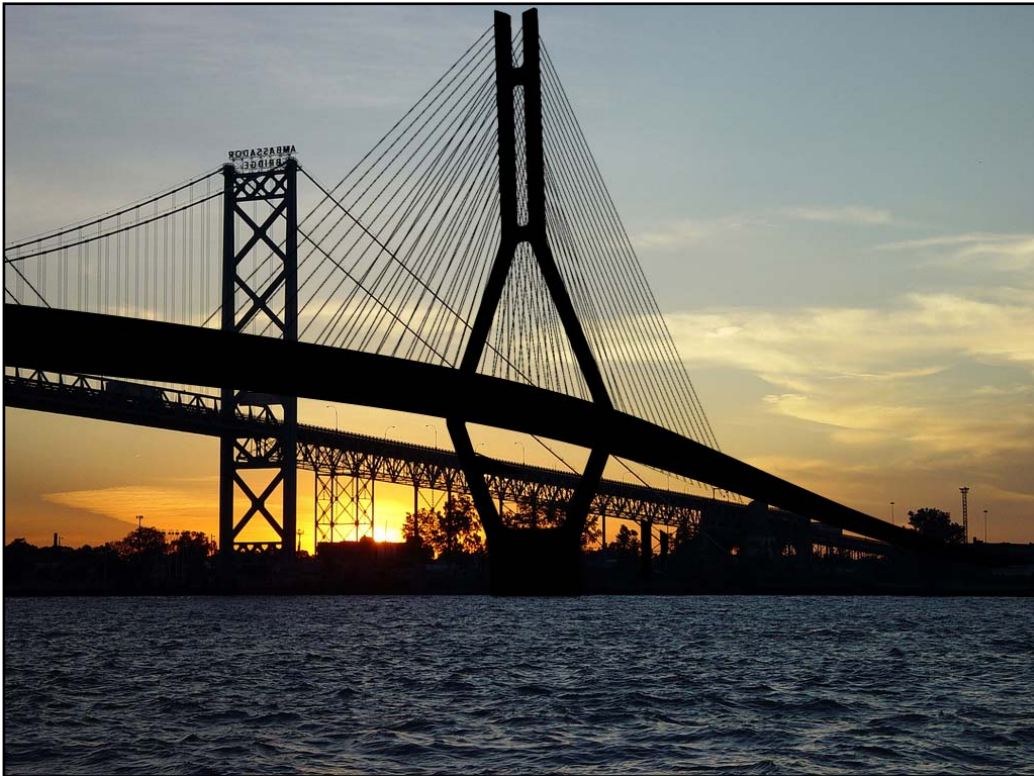


Draft Environmental Assessment Screening Report  
Ambassador Bridge Enhancement Project  
Windsor, Ontario  
April 2013



Prepared by Transport Canada and the Windsor Port Authority  
Pursuant to the *Canadian Environmental Assessment Act*

*Transport Canada File: A 7033-6 U RDIMS #7186504*  
*Canadian Environmental Assessment Registry Reference number: 21100*

## Key References

*Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012)*

*Technical Memorandum - Responses to Comments by Environment Canada on EIS and Peregrine Falcon Management Plan (December 2012)*

*Technical Memorandum - Responses to Comments by Federal Review Team on Summary of Ambassador Bridge (November 2012)*

*Technical Memorandum: Ambassador Bridge Enhancement Project Environmental Impact Statement Clarification (August 2012)*

*Federal Review Comment/Response Table for the Draft Environmental Impact Statement for the Ambassador Bridge Enhancement Project (Draft April 2011)*

*Canada Border Services Agency Ambassador Bridge Plaza Master Plan Study Report (July 2010)*

*Revised Federal Environmental Assessment Guidelines under the Canadian Environmental Assessment Act for the Ambassador Bridge Enhancement Project (August 2007)*

*Federal Public Participation Plan for the Environmental Assessment Screening under the Canadian Environmental Assessment Act (February 2007)*

## Additional Information

Additional information including key references for the Ambassador Bridge Enhancement Project Screening under the *Canadian Environmental Assessment Act* is available on the Canadian Environmental Assessment Registry by contacting:

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Website: <http://www.ceaa-acee.gc.ca/050/details-eng.cfm?evaluation=21100>

*Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) is also available online through the Canadian Transit Company Website:*

[http://www.ambassadorbridge.com/!Downloads/Updated\\_Screening\\_Report\\_20130306.pdf](http://www.ambassadorbridge.com/!Downloads/Updated_Screening_Report_20130306.pdf)

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## 1.0 Introduction

### 1.1 Purpose

Prior to a federal authority contemplating any action or approval of a Project, an environmental assessment decision under the *Canadian Environmental Assessment Act* must be taken, if required. For the Ambassador Bridge Enhancement Project Transport Canada and the Windsor Port Authority will determine specific requirements for approvals under the *Navigable Waters Protection Act*, the *International Bridges and Tunnels Act*, and completion of water lot lease agreements. These approval processes have not been initiated by the Proponent (the Canadian Transit Company) to date and will be contemplated by the responsible federal authorities subsequent to the completion of the environmental assessment process under the *Canadian Environmental Assessment Act*.

The purpose of this Draft Environmental Assessment Screening Report is to summarize the *Canadian Environmental Assessment Act* process and screening decision for the Ambassador Bridge Enhancement Project and provide an opportunity for the public to examine and comment on the Draft Environmental Assessment Screening Report before its completion.

This Draft Environmental Assessment Screening Report has been prepared using information contained in the *Ambassador Bridge Enhancement Project Environmental Impact Statement* (Revised May 2012) submitted by the project Proponent. Additional information provided by the Canadian Transit Company including technical memoranda was also considered in preparation of this Draft Environmental Assessment Screening Report.

### 1.2 Background

The Canadian Transit Company is proposing to construct a new replacement bridge span beside the existing Ambassador Bridge, which crosses the Detroit River between Windsor, Ontario and Detroit, Michigan.

The Project consists of building and operating a six lane, cable-stayed new replacement bridge span across the Detroit River to the west of the existing span, connecting to the Canadian Border Services plaza in Windsor, and directly into the existing United States of America Border infrastructure in Detroit. The Project also includes the expansion of the Canadian Border Services Plaza in Windsor and any required modification to local roads to accommodate the modification and expansion.

Once the new replacement bridge span is operational, the existing Ambassador Bridge will be taken out of service. It will then be rehabilitated, maintained and used as a redundant resource for operational vehicles, emergency traffic and approved public events.

The Canadian transit Company proposes to start construction of the Project in spring 2013.

## **2.0 Application of the *Canadian Environmental Assessment Act***

### **2.1 Environmental Assessment Screening Process**

The Ambassador Bridge Enhancement Project description was submitted to Federal Authorities in March 2006 and was circulated to Federal Authorities in accordance with the *Federal Coordination Regulations* of the *Canadian Environmental Assessment Act* under the Canadian Environmental Assessment registry number 06-01-21100.

After reviewing the Project description Transport Canada determined that it is a responsible authority pursuant to section 5(1)(d) of the *Canadian Environmental Assessment Act* as the Project will likely require an approval under paragraph 5 of the *Navigable Waters Protection Act* for the new replacement bridge span.

Pursuant to section 9 and section 5(1)(c) of the *Canadian Environmental Assessment Act*, the Windsor Port Authority determined that it is a prescribed authority under the Canada Port Authority Regulations, in relation to federal water lots on the Detroit River that will be crossed by the new replacement bridge span.

Together, Transport Canada and the Windsor Port Authority are the responsible authorities for the federal environmental assessment.

Federal authorities also contributed specialist or expert advice necessary to conduct the assessment, including:

- Environment Canada (air quality, species at risk and migratory birds);
- Health Canada (human health);
- Fisheries and Oceans Canada (aquatic systems including fish and fish habitat);
- Canada Border Services Agency (border services); and
- Parks Canada (archaeology).

Public Works and Government Services Canada, Aboriginal Affairs and Northern Development Canada and Foreign Affairs Canada determined they have no involvement in the Project.

The Canadian Environmental Assessment Agency is the federal environmental assessment coordinator for the Project. Together, the responsible, prescribed and federal authorities as well as the federal environmental assessment coordinator comprise the federal review team for the conduct of this environmental assessment.

The Project is subject to a screening level environmental assessment review pursuant to section 18(1) of *Canadian Environmental Assessment Act* as the Project is not described in the comprehensive study list or any exclusion list regulations. A notice of commencement was posted to the Canadian Environmental Assessment Registry on August 1, 2006 with a registry number of 06-01-21100 for the Project.

Given the level of public interest in border issues in the Windsor area, the responsible authorities determined that public participation would be required for this environmental assessment under section 18(3) of the *Canadian Environmental Assessment Act*. Any comments or other input from the public will be considered by the responsible authorities under section 16(1) of the *Canadian Environmental Assessment Act* prior to taking any decision.

The Federal Environmental Assessment Guidelines and a Federal Public Participation Plan were developed and circulated for public review in 2007. These documents establish roles and responsibilities, requirements and processes for the environmental assessment of the Project. The Revised Federal Environmental Assessment Guidelines and the Federal Public Participation Plan are available on the Canadian Environmental Assessment Registry web site: <http://www.ceaa.gc.ca/050/documents-eng.cfm?evaluation=21100>

## 2.2 *Canadian Environmental Assessment Act*, 2012 Legislative Amendments

On July 6, 2012, The Minister of the Environment exercised his authority under the *Canadian Environmental Assessment Act* 2012 to designate 17 screenings, including the Ambassador Bridge Enhancement Project, to continue as if the former *Canadian Environmental Assessment Act* had not been repealed.

To ensure the timely completion of this environmental assessment screening under the former *Canadian Environmental Assessment Act*, the responsible authorities must take a decision under section 20 no later than July 6, 2013 unless additional time is required by the Canadian Transit Company to collect information, undertake studies or comply with environmental assessment requirements. The timelines for completion of this environmental assessment screening are pursuant to subsections 124(3) and (4) of the *Canadian Environmental Assessment Act* 2012.

## 2.3 Coordination with Other Jurisdictions

Transport Canada and the Ontario Ministry of Environment have corresponded on federal and provincial environmental assessment processes since the commencement of the federal environmental assessment screening. No provincial environmental assessment requirements have been confirmed, and thus, this is not a coordinated environmental assessment process with the province of Ontario.

The United States Coast Guard has identified that the Project requires environmental review and approval prior to construction. The United States Coast Guard is the lead agency for the environmental approval of the Project in the United States.

### **3.0 Consideration of Project Purpose, Need, Alternatives, and Alternative Means of Carrying Out the Project**

The responsible authorities required the proponent to consider the purpose, need, alternatives to the Project, and alternative means of carrying out the Project as part of the environmental assessment process pursuant to section 16(1) (e) of the *Canadian Environmental Assessment Act*.

#### **3.1 Purpose**

The purpose of the Project is to improve the Ambassador Bridge corridor structure to facilitate the movement of vehicles and ensure the continued free flow of goods between Canada and United States, upgrade efficiency through the provisions of FAST/NEXUS lanes, meet current highway standards and preserve the existing Ambassador Bridge structure.

#### **3.2 Need**

The Need for the Project is based on the importance of the continued operation of the Ambassador Bridge corridor and flow of international trade between Canada and the United States. The new replacement bridge span will allow the Ambassador Bridge corridor to retain, and more efficiently and safely service the vehicles crossing the Ambassador Bridge.

#### **3.3 Alternatives to the Project**

A total of four alternatives to the Project were considered and examined in terms of their capacity to satisfy travel and freight transport demands and improve safety including:

1. “do nothing” scenario;
2. Other corridor alternatives;
3. A tunnel alternative;
4. Alternative modes of transportation.

However, these alternatives were deemed by the Canadian Transit Company to be less preferable than the proposed Project as they did not fully achieve the purpose and need of the Project. The construction of a new replacement bridge span provides all of the advantages of structural redundancy and improves efficiency while enhancing motorist safety.

#### **3.4 Alternative Means of Carrying Out the Project**

Alternative means of carrying out the Project were also considered including alternatives to the preferred alignment of the span and Canadian Border Services plaza configuration. Alignment alternatives included construction on the same centreline as the existing alignment, east of the existing alignment, and west of the existing alignment. The six-lane cable stayed new replacement bridge span on the western alignment was selected as the preferable alternative and found to provide the most benefits while having the least impact. In addition, the westerly alignment moves traffic flow away from the



University of Windsor and Assumption Church and results in a reduction of impacts on these areas as compared to the other alignments considered.

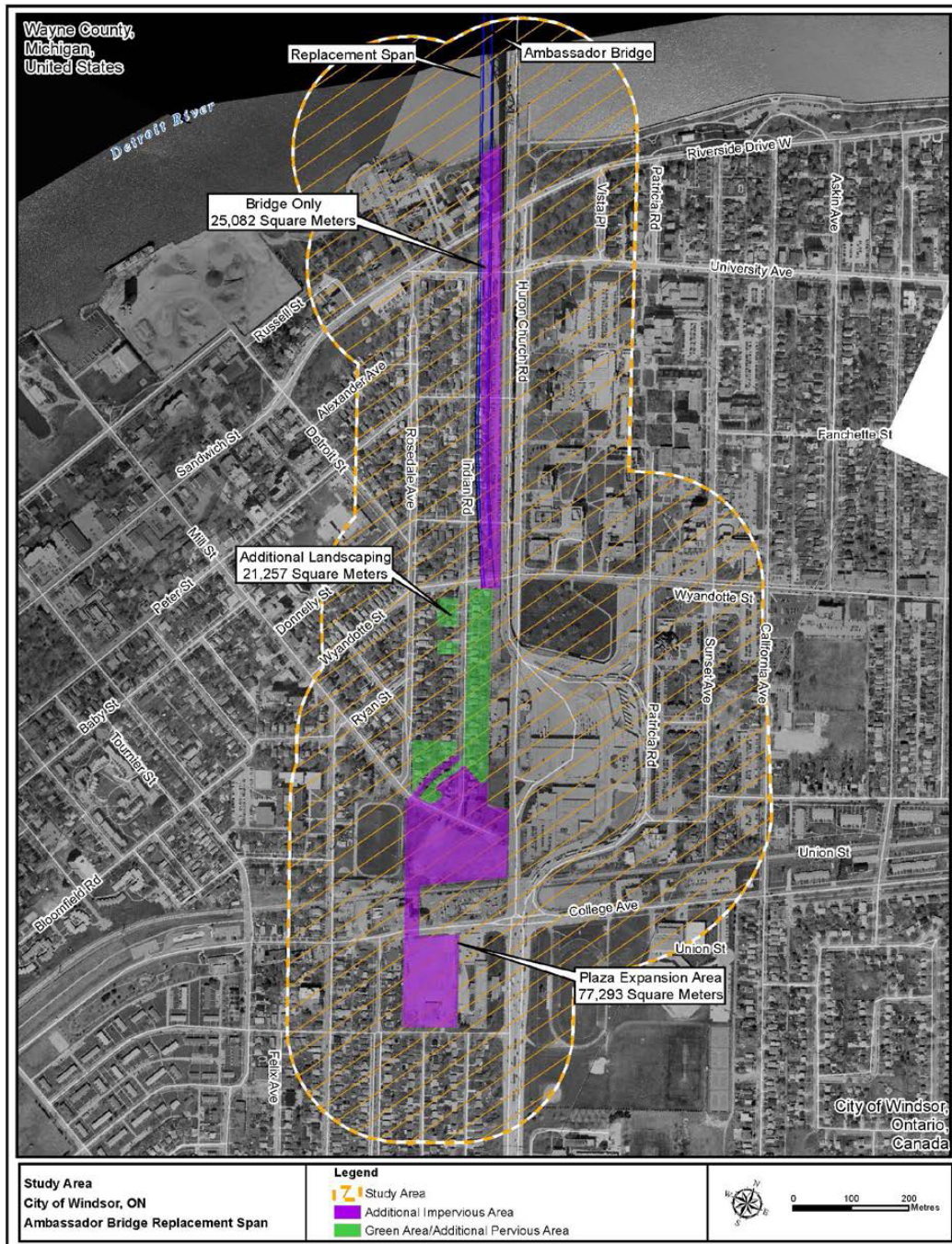
Additional information about the purpose, need and alternatives of the Project can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 1.2 Project Justification-Need/Alternatives to the Project.*

### 4.0 Project Description

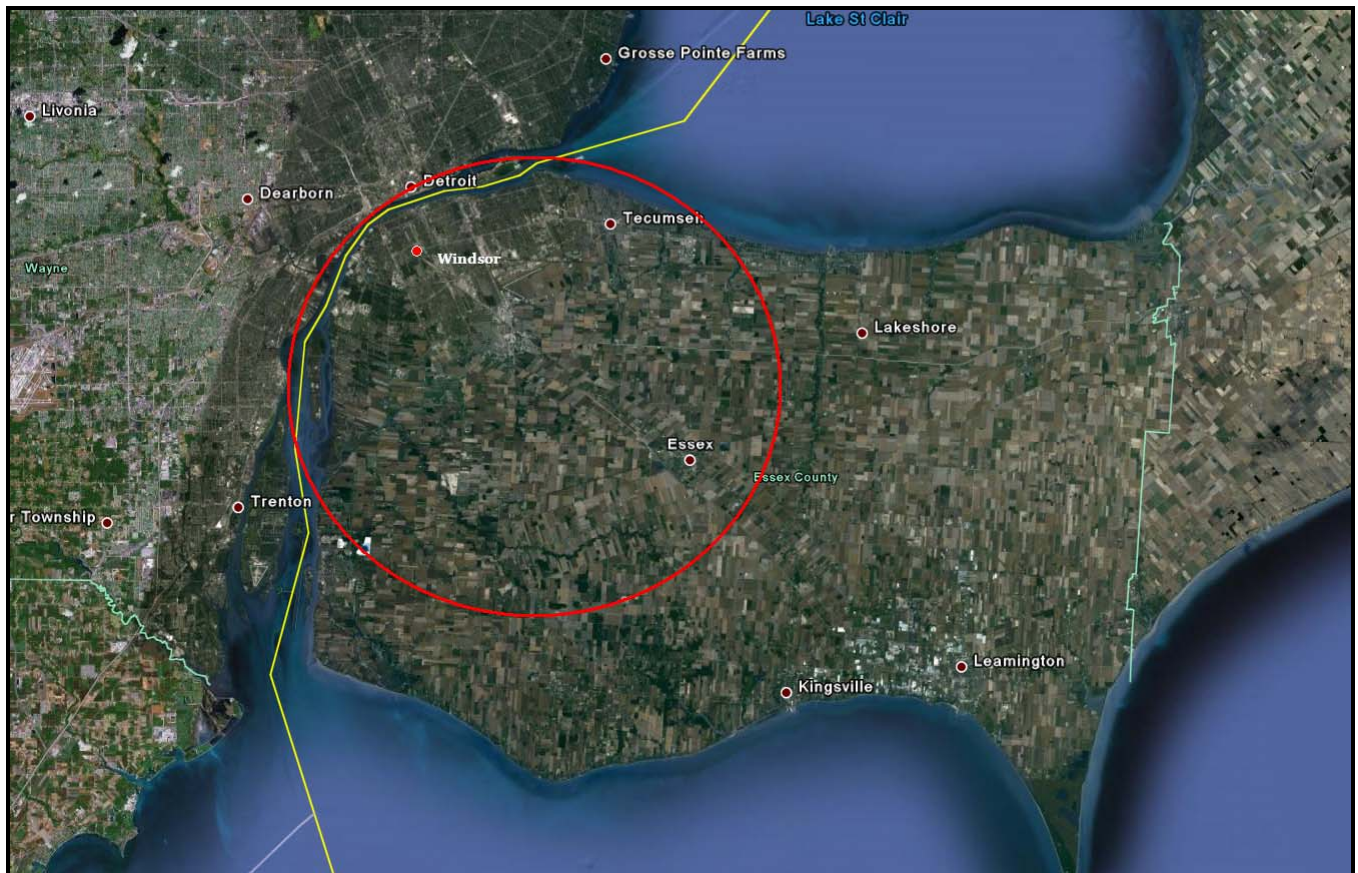
The Canadian portion of the Project as proposed by the Canadian Transit Company includes two major components; the new span and improvements and extension of the Canadian Border Services plaza.

**Figure 1: Study Area** provides an overview of the project area. **Figure 2: Regional Study Area** provides an overview of the regional study area.

**Figure1: Study Area**





**Figure 2: Regional Study Area**

#### 4.1 New Replacement Bridge Span

The Canadian Transit Company is proposing to construct a new six-lane cable-stayed replacement bridge span, located approximately 30.5 metres west of the centre line of the existing Ambassador Bridge to the centre line of the proposed new replacement bridge span. The new replacement bridge span will be approximately 2130 m in length with approximately 670 m traversing the Detroit River from tower to tower. The total width of the new replacement bridge span will be approximately 31 m and be a minimum of 46 m in height above the Detroit River, with the same minimal clearance of the existing Ambassador Bridge. The Canadian tower will be approximately 178 m above existing ground level and approximately 30.5 m south of the Detroit River.

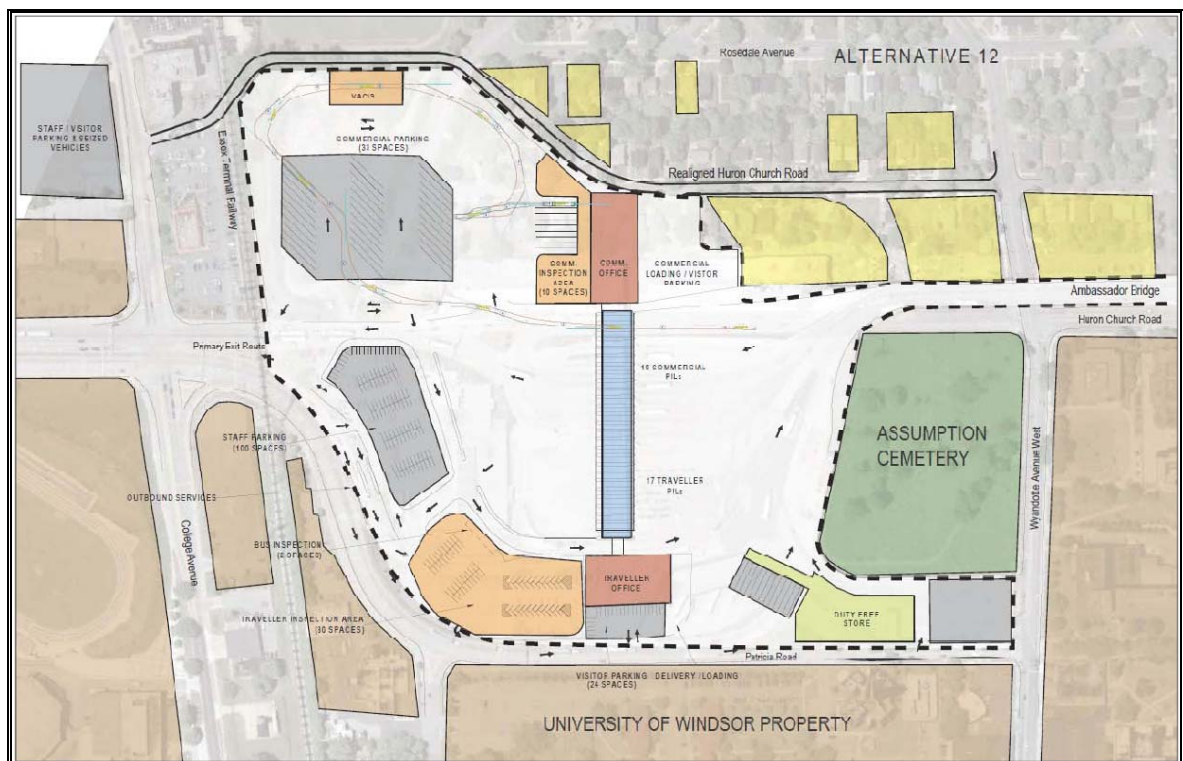
#### 4.2 Canadian Border Services Plaza

The Canadian Transit Company, in consultation with the Canada Border Services Agency, will construct improvements to the Canadian Border Services plaza as described in the *Canada Border Services Agency Ambassador Bridge Plaza Master Plan Study Report* (July 2010). This includes:

- Phase 1: Clearing and demolition west of Huron Church Road to accommodate the expanded Canadian Border Services plaza. A total of 17 houses will be demolished to accommodate the plaza expansion;
- Phase 2: Realignment of Huron Church road and modifications to Indian Road including new signalized intersections;
- Phase 3: Construction of the western and centre portions of the Canadian Border Services plaza with secondary inspection facilities to allow the relocation of the current off-site secondary commercial inspection operations to its planned location on site; and
- Phase 4: Construction of the eastern portion of the Canadian Border Services plaza with outbound inspection and duty-free facilities.

**Figure 3: Canadian Border Services Plaza Feasible Option** illustrates the Canadian Border Services Plaza design.

**Figure 3: Canadian Border Services Plaza Feasible Option**



Approximately 21 257 m<sup>2</sup> of green space will be developed between the Canadian Border Services plaza and the adjacent community of Sandwich on the east side of Indian Road. To accommodate this green space, the first phase of the Project will include demolition of 47 houses along the east side of Indian Road, clearing and grubbing of Indian Road between Wyandotte Street and Mill Street and the

implementation of a tree preservation plan including planting and seeding to convert the area to the green space. A total of 73 homes and two apartments will be demolished to accommodate the Project.

Additional information and a detailed project description can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 1.1 Project Description, Appendix B: Plaza Alternatives* and *Technical Memorandum: Ambassador Bridge Enhancement Project Environmental Impact Statement Clarification (August 2012)*.

### *Project Land Acquisition Requirements and Approvals*

The Windsor Port Authority determined that it is a prescribed authority under the Canada Port Authority Regulations, in relation to federal water lots on the Detroit River that will be crossed by the new replacement bridge span. It will be necessary for the Canadian Transit Company to enter into a licence of occupation or lease agreement with the Windsor Port Authority for the air rights to be utilized for the new span.

In order to accommodate the expansion of the Canadian Border Services Plaza, it may be necessary for the Canadian Transit Company to acquire City of Windsor and/or federal approval for the relocation and/or closure of portions to several local roadways and the demolition of existing housing.

## 5.0 Scope of Project and Assessment under the *Canadian Environmental Assessment Act*

The scope of the project and assessment were determined by the responsible authorities and are described in the *Revised Federal Environmental Assessment Guidelines Under the Canadian Environmental Assessment Act for the Ambassador Bridge Enhancement Project* (August 2007).

**Table 5.1: Potential Environmental Interactions with the Project** provides an overview of potential interactions between the Project and environmental components that were assessed as part of the environmental assessment.

### 5.1 Scope of the Project

The *Canadian Environmental Assessment Act* requires that the responsible authorities assess the Project as it is proposed by the proponent – the Canadian Transit Company. The scope of the Project for the purposes of the environmental assessment was identified by the responsible authorities in accordance with section 15 of the *Canadian Environmental Assessment Act*. The scope of the Ambassador Bridge Enhancement Project includes construction, operation, modification and any decommissioning in relation to the Canadian portion of the Project including the new replacement bridge span, Canadian Border Services Plaza expansion and adjacent green space areas.

Decommissioning of the existing Ambassador Bridge was not assessed as part of this environmental assessment as decommissioning is not anticipated to occur within the temporal boundaries of this environmental assessment. If decommissioning of the existing bridge is required beyond its life span, environmental assessment requirements would be determined at that time.

Additional information on the scope of the project can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 3.0: Scope of Project and Scope of Assessment*.

### 5.2 Scope of the Assessment

The scope of assessment establishes the spatial and temporal boundaries of an environmental assessment and defines the factors and environmental components that are to be analyzed for potential effects as a result of a project.

The responsible authorities established the scope of the assessment for the Ambassador Bridge Enhancement Project as the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project, and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out.

With the discretion allowed for in paragraph 16(1) (e) of the *Canadian Environmental Assessment Act*, the responsible authorities also required consideration of the purpose, need for, and the benefits as well

as a description of alternatives to the project and an analysis of alternative means of carrying out the project.

The scope of factors considered in the assessment included potential effects (including cumulative effects) on the following environmental components:

- Air quality and climate;
- Surface water and groundwater, including water levels and flows in the Detroit River, in relation to any construction activities that may take place from the water;
- Surface and subsurface geology and soils
- Vegetation, vegetation communities and wetlands;
- Fish and fish habitat;
- Wildlife and wildlife habitat, including migratory birds;
- Species at risk, including those species listed under the *Species at Risk Act*
- Noise and vibration
- Contaminated Site and Waste Management
- The effects of any change that the Project may cause within the natural environment, including:
  - Human health and socio-economic factors
  - Physical and cultural heritage
  - Current use of lands and resources for traditional purposes by Aboriginal peoples
  - Things of historical, archaeological, paleontological or architectural significance
- Transboundary effects related to the environmental factors noted above.
- Potential malfunctions or accidents that may occur in connection with the Project, during each phase (e.g. construction/decommissioning and operations).
- Effects of the environment on the Project

The environmental effects of the Project on navigation are taken into consideration as part of the environmental assessment only when the effects are indirect, that is, resulting from a change in the environment affecting navigation. For this environmental assessment only direct effects on navigation were identified; therefore, the effects of the Project on navigation are not addressed in the environmental assessment. Any measures necessary to mitigate direct effects, if any, will be included as conditions of a *Navigable Waters Protection Act* approval prior to construction of the new replacement bridge span.

### *Temporal Boundaries of the Environmental Assessment*

Temporal boundaries used in this environmental assessment were established for environmental and cumulative effects in relation to the construction and operation phases of the Project.

Construction will require approximately twenty-four to thirty-six months to be completed. For the purpose of the environmental effects assessment, analyses included present day conditions, the construction period of the Project, and the Project operation in 2015. The environmental effects analysis

of the construction phase assumed all Project components (replacement bridge span construction, Canadian Border Services plaza expansion and greenspace construction) would be undertaken within the same twenty-four to thirty-six month timeframe to reflect what would be the most impactful scenario for construction impacts.

Operation of the new replacement bridge span and expansions to the Canadian Border Services plaza are considered to operate indefinitely commencing in 2015. For the purpose of the environmental and cumulative effects assessment, analyses included present day conditions, the construction period of the Project, and the future operation phase of the Project up to the year of 2025. The temporal boundary of 2025 is anticipated to reflect ten years of Project operation.

Although decommissioning is not anticipated for the Project, operations/maintenance was considered within the context of the planning horizon, which is ten years of post-construction operation of the Project, considered in this scenario to be to 2025.

### *Spatial Boundaries of the Environmental Assessment*

Spatial boundaries were defined for each environmental component and included the Site Study Area (Project footprint), Local Study Area (areas adjacent to the Project) and Regional Study Area (Windsor-Essex region). Spatial boundaries were defined taking into account ecological, technical and social considerations; they reflect the geographic range over which the Project's environmental effects may occur, even if they extend beyond the Project footprint.

The total Project footprint, including existing and expanded portions, is approximately 243,980 m<sup>2</sup> in size. The footprint of the proposed span is approximately 25,081 m<sup>2</sup> in size. The footprint of the expanded portion for the Canadian Border Services plaza only (excluding footprint of the existing plaza) is approximately 77,293 m<sup>2</sup> in size. The proposed green area along Indian Road is approximately 21,257 m<sup>2</sup> in size. The entire Project will create approximately 48,173 m<sup>2</sup> of impervious area and 21,257 m<sup>2</sup> of green area.



<b>Table 5.1: Potential Environmental Interactions with the Project</b>																			
<b>Project Components</b>	<b>Description</b>	<b>AIR QUALITY</b>	<b>SURFACE WATER</b>	<b>GROUNDWATER</b>	<b>WATER LEVELS AND FLOWS IN THE DETROIT RIVER</b>	<b>SURFACE AND SUBSURFACE GEOLOGY, SOILS</b>	<b>VEGETATION, VEGETATION COMMUNITIES AND WETLANDS</b>	<b>FISH AND FISH HABITAT</b>	<b>WILDLIFE AND WILDLIFE HABITAT INCLUDING MIGRATORY BIRDS</b>	<b>SPECIES AT RISK</b>	<b>NOISE AND VIBRATION</b>	<b>CONTAMINATED SITES</b>	<b>HUMAN HEALTH</b>	<b>PHYSICAL AND CULTURAL HERITAGE</b>	<b>CURRENT USE OF LANDS AND RESOURCES FOR TRADITIONAL PURPOSES BY ABORIGINAL PEOPLES</b>	<b>HISTORICAL, ARCHAEOLOGICAL, PALEONTOLOGICAL OR ARCHITECTURAL SIGNIFICANCE</b>	<b>TRANSBOUNDARY EFFECTS</b>	<b>ACCIDENTS AND MALFUNCTIONS</b>	<b>EFFECTS OF THE ENVIRONMENT ON THE PROJECT</b>
<b>Site Preparation:</b>																			
Vegetation Clearing, Grubbing and Preloading	Removal of vegetative ground cover, brush cutting, removal of selected trees, and placement of fill material in order to prepare the site for the construction of Project components.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Demolition of homes	Demolition of homes owned by the proponent within the Project footprint.	X				X					X	X	X	X		X	X	X	X
<b>Construction:</b>																			
Material and Worker delivery	Delivery of materials to site including the movement of supplies and people on site.	X	X			X					X	X	X		X		X	X	X
Stormwater management facility	A facility will be built to treat stormwater runoff for both the new replacement bridge span and additional property for the Canadian Border Services plaza improvements.		X		X			X		X	X	X	X		X		X	X	X
Excavation for the footings	Excavation down to the bedrock for each footing.	X		X		X	X		X	X	X	X	X	X	X	X	X	X	X
Construction of the drilled shafts	In the shafts, holes will be drilled into the rock and steel bars will be placed in the holes. A steel cage will then be constructed and filled with high strength concrete.	X		X		X	X		X	X	X	X	X		X	X	X	X	X
Installation of the piles	Piles will be installed in the area where the footing is to be supported, and will be 45 to 61 centimetres square and 30 metres long.	X		X		X			X	X	X	X	X		X	X	X	X	X
Main tower construction	Two main towers, one on either side of the River, will use approximately 3500 m <sup>3</sup> of concrete each.	X				X	X		X	X	X	X	X	X	X	X	X	X	X
Construction of the piers	14 concrete piers on the Canadian side will be spaced at approximately 43 metre intervals.	X				X	X		X	X	X	X	X	X	X	X	X	X	X
Cable-stays	Will be attached to the main towers and will support the bridge.	X							X	X					X		X	X	X
Construction of the superstructure	Construction will begin after the tower pier pylon is completed. The first structural elements to be constructed are the steel edge girders and the transverse floor beam that make up the Pier Table.	X							X	X	X		X		X		X	X	X
Pouring of the deck	Concrete will be added to the bridge's spans to create the deck.	X							X	X	X		X		X		X	X	X
Pouring of the barrier railings	Concrete will be poured to create the barrier railings.	X							X	X	X		X		X			X	X
Installation of the lighting	Installation of lighting in the bridge and Canadian Border Services plaza areas.								X	X	X		X		X			X	X
Painting	Road line painting.	X							X	X	X		X		X			X	X

<b>Table 5.1: Potential Environmental Interactions with the Project</b>																			
<b>Project Components</b>	<b>Description</b>	<b>AIR QUALITY</b>	<b>SURFACE WATER</b>	<b>GROUNDWATER</b>	<b>WATER LEVELS AND FLOWS IN THE DETROIT RIVER</b>	<b>SURFACE AND SUBSURFACE GEOLOGY, SOILS</b>	<b>VEGETATION, VEGETATION COMMUNITIES AND WETLANDS</b>	<b>FISH AND FISH HABITAT</b>	<b>WILDLIFE AND WILDLIFE HABITAT INCLUDING MIGRTORY BIRDS</b>	<b>SPECIES AT RISK</b>	<b>NOISE AND VIBRATION</b>	<b>CONTAMINATED SITES</b>	<b>HUMAN HEALTH</b>	<b>PHYSICAL AND CULTURAL HERITAGE</b>	<b>CURRENT USE OF LANDS AND RESOURCES FOR TRADITIONAL PURPOSES BY ABORIGINAL PEOPLES</b>	<b>HISTORICAL, ARCHAEOLOGICAL, OR PALEONTOLOGICAL OR ARCHITECTURAL SIGNIFICANCE</b>	<b>TRANSBOUNDARY EFFECTS</b>	<b>ACCIDENTS AND MALFUNCTIONS</b>	<b>EFFECTS OF THE ENVIRONMENT ON THE PROJECT</b>
Final Cleanup	Cleanup of construction activities.	X	X			X	X		X	X	X		X		X			X	X
Construction of green space east of Indian Road between Wyandotte Street and Mill Street	The row of single family residences located east of Indian Road between Wyandotte Street and Mill Street will be converted to green space to create a security buffer around the Canadian Border Services Plaza.	X				X	X		X	X	X	X	X	X	X	X	X	X	X
Canadian Border Services Plaza modification/ expansion	Expansion of the current port of entry to accommodate the border management requirements of the Canadian Border Service Agency.	X				X	X		X	X	X	X	X	X	X	X	X	X	X
<b>Operation:</b>																			
Operation of the bridge and the flow of traffic on the span.	Daily operation of the bridge and the associated traffic levels.	X	X						X	X	X		X				X	X	X
Winter de-icing operations	Will be conducted in the winter as required throughout the operational phase.	X	X					X	X									X	X
Operational stormwater management	Stormwater management facility will be operational throughout the operational phase of the Project.	X	X					X	X									X	X
Infrastructure maintenance and Repairs	Will be conducted as required throughout the operational phase.	X							X									X	X
Storm drainage system repairs	Will be conducted as required throughout the operational phase.	X	X						X									X	X
Security and perimeter control	Security and perimeter control is required throughout the operational phase because it is a border crossing.	X							X	X	X							X	X
Operation of Canadian Border Services plaza facilities	Daily operation of the Plaza facility, including traffic and regular maintenance.	X	X						X		X						X	X	X
Bridge and Canadian Border Services plaza lighting	Operation of bridge lighting.								X	X								X	X
<b>Decommissioning:</b>																			
Decommissioning of local roadways	As part of the Project planning the proponent will prepare a traffic diversion plan that may result in the decommissioning of local roads to allow for the construction of the Project, notably the Canadian Border Services plaza expansion.	X				X						X						X	X
<b>Abandonment:</b> No abandonment plans have been made at this time																			

## 6.0 Environmental Assessment

An environmental assessment of the Project was conducted to determine whether the Project would likely result in any significant adverse environmental effects. This included establishing existing environmental and site conditions, identifying potential environmental interactions and adverse environmental effects as a result of the Project, developing feasible environmental mitigation measures, and determining the significance of the residual adverse environmental effects. A significant adverse environmental effect is considered a residual adverse effect for which further or effective mitigation is considered not possible. The significance of environmental effects is determined based on magnitude, duration and frequency, ecological context, geographic extent, and degree of reversibility of the effect on the environment.

Detailed information on the characteristics of residual effects for each environmental component can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 5.18: Summary of Residual Effects*.

**Table 6.2: Mitigation Measures** identifies environmental mitigation measures for each environmental component that will be implemented by the Canadian Transit Company during the construction and operation of the Project. Several mitigation measures require the development of environmental management plans during the detailed design stages of the Project and prior to construction. The responsible authorities will monitor environmental mitigation measures to ensure their effective implementation as described in Section 8.0: Monitoring and Follow-up Program.

### 6.1 Air Quality and Climate

Southern Ontario's climate is greatly influenced by the surrounding Great Lakes. The surrounding lakes cause increased precipitation throughout the year and moderate temperatures resulting in warmer temperatures in the winter, and cooler temperatures in the summer.

Existing baseline air quality conditions were determined by using air quality monitoring data collected from provincial and federal regulatory jurisdictions over a minimum five year period. Thirty-one pollutants of interest were analyzed using the 90th percentile concentrations to represent the background ambient air concentrations. Table 6.1: Pollutants of Interest contains a list of all 31 pollutants that were analysed as part of the baseline air quality for the Project.

<b>Table 6.1: Pollutants of Interest</b>	
Group	Pollutants of Interest
Pollutants and Precursors	Carbon monoxide (CO) Nitrogen oxides (NOX) (include nitric oxide (NO) and nitrogen dioxide (NO2) expressed and NO2) Sulphur dioxide (SO2) Particulate matter ≤ 10 microns (10-6 meters) in diameter (PM10) Particulate matter ≤ 2.5 microns (10-6 meters) in diameter (PM2.5) volatile organic compounds expressed as non-methane hydrocarbons (NMHC)
Air Toxics	Benzene (C6H6) Acetaldehyde (CH3CHO) Formaldehyde (H2CO) 1,3-butadiene (C2H4) acrolein (C3H4O) benzo(a) pyrene plus other polycyclic aromatic hydrocarbons (PAHs) listed below
Other PAH Compounds	Acenaphthylene, acenaphthene, anthracene, benzo(a)anthracene, benzo (b) fluoranthene, benzo (g,h,i) pyrene, benzo (k) fluorine, chrysene, dibenzo (ah) anthracene, fluoranthene, fluorine, ideno (1,2,3-cd) pyrene, naphthalene, phenanthrene, pyrene
Greenhouse Gases	Carbon dioxide (CO2) Nitrous oxide (N2O) Methane (CH4)
Other	ground level ozone (O3)

The baseline analysis reveals that the greatest existing air quality impacts occur around key intersection locations along Huron Church Road (within <150 m) and decrease significantly with distance beyond that. Air quality monitoring results indicate that concentrations above the air quality criteria may occur at these locations for certain pollutants of interest (NOX, PM10 and PM2.5). The background concentrations for PM10 and PM2.5 represent 84% and 67% of the ambient air quality criterion. The remaining pollutants of interest are shown to be within provincial and federal air quality criteria.

Air quality effects during construction and operation of the Project were evaluated through the use of air dispersion modelling tools based on the Air Dispersion Modeling Guide for Ontario. Consistent with this guide, the United States Environmental Protection Agency CAL3QHCR model was used to evaluate vehicle emissions and road dust while the USEPA AERMOD model was used to evaluate construction activities. Emission vehicle factors used within the air dispersion model were developed with MOBILE6.2C (a model developed by the United States Environmental Protection Agency and enhanced

by Environment Canada) in combination with roadway fleet data and traffic data from the City of Windsor, the Canadian Transit Company and the Detroit River International Crossing (DRIC) Project.

Based on modelled results, environmental effects anticipated during the construction phase of the Project include the potential for an increase in PM10 above the air quality criteria during construction, mainly as a result of construction equipment emissions. Elevated amounts of dust in the site study area are also anticipated during construction. Idling and acceleration of vehicles related to traffic control lights and the potential for temporary detours may also be a contributor to elevated air quality impacts during construction. During operations, the air quality modelling results indicate that air quality pollutants are anticipated to be within air quality criteria with the exception of PM10. Both the operation phase modelled for the year 2015 and the future operating scenarios of 2025 indicate that PM10 will remain above the air quality criteria in large part as a result of the baseline conditions accounting for 84% of the ambient air quality criterion.

Mitigation measures during the construction and operation phase of the Project will include implementation of an air quality follow-up program. The air quality follow-up program will include:

- Best management practices for dust suppression and air emissions reduction from construction equipment during construction including regular watering of stockpiles and water flushing entrances to construction zones.
- Review of the construction inventory prior to start of construction. Should a greater or lesser inventory of equipment (including barges) be required, the work hours may need to be adjusted accordingly. The contractor's most polluting heavy equipment (including barges) will be identified and use limited during smog advisories.
- Real-time air quality monitoring utilizing Thermo Scientific SHARP model 5030 real-time monitors during and three years' post-construction.
- A traffic management plan will be implemented that includes construction haul routes, timing and equipment restrictions, alternative staging, delivery and other construction best management practices.
- Adaptive management strategies such as a block queuing system, and/or an anti-idling policy to ensure optimal traffic flow through the Canadian Border Services plaza during operations.

Taking into account the application of all appropriate mitigation measures, including the air quality follow-up program, the responsible authorities have determined the Project is not likely to result in significant adverse environmental effects on air quality and climate.

Additional information on air quality and climate can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 5.1: Air Quality and Climate and Appendix D: Air Quality Assessment*.

## 6.2 Surface Water and Groundwater Quality & Quantity

### *Surface Water Quality and Quantity*

The Detroit River is an international waterbody used for industrial, commercial, and recreational purposes and is the only waterbody within the site study area. Drainage from the existing four-lane Ambassador Bridge and from the Canadian Border Service Plaza is directed to the City of Windsor municipal stormwater collection system. Stormwater from the system is treated and discharged into the Detroit River.

The Project will result in a permanent increase in stormwater runoff and flow within the local study area as a result of the permanent increase in impervious surface area for the additional span and expansion of the Canadian Border Services Plaza. During construction, an increase in the rate of stormwater runoff is also anticipated as a result of the disturbance of soils and removal of vegetation.

Mitigation measures during the construction and operation phase of the Project will include implementation of an Erosion and Sediment Control Plan, a stormwater management system, and best management practices for spills prevention and response.

Taking into account the application of all appropriate mitigation measures, the responsible authorities have determined the Project is not likely to result in significant adverse environmental effects on surface water quality and quantity.

Additional information on surface water quality and quantity can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 5.2: Surface Water*.

### *Groundwater Quality and Quantity*

Four aquifer systems are found in the regional study area of which three of these aquifer systems are present at the site of the Project. Recharge to all aquifers is mainly by infiltration of precipitation through the regional land surface. The water table in the area of the Project is estimated to be within 4 to 6 m of the ground surface. Artesian groundwater conditions have been confirmed within the site study area.

During construction of tower and pier footings it is anticipated that artesian groundwater conditions may be encountered. In areas with artesian groundwater pressures, dewatering will be minimized by using controlled density drilling fluids for the installation of deep foundations. During operations of the Project groundwater aquifers will be allowed to return to pre-construction conditions except for localized changes in flow direction around the new foundation structures.

Taking into account the application of all appropriate mitigation measures, the responsible authorities have determined the Project is not likely to result in significant adverse environmental effects on groundwater quality and quantity.

Additional information on groundwater quality and quantity can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 5.3: Groundwater*.

### 6.3 Water levels and Flows in the Detroit River

The Detroit River flows approximately 51 km from Lake St. Clair to Lake Erie with an average flow of 5182 m<sup>3</sup>/s. The ordinary high water mark elevation at the Ambassador Bridge is 175.4 m above sea level. The watershed associated with the river drains more than 2,000 km<sup>2</sup>. The width of the Detroit River at the Ambassador Bridge is approximately 670 m and the depth is approximately 18 m.

No potential environmental effects have been identified which would result in a change to water levels or flows within the Detroit River. There will be no piers, cofferdams, pile driving, dredging, blasting, or any discharges of fill material into the Detroit River from the proposed Project. As a result, no changes in characteristics of the Detroit River as it relates to drainage patterns or natural ecological features of the river are anticipated. Stormwater drainage from the new replacement bridge span and the Canadian Border Service Plaza will be directed to the City of Windsor stormwater system or a stormwater facility constructed on site. Construction and operation of the six-lane new replacement bridge span will be designed to provide navigational clearances in accordance with U.S. and Canadian requirements.

The responsible authorities have determined the Project is not likely to result in significant adverse environmental effects to water levels and flows in the Detroit River.

Additional information on water levels and flows in the Detroit River can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 7.2: Surface Water*.

### 6.4 Surface and Subsurface Geology and Soils

Existing soil composition is primarily disturbed native soil amended with topsoil and historic fill materials characteristic of urban areas. Geology of the regional study area consists of 30- 40 m thick unconsolidated deposits of predominantly glacial tills and lacustrine clays overlying marine sedimentary bedrock. No mineral mining sites are known within 2 km of the site study area.

Site preparation, grading, and stockpiling will result in disturbance of the site study area geology and soils throughout the construction period. Mitigation measures will include, but not be limited to, the implementation of the Erosion and Sediment Control Plan. The plan will include best management practices such as re-vegetation of exposed soils.

Localized fracturing of the bedrock may occur during foundation construction. Grouting will be used if necessary in order to stabilize the soil and bedrock and control groundwater flows.

Taking into account the application of all appropriate mitigation measures, the responsible authorities have determined the Project is not likely to result in significant adverse environmental effects on surface and subsurface geology and soils.

Additional information on surface and subsurface geology and soils can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 5.4: Surface and Subsurface Geology and Soils*.

## 6.5 Vegetation, Vegetation Communities including Wetlands

There are a few areas of natural and semi-natural vegetation in the site study area due to the urban location of the Project. McKee Park is located alongside the Detroit River approximately 210 m west of the proposed new replacement bridge span and is the only semi-natural in the general vicinity of the Project. Most of the local study area is landscaped with ornamental plantings. Trees within the site study area represent a combination of native and non-native species. Only three native tree species were identified as Carolinian trees including tulip tree (*Liriodendron tulipifera*), red oak (*Quercus rubra*) and white oak (*Quercus alba*). No wetlands are located within the local study area; the closest wetland area is Turkey Creek wetland which is located over 7.5 km from the Project.

The Project will result in the clearing and removal of vegetation within the Project footprint including in the area of the permanent support tower and piers, the Canadian Border Services plaza expansion and in other construction and staging areas. Mitigation measures will include implementation of a Tree Preservation Plan to retain, wherever possible, mature trees adjacent to Indian Road. Protected areas will be delineated prior to construction and no activities will be permitted in these areas. Any required vegetation removal will occur outside the growing season (spring/summer), where possible, to avoid the loss of wildlife and wildlife habitat. Green space areas, located on the east side of Indian Road between Wyandotte Street and Mill Street will be re-planted using only native species.

Taking into account the application of all appropriate mitigation measures, the responsible authorities have determined the Project is not likely to result in significant adverse environmental effects on vegetation, vegetation communities and wetlands.

Additional information on vegetation, vegetation communities including wetlands can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 5.5: Vegetation and Vegetation Communities*.

## 6.6 Fish & Fish Habitat

As part of the Great Lakes system, The Detroit River is a major fish corridor providing an ecosystem for a diversity of fish and other aquatic species. The Detroit River is the only watercourse within the study area.

The Project is a cable-stayed new replacement bridge span and will not result in any permanent structures in the Detroit River, along its banks, or below the high water mark. There will be no piers, shoreline alterations, cofferdams, pile driving, dredging, blasting, or any discharges of fill material into the Detroit River. However, during construction, project material will be delivered to the site via barges



on the Detroit River. Barge spuds (anchoring) may result in temporary and limited increases to localized turbidity in the Detroit River.

Mitigation measures for surface water quality and quantity will be implemented to ensure that unanticipated effects on fish and fish habitat in the Detroit River do not result from land based construction activities. These mitigation measures will include implementation of an Erosion and Sediment Control Plan as well a standard 30 m setback for all construction, maintenance and fuelling and storage activities. An emergency spills response and prevention plan will be implemented during construction and operation to ensure that any accidental spills are properly contained and managed.

Taking into account the application of all appropriate mitigation measures, the responsible authorities have determined the Project is not likely to result in significant adverse environmental effects on fish and fish habitat.

Additional information on fish and fish habitat can be found can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 5.6: Fish and Fish Habitat*.

## 6.7 Wildlife & Wildlife Habitat including Migratory Birds

### *Wildlife and Wildlife Habitat*

The wildlife habitats within, and surrounding the Project footprint are adjacent to highly developed urban areas including the existing Ambassador Bridge, Canadian Border Services plaza, the University of Windsor, commercial and residential areas. Limited wildlife habitat within the local study area includes McKee Park, other open spaces and vegetated banks along the Detroit River. Twenty-eight mammal species have been recorded in the region including species commonly found in similar urban areas such as mice, squirrels, skunks, opossum, raccoons, common birds, and other species tolerant of humans.

Construction activities such as vegetation clearing and grubbing, the creation of staging areas and elevated noise and vibration levels are likely to result in the permanent removal of local urban wildlife habitat and the displacement of wildlife within the project footprint. Vegetation removal will be avoided between May 1 and July 31 to the extent possible to mitigate potential effects and minimize harm to all wildlife including migratory birds that may be nesting in the project area. If clearing or other activities that may have an impact on migratory birds are required between May 1 and July 31, a nest survey will be conducted by a qualified avian biologist.

Taking into account the application of all appropriate mitigation measures, the responsible authorities have determined the Project is not likely to result in significant adverse environmental effects on wildlife and wildlife habitat.

Additional information on wildlife and wildlife habitat can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 5.7: Wildlife and Wildlife Habitat*.

### *Migratory Birds*

More than 29 species of waterfowl, 17 species of raptors including the peregrine falcon and bald eagle, 31 species of shorebirds and 160 species of songbirds are found along or migrate through the Detroit River corridor. The area is a major corridor located in the middle of the Mississippi and Atlantic flyways. Approximately three million ducks, geese, swans, and coots migrate annually through this region. The Ontario Ministry of Natural Resources and the Michigan Department of Natural Resources recognize the Detroit River as having one of the highest diversities of avian species, in the Great Lakes area. Over 300 bird species have been documented through numerous annual bird surveys of which 150 to 160 are found to breed, nest or migrate throughout the Detroit River corridor. The importance of this area for migratory birds is recognized in the Canada-United States North American Waterfowl Management Plan that identified the Detroit River as part of one of the 34 waterfowl habitat areas of major concern in the United States and Canada.

It is anticipated that the construction and operation of the new replacement bridge span may result in some migratory bird collisions. The new replacement Bridge span lighting will be designed to minimize collisions with migratory bird populations using the Detroit River as a flyway. This includes incorporating low intensity white strobe lights at the tops of the towers, and avoidance of red or yellow steady lights on the new replacement bridge span (which can disorient avian species). If coloured lighting is utilized to illuminate the cables, the proponent will use lower intensity, lower wavelength lighting of blue, turquoise or green, pending final design criteria. The new replacement bridge span lighting will be focused in the downward direction to minimize the potential for night-time bird collisions with the bridge span.

Taking into account the application of all appropriate mitigation measures, the responsible authorities have determined the Project is not likely to result in significant adverse environmental effects on migratory birds.

Additional information on migratory birds can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 5.7: Wildlife and Wildlife Habitat*.

## 6.8 Species at Risk

A pair of peregrine falcons (*Falco peregrinus*) has been nesting on the existing Ambassador Bridge since 2008. The Peregrine Falcon is listed as threatened under Schedule 1 of the *Species at Risk Act* (2002). The peregrine falcon is also protected under the Ontario *Endangered Species Act* (2007) and is a Specially Protected Raptor under the Ontario *Fish and Wildlife Conservation Act* (1997) which prohibits

hunting and trapping of the bird, and protects its nests and eggs. No other species at risk as defined under the *Species at Risk Act* (2002) have been confirmed within or adjacent to the local study area.

Elevated noise and vibration levels during the construction phase of the Project as well as the close proximity of a number of people to the nest could displace and disrupt the peregrine falcons. The new replacement bridge span will be constructed approximately 6 m from the existing Ambassador Bridge, with the nest located approximately 152 m from the proposed tower pier location. Maintenance activities during the operation of the Project have the potential to disturb peregrine falcons if in close proximity to the nest, during nesting season.

A detailed Peregrine Falcon Management Plan will be implemented that includes environmental management practices, monitoring, and adaptive management strategies. The plan will ensure that the peregrine falcons, including their annual brood, using the existing bridge are not adversely affected, disturbed, discouraged from continued use of the nesting site and are not injured/killed. Two management zones around the nest site reflecting relative levels of peregrine activity have been identified. These spatial boundary management zones are defined as the restricted zone, and the sensitive zone.

The restricted zone includes the nest site and extends 200 m from the nest. The objective of the restricted zone is to minimize activities and limit excessive noise disturbances (10 dBA greater than ambient). No construction staging activities will occur within the Restricted Zone. If avoidance is not possible, minimize the duration of time spent on work activities that must be conducted during the nesting season by evaluating cost effective work shift alternatives. Activities that cause excessive noise disturbances (10 dBA greater than ambient), such as pile driving, will be limited in the restricted zone during the nesting season (approximately March 15 to July 31).

The sensitive zone is the area adjacent to the Restricted Zone and extends approximately 400 m away from the nest. Human activities in this zone have less potential to cause noise disturbance because of the distance to the nest site. Activities will be minimized within the sensitive zone during the nesting season. For example, staging areas will be located outside of the sensitive zone wherever possible. Work associated with the Canadian Border Services plaza and roadway improvements are outside of the sensitive zone. The number of separate activities within a short time period (i.e. one week) within the sensitive or restricted zone will be minimized during the nesting season. A qualified professional hired by the proponent, in consultation with Ontario Ministry of Natural Resources and Environment Canada, will monitor the peregrine falcon behaviour during construction activities within or adjacent to the defined restricted and sensitive zones during the nesting season. If nest relocation is necessary, the chicks would need to be captured prior to the nest relocation. This would be proposed only as a last possible resort and only after any and all required permits were obtained. A nesting box/ledge will be located on the south-eastern side of the existing bridge in close proximity to the current nesting site to encourage a relocation of the peregrine falcons.

Measures will be taken to avoid or lessen any effects on the Peregrine Falcon and to monitor effects in a manner consistent with any applicable recovery strategy and action plans as required under Section 79(2) of the *Species at Risk Act*.

Taking into account the application of all appropriate mitigation measures including the development of a detailed Peregrine Falcon Management Plan, the responsible authorities have determined the Project is not likely to result in significant adverse environmental effects on species at risk.

Additional information on species at risk can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 5.8: Species at Risk*.

## 6.9 Noise & Vibration

### *Noise*

An assessment of noise was undertaken using the most recent applicable criteria for capital construction or alterations to provincial roads or highways in Ontario. These were developed by the Ontario Ministry of Transportation and are contained in the Environmental Reference for Design: Noise Technical Requirements for Environmental Impact Study and Environmental Protection / Mitigation (2006). Concerns have been expressed by local school boards with regards to noise levels on school property, and by local residents with regards to noise outside upper story bedroom windows and at heritage sites. These locations have also been treated as noise sensitive receptors as well as the ground level spaces specified in the Ontario Ministry of Transportation guideline documents.

Existing and future noise levels were modelled at 34 representative receptor locations adjacent to the Project footprint in areas such as heritage sites, daycare facilities, schools, residential areas and a nursing home. Each of these receptor locations was considered representative of one or more receptors within the study area including more than 100 residential, institutional and heritage buildings. Noise levels were modeled under three different operating scenarios including: existing operations (baseline), future operations without the project (no-build), and future operations with all traffic using the new replacement bridge span (the Project).

Existing (baseline) noise levels are presently above the Ontario Ministry of the Environment Provincial Objective of 55 dBA at most locations. Average daily noise levels range from 53 -71 decibel A-weighting (dBA). Noise levels at the representative receptors near the Canadian Border Services plaza and plaza expansion lands were generally dominated by truck traffic on Huron Church Road and other local roadways. Traffic using the bridge, particularly truck acceleration and braking contribute to noise levels adjacent to the existing Ambassador Bridge.

Future operations (project no-build) noise levels are predicted to increase slightly (between 0 – 4 dBA at sensitive receptors) by the model year 2025. In comparison, the modelling for future operations with the Project (build) indicates noise level increases at 25 sensitive receptors ranging between 0 – 6 dBA. The implementation of roadside noise barriers as mitigation to reduce noise levels was also modelled as part

the analysis. This modelling indicated that, for all receptors, with the implementation of roadside noise barriers, no noise increases will exceed 3 dBA over the existing conditions. Noise differences of 3 dBA or less are generally considered to be not perceptible by the human ear.

Roadside noise barriers 3 m in height will be installed along the west edge of the new replacement bridge span extending northwards from the existing noise barrier to a distance of approximately 120 m north of Peter Street. The barrier will taper to 1.5 m at this point but will maintain a height of 3 m above the top of the road surface at the new replacement bridge span approach. A noise barrier of 5.5 m in height will also be installed along the western extent of the Canadian Border Services Agency plaza. Where possible, the noise barriers will be installed prior to construction to mitigate construction noise.

During construction, particularly during excavation, pile driving, and concrete pouring activities, noise levels are anticipated to increase. At any particular receptor the highest noise and vibration levels will likely occur when the nearest piers are being built. Pile driving activities are not expected to exceed a three month period at any given location.

Mitigation measures will include the development of a strategy for noise management as part of a Community Consultation Plan. This plan will be developed prior to construction and will include measures to ensure that a proponent representative will be accessible at all times, coordination with schools within 300 m to create a mutually agreeable construction approach, and signage and haul/delivery route design to avoid residential neighbourhoods. In addition, best management practices will be implemented during construction to ensure that sound emissions from all construction equipment comply with Noise Pollution Control Publication 115 of the Ontario Model Municipal Noise Control By-Law. The most noise intensive construction activities will be limited to daytime hours to the greatest extent possible.

Taking into account the application of all appropriate mitigation measures, the responsible authorities have determined the Project is not likely to result in significant adverse environmental noise effects.

Additional information on noise can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 5.9: Noise and Vibration*.

### *Vibration*

Trucks traveling over the Ambassador Bridge can cause vibration in the bridge structure, particularly while passing over imperfections in the road surface. The measurements indicate that groundbourne vibration levels can be perceptible at distances up to approximately 40 m from the bridge. The measurements indicate that the current vibration levels are below the range at which cosmetic damage would be anticipated in neighbouring structures, although vibration may be perceptible in the neighbouring dwellings depending on the degree of amplification in the structure.

A dynamic vibration study of the new replacement bridge span support structure will be undertaken during the design stage of the Project to ensure that the piers and associated support structure will not radiate unacceptable levels of groundbourne vibration into the surrounding environment. To minimize the possibility of increased vibration levels, the road upgrading will ensure a smooth road surface with few imperfections. Expansion joints will be placed as far apart as feasible and will be constructed flush with the surface of the new replacement bridge span deck, minimizing the low frequency noise associated with traveling over the expansion joints during the operations phase.

Sound and vibration levels will be monitored during pile driving within 100 m of the thirty-four identified sensitive receptors. If exceedances are found, reduced pile driving force and the construction of temporary noise barriers will be implemented.

Taking into account the application of all appropriate mitigation measures, the responsible authorities have determined the Project is not likely to result in significant adverse environmental vibration effects.

Additional information on vibration can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 5.9: Noise and Vibration*.

## 6.10 Contaminated Sites and Waste Management

No areas of contaminated material have been found within the Project area nor are there any anticipated interactions between the Project and a contaminated site. Excess materials will be generated during construction activities.

Mitigation measures will include best management practices for waste management such as: designated disposal areas for excess materials and non-contaminated materials will be reduced, reused or recycled to the greatest extent possible. Waste management procedures will be implemented during maintenance and operation of the Project to ensure proper management and disposal of waste in accordance with all regulatory requirements.

In the event contaminated materials (including soils or groundwater) are discovered, applicable procedures for dealing with these contaminated materials such as the Ontario Ministry of Environment's Permit for Stockpiling of Contaminated Waste will be adhered to. Immediate containment measures will also be implemented to ensure that contaminants do not reach receiving water bodies either directly or indirectly.

Taking into account the application of all appropriate mitigation measures, the responsible authorities have determined the Project is not likely to result in significant adverse environmental effects from contaminated sites or waste management.

Additional information on Contaminated Sites can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 5.14: Contaminated Sites and Waste Management*.

## 6.11 Indirect Environmental Effects as a result of the Project

The environmental assessment of the Project included analysis of the effect of any change that the Project may cause in the environment on human health, and socio-economic factors, physical and cultural heritage, current use of lands and resources for traditional purposes by Aboriginal Peoples, and things of historical, archaeological, paleontological or architectural significance. These types of effects are referred to as indirect environmental effects.

### *Human Health and Socio-economic Factors*

The existing Ambassador Bridge, as a tourist and trade gateway, is situated in an area that is a mix of residential, commercial, institutional and transportation land-uses. Residential areas within the community of Sandwich, McKee Park and Institutional properties associated with the University of Windsor and Assumption University are situated immediately adjacent to the Project footprint. Local area roads including Riverside Drive West and University Ave West cross the project footprint and provide local connectivity for adjacent communities.

The Project will require changes to local traffic patterns including the redirection of non-international (local) traffic around the expanded plaza site. The Project also includes the closure of the portion of Huron Church Road within the Canadian Border Services Plaza as a component of the Canadian Border Services Plaza expansion. The proponent may be required to obtain the necessary approvals from the City of Windsor and/or federal government in order to undertake changes to the local road network as well as the demolition of houses on residential properties.

Residual effects related to air quality and noise were considered to have the greatest potential to result in indirect effects on human health and socio-economic factors. In particular, during the public consultation process, concerns were raised related to potential effects on human health related to air emissions from traffic queuing and idling vehicles on the existing Ambassador Bridge. Mitigation for air quality will include the implementation of an air quality follow-up program that will monitor air quality during construction and the first three years of operations and evaluate block queuing and anti-idling policies as mitigation options. Mitigation measures for noise will include the development of a community consultation plan and a detailed traffic management plan that avoids using roads located within residential and heritage areas and includes detailed construction routes, site entrances and any traffic detours.

### *Physical and cultural heritage*

Several designated historic structures, particularly in the community of Sandwich, provide unique visual elements largely associated with their age, architectural style and historic significance to the development of the community. A total of twenty-seven heritage sites are located within the regional and local study area of the Project. These include Assumption University, Our Lady of Assumption Church, Assumption Park, and the Masson-Deck House.

No listed physical or cultural heritage sites have been identified within the Project footprint and heritage sites will not be demolished or moved during construction of the Project. Mitigation measures, including hoarding to reduce the visual intrusion on the surrounding area and the development of haul routes that avoid residential and heritage areas, will be implemented during construction of the Project.

### *Current use of lands and resources for traditional purposes by Aboriginal Peoples*

The site study area is highly urbanized and largely private property, and as a result it has been determined that there is no potential for current use of lands and resources for traditional purposes by Aboriginal peoples in relation to the Project. The proponent has proposed to construct the new replacement bridge span without the placement of any piers within the bed of the Detroit River, an area of concern identified by Walpole Island First Nation during the early stages of the proponent's public consultation.

### *Things of Historical, Archaeological, paleontological or Architectural Significance*

A Stage one and two archaeological Assessment was completed by the Museum of Ontario - Archaeology for the Project area which included a review of the provincial database and the City of Windsor Archaeological Master Plan and indicated no registered archaeological sites exists within the local study area.

A subsequent Stage three archaeological assessment identified site AbHs-34, as a heritage resource located within the proposed footprint of the tower pier. Additional investigation will be required at this site as it is unlikely that archaeological site AbHs-34 can be avoided. If this is the case, Stage four mitigation at this site will be employed prior to construction through consultation with the Ontario Ministry of Tourism, Culture, and Sport, Aboriginal communities, and other heritage stakeholders. Stage four mitigation will be developed during final design and will likely include documenting and removing the archaeological site through excavation.

Mitigation measures include construction monitoring by a licensed archaeologist. In the event that deeply buried archaeological deposits are found during construction activities, the Programs and Services Branch of the Cultural Programs Unit of the Ontario Ministry of Tourism, Culture, and Sport will be notified immediately.

Taking into account the application of appropriate mitigation measures for indirect environmental effects, including an air quality follow-up program and a community consultation plan, the responsible authorities have determined the Project is not likely to result in significant indirect adverse environmental effects on human health and socio-economic factors, physical and cultural heritage, the current use of lands and resources by aboriginal persons, or things of historical, archaeological, paleontological or architectural significance.



Additional information on indirect environmental effects can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012)* 5.10: *Socio-economic*, 5.11: *Structures and Sites of Significance Section*, 5.12: *Archaeology Section*, 5.13: *Human Health*, 5.16: *Current use of lands and resources for traditional purposes by Aboriginal Peoples*.

## 6.12 Transboundary Effects

The *Canadian Environmental Assessment Act* requires consideration of any change that the Project may cause in the environment, ‘whether any such change occurs within or outside Canada’. Given that the Project is international in nature, and in close proximity to the international boundary with the United States, the potential for transboundary effects in relation to air quality and water quality were considered in the analysis of potential environmental effects. It was subsequently determined that taking into account the appropriate mitigation measures that residual effects are likely to be limited in extent and would not result in any impacts on transboundary areas. An environmental assessment is also required by the United States Coast Guard and will address potential effects occurring in the United States.

Taking into account the application of all appropriate mitigation measures, the responsible authorities have determined the Project is not likely to result in significant adverse transboundary environmental effects.

Additional information on transboundary environmental effects can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012)* Section 5.17: *Transboundary Impacts*.

## 6.13 Accidents and Malfunctions

Accidents and malfunctions may result in adverse environmental effects. Potential oil and other lubricant spills and releases could occur during the operation and refueling of heavy equipment during construction or during operations as a result of vehicle collisions. Any accidental release of deleterious substances into Detroit River following a spill may degrade water quality and fish habitat, and result in direct or indirect mortality of fish. Mitigation measures to avoid or minimize effects from spills include implementation of a spill prevention protocol including a spill response plan the development of a stormwater management system and restrictions on refueling and maintenance activities within a 30 m proximity to the Detroit River.

Taking into account the application of all appropriate mitigation measures, the responsible authorities have determined the Project is not likely to result in significant adverse environmental effects from accidents and malfunctions.

Additional information on transboundary environmental effects can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012)* Section 3.4: *Operations*

## 6.14 Effects of the Environment on the Project

The Project will be engineered and constructed in accordance with applicable legislative standards that reflect such conditions as wind, snow, seismic, thermal and all other forces. Although unlikely, and depending on the timing of certain construction activities, ice jams in the Detroit River could prohibit the use of barges during construction at certain times of the year. Severe and extreme weather events may result in delays in the construction of the Project, or reduce traffic operations for a limited period, however no other effects on the Project as a result of the environment are anticipated.

There is a history of salt mining in the regional study area that has contributed to some surface settlement; however the City of Windsor Official Plan indicates that there are no mineral mining sites within 2 km of the site study area and the site specific geotechnical investigation concluded that no historic salt mining activity occurred within the site study area.

Taking into account the application of all appropriate mitigation measures, the responsible authorities have determined effects of the environment are not likely to result in significant adverse effects on the Project.

Additional information on effects of the environment on the Project can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 7.3.1.2: Physical Setting and 7.3.1.11 Likely Effects on Soil and Bedrock Quality*.

**TABLE 6.2 MITIGATION MEASURES**

Component	Description of Mitigation
Air Quality and Climate	<ul style="list-style-type: none"> <li>• An Air Quality Follow-up Program is required for review and approval by the responsible authorities in consultation with expert federal authorities prior to construction.                             <ul style="list-style-type: none"> <li>• The Program will include mitigation such as best management practices for dust suppression and air emissions during construction, traffic/staging strategies, as well as alternative mitigation in the event of unanticipated air quality exceedances. Alternative mitigation will include timing and equipment restrictions, alternative staging and delivery and other construction best management practices.</li> <li>• The Program will identify additional mitigation, such as a block queuing system, and/or an anti-idling policy to ensure optimal traffic flow through the Canadian Border Services plaza during operations.</li> <li>• Air quality monitoring during and three years' post-construction will use Thermo Scientific SHARP model 5030 real-time monitors. One will be configured for PM2.5 and the other for PM10. The SHARP 5030 monitors will combine light scattering photometry and beta radiation attenuation for continuous measurement of either PM2.5 or PM10. Digital filtering will be used to continuously mass calibrate the nephelometric measurements.</li> </ul> </li> <li>• Best management practices for dust suppression during construction will be implemented based on the Ontario Ministry of the Environment Technical Bulletin "<a href="#">Review of Approaches to Manage Industrial Fugitive Dust Sources</a>" (2004). These will include, but not be limited to:                             <ul style="list-style-type: none"> <li>• Periodic watering of unpaved (non-vegetated) areas and stockpiles;</li> <li>• Limiting speed of vehicular travel and covering loaded haul trucks with tarpaulins;</li> <li>• Use of water sprays during the loading and unloading of materials;</li> <li>• Use of calcium chloride and road sweeping; and</li> <li>• Sweeping and/or water flushing of the entrances to the construction zones and daily removal of excess soils from roads.</li> </ul> </li> <li>• Best management practices for air emissions during construction will be implemented based on "Best Practices for the</li> </ul>

**TABLE 6.2 MITIGATION MEASURES**

Component	Description of Mitigation
	<p>Reduction of Air Emissions from Construction and Demolition Activities" developed by Environment Canada (2005). These include vehicle maintenance, asphalt concrete paving, and traffic marking operations guidelines and recommendations. Best management practices will also include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Review of the construction inventory prior to start of construction. Should a greater or lesser inventory of equipment (including barges) be used, the work hours may need to be adjusted accordingly;</li> <li>• The contractor's most polluting heavy equipment (including barges) will be identified and use limited during smog advisories; and</li> <li>• Idling of heavy equipment will be monitored and limited in keeping with the City of Windsor idling by-law which limits idling for more than five minutes in a sixty minute period unless exceptions apply.</li> <li>• Road sweeping practices in accordance with maintenance standards will be employed to reduce silt loading on the area road network during the operations phase of the Project.</li> </ul>
<p>Surface Water and Groundwater Quality and Quantity</p>	<ul style="list-style-type: none"> <li>• The implementation of an Erosion and Sediment Control Plan will be reviewed and approved by the responsible authorities in consultation with expert federal authorities six weeks prior to construction to address onsite drainage, construction staging and seasonal timing. The Plan will include, but not be limited to:                             <ul style="list-style-type: none"> <li>• A maintenance and repair schedule and best management practice control measures used during construction for minimizing erosion and sedimentation such as:                                     <ul style="list-style-type: none"> <li>• Silt fencing, straw bales and inlet protection and other methods used to block sediment as required;</li> <li>• Exposed soils will be stabilized through re-vegetation or other comparable methods, within 60 days of work completion;</li> <li>• Unprotected surfaces will be stabilized through seeding and mulching and by use of dust suppression techniques such as watering; and</li> <li>• The Erosion and Sediment Control Plan will also include best management practices for water discharge during any groundwater pumping activities. Groundwater will be tested and treated to reduce pollutants to acceptable levels when required.</li> </ul> </li> </ul> </li> </ul>

**TABLE 6.2 MITIGATION MEASURES**

Component	Description of Mitigation
	<ul style="list-style-type: none"> <li>• A stormwater management facility will be designed and constructed to treat the new replacement bridge span and expanded Canadian Border Services plaza stormwater run-off during operations.                             <ul style="list-style-type: none"> <li>• The stormwater management system will be sized to treat the new pavement and increased traffic volume and include measures to reduce the impact of de-icing materials on the aquatic ecosystem. Existing stormwater treatment will be integrated into the new facility design;</li> <li>• Stormwater will be treated at an "Enhanced" protection (Enhanced protection corresponds to the end-of-pipe storage volumes required for the long-term average removal of 80% of suspended solids) as described in the Ontario Ministry of the Environment's "Stormwater Management Planning and Design Manual"(2003); and</li> <li>• Prior to discharge, stormwater will be treated to reduce pollutant levels consistent with both the Ontario Ministry of the Environment "Water Management, Policies, Guidelines: Provincial Water Quality Objectives" (1994) and applicable Canadian Environmental Quality Guidelines published by the Canadian Council of Ministers of the Environment.</li> </ul> </li> <li>• Best management practices will be implemented to reduce the potential for spills, debris and materials/equipment from entering the surface water, watercourses or groundwater. This includes:                             <ul style="list-style-type: none"> <li>• A 30 m setback from watercourses/drains for all maintenance, fuelling and storage activities; and</li> <li>• The installation of emergency response spill kits.</li> </ul> </li> <li>• In areas with artesian groundwater pressures, dewatering will be minimized by using controlled density drilling fluids for the installation of deep foundations (e.g. drilled shafts or caissons).</li> </ul>
Water levels and Flows in the Detroit	<ul style="list-style-type: none"> <li>• Barge operations will be in compliance with marine safety, pollution, and spill control requirements established to protect the aquatic ecosystem such as the <i>Vessel Pollution and Dangerous Chemicals Regulations</i> (2012) and the</li> </ul>

**TABLE 6.2 MITIGATION MEASURES**

Component	Description of Mitigation
River	<i>Environmental Response Arrangement Regulations (2008).</i>
Surface, Subsurface Geology and Soil	<ul style="list-style-type: none"> <li>• Localized fracturing of the bedrock may occur during foundation construction. Grouting will be used if necessary in order to stabilize the soil and bedrock and control groundwater flows.</li> <li>• Implementation of the Erosion and Sediment Control Plan and associated best management practices.</li> </ul>
Vegetation, Vegetation Communities and Wetlands	<ul style="list-style-type: none"> <li>• A Tree Preservation Plan will be implemented to retain mature trees that provide wildlife habitat adjacent to Indian Road wherever possible.                             <ul style="list-style-type: none"> <li>• Protected areas will be delineated prior to construction; and</li> <li>• No activities will be permitted in these areas.</li> </ul> </li> <li>• Uninhabited structures located on the east side of Indian Road between Wyandotte Street and Mill Street will be demolished and replaced as green space around the expanded Canadian Border Services plaza site buffer.</li> <li>• Any required vegetation removal will occur outside the growing season (spring/summer) to avoid the loss of wildlife and wildlife habitat wherever possible.</li> <li>• Any excess areas cleared during construction will be replanted once construction is complete using only native species.</li> </ul>
Fish and Fish Habitat	<ul style="list-style-type: none"> <li>• Environmental effects on fish and fish habitat will be avoided through project design. Dredging, in-water blasting, in-water pile driving, pier construction and the placement of shore protection in or along the Detroit River are not proposed.</li> <li>• The implementation of an Erosion and Sediment Control Plan to address onsite drainage issues, construction staging and seasonal timing will ensure stormwater outlets into watercourses meet all applicable provincial guidelines and requirements.</li> </ul>

**TABLE 6.2 MITIGATION MEASURES**

Component	Description of Mitigation
	<ul style="list-style-type: none"> <li>• A stormwater management facility will be developed to treat the new replacement bridge span and expanded Canadian Border Services plaza area stormwater run-off during operations.</li> </ul>
<p>Wildlife and Wildlife Habitat including Migratory Birds</p>	<ul style="list-style-type: none"> <li>• Vegetation removal will be avoided between May 1 and July 31 to the extent possible to minimize harm to all wildlife including migratory birds.</li> <li>• If clearing or other activities that may have an impact on migratory birds are required between May 1 and July 31, a nest survey will be conducted by a qualified avian biologist within 2 day of the proposed activity.                         <ul style="list-style-type: none"> <li>• The nest survey will identify and locate active nests. Should migratory bird nests be identified in locations where project works or activities may result in their disturbance or destruction, a mitigation plan will be developed in consultation with Environment Canada.</li> </ul> </li> <li>• New replacement bridge span lighting will be designed to minimize impacts on migratory bird populations using the Detroit River as a flyway. This will include:                         <ul style="list-style-type: none"> <li>• Low intensity white strobe lights (one flash every three seconds) at the tops of the towers pending any change needed based on final design criteria and final consultation with the State Historic Preservation Office in the United States;</li> <li>• No red or yellow steady lights on the new replacement bridge span, which can disorient avian species; if coloured lighting is utilized to illuminate the cables, the Canadian Transit Company will use lower intensity, lower wavelength lighting of blue, turquoise or green, pending final design criteria; and</li> <li>• New replacement bridge span lighting (shield lights) will be focussed in the downward direction to minimize the potential for night-time bird collisions with the new replacement bridge span.</li> </ul> </li> </ul>
<p>Species at Risk</p>	<ul style="list-style-type: none"> <li>• A Peregrine Falcon Management Plan will be implemented that includes environmental management practices, timing restrictions, monitoring, and adaptive management strategies. The plan will ensure that the peregrine falcons, including their annual brood, using the existing bridge are not adversely affected, disturbed, discouraged from continued use of the</li> </ul>

**TABLE 6.2 MITIGATION MEASURES**

Component	Description of Mitigation
	<p>nesting site and are not injured/killed.</p> <ul style="list-style-type: none"> <li>• Where feasible, construction activities will be limited within the defined restricted and sensitive zones during the nesting season from March 15 to July 31 and beyond (i.e., as late as mid-August), as required. A qualified professional hired by the Canadian Transit Company will monitor the peregrine falcon behaviour during construction activities within or adjacent to the defined restricted and sensitive zones during the nesting season and also will determine when the birds fledge the nest and when construction activities may resume.</li> <li>• If construction cannot be avoided in the restricted and sensitive zones during the nesting season, installation of a curtain or other visual barrier that blocks the line of site between the nest and construction activities will be put in place.</li> <li>• If nest relocation is necessary, the chicks would need to be captured prior to the nest relocation. This would be proposed only as a last possible resort and only after consultation with Environment Canada and the Ontario Ministry of Natural Resources and any and all required permits are obtained.</li> <li>• A nesting box/ledge will be located on the south-eastern side of the existing bridge in close proximity to the current nesting site to encourage potential relocation of the peregrine falcons.</li> <li>• The Canadian Transit Company will continue to consult with Environment Canada and the Ontario Ministry of Natural Resources on management of the Peregrine Falcons present within the study area.</li> </ul>
Noise and Vibration	<ul style="list-style-type: none"> <li>• A strategy for noise management will be incorporated into a Community Consultation Plan. The Plan will be developed prior to construction and will include measures to ensure that: <ul style="list-style-type: none"> <li>• A Canadian Transit Company representative will be accessible at all times and appointed as the community contact to address noise related complaints or concerns and conduct any necessary field work related to noise during construction, when necessary;</li> <li>• Coordination occurs with schools within 300 m of the Project to create a mutually agreeable construction system to reduce the impact of noise on schools, especially during exams.</li> </ul> </li> </ul>



**TABLE 6.2 MITIGATION MEASURES**

Component	Description of Mitigation
	<ul style="list-style-type: none"> <li>• Haul routes will be designed to avoid residential neighbourhoods; and</li> <li>• Signage will be installed to notify trucks that engine braking is prohibited according to City of Windsor By-laws prior to construction.</li> </ul> <p>• Best management practices will be implemented during construction to ensure that sound emissions from all construction equipment comply with Noise Pollution Control Publication 115 of the Ontario Model Municipal Noise Control By-Law (1978). This will include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Ensuring that factory recommended mufflers are maintained on all construction equipment; and</li> <li>• Vehicle back-up alarms are limited through design of construction haul routes.</li> </ul> <p>• The most noise intensive construction activities will be limited to daytime hours to the greatest extent possible. Time restrictions set out in the City of Windsor's Noise By-law 6716 will be respected including prohibitions for the operation of any equipment in connection with construction from 8 p.m. to 6 a.m. in residential areas.</p> <p>• Sound and vibration levels will be monitored during pile driving within 100 metres of the 34 identified sensitive receptors. Typical noise sensitive receptors include: private residences, townhouses, multiple unit buildings with outdoor living spaces, and hospitals, nursing homes educational facilities and daycare centers where there are outdoor living spaces. If exceedances are noted, reduced driving force and/or temporary noise barriers will be investigated.</p> <p>• Pile driving and/or other unusually loud activities will not occur prior to 7 a.m. or after 8 p.m. Vibration monitoring will be conducted when pile driving is taking place within 100 metres of a sensitive receptor, including heritage buildings. If exceedances are found, reduced pile driving force and the construction of temporary noise barriers will be implemented.</p> <p>• A permanent noise barrier 3 m in height will be installed as soon as practical during the construction schedule (as the wall will be mounted on the new replacement bridge span) along the west edge of the new replacement bridge span extending northwards from the existing noise barrier to a distance of approximately 120 m north of Peter Street. The barrier will taper to 1.5 m at this point but will maintain a height of 3 m above the top of the road surface at the new replacement bridge span approach.</p>

**TABLE 6.2 MITIGATION MEASURES**

Component	Description of Mitigation
	<ul style="list-style-type: none"> <li>• A permanent noise barrier 5.5 m in height will also be installed along the western extent of the Canadian Border Services Agency plaza.</li> <li>• A dynamic vibration study of the new replacement bridge span support structure will be undertaken when sufficient detail is available to ensure that the piers and associated support structure will not radiate significant levels of groundbourne vibration into the surrounding environment.</li> <li>• To minimize the possibility of increased vibration levels, the road upgrading will ensure a smooth road surface with few imperfections. Expansion joints will be placed as far apart as feasible and will be constructed flush with the surface of the new replacement bridge span deck, minimizing the low frequency noise associated with traveling over the expansion joints during the operations phase.</li> </ul>
Contaminated Sites and Waste management	<ul style="list-style-type: none"> <li>• Designated disposal areas for excess materials will be identified and used during construction.</li> <li>• Non-contaminated materials will be reduced, reused or recycled to the greatest extent possible.</li> <li>• In the event contaminated materials (including soils or groundwater) are discovered, applicable procedures for dealing with these contaminated materials such as the Ontario Ministry of Environment's Permit for Stockpiling of Contaminated Waste will be adhered to. Immediate measures will be implemented prior to the arrival of authorities to ensure that contaminants do not reach receiving water bodies either directly or indirectly.</li> </ul>
Human Health	<ul style="list-style-type: none"> <li>• A Community Consultation Plan will be reviewed and approved by the responsible authorities six weeks prior to construction. The plan will include a communication process to manage any disruption effects experienced by residents during construction and:                             <ul style="list-style-type: none"> <li>• Canadian Transit Company offices are located onsite and an individual within those offices will be appointed as the community contact to address any questions, concerns or complaints by business owners;</li> </ul> </li> </ul>

**TABLE 6.2 MITIGATION MEASURES**

Component	Description of Mitigation
	<ul style="list-style-type: none"> <li>• Transport Canada/Windsor Port Authority will be identified as Responsible Authorities;</li> <li>• Efforts will be made during the construction phase to ensure access is maintained to operating businesses; and</li> <li>• The Community Consultation Plan will include a detailed Traffic Management Plan that will avoid using roads located within residential and heritage areas and include detailed construction routes, site entrances and any traffic detours.</li> </ul> <ul style="list-style-type: none"> <li>• Temporary fencing and other protective measures will be used to mitigate the visual intrusion of construction.</li> <li>• Mitigation for air quality and noise including emissions reduction, dust suppression, staging practices, and sound barriers will be implemented to mitigate any indirect effects on human health.</li> </ul>
Physical and Cultural Heritage	<ul style="list-style-type: none"> <li>• No heritage sites, such as Assumption Church and Assumption College, will be demolished or moved during the construction of the Project.</li> <li>• The construction of fences (hoarding) will be undertaken to reduce the visual intrusion on the surrounding area.</li> <li>• Haul routes used for construction will be designed to avoid residential and heritage areas.</li> </ul>
Current use of lands and resources for traditional purposes by Aboriginal Peoples	<ul style="list-style-type: none"> <li>• The Project will not result in any piers or other permanent structures in the waters of the Detroit River, an area of concern identified by Walpole Island First Nation.</li> <li>• Archaeological artefacts including the majority of the 714 artefacts identified at the abHs-34 site in the areas of the proposed foundation construction are aboriginal in nature and may be of interest to Aboriginal groups. The Canadian Transit Company has committed to continued consultation with interested Aboriginal throughout the Archaeological process.</li> </ul>
Things of Historical, Archaeological,	<ul style="list-style-type: none"> <li>• Known archaeological sites will be avoided to the extent possible. However Site abHs-34 will undergo a Stage 4: Mitigation of Development Impacts of the Archaeological Assessment Process (Ontario Ministry of Tourism, Culture and Sport). This will likely include documenting and removing the archaeological site through excavation.</li> </ul>

**TABLE 6.2 MITIGATION MEASURES**

Component	Description of Mitigation
paleontological or Architectural Significance	<p>Documentation could include measurements, maps, drawings, and photographs. Artefacts may be placed at the Museum of Ontario Archaeology.</p> <ul style="list-style-type: none"> <li>• Strategies will be reviewed with the Ontario Ministry of Tourism, Culture and Sport, Aboriginal Groups and other heritage stakeholders and be directed by a Licensed Archaeologist during the Stage 4 analysis.</li> <li>• A licensed archaeologist will be at the Project site when soil disturbing activities are taking place. The Canadian Transit Company, working with a licensed Archaeologist will ensure that: <ul style="list-style-type: none"> <li>• In the event that human skeletal remains are encountered during construction, all construction and soil disturbance will cease immediately. The Canadian Transit Company will promptly contact the Ontario Ministry of Tourism, Culture and Sport, the Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ministry of Consumer and Business Services, and interested Aboriginal Groups; and</li> <li>• If any deeply buried archaeological deposits are found during construction activities, construction activities will cease and the Programs and Services Branch of the Cultural Programs Unit of the Ontario Ministry of Tourism, Culture and Sport will be notified immediately.</li> </ul> </li> </ul>
Transboundary Effects	<ul style="list-style-type: none"> <li>• Given the international nature of the Project, mitigation for air quality and noise including emissions reduction, dust suppression, staging practices, and sound barriers will be implemented to mitigate any potential transboundary effects.</li> </ul>
Navigation	<ul style="list-style-type: none"> <li>• Any approvals or permits required under the <i>Navigable Waters Protection Act</i> (1985) or the <i>Navigation Protection Act</i> will be obtained prior to construction of the new replacement bridge span. This includes any approvals or permits required for the use of barges during construction.</li> <li>• All relevant pollution control requirements will be adhered to including those under the <i>Canada Shipping Act</i> (2001), the <i>International Regulations for Preventing Collisions at Sea</i> (1972) referred to as the COLREGs, and the <i>St. Clair and Detroit River Navigation Safety Regulations</i> (1984) (SOR/84-335).</li> </ul>

**TABLE 6.2 MITIGATION MEASURES**

Component	Description of Mitigation
Accidents and Malfunctions	<ul style="list-style-type: none"> <li>• A Spills Prevention and Contingency Plan will identify the type of potential spills, including motor vehicle spills that may occur and will provide procedures to respond to emergencies. The plan will also include:                             <ul style="list-style-type: none"> <li>• Roles and responsibilities and standard procedure for any spill;</li> <li>• Response to oil spills on land and in the Detroit River;</li> <li>• Response to chemical spills and gaseous releases;</li> <li>• Response equipment and training; and</li> <li>• Provisions for updates and review procedures.</li> </ul> </li>   <li>• In the event of larger spills such as major accidents, emergency response procedures will be employed immediately to reduce the potential for spills and materials/equipment entering water and will include provisions for the released material at outfall locations such as turbidity barriers for containment, and inflatable bag plugs for closing of storm drain inlets. Additionally, the Ontario Ministry of Environment's Spill Action Centre will be contacted immediately.</li>   <li>• The proponent will comply with the <i>Ontario Environmental Protection Act</i> (1990), and the <i>Ontario Water Resources Act</i> (1990) regarding spill requirements.</li> </ul>
Effects of the Environment on the Project	<ul style="list-style-type: none"> <li>• The new replacement bridge span will be designed and engineered to meet all applicable engineering and legislative standards. The design will incorporate environmental stressors including wind, snow, seismic, and thermal forces.</li> </ul>

## 7.0 Cumulative Effects

The cumulative effects assessment considered any cumulative environmental effects that are likely to result from the residual environmental effects of the Project in combination with other projects or activities that have been or will be carried out. The assessment included identification of residual effects of the Project, identification of residual effects resulting from other projects and activities, assessment of potential cumulative effects, and determination of the significance of any potential cumulative effects.

The temporal boundaries for determining cumulative effects were established for the cumulative effects assessment. The analyses included present day conditions, the construction period of the Project, and the future operation phase of the Project to the year of 2025. Spatial boundaries were defined as the Windsor-Essex region within which the potential exists for any past, present, and reasonably foreseeable projects or activities to interact with the Project; creating a cumulative effect.

### 7.1 Residual Effects of the Project

Residual effects as a result of the Project may contribute to cumulative environmental effects in combination with other projects and activities in the regional study area. These included effects on air quality, noise, migratory birds, and human health and socio-economic factors.

### 7.2 Identification of Past, Present, and Reasonably Foreseeable Future Projects

Past, present and reasonably foreseeable future projects and activities were identified for consideration in the assessment of cumulative effects. These projects and activities included:

- The American portion of the Ambassador Bridge Enhancement Project;
- The Detroit River International Crossing (DRIC) project;
- The Windsor Central Riverfront Implementation Plan – Segment 4: Canal and Marina Project;
- The Windsor Family Aquatics Complex;
- The Malden Road Transportation, Public Safety, and Urban Design Improvement Project;
- The multi-use trail on Quality Way from Jefferson Boulevard to Lauzon Parkway;
- The commercial and residential land redevelopment in Olde Sandwich Towne.

The United States border services plaza, as currently configured, is unable to accommodate more than six lanes of international traffic as traffic lanes north of Fort Street in the City of Detroit are limited. Significant infrastructure modifications to the United States border services plaza would require government approvals and a separate National Environmental Policy Act (NEPA) study in the United States. As a result, the Project will not be able to operate concurrently with existing Ambassador Bridge traffic operations and scenarios comprising more than 6 lanes of traffic at the Ambassador Bridge crossing were not further contemplated in the cumulative effects assessment.

### 7.3 Cumulative Effects Assessment

The cumulative effects assessment evaluated the potential for significant adverse cumulative environmental effects as a result of the Project in combination with past, present and reasonably foreseeable future projects.

#### *Air Quality*

Existing air quality in the region is largely influenced by local and long-range (cross border) contaminants generated in upwind urban and industrial areas. The predominant wind directions in Windsor are from the west to southwest, which brings atmospheric contaminants from the Midwest United States, the heavily industrialized areas of the Detroit area and nearby communities. Predicted annual Project air emissions represent less than 1% and in many cases less than 0.1% of the total annual regional emissions for Essex County Ontario and Wayne County Michigan. The air quality follow-up program and a traffic management plan will consider potential changes to local and international traffic patterns on Huron Church Road and other local roadways to ensure that the Project does not result in a significant contribution to regional air quality issues.

#### *Noise*

Construction may result in temporary increases to noise in the regional study area. It is likely that construction vehicles for the Project using haul routes within the City of Windsor may increase the overall number of construction vehicles on these routes. It is anticipated that some construction traffic will originate from the United States and not require use of the regional road network in the City of Windsor. The community consultation plan will include a detailed traffic management plan that will avoid using roads located within residential and heritage areas and include detailed construction routes, site entrances and any traffic detours.

#### *Migratory Birds*

The Project has the potential to contribute to the regional loss of avian species through collisions with structures including with the DRIC project and the existing Ambassador Bridge. As collisions with the existing Ambassador Bridge are not known to result in the death of an inordinate numbers of birds, it is not anticipated that the construction of the Project will result in any significant increase in bird collisions. However, some increases are anticipated as a result of the increased height of the new replacement bridge span. The Project proposes to implement lighting strategies that reduce the potential for nocturnal bird collisions.

#### *Human Health and Socio-economic Factors*

Cumulative effects related to human health and other socio-economic factors as a result of air emissions from traffic are of concern in the regional study area. Contributions to regional air emissions and decreases in air quality from the Project will be mitigated through the implementation of an air quality

follow-up program, community consultation plan, and traffic management plan. Additionally, regional planning requirements, including approvals from the City of Windsor, will ensure that direct cumulative effects on human health and other socio-economic factors are limited.

It is anticipated that standard mitigation including construction best management practises will be implemented for the Project and other projects and activities. Taking into account standard mitigation practises and the implementation of project mitigation, the responsible authorities have determined that residual effects of the project in combination with other projects and activities are not likely to result in any significant cumulative effects.

Additional information on cumulative effects can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Section 6.0: Cumulative Effects*.



## 8.0 Monitoring and Follow-up Program

### 8.1 Monitoring

As per section 20.(2) of the Canadian Environmental Assessment Act, Transport Canada and the Windsor Port Authority are responsible for ensuring that mitigation measures will be implemented. In order to ensure that mitigation required in the screening is implemented by the proponent, the responsible authorities will require the submission of detailed monitoring plans and reports which will address all the commitments within this report. Expert federal authorities including Environment Canada and The Canadian Border Services Agency will assist the responsible authorities in monitoring the Project and reviewing monitoring reports prepared by the Proponent.

#### *Compliance Monitoring and Training Program*

A Compliance Monitoring and Training Program will be developed by the Canadian Transit Company to ensure the effective implementation of Project related mitigation and best management practices. This program will include:

- A comprehensive approach to compliance monitoring and reporting to ensure effective and efficient resolution to any compliance issues during construction. This will include the development of a daily log sheet consistent with mitigation requirements which will be provided to Transport Canada upon request and on a monthly basis;
- A comprehensive training program for staff and contractors to become familiar with required mitigation and Project environmental sensitivities;
- A plan to adhere to all relevant environmental legislation and regulations; and
- A requirement for a quarterly Compliance Monitoring and Training Program report to be provided to the responsible authorities.

A draft Compliance Monitoring and Training Program will be submitted to Transport Canada and the Federal Review Team six weeks prior to construction for review and approval.

Throughout the construction phase of the Project, a quarterly compliance summary report will be provided to Transport Canada for review. This summary report will include:

- A summary of environmental inspection activities, construction activities and site conditions;
- A list of implemented mitigation measures with an explanation of any changes or adjustments including any additional mitigation or adaptive management strategies;
- Photographs of key mitigation measures with a description, location as well as the date and time of the photograph;
- Photographs of any non-compliance issues with a description, location as well as the date and time of the photograph. The description should include information with regards to how the issue was resolved;
- A copy of any Ontario Ministry of Tourism, Culture and Sports' Archaeological report review letter for site AbHs-34 will be provided to Transport Canada prior to construction;

- A plan for the completion of nest surveys for Migratory Birds;

### *Community Consultation Plan*

A Community Consultation Plan will be submitted to Transport Canada for review and approval six weeks prior to the start of construction. The plan will include: a strategy for noise management, a communication process and a traffic management plan to avoid residential and heritage area roads. Implementation of the Community Consultation Plan will be reported as part of the quarterly compliance monitoring reports. This will include a summary of public complaints and any action taken to resolve the complaint.

### *Detailed Peregrine Falcon Management Plan*

A detailed Peregrine Falcon Management Plan will be finalized in consultation with the Responsible Authorities, Environment Canada and the Ontario Ministry of Natural Resources. The plan will ensure that the peregrine falcons, including their annual brood, using the existing bridge are not adversely affected, disturbed, or discouraged from continued use of the nesting site and are not injured/killed.

The plan will be submitted to Transport Canada and the Windsor Port Authority six weeks prior to construction of the new span for review and approval and will include:

- A summary of any construction activities proposed during the breeding season within the restricted or sensitive zones; and
- A summary of mitigation, monitoring and training required for construction work within the restricted and sensitive zones.

In addition, throughout the construction phase and one-year post construction, an annual monitoring summary report on the implementation of the detailed Peregrine Falcon Management Plan will be submitted to Transport Canada for review and consultation with Environment Canada prior to December 31<sup>st</sup> of each year. The monitoring report will include:

- A summary of monitoring activities, construction activities and general site conditions.
- A list of implemented mitigation measures with an explanation of any changes or adjustments including any additional mitigation or adaptive management strategies.
- Photographs of key mitigation measures with a description, location as well as the date and time of the photograph
- Photographs of any non-compliance issues with a description, location as well as the date and time of the photograph. The description will include information with regards to how the issue was resolved.

## 8.2 Follow-up Program for Air Quality

An air quality Follow-up Program is required for this Project to verify the accuracy of the predictions related to the environmental effects on air quality. The follow-up program will assist in determining the

effectiveness of the prescribed air quality mitigation measures and facilitate the development of adaptive management measures should there be any unanticipated adverse environmental effects. This program will be developed by the Canadian Transit Company and submitted to Transport Canada and the Windsor Port Authority six weeks prior to construction for review and approval. Environment Canada and the Canadian Border Services Agency will provide expert federal advice on the implementation and results of the program. As part of the review and approval of this program, federal authorities will ensure that the plan establishes the roles and responsibilities of all participants, thresholds that will trigger immediate reporting, reporting mechanisms in the event of exceedences, and a consultation process to determine required adaptive management measures. The program will begin at the start of construction and will continue until three years post-construction.

The air quality Follow-up Program will include requirements for quarterly and annual summary monitoring reports. The quarterly and annual summary monitoring reports will include:

- A description of mitigation measures including photographs of key mitigation measures;
- A description of all monitoring activities and the results of real-time monitoring data; and
- A discussion regarding adaptive management measures including any proposed changes to the follow up program.

A Traffic Management Plan will also be developed as part of the Follow-up Program that provides a comprehensive approach to managing general traffic and construction traffic (including barge traffic) during the construction phase of the Project. This Plan will be submitted to Transport Canada and the Windsor Port Authority six weeks prior to construction for review and approval. The traffic management plan will include:

- Analysis of anticipated traffic delays;
- A process to notify the public of any anticipated traffic delays;
- Mapping of construction haul routes;
- Design drawings for any proposed detours; and
- A plan for barge work.

### *Adaptive Management*

Identifying the likely cause of environmental effects involves determining the project activities that are likely to result in changes to the physical, biological and human environments, particularly during the construction and operation phases of the project. It is likely that additional refinements to the Project will be required during detailed design and planning stages of the Project. It is anticipated that any refinements to project activities will include refinements to required mitigation in order to effectively address the cause of environmental effects throughout construction and during initial operations of the Project.

The Proponent will ensure that the principles of adaptive management are incorporated into the monitoring and compliance program and the follow-up program for air quality to ensure that the most effective mitigation is implemented and is responsive to unanticipated or accidental events or activities.

The responsible authorities may require, throughout the course of the project, additional mitigation measures or modification of mitigation measures to address any unanticipated environmental effects.

In the event that modifications to the project are proposed by the proponent that were not assessed as part of the Screening, a separate environmental assessment may be required.

## 9.0 Agency and Public Consultation Process

### 9.1 Public Participation under the *Canadian Environmental Assessment Act*

Section 18(3) of the *Canadian Environmental Assessment Act* stipulates that the responsible authorities have the discretion to include, where it is considered appropriate, public participation in the screening of a Project. The responsible authorities have determined that public participation under the *Canadian Environmental Assessment Act* subsection 18(3) is appropriate for this Project.

In 2007, the public was provided the opportunity to review and comment on the Federal Environmental Assessment Guidelines for the Project. The responsible authorities considered all input received from the City of Windsor, local residents and other community organizations. Approximately 50 comments were received, the focus of which was largely on potential community impacts, human health impacts from air quality effects, and socio-economic impacts of the Project.

This draft Environmental Assessment Screening Report has been prepared to provide the public including interested stakeholders an opportunity to provide comments for consideration by the responsible authorities prior to taking a decision under the *Canadian Environmental Assessment Act*. A 30 day comment period is provided to ensure that participants have an opportunity to submit comments. Interested Aboriginal groups, including Walpole Island First Nations, will be contacted by the responsible authorities as part of the public consultation for the Project. Any public, government agency, aboriginal group, community group or individual comments will be considered under section 16.1 of the *Canadian Environmental Assessment Act* by the responsible authorities prior to any environmental assessment decision.

### 9.2 Proponent Public Information Sessions

The Canadian Transit Company held a series of public information sessions and open houses to discuss and review the Project with the public. From April 16-19, 2007, four public information sessions across the Windsor area were held. At each session there was a presentation about the Project and representatives from the Project consulting team and the Ambassador Bridge were available to respond to any comments or concerns the public rose.

Topics covered by the comments and concerns included, but were not limited to, the design and construction process, the Detroit River International Crossing Project, local roads, traffic levels, funding, and the new replacement bridge span and Canadian Border Services plaza details. Comments and concerns raised during the public information sessions were considered during the refinement of the recommended Project plan.

Comments and concerns raised by the public were recorded and can be found in *Ambassador Bridge Enhancement Project Environmental Impact Statement (Revised May 2012) Appendix O: Consultation*

### 9.3 Aboriginal Consultation

Aboriginal groups and agencies located in proximity to the study area were contacted by the proponent in order to provide an opportunity to comment on the Project proposal. These groups included the CanAm Indian Friendship Centre of Windsor, Walpole Island Friendship Centre, Aamjiwnaang First Nation, Caldwell First Nation, Walpole Island First Nation, Wyandotte Nation, Detroit River Wyandot's, and The Wyandot of Andernon Nation.

Walpole Island First Nation did provide some response and indicated interest ensuring appropriate measures be taken to protect any aboriginal artefacts uncovered during archaeological or general construction work.

### 10.0 Conclusions, Recommendations and Approvals for Decision

**Canadian Environmental Assessment Act Decision:** After taking into account the implementation of any appropriate mitigation measures and after considering any public input under Section 16.(1)(c) of the *Canadian Environmental Assessment Act*, the responsible authorities will make a determination under Section 20.(1) of the *Canadian Environmental Assessment Act*.

<p>Mr. Dan Stamper                  President                  Canadian Transit Company</p> <p style="text-align: right;">Date: _____</p> <p>The above has read and understood this environmental assessment screening report and accepts responsibility for the implementation of the mitigation measures and related follow-up programs identified in the report. The above will provide written confirmation of such implementation to the responsible authorities according to frequencies prescribed in this report. Furthermore, the above agrees to provide the responsible authorities with access to Project sites for ensuring that the mitigation measures and related follow-up programs have been implemented.</p>
<p>Mrs. Sarah O’Keefe                  Senior Advisor, Environmental Assessment                  Transport Canada</p> <p style="text-align: right;">Date: _____</p> <p>The above recommends the <i>Canadian Environmental Assessment Act</i> Decision.</p>
<p>Mr. Alec Simpson                  Senior Director, Environmental Management                  Transport Canada</p> <p style="text-align: right;">Date: _____</p> <p>The above has reviewed the environmental assessment screening report and approves the recommended <i>Canadian Environmental Assessment Act</i> Decision.</p>
<p>Mr. David Cree                  President                  Windsor Port Authority</p> <p style="text-align: right;">Date: _____</p> <p>The above has reviewed the environmental assessment screening report and approves the recommended <i>Canadian Environmental Assessment Act</i> Decision.</p>