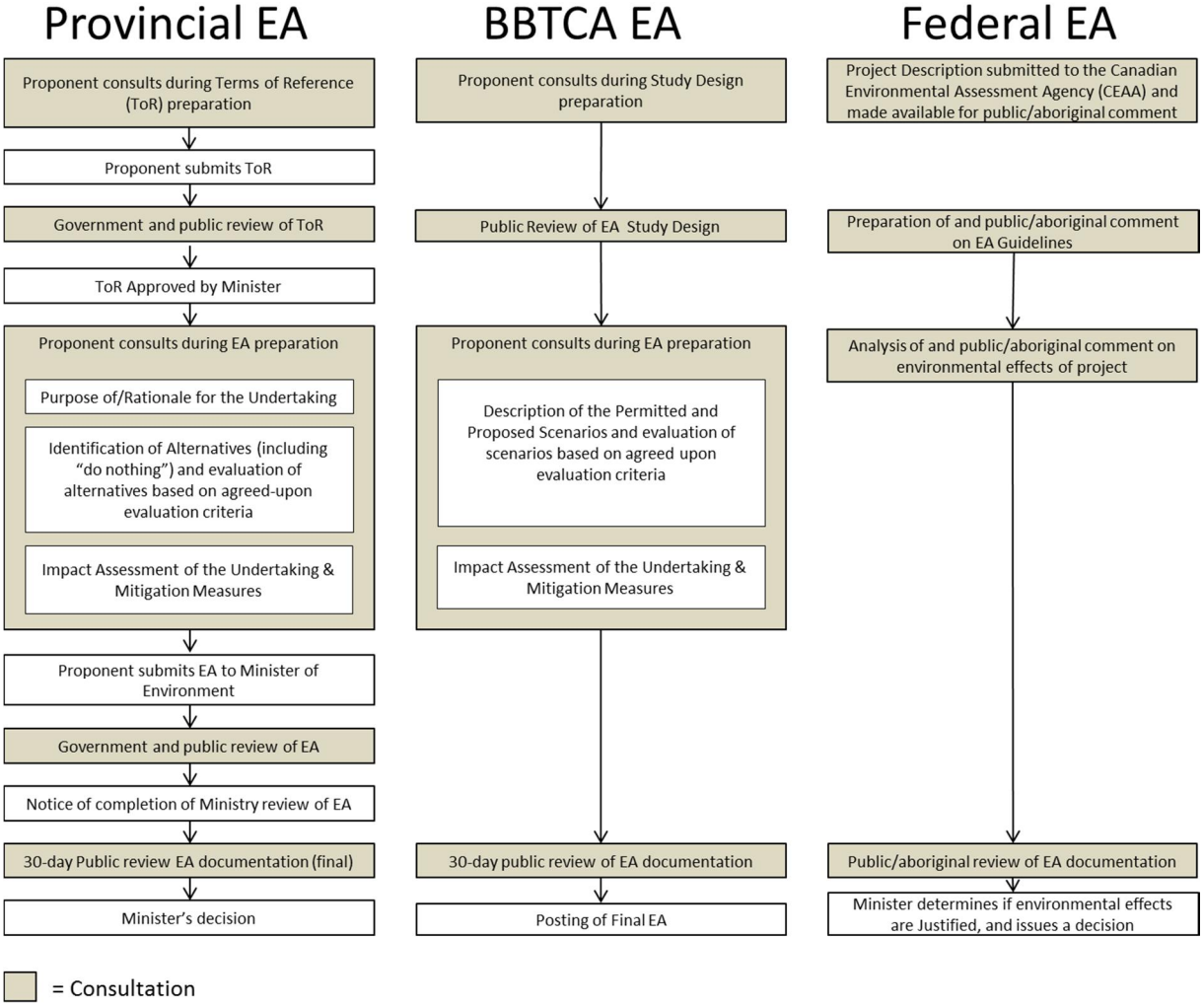

Figure 2-1: Summary of the Key Federal and Provincial EA Requirements

67. An authority must not carry out a project on federal lands, or exercise any power or perform any duty or function conferred on it under any Act of Parliament other than this Act that could permit a project to be carried out, in whole or in part, on federal lands, unless

(a) the authority determines that the carrying out of the project is not likely to cause significant adverse environmental effects; or

(b) the authority determines that the carrying out of the project is likely to cause significant adverse environmental effects and the Governor in Council decides that those effects are justified in the circumstances under subsection 69(3).

It is PortsToronto's position that Section 67 of the CEAA, 2012 is being addressed through the completion of this EA, which will identify whether the proposal has the potential to cause significant adverse environmental effects. PortsToronto has maintained communication with Transport Canada throughout the development of the Study Design and will continue to do so for the duration of the EA. Transport Canada have been actively involved in the EA process to date, participating in the Agency Advisory Committee, as detailed in **Section 4**.

2.3 Ontario *Environmental Assessment Act*

The Provincial process is outlined in the Ontario EA Act which is a public impact review process and is completed by provincial ministries and agencies, municipalities and public bodies, such as conservation authorities (Government of Ontario, 2015). Once the process is complete, a report is prepared and released for a mandatory period of stakeholder review. Assuming no significant concerns are raised during the review period, the project is approved by the Ministry of the Environment and Climate Change (MOECC).

The Ontario EA Act mandates public, First Nation and Métis review and, for significant projects (assessed through a process called an Individual EA), the MOECC approves a Terms of Reference document which details and guides the EA process. Environmental Study Reports, outlining the project approach and engagement opportunities, and study outcomes are then prepared according to the process laid out in the Terms of Reference.

Key components of the Terms of Reference include a description of the alternatives to be assessed, how impacts will be evaluated, and how the public, agencies and First Nation and Métis communities will be engaged through the process. Some EAs under the Provincial process do not consider alternatives; these are called "Focused" EAs. The EA process proposed by PortsToronto will not include the consideration of alternatives.

In a letter dated December 15, 2015, the MOECC confirmed that "*as the operation and expansion of airports is the Federal government's responsibility, the Province of Ontario has no jurisdiction under the EAA and accordingly, there are no requirements under the EAA for the proposed extension of the airport's runway*". As such, the proposal is not subject to a Provincial EA. A copy of this letter is provided in **Appendix A**.

3. Proposed Environmental Assessment Methodology

As a result of the magnitude of public interest in the choices and trade-offs associated with the proposal, PortsToronto elected to follow the general framework set out under the Ontario EA Act due to the robustness of the engagement process enabled by the Act. In addition, the EA process being undertaken here has been enhanced with elements of the Federal EA process, as described in the CEAA that are useful to understanding the implications of the proposal. Thus, the EA process proposed by PortsToronto will incorporate procedural elements from both the Federal and Provincial EA Acts and will include an assessment of environmental, social and economic effects (positive and negative) of two future growth scenarios. These two scenarios are detailed in **Section 3.1** and include the following:

Future Baseline Scenario: The operational portion of the runway is not extended and jets are not permitted at BBTCA; and

Proposed Future Scenario: Tripartite Agreement is amended to permit commercial jet operations and the extension of the land mass by 200 metres at each end of the main runway.

The purpose of this Study Design Report is in part to outline the study process that PortsToronto proposes to follow for the EA and to demonstrate modifications made to the process based on engagement with stakeholders and agencies. The Study Design Report was released in draft in advance of finalization to solicit comments and feedback from the public, agencies, and stakeholders, and has been modified to address the comments received.

As illustrated in **Figure 2-1** above, the EA process includes a number of opportunities for review and comment and allows for the engagement process to receive and address public, First Nation and Métis, stakeholder and agency feedback and comments. **Figure 3-1** below, depicts the effects assessment evaluation and comparison process proposed for this project and is described in the steps below.

Key steps in the study process include:

1. **Determine the Future Growth Scenarios**
   - Describe the Future Baseline and Proposed Future Scenarios, as outlined in the existing 2012 Master Plan for the BBTCA and the 2015 Master Planning Exercise.
2. **Outline Existing Environmental Conditions and Constraints**
   - Identify and describe the existing environmental conditions potentially affected by the undertaking as they relate to each effects assessment study.
     - In addition, the EA will describe the potential future environmental conditions that may not be related to changes at the airport as these will form the basis for the effects assessment of the Future Baseline and Proposed Future Scenarios.
     - Existing conditions must first be described in order to understand the future environmental conditions.
   - The effects assessment studies include:
     - Air Quality;
     - Public Health;
     - Noise;
     - Marine Navigation;
     - Marine Physical and Water Quality;
     - Built Form and Land Use;
     - Archaeology and Built Heritage;
     - Socio-Economic;
     - Natural Environment; and,
     - Transportation.

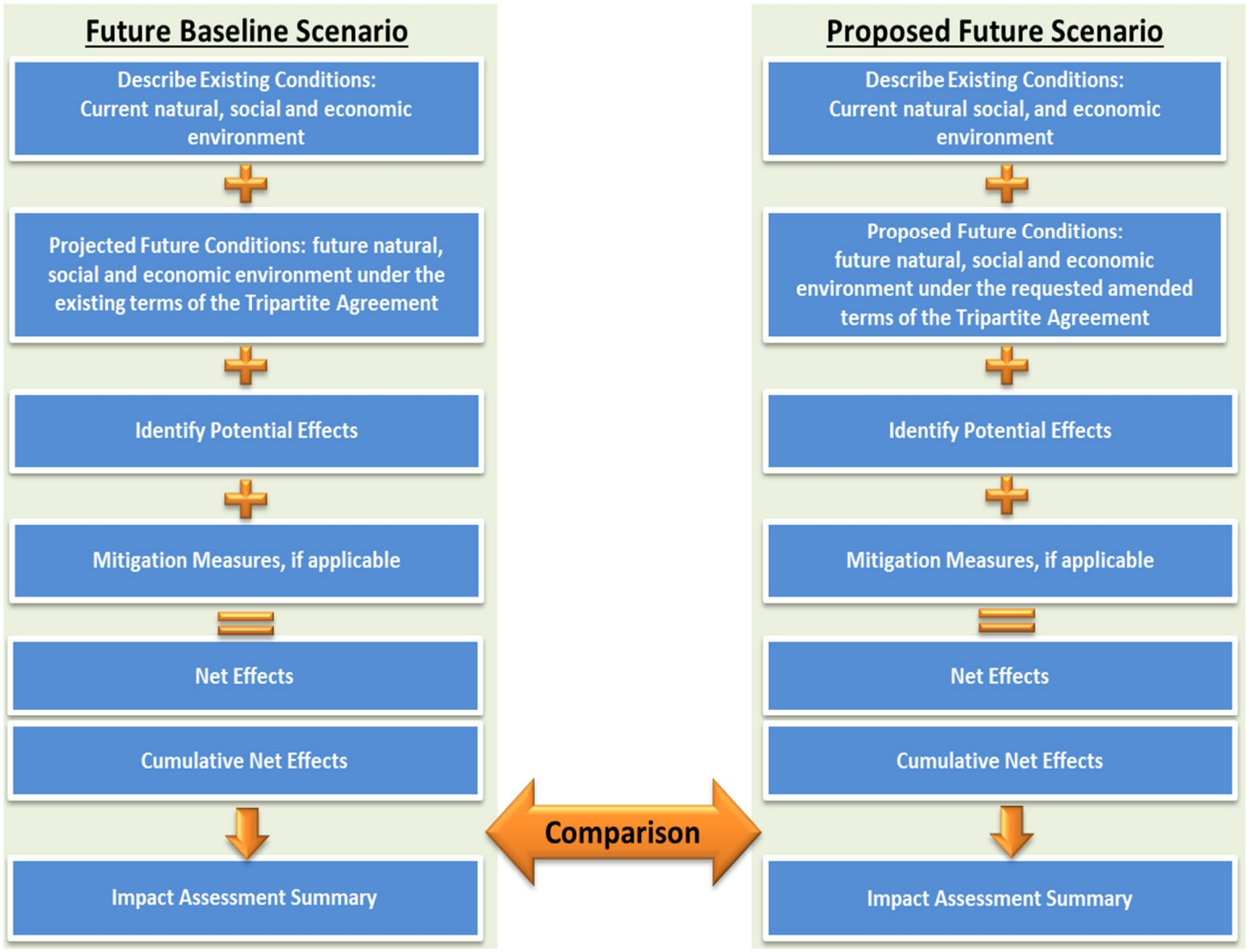

Figure 3-1: Effects Assessment Evaluation and Comparison Process

3. Conduct the Cumulative Effects Assessment

- Identify and assess potential environmental effects of the Future Baseline and the Proposed Future Scenarios in consideration of future environmental conditions. To document future environmental conditions, take into account other past, present and certain or reasonably foreseeable future effects from other actions/projects within the same geographic and temporal boundaries of this assessment. In addition to integrating effects from other actions/projects, the cumulative effects assessment also considers effects identified from the other effects assessment studies conducted for this project.
  - Construction effects will be assessed in consideration of existing conditions as these conditions will be similar to those if the Proposal should proceed.
  - Operational effects will be assessed in consideration of future environmental conditions as this timeframe represents the full impact of the operational stage project.

- Document potential effects on community assets through the studies listed above and detailed in the Work Plans (See **Appendix B**). A community asset is a feature that may be affected by the proposal that has been identified to be of concern by the public, government agencies, First Nation and Métis communities, or the proponent.
- Develop appropriate avoidance/mitigation measures to address the effects and identify net (also known as "residual") effects.
- The process for identifying net effects is depicted in **Figure 3-1**.

4. Compare Cumulative Net Effects

- The cumulative net effects of the Proposed Future Scenario on community assets will be compared to the cumulative net effects of the Future Baseline Scenario on community assets.
- It is anticipated that numerous additional changes to the ambient, or background conditions within the urban and natural environments within each study area will take place between now and the end of the planning horizon that are likely to be unrelated to the proposed airport growth. These changes will include major population growth in the Central Waterfront and Port Lands, major changes to transportation infrastructure and travel behaviour in and around the Central Waterfront, ongoing implementation of environmental remediation measures, ongoing improvements to sanitary and stormwater infrastructure, and local and regional demographic changes. These and other potential changes over time represent confounding factors that could dilute or amplify the perceived effects of the Proposed Future Scenario as compared to existing conditions. Because the ambient conditions today will be different from the ambient conditions in the future, comparing the effects of future proposed growth to current operations results in a comparison of "apples to oranges." The Future Baseline Scenario will be modelled using the same ambient conditions as the Proposed Future Scenario, allowing for a comparison of cumulative net effects that can isolate the impacts of the proposed growth at the airport from the impacts of other future changes to the urban and natural environment. This approach yields a more robust "apples to apples" comparison of cumulative net effects.

5. Prepare the Impact Assessment Summary

- Identify the overall direction of effect on all assets (i.e., will the asset be diminished, enhanced or maintained as a result of the proposal to allow jets and the extension of the land mass at each end of the main runway) by comparing the identified net effects of the Proposed Future Scenario to the Future Baseline Scenario. See **Section 3.6**, Step 1 for more information.
- Consolidate effects from effects assessment studies by representative location and activity in order to describe the possible changes to "user experiences" as a result of the proposal in a series of vignettes. See **Section 3.6**, Step 2 for more information.

6. Conduct Ongoing Engagement

- Engage with stakeholders (residents; interest groups; municipal, provincial and federal representatives; etc.) and First Nation and Métis communities throughout the planning process.
- Public Meetings at key decision points. Note that the Engagement Plan is described in **Section 4**.

7. Prepare the Environmental Assessment Study Report

- Prepare an Environmental Assessment Study Report to document the EA.

Each of these steps is described in the following sections.

The intent of this EA is to present a thorough and transparent analysis of potential environmental effects of the Future Growth Scenarios and not to make a recommendation for the future operations at the BBTCA.

3.1 Determine the Future Growth Scenarios:

The EA will focus on the assessment and evaluation of two future scenarios at the BBTCA.

1. **Future Baseline Scenario:** ..... The runway is not extended and jets are not permitted at BBTCA; and
2. **Proposed Future Scenario:**..... Tripartite Agreement is amended to permit commercial jet operations and the extension of the land mass by 200 metres at each end of the main runway.

The EA will also include consideration and documentation of the comments and concerns from participants in the engagement process. Additional details regarding the approach for the assessment of the scenarios is described in **Section 4.3**.

3.1.1 Generation of the Future Baseline and Proposed Future Scenarios

The description of the Future Baseline Scenario is derived from PortsToronto's 2012 revised Master Plan which details the growth that can occur within the requirements of the existing Tripartite Agreement. The Proposed Future Scenario is derived from PortsToronto's 2015 Master Planning Exercise (currently being finalized) which includes future passenger volumes that can be accommodated should the Tripartite Agreement be amended to permit commercial jets to operate from the BBTCA.

Under the current Tripartite Agreement, there are no limitations on the number of flight slots (scheduled aircraft take-offs and landings) or passengers that the BBTCA can serve. It should be noted that PortsToronto has imposed internal restrictions of 202 slots per day for current commercial flights in order to maintain compliance with the noise restrictions currently imposed by the Tripartite Agreement.

The Future Scenarios described below could be limited or conversely, achieved in shorter time frames, depending on the amount and type of supporting infrastructure that will serve passengers and aircraft accessing the BBTCA, market demand and other feasibility considerations. This infrastructure falls under three general types and includes:

Groundside Infrastructure:

- Mainland parking – location, number of long-term spots, number of short-term spots;
- Island parking – location, number of long-term spots, number of short-term spots;
- Taxi corral – location, number of spots;
- Curb-side pick-up/drop-off – location, capacity per hour;
- Terminal building – airport security processing (peak passenger/hour), customs processing (peak passenger/hour), passenger check-in/bag drop (peak passenger/hour);
- Pedestrian tunnel – passenger/hour capacity;
- Ferry terminal building – location, capacity;
- Ferry – vehicle capacity/trip, pedestrian capacity/trip, trips/hour, operation start time/end time.

Airside Infrastructure:

- Number of daily slots;
- Runway 08-26 length, width, location, orientation;
- Runway End Safety Area
- Taxiways – location, capacity;
- Engine run-up housing – location, use (tests per month);
- Flight paths and associated control or approach surfaces.

Support Infrastructure:

- Fuel storage – capacity, location, refilling requirements;
- De-icing – location, fluid containment.

The Scenarios noted above and discussed in detail below also account for potential limitations to passenger volumes during peak periods which could occur as a result of land use development on areas near the airport terminal (e.g., at the south end of Eireann Quay or within the vicinity of the waterfront). The land development and potential for impacts will vary depending on the supporting mainland infrastructure including development beyond the control of PortsToronto such as:

- Public Transit (routes, capacity, schedules);
- Residential Development (location, density);
- Commercial/Retail development (location, density of jobs);
- Roadways (vehicle capacity); and
- Active Transportation (location and use of bicycle paths, sidewalks, multi-use trails).

3.1.1.1 Future Baseline Scenario: Current Runway Configuration, Additional Passengers

As noted, under the current Tripartite Agreement there are no limitations placed on the number of slots or passenger volumes at BBTCA; however, PortsToronto has voluntarily limited the number of flight slots available per day at the BBTCA to 202 for scheduled commercial flights in order to comply with noise restrictions.

The degree to which airport operations can continue to grow within the current Tripartite Agreement has been assessed in PortsToronto's current Master Plan, referred to as the 2012 Master Plan. Based on the 2012 Master Plan, anticipated growth at the airport is as follows:

Table 3-1: 2012 Airport Master Plan: Anticipated Growth Compared to Current Operations

BBTCA Details	Today 2014	ANTICIPATED GROWTH 2012 Master Plan
Land Mass Extension Required	No	Yes, for *Runway End safety Area* (approx. 43 m)
Runway Length (TORA)	1,216 m	1,216 m
# of Daily Commercial Slots	202	202
# of Total Passengers/Year Groundside *Number in brackets reflects total passengers moving through the airport**	2.0 million (2.43 million)	2.7 million (3.8 million)
# of Total Annual Aircraft Movements	114,428	140,700
# Total Annual Non-commercial Aircraft Movements	Approx. 53,166	Approx. 66,098
# of Passengers in Peak Hour Groundside *Number in brackets reflects total passengers moving through the airport**	708 (944)	1,085 (1,447)
Type of Commercial Aircraft	Q400	Q400
Changes to the MEZ	No change	No change

*Note: * Total passengers includes those "in transit" that don't exit BBTCA*

Project components to be assessed as part of this scenario include:

- Anticipated growth listed above; and
- RESA.

3.1.1.2 Proposed Future Scenario: Tripartite Agreement Amended to Allow Jet-Powered Aircraft and a Runway Extension

The proposed amendment to the Tripartite Agreement would allow for the operation of commercial jet aircraft and an extension of the land mass at each end of the main runway by 200 metres. As noted, a new 2015 Master Planning Exercise is currently underway for the BBTCA, as requested by City Council, and it will contemplate the future passenger volumes that can be accommodated at BBTCA should jets be allowed and the runway extended.

Based on the 2015 Master Planning Exercise, proposed growth at the airport is as follows:

Table 3-2: 2015 Master Planning Exercise: Proposed Growth Compared to Current Operations

BBTCA Details	Today 2014	PROPOSED GROWTH With Runway Extension and Jets
Land Mass Extension Required	No	Yes, for jets (200 m) Includes RESA
Runway Length (TORA)	1,216 m	1,658 m
# of Daily Commercial Slots	202	242
# of Total Passengers/Year Groundside *Number in brackets reflects total passengers moving through the airport**	2.0 million (2.43 million)	4.1 million (5.5 million)
# of Total Annual Aircraft Movements	114,428	138,170
# Total Annual Non-commercial Aircraft Movements	Approx. 53,166	Approx. 64,778
# of Passengers in Peak Hour Groundside *Number in brackets reflects total passengers moving through the airport**	708 (944)	1,306 (1,741)
Type of Commercial Aircraft	Q400	Q400, CS100 & other qualifying jets
Changes to the MEZ	No change	No change in length, 10 to 25 m increase in width

*Note: * Total passengers includes those "in transit" that don't exit BBTCA*

Project components to be assessed as part of this scenario include:

- Anticipated growth listed above;
- RESA;
- Runway extension;
- Parallel taxiway;
- Starter strip;
- Jet blast fence;
- Potential noise barrier (to be confirmed); and
- Localizer antenna and associated shelter, and rock break walls.

In addition, the project scope outside of the landmass extension includes parallel Taxiway A, relocation of Glide Path 26, and relocation of marine radar.

3.1.2 Alignment of the Future Baseline and Proposed Future Scenarios with the April 1 Council Resolution

The April 1, 2014 City Council resolution authorized the Deputy City Manager, Cluster B to negotiate with the Toronto Port Authority and Transport Canada a phased framework for managing growth at Billy Bishop Toronto City Airport, subject to a number of conditions being met in advance of negotiation. The phased framework for growth included proposed limits on airport operations during the first two phases. The Scenarios being assessed as part of the EA align with these phases, as follows.

April 1, 2014 Council-Adopted Growth Limitations	BBTCA Runway and Jets EA Operational Scenarios
Phase One: i. Annual origin/destination passenger cap of 2.4 million; ii. Peak hour flight (slot) cap of 16; iii. Peak hour origin/destination passenger cap of 884; and iv. Daily flight (slot) cap of 202.	**Existing Conditions** i. Annual groundside passenger volume of 2.0 million; ii. Peak hour flight slots of 16; iii. Peak hour groundside passenger volume of 708; and iv. Daily slots of 202.
Phase Two: i. Annual origin/destination passenger cap of 2.7 million; ii. Peak hour flight (slot) cap of 20; iii. Peak hour/destination passenger cap of 1,178; and iv. Daily flight (slot) cap of 202.	**Future Baseline Scenario** i. Annual groundside passenger volume of 2.7 million; ii. Peak hour flight slots of 24; iii. Peak hour groundside passenger volume of 1,085; and iv. Daily slots of 202.
Phase Three: i. Passenger and flight (slot) caps, based on transportation capacity, community impacts and experience with Phases One and Two.	**Proposed Future Scenario** i. Annual groundside passenger volume of 4.1 million; ii. Peak hour flight slots of 24; iii. Peak hour groundside passenger volume of 1,306; and iv. Daily slots of 242.

The April 1 council resolution also included a request for the implementation of additional measures as part of the three-phased framework for managing growth at the BBTCA. The measures included in Phase One are summarized below:

- Passenger wayfinding and route planning tools for users of the airport;
- Taxi operational adjustments to achieve increased passenger efficiency;
- Enhancement of shuttle service to achieve an increased modal split and regular monitoring and reporting of shuttle usage to the City;
- Traffic monitoring for Eireann Quay and reporting to the City;
- Airport noise monitoring system and reporting protocol;
- Restrictions on ground-based airport noise;
- Review of de-icing and chemical management programs;
- Air quality monitoring and reporting to the City;
- Construction of aircraft run-up barrier or enclosure and alternate procedures for mitigating run-up noise in the interim; and
- Robust plan for public and stakeholder input into all planning exercises including the Airport Master Plan and runway extensions environmental assessment.

PortsToronto has committed to undertaking the actions listed above that are anticipated to result in groundside operational improvements, and reduce the impacts of current airport operations on the surrounding community. Regardless of the outcome of the decision on the request to amend the Tripartite Agreement, PortsToronto wishes

to continue to work with the City of Toronto and other stakeholders to undertake the activities outlined above. These activities are in direct response to issues that have been raised by the City and the local community. These will be incorporated into the projection of the Future Baseline Scenario, which is detailed above.

3.2 Outline Existing Environmental Conditions and Constraints:

The BBTCA is located on the Toronto Islands, adjacent to an urbanized waterfront. The area surrounding the airport is used by local residents, non-residents, and visitors to the City of Toronto for a variety of purposes, such as, residential living, recreational and tourist activities, commercial operations and institutional uses (such as for the operation of schools). Existing environmental conditions will be reviewed in detail as part of each effects assessment study, which will focus on a geographic area where the particular impact under investigation can reasonably be assumed to be measurable. This geographic area is called the Study Area. All study areas include lands adjacent to the BBTCA and some Study Areas extend more broadly across the waterfront, the islands or to other parts of the City of Toronto. The general area within which the effects assessment Study Areas fall are outlined in **Figure 3-2**. The Study Areas and review of existing conditions will form the basis for the effects assessment during the EA and may be updated throughout the planning process based on new information identified by the Study Team or a regulatory authority, if applicable.

It is important to note that this EA will not document or assess a “no-airport” scenario. The baseline future projections will focus on existing conditions, including the uses, benefits and impacts of current airport operations. Potential future environmental conditions for each effects assessment study will also be described as these will form the basis for the cumulative net effects assessment of the Future Baseline and Proposed Future Scenarios within each effects assessment study.

A key step in outlining the existing environmental conditions and constraints involves reviewing applicable background information. The background information and previous studies reviewed to date are listed in the Work Plans in **Appendix B** and in the reference list in **Section 7** of this report.

Background information review, in addition to data collected through the processes outlined in the work plans for each effects assessment study will inform the description of the existing conditions and constraints.

3.3 Conduct the Effects Assessment

As previously indicated, in order to identify potential effects, each effects assessment study will consider the potential future environmental conditions in which the Future Baseline Scenario and the Proposed Future Scenario could occur.

The below sub-sections provide a description of methods for undertaking each effects assessment study as detailed in the associated work plans (included as **Appendix B**). The effects assessment studies will identify and assess the potential environmental effects of the Future Growth Scenarios on the identified community assets. Many of the effects assessment studies will consider the results obtained through the work completed by other effects assessment studies, or studies completed by others through different projects.

3.3.1 Work Plans

This section summarizes the study areas and provides a general description of the effects assessment study methodologies outlined in the work plans. Details of the effects assessment study methodologies can be found in **Appendix B, Attachment A**.

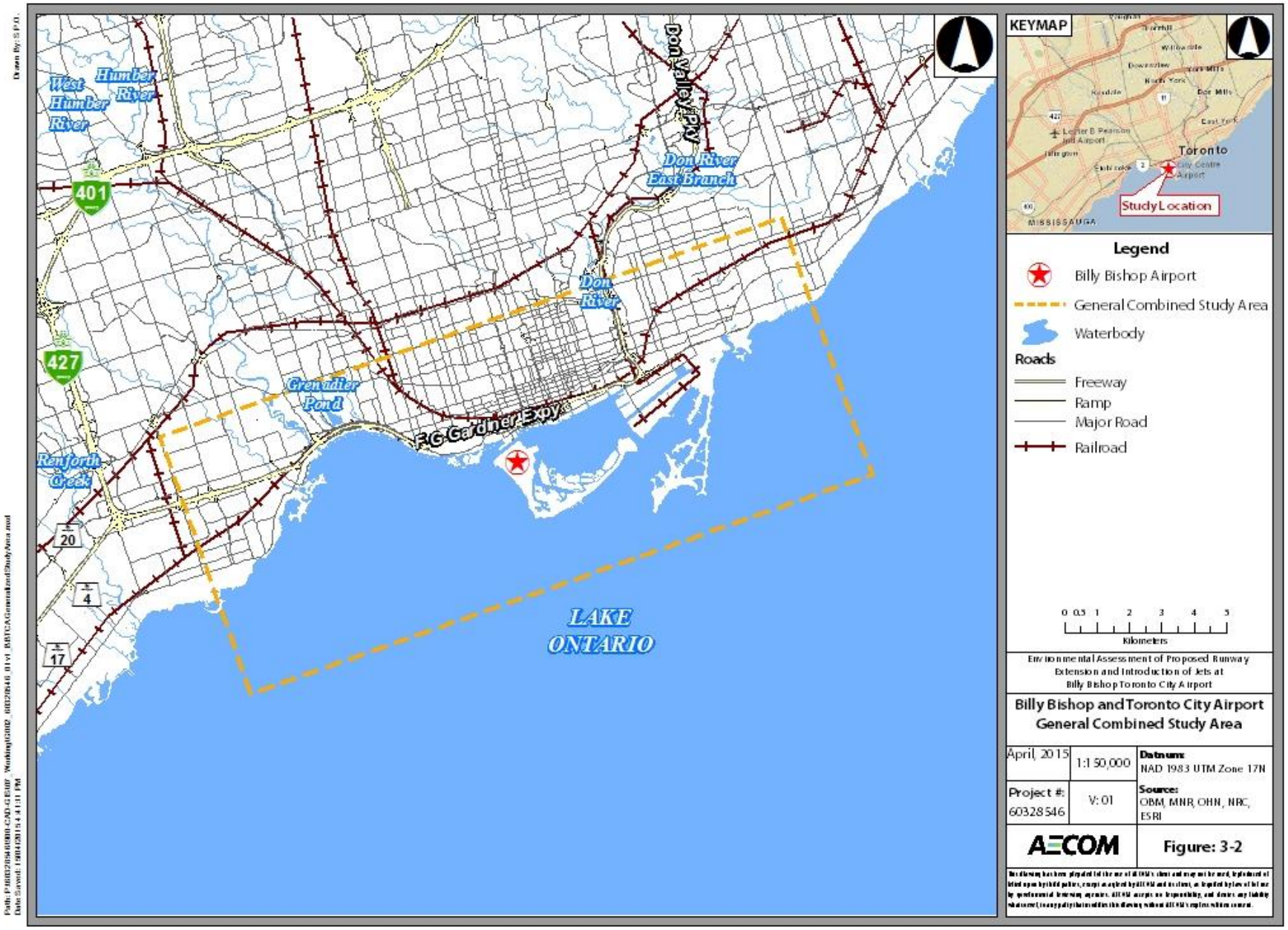

Figure 3-2: Billy Bishop and Toronto City Airport General Combined Study Area

3.3.2 Air Quality

3.3.2.1 Study Area

The air quality Study Area was defined to ensure that representative residential, recreational (parks and public spaces) and institutional locations most affected by changes to air quality were included in the area of analysis. The Study Area boundaries were also defined in consideration of the comments received to-date and encompass:

- The Music Garden, Sugar Beach, the National Yacht Club, and Wards 19 and 20 to the north;
- Woodbine Beach, the Harbour and Clark Beach Park to the east;
- Algonquin Island to the south; and
- Ontario Place and the Toronto Sailing & Canoe Club to the west.

Figure 3-3: Air Quality Study Area

3.3.2.2 Summary of Effects Assessment Methods:

To assess potential impacts on air quality associated with the Future Growth Scenarios, the Study Team will use collected monitoring and modelling data; quantify aviation and vehicle emissions modelling data; conduct dispersion modelling; and determine cumulative air quality concentrations. The assessed changes to air quality could affect the following community assets: public health, recreation, residential uses, parks and open space, and institutional uses.

Additional details regarding the Air Quality Work Plan, including the background resources that will be used and the proposed methodology for modelling of the existing conditions and the Future Growth Scenarios are provided in **Appendix B, Attachment A**.

3.3.3 Public Health

3.3.3.1 Study Area

The public health Study Area was defined to ensure that representative residential, recreational (parks and public spaces) and institutional locations most affected by changes to public health related to air quality and noise were included in the area of analysis. The Study Area boundaries encompass:

- The Music Garden, Sugar Beach, the National Yacht Club, and Wards 19 and 20 to the north;
- Woodbine Beach, the Harbour and Clark Beach Park to the east;
- Algonquin Island to the south; and
- Ontario Place and the Toronto Sailing & Canoe Club to the west.

3.3.3.2 Summary of Effects Assessment Methods

To assess potential impacts on public health associated with the future scenarios, the Study Team has engaged in ongoing discussions with the City of Toronto's Department of Public Health. Based on these conversations, it was determined that the EA would continue the assessment methodology previously developed by the Department of Public Health and their consultants in the November, 2013 "Health Impact Assessment" (Golder Associates, 2013). The impacts of changes to air quality associated with the proposal on various criteria for defining public health can be assessed by comparing air quality impacts to regulatory or policy-based thresholds. As such, the Department of Public Health has developed guidelines for air quality thresholds, known as toxicity reference values, as they relate to illnesses associated with both long-term and short-term exposure to certain contaminants. The results of the air quality modelling conducted in accordance with the air quality effects assessment study will be compared to Toronto Public Health's Toxicity Reference Values in addition to the Ministry of the Environment and Climate Change ambient air quality criteria and Canadian ambient air quality standards. In addition, the Department of Public Health has provided the Study Team with noise reference values, against which current and predicted future noise levels will also be compared.

Figure 3-4: Public Health Study Area

3.3.4 Noise

3.3.4.1 Study Area

The noise Study Area was selected to include residential uses, recreational locations (including parks and public spaces) and schools that are representative of areas that are most affected by changes to noise levels. After considering the comments received to date, the Study Area boundaries have been defined to encompass:

- The Music Garden, Sugar Beach and the National Yacht Club to the north;
- Woodbine Beach, the Harbour and Clark Beach Park to the east;
- Algonquin Island to the south; and
- Ontario Place and the Toronto Sailing & Canoe Club to the west.

Figure 3-5: Noise Study Area

3.3.4.2 Summary of Effects Assessment Methods

As passenger throughput increases, additional noise from the increased ground traffic and differences in the noise profile of the aircraft in the Proposed Future Scenario could result in changes to the existing conditions.

To assess potential impacts on noise associated with the identified Scenarios, the Study Team will use sound modelling techniques; perform a comparative analysis of modelled sound levels with new monitoring results and historic data; and evaluate sound levels at various receptor locations using key indicators. The assessed changes to noise conditions could affect the following community assets: public health; recreation; residential uses; parks and open space; institutional uses; and cultural assets. Additional details regarding the Noise Work Plan, including the development of exiting conditions and noise impact assessment are provided in **Appendix B, Attachment A**.

3.3.5 Natural Environment

3.3.5.1 Study Area

The Natural Environment assessment includes identifying effects on both the terrestrial and aquatic environments. The aquatic Study Area is defined as the areas anticipated to be either temporarily or permanently affected by the proposed extension of the land mass at each end of the main runway by 200 metres, including the footprint of the proposed extension as well as adjacent habitat areas which may be disturbed during construction or operation of the extension.

Work related to the aquatic environment will focus on the areas in the immediate vicinity of the land mass extension as this is the area where potential effects from construction are anticipated to occur.

The terrestrial Study Area was developed in consideration of wildlife, particularly birds, in addition to comments received to-date. The boundaries of the Study Area for the terrestrial environment study are based on the BBTCA Bird Hazard Zone (BHZ) and considerations such as the calculated aircraft flight paths, glide slopes and missed approach points associated with the airport and changes to operations. Specifically, the Study Area for the terrestrial environment includes:

- The primary BHZ as defined by Transport Canada and which includes the following:
  - The northern and southern boundaries of the primary BHZ include the areas within 2 km of and adjacent to the runway (including the extension of the land mass at each end of the main runway by 200 metres).
  - The eastern and western boundaries of the primary BHZ extend 9 km from each end of the main runway (including the extension of the land mass at each end of the main runway by 200 metres). At these limits, the northern and southern boundaries of the primary BHZ extend 4 km from the centreline of the runway in each direction (8 km in total).
- The secondary BHZ as defined by Transport Canada and which includes:
  - A 4 km buffer applied in all directions surrounding the primary BHZ.

3.3.5.2 Summary of Effects Assessment Methods:

To assess potential effects on the natural environment (aquatic and terrestrial) associated with the identified Scenarios, the Study Team will estimate potential impacts on aquatic and terrestrial habitat and species (including birds); conduct field observations for both terrestrial and aquatic habitats; and estimate potential impacts on migratory and breeding birds, terrestrial habitats, in addition to aquatic species and habitats in the Study Area.

The potential effects on natural environment issues could affect the following community assets: significant features or functions; terrestrial habitats or functions; terrestrial species; aquatic habitats or functions; and aquatic species.

Additional details regarding how this stage will be completed for the aquatic and terrestrial components of the natural environment are provided in **Appendix B, Attachment A**.

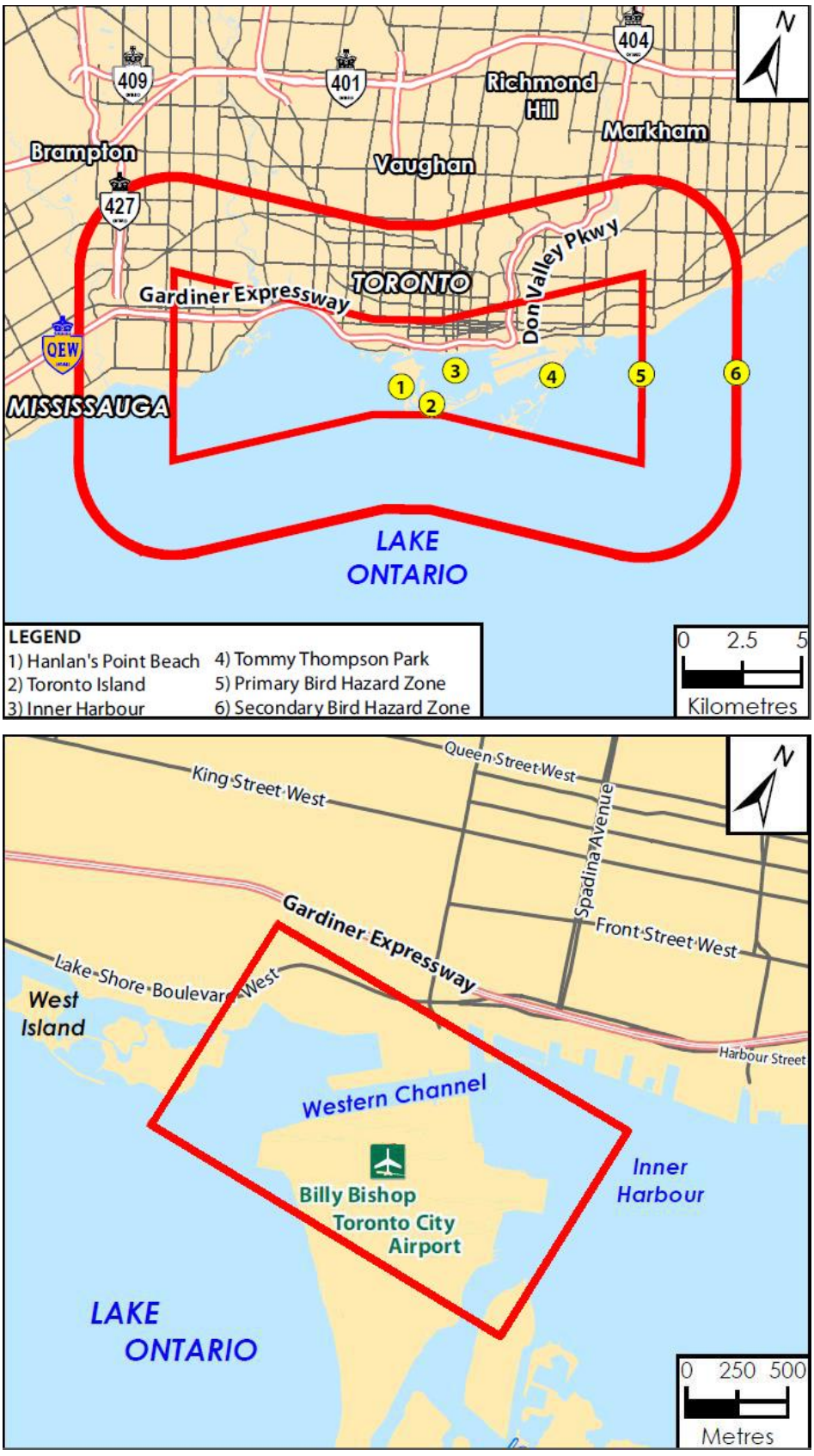

Figure 3-6: Terrestrial (top) and Aquatic (bottom) Study Areas

3.3.6 Socio-Economic Environment

3.3.6.1 Study Area:

The socio-economic Study Area boundaries have been determined so as to include all relevant features along the waterfront and to ensure that potential impacts within key areas of the waterfront are assessed. The boundaries include:

- The Gardiner Expressway to the north;
- Port Lands to the east;
- Leslie Street Spit to the south; and
- Ontario Place to the west.

The Study Area described above represents the Local Study Area for assessing use values. A larger, Regional Study Area, which consists of the City of Toronto, was identified for the discussion pertaining to non-use values. Use and non-use values are further described in **Appendix B**, **Attachment A**.

Figure 3-7: Socio-Economic Environment Study Area

3.3.6.2 Summary of Effects Assessment Methods:

To assess potential impacts on the socio-economic environment associated with the identified Scenarios, the Study Team will identify current information on waterfront users and their attitudes through intercept and phone surveys; and conduct business, residential and institutional interviews. Surveys and interviews will identify what community assets are valued by residents and non-residents, as well as waterfront, island and harbor users and non-users in order to help determine which environmental effects could result in social or economic impacts. The assessed changes on the socio-economic environment could affect the following community assets: the balance of uses along the waterfront and island communities, including recreational, residential and institutional uses; the economy; tourism; and could have municipal implications.

Additional details regarding the socio-economic Work Plan is provided in **Appendix B, Attachment A**.

3.3.7 Marine Physical Environment and Water Quality

3.3.7.1 Study Area

The Marine Physical and Water Quality Study Area is bounded by:

- The area at each end of the proposed extension of the land mass;
- The eastern shoreline of the West Island; and
- The Western Channel.

The Local Study Area is described above; however, a revised Regional Study Area for the Marine Physical Environment and Water Quality was developed which includes the original study area plus:

- The Inner Harbour;
- The Eastern Channel

Work related to the marine physical environment and water quality is recommended to be completed in two phases. During the EA, the Study Team will conduct a background review of existing studies to document effects to the marine physical environment and water quality in the Local Study Area, which includes the areas in the immediate vicinity of the land mass extension. If the Proposed Future Scenario is approved, additional studies are recommended during the detailed design phase to document effects in the Regional Study Area, which includes the Inner Harbour and the Eastern Channel.

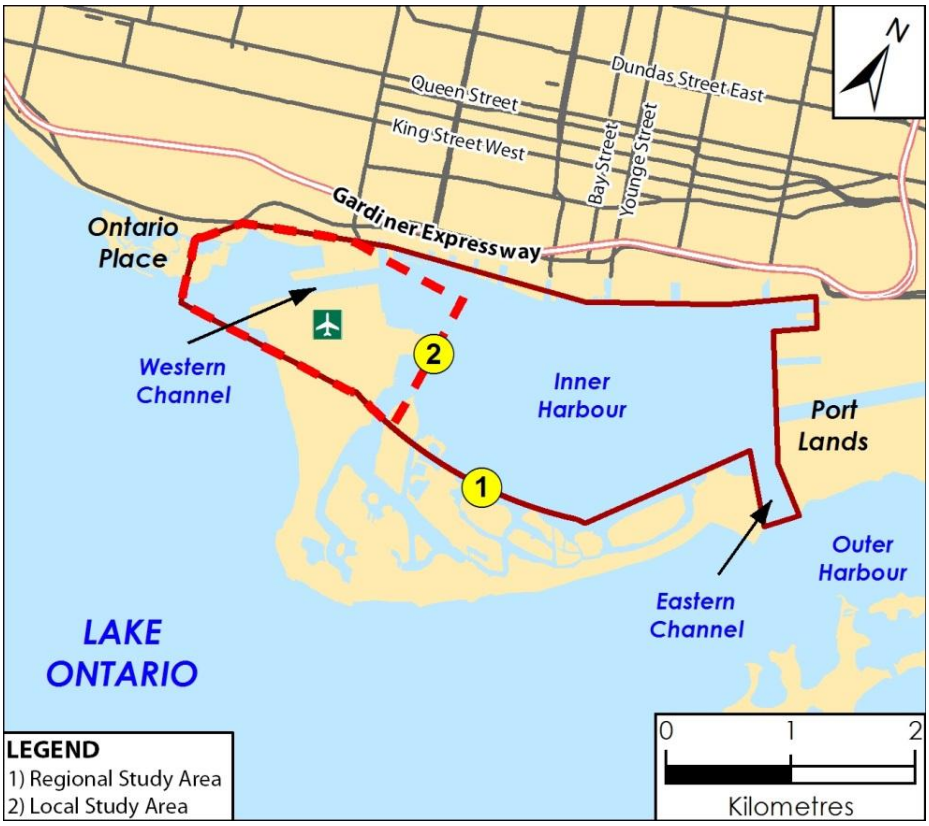

Figure 3-8: Marine Physical Environment and Water Quality Study Area

3.3.7.2 Summary of Effects Assessment Methods:

To assess potential impacts on the marine physical environment and water quality associated with the Proposed Future Scenario, the Study Team will review existing quantitative models and indicators of shoreline changes within the study area to estimate physical changes in bathymetry, and sediment transport and deposition that could be caused by the proposed extension of the land mass at each end of the main runway. A mass-balance model will be developed to understand potential changes in water flow into the inner harbor. It is anticipated that additional hydrodynamic and wave modelling may be required as a part of the detailed design of the proposal, should the three signatories choose to amend the Tripartite Agreement.

More information on the proposed Work Plan for the marine physical environment and water quality is provided in **Appendix B, Attachment A**.

3.3.8 Marine Navigation

3.3.8.1 Study Area

The marine navigation Study Area was selected to encompass areas in which different-sized marine vessels could be affected by changes to the coastline or to airport operations. The marine navigation local study area includes:

- The end of the runway;
- Beyond the Marine Exclusion Zone (MEZ); and
- Within the Western Channel.

Figure 3-9: Marine Navigation Study Area

Concerns about potential effects relating to the Study Area have tended to focus on the effects of noise and air quality on user experiences in the inner and outer harbours and Humber Bay; the potential effects of jet blast or wake turbulence (sometimes called “wing tip vortices”) at the edge of the MEZ; and, the potential impacts on navigation associated with any proposed changes to the width or location of the opening of the Western Channel. The marine navigation study will assess the physical impacts of jet blast and wake turbulence at the edge of the MEZ and navigation impacts associated with changes to the land mass within the Local Study Area described above. The potential for effects to boat navigation from jet blast and wake turbulence beyond this Study Area will be confirmed through the information received from the Master Planning exercise. Other studies conducted as part of this EA will assess the effects of potential changes to noise, air quality, user experience, and recreational opportunities associated with the proposal within the Regional Study Area and will be commented on under the associated effects assessment studies.

3.3.8.2 Summary of Effects Assessment Methods:

To assess potential impacts on marine navigation associated with the identified Scenarios, the Study Team will review and comment on results from the jet blast and wake turbulence assessments (prepared as part of the 2015 Master Planning Exercise); and assess information on typical boats navigating through the Study Area. An estimate of the impacts of jet blast and wake turbulence on different types of vessels will be undertaken based on professional engineering judgment. Potential changes to the navigability of the Western Channel will also be assessed based on any potential changes to the size and configuration of the channel, including those associated with any changes in bathymetry. The assessed effects on marine navigation could affect the recreational boating asset.

More information on the proposed Work Plan for the marine navigation assessment is provided in **Appendix B, Attachment A**.

3.3.9 Built Form and Land Use

3.3.9.1 Study Area

The built form and land use Study Area has been defined to capture potential regulatory impacts of the proposed works to the various waterfront revitalization efforts completed to date and currently underway by waterfront planning agencies and authorities having jurisdiction, including the City of Toronto and Waterfront Toronto. The study area therefore consists generally of an amalgamation of both the City of Toronto's Central Waterfront Secondary Plan planning area (inclusive of the various precinct plans therein), and the outer limits of in-force Airport Zoning Regulations (AZR). This original study area was subsequently expanded to incorporate stakeholder feedback requesting that an examination of potential built form and land use impacts ought also include the Distillery District, the Unilever site on Lakeshore Boulevard at the Don Valley Parkway and Woodbine Park in the Beaches neighbourhood.

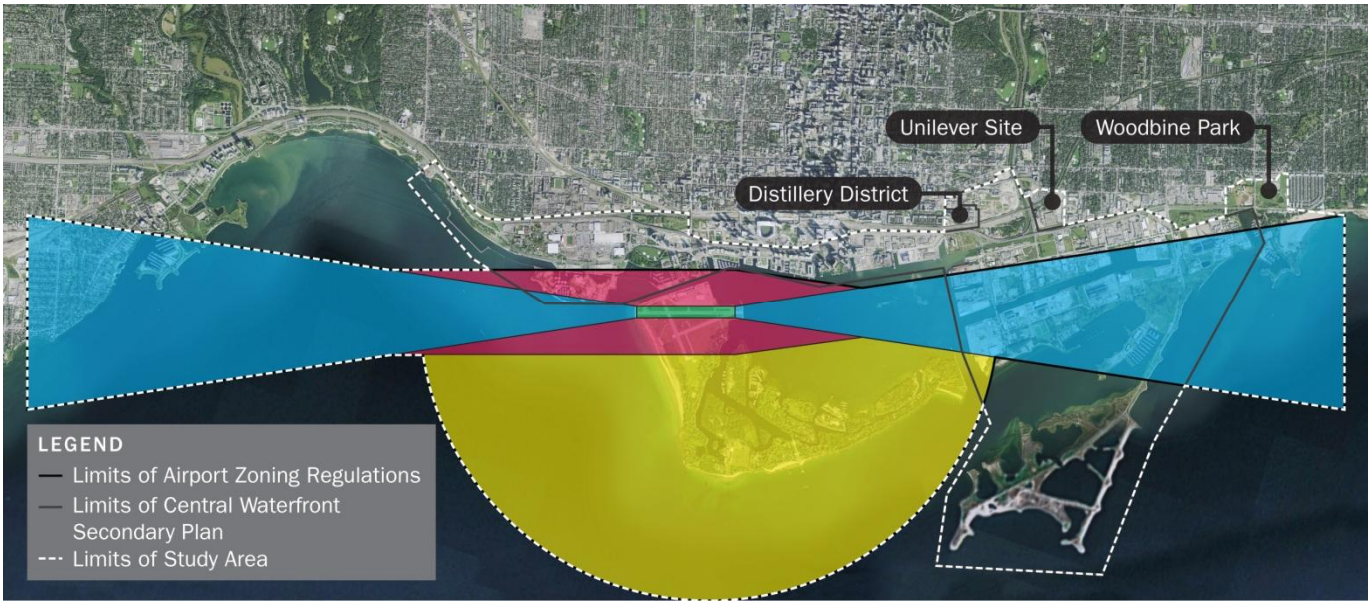

Figure 3-10: Built Form and Land Use Study Area

3.3.9.2 Summary of Effects Assessment Methods

To assess potential regulatory impacts on land use and the built environment associated with the identified Scenarios, the Study Team will review the multi-tiered regulatory framework; evaluate potential impacts, merits and policy compliance issues; identify any built form and/or height restrictions; identify possible visual and view corridor impacts using renderings, 3-dimensional visualizations and/or mapping diagrams.

The assessed regulatory effects on land use and built form could affect the following community assets: regulatory restrictions affecting proposed building heights, and/or restrictions affecting adjacency of various sensitive land uses to the proposed works; and existing federal, provincial and municipal priorities and polices. Other qualitative factors affecting viability of waterfront revitalization efforts will additionally be captured within the socio-economic analysis and the user experience vignettes.

More information on the proposed Work Plan for built form and land use are provided in **Appendix B, Attachment A**.

3.3.10 Archaeological and Cultural Heritage Features

3.3.10.1 Study Area

The preliminary Study Area defined for assessment of archaeological and cultural heritage conditions consists of all

Figure 3-11: Archaeological and Cultural Heritage Features Study Area

areas that will be physically affected by the proposed extension of the land mass at each end of the main runway by 200 metres and includes the areas at each end of the runway extending into the lake and the area of proposed works on the island involving excavation.

3.3.10.2 Summary of Effects Assessment Methods

To assess potential effects on archaeology and cultural heritage features associated with the identified Scenarios, the Study Team will conduct a marine and terrestrial Stage 1 Archaeological Assessment and create an inventory of cultural heritage features and recommend whether a detailed Cultural Heritage Assessment should be conducted. The potential effects identified could include impacts on the following community assets: archaeology and cultural heritage assets. A cultural heritage asset is defined for the purposes of this EA as a residence older than 40 years; industrial, commercial or institutional buildings; engineering works; and parks, gardens or prominent natural features that could have special value to people as list by the Ministry of Tourism, Culture and Sports' (MTCS) *Screening for Impacts to Built Heritage and Cultural Heritage Landscapes* document, as well as any building or landscape listed in a provincial or federal heritage database. Other cultural venues of the waterfront, harbor, and islands, such as recreational facilities (like the Music Garden), and civic spaces will be assessed through the socio-economic effects assessment study under the "recreation" asset.

Additional details regarding the archaeological and cultural heritage Work Plan are provided in **Appendix B, Attachment A**.

3.3.11 Transportation

3.3.11.1 Study Area

Based on previously-completed traffic impact assessments and consultation with the City of Toronto and other stakeholders, it was determined that the Local Study Area (outlined below in red) would be enhanced by including an overview of policy and broad directions in transportation and goods and people movement in the vicinity of the southwest downtown and waterfront area. This will include a review of the potential impacts of the proposal on policy for pedestrian, cycling, transit, active transportation, ferry, and heavy rail linkages within a Regional Study Area that will include:

- The Central Waterfront;
- Downtown Toronto; and
- The Greater Toronto Area.

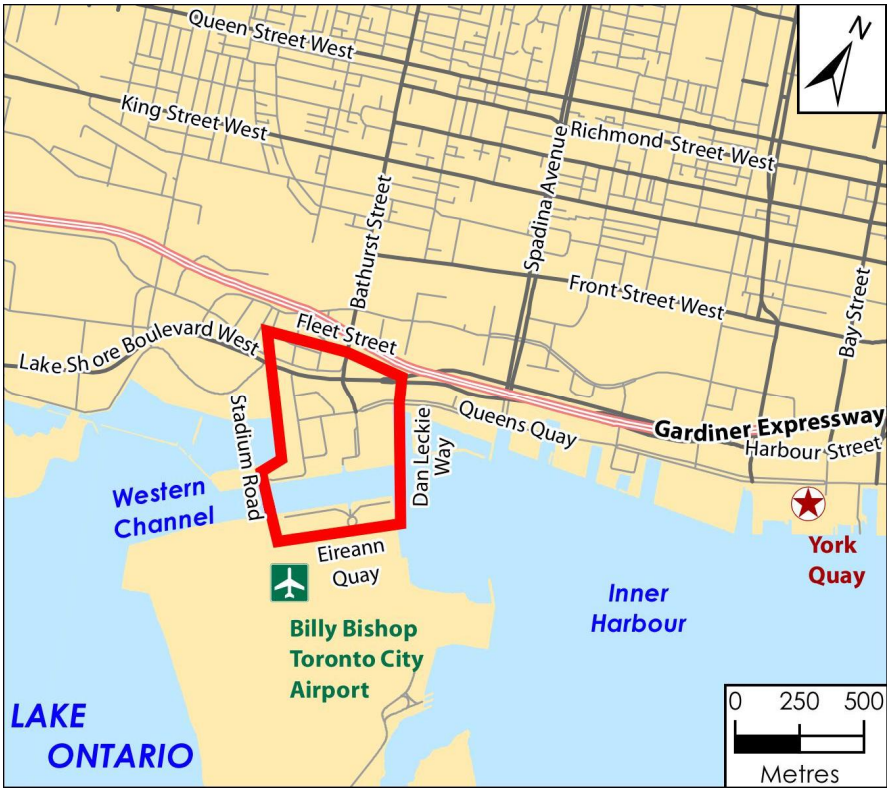

Figure 3-12: Transportation Study Area

The purpose of examining policies affecting a broader area than the Study Area boundaries is to ensure effects on the key areas are assessed in the EA.

3.3.11.2 Summary of Effects Assessment Methods

To assess potential impacts on transportation associated with the identified Scenarios, the Study Team will conduct a review of existing studies to provide information regarding future modal split requirements; transportation network and current traffic; transportation plans, including active transportation and transit plans; and review new traffic studies or models for Eireann Quay. The assessment will then use projections from existing traffic assessments/models, developed by the City of Toronto and others, to estimate changes in collision risks between vehicles, pedestrians and cyclists, traffic congestion, public transit, modal split and airport access, as well as potential traffic impacts outside of the Local Study Area. The assessed effects on transportation could affect the following community assets: public safety, public health, residential uses, transportation, community services, tourism, local economy and convenience.

Additional details regarding the transportation Work Plan are provided in **Appendix B, Attachment A**.

3.4 Conduct the Cumulative Effects Assessment

The purpose of the cumulative effects assessment is to identify the net effects of the proposal, taking into account the reasonably foreseeable future effects from other actions/projects anticipated within the same time and space as the proposed project. The process for conducting this assessment will incorporate elements from the CEA Agency's Draft Operational Policy Statement (Government of Canada, 2014) on Assessing Cumulative Environmental Effects. This Policy Statement requires examining the cumulative effects of a project on "valued components" of the environment (referred to in the BBTCA EA as community assets, described above in **Section 3.3**). PortsToronto has adapted the CEA Agency's methodology to include the following three steps in the assessment of cumulative effects for this EA:

Step 1: Scoping ..... Identification of valued components for which residual environmental effects are predicted, determining spatial and temporal boundaries to capture potential cumulative environmental effects on these valued components, and examining the relationship of the residual environmental effects (also known as net effects) of the project with those of other physical activities.

Step 2: Analysis ..... The methodologies used to predict the cumulative environmental effects must be clearly described to provide an understanding of how the analysis was conducted and what rationale supports the reached conclusions. A complete picture and analysis of the potential types and scale of cumulative environmental effects should be presented.

Step 3: Mitigation ..... Technically and economically feasible measures must be identified that would mitigate any significant adverse cumulative environmental effect. This can take two forms: elimination, reduction or control (preferred); or where not possible, restitution for damage caused should be considered.

The cumulative effects assessment is done as a part of each effects assessment study in order to determine if the incremental residual effects of the proposal on a community asset are influenced by the potential effects of other actions or projects to either offset or multiply the effect. Thus, the cumulative effects assessment provides an understanding of the overall impacts on applicable community assets of not just the Proposed Future Scenario, but other projects within the same time and space as the Proposed Future Scenario. The cumulative effects

assessments take into account associated effects from all relevant effects assessment studies. For example, transportation impacts will be taken into account in the assessments of noise and air quality impacts, while noise and air quality impacts will be taken into account in the assessments of social impacts. For more details on how different effects will be accounted for in each study, see **Appendix B**.

3.5 Compare Cumulative Net Effects of the Future Baseline Scenario to the Proposed Future Scenario

The cumulative net effects of the Proposed Future Scenario on community assets will be compared to the cumulative net effects of the Future Baseline Scenario on community assets. Some stakeholders have requested a comparison of both Future Scenarios to existing conditions; however, the results of that comparison would not be considered valid because they would not be able to isolate the effects of either scenario from the effects of other projects taking place in the same time and space as the scenarios. Thus, it would be difficult to attribute the impacts of either scenario to that particular scenario, as opposed to on other projects. As an example, both Baseline and Proposed Future Scenarios anticipate an increase in annual passenger volumes. During the planning horizon, other changes may be anticipated in the same area to residential and commercial development, as well as transit and transportation infrastructure. A comparison of either Future Growth Scenario to current conditions may show impacts to traffic movement; however, it will not be possible to determine with certainty the degree to which those impacts can be attributed to increased passenger volumes, versus the other anticipated changes.

3.6 Prepare the Impact Assessment Summary

The proposal has the potential to cause changes to a number of environmental, economic and social community assets important to the local communities. PortsToronto is proposing to present these effects using an Impact Assessment Summary tool. The summary will illustrate the overall effects of the proposal in a manner that assists interested parties to understand the trade-offs between the Future Baseline Scenario and the Proposed Future Scenario. Each effects assessment study will compare the net effects of the Proposed Future Scenario to the Future Baseline Scenario.

The Impact Assessment Summary process will be conducted in two stages, as described below:

Step 1: Determine the Direction of the Effects

Each of the effects assessment studies, described in **Section 3.3**, will include an assessment of the specific effects of the proposal on the various community assets associated with the environmental features under investigation. Effects on these assets are assessed using a series of measures which have been reviewed by government agencies, special interest groups, and the public throughout the preparation of the EA scope. For example, as part of the Socio-Economic effects assessment study, effects on residential assets are being assessed by reviewing the following measures: changes to the use and enjoyment of private property resulting from changes to noise levels, changes to air quality and changes to views and vistas (amongst others). The impacts of the proposal on this and other assets will be determined by assessing the way in which each measure may change between the Future Baseline Scenario and the Proposed Future Scenario in the future environmental conditions. The assets and measures for each effects assessment study are listed in **Appendix B**, **Attachment A**, and will be described in detail in the EA report. Residential use is just one of the community assets identified to be examined by the Socio-Economic study.

The Impact Assessment Summary will consolidate the net effects of each measure assessed by each effects assessment study into an overall direction of effect to describe whether community assets will be diminished,

maintained or enhanced in the Proposed Future Scenario, as compared to the Future Baseline Scenario. The determination of the direction of effect will be based on empirical study, professional judgement, and in some cases, numerical computer modelling. “Diminish” means a specific measure of effect will be less preferable in the Proposed Future Scenario than in the Future Baseline Scenario, “maintain” means that there will be no anticipated measurable difference between the two scenarios, and enhance means that a specific measure of effect will be more preferable in the Proposed Future Scenario than in the Future Baseline Scenario.

The outcome of all the effects assessment studies will be presented in tabular format, so that interested parties can easily compare results and understand the trade-offs. The format for the direction of effect is illustrated in **Table 3-3** below.

Table 3-3: Direction of Effect - Proposed Future Scenario Compared to the Future Baseline Scenario

Asset	Measure of Effect	Diminish	Maintain	Enhance
Asset 1	*Measure 1*	X		
	Measure 2			X
	Measure 3			X
Asset 2	*Measure 1*		X	
	Measure 2		X	
	Measure 3	X		

The purpose of using the Impact Assessment Summary tool is to present the findings of the various impact assessment studies in a manner which allows the reader to easily identify the trade-offs associated with the Proposed Future Scenario.

Step 2: Review Impacts on User Experiences and the Balance of Uses Throughout Waterfront and Island Communities

The Study Team recognizes the changes that have occurred along the waterfront over the past decade and the investments that have gone into making Toronto’s waterfront a world-class place to live, work, and play. While redevelopment in the area has been substantial, future proposed development aims to build on the successes of the past to create a balanced and complete community. A balanced community is one in which no one, single use or user dominates the entire area, and through the assessment of the impacts of the proposal, the Study Team aims to determine if the Proposed Future Scenario will be one that tips this balance in a way that makes the waterfront and island communities a place where people no longer wish to live, work and play.

The waterfront area is characterized by a mix of uses, including commercial, recreational, residential, and travel-based uses. The airport represents just one of these uses. Whether or not airport operations are perceived as dominating over other waterfront uses will depend on the degree to which users perceive a disruption to their daily activities while living, working, or playing in the waterfront area.

Throughout the scoping phase of the EA, and as part of the assessment of existing conditions, the Study Team has and will continue to engage with a range of interested stakeholders on their experiences living, working, and playing in the vicinity of the BBTCA. The results of the engagement will inform the Study Team about what is important to various users, and will allow for a more holistic understanding of the varying perceptions of airport operations and infrastructure amongst community members. This information will be used to produce a series of user experience vignettes that illustrate the current, perceived experience of a broad cross-section of waterfront and island users,

while engaging in various waterfront, Lake Ontario, and island-based uses. Based on the outcome of the impact assessments, changes to each asset measure will be combined to determine the potential changes to these user experiences that might be anticipated as a result of the proposal. These user experience vignettes provide a specific, place-based, and easily relatable method for synthesizing potential changes to opportunities to live, work and play at key locations within the Study Area, and show how impacts on specific uses could affect the overall balance of uses along the waterfront.

Potential locations for place-based user experiences have been developed through engagement with the Stakeholder and Agency Advisory Committees as part of the engagement process of this EA. Each marker in the figure below highlights a key location that represents the multitude of activities that occur within more focused geographic regions of the Study Area. The lenses of live, work and play will be used to understand potential changes to user experience in these locations for the Future Baseline and Proposed Future Scenarios. Examples of uses that may be selected can include, but will not be limited to:

- Picnicking on Centre Island;
- Learning to sail in the Inner Harbour;
- Listening to a concert at the Music Garden;
- Drinking a morning coffee on the balcony of a waterfront residence;
- Strolling through Villiers Island neighbourhood;
- Hiking through Ontario Place;
- Recreational fishing;
- Cycling along the waterfront trail;
- Birdwatching at the Leslie Street Spit; or
- Eating a meal at a waterfront restaurant patio.

Potential locations for place-based user experiences are shown in **Figure 3-13**, on the following page, for illustration purposes, and have been developed based on engagement with the community to-date.

The locations, numbered 1-12, are as follows:

1. Mimico and Humber Bay Park
2. Ontario Place and Exhibition Place
3. Bathurst Quay Neighbourhood
4. Toronto Islands (excluding Billy Bishop Toronto City Airport)
5. Inner Harbour
6. Central Waterfront (Harbourfront Centre)
7. East Bayfront
8. West Don Lands, Unilever Site and Distillery District
9. Villier's Island, Port Lands and Keating Channel Precincts
10. Cherry Beach and Outer Harbour
11. Tommy Thompson Park (Leslie Street Spit)
12. Ashbridge's Bay, Woodbine Park and Woodbine Beach

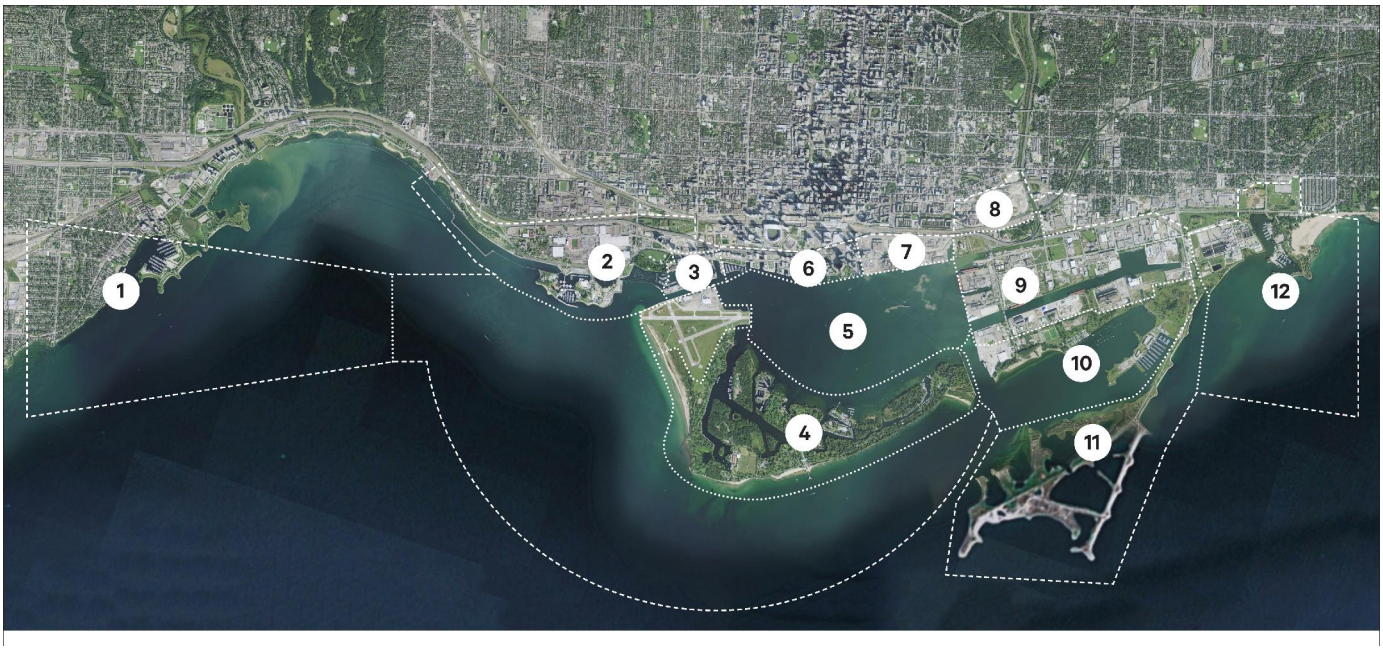

Figure 3-12: Proposed User Experience Vignette Locations

3.7 Public Safety

3.7.1 Impacts of Accidents and Malfunctions

As part of the EA, the Study Team will review and comment on the Emergency Response Plan and associated protocols at the BBTCA EA. The airport's Emergency Response Plan, protocols and procedures meet or exceed Transport Canada's and other regulatory requirements.

The BBTCA has a fully functioning, on-island fire hall and emergency response centre, in addition to the Toronto Fire Service. It is staffed by more than double the number of emergency personnel required by Transport Canada. The airport's fire department does regular internal and external emergency services training throughout the year. A full-scale simulation is conducted every two years, with a full simulation table-top exercise in intervening years. These exercises are aimed to test the airport's protocols, procedures, communications and planning for emergency and security related incidents, and to ensure that the airport is equipped to respond to any situation.

Given the BBTCA's proximity to water, the Billy Bishop Fire Department, Toronto Fire Services Squad and the Toronto Police Services Marine Unit hold joint ice and cold water rescue training to practice water specific rescue operations, beyond the standard safety measure requirements.

In addition to the on-island emergency response centre and crew at the airport, Toronto's emergency responders can access the airport within minutes by water, through the Toronto Marine Units, and by the airport ferry. The Province of Ontario's Ornge Air Ambulance and Paramedics are also permanently based at the airport. The opening of the new pedestrian tunnel will provide further access to the airport and can be utilized during emergency situations. All of these measures are part of the airport's Emergency Response System which is in place to ensure preparedness and ability to respond in a rapid and co-ordinated manner in the event of a large-scale emergency at the airport.

The protection surfaces at the BBTCA are developed based on work conducted by the International Civil Aviation Organization's (ICAO) collision risk model and take into account the risks associated with collisions. The collision risk model assesses the risks associated with undershooting (an aircraft landing before the runway), over shooting (an aircraft running off the end of the runway) and lateral excursion (an aircraft running off the side of the runway). The protection surfaces at BBTCA have been designed in response to the ICAO's collision risk modelling, and address the risks associated with potential obstacles to flight in the vicinity of the airport. Any aircraft permitted at the BBTCA is certified to operate in compliance with the protection surfaces and approach procedures. If an aircraft cannot be certified to operate in compliance with these surfaces, it cannot use BBTCA.

Pedestrian safety will be reviewed through a review of projected future traffic volumes and projected future infrastructure in the vicinity of Eireann Quay. More information on the methods for assessing transportation impacts and effects on automobile, pedestrian and cyclist activity can be found in **Section 3.3.11**.

It is understood that recreational users often sail or paddle within close proximity of the MEZ, and the proposal could result in changes to typical boating conditions that could cause safety concerns. By assessing the impacts of jet blast and wake turbulence on vessels in the vicinity of the airport, as well as the impacts of changes in noise or air quality in the Inner Harbour, this study will review how those changes could affect the safety of Inner Harbour users. The safety implications or any potential changes to the Western Channel with respect to navigability will also be reviewed. More information on methods for assessing navigation impacts can be found in **Section 3.3.8**.

Finally, the EA will also review past trends in bird strike occurrences for various species at the BBTCA and compare this to a comprehensive bird list compiled from the agency records and bird surveys conducted in 2014 and 2015 to understand the potential impacts of the airport on bird populations. The EA will consider jet flight paths and height, as well as frequency of flights information (to be provided in the 2015 Master Planning Exercise) to identify where bird strikes are likely to occur. This information will also be used to understand and comment on the risk to planes from bird strikes occurring in the vicinity of the airport, and will be related to the potential effects of bird strikes on public safety. More information on methods for assessing impacts on the natural environment and birds can be found in **Section 3.3.5**.

3.8 Prepare the Environmental Assessment Study Report

The study process and findings will be outlined in an EA Study Report which will be provided to members of the public, agencies, interest groups and First Nation and Métis communities for review and comment. The EA Study Report will document each step of the EA process, as outlined in the sections above, in addition to input received through the engagement efforts and how the EA was amended to address comments received, if applicable.

3.9 Approvals Required

The EA will include an analysis of required approvals from discussions with regulatory agencies such as the Ministry of Natural Resources and Forestry (MNRF); the Ministry of Tourism, Culture and Sport (MTCS); Fisheries and Oceans Canada (DFO); and the Toronto and Region Conservation Authority (TRCA). It is anticipated that the proposal would require Stage 1 Archaeological Assessment sign-off from the MTCS and Fisheries Act Authorization from the DFO. Consultation with all interested government review agencies will be conducted to confirm approval requirements.

4. Engagement Plan

Engagement is critical to completing an effective EA. It is only with an understanding of the priorities, perspectives and experiences of a range of different interests that the potential effects of the Proposed Future Scenario can be fully understood. With this in mind, the EA engagement process has been designed in consideration of the following principles:

Accountability

Accountability to participants will be maintained by providing accurate, timely information throughout the engagement process and by demonstrating how participants' views and perspectives have informed the Study Design, technical work and final report.

Clarity

The purpose and scope of the EA, the engagement process, and each part of the process will be clearly communicated and roles and responsibilities will be clearly defined, including: those of PortsToronto, the City of Toronto and Transport Canada as co-signatories to the Tripartite Agreement; those of PortsToronto as the proponent of the EA in listening to participants' feedback and demonstrating how it was considered (PortsToronto also acknowledges that the participation of any individual or organization in the engagement process does not imply an endorsement of the ultimate outcome of the EA); and those of the public, First Nation and Métis communities, stakeholders, and others in seeking information from PortsToronto and sharing their perspectives and values with PortsToronto. EA Info Sheet 4 found on the project website, will provide more detail on the roles and responsibilities of these and other key players.

Timeliness

The engagement process will begin as early as possible in the EA to allow a greater range of opportunities and issues to emerge and to raise the chances of successful issue resolution and implementation.

Openness and Inclusivity

The engagement process will be open to any member of the public, members of First Nation and Métis communities, or a stakeholder organization that wants to be involved. A broad cross-section of Torontonians will be encouraged to participate, share their perspectives and values, and hear those of others. Engagement materials and information will be made publicly available through the project website and other appropriate means.

Flexibility

The engagement process will strive to accommodate the needs of participants taking into account their different abilities, areas of expertise, geographic distribution, and availability.

Co-ordination

The EA engagement process will be co-ordinated with concurrent PortsToronto-led (e.g., Preliminary Runway Design, 2015 Master Planning Exercise) and City-led (i.e., Bathurst Quay Neighbourhood Plan) projects to enhance knowledge sharing, ensure coherence in decision-making, avoid duplication, and reduce the risk of "consultation fatigue" among citizens and stakeholders.

Evaluation

Throughout the EA, PortsToronto will seek feedback from the public, First Nation and Métis communities, and stakeholders regarding the engagement process and may modify the Engagement Plan in order to respond to feedback received or changing conditions.

The engagement process has and will continue to match the structure of the EA process. The EA, and therefore the engagement process, is being completed in two parts:

- In Part 1, engagement efforts have been focused on getting feedback from the public, key stakeholders and public agencies on the scope of the EA;
- In Part 2, engagement efforts will focus on assessing the impacts of the Future Baseline Scenario and the Proposed Future Scenario as well as identifying potential mitigation measures.

4.1 Part 1 Engagement Activities

The following is a high level summary of the engagement activities that were completed in Part 1 of the engagement process, including:

1. Pre-Consultation Conversations;
2. Stakeholder Briefing;
3. Agency Advisory Committee;
4. Stakeholder Advisory Committee;
5. Public Meetings; and,
6. First Nation and Métis Engagement.

It is critical that this summary of activities be considered as a supplement to the more extensive summary reports which have been prepared for each engagement activity referenced in this report, and which included the feedback received from participants in each of these activities. These summaries can be found on the project website: www.bbtcarunwayandjetsea.org

4.1.1 Pre-Consultation Conversations

4.1.1.1 Overview

Engagement began with the facilitation team holding a number of pre-consultation conversations with a broad cross-section of stakeholders with a track record of contributing to waterfront revitalization discussions. A copy of the team's report summarizing those conversations is available at bbtcarunwayandjetsea.org/pre-consultation-conversations/.

4.1.2 Purpose

The pre-consultation conversations were initiated to help inform the first draft/framework of the EA scope and the EA engagement process. More specifically, the pre-consultation conversations were held to do three things:

1. Introduce the facilitation team and the role of the independent facilitator;
2. Understand what issues should be considered and assessed in the EA; and
3. Understand expectations regarding the EA engagement process.

4.1.2.1 Chronology and Participation

A total of 20 pre-consultation conversations, involving 28 organizations and 48 people were held in August and September, 2014. Several participants requested that their names and organizations not be included in any documentation of the pre-consultation conversations as they were still contemplating if/how they would engage in the EA process. In order to ensure this anonymity, the facilitation team did not record the names or organizations of any of the pre-consultation conversation participants.

4.1.3 Stakeholder Briefing

4.1.3.1 Overview

Just over 100 organizations were identified as either on the public record regarding Porter Airlines' Proposal and/or were identified by participants in the pre-consultation conversations as being potentially interested in participating in the EA engagement process.

4.1.3.2 Purpose

One representative from each of the organizations identified was invited to an update briefing/introduction to the EA. The purpose of the briefing was to provide participants an opportunity to ask questions about the EA and to distribute information which they could pass on to their constituencies and members in order to encourage people become involved in the EA process. A copy of the Stakeholder Briefing Summary is available at bbtcarunwayandjetsea.org/4-stakeholder-advisory-committee/.

4.1.3.3 Chronology and Participation

The stakeholder briefing was held on November 17, 2014. A total of 34 stakeholder organizations, comprising of over 50 people, participated in the meeting. Participants included representatives from PortsToronto, the City of Toronto, Waterfront Toronto and the Toronto District School Board, among others.

4.1.4 Agency Advisory Committee

4.1.4.1 Overview & Purpose

As part of the EA engagement process, an Agency Advisory Committee (AAC) has been formed. The purpose of the AAC is to provide a place where representatives of various government divisions, ministries and agencies can share their perspectives and advice with PortsToronto at key points throughout the EA process. A copy of all AAC summaries are available at bbtcarunwayandjetsea.org/agency-advisory-committee/.

4.1.4.2 Chronology and Participation

A total of nine Agency Advisory Committee meetings have been held to date, from October 2014 to March 2015. A total of 17 organizations are members of the AAC (see list below).

Agency Advisory Committee Members	
1. City of Toronto – Waterfront Secretariat	10. Toronto Transit Commission
2. City of Toronto – Community Planning	11. Toronto Port Lands Company
3. City of Toronto – Toronto Public Health	12. Province of Ontario – Ministry of Tourism, Culture and Sport
4. Transport Canada – Environmental Office, Ontario Region	13. Province of Ontario – Ministry of Municipal Affairs and Housing
5. Transport Canada - Civil Aviation, Ontario Region	14. Ontario Place Corporation
6. Waterfront Toronto	15. Greater Toronto Airports Authority
7. Build Toronto	16. Metrolinx
8. Toronto and Region Conservation Authority	17. Exhibition Place
9. Toronto District School Board	

4.1.5 Stakeholder Advisory Committee

4.1.5.1 Overview & Purpose

As part of the EA engagement process, a Stakeholder Advisory Committee (SAC) has been formed. The purpose of the SAC is to provide a place where representatives from interested organizations can share their perspectives, concerns and advice with PortsToronto at key points throughout the EA process. A copy of all SAC summaries are available at www.BBTCArunwayandjetsEA.org.

4.1.5.2 Chronology and Participation

The SAC consists of 35 organizations. Applications to join the SAC were provided at the December 9th, 2014 public meeting and the application process concluded on December 17th, 2014. The full list of SAC participating organizations is included in the table below. A total of 4 SAC meetings have been held to date, from January to March, 2015.

Stakeholder Advisory Committee Members	
1. Air Canada	19. Ontario Aerospace Council
2. Arcadia Housing Co-operative	20. Ontario Restaurant Hotel & Motel Association
3. Bathurst Quay Neighbourhood Association	21. ORNGE
4. Canadian National Exhibition	22. Mississauga Residents' Associations Network (MIRANET)
5. Canadian Owners and Pilots Association	23. Transport Action Ontario
6. Carpenters and Allied Workers Local 27	24. Toronto Boaters' Alliance
7. Code Blue TO	25. Toronto Field Naturalists
8. Community Air	26. Toronto Financial District BIA
9. Council of Commodores	27. Tourism Industry Association of Ontario
10. Credit Reserve Association	28. Toronto Island Community Association
11. Don Watershed Regeneration Council	29. Toronto Island Pilots Association
12. Federation of North Toronto Residents Association	30. Toronto Youth Cabinet
13. Friends of Billy Bishop Airport	31. West Don Lands Committee
14. Friends of the Spit	32. York Quay Neighbourhood Committee
15. Gooderham & Worts Neighbourhood Association	33. Trans Capital Air / Stolport Corporation
16. Greater Waterfront Coalition	34. Toronto Passenger Vessel Association
17. Porter Airlines	35. Waterfront BIA
18. Ontario Chamber of Commerce	

4.1.6 Public Meetings

4.1.6.1 Public Meeting 1: December 9th

Overview, Purpose & Participation

PortsToronto hosted a kick-off public meeting on December 9th, 2014 to provide information on the purpose of the EA; review the areas to be studied and the process by which the study will be completed; offer an overview of how the public can participate throughout the process; and provide a forum to ask questions and participate in the process. A copy of the public meeting report is available at: bbtcarunwayandjetsea.org/5-public-meetings/. Approximately 500 people attended the meeting.

4.1.6.2 Public Meeting 2: January 24th and 26th

Overview, Purpose & Participation

PortsToronto hosted an all-day public meeting on January 24th, 2015 and a Feedback Workshop on January 26th, 2015. The purpose of the two-part public meeting was to share information and seek feedback on the EA team's preliminary draft of the effects assessment scope. A copy of the public meeting report is available at: bbtcarunwayandjetsea.org/5-public-meetings/. Approximately 350 participants attended one or both of the meetings.

4.1.6.3 Public Meeting 3: April 11

Overview, Purpose & Participation

PortsToronto hosted an all-day public meeting on April 11th, 2015 to review and discuss the revisions to the draft EA scope based on comments received to-date. At this meeting, PortsToronto and the Study Team shared and sought feedback on the updated assessment methods which had been updated since the January 24th and 26th public meetings. Approximately 200 people attended the meeting.

4.1.7 First Nation and Métis Engagement

4.1.7.1 Overview, Purpose & Participation

During Part 1 of the EA process, PortsToronto and the EA facilitation team have sought to involve First Nations and Métis in discussions regarding the EA scope. From September to December 2014, the EA facilitation team undertook initial correspondence with the Mississaugas of the New Credit, the Haudensaune of Six Nations, and the Métis Nation of Ontario to introduce the EA and to understand the level of interest in being involved in further conversations throughout the EA process. Further to the initial correspondence, on March 30th, 2015, PortsToronto held a meeting with the Mississaugas of the New Credit to discuss the EA scope in more detail and listen to how the Mississaugas of the New Credit would like to be involved in the EA process. The Mississaugas of the New Credit First Nation have expressed an interest in archaeological and cultural heritage studies being conducted as part of this Project. PortsToronto will review the results of the Stage 1 Archaeological Assessment and the cultural heritage summary with the Mississaugas of the New Credit. Additional detail on the archeological and cultural heritage studies is provided in **Section 3.3.10**. Meetings with First Nation and Métis will become increasingly detailed as community values and concerns are articulated. During the meetings every effort will be made to follow the engagement approach described in the Engagement Plan (available for review on the project website), as well as following case law that determines how and when consultation happens.

4.1.8 Consultation Summary

A summary of Phase 1 consultation activities is provided below in **Table 4.1** which captures the information outlined in **Section 4.1** above.

Table 4-1: Chronology of Engagement Activities

Activity	Date
Pre-Consultation Conversations	August – September, 2014
Initial Correspondence with First Nation and Métis communities	September – December 2014
Agency Advisory Committee (AAC) Meeting 1	October 16, 2014
AAC Meeting 2	November 6, 2014
Stakeholder Briefing	November 15, 2014
AAC Meeting 3	November 20, 2014
AAC Meeting 4	November 26, 2014
Public Meeting 1	December 9, 2014
AAC Meeting 5	December 10, 2014
AAC Meeting 6	January 12, 2015
Stakeholder Advisory Committee Meeting 1	January 15, 2015
Public Meeting 2	January 24 & 26, 2015
AAC Meeting 7	February 9, 2015
SAC Meeting 2	February 17, 2015
AAC Meeting 8	March 2, 2015
SAC Meeting 3A	March 3, 2015
SAC Meeting 3B	March 10, 2015
AAC Meeting 9	March 25, 2015
Meeting with Mississaugas of the New Credit	March 30, 2015
Public Meeting 3	April 11, 2015
Release of Draft Study Design	April 20, 2015
Release of Final Study Design	August 25, 2015

4.2 Part 2 Engagement Activities

Part 2 of the EA engagement process will begin with the finalization of the Study Design and commencement of the assessment work. The public, stakeholder organizations, public agencies and First Nation and Métis communities will continue to be engaged throughout Part 2. Meeting materials – including agendas, presentations and summaries – will continue to be posted to the project website. Due to the integrated nature of the various studies being undertaken, the next public meeting will take place once all of the studies have been completed so that all of the inputs into the cumulative effects assessment can be obtained and comprehensive cumulative effects can be presented publicly at that time. Currently this is anticipated to take place in the late autumn or early winter of this year. In addition, update meetings with the SAC and AAC will be scheduled as necessary throughout this time as project milestones are reached and feedback is sought on milestones. The precise timing and format of these meetings will be determined during Part 2.

5. Next Steps

The Study Design report was made available for a 30-day review period from April 20 to May 20, by the end of the day. During this time, members of the public, agencies, interest groups and First Nation and Métis communities were invited to review the document and to submit questions and comments to the Study Team. Upon receipt of all comments, including comments from the Peer Reviewer, the Study Team assessed comments received in order to determine what changes needed to be made to the assessment process outlined in this report. This report has been revised in response to the comments received.

The Study Team will commence the effects assessment studies, according to the methods outlined in this report, determine the cumulative effects of the Proposed Future Scenario on community assets, and present the results of the EA publicly, and to the City of Toronto and Transport Canada for their review. Data collection and analysis for the EA and effects assessment studies will be ongoing throughout the summer months. It is anticipated that preliminary results from the effects assessment studies will be complete in 2015.

Cumulative Net Effects Summaries will be made available for public, First Nations and Metis, and stakeholder review in advance of finalizing the EA Study Report for submission to the City of Toronto. This EA does not constitute a decision on whether or not to move forward with the requested amendments to the Tripartite Agreement, but may be used in support of a decision by the three signatories to the Tripartite Agreement. The proposal constitutes infrastructure and operational changes that cannot be undertaken without amendments to the Tripartite Agreement, and as such, any of the proposed changes presented in this document that are not currently allowed under the Tripartite Agreement will require agreement from the City of Toronto, Transport Canada, and PortsToronto to be included in an amended agreement before being implemented.

The final EA Study Report will be reviewed, along with documentation of other planning processes, as described in **Section 3.1**, by City of Toronto staff, who may decide to make a recommendation to Council on next steps based on the documentation received. If the Proposed Future Scenario is found to have unacceptable environmental impacts that cannot be mitigated, it may be decided that lifting the jet ban or making other associated changes to the Tripartite Agreement cannot be approved by City Council. Should this be the case, the Tripartite Agreement will continue to be the governing document that limits operations at BBTCA. Although growth within the limits of the Tripartite Agreement may continue to take place (Future Baseline Scenario), PortsToronto has committed, regardless of the outcome of the EA and any subsequent Council decisions that rely thereupon, to implement the measures described in **Section 3.1.2** of this document.

6. EA Schedule

The proposed EA schedule, subject to change, is as follows:

Timeline	Activity
Spring, 2015	30-day public review of this Study Design document
Summer to Autumn, 2015	Data collection and analysis
Autumn, 2015	EA Reporting
Winter, 2016	30-day public review of EA Study Report

7. References

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Noise Impact Assessment, Ferry Passenger Transfer Facility, TCCA. Report No. W06-5022A.

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West Don Lands Precinct Plan.

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Airport Master Plan 2012 – updated July 2014 prepared for Toronto Port Authority.

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Consultant Report – Strategic Vision for Peak Hour Passenger Forecast for BBTCA.

Appendix A

Correspondence from CEAA and MOECC

Canadian Environmental Assessment Agency
Agence canadienne d'évaluation environnementale

Ontario Region
55 St. Clair Avenue East,
Room 907
Toronto ON M4T 1M2

Région de l'Ontario
55, avenue St. Clair Est,
pièce 907
Toronto ON M4T 1M2

February 25, 2015

Sent by mail

K.A. Lundy
Director, Infrastructure, Planning and Environment
PortsToronto
60 Harbour Street
Toronto, Ontario M5J 1B7

Dear Mr. Lundy:

Re: Information on the *Canadian Environmental Assessment Act, 2012*

Thank you for your correspondence of December 17, 2014 regarding PortsToronto's proposed runway extension at the Billy Bishop Toronto City Airport.

As part of the Government of Canada's plan for Responsible Resource Development, the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) focuses federal environmental reviews on projects that have the potential to cause significant adverse environmental effects in areas of federal jurisdiction.

The CEAA 2012 applies to projects described in the *Regulations Designating Physical Activities* (the Regulations). Based on the information provided to the Canadian Environmental Assessment Agency (the Agency), your project is not described in the Regulations. Should any components of your project change, kindly contact the Agency.

Since the Project will be carried out in part on federal lands, the Agency would like to remind you of requirements pursuant to Section 67 of CEAA 2012:

67. An authority must not carry out a project on federal lands, or exercise any power or perform any duty or function conferred on it under any Act of Parliament other than this Act that could permit a project to be carried out, in whole or in part, on federal lands, unless

(*a*) the authority determines that the carrying out of the project is not likely to cause significant adverse environmental effects; or

(*b*) the authority determines that the carrying out of the project is likely to cause significant adverse environmental effects and the Governor in Council decides that those effects are justified in the circumstances under subsection 69(3).

.../2

PortsToronto is encouraged to contact Transport Canada officials to discuss and ensure compliance with obligations pursuant to Section 67 of CEAA 2012.

The Agency, in collaboration with several federal departments, has prepared guidance to help federal authorities discharge their obligations under Section 67 of CEAA 2012. This guidance is available on the Agency's website: https://www.ceaa-acee.gc.ca/default.asp?lang=en&n=6E01A733-1&offset=&toc=hide

If you have any questions, please get in touch with our office through the switchboard at 416-952-1576.

Sincerely,

Anjala Puvananathan
Regional Director, Ontario Region

c.c: Geoffrey Wilson, President & Chief Executive Officer, PortsToronto
Monique Mousseau, Regional Manager, Environment and Engineering, Transport Canada

Ministry of the Environment and Climate Change

Environmental Approvals Branch

2 St. Clair Avenue West
Floor 12A
Toronto ON M4V 1L5
Tel.: 416 314-8001
Fax: 416 314-8452

Ministère de l'Environnement et de l'Action en matière de changement climatique

Direction des autorisations environnementales

2, avenue St. Clair Ouest
Étage 12A
Toronto ON M4V 1L5
Tél : 416 314-8001
Téléc. : 416 314-8452

Ontario

December 15, 2014

K.A. Lundy, PEng
Director, Infrastructure, Planning and Environment
Toronto Port Authority
60 Harbour Street
Toronto ON M5J 1B7

Dear K.A. Lundy:

Thank you for your letter dated December 9, 2014, concerning the Toronto Port Authority's proposed runway extension at the Billy Bishop Toronto City Airport.

In your letter, you have requested that the Ministry of the Environment and Climate Change confirm the applicability of the provincial Environmental Assessment Act (EAA) to the proposed runway extension at the Billy Bishop Toronto City Airport.

As the operation and expansion of airports is the Federal government's responsibility, the Province of Ontario has no jurisdiction under the EAA and accordingly, there are no requirements under the EAA for the proposed extension of the airport's runway.

The ministry is aware that the Toronto Port Authority is pursuing an environmental study process as per a request made by the City of Toronto to assess the potential environmental, social and economic effects of the project. However, this study is not being carried out under the requirements of the EAA.

I trust this responds to your inquiry satisfactorily.

Yours sincerely,

Agatha Garcia-Wright
Director
Environmental Approvals Branch

Cc: Geoffrey Wilson, President and Chief Executive Officer, Toronto Port Authority
Dolly Goyette, Director, Central Region, Ontario Ministry of the Environment and Climate Change

Appendix B

Effects Assessment Work Plans

Environmental Assessment of Proposed Runway Extension and Introduction of Jets at Billy Bishop Toronto City Airport

Effects Assessment Study Work Plan Package

August, 2015 – Version 4

The Proposal:

In 2013, Porter Airlines submitted a proposal to the City of Toronto, copying PortsToronto and outlining their request to introduce jet aircraft at the Billy Bishop Toronto City Airport (BBTCA). This proposal includes an extension of the land mass at each end of the main runway by 200 metres in order to accommodate a longer runway and the use of jet aircraft for scheduled flight operations. As part of its assessment of Porter's proposal, PortsToronto developed a conceptual design that could accommodate the requested runway extension, as well as noise and other mitigation measures that could be required as a result of commercial jet flights. The proposed design and operational changes to the runway will be described in PortsToronto's 2015 Master Planning Exercise.

This EA will assess effects from the following two Future Growth Scenarios:

1. Future Baseline Scenario: No amendments to the Tripartite Agreement are implemented; and
2. Proposed Future Scenario: Tripartite Agreement is amended to permit commercial jet operations and the extension of the land mass at each end of the main runway by 200 metres.

The Work Plans:

The scope of the studies to assess the effects of the above Future Growth Scenarios are summarized in this document, in the sections outlined below. The "Asset" column in the table on the following page lists features and areas of concern as noted by participants in the consultation process undertaken to date. This column will assist the reader in identifying which section assesses their topic of interest.

The assets and the methods for studying impacts on assets have been changed since the first version of the summaries was presented to the public. They were changed in response to public comments and questions received to better reflect public concerns and to answer public questions. The changes made to the assets and methods are outlined in **Appendix C1 – Key Comments Received and Resulting Changes to the Scope**.

How Effects will be Described:

A number of individual effect assessment studies will be undertaken as part of the EA. Each assessment will focus on specific types of environmental impacts that can be reasonably anticipated as a result of the Future Growth Scenarios.

The table on the following page describes the different community assets noted to be of importance by participants in the scoping phase of the EA, and outlines which effects assessment studies will identify impacts to those assets. A community asset is a feature of the environment that may be affected by the project and that has been identified to be of concern by the public, government agencies or the proponent. A page number for each effects assessment section is also provided to help the reader quickly find those studies of particular interest.

The details of the specific environmental effects (called a measure of effect) to be studied for each asset, and the methods for studying those effects, are listed in **Attachment A – Work Plans: data sources and methods**.

Note that the EA scope will be informed by feedback received through the consultation process on the EA Study Design.

Impact Assessment Summary

How the Results of the Effects Assessment Studies will be Presented

The proposal has the potential to cause changes to a number of environmental, economic and social assets important to the local communities. PortsToronto is proposing to present these effects using an Impact Assessment Summary tool. This summary illustrates the overall effects of the proposal in a manner that assists interested parties to understand the trade-offs between the Future Baseline Scenario and the Proposed Future Scenario. Each effects assessment study will compare the net effects of the Proposed Future Scenario to the Future Baseline Scenario.

The Impact Assessment Summary process will be conducted in two stages, as described below:

Step 1: Determine the Direction of the Effects

Each of the effects assessment studies, described in this Work Plan Package, will include an assessment of the specific effects of the proposal on the various community assets associated with the environmental features under investigation. Effects on these assets are assessed using a series of measures which have been reviewed by government agencies, special interest groups, and the public throughout the preparation of the EA scope. As an example, as part of the Socio-Economic effects assessment study, effects on residential assets are being assessed by reviewing the following measures: changes to the use and enjoyment of private property resulting from changes to noise levels, changes to air quality and changes to views and vistas (amongst others). The impacts of the proposal on this and other assets will be determined by assessing the way in which each measure may change between the Future Baseline Scenario and the Proposed Future Scenario in the future environmental conditions. The assets and measures for each effects assessment study are listed in **Attachment A**, and will be described in detail in the EA Study Report. The residential use is just one of the community assets identified to be examined by the Socio-Economic study.

The Impact Assessment Summary will consolidate the net effects of each measure assessed by each effects assessment study into an overall direction of effect to describe whether community assets will be diminished, maintained or enhanced in the Proposed Future Scenario, as compared to the Future Baseline Scenario. The determination of the direction of effect will be based on empirical study, professional judgement, and in some cases, numerical computer modelling. “Diminish” means a specific measure of effect will be less preferable in the Proposed Future Scenario than in the Future Baseline Scenario, “maintain” means that there will be no anticipated measurable difference between the two scenarios, and enhance means that a specific measure of effect will be more preferable in the Proposed Future Scenario than in the Future Baseline Scenario.

The outcome of all the effects assessment studies will be presented in tabular format, so that interested parties can easily compare results and understand the trade-offs. The format for the direction of effect is illustrated in **Table 1-1** below.

Table 1-1: Direction of Effect - Proposed Future Scenario compared to the Future Baseline Scenario

Asset	Measure of Effect	Diminish	Maintain	Enhance
Asset 1	*Measure 1*	X		
	Measure 2			X
	Measure 3			X
Asset 2	*Measure 1*		X	
	Measure 2		X	
	Measure 3	X		

The overall purpose of using the Impact Assessment Summary tool is to present the findings of the various impact assessment studies in a manner which allows the reader to easily identify the trade-offs associated with the Proposed Future Scenario.

Step 2: Combine Impact Assessments with User Experiences

Throughout the scoping phase of the EA, and as part of the assessment of existing conditions, the Study Team has and will continue to consult with a range of interested stakeholders on their experiences living, working, and playing in the vicinity of the BBTCA. The results of the consultation will inform the Study Team about what is important to various users, and also to better understand the varying perceptions of airport operations and infrastructure amongst community members. This information will be used to produce a series of user experience vignettes that illustrate the current, perceived experience of a broad cross-section of waterfront and island users, while engaging in various waterfront, Lake Ontario, and island uses. Based on the outcome of the impact assessments, changes to each asset measure will be combined to determine the potential changes to these user experiences that might be anticipated as a result of the proposal to extend the land mass at each end of the main runway by 200 metres and to lift the jet ban. These user experience vignettes provide a specific, place-based, and easily relatable method for synthesizing potential changes to opportunities to live, work and play at key locations within the study area.

Potential locations for place-based user experiences have been developed through consultation with the Stakeholder and Agency Advisory Committees as part of the consultation process of this EA. Each marker in the figure, below represents a key location that represents the multitude of activities that occur within more focused geographic regions of the Study Area. The lenses of live, work and play will be used to understand potential changes to user experience in these locations for the Future Baseline and Proposed Future Scenarios. Examples of uses that may be selected can include, but will not be limited to:

- Picnicking on Centre Island;
- Learning to sail in the Inner Harbour;
- Listening to a concert at the Music Garden;
- Drinking a morning coffee on the balcony of a waterfront residence;
- Strolling through Villiers Island neighbourhood;
- Hiking through Ontario Place;
- Birdwatching at the Leslie Street Spit; or
- Eating a meal at a waterfront restaurant patio.

Figure 1: Potential Locations for Place-based User Experience Vignettes

The locations, numbered 1 to 12, are as follows:

1. Mimico and Humber Bay Park
2. Ontario Place and Exhibition Place
3. Bathurst Quay Neighbourhood
4. Toronto Islands (excluding Billy Bishop Toronto City Airport)
5. Inner Harbour
6. Central Waterfront (Harbourfront Centre)
7. East Bayfront
8. West Don Lands, Unilever Site and Distillery District
9. Villier's Island, Port Lands and Keating Channel Precincts
10. Cherry Beach and Outer Harbour
11. Tommy Thompson Park (Leslie Spit)
12. Ashbridge's Bay, Woodbine Park and Woodbine Beach

This EA will not make a recommendation regarding whether the jet ban should be lifted and the land mass extended. The purpose of tabulating and illustrating the effects of the proposal is to present the findings of the various effects assessment studies in a manner which allows the reader to easily identify the trade-offs associated with each Future Growth Scenario.

Socio-Economic Assessment Overview

The Study Area

Where will the Environmental Assessment (EA) study effects on the **Socio-economic Environment**?

The original Study Area included all relevant features along the waterfront within the following boundaries:

- The Gardiner Expressway to the north;
- Leslie Street to the east;
- Toronto Island to the south; and
- Strachan Avenue to the west.

We've heard that people are also concerned about potential effects extending to these additional areas:

- The Toronto Music Garden;
- Ontario Place;
- The City School;
- The Inner/ Outer Harbour and the Eastern Channel;
- Residences and businesses on the Toronto Island, along Lake Shore Boulevard and Queens Quay;
- Recreational activities in the harbour, on the Island and the Leslie Street Spit;
- Parts of North York, Scarborough and Etobicoke under flight paths; and
- Future development impacts and land valuation.

After considering comments received to date, the boundary of the Study Area has been expanded to include the original study area plus:

- Ontario Place to the west; and,
- The Leslie Street Spit to the south.

The Study Area described above represents the Local Study Area for assessing use values. A larger, Regional Study Area, which consists of the City of Toronto, was identified for the discussion pertaining to non-use values.

The purpose of expanding the Study Area boundaries is to ensure likely impacts on the key areas are assessed in the EA. It is important to note that the Study Design will capture input from waterfront users across Toronto and beyond. The boundaries of the revised Socio-economic Assessment Study Area are depicted in the figure above.

What will be studied?

In general, the EA study's scope includes undertaking the following tasks:

1. Conduct a review of background information, review findings from the air quality, noise and marine navigation, land use & built form, transportation, and natural environment assessments and conduct interviews/surveys to document current social and economic conditions;
2. Identify changes to residential/recreational/institutional areas and uses and to Toronto's brand/the ability to leave a legacy for future generations, etc., from the Future Baseline and Proposed Future Scenarios in consideration of future environmental conditions;
3. Identify cumulative effects taking into account other past, present and certain or reasonably foreseeable future effects from other actions/projects within the same geographic and temporal boundaries of this assessment; and,
4. Compare effects from the Future Baseline and Proposed Future Scenarios.

If potential negative effects on the socio-economic environment are identified, they will be described and possible mitigation measures will be assessed to prevent or minimize the effects, where feasible.

From consultation that has occurred to-date, we understand that people are concerned about a wide range of effects on their ability to:

- Promote economic benefits related to employment, businesses and government revenues;
- Encourage tourism associated with a wide range of waterfront activities;
- Keep their windows open in their residences;
- Enjoy a variety of events such as at the Toronto Music Garden and other cultural venues in the vicinity of the BBTCA;
- Enjoy various waterfront activities (such as boating, cycling, walking, birding, picnicking, sitting at restaurants, etc.);
- Leave a legacy or options for future generations to develop, use and enjoy the waterfront;
- Safe access for children to school;
- Travel to and from the waterfront (as a resident of Toronto, visitor to the area or tourist);
- Access convenient air travel for business and pleasure; and
- Support or grow local employment and business opportunities.

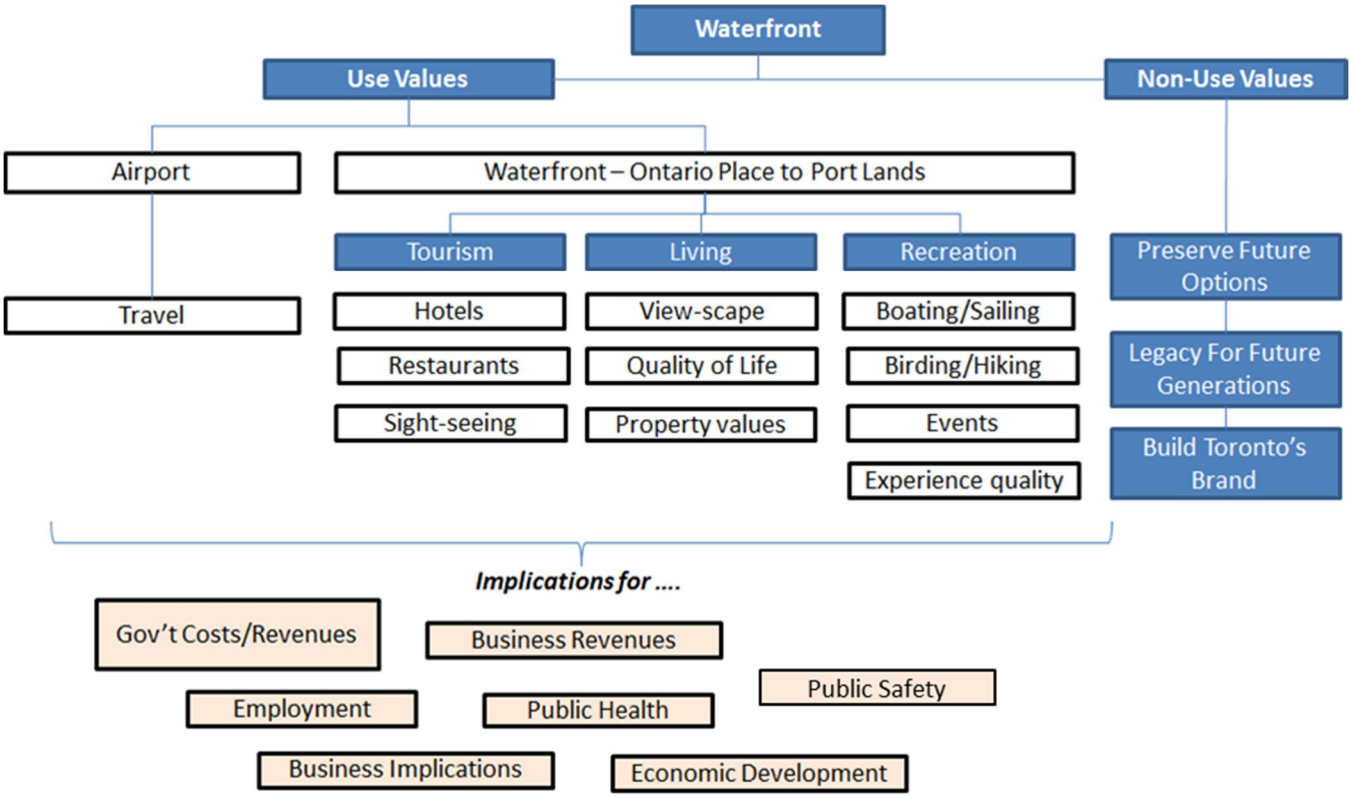
The list above includes only a sample of the most common issues we've heard so far. Additional issues raised are provided in ***Appendix C1 - Key Comments Received and Resulting Changes to the Scope*** for review.

The socio-economic effects study will examine the effects of the proposal on a number of social and economic community assets.

There have been numerous economic benefit studies linked to airport operations. These studies will be reviewed and analysed to understand the potential incremental economic impacts of the proposal. The social assets have been categorized by the value placed upon them by interested parties. The two general categories include: use and non-use values, which are further sub-divided into categories as depicted in the figure on the following page.

The first category, "use values", includes assets that exist because people use them, such as tourism and recreation opportunities. Use values will be categorized into Airport and Waterfront activities, which all hold a set of common implications for businesses and governments, public health and safety, and employment and economic development opportunities. "Non-use values" are values ascribed to aspects of the environment that exist independent of people's use or enjoyment of them.

Non-use values include: options for future generations to develop and use the waterfront and impacts on Toronto's "brand" as a waterfront city. These non-use values, as the name implies, refers to important considerations that are believed to be highly valued by City residents (and others) irrespective of whether they use the airport or visit the waterfront. This collection of values will be assessed together in this EA.



The table below lists a sample of the key use and non-use values, how the EA will evaluate them and describes updates made to the scope of work based on comments received. Other issues detailed in **Appendix C1** will also be included the assessment.

Issue	Detail	In Original EA Scope?	In Draft Revised EA Scope?	Study Methods/Rationale
Airport Use	Impact of the current and projected airport operation on employment, businesses, and government revenues	Yes	Yes	▪ The economic assessment will be drawn in large part from existing studies. ▪ The intent of the economic assessment is to synthesize key findings of these economic studies and to place their conclusions in the context of the EA. ▪ Our own interpretation of the analyses will be provided using input gained through interviews with airport-related businesses as well as intercept surveys with airport users.
Tourism Use	Impact of the current and projected airport operations and other waterfront uses on tourism and tourists	Yes	Yes	▪ Tourists to Toronto arrive from many destinations over the course of a year and some visit the waterfront for a variety of reasons. Intercept surveys will enable us to capture user attitudes and perspectives about the mix of waterfront use activities and how changes to both airport operations and recreational waterfront use activities might influence their future attraction to this area, as well as their likelihood of recommending Toronto and its waterfront to others as a positive experience. ▪ These intercept surveys will be conducted along the waterfront at various venues and during different times during the summer (2015) and will capture views and perspectives linked to a variety of issues such as: • Noise; • Air Quality; and • Quality of experience.

Issue	Detail	In Original EA Scope?	In Draft Revised EA Scope?	Study Methods/Rationale
				▪ Interviews with a sample of hotels, restaurant establishments, and sight-seeing business operators along or closely associated with the waterfront will be conducted to obtain their perspectives regarding tourism and its influence from airport operations and all other waterfront activities. These business-related interviews will capture views and perspectives linked to a variety of issues such as: • Importance of BBTCA to business clientele; and • Importance of the "waterfront experience" (such as recreation, dining, noise, air quality, etc.) to clientele.
Residential Use *(including parks and public spaces)*	Impact on waterfront residents' use and enjoyment of their property	Yes	Yes with additions	▪ Many residents of waterfront properties have expressed concerns about the effects of noise and poor air quality, such as: • Ability to use balconies because of noise and odour; • Ability to open windows and doors or reliance on indoor air conditioning; • Ability to sleep, hold conversations or undertake other activities when planes pass; • Impacts on property values; and • Impacts on traffic and associated noise and air quality impacts from ground-level transportation. ▪ The original EA scope will assess impacts on the use and enjoyment of private property from airport operations. This will be completed through interviews with condominium boards and local residents within the Study Area. The interviews would include questions pertaining to any changes in how residents use their properties resulting from different levels of activity at the airport. These interviews will also pose questions to address the overall quality of their living experience, to the extent possible, to determine its association with changes in airport operations. ▪ After reviewing comments received to-date, as previously mentioned, the western boundary of the Study Area expanded to encompass additional condominiums.
Recreational Use (*including cultural venues*)	Impacts on outdoor events such as concerts at cultural venues such as the Toronto Music Garden, Harbourfront Centre, etc.	Yes	Yes with additions	▪ The original EA scope proposed to assess impacts on the use and enjoyment of recreational spaces; including the Toronto Music Garden and other venues. This was to be completed through intercept surveys, where members of the Study Team would survey people using recreational and cultural spaces and ask them about changes to their experiences linked to activity at the airport. The survey team will capture people at the Toronto Music Garden in these surveys. ▪ After reviewing comments received to-date, the scope of the intercept surveys increased in terms of total number of surveys, the location and duration. The surveys will now be conducted from the Port Lands to Ontario Place and will be extended beyond the summer of 2015. This will allow the Study Team to survey a greater variety of waterfront users at the height of the recreation season and during the shoulder season.
	Use and enjoyment (experience quality) of various waterfront activities such as: boating, cycling, sailing, hiking, birding, picnicking, walking, etc.	Yes	Yes with additions	▪ Many comments and concerns were expressed about the consequences and effects of airport operations on a wide range of recreational activities on or near the waterfront. Most concerns relate to adverse effects from noise, odour, potential jet blasts, and marine navigation outside the Marine Exclusion Zone linked to airport operations. Some of the specific concerns expressed include, for example: • Health and safety of recreational users; • Ability of sailing instructors to communicate with student sailors when planes pass overhead; • Ability to maintain conversations when planes pass overhead when walking, picnicking, enjoying nature, etc.; and • Implications for sustainability of waterfront businesses such as sailing clubs. ▪ A combination of pre-arranged meetings and user intercept surveys are planned for the summer of 2015. The intent is to interview people that represent a diversity of waterfront users to obtain their perceptions and

Issue	Detail	In Original EA Scope?	In Draft Revised EA Scope?	Study Methods/Rationale
				attitudes about the above issues and consequences for their activities. The intercept surveys will also attempt to capture input from a variety of users from: • Local neighbourhoods; • Throughout the City of Toronto; • GTA; and • Outside the GTA. ▪ After reviewing comments received to-date, the scope of the intercept surveys increased in terms of total number of surveys, the location and duration. The surveys will now be conducted from the Port Lands to Ontario Place and will be extended beyond the summer of 2015. This will allow the Study Team to survey a greater variety of waterfront users at the height of the recreation season and during the shoulder season.
Non-use Values	Implications to: Preserve future options; leave a legacy for future generations; and enhance Toronto's "Brand"	No	Yes	▪ Many people may not use the waterfront or the airport for any reason; however, this does not mean that they do not value it. ▪ This study will capture and consider the perceived non-use values of environmental elements within the Study Area from non-users across the City. ▪ Consequently, the scope of the EA has been expanded to include a City-wide survey to obtain attitudes and perspectives of a sample of Toronto residents regarding this topic. Details of the questions to be asked will be developed during the winter 2015. The survey will be conducted by phone in Summer 2015 through the services of a specialty polling service agency.
Transportation	Access to the waterfront	Yes	Yes with additions	▪ The original EA scope proposed to assess effects from changes in traffic volume. This was to be completed through intercept surveys with waterfront users and would focus on their experience getting to and from the waterfront, what influences when they use the waterfront and when they arrive or leave the waterfront. ▪ After reviewing comments received to-date, the scope of the intercept surveys increased in terms of total number of surveys, the location and duration. This will result in a greater opportunity to survey waterfront users from outside Toronto and beyond.

Information Sources

The following studies were reviewed to inform the effects assessment, this information also allowed the Study Team to determine which additional studies should be conducted.

- CommunityAIR, 2013. Reviewing Deluce's Jets Proposal: What the City Has (and Hasn't) Done;
- Environics Research Group, 2013. Toronto Resident Survey: Billy Bishop Toronto City Airport;
- Golder Associates, 2013. Health Impact Assessment Proposed Billy Bishop Expansion;
- HLT Advisory, 2013. Economic Impact Considerations of an Expanded Billy Bishop Toronto City Airport; and
- InterVISTAS Consulting, 2012. Billy Bishop Toronto City Airport (YTZ) Economic Impact Study.

The studies conducted to-date generally focused on the economic effects associated with the proposal; critiques of the studies noted an inadequate review of social effects.

To address the gaps in information, this EA will focus social effects linked to the BBTCA airport and will collect information from the following sources:

- Intercept surveys;
- Business, residential and institutional interviews;
- City-Wide Phone Survey; and

- Findings from the marine navigation, noise, air quality, land use & built form, natural environment and transportation assessments, described in the associated work plans in **Attachment A – *Work Plans***.

Survey and interview details such as the specific questions and the total number will be developed as part of the detailed methodology for the Environmental Assessment.

Effects Assessment

The information collected will allow the Study Team to assess potential effects on the socio-economic issues listed above and in **Appendix C1**. These issues have been organized into broader community assets to categorize community input for the EA. A community asset is a feature that may be affected by the proposal and that has been identified to be of concern by the public, government agencies, First Nation and Métis communities, or the proponent. Community assets that may be affected by the proposal include:

- Residential uses;
- Recreational uses (such as boating, cycling, picnicking, bird watching, and events at cultural venues, etc.);
- Institutional uses (such as schools in the Study Area, particularly the City School);
- Economy;
- Tourism;
- Municipal Implications;
- Property Values; and
- Non-use Values.

Attachment A details how effects on the assets will be measured and what information sources will be used.

Please note that the EA Scope has been informed by feedback received through the consultation process.

Land Use & Built Environment Assessment Overview

The Study Area

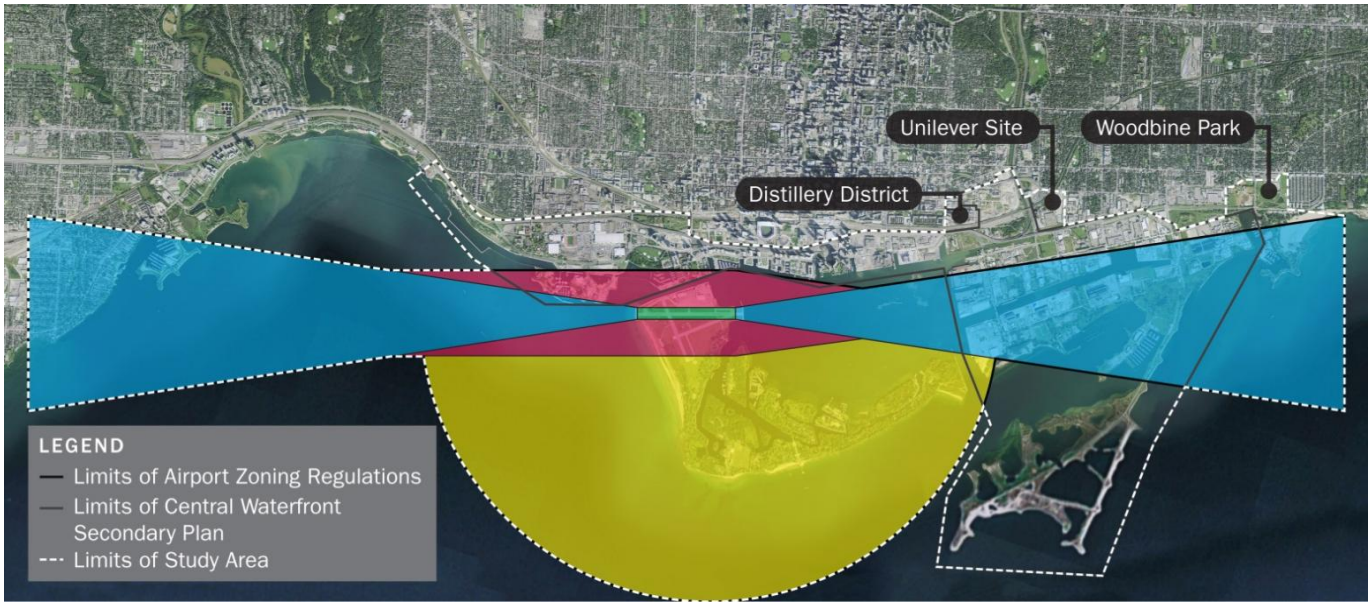
Where will the Environmental Assessment (EA) study effects on **Land Use & the Built Environment**?

The original Study Area for land use and the built environment comprised an amalgamation of:

- The City of Toronto's Central Waterfront Secondary Plan (CWSP) area; and
- All lands within the limits of Billy Bishop Toronto City Airport's (BBTCA) Obstacle Limitation Surfaces, as regulated by Transport Canada through statutory Airport Zoning Regulations (AZR).

We've heard that people are also concerned about potential effects extending to these additional areas:

- The Distillery District;
- The Unilever Site on Lakeshore Boulevard at the Don Valley; and
- Woodbine Park in the Beach(es) neighbourhood.



After reviewing comments received to-date, the Study Area has been expanded to include the above additional areas of concern/interest. These areas include sensitive uses (planned or existing) outside of the extents of the AZR and the CWSP that could be affected by the proposed changes to the airport/airport operations. The boundaries of the revised Land Use & Built Form Study Area are depicted in the figure above.

What will be studied?

In general, the EA study's scope includes undertaking the following tasks:

1. Conduct a review of background information of the multi-tiered regulatory framework shaping growth and investment in the City of Toronto, the Waterfront and Port Lands;
2. Use the regulatory framework review to evaluate potential built form and land use impacts, merits and policy compliance (or non-compliance) issues associated with near and long-term development scenarios; and
3. Identify built form and/or height restrictions associated with changes to either of BBTCA's regulated Obstacle Limitation Surfaces and Missed Approach Surfaces from the proposal (i.e. lifting the jet ban to allow commercial jets to operate out of the BBTCA and an extension of the land mass at each end of the main runway by 200 metres).

From consultation that has occurred to-date, we understand that people are concerned with:

- Existing, approved (but unbuilt) and planned residential and commercial uses (in terms of noise, height restrictions and property values); and
- Important view corridors (existing and planned) that serve to visually link important waterfront places and destinations.

The list above includes a sample of the top issues we've heard so far. Additional issues raised are provided in ***Appendix C1 - Key Comments Received and Resulting Changes to the Scope*** for review.

The table below documents the issues raised, how the EA will evaluate the issue and any updates made to the land use & built form scope of work based on comments received.

Issue	Detail	In Original EA Scope?	In Draft Revised EA Scope?	Study Methods/Rationale
Built Environment	Future residential or commercial uses	Yes	Yes	▪ The EA will assess effects on future residential or commercial uses through a review of noise effects, impacts on future development and property values. ▪ Future indoor noise impacts at sensitive receptor locations will be assessed through modelling efforts. Noise measurements will be taken at residential and other locations. ▪ Impacts on future development will be assessed in terms of reviewing potential new height restrictions. Property value impacts have been assessed by N. Barry Lyon Consultants Ltd. in the study "Condominium Market Value Impact Analysis: Billy Bishop Airport " (November, 2013). This report found that property values have continued to increase along the waterfront while flight and passenger volumes have increased at the BBTCA. Property values will be discussed as part of the socio-economic scope of work.
Built Environment	Viewshed from both the water and land	Yes	Yes	▪ The EA will create rendered visualizations of future development models to ascertain the visual impacts of the proposal from different important vantage points. ▪ These vantage points (also being referred to as vignettes) have been determined through consultation with members of the public, stakeholders and public agencies.

Information Sources

The following studies were reviewed to inform the effects assessment, this information also allowed the Study Team to determine which additional studies should be conducted.

- Urban Strategies Inc., 2013. Consultant Report - BBTCA Expansion Review Summary Report;
- WSP Group, 2014. Consultant Report – Strategic Vision for Peak Hour Passenger Forecast for BBTCA;
- N. Barry Lyon Consultants Ltd. 2013. Condominium Market Value Impact Analysis: Billy Bishop Airport (found in Appendix of Economic Impact Considerations of an Expanded BBTCA); and
- BA Group, 2013. BBTCA Transportation Assessment of Proposed Jet Activity Summary Report.

The studies completed to date raised several issues/questions for which additional information and analysis was needed. These issues include: need to establish a framework for assessing overall impacts to enjoyment of the waterfront; confirmation of potential impact on development permissions, including building heights and land use compatibility restrictions; and visual impacts associated with possible facility/infrastructure changes at the airport.

To address the gaps in information, this EA will collect information from the following sources:

- Relevant Federal, Provincial and Municipal statutes and legislation;
- Relevant built form and land use policies;
- Relevant local policies;
- Current waterfront mapping and models;
- 3D model of airport zoning regulation;
- Policy and regulatory documents; and
- Waterfront planning documents.

Effects Assessment

The information collected will allow the Study Team to assess potential effects on the built environment issues listed above and in **Appendix C1**. These issues have been categorized into broader assets for the purposes of the EA. A community asset is a feature that may be affected by the proposal and that has been identified to be of concern by the public, government agencies, First Nation and Métis communities, or the proponent. Community assets that may be affected by the proposal include:

- Regulatory Compliance (existing Federal, Provincial and Municipal Plans and Policies)
- Future development

Attachment A - Work Plans details how effects on the assets will be measured and what information sources will be used.

Please note that the EA Scope has been informed by feedback received through the consultation process.

Natural Environment Assessment Overview

The Study Area

Where will the Environmental Assessment (EA) study the effects on the **Natural Environment**?

The original Study Area for the Aquatic and Terrestrial Environment included the following boundaries:

- Inner Harbour to the north;
- Tommy Thompson Park (TTP) to the east;
- Toronto Island to the south; and
- Hanlan's Point Beach to the west.

We've heard that people are also concerned about potential effects extending to these additional areas:

Terrestrial Environment:

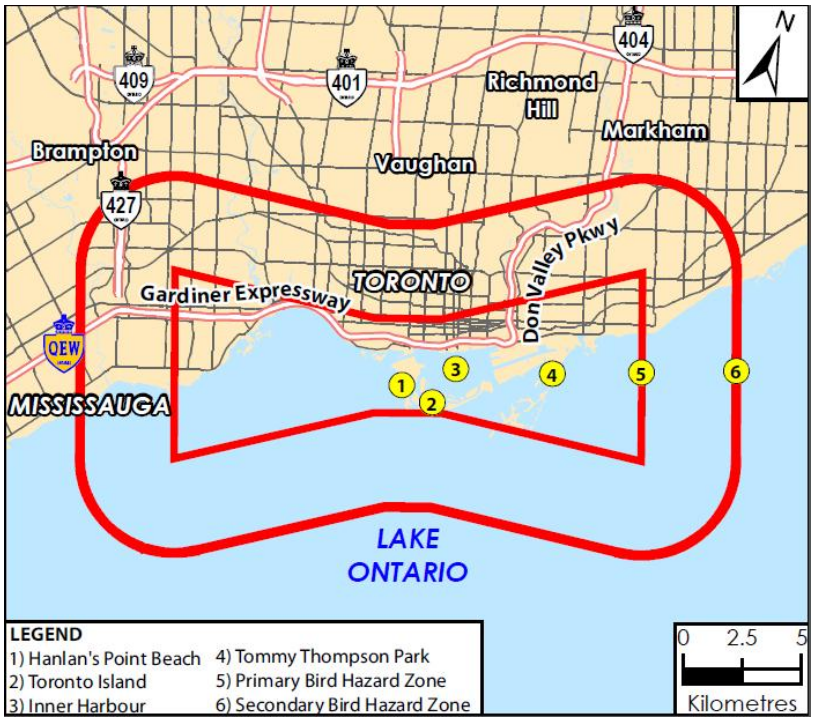
- Toronto Islands;
- Jet flight paths and missed approach decision points; and
- The Bird Hazard Zone (BHZ) as identified in the Billy Bishop Toronto City Airport (BBTCA) Wildlife Management Plan.

Aquatic Environment:

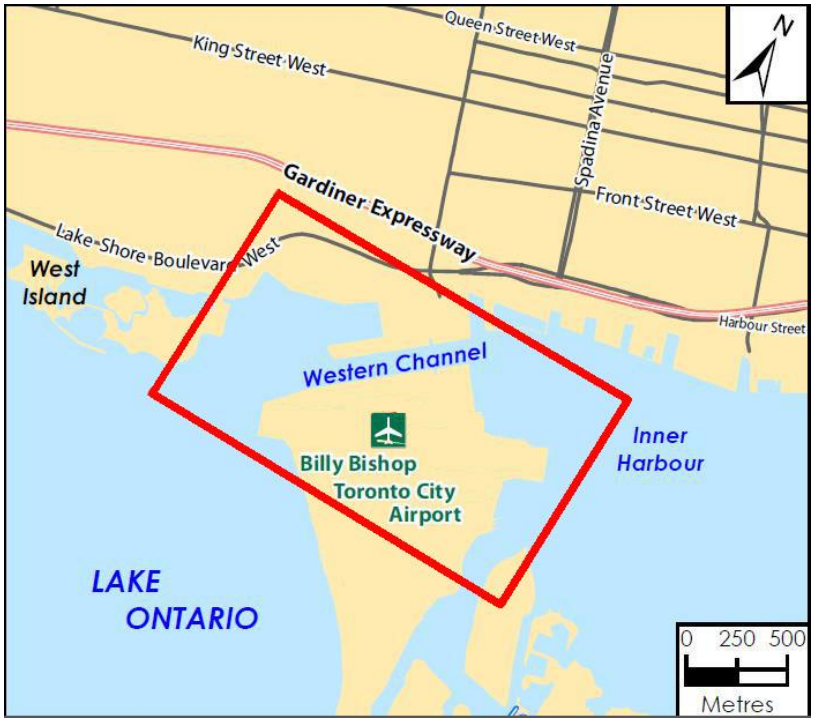
- Footprints of the proposed extension of the land mass and adjacent aquatic habitat;
- Outer harbour;
- Western Channel; and
- Lake Ontario in the vicinity of Ontario Place.

After considering comments received to date, the boundaries of the Study Area for the Terrestrial Environment study have been expanded based on the BBTCA BHZ, calculated aircraft flight paths, glide slopes and missed approach points. The Study Area for the Terrestrial Environment study will include the BBTCA BHZ, with the expectation that this

Terrestrial Assessment Study Area



Aquatic Assessment Study Area



area will encompass the projected jet flight paths at altitudes where bird strikes are most likely to occur, as well as missed approach decision points for BBTCA (to be provided in the 2015 Master Planning Exercise). Areas of concern for the terrestrial environment identified above have been included in the revised study area.

The revised Study Area for the Terrestrial Environment includes the original Study Area plus:

- The primary BHZ is defined by Transport Canada to include the following:
  - In the vicinity of the BBTCA, the northern and southern boundaries of the primary BHZ include the areas within 2 km of and adjacent to the runway (including the extension of the land mass);
  - The eastern and western boundaries of the primary BHZ extend 9 km from each end of the main runway (including the extension of the land mass). At these limits, the northern and southern boundaries of the primary BHZ extend 4 km from the centreline of the runway in each direction (8 km in total); and
  - This results in a primary BHZ that resembles a bowtie.
- The secondary BHZ is defined by Transport Canada to include the following:
  - A 4 km buffer applied to the primary BHZ.

Work related to the aquatic environment will focus on the areas in the immediate vicinity of the land mass extension as this is the area where potential effects from construction are anticipated to occur.

What will be studied?

In general, the EA study's scope includes undertaking the following tasks:

1. Conduct a review of background information and additional field studies to document current natural environment conditions;
2. Identify changes to the natural environment conditions from the Future Baseline and Proposed Future Scenarios in consideration of future environmental conditions;
3. Identify cumulative effects taking into account other past, present and certain or reasonably foreseeable future effects from other actions/projects within the same geographic and temporal boundaries of this assessment; and,
4. Compare effects from the Future Baseline and Proposed Future Scenarios.

In addition to supporting a wide variety of non-sport fish (baitfish, coarse fish, etc.) the Toronto Islands including the inner and outer harbour areas are also known to support a diverse recreational fishery that includes Yellow Perch, Walleye, Northern Pike, Largemouth Bass, Brown Trout, Rainbow Trout, and Chinook Salmon[1]. The Toronto Islands are also known to support an Endangered Species, the American Eel.

As regulated by the federal *Fisheries Act* (as amended, 2012), any work conducted in or near water bodies that support fish would require a review to determine any impacts on the sustainability and ongoing productivity of recreational, commercial and Aboriginal fisheries as well as the habitats that support them. The Aquatic Environment Study has been developed in order to assess the potential effects of the proposed extension of the land mass at each end of the main runway by 200 metres on fish and fish habitat, including aquatic Species at Risk. The study will focus on aquatic habitats and species which may be disturbed either temporarily during construction or permanently during operation, including the footprint of the proposed extension of the land mass as well as adjacent aquatic habitat areas.

Terrestrial features within the Study Area include the Provincially Significant Toronto Islands Coastal Wetlands Complex and TTP, a globally significant Important Bird Area. Terrestrial habitats in the vicinity of the proposed

1. *City of Toronto, 2013. Fishes of Toronto: A Guide to Their Remarkable World. City of Toronto Biodiversity Series, Toronto, 77 pp*

extension of the land mass include wetlands, woodlands and dunes. These areas are known to support a diversity of bird species, as well as plants and other wildlife. The Terrestrial Environment study has been developed in order to assess the potential effects of the proposed extension of the land mass on terrestrial habitats and species, including birds. The study will focus on terrestrial habitats and species which may be disturbed either temporarily during construction or permanently during operation, including vegetation and wildlife on and adjacent to the BBTCA grounds and Hanlan's Point beach. Background bird information will be collected and analyzed for the entire Study Area and additional bird surveys will be completed in the areas within 500 m of the proposed extension of the land mass in order to develop a comprehensive understanding of the bird populations potentially affected.

If potential effects on the natural environment are identified, they will be described and mitigation measures will be proposed to prevent or minimize the potential effects.

From consultation that has occurred to-date, we understand that people are concerned about the following issues relating to the natural environment:

Terrestrial Environment:

- Risk to bird populations associated with bird strikes, including birds at TTP;
- Risk to bird populations associated with wildlife management actions that may be taken to prevent bird strikes (i.e., based on human safety concerns); and
- Ensure that the bird studies are designed appropriately to complete the impact assessment (e.g. spatial extent relative to bird strikes, timing to capture important windows).

Aquatic Environment:

- Direct impacts of the proposal on aquatic habitat and associated mitigation measures.

The list above includes a sample of the top issues we've heard so far. Additional issues raised are provided in ***Appendix C1 - Key Comments Received and Resulting Changes to the Scope*** for review.

The table below documents the issue raised, how the EA will evaluate the issue and any updates made to the scope of work based on comments received.

Issue	Detail	In Original EA Scope?	In Draft Revised EA Scope?	Study Methods/Rationale
Risks to Birds	Review risks to bird populations associated with bird strikes, including waterbirds at the Toronto Islands and TTP (e.g. cormorants)	Yes	Yes	▪ A review of past trends in bird strike occurrences for various species at the BBTCA will be compared to a comprehensive bird list compiled from the records and background information received from various agencies to understand the potential impacts of the airport on bird populations. The EA will consider jet flight paths and height, as well as frequency of flights information (to be provided by the 2015 Master Planning Exercise) to identify where bird strikes are likely to occur and relate this to the potential effects on birds recorded in the identified area. ▪ If the proposed changes to the runway are approved, the existing BBTCA Wildlife Management Plan will be updated by PortsToronto. To do so, the risks of bird strikes will be examined to determine what mitigation measures are required as part of the plan to reduce the potential for risks from bird strikes. This and the current Wildlife Management Plan will be reviewed and commented on as part of the EA.
Risks to Birds	Identify wildlife management actions that could be implemented if bird strikes pose a risk to human safety and assess potential effects of management actions on bird populations (including those that could be implemented beyond the airport grounds and at TTP)	No	Yes	▪ The original scope of work included an assessment of the impacts of mortality from bird strikes to bird populations, including birds at TTP. Based on the comments received, the scope of work will be expanded to include a literature review of off-site wildlife management at North American airports and/or airports located on islands or adjacent to large bodies of water to identify potential mitigation or management techniques that could be implemented at BBTCA and TTP. ▪ It is recommend that the 2015 Master Planning Exercise include an explanation of how the Wildlife Management Plan

Issue	Detail	In Original EA Scope?	In Draft Revised EA Scope?	Study Methods/Rationale
				mitigates risks associated with bird strikes, and that the plan will be updated to address any change to the risk profile if the land mass is extended and the jet ban is lifted. ▪ This and the current Wildlife Management Plan will be reviewed and commented on as part of the EA.
Risks to Birds	Ensure bird surveys capture peak timing windows for: (1) waterbirds in spring and fall, (2) flocks of blackbirds, starlings and aerial insectivores at TTP in spring and early summer, (3) peak songbird migration and raptors in September, and (4) peak migration for owls in October/November	1. Yes 2. No 3. No 4. Yes	1. Yes 2. No 3. No 4. Yes	1. Spring and fall migration surveys are recommended to be completed near the airport, to supplement available background information. 2. Background information provided from multiple agencies, including TRCA, is considered to be sufficient to assess potential effects on these species at TTP. No additional surveys within TTP are proposed. 3. Four rounds of fall migration surveys have been completed in October and November 2014. Together with the spring migration surveys recommended in the work plan, these are considered to be sufficient to address potential effects on migratory songbirds. 4. No owls were observed during these surveys; however, available background information will be reviewed to identify if owls are present in the vicinity of the BBTCA.
Aquatic Habitat	Direct impacts of proposed expansion on aquatic habitat and associated mitigation and compensation measures	Yes	Yes	▪ To assess effects on the aquatic environment, the Study Team will use TRCA's Habitat and Environmental Assessment Tool (HEAT) to quantify the amount and assess the quality of habitat that would be removed or disturbed by the proposed runway expansion. ▪ Once this habitat assessment is complete, conceptual mitigation/compensation measures will be identified based on the needs of the areas. These plans will be developed in consultation with Aquatic Habitat Toronto (AHT).

Information Sources

The following studies were reviewed to inform the effects assessment; this information also allowed the Study Team to determine which additional studies should be conducted.

- CH2M HILL Canada Limited, 2013. Porter Airlines Runway Extension Proposal Review Coastal Processes and Environments.
- Dillon Consulting Limited, 2011. Toronto Port Authority Proposed Pedestrian/Services Tunnel and Perimeter Road Project.
- Dr. Davidson-Arnott, R. 2013. Peer Review of Porter Airlines Runway Extension Proposal Review Coastal Processes and Environment.

The studies conducted to-date generally focused on the existing shoreline and coastal environment assessed for fish and bird habitat within the immediate vicinity of a proposed 168 m extension of the landmass (as opposed to the currently proposed 200 m extension). A peer review of the *Porter Airlines Runway Extension Proposal Review Coastal Processes and Environments* (CH2M Hill Canada Limited, 2013) identified that the information presented in this study was preliminary in nature and more detailed studies are required.

To address the gaps in information, this EA will collect information from the following sources:

Terrestrial Environment:

- Field studies to gather information on existing terrestrial features, plants, wildlife and wildlife habitats in the vicinity of the BBTCA;
- Rare species and designated area information from the Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) database;

- Natural Resources Values Information System (NRVIS) mapping from Land Information Ontario (LIO);
- City of Toronto Official Plan;
- Available information about terrestrial features, habitats and species for the Study Area, including bird data, from various sources
- Bird surveys (fall migration, overwintering, spring migration and breeding season);
- Bird strike information from BBTCA and Transport Canada;
- Bird records from Fatal Light Awareness Program (FLAP), if available;
- Bird information for the Toronto Islands from the Harbourfront Kayak Centre, if available;
- Turtle information for the Toronto Islands from the Kawartha Turtle Trauma Centre, if available;
- Fish and fish habitat information for the Toronto Islands from Ontario Streams, if available;
- BBTCA Wildlife Management Plan; and
- Consultation with the TRCA and Canadian Wildlife Service (CWS) regarding suitable mitigation measures.

Aquatic Environment:

- Field studies to gather information on existing aquatic habitat within the footprint of the proposed extension of the land mass and MEZ;
- Available fisheries data and monitoring reports from various sources;
- Conservation Ontario Aquatic Species at Risk distribution mapping; and
- Consultation with the MNRF and DFO in order to identify possible mitigation and/or compensation measures.

Effects Assessment

The information collected will allow the Study Team to assess potential effects on the natural environment issues listed above and in **Appendix C1**. These issues have been organized into broader assets to categorize community input for the EA. A community asset is a feature that may be affected by the proposal and that has been identified to be of concern by the public, government agencies, First Nation and Métis communities, or the proponent. Natural Environment assets that may be affected by the proposed extension of the land mass include:

- Significant features or functions (such as Provincially Significant Wetlands, Areas of Scientific and Natural Interest, and Significant Wildlife Habitats);
- Terrestrial habitats or functions (such as wetlands, woodlands, dune environments and habitats known to support sensitive terrestrial species);
- Terrestrial species (such as plants, birds, monarch butterflies and other wildlife, rare species and Species at Risk);
- Aquatic habitats or functions (such as spawning, rearing, feeding areas, coastal processes and areas known to support sensitive species); and
- Aquatic species (such as fish, rare and endangered species).

Attachment A - Work Plans details how effects on the assets will be measured and what information sources will be used.

Please note that the EA Scope has been informed by feedback received through the consultation process.

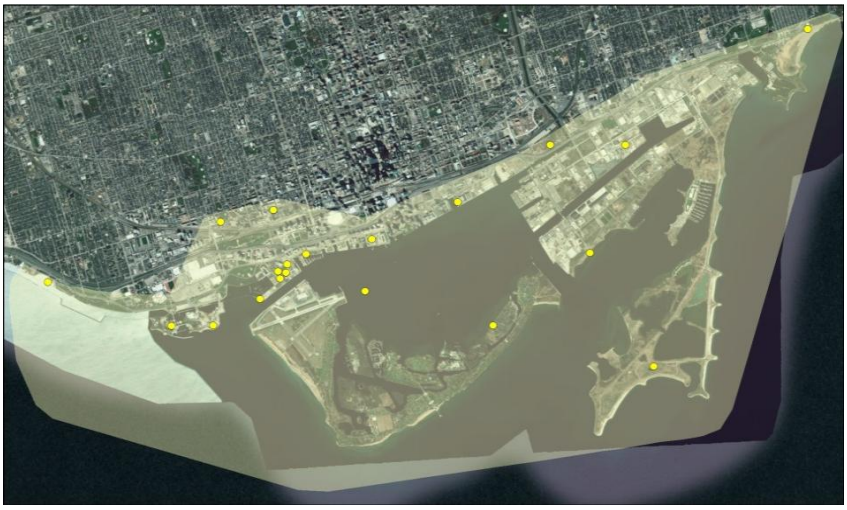
Air Quality Assessment Overview

The Study Area

Where will the Environmental Assessment (EA) study effects on **Air Quality?**

The original Study Area was defined by key receptor locations, which included:

- Residences along Bathurst Street south of Queens Quay; and
- Stadium Road south of Queens Quay, Waterfront School and City Schools at Queen's Quay, Bathurst Street and Toronto Island, as well as other receptors.



This Study Area was selected as it included representative residential, recreational (parks and public spaces) and institutional locations most affected by changes to air quality.

We've heard that people are concerned about effects extending to these key areas:

- The Toronto Waterfront from Ontario Place to the Beaches;
- The National Yacht Club;
- Condominiums along Queens Quay; and
- The Harbour, Islands, Leslie Street Spit and Port Lands.

After considering comments received to date, the Study Area boundaries have been expanded to include:

- The Music Garden, Sugar Beach, National Yacht Club and Wards 19 and 20 to the north;
- Woodbine Beach, the Harbour and Clark Beach Park to the east;
- Algonquin Island to the south; and
- Ontario Place and the Toronto Sailing & Canoe Club to the west.

The purpose of expanding the Study Area boundaries is to ensure effects on the key areas are assessed in the EA. The boundaries of the revised Air Quality Study Area are depicted in the figure above.

What will be studied?

In general, the EA study's scope includes undertaking the following tasks:

1. Conduct a review of background information. Characterize background air quality conditions based on ambient air quality monitoring data from the Ministry of the Environment and Climate Change (MOECC), Environment Canada (EC) and Metrolinx monitoring stations supplemented with data from regional models, as information allows.

2. Quantify air contaminant emission rates using airport-specific U.S. Federal Aviation Administration and U.S. Air Force model for airport sources and United States Environmental Protection Agency (U.S. EPA) MOVES models to account for vehicle emissions on local roads. Ferry emissions will be determined based on U.S EPA emission factor information.
3. Conduct dispersion modelling using the U.S. EPA CALPUFF model, which is approved by the MOECC. Determine the downwind concentrations of the contaminants (i.e. how they disperse).
4. Evaluate the cumulative air quality concentrations from background and airport, traffic and ferry sources under the future scenario with jets and the future scenario without jets at sensitive receptor locations. The modelling will be based on 1-year of meteorological data using CALMET. As such, this covers a wide range of weather conditions. The sensitive receptor locations throughout the Study Area were selected to include representative residential, recreational (parks and public spaces) and institutional locations most affected by changes to air quality. They were identified by stakeholders and community members, and are intended to be the modelled locations; however, some additions and/or small changes may be made.
5. Compare results to MOECC ambient air quality criteria and Canadian ambient air quality standards as well as to Toronto Public Health Toxicity Reference Values that the City of Toronto is currently developing, as available.
6. Qualitatively assess odour and soot impacts for Proposed Future Scenario with jets relative to the Future Baseline Scenario.
7. Estimate greenhouse gas emissions for baseline conditions, future conditions with jets and future conditions without jets. The emissions will be compared to relevant benchmarks such as total greenhouse gas (GHG) emissions from the City of Toronto and the transportation sector.

From consultation that has occurred to-date, we understand that people are concerned with:

- Health effects;
- Aesthetic related to black carbon/soot on balconies; and
- Odour impacts at east end of the Island and at the National Yacht club.

The list above is a sample of the top issues we've heard so far. Additional issues raised are provided in ***Appendix C1 – Key Comments Received and Resulting Changes to the Scope*** for review.

The table below documents the issues raised, how the EA will evaluate the issues and any updates made to the scope based on comments received.

Issue	Detail	In Original EA Scope?	In Draft Revised EA Scope?	Study Methods/Rationale
Public Health	Effects to public health from a decrease in air quality	Yes	Yes	▪ The original scope included comparing the results of the dispersion modelling to established ambient air quality criteria from the MOECC, to Canadian ambient air quality standards from Environment Canada, and to Health Canada thresholds, which are established to be protective of human health. ▪ The scope of the assessment has been updated to include comparing the results of the dispersion modelling to Toxicity Reference Values being developed by the City of Toronto.
Air Quality	Aesthetic related to black carbon/soot on balconies	No	Yes	▪ This will be reviewed and assessed qualitatively through a comparison of similar experiences at other airports and a review of land uses (such as the Gardiner Expressway). The assessment will refer to the particulate material sampling results of the Ministry of the Environment and Climate Change (MOECC) report completed for Toronto Public Health. Commentary on how the future scenarios may impact soot levels will be provided.

Issue	Detail	In Original EA Scope?	In Draft Revised EA Scope?	Study Methods/Rationale
	Extend the study area to the north of the Gardiner Expressway to demonstrate that the cumulative effects will not lead to exceedances of ambient air quality criteria in areas to the north of BBTCA (i.e., Wards 19 and 20).	No	Yes	▪ Receptors has been added north of the Gardiner to assess changes in air quality in Wards 19 and 20. Locations to include Stanley Park and Victoria Memorial Park.
	Climate Change	Yes	Yes	▪ Climate change is a global phenomenon. The environmental assessment will consider policy guidance from the Provincial Policy Statement and recommendations from the City of Toronto's Climate Change Committee. As well, the impacts of the proposal on climate change will be assessed qualitatively by undertaking a relative comparison of GHGs. GHG emissions of relevance to the study include carbon dioxide (CO2), nitrous oxide (N2O) and methane (CH4). ▪ GHG emissions under baseline and future scenarios (with and without jets) will be estimated using U.S. EPA models for both airport activity and associated surrounding traffic. The changes in GHG emissions due to the proposal will be compared to relevant benchmarks, such as total GHG emissions from the City of Toronto and the transportation sector. The results will be expressed as total GHG emissions and tabulated for baseline conditions and the future with jets and without jets. Commentary on the significance of the GHG emissions due to the proposal relative to other sources will also be provided.
Air Quality and Odour	Odour impacts at east end of the Island and at the National Yacht Club	No	Yes	▪ This will be reviewed and assessed qualitatively through a literature review and a review of previous odour studies conducted at the BBTCA.

Information Sources

The following studies were reviewed to inform the effects assessment, this information also allowed the Study Team to determine which additional studies should be conducted.

- RWDI. “BBTCA Final Report Air Quality Review”, November 15, 2013.
- Golder Associates, Health Impact Assessment Proposed Billy Bishop Expansion, November 2013.

These studies informed the selection of contaminants and the Study Area to be assessed.

To address the gaps in information, this EA will collect additional air quality and emissions information from the following sources:

- Model output from the City-Wide air quality model;
- MOECC, Environment Canada and Metrolinx Air Quality Monitoring Stations;
- Aircraft and corresponding ground support equipment activity from PortsToronto;
- Existing and future vehicular traffic volumes on local roads from the City of Toronto;
- Ferry activity data from PortsToronto and the City of Toronto;
- Taxi idling activity at BBTCA from PortsToronto; and
- Jet aircraft emissions data from Bombardier.

Effects Assessment

The information collected as part of the EA will allow the Study Team to assess potential effects from changes in air quality listed above and in **Appendix C1**. These changes could affect community assets. A community asset is a feature that may be affected by the proposal and that has been identified to be of concern by the public, government agencies, First Nation and Métis communities, or the proponent. Air quality change could affect the following community assets:

- Climate Change;
- Public health;
- Recreational uses;
- Residential uses (such as individual condominium units);
- Tourism; and
- Institutional uses (such as the Waterfront School and City School).

Attachment A – Work Plans details how effects on the assets will be measured and what information sources will be used.

Please note that the EA Scope has been informed by feedback received through the consultation process.

Public Health Assessment Overview

The Study Area

Where will the Environmental Assessment (EA) study effects on **Public Health?**

The Study Area boundaries encompass:

- The Music Garden, Sugar Beach, National Yacht Club and Wards 19 and 20 to the north;
- Woodbine Beach, the Harbour and Clark Beach Park to the east;
- Algonquin Island to the south; and
- Ontario Place and the Toronto Sailing & Canoe Club to the west.

This Study Area was selected to ensure that representative residential, recreational (parks and public spaces) and institutional locations most affected by changes to public health related to air quality and noise were included in the area of analysis.

What will be studied?

In general, the EA study's scope includes undertaking the following tasks:

1. Engage in ongoing discussions with the City of Toronto's Department of Public Health
2. Assess the impacts of changes to air quality associated with the proposal on hospitalization rates or incidence of air quality-related illnesses by comparing air quality impacts to regulatory or policy-based thresholds
3. Compare results of the air quality modelling conducted in accordance with the air quality effects assessment study to Toronto Public Health's Toxicity Reference Values in addition to the Ministry of the Environment and Climate Change ambient air quality criteria and Canadian ambient air quality standards.
4. Compare current and future modelled noise levels to the Department of Public Health noise reference values.

Information Sources

The results from the air quality, noise and socio-economic assessments will be used to determine impacts to public health. These sources include:

- Noise model output
- Public perceptions of noise and self-reported concerns with noise levels
- Air quality model output

Effects Assessment

The information collected as part of the EA will allow the Study Team to assess potential impacts on public health associated with the Future Growth Scenarios.

Attachment A – Work Plans details how effects on the assets will be measured and what information sources will be used.

Please note that the EA Scope has been informed by feedback received through the consultation process.

Noise Assessment Overview

The Study Area

Where will the Environmental Assessment (EA) study the effects on the **Noise** component of the environment?

The original Study Area was defined by key receptor locations, which included:

- Residences in Eireann, Bathurst and York Quays;
- Recreational areas in the vicinity of the airport, including parks and public spaces;
- Waterfront School and City School at Queen's Quay; and
- Residences and recreational areas on Toronto Island, including parks and public spaces.

The original Study Area was selected to include residential uses, recreational locations (including parks and public spaces) and schools that are representative of areas that are most affected by changes to noise.

We've heard that people are concerned about effects extending to these key areas:

- Beyond Noise Exposure Forecast (NEF) contours;
- Along flight paths; and
- The Toronto Waterfront, the Beaches, Harbour, Islands, Leslie Street Spit and Port Lands.

After considering comments received to-date, the Study Area boundaries have been expanded to include:

- The Music Garden, Sugar Beach, Harbourfront Centre and the National Yacht Club to the north;
- Woodbine Beach, the Harbour and Clark Beach Park to the east;
- Algonquin Island to the south; and
- Ontario Place and the Toronto Sailing & Canoe Club to the west.

The purpose of expanding the Study Area boundaries is to ensure effects on the key areas are assessed in the EA. The boundaries of the revised Noise Study Area are depicted in the figure above.

What will be studied?

In general, the EA study's scope includes undertaking the following tasks:

1. Conduct a review of background information and additional sound modelling to document current noise conditions;

2. Identify changes in cumulative sound levels from the proposal (i.e. lifting the jet ban to allow commercial jets to operate out of the Billy Bishop Toronto City Airport (BBTCA) and an extension of the land mass at each end of the main runway by 200 metres);
3. The assessment will use the following models: the Noise Exposure Forecast (NEF), the Integrated Noise Model (INM), the Ministry of the Environment and Climate Change's (MOECC) models Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT), the Sound from Trains Environmental Analysis Method (STEAM), STAndard Method in Noise Analysis (STAMINA), and the ISO 9613 sound propagation model as incorporated into Cadna/A;
4. Noise modelling will be supplemented with data from new and historic ambient noise monitoring data;
5. Compare the resulting noise levels to criteria provided in the Tripartite Agreement and the MOECC guideline. The steps for completing the comparison include:
    a. RWDI takes historical data from a base year (the "existing conditions" year) on scheduled and unscheduled flights that have taken off and landed from BBTCA in that year, the flight path profiles for that year, and the specifications of each aircraft type and inputs them into the INM model;
    b. The INM model calculates an LDN value at each receptor point and over a grid, which is an average sound level, based on the data that was input;
    c. The INM model also provides an output matrix that describes the sound level impacts by location and aircraft; and
    d. RWDI then inputs this matrix into TNIP software, which provides a geographic representation of noise impacts in the form of contour lines which represent the N70, or the number of times per day that noise levels will exceed 70dBA within each contour line.
6. Consider the sound that people typically experience in terms of criteria such as degree of speech interruption (N70) as aircraft fly over, and thresholds from WHO (World Health Organization), Health Canada, and Health Council of the Netherlands publications Sound levels will also be evaluated at schools using the key indicators LDN (average sound pressure level over a whole day) and N70; and
7. Describe the results in a Noise Assessment Report.

Note that the assessment methodologies are generally based on a standard weather condition. However, the Noise Assessment Report will include information on the sensitivity of the measured noise levels to weather conditions, and on the frequency of certain key weather conditions, such as those associated with temperature inversions, low cloud and fog.

From consultation that has occurred to-date, we understand that people are concerned with:

- In-the-moment experiences regarding noise levels at recreational areas, including the Music Garden and Tommy Thompson Park (TTP);
- Ground-truthing the noise models and in-the-moment experience with actual noise measurements at key areas; including: City School, residential balcony near Little Norway Park, the National Yacht Club and a 30th floor balcony on Queens Quay; and
- Understanding the difference in sound between Q400 (turbo propeller planes currently used by Porter Airlines and Air Canada) and CS100 jets (proposed by Porter Airlines).

The list above includes a sample of the issues we've heard so far. Additional issues raised are provided in ***Appendix C1 – Key Comments Received and Resulting Changes to the Scope*** for review.

The table below documents the issues raised, how the EA will evaluate the issue and any updates made to the scope of work based on comments received.

Issue	Detail	In Original EA Scope?	In Draft Revised EA Scope?	Study Methods/Rationale
Noise Effects	In the moment noise levels in recreational areas	No	Yes	▪ The original EA scope included modelling noise levels at various recreation areas; including the City Park. However the NEF model is a regulatory model that is not intended to address in the moment noise levels. The U.S. Federal Aviation Administration's (FAA) INM model will be used as the basis for further analysis to address in the moment experience such as the degree of speech interruption (N70) as aircraft fly over. ▪ Similar key indicators (N70 and LDN) will be the key indicators in evaluation at the schools. ▪ As a result of consultation to-date, locations were added to the study; including the Music Garden, the Beaches, Toronto Harbour and the National Yacht Club.
Noise Effects	Comparing the noise model with actual noise measurements at key areas	Yes	Yes, with additions	▪ The NEF model is a regulatory model that describes the daily-average sound levels from aircraft on the runway and in the air on a peak predicted day, but is not intended for comparison with ground-truth measurements. As such, measurements have only limited meaning in comparison with the modelled NEF results. The FAA's INM model will be used as an alternative for modelled sound levels of aircraft in the air and on the runways to facilitate comparison with measurements and other criteria such as degree of speech interruption (N70) as aircraft fly over. Sound levels will also be evaluated at schools using the key indicators LDN and N70. ▪ Noise monitoring will be undertaken at several locations within the Study Area. ▪ The influences of special local conditions, including weather conditions at the time of measurement would be considered.
Noise Effects	Compare the sound from the Q400 and CS100	Yes	Yes, with additions	▪ Sound level data for the Bombardier Q400 and CS100, beyond the certification data, will be requested from Bombardier to provide a more comprehensive comparison of sound from the Q400 turbo-prop and CS100 jet planes.

Background Studies Reviewed and Additional Information Sources

The following studies were reviewed to inform the effects assessment, this information also allowed the Study Team to determine which additional studies should be conducted.

- ACRP, 2014. Document 16 - Assessing Aircraft Noise Conditions Affecting Student Learning Volume 1 Final Report;
- AirBiz, 2013. Billy Bishop Toronto City Airport Porter Airlines Proposal Review Final Report;
- Dillon Consulting, 2011. Proposed Noise Barriers and Engine Run-Up Enclosure Environmental Screening Report;
- Golder Associates, 2013. Health Impact Assessment Proposed Billy Bishop Expansion, Appendices C (Noise Assessment) and D (Air Quality Assessment);
- RWDI, 2005. Noise Impact Assessment, Ferry Passenger Transfer Facility, TCCA. Report No. W06-5022A; and
- RWDI, 1997. TCCA Aircraft Noise Study. Report No. 96-351-09.

These studies assessed current noise conditions, mitigation measures for current conditions, effects of noise on sensitive receptors, and the potential changes to noise associated with the operation of CS100 jets at the airport. Some studies indicated that projected noise levels would not exceed NEF boundaries, but CS100 noise certification data was not available at the time of the studies.

To address the gaps in information, this EA will collect information from the following sources:

- 2014 WebTrak, community noise monitors (shows aircraft movements to and from airports and associated noise levels);
- New noise monitoring program;
- Existing noise impact assessments and engine run-up reports will be reviewed;
- Integrated Noise Model;
- Noise Exposure Forecast model; and
- CS100 noise certification data, if available.

Effects Assessment

The information collected as part of the EA will allow the Study Team to assess potential effects from changes in noise listed above and in **Appendix C1**. These changes could affect community assets. A community asset is a feature that may be affected by the proposal and that has been identified to be of concern by the public, government agencies, First Nation and Métis communities, or the proponent. Noise change could affect the following community assets:

- Public health;
- Recreational uses;
- Residential uses (such as individual condominium units);
- Tourism; and
- Institutional uses (such as the City School).

Attachment A – Work Plans details how effects on the assets will be measured and what information sources will be used.

Please note that the EA Scope has been informed by feedback received through the consultation process.

Marine Physical and Water Quality Assessment Overview

The Study Area

Where will the Environmental Assessment (EA) study effects on the **Marine Physical Environment and Water Quality**?

The original Study Area included:

- The area at each end of the proposed extension of the land mass;
- The eastern shoreline of the West Island; and
- The Western Channel.

We've heard that people are also concerned about potential effects extending to these additional areas:

- The Inner Harbour; and
- The Eastern Channel.

The Local Study Area will remain the same as originally proposed; however, a revised Regional Study Area for Marine Physical Environment and Water Quality assessment was developed which includes the original Study Area plus:

- The Inner Harbour;
- The Eastern Channel

Work related to the marine physical environment and water quality assessment is recommended to be completed in two phases. During the EA, the Study Team will conduct a background review of existing studies and prepare a mass-balance model to document effects to the marine physical environment and water quality in the Local Study Area, which includes the areas in the immediate vicinity of the land mass extension. If the proposal is approved, additional studies are recommended during the detailed design phase to document effects in the Regional Study Area, which includes the Inner Harbour and the Eastern Channel. The Regional Study Area is depicted in the figure above.

What will be studied?

The EA study's scope includes undertaking the following tasks to be completed for the Local Study Area:

1. Conduct a review of background information to document current water circulation, erosion and sediment deposition conditions within the immediate vicinity of the proposed land mass extension;
2. Identify potential changes to the water circulation, erosion and sediment deposition conditions resulting from the Proposed Future Scenario, based on existing studies, a mass-balance model, and professional engineering judgement;
3. Identify potential risks to water quality from surface sources such as runoff from the airport or leakage from conveyance or storage infrastructure, or from airborne sources, and appropriate mitigation measures;
4. Identify cumulative effects taking into account other past, present and certain or reasonably foreseeable future effects from other actions/projects within the same geographic and temporal boundaries of this assessment;
5. Compare effects from the Future Baseline and Proposed Future Scenarios; and
6. Identify the boundaries and methodology required for numerical modelling to assess the effects of the land mass expansion based on detailed design, should the proposal be approved.

If the proposal is approved, additional studies are recommended during detailed design within the Regional Study Area. At that time, an assessment of the impacts on the Marine Physical Environment and Water Quality will include the following tasks:

1. Conduct quantitative modelling and a review the results regarding flow velocity, wave height, period and direction from the wave and hydrodynamic model, air photos and field data results to document existing conditions related to the marine physical environment and water quality;
2. Interpret potential effects on sediment transport and deposition (where sediment may deposit or accumulate) if the land mass is extended by 200 metres on each end;
3. Interpret potential effects on water movement, mixing and dilution in key areas of concern;
4. Identify changes to the marine physical environment and water quality from the Future Baseline and Proposed Future Scenarios in consideration of future environmental conditions;
5. Identify cumulative effects taking into account other past, present and certain or reasonably foreseeable future effects from other actions/projects within the same geographic and temporal boundaries of this assessment; and
6. Compare effects from the Future Baseline and Proposed Future Scenarios.

We've heard that people are concerned about the following effects:

- Surface runoff, leaks, and atmospheric deposition effects on water quality
- Lake current effects on water quality;
- Sediment transport and deposition;
- Shoreline erosion; and
- Wave conditions in the Western Channel.

The list above is a sample of the top issues we've heard so far. The complete list of top issues is provided in ***Appendix C1 – Key Comments Received and Resulting Changes to the Scope*** for review.

The table below documents the issues raised, how the EA will evaluate the issues and any updates made to the scope of work based on comments received.

Issue	Detail	In Original EA Scope?	In Draft Revised EA Scope?	Study Methods/Rationale
Water Quality	Review potential impacts of ground-	No	Yes	• The revised scope of work will include a review of potential sources of pollutants related to the proposal and the general effect those could

Issue	Detail	In Original EA Scope?	In Draft Revised EA Scope?	Study Methods/Rationale
	side infrastructure and airborne pollutants on water quality in the inner harbour			have on water quality if released into the water column. • A mass-balance model will determine if water flow into the Inner Harbour through the Western Channel is likely to become constrained, resulting in lower dilution ratios and the potential for decreased circulation or longer residence time. • Existing and proposed mitigation measures will be recommended based on the review, and future studies may also be recommended.
Water Circulation	Assess changes to water circulation	Yes	No	• The original scope of work recommended a 2-dimensional numerical model to assess localized impacts to water circulation resulting from the proposed extension of the land mass. As a result of consultation with the City of Toronto, the Toronto and Region Conservation Authority and Fisheries and Oceans Canada, a more detailed scope of work is proposed. As part of this updated scope of work, it is recommended that the 3-dimensional model of water movement in and around the Inner Harbour and Western Channel be developed during the detailed design phase. This model should take into account the flow of lake water into the harbour through the Western Channels, river water into the harbour from the Don River, and out through the Eastern Channel, as well as through the channels of the Toronto Islands. • The 3-dimensional model requires detailed design input for the proposed extension of the land mass. As such, this work can only be completed with adequate input from the detailed design effort.
Study Area	Expand study area to include the area at the mouth of the Don River and the Eastern Channel	No	No	• The 3-dimensional model of the movement of water will take into account the Inner Harbour, the Eastern and Western Channels and the Islands, and will be conducted as part of the detailed design efforts.
Modelling Approach	Use quantitative modelling and assessment to determine impacts to water circulation	No	No	• A quantitative model will be developed using a software program such as Delft 3D or MIKE3, to estimate flow impacts associated with the proposed design of the land mass expansion.
	Use 3-D model to assess water quality impacts within a broader study area, and the entire inner harbour	No	No	• The proposed 3-dimensional model will identify circulation-related water quality impacts by identifying areas of low flow that could result in stagnant conditions. The modelling will be undertaken as part of the detailed design efforts.

Information Sources

The following studies were reviewed to inform the effects assessment, this information also allowed the Study Team to determine which additional studies should be conducted.

- CH2M HILL Canada Limited, 2013. Porter Airlines Runway Extension Proposal Review Coastal Processes and Environments;
- Dillon, 2013. Lakefill Within MEZ for the TPA; and
- Dr. Davidson-Arnott, R., 2013. Peer Review of Porter Airlines Runway Extension Proposal Review Coastal Processes and Environment.

The studies reviewed addressed physical impacts to the lake and coastal environment. The assessments were generally qualitative and require more comprehensive study to provide a detailed assessment of impacts. This assessment will be completed during the detailed design phase and will draw on additional information from the following sources:

- Results from the wave and hydrodynamic model; specifically, flow velocity and wave height, period and direction;
- Air photo interpretation using photos over a 30-year period;

- Analyzing the photos for changes in the shoreline and identify areas of erosion and deposition; and
- Conduct field investigations in the vicinity of the proposed extension of the land mass, Western Channel, and West Island. Additional documentation from Aquatic Habitat Toronto, Toronto Water and Toronto and Region Conservation Authority.

Effects Assessment

The information collected will allow the Study Team to assess potential effects on the marine physical environment and water quality. These effects relating to the marine physical environment and water quality could impact community assets. A community asset is a feature that may be affected by the proposal and that has been identified to be of concern by the public, government agencies, First Nation and Métis communities, or the proponent.

Marine-based community assets that may be affected by the proposed changes to the airport include:

- Wave formation;
- Water levels;
- Currents; and
- Sediment transport.

Attachment A – Work Plans details how effects on the assets will be measured and what information sources will be used.

Please note that the EA Scope has been informed by feedback received through the consultation process.

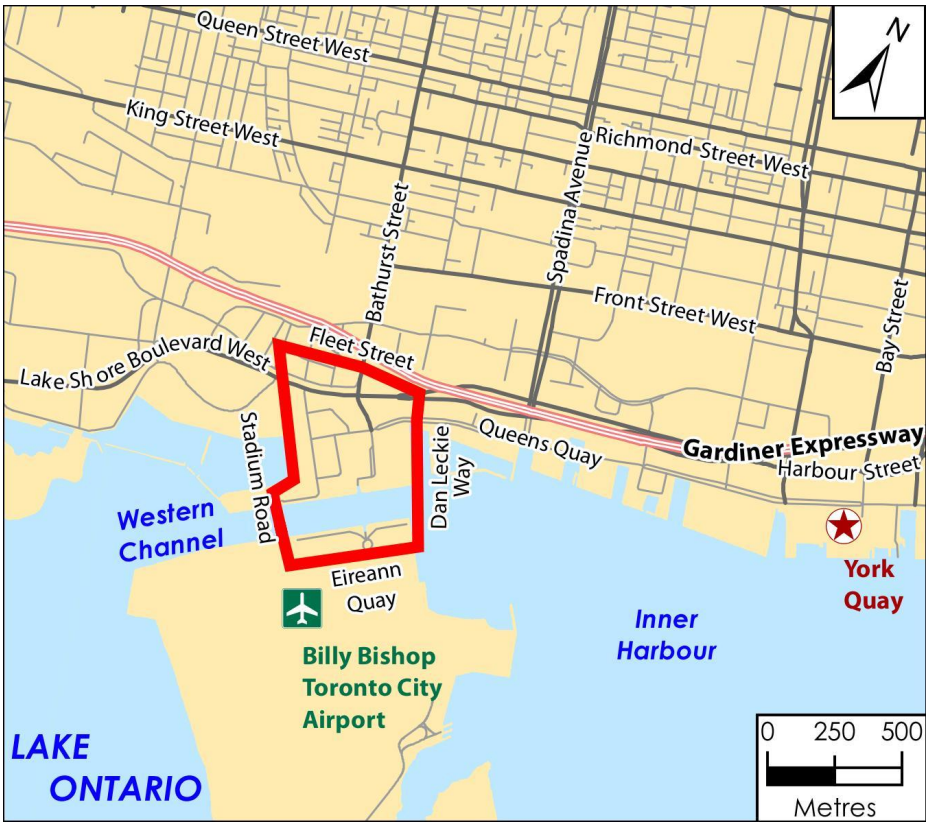
Transportation Overview

The Study Area

Where will the Environmental Assessment (EA) study effects on **Transportation**?

The original Study Area was determined based on the information that would be available from the traffic impact studies being undertaken by the City of Toronto, and included all relevant transportation features within the following boundaries:

- Lake Shore Boulevard and Fleet Street to the north.
- Dan Leckie Way to the east;
- The Western Channel to the south; and
- Stadium Road to the west.



We've heard that people are concerned about effects extending to these key areas:

- The intersection of Lakeshore Boulevard and Bathurst Street;
- Eireann Quay and York Quay neighbourhoods; and
- Queens Quay.

Based on previously-completed traffic impact assessments and consultation with the City of Toronto and other stakeholders, it was determined that the Local Study Area (outlined above in red) would be enhanced by including an overview of policy and broad directions in transportation and goods and people movement in the vicinity of the southwest downtown and waterfront area. This will include a review of the impacts of the proposal on policies regarding pedestrian, cycling, transit, active transportation, ferry, and heavy rail linkages within a Regional Study Area that will include:

- The Central Waterfront;
- Downtown Toronto; and
- The Greater Toronto Area.

The purpose of examining policies affecting a broader area than the Study Area boundaries is to ensure effects on the key areas are assessed in the EA. The boundaries of the transportation Study Area are depicted in the figure above.

What will be studied?

The EA study's scope includes undertaking the following tasks:

1. Conduct a review of background information to document existing traffic and transportation conditions;
2. Identify changes to the traffic and transportation conditions from the Future Baseline and Proposed Future Scenarios in consideration of future environmental conditions;
3. Identify cumulative effects taking into account other past, present and certain or reasonably foreseeable future effects from other actions/projects within the same geographic and temporal boundaries of this assessment; and
4. Compare effects from the Future Baseline and Proposed Future Scenarios.

If potential effects on transportation are identified, they will be described and mitigation measures will be proposed to prevent or minimize the potential effects.

From consultation that has occurred to-date, we understand that people are concerned about the effects of the proposal on their ability to:

- Access private properties and businesses;
- Access parking areas;
- Travel to and from the waterfront (as a resident of Toronto, visitor to the area or tourist) due to changes in traffic volume; and
- Use the active transportation network for walking, cycling, etc.

The list above is a sample of the top issues we've heard so far. The complete list of top issues is provided in ***Appendix C1 – Key Comments Received and Resulting Changes to the Scope*** for review.

Information Sources

The following studies were reviewed to inform the effects assessment, this information also allowed the Study Team to determine which additional studies should be conducted.

- BA Group, 2013. BBTCA Transportation Assessment of Proposed Jet Activity Summary Report;
- CommunityAIR, 2014. Reviewing Deluce's Jets Proposal: What the City Has (and Hasn't) Done; and
- Urban Strategies Inc., 2013. BBTCA Review Urban Planning & Design Assessment of Potential Transportation Impacts & Mitigation Measures.

The above-listed studies were based on then-current traffic conditions and estimated future airport passenger volumes. Recommended mitigation measures for alleviating future congestion were derived from the outcome of the studies, including proposed opportunities for improving modal split and minor changes to intersection features at Lakeshore Boulevard and Dan Leckie Way. In addition to this EA and other on-going studies, PortsToronto and the City of Toronto are undertaking two separate studies that will build upon the above-listed studies. As the above-listed studies were not based on projected passenger volumes from the 2015 Master Planning Exercise for the BBTCA, the on-going studies will provide updated traffic volume estimates based on current and projected future permitted traffic volumes, and mitigation measures based on these updated passenger volume projections under the Tripartite Agreement. In addition, PortsToronto plans to undertake permanent real-time traffic monitoring in the Eireann Quay neighbourhood to help optimize mitigation measures to address current or potential traffic congestion

and safety issues in the area. The effects of potential mitigation measures and infrastructure changes on the community's transportation assets will be assessed as part of this EA and will use information from the following sources:

- Transportation network and current traffic conditions information;
- Traffic capacity on Study Area road network;
- Urban form and land use information;
- Projections of future traffic volumes;
- Transportation plans, including active transportation and transit plans; and
- Future modal split requirements.

Effects Assessment

The information collected will allow the Study Team to assess the potential effects of changes to transportation infrastructure or operations on a variety of community assets. A community asset is a feature that may be affected by the proposal and that has been identified to be of concern by the public, government agencies, First Nation and Métis communities, or the proponent. Community assets that could be affected by the proposed changes to transportation operations or infrastructure include:

- Public safety;
- Public health;
- Residential uses;
- Transportation;
- Community services;
- Tourism;
- Local economy; and
- Convenience.

Attachment A - Work Plans details how effects on the assets will be measured and what information sources will be used. The study methods are also outlined.

Please note that the EA Scope has been informed by feedback received through the consultation process.

Marine Navigation Assessment Overview

The Study Area

Where will the Environmental Assessment (EA) study effects on the **Marine Navigation Environment**?

The original Study Area included:

- The end of the runway;
- Beyond the Marine Exclusion Zone (MEZ); and
- Within the Western Channel.

We've heard that people are concerned about effects extending to these key areas:

- The Inner Harbour;
- The Outer Harbour;
- The Leslie Street Spit; and
- Humber Bay.

Concerns about potential effects relating to the Study Area have tended to focus on the effects of noise and air quality on user experiences in the inner and outer harbours and Humber Bay; the potential effects of jet blast or wake turbulence (sometimes called "wing tip vortices") at the edge of the MEZ; and, the potential impacts on navigation associated with any proposed changes to the width or location of the opening of the Western Channel. The marine navigation study will assess the physical impacts of jet blast and wake turbulence at the edge of the MEZ and navigation impacts associated with changes to the land mass within the Local Study Area. Effects to boat navigation from jet blast and wake turbulence beyond this Study Area will be confirmed through the information received from the Preliminary Runway Design. Other studies conducted as part of this EA will assess the effects of potential changes to noise, air quality, user experience, and recreational opportunities associated with the proposal within the Regional Study Area and will be commented on using information obtained through the associated effects assessment studies.

The boundaries of the Marine Navigation Study Area are depicted in the figure above.

What will be studied?

In general, the draft scope of assessment includes undertaking the following tasks:

1. Conduct a review of background information and the results from jet blast and wake turbulence assessments from the 2015 Preliminary Runway Design to determine the anticipated wind speed and lifting force at the edge of the MEZ; conduct interviews with boaters and boating clubs regarding recreational boating and the types of boats involved (to be conducted under the socio-economic scope of work);

2. Identify changes to the marine navigation from jet blast, altered wave conditions, changes to the ability to navigate the Western Channel and on the enjoyment of the boating experience on a variety of boats, from the Future Baseline and Proposed Future Scenarios in consideration of future environmental conditions;
3. Identify cumulative effects taking into account other past, present and certain or reasonably foreseeable future effects from other actions/projects within the same geographic and temporal boundaries of this assessment; and,
4. Compare effects from the Future Baseline and Proposed Future Scenarios.

From consultation that has occurred to-date, we understand that people are concerned with:

- Potential for extension of the land mass and jet blast to make steering of a boat difficult, or even leading to capsize under various meteorological conditions;
- Potential for extension of the land mass to require an in-water lighting system;
- Potential of jet noise to make speaking on a boat difficult or impossible;
- Potential of extension of the land mass to make navigation more difficult in the Inner Harbour, Western Channel, and Humber Bay; and
- Potential for extension of the land mass and jet blast to make for a less relaxing experience for boaters because of aesthetic and noise impacts.

The list above includes a sample of the top issues we've heard so far. Additional issues raised are provided in ***Appendix C1 – Key Comments Received and Resulting Changes to the Scope*** for review.

The table below documents the issues raised, how the EA will evaluate the issues and any updates made to the scope of work based on comments received.

Issue	Detail	In Original EA Scope?	In Draft Revised EA Scope?	Study Methods/Rationale
Navigation	Impacts of the extension of the land mass and jet blast/wake turbulence on the maneuverability or stability of a boat	Yes	Yes	▪ The preliminary runway design will determine the jet blast/wake turbulence envelope (where jet blast/wake turbulence may occur) and the force within that envelope. ▪ The EA will use that information to review the potential impacts of jet blast/wake turbulence at the edge of the MEZ on different boat types. To do so, the EA will review the different types of boats that are frequently used in the vicinity of the airport and apply a mathematical formula and engineering judgement to determine how the motion of each type of boat could be affected by the jet blast and wake turbulence. This is called a dynamic stability assessment. The dynamic stability of a boat in water is the ability of the boat to remain upright even if pushed around by forces such as wind or waves.
Navigation	Requirement for approach lighting and impacts of lighting on navigation	No	No	▪ According to Transport Canada an approach lighting system is not a standard for non-precision approaches ▪ The reason BBTCA is non-precision is driven by the built form environment around the airport. Due to the location of buildings in close proximity to the airport – like the Hearn, the Malting Silos and the buildings downtown – commercial pilots must make a decision to not land when they are higher up in the air. A precision airport would mean the pilot could wait until they were lower to the runway to make this decision. Pilots make the decision about whether to land higher up at the BTTCA to ensure they have room to manoeuvre if they decide not to land.
Recreation	Impacts of jet noise on ability to hold a conversation on a boat when a plane flies overhead	No	Yes	▪ After reviewing comments received to-date, the Study Team understands that boaters are concerned with jet noise making it difficult to hear speech while boating in the area. ▪ The Noise assessment will include receptor locations in the inner harbour where boaters could be affected by the proposal
Navigation	Navigability of Inner Harbour, Western Channel, and Humber Bay as a result of land mass changes	Yes	Yes	▪ This study will examine any proposed changes to the dimensions of the MEZ and width of the Western Channel in order to comment on crowding of vessels entering or exiting the Western Channel. ▪ No changes to water levels or the shoreline of the Inner Harbour or Humber Bay are expected beyond the MEZ.

Issue	Detail	In Original EA Scope?	In Draft Revised EA Scope?	Study Methods/Rationale
Recreation	Ability of boaters to relax while boating	Yes	Yes	▪ Under the socio-economic scope of work, surveys and interviews will be conducted in the spring and summer, 2015, with recreational users including people boating in the area. ▪ Survey and interview questions will include how BBTCA operations affect their use and enjoyment of recreational spaces. ▪ Details such as the specific questions and the total number of surveys and interviews will be developed in the winter of 2015. ▪ The results will be tabulated to provide an overall indication of the recreational users' perception of the effect of the BBTCA on their use and enjoyment of the waterfront. ▪ In addition, the EA will create rendered visualizations of future development models to ascertain the visual impacts of the proposal from different important vantage points. These will be presented through a series of user experience vignettes. One proposed vignette location is within the Inner Harbour. The purpose of this location is to document effects on the boating experience. ▪ The results of the Noise, Air Quality and Built Environment/Land Use studies will be reviewed in order to provide a commentary on the effect that changes in these areas of the environment could have on the use and enjoyment of recreational spaces, which includes boating areas.

Information Sources

The following studies were reviewed to inform the effects assessment, this information also allowed the Study Team to determine which additional studies should be conducted.

- CH2M HILL Canada Limited, 2013. Porter Airlines Runway Extension Proposal Review Coastal Processes and Environments; and
- Dr. Davidson-Arnott, R., 2013. Peer Review of Porter Airlines Runway Extension Proposal Review Coastal Processes and Environment.

Additional information regarding the marine navigation environment will be collected from the following sources:

- National Ocean and Atmospheric Administration and Environment;
- Canada wave and wind data;
- Stakeholder interviews conducted as part of the Socio-Economic study for this EA (regarding typical boat size, length and width);
- Billy Bishop Toronto City Airport runway design; and
- Billy Bishop Toronto City Airport 2015 Master Planning Exercise.

Effects Assessment

The information collected will allow the Study Team to assess potential effects on the marine navigation issues listed above. These issues have been categorized into broader "community assets" for the purposes of the EA. A community asset is a feature that may be affected by the proposal and that has been identified to be of concern by the public, government agencies, First Nation and Métis communities, or the proponent. Assets that may be affected by the proposed changes include:

- Recreation – boating

Attachment A – Work Plans details how effects on the assets will be measured and what information sources will be used.

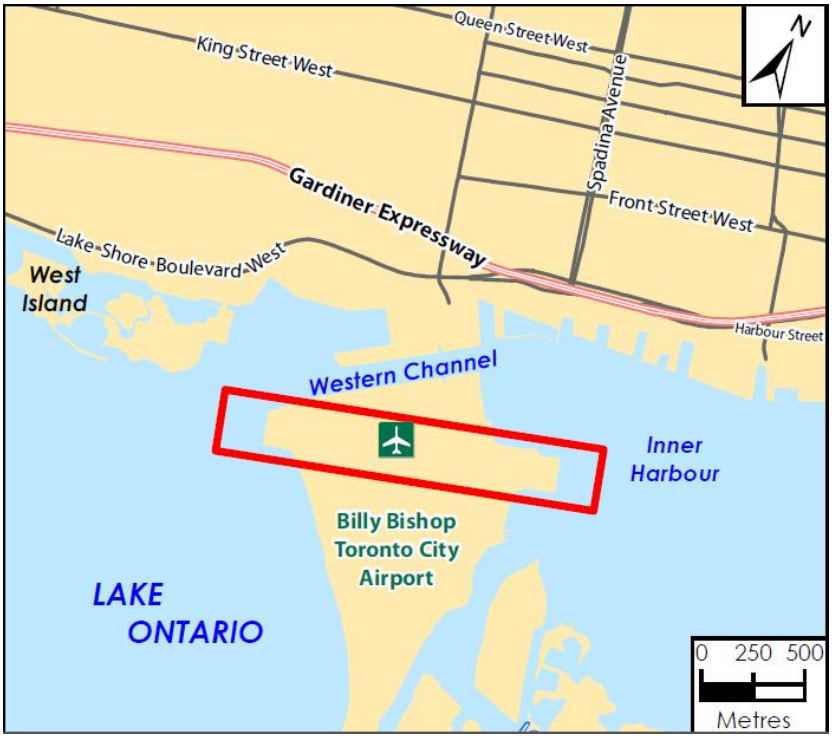
Please note that the EA Scope have been informed by feedback received through the consultation process.

Archaeology and Cultural Heritage Assessment Overview

The Study Area

Where will the Environmental Assessment (EA) study the effects on **Archeology and Cultural Heritage**?

The original Study Area for Archaeology and Cultural Heritage included the following:



Archaeology:

- Areas that will be physically affected by the extension of the land mass at each end of the main runway by 200 metres, into the lake and inner harbour and any proposed areas where ground disturbance may occur as these are areas where archaeological artifacts could be disturbed.

Cultural Heritage:

- The airport and areas of extension of the land mass at each end of the main runway by 200 metres as this is the only area where changes are proposed. Effects on cultural heritage resources beyond these areas are not anticipated.

To-date, no comments from participants in the consultation process regarding the Study Area have been received. The boundaries of the Archaeology and Cultural Heritage Study Area are depicted in the figure above.

What will be studied?

In general, the EA study's scope includes undertaking the following tasks:

1. Conduct a review of background information to summarize the potential for buried artifacts and the current condition of cultural heritage features;
2. Conduct a marine and terrestrial Stage 1 Archaeological Assessment to identify areas with archaeological potential and to determine whether further archaeological analysis is required; and
3. Create an inventory of cultural heritage features and recommend whether a Cultural Heritage Assessment Report (CHAR), also known as a Heritage Impact Assessment (HIA), is required as part of the detailed design, should the project proceed.

Information Sources

The following resources were reviewed to inform the effects assessment. This information will also allow the Study Team to determine which additional studies should be conducted.

Archaeology:

- Archaeological Sites Database (ADSB);
- A database detailing all known archaeological sites across Ontario;
- City of Toronto Archives;
- Maps of early settlement areas;
- City of Toronto Archaeological Master Plan;
- Identifies areas of archaeological potential requiring archaeological study prior to development;
- Northern Shipwreck Database;
- Detailing more than 100,000 shipwrecks covering 400 years;
- Great Lakes Shipwreck file; and
- A search for other archaeological reports already completed for the area.

Cultural Heritage:

- City of Toronto Inventory of Heritage Properties;
- Ontario Heritage Properties Database (current as of 2005, no further updates were made after this);
- Canada Register of Historic Places;
- Cemetery Register;
- Inventory of Historical Plaques;
- Consultation with the Ministry of Tourism Culture and Sport Heritage Unit on listed, designated or otherwise recognized heritage properties or landscapes that have cultural heritage value or interest to the community;
- Consultation with the City of Toronto Heritage Planner and local historical societies; and
- A search for other reports pertaining to heritage features in the vicinity.

Effects Assessment

The information collected will allow the Study Team to assess potential effects on archaeology and cultural heritage features. Archaeology and cultural heritage issues are also being described as “Assets” in this EA. A community asset is a feature that may be affected by the proposal and that has been identified to be of concern by the public, government agencies, First Nation and Métis communities, or the proponent.

Attachment A - Work Plans details how effects on the archaeology and cultural heritage assets will be measured and what information sources will be used.

Please note that the EA Scope has been informed by feedback received through the consultation process.

Attachment A: Work Plans – Measures of Effect and Data Sources

The table below outlines measures of effect and data sources used to determine whether there will be a negative, positive or no effect resulting from the proposed extension of the land mass and lifting the jet ban.

Asset	Measure of Effect	Additional Data Sources/Methods	
Socio-Economic			
Residential Uses	▶ Changes to the use and enjoyment of private property as it relates to airport operations (e.g. having to keep windows closed during periods of high BBTCA activity, or changes to access to residential property due to changed traffic patterns) ▶ Changes to noise ▶ Changes to air quality ▶ Changes to the view shed	*Data Source:*	▶ Golder Associates, 2013. Health Impact Assessment Proposed Billy Bishop Expansion. ▶ Pre-arranged interviews with condominium boards, residential associations and residents. ▶ Intercept surveys, including surveys of residents. ▶ Findings from the Noise and Air Quality effects assessment studies regarding changes in noise/air quality levels. ▶ Findings from the Built Environment and Land Use effects assessment study regarding changes in the view shed between the Future Growth Scenarios. ▶ Other desktop reports, as appropriate.
		Method:	▶ Conduct targeted stakeholder interviews, a statistically representative phone survey and approximately 250 intercept surveys, including some residents, in the summer, 2015. ▶ Intercept survey will seek participants (including residents) in various locations across the Local Study Area; potential locations generally include: Ontario Place and surrounding area; locations within Bathurst and Eireann Quays; the Music Garden and surrounding area including Marina Quay West; HTO Park, the Harbourfront Centre, and surrounding areas; Jack Layton Ferry Terminal and surrounding area; locations within East Bayfront; locations within the Distillery Historic District; locations within the Lower Don Lands and the Port Lands; locations within the Port Lands including the Leslie Street Spit; locations within the Toronto Islands. The intercept surveys will gain an understanding of the local environment, current BBTCA operations and anticipated construction and operation effects of the proposed expansion on residents' use and enjoyment of property, satisfaction with living in the area, and outdoor use of their residence. ▶ Pre-arranged stakeholder interviews with condominium boards/residents/resident associations to gain an understanding of the local environment, current BBTCA operations and anticipated construction and operation effects of the proposed expansion on residents' use and enjoyment of property, satisfaction with living in the area, and outdoor use of their residence. ▶ Telephone surveys with a sample of local area residents to gain an understanding of the local environment, current BBTCA operations and anticipated construction and operation effects of the proposed expansion on residents' use and enjoyment of property, satisfaction with living in the area, and outdoor use of their residence. ▶ Tabulate and review interview/survey results to provide an indication of residents' attitudes towards the direction of effect from the current BBTCA operations and the proposed expansion on their use and enjoyment of their properties, their satisfaction with living in the area and their outdoor use of space in the area. ▶ Review results of the Noise, Air Quality and Built Environment/Land Use studies in order to provide a commentary on the effect that changes in these areas of the environment could have on residential uses.
Recreational Uses	▶ Changes to the use and enjoyment of recreational spaces as it relates to airport operations (e.g. ability to listen to concerts at the Music Garden or changes to access to amenities due to changed traffic patterns) ▶ Changes to noise ▶ Changes to air quality ▶ Changes to the viewshed	*Data Source:*	▶ Golder Associates, 2013. Health Impact Assessment Proposed Billy Bishop Expansion. ▶ Pre-arranged interviews with yacht clubs, boaters and other recreational groups. ▶ Intercept surveys, including recreational users at the waterfront. ▶ Findings from the Noise and Air Quality effects assessment studies regarding changes in noise/air quality levels between the Future Growth Scenarios. ▶ Findings from the Built Environment and Land Use effects assessment study regarding changes to the viewshed between the Future Growth Scenarios. ▶ Other desktop reports, as appropriate.
		Method:	▶ Conduct targeted stakeholder interviews, a statistically representative phone survey and approximately 250 intercept surveys, including some recreational users, in the summer, 2015. ▶ Intercept survey will include recreational users, such as people boating, walking, running, bird watching, cycling, picnicking and attending concerts at waterfront venues. ▶ Seek intercept survey participants in various locations across the Local Study Area; potential locations generally include: Ontario Place and surrounding area; locations within Bathurst and Eireann Quays; the Music Garden and surrounding area including Marina Quay West; HTO Park, the Harbourfront Centre, and surrounding areas; Jack Layton Ferry Terminal and surrounding area; locations within East Bayfront; locations within the Distillery Historic District; locations within the Lower Don Lands and the Port Lands; locations within the Port Lands including the Leslie Street Spit; locations within the Toronto Islands. The intercept surveys will gain an understanding of the local environment, current BBTCA operations and anticipated construction and operation effects of the proposed expansion on recreational opportunities and use. ▶ Conduct stakeholder interviews with a sample of marinas/boating clubs and other recreational groups to assess effects on their members including an understanding of the local. environment, current BBTCA operations and anticipated construction and operation effects of the proposed expansion on recreational opportunities and use. ▶ Information on recreational use will also be collected in the phone survey of local and wider Study Area residents, should respondents state that they visit the waterfront area for recreational purposes. ▶ Tabulate and review interview/survey results to provide an indication of recreational users' attitudes towards the direction of effect from the BBTCA operations and the proposed expansion on recreational opportunities and use. ▶ Review results of the Noise, Air Quality and Built Environment/Land Use studies in order to provide a commentary on the effect that changes in these areas of the environment could have on the use and enjoyment of recreational spaces.
Institutional Uses	▶ Changes to the uses of or access to institutional spaces as it relates to airport operations (e.g. at the City School) ▶ Changes to noise ▶ Changes to air quality ▶ Changes to the viewshed	*Data Source:*	▶ Golder Associates, 2013. Health Impact Assessment Proposed Billy Bishop Expansion. ▶ Pre-arranged interviews with school board and official school representatives. ▶ Findings from the Noise and Air Quality effects assessment studies regarding changes in noise/air quality levels between the Future Growth Scenarios. ▶ Findings from the Built Environment and Land Use effects assessment study regarding changes in the view shed between the Future Growth Scenarios. ▶ Other desktop reports, as appropriate.
		Method:	▶ Conduct stakeholder interviews in the spring and summer, 2015. ▶ Interview school board and official school representatives to gain an understanding of the local environment, current BBTCA operations and anticipated construction and operation effects of the proposed expansion on the function and operation of the schools , in particular, the City School, Waterfront School and the Island Public/Natural Science School. ▶ Tabulate and review interview results to provide an indication of institutional attitudes towards the direction of effect from the BBTCA operations and the proposed expansion on institutional uses and operations. ▶ Review results of the Noise, Air Quality and Built Environment/Land Use studies in order to provide a commentary on the effect that changes in these areas of the environment could have on institutional uses and operations.

Attachment A: Work Plans – Measures of Effect and Data Sources

Asset	Measure of Effect	Additional Data Sources/Methods	
Economy	▶ Increases or decreases in business activity associated with changes in airport operations	*Data Source:*	▶ Environics Research Group, 2013. Toronto Resident Survey: Billy Bishop Toronto City Airport. ▶ InterVISTAS Consulting, 2012. Billy Bishop Toronto City Airport (YTZ) Economic Impact Study. ▶ HLT Advisory, 2013. Economic Impact Considerations of an Expanded Billy Bishop Toronto City Airport. ▶ Other desktop reports, as appropriate. ▶ Pre-arranged interviews with a sample of local businesses and business associations such as hotels, restaurants and taxi operators to allow the Study Team to interpret the above report findings and further assess existing conditions and possible economic effects associated with the Future Growth Scenarios. ▶ Intercept surveys, including business users at the waterfront area. ▶ Findings from the Noise and Air Quality effects assessment studies regarding changes in noise/air quality levels in the future scenario with and without jets.
		Method:	▶ Review and synthesize the background reports listed above /comment on the findings as they relate to economic implications for businesses across the City of Toronto ▪ The existing economic studies were developed using an Input/Output modelling methodology which conforms to accepted economic impact assessments of this nature. The economic multipliers resulting from these studies enable the Study Team to scale economic impacts according to projected passenger volumes in a linear manner. ▶ Conduct targeted stakeholder interviews, and approximately 250 intercept surveys, including some business users, in the summer, 2015 ▶ Interview businesses and business associations to gain an understanding of the influence of the waterfront area, current BBTCA operations, and anticipated construction and operational effects of the proposed expansion on the function and operation of local businesses ▶ Specific businesses to be interviewed include hotels, restaurants and taxis. This will include effects on business expansion/investment intentions and on business customers. ▶ Business associations and business improvement areas will be interviewed to gain an understanding of effects on a wider range of business interests ▶ Intercept surveys at a range of locations in the waterfront area will be conducted with a variety of users, including business users to gain an understanding of the local environment, current BBTCA operations and anticipated construction and operation effects of the proposed expansion on business operations and opportunities ▪ Qualitative questions allow the Study Team to identify potential directional effects (either positive, negative or neutral effects) of the proposal on business activity in the area, including effects on business expansion/investment intentions and on business customers. ▶ Tabulate and review interview/survey results to provide an indication of business users' attitudes towards the direction of effect from the BBTCA operations and the proposed expansion on business operations and opportunities. ▶ Review results of the Noise, Air Quality and Built Environment/Land Use studies in order to provide a commentary on the effect that these changes could have on local businesses.
Tourism	▶ Changes in tourist-behaviour linked to changes to the BBTCA operations ▶ Changes to noise ▶ Changes to air quality ▶ Changes to the viewshed	*Data Source:*	▶ Intercept surveys with tourists at the waterfront to gather qualitative information on current experiences at the waterfront, as well as perceived effects of the Project on those experiences. ▶ Findings from the Noise and Air Quality effects assessment studies regarding changes in noise/air quality levels between the Future Growth Scenarios. ▶ Findings from the Built Environment and Land Use effects assessment study regarding changes in the viewshed between the Future Growth Scenarios.
		Method:	▶ Conduct approximately 250 intercept surveys, including some tourists, in the summer, 2015. ▶ Conduct surveys with tourists from the GTA, Ontario and from outside Canada in the survey. ▶ Intercept surveys will be conducted in various locations across the Local Study Area; potential locations generally include: Ontario Place and surrounding area; locations within Bathurst and Eireann Quays; the Music Garden and surrounding area including Marina Quay West; HTO Park, the Harbourfront Centre, and surrounding areas; Jack Layton Ferry Terminal and surrounding area; locations within East Bayfront; locations within the Distillery Historic District; locations within the Lower Don Lands and the Port Lands; locations within the Port Lands including the Leslie Street Spit; locations within the Toronto Islands. ▶ Include respondents' views on the waterfront and how BBTCA operations influence their views of the waterfront in the survey questions. ▶ Tabulate and review interview/survey results to provide an indication of tourist attitudes towards the direction of effect of the BBTCA and the proposed expansion on tourist experiences and tourist visitation. ▶ Review results of the Noise, Air Quality and Built Environment/Land Use studies in order to provide a commentary on the effect that changes in these areas of the environment could have on the waterfront and tourists to the waterfront.
Municipal Implications	▶ Capital investment requirements	*Data Sources:*	▶ Environics Research Group, 2013. Toronto Resident Survey: Billy Bishop Toronto City Airport. ▶ InterVISTAS Consulting, 2012. Billy Bishop Toronto City Airport (YTZ) Economic Impact Study. ▶ HLT Advisory, 2013. Economic Impact Considerations of an Expanded Billy Bishop Toronto City Airport. ▶ Bathurst Quay Neighbourhood Study. ▶ Other desktop reports, as appropriate.
		Methods :	▶ Review and synthesize the background reports listed above and comment on possible implications to municipal finance. ▶ Consult with City of Toronto officials. ▶ Conduct a qualitative economic assessment of potential costs of infrastructure required by the City, as identified by the Bathurst Quay Neighbourhood Study, as well as the potential impacts on property tax revenues from possible changes to property values, if any.
Property Values	▶ Potential impacts to property values within the waterfront (for both existing and planned waterfront communities) ▶ Future development could be altered based on impacts of the Proposal affecting people's desire to locate within the Waterfront	*Data Source:*	▶ N. Barry Lyon Consultants Ltd. 2013. Condominium Market Value Impact Analysis: Billy Bishop Airport (found in Appendix of HLT Advisory, 2013. Economic Impact Considerations of an Expanded Billy Bishop Toronto City Airport). ▶ Central Waterfront Secondary Plan (CWSP). ▶ East Bayfront Precinct Plan (EBPP). ▶ Lower Don Lands Precinct Plan (LDPP). ▶ Bathurst Quay Neighborhood Plan (BQNB). ▶ Villiers Island Precinct Plan. ▶ Others as deemed appropriate by agencies. ▶ Pre-arranged interviews with professionals involved closely in the development and sales of commercial and residential properties in the waterfront area including real estate brokers and developers.

Attachment A: Work Plans – Measures of Effect and Data Sources

Asset	Measure of Effect	Additional Data Sources/Methods	
		Method:	▶ Review and synthesize the background studies listed above and comment on changes in property values within the waterfront. The relevancy of these studies will also be commented on and documented in the environmental study report. ▶ Insights and information from real estate and development professionals will be obtained through direct interviews, in groups or individually, as availability permits. Information will be gathered regarding past and potential future changes to sales of existing and new waterfront floor area with and without the proposed project.
Non-use Values	▶ Potential impacts to non-use values as it relates to airport operations	*Data Source:*	▶ City-wide phone survey in the spring and summer, 2015 designed to reach out to cell phone and land line users across the City of Toronto. ▶ Intercept surveys with a variety of users along the waterfront area.
		Method:	▶ The phone survey will capture a statistically representative sample of City of Toronto residents both within the Local Study Area and the Regional Study Area, to consider the perceived non-use values of environmental elements within the Local Study Area from both users and non-users across the City. ▶ The phone survey will obtain attitudes and perspectives of a sample of Toronto residents to understand how they use the waterfront area (if at all) and how they value the waterfront area, regardless of their frequency of use of the area. The survey will be conducted by phone in Summer 2015 through the services of a specialty polling service agency. ▶ Intercept surveys will also ask all users about how they value the waterfront area.
Built Environment			
Regulatory Compliance: Existing Federal, Provincial and Municipal Plans and Policies	▶ Compliance with in-force and emergent policies and regulatory restrictions within areas planned for new private sector development and/or public sector investment in public spaces and trail systems ▶ Future ground floor area development	*Data Source:*	▶ Multi-tiered regulatory framework, inclusive of: ▪ Federal: TP 1247 – Land Use in the Vicinity of Airports; ▪ Federal: TP 312 – Aerodromes Standards and Recommended Practices; ▪ Provincial: 2014 Provincial Policy Statement; ▪ Provincial: Places to Grow Plan; ▪ Municipal (City-wide): City of Toronto Official Plan; ▪ Municipal (City-wide): Applicable Zoning By-laws; ▪ Municipal (Precinct – Statutory): Central Waterfront Secondary Plan; and ▪ Municipal (Precinct – Non-statutory): various precinct plans and studies within limits of the Study Area.
		Method:	▶ Analysis of framework to evaluate potential built form and land use impacts, merits and policy compliance (or non-compliance) issues associated with the Future Growth Scenarios. ▶ Use mapping to identify any possible compliance concerns with land use restrictions respecting sensitive land uses adjacent to an airport.
Future Development		*Data Source:*	▶ Background reports: ▪ Urban Strategies Inc., 2013. Consultant Report - BBTCA Expansion Review Summary Report; ▪ WSP Group, 2014. Consultant Report – Strategic Vision for Peak Hour Passenger Forecast for BBTCA; ▪ N. Barry Lyon Consultants Ltd. 2013. Condominium Market Value Impact Analysis: Billy Bishop Airport (found in Appendix of Economic Impact Considerations of an Expanded BBTCA); and ▪ BA Group, 2013. BBTCA Transportation Assessment of Proposed Jet Activity Summary Report. ▶ City of Toronto CAD files will be used to provide a foundation for all future modeling and visualization studies. ▶ Airport operational control surfaces.
		Method:	▶ Assess effects on future residential or commercial uses through a review of noise effects, impacts on future development and property values. ▶ Assess future noise impacts at sensitive receptor locations to be assessed through modelling efforts. ▶ Review and identify potential new height restrictions associated with the intersection of planned future development and future flight control surfaces. ▶ Review assessment of future property value impacts from the study conducted by N. Barry Lyon Consultants Ltd. ▶ Create rendered visualizations of future development models to ascertain the visual impacts of the proposal from different important vantage points. ▶ Determine vantage points through consultation with members of the public, stakeholders and public agencies.
Natural Environment			
Significant Features or Functions	▶ Temporary and/or long-term loss of significant natural heritage features or functions, such as: ▶ Provincially Significant Wetlands, ▶ Areas of Natural and Scientific Interest (ANSIs), or ▶ Significant Wildlife Habitats	*Data Source:*	▶ CH2M HILL Canada Limited, 2013. Porter Airlines Runway Extension Proposal Review Coastal Processes and Environments. ▶ Dillon Consulting Limited, 2011. Toronto Port Authority Proposed Pedestrian/Services Tunnel and Perimeter Road Project. ▶ Terrestrial plant and wildlife habitat field observations: ▪ Vegetation community mapping; and ▪ Significant wildlife habitat assessment. ▶ Background information on significant natural heritage features from: ▪ Toronto and Region Conservation Authority (TRCA); ▪ Ministry of Natural Resources and Forestry (MNRF); ▪ Natural Resources Values Information System (NRVIS) mapping from Land Information Ontario (LIO); ▪ Designated area information from the MNRF Natural Heritage Information Centre (NHIC) database; and ▪ City of Toronto Official Plan.
		Method:	▶ Review and analyze background information to identify significant natural heritage features potentially affected by the proposed extension of the land mass and introduction of jets. ▶ Conduct terrestrial habitat field observations by a one-day field visit to collect visual observations in the immediate vicinity of the BBTCA and from the shoreline of the Toronto Islands, including: ▪ Complete vegetation community mapping using the Ecological Land Classification (ELC) system for Southern Ontario; and ▪ Complete significant wildlife habitat assessment in accordance with the “Significant Wildlife Habitat Technical Guide” from MNRF. ▶ Identify area of impact associated with works proposed in sensitive or listed features.

Attachment A: Work Plans – Measures of Effect and Data Sources

Asset	Measure of Effect	Additional Data Sources/Methods	
Terrestrial Habitats or Functions	▶ Temporary and/or long-term loss of sensitive terrestrial habitat or functions, including wetlands, woodlands and dune environments, or features known to support sensitive species	*Data Source:*	▶ Terrestrial plant and wildlife habitat field observations: ▪ Vegetation community mapping; ▪ Plant species inventory; ▪ Significant wildlife habitat assessment; and ▪ Incidental wildlife observations. ▶ Background information on terrestrial habitats from: ▪ TRCA; ▪ MNRF; ▪ NRVIS mapping from LIO; ▪ Designated area information from the MNRF NHIC database; and ▪ City of Toronto Official Plan.
		Method:	▶ Review and analyze background information to identify terrestrial habitats potentially affected by the proposed extension of the land mass and introduction of jets. ▶ Conduct terrestrial habitat field observations by a one-day field visit to collect visual observations in the immediate vicinity of the BBTCA and from the shoreline of the Toronto Islands, including: ▪ Complete vegetation community mapping using the ELC system for Southern Ontario; ▪ Complete significant wildlife habitat assessment in accordance with the “Significant Wildlife Habitat Technical Guide” from the MNRF; ▪ Record any observed wildlife; and ▪ Determine area of effect for the terrestrial habitats identified.
Terrestrial Species	▶ Temporary and/or long-term effects on sensitive terrestrial species including plants, birds, monarch butterflies and other wildlife, rare species and Species at Risk.	*Data Source:*	▶ Terrestrial plant and wildlife habitat field observations: ▪ Vegetation community mapping; ▪ Plant species inventory; ▪ Significant wildlife habitat assessment; and ▪ Incidental wildlife observations. ▶ Bird surveys: ▪ Fall migration; ▪ Overwintering; ▪ Spring migration; ▪ Breeding surveys; and ▪ Summer Cormorant behaviour surveys. ▶ Background terrestrial species data, including bird data, from: ▪ NHIC rare species records; ▪ MNRF; ▪ TRCA, including date from Tommy Thompson Park Bird Research Station (TTPBRS) and off-site wildlife management options; ▪ Canadian Wildlife Service (Lake Ontario Winter Waterfowl Survey data); ▪ Toronto Ornithological Club; ▪ Toronto Naturalist Club; ▪ Bird Studies Canada; ▪ eBird; ▪ Toronto Bird Observatory of the Ontario Bird Banding Association (OBBA); ▪ Fatal Light Awareness Program (FLAP) bird data for Toronto, if available; ▪ Bird information for the Toronto Islands from the Harbourfront Kayak Centre, if available; ▪ Turtle information for the Toronto Islands from the Kawartha Turtle Trauma Centre, if available; ▪ Breeding Bird Atlas of Ontario (Cadman et al. 2007); and ▪ Migratory Birds in the City of Toronto: A Literature Review and Data Assessment (Dougan & Associates Ecological Consulting and Design with North-South Environmental Inc., 2009). ▶ Transport Canada bird strike information and off-site wildlife management options. ▶ BBTCA bird strike data. ▶ BBTCA Wildlife Management Plan. ▶ Academic institutions and/or published scientific studies. ▶ Reports, studies and/or wildlife management plans for other airports in North America and/or airports located on islands or adjacent to large bodies of water documenting wildlife management actions used on and off the airport grounds. ▶ 2015 Master Planning Exercise: ▪ Anticipated jet flight paths and heights; ▪ Frequency of flights; and ▪ Missed approach decision point.

Asset	Measure of Effect	Additional Data Sources/Methods	
		Method:	▶ Review and analyze background terrestrial species data to provide a comprehensive list of species, including birds, potentially affected by the proposed extension of the land mass. ▶ Conduct terrestrial habitat field observations by a one-day field visit to collect visual observations in the immediate vicinity of the BBTCA and from the shoreline of the Toronto Islands, including: ▪ Complete vegetation community mapping using the ELC system for Southern Ontario; ▪ Complete significant wildlife habitat assessment in accordance with the "Significant Wildlife Habitat Technical Guide" from the MNRF; and ▪ Record any observed wildlife. ▶ Complete bird surveys to develop an understanding of bird habitat use within the immediate vicinity of the proposed runway expansions: ▪ Conduct fall migration surveys between October and November, on a total of four occasions; ▪ Conduct overwintering surveys between December and February, on a total of two occasions; ▪ Conduct spring migration surveys between March and May, on a total of four occasions; ▪ Conduct breeding surveys between May and July, on a total of three occasions; ▪ Conduct summer Cormorant behaviour surveys, on a total of four occasions; ▪ On each occasion, bird surveys will be completed by a qualified biologist from a point count location at each end of the existing runway; ▪ All birds observed within 500 m will be recorded including species, number of individuals, location, and approximate altitude of flight during a 20-minute survey duration; ▪ Bird surveys will be conducted between sunrise and noon and will capture a wide range of weather conditions to the extent possible; and ▪ Use the projected flight paths and flight frequency (from the 2015 Master Planning Exercise), relative risk of strikes for different groups of birds (based on published studies), and existing bird strike data from the BBTCA to determine potential effects of the proposed extension of the land mass and jets on birds recorded in the Study Area. ▶ Complete a literature review of off-site wildlife management at North American airports to identify potential mitigation or management techniques that could be implemented at BBTCA and TTP. ▶ Consult with TRCA and Transport Canada regarding off-site wildlife management options for BBTCA.
Aquatic Habitat or Functions	▶ Temporary and/or long-term loss of aquatic habitat within the footprint of the proposed runway extension of the land mass, including areas known to support key life cycle stages (e.g. spawning areas), or areas known to support sensitive aquatic species	*Data Source:*	▶ Background aquatic habitat data from: ▪ TRCA; ▪ MNRF; ▪ Fisheries and Oceans Canada (DFO); and ▪ Aquatic Habitat Toronto (AHT). ▶ Aquatic habitat field observations: ▪ Submerged vegetation; ▪ Substrate (e.g. sand, gravel); and ▪ Cover (e.g. submerged woody debris).
		Method:	▶ Review and analyze existing background aquatic habitat data to identify aquatic habitats potentially affected by the proposed extension of the land mass. ▶ Complete detailed aquatic habitat surveys within the footprint of the proposed extension of the land mass and the MEZ. ▪ Conduct a two-day field investigation with the use of an underwater camera to document existing fish habitat conditions including substrate, submerged and emergent aquatic vegetation, and cover types (e.g. submerged woody debris); and ▪ Record sampling sites in a grid and assign each location a unique identification number. Take photos and identify aquatic macrophytes, substrate, and cover at each sample location. ▶ Complete aquatic habitat impact assessment using TRCA's Habitat and Environmental Assessment Tool (HEAT) to quantify the amount and assess the quality of habitat that would be removed or disturbed by the proposed extension of the land mass.
Aquatic Species	▶ Temporary and/or long-term effects on aquatic species, including fish, Endangered Species and Species at Risk (SAR) such as the American Eel.	*Data Source:*	▶ Background fish collection data from: ▪ Fish and fish habitat information for the Toronto Islands from Ontario Streams, if available; ▪ TRCA, including warm and cold water surveys conducted by TRCA in the MEZ; ▪ MNRF; ▪ DFO; and ▪ Conservation Ontario Aquatic Species at Risk Distribution Mapping.
		Method:	▶ Review existing background fish collection data to provide a comprehensive list of aquatic species potentially affected by the proposed extension of the land mass. ▶ Identify existing habitat (as described above) that would be removed or disturbed by the proposed extension of the land mass. ▶ Compare habitat requirements of individual species, including Endangered Species (ESA) and Species at Risk (SAR), to the existing habitats to identify potential effects on aquatic species.
Air Quality			
Recreational Uses; Residential Uses; Tourism; Institutional Uses	▶ Levels of: Nitrogen Dioxide; particulate (PM10 and PM2.5); benzo-a-pyrene; benzene and acrolein concentrations	*Data Source:*	▶ Model road traffic in the Study Area, including the Gardiner Expressway and Lakeshore Blvd, as well as smaller arterial streets in the immediate vicinity of the airport (Stadium Road, southern part of Bathurst). ▶ Ambient air quality data from: MOECC and Environment Canada Monitoring Stations; as well as monitoring data collected by Metrolinx as part of the Georgetown South Project; Aircraft and corresponding ground support equipment activity from PortsToronto; Existing and future vehicular traffic volumes on local roads from the City of Toronto; Ferry activity data from PortsToronto and the City of Toronto; Taxi idling activity at BBTCA from PortsToronto; Jet aircraft emissions data from Bombardier.
		Method:	▶ Establish background air quality conditions based on the road traffic modelling supplemented with ambient air quality monitoring data collected by the Ministry of the Environment and Climate Change (MOECC) and Environment Canada at Hanlan's Point, the intersections of Bay Street and Wellesley Street and Ruskin and Perth Street, and the University of Toronto and Metrolinx data from the Georgetown South Monitoring Station. ▶ The EA will predict levels of air contaminant concentrations, such as nitrogen Dioxide; particulate (PM10 and PM2.5); benzo-a-pyrene; benzene and acrolein concentrations. The contaminants will be confirmed based on information from Toronto Public Health. Chromium (including Chromium VI) will also be considered to the extent that information is available. CAS numbers will be provided for all contaminants. ▶ The spatial variability of ambient background concentrations and the applicability of the data to the Study Area will be investigated through the use of regional models if information allows Any available regional model may be used to characterize background levels for contaminants for which there is little or no ambient monitoring data (i.e., PM10 and acrolein).

Attachment A: Work Plans – Measures of Effect and Data Sources

Asset	Measure of Effect	Additional Data Sources/Methods	
			▶ Quantify air contaminant emission rates using airport-specific U.S. Federal Aviation Administration and U.S. Air Force model for airport sources. The model accounts for aircraft activity (queuing, taxiing, takeoffs and descents), ground support equipment (e.g., baggage tugs, catering trucks, fuel trucks etc.), auxiliary power units (APUs), stationary sources including boilers and emergency gensets. ▶ Apply U.S. EPA MOVES models to account for vehicle emissions on local roads where traffic will be affected by the proposal and taxi activity at Eireann Quay. Ferry emissions will be determined based on U.S EPA emission factor information. ▶ Conduct dispersion modelling using the US EPA's CALPUFF model, which is approved by the MOECC. Determine the downwind concentrations of the contaminants, i.e. how they disperse, accounting for varying meteorological conditions. ▶ Evaluate the cumulative air quality concentrations from background and airport, traffic and ferry sources under baseline conditions, the future scenario with jets and the future scenario without jets at sensitive receptor locations. Computer modelling results for all air contaminants at a receptor point apply equally well to other locations in the vicinity of that point. ▶ The modelling will be based on 1-year of hourly meteorological data process using CALMET. As such, this covers a wide range of weather conditions. ▶ Develop contour plot of NOx based on a receptor grid to illustrate spatial variations in predicted contaminant concentrations. ▶ Compare results to MOECC ambient air quality criteria and Canadian ambient air quality standards as well as to Toronto Public Health Toxicity Reference Values that the City of Toronto is currently developing, as available. ▶ Compare results for ambient particulate matter for published threshold relative to impacts on vegetation. ▶ Ground level ozone will be assessed in accordance with the Ontario Ministry of Transportation guidelines. ▶ Qualitatively assess odour and atmospheric deposition impacts for future with jets scenario relative to future baseline conditions. ▶ Odour will be assessed qualitatively in terms of anticipated changes in fuel use, changes in locations of activities relative to wind direction frequencies, etc. ▶ Review the MOECC's assessment of "black soot" and discuss the results.
Climate Change	▶ Levels of: carbon dioxide (CO2), nitrous oxide (N2O) and methane (CH4)		▶ Greenhouse gas emissions will be estimated for baseline conditions, future conditions with jets and future conditions without jets. The emissions will be compared to relevant benchmarks such as total GHG emissions from the City of Toronto and the transportation sector. ▶ Discuss initiatives to reduce GHG emissions in the airline industry.
Public Health			
Public Health is an Asset that is affected by: Air Quality; Noise Levels	▶ Changes to noise levels ▶ Changes to air quality	*Data Source:*	▶ Noise model output. ▶ Public perceptions of noise and self-reported concerns with noise levels obtained via intercept surveys, telephone surveys and interviews conducted as part of the Socio-Economic scope of work. ▶ Air quality model output.
		Method:	▶ Air quality model output will be compared against toxicity reference values provided by the City of Toronto. ▶ Noise model output will be compared against reference values for social and health impacts provided by the City of Toronto. ▶ Through intercept surveys, telephone surveys, and interviews with various users and non-users of the waterfront area, those perceptions regarding noise or air quality concerns, including odours, associated with the airport, or other sources, will be included in the public health assessment with regards to perceptions of nuisance.
Noise			
Recreational Uses; Residential Uses; Tourism; Institutional Uses	▶ A weighted sound levels (Leq dBA and LDN) ▶ Noise Exposure Forecast (NEF) ▶ Number of Events above 70 dBA (N70)	*Data Source:*	▶ Noise Exposure Forecast model. ▶ US FAA Integrated Noise Model (INM). ▶ ISO 9613 model as incorporated into Cadna/A. ▶ ORNAMENT, STAMINA, and STEAM models. ▶ 2014 WebTrak, community noise monitors (shows aircraft movements to and from airports and associated noise levels). ▶ Existing noise impact assessments and engine run-up reports will be reviewed. ▶ New and historic noise monitoring data. ▶ CS100 and Q400 noise certification data, supplemented by additional data from Bombardier.
		Method:	▶ Assess sound levels, including changes in cumulative sound levels between the future scenario with jets and without jets. The following sources will be considered: aircraft in the air, on the runways, taxiing; performing run-ups (engine testing); the ferry; ground support equipment; road traffic and light rail transit. ▶ The assessment will use the following models: the Noise Exposure Forecast model (NEF), the Integrated Noise Model (INM), the Ministry of the Environment and Climate Change's (MOECC) Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT) and the Sound from Trains Environmental Analysis Method (STEAM), the ISO 9613 sound propagation model as incorporated into Cadna/A. ▶ Noise modelling will be supplemented with data from new and historic ambient noise monitoring data. ▶ Compare the resulting noise levels to noise levels specified in Tripartite Agreement, the MOECC guideline NPC -300 and other criteria such as degree of speech interruption (N70) as aircraft fly over. Sound levels will also be evaluated at schools using the key indicators LDN and N70. The steps for completing the comparison include: ▪ RWDI takes historical data from a base year (to be used as the "existing conditions" year) on scheduled and unscheduled flights that have taken off and landed from BBTCA in that year, the flight path profiles for that year, and the specifications of each aircraft type, and inputs them into the INM model; ▪ The INM model calculates an LDN value at each receptor point and over a grid, which is an average sound level, based on the data that was input; ▪ The INM model also provides an output matrix that describes the sound level impacts by location and aircraft; and ▪ RWDI then inputs this matrix into TNIP software, which provides a geographic representation of noise impacts in the form of contour lines which represent the N70, or the number of times per day that noise levels will exceed 70dBA within each contour line. ▶ Note that the assessment methodologies are generally based on a standard weather condition. However, the Noise Assessment Report will include information on the sensitivity of the measured noise levels to weather conditions, and on the frequency of certain key weather conditions, such as those associated with temperature inversions, low cloud and fog.
Marine Physical Environment and Water Quality			
Wave Formation	▶ Changes in wave height, wave period (i.e. time between two waves) and wave direction	*Data Source:*	▶ CH2M HILL Canada Limited, 2013. Porter Airlines Runway Extension Proposal Review Coastal Processes and Environments. ▶ Dillon, 2013. Lakefill Within MEZ for the TPA.

Attachment A: Work Plans – Measures of Effect and Data Sources

Asset	Measure of Effect	Additional Data Sources/Methods	
		Method:	▶ Review the above noted studies and analyze results regarding changes in wave formation. ▶ Use this information to identify potentially required mitigation measures to protect the shoreline.
Water Levels	▶ Changes in water levels in the western gap and nearby marina	*Data Source:*	▶ CH2M HILL Canada Limited, 2013. Porter Airlines Runway Extension Proposal Review Coastal Processes and Environments. ▶ Dillon, 2013. Lakefill Within MEZ for the TPA.
		Method:	▶ Review the above noted studies and analyze results for information which will allow the comparison of current water levels to future water levels. Changes in water levels can affect erosion and cause storm surges under storm conditions.
Currents	▶ Changes in flow patterns and current speed	*Data Source:*	▶ CH2M HILL Canada Limited, 2013. Porter Airlines Runway Extension Proposal Review Coastal Processes and Environments. ▶ Dillon, 2013. Lakefill Within MEZ for the TPA. ▶ Dr. Davidson-Arnott, R., 2013. Peer Review of Porter Airlines Runway Extension Proposal Review Coastal Processes and Environment.
		Method:	▶ Review the above noted studies for results regarding changes in flow patterns as changes in flow patterns and current speeds could affect water quality, circulation, sediment transport and navigation.
Sediment Transport	▶ Sediment deposition/accumulation in West Island, Western Gap and in the immediate vicinity of the extension of the land mass (to identify where sediment may deposit) ▶ Long shore sedimentation patterns (whether sediment moves along the shoreline) ▶ Sediment deposition/accumulation in the inner harbor ▶ Changes to type of sediment that could be moved by the currents (if currents speeds change, it can affect the size of sediment that moves)	*Data Source:*	▶ CH2M HILL Canada Limited, 2013. Porter Airlines Runway Extension Proposal Review Coastal Processes and Environments. ▶ Dillon, 2013. Lakefill Within MEZ for the TPA. ▶ Dr. Davidson-Arnott, R., 2013. Peer Review of Porter Airlines Runway Extension Proposal Review Coastal Processes and Environment.
		Method:	▶ Review the above noted studies and comment on changes to flow velocity, wave height, period and direction, to interpret where sediment may deposit or accumulate if the land mass is extended.
Water Quality	▶ Source of pollutants ▶ Type of pollutants ▶ Changes to water flow	*Data Source:*	▶ As-built drawings. ▶ 2015 Master Planning Exercise. ▶ Runway preliminary design and/or detailed design drawings. ▶ Flow into the inner harbour through the Western Channel from Assessment of Receiving Water Responses to Alternative Wet Weather Flow Control Options, City of Toronto's Don River and Central Waterfront Project - Class ESR, Dr. Ray Dewey, Modelling Surface Water Limited, April 2013. ▶ Potential flows of contaminated stormwater runoff into Lake Ontario from the airport property.
		Method:	▶ Review the above-noted and other relevant studies and analyze results for information which will allow the comparison of current pollutant sources to future pollutant sources. Changes in pollutant sources or pollutant types can affect water quality without appropriate mitigation measures, so existing and proposed mitigation measures will also be reviewed, and additional measures or further detailed studies may also be recommended. ▶ Evaluate typical measured and calibrated currents (velocity and direction) in Western and Eastern Gaps during typical operation conditions (Lake currents dominate) and storm conditions. ▶ Create mass balance model in inner harbour to reflect inflow/outflow through Western and Eastern Gaps, inflow from Don River Flows/velocities in western and eastern gaps. ▶ Perform mass-balance calculations assessing the potential approximate changes to water flow into the inner harbour from the Western Channel, as compared to estimated outflow from the Don River, as the major source of effluent into the harbour. ▶ Estimate change in residence time in Inner Harbour, assuming 'plug' flow and no recirculation assuming % recirculation based on previous modeled flow patterns. ▶ Review and comparison of existing and proposed future stormwater management plan, and spills containment plans.
Transportation			
Public Safety	▶ Estimated increased risk of collisions	*Data Source:*	▶ Available data and studies to provide information regarding existing safety conditions. ▶ The existing studies may include: ▪ BA Group, 2013. BBTCA Transportation Assessment of Proposed Jet Activity Summary Report ▪ Urban Strategies Inc., 2013. BBTCA Review Urban Planning & Design Assessment of Potential Transportation Impacts & Mitigation Measures ▶ New traffic studies and model for Eireann Quay, including forecast projections. ▶ 2015 Master Planning Exercise
		Method:	▶ Review proposed changes to traffic volumes associated with airport passengers and operations (including delivery and commercial vehicles) ▶ Review proposed changes to traffic volumes and pedestrian/cyclist amenities associated with other development from the Bathurst Quay Neighbourhood Study ▶ Use projections from existing traffic assessments/models to estimate changes in collision risks between vehicles, pedestrians, and cyclists
Access to important uses	▶ Changes to access to residences, businesses and recreational facilities and activities	*Data Source:*	▶ Existing studies to provide information regarding: traffic congestion, public transit, and modal split.
		Method:	▶ Review existing traffic and transportation studies to provide comment on effects to people's ability to access their residences, businesses, active transportation, and recreational facilities.
Transportation Options	▶ Changes to modal split	*Data Source:*	▶ Existing studies to provide information regarding: projections from existing traffic assessments, future modal split requirements, transportation network and current traffic information, and transportation plans, including active transportation and transit plans. ▶ New traffic studies and model for Eireann Quay.
		Method:	▶ Use projections from existing traffic assessments/models to determine changes to, and future modal split requirements. ▶ Review BA Group's 2015 Updated Traffic Report and model. ▶ Review traffic monitoring and modelling from Dillon Consulting. ▶ Assess the potential for changes to modal split and determine the degree to which these changes will free up network capacity.

Attachment A: Work Plans – Measures of Effect and Data Sources

Asset	Measure of Effect	Additional Data Sources/Methods
		▶ Outline the study recommendations and proposed mitigation measures.

Attachment A: Work Plans – Measures of Effect and Data Sources

Asset	Measure of Effect	Additional Data Sources/Methods	
Convenience	▶ Changes to access to the airport	*Data Source:*	▶ Existing studies to provide information regarding: traffic congestion, public transit, and modal split.
		Method:	▶ Use projections from existing traffic assessments/models to estimate changes to airport access.
▶ Marine Navigation			
Recreation – Boating	▶ Impacts of jet blast, wake turbulence, and altered wave conditions on stability (also referred to as the dynamic stability) of vessels	*Data Source:*	▶ CH2M HILL Canada Limited, 2013. Porter Airlines Runway Extension Proposal Review Coastal Processes and Environments. ▶ Dr. Davidson-Arnott, R., 2013. Peer Review of Porter Airlines Runway Extension Proposal Review Coastal Processes and Environment. ▶ National Ocean and Atmospheric Administration and Environment. ▶ Canada wave and wind data. ▶ Stakeholder interviews conducted as part of the Socio-Economic study for this EA (regarding typical boating activity). ▶ Billy Bishop Toronto City Airport Preliminary Runway Design. ▶ Billy Bishop Toronto City Airport 2015 Master Planning Exercise.
		Method:	▶ Conduct a review of background information and the results from jet blast and wake turbulence assessments from the 2015 Master Planning Exercise to determine the anticipated wind speed and lifting force at the edge of the MEZ. ▶ Assess information on typical boats navigating in the area, including ferry operations, from interviews with stakeholders conducted as part of the Socio-Economic study and other data collection activities. ▶ Outline the size, length and width of different typical vessels using the Inner Harbour. ▶ Comment on likely changes to waves and currents caused by the extension of the land mass based on previous and ongoing studies and design details provided by PortsToronto as part of the Preliminary Runway Design. ▶ Estimate the degree to which changes in waves and jet blast could alter the course of or affect the balance of various boats at the edge of the MEZ, using engineering judgement and, where appropriate, a mathematical calculation.
Recreation – Boating	▶ Changes to the ability of boats to navigate the western gap and close to the runway expansion (also referred to as the maneuverability of a vessel)	*Data Source:*	▶ 2015 Master Planning Exercise. ▶ Preliminary Runway Design. ▶ Estimates of sediment deposition.
		Method:	▶ Review any proposed changes to the dimensions of the MEZ and width of the Western Channel as a result of built infrastructure and potential sediment deposition in order to understand potential changes to the bathymetry of the Western Channel. ▶ Based on the above, comment on crowding of vessels entering or exiting the Western Channel.
Archaeology and Cultural Heritage			
Archaeological Features	▶ Effects on areas with terrestrial and marine archaeological potential and known archaeological sites	*Data Source:*	▶ Archaeological Sites Database (ADSB): a database containing known archaeological sites across Ontario. ▶ City of Toronto Archives: Maps of early settlement areas. ▶ City of Toronto Archaeological Master Plan: identifies areas of archaeological potential requiring archaeological study prior to development. ▶ Northern Shipwreck Database: contains more than 100,000 shipwrecks covering 400 years. ▶ Great Lakes Shipwreck file. ▶ A search for other archaeological reports already completed for the area.
		Method:	▶ Conduct a terrestrial and marine Stage 1 Archaeological Assessment to meet the requirements of the Ministry of Tourism, Culture and Sport's (MTCS) 2011 Standards and Guidelines for Consultant Archaeologists in accordance with the Ontario Heritage Act. ▶ Conduct a background study as part of this, which will consist of research using the sources listed above to identify known archaeological sites in the vicinity and areas subject to previous assessments, as well as an evaluation of the potential for archaeological resources to be present in the Study Area. ▶ Map areas where there is a high potential for archaeological finds and determine where proposed construction works could affect areas of archaeological potential and whether additional archaeological studies are required according to best practices and Ontario Ministry of Tourism, Culture and Sport regulations.
Cultural Heritage Features	▶ Effects on identified cultural heritage resources, including buildings and cultural heritage landscapes	*Data Source:*	▶ City of Toronto Inventory of Heritage Properties. ▶ Ontario Heritage Properties Database (current as of 2005, no further updates were made after this). ▶ Canada Register of Historic Places. ▶ Cemetery Register. ▶ Inventory of Historical Plaques. ▶ Consultation with the Ministry of Tourism Culture and Sport Heritage Unit on listed, designated or otherwise recognized heritage properties or landscapes that have cultural heritage value or interest to the community. ▶ Consultation with the City of Toronto Heritage Planner and local historical societies. ▶ A search for other reports pertaining to heritage features in the vicinity.
		Method:	▶ Prepare a list of listed, designated or otherwise recognized heritage properties in the Study Area based on a review of the sources listed above. ▶ Compare location of cultural heritage resources to location of proposed construction disturbance, and recommend mitigation measures, if appropriate.