Canada | U.S. Department of Transportation Federal Highway Administration | Ontario | MDOT Michigan Department of Transportation

Canada-U.S.-Ontario-Michigan Border Transportation Partnership

Detroit River
INTERNATIONAL CROSSING
S T U D Y

Cumulative Effects Assessment Report

Detroit River International Crossing Study

City of Windsor, County of Essex, Town of LaSalle, Town of Tecumseh

DRAFT July 2009

URS

Preface

The Detroit River International Crossing (DRIC) Project is the result of a bi-national transportation improvement study that has been undertaken by a partnership of the federal, state and provincial governments in Canada and the United States. The Partnership is comprised of provincial, state and national transportation authorities from both Canada and the United States including: Federal Highway Administration (FHWA), U.S. Department of Transportation; Transport Canada (TC); Ontario Ministry of Transportation (MTO); and, Michigan Department of Transportation (MDOT).

In 2001, the Partnership jointly commissioned a Planning/Need and Feasibility Study (P/NF) Study, which was completed in 2004. Among other things, the P/NF Study confirmed the long-term need for additional border crossing capacity in the Windsor-Detroit corridor. As a result of this recommendation, the Partnership initiated a formal environmental assessment process for a new or expanded Detroit River International Crossing. An integrated environmental assessment process was developed to meet the requirements of the respective legislation of each jurisdiction, including the *Canadian Environmental Assessment Act* (CEAA), the *Ontario Environmental Assessment Act* (OEAA), and the *U.S. National Environmental Policy Act* (NEPA).

In Canada, the study process was led by MTO. In the U.S., the study was led by the MDOT. The Canadian and U.S. study teams coordinated their work to minimize duplication and to ensure that a single end-to-end solution would be developed. For the purposes of this report, "the Project" is used to describe the Canadian portion of the project.

The Project is located in the City of Windsor and the Town of Lasalle, in the County of Essex southwestern Ontario. In addition, the U.S. portion of the Project extends into the Detroit/Wayne County area of the State of Michigan.

The Project has followed the requirements of the *OEAA* under the Environmental Assessment EA process (Section 6.1 (2) of the *OEAA*). Key components of an Ontario EA include: consultation with members of the public, regulatory agencies, municipalities, and other stakeholders; First Nations engagement; the consideration of alternatives and their potential environmental effects; and the mitigation and management of environmental effects.

The provincial Environmental Assessment Report (W.O. 04-33-002) was completed in December 2008 and submitted to the Ontario Ministry of the Environment for review and approval. The *DRIC EA Report* (December 2008) is available electronically from the study website (http://www.partnershipborderstudy.com).

A federal EA of the Project is also required under the provisions of the *Canadian Environmental Assessment Act* (CEAA). A screening report (*DRIC Draft CEAA Screening Report* (July 2009)) has been prepared for the Project as required under the *CEAA*. The report documents the prediction of potential cumulative effects resulting from the combination of the residual effects of other past, existing or future projects or activities with the potential to overlap with the environmental effects of the Project. The assessment of potential effects associated with these other projects or activities was qualitative in nature, and involved professional judgment since the same level of detail of information was not available as for the Project. Based on information available for the Project, in combination with the other projects and activities, the potential for cumulative environmental effects was determined.

This report is to be read in conjunction with the *DRIC Draft CEAA Screening Report* (July 2009).

Table of Contents

Preface ii
List of Tables iii
1.0 Cumulative Effects Assessment ..... - 1 -
1.1 Scope of the Cumulative Effects Assessment ..... - 2 -
1.1.1 Spatial Boundaries ..... - 2 -
1.1.2 Temporal Boundaries ..... - 2 -
1.2 Scope of Environmental Factors ..... - 3 -
1.3 Identification and Review of Other Projects and Activities ..... - 3 -
1.4 Determination of Cumulative Effects, Mitigation and Follow-up Measures ..... - 14 -
1.5 Summary of Potential Cumulative Effects and Their Significance ..... - 15 -
1.5.1 Residual Cumulative Effects and Significance ..... - 19 -
1.6 Conclusion ..... - 20 -
2.0 References ..... - 21 -

List of Tables

Table 1.1 – Potential Interactions of Residual Effects of the Project and Other Projects ..... - 4 -
Table 1.2 – Identification of Other Past, Present and Foreseeable Future Projects and Activities ..... - 6 -

1.0 Cumulative Effects Assessment

Paragraph 16(1)(a) of the *Canadian Environmental Assessment Act (CEAA)* requires that cumulative effects be considered in the assessment of a project. Specifically this subsection requires consideration of "*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*". The Canadian Environmental Assessment Agency has developed a *Cumulative Effects Assessment Practitioner's Guide* and an *Operational Policy Statement on Addressing Cumulative Environmental Effects* to provide direction on cumulative effects.

The *Cumulative Effects Assessment Practitioner's Guide* defines cumulative effects as "*changes to the environment that are caused by an action in combination with other past, present and future human actions*". This Guide defines a cumulative effects assessment as "*an assessment of the incremental effects of an action on the environment when the effects are combined with those from other past, existing and future actions*". The sections below outline the steps that were undertaken to assess cumulative effects.

The cumulative effects assessment framework consisted of the following steps:

- Determine residual environmental effects of the project (Section 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009));
- Establish the scope of the cumulative effects assessment (Section 1.1);
- Identification and review of other potential past, existing or reasonably foreseeable future projects and activities (Section 1.2); and
- Predict potential cumulative effects and identify mitigation and follow-up measures (Section 1.5).

The determination of the residual environmental effects of the Project is a critical initial input to the assessment of potential cumulative environmental effects. Further details on the determination of residual environmental effects are provided in Chapter 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009). There must be a residual environmental effect (i.e., an effect remaining after the implementation of mitigation measures) associated with the Project in order for there to be the potential for cumulative environmental effects. The factors that have residual environmental effects have been carried forward to the cumulative effects assessment.

Establishing the scope of the cumulative effects assessment involves identifying the spatial and temporal boundaries, as well as the environmental components that will be considered in the cumulative effects assessment.

The identification of other past, existing or reasonably foreseeable future projects or activities is another important step in conducting the cumulative effects assessment. Municipal, provincial and federal and private projects and activities were identified and assessed as to whether they would be appropriate to include in the cumulative effects assessment. Information regarding other past, existing or future projects was obtained from the land use evaluation undertaken for the Detroit River International Crossing Study, as well as contacts with relevant provincial and federal departments.

The *Cumulative Effects Assessment Practitioner's Guide* indicates that the "*certainty of whether the action will actually proceed*" must be considered. Potential future projects and activities must include those where "*there is a high probability the action will proceed*" and those where "*the action may proceed, but there is some uncertainty about this conclusion*". Past projects are those "*actions that are abandoned but still may cause effects of concern*".

Past, existing and future reasonably foreseeable projects and activities were reviewed and screened to determine which should be included in the consideration of cumulative effects. From this, a determination was made as to whether there is the potential for the environmental effects of such projects to overlap temporally and/or spatially with the residual environment effects of the Project. The projects or activities that

exhibited some potential for overlap were included in the cumulative effects assessment.

The prediction of potential cumulative effects involved tabulating the residual effects associated with the Project, in combination with the residual effects of other past, existing or future projects or activities with the potential to overlap with the environmental effects of the Project. The assessment of potential effects associated with these other projects or activities was qualitative in nature, and involved professional judgment since the same level of detail of information was not always available as for the Project. Based on information available for the Project, in combination with the other projects and activities, the potential for cumulative environmental effects was determined.

If residual cumulative effects were to result from the cumulative effects assessment, recommendations for mitigation and follow-up measures would be developed.

1.1 Scope of the Cumulative Effects Assessment

1.1.1 Spatial Boundaries

The spatial boundary for determining cumulative effects was based on the Area of Continued Analysis (ACA) on the Canadian side (refer to Exhibit 3.1 of the *DRIC Draft CEAA Screening Report* (July 2009)). Given the proximity of the existing Ambassador Bridge, it was also included in the spatial boundary for assessing cumulative effects.

All factors identified in the *Final EA Guidelines* (February 2009) "Scope of Factors" were assessed within the ACA; however, air quality and surface water factors were assessed based on a regional geographic area, given their nature.

As noted in Section 7.12 of the *DRIC Draft CEAA Screening Report* (July 2009), it was determined that concerns may exist in relation to potential transboundary effects related to air quality, water quality, and aboriginal land-use. Air quality, water quality, and aboriginal land-use were investigated for transboundary effects based on the regional nature of these factors and the close proximity to the United States.

Overall, it is not anticipated that the Project will result in transboundary effects across the Detroit River in the United States. As discussed in the *Draft DRIC Screening Report* (July 2009) the Project will be improving regional air quality, and will be improving water quality along The Windsor-Essex Parkway as well as preventing water quality impacts to the Detroit River associated with operation of the inspection plaza. As such, no transboundary effects are anticipated as a result of the Project.

1.1.2 Temporal Boundaries

As noted in Section 5.1.1 of the *Detroit River International Crossing Study Environmental Assessment Report* (December 2008) (DRIC EA Report), the current and future deficiencies in the roadway network serving the international border crossings at Windsor-Detroit anticipated within a 30-year timeframe are documented in the *Travel Demand Forecasts Working Paper* (September 2005). Transportation network improvements are required at the international crossing to prevent unstable traffic operations and to accommodate the 2035 travel demand. The temporal boundaries for this assessment establish the period of time during which the project specific and cumulative effects were considered. Advance construction for a portion of The Winsor-Essex Parkway is anticipated in late 2009. The construction and operations of The Winsor-Essex Parkway, Plaza and Crossing is anticipated to reflect a 4 to 5 year construction period. Although it is expected that this facility will operate well into the future, the temporal boundary used for the operations and maintenance phase as well as for cumulative effects assessment was the planning horizon of the Project (i.e., the year 2035).

1.2 Scope of Environmental Factors

The residual effects of the Project were assessed to determine the temporal or spatial interactions of residual effects of other projects and activities. The following outlines the environmental components for which residual effects (post mitigation) of the Project have been identified. Refer to Chapter 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009) for details.

- Air Quality & Climate
- Noise & Vibration
- Groundwater
- Surface Water
- Fish & Fish Habitat
- Vegetation, Vegetation Communities & Wetlands
- Wildlife, Wildlife Habitat and Migratory Birds
- Species At Risk

1.3 Identification and Review of Other Projects and Activities

As noted above, reasonably foreseeable future projects and activities must include those where "*there is a high probability the action will proceed*" and those where "*the action may proceed, but there is some uncertainty about this conclusion*". Generally, projects must be reasonably foreseeable (i.e., at some stage within the development approval or environmental assessment review process) in order to be included in a cumulative effects assessment.

Past projects and activities are those "*actions that are abandoned but still may cause effects of concern*".

Table 1.1 below identifies the potential for interaction of residual effects of other past, existing and reasonably foreseeable future projects and activities with residual effects of the Project. The potential for interaction has been described using the environmental components outlined in the *Final EA Guidelines (February 2009*) and the *DRIC Draft CEAA Screening Report* (July 2009).

Table 1.2 below identifies past, existing and reasonably foreseeable future projects and activities (municipal, provincial, federal involvement and private sector). These projects and activities were assessed as to whether they would be appropriate to include in the cumulative effects assessment.

Overall, the projects and activities in Table 1.2 were selected for the cumulative effects assessment based on their potential residual environmental effects to have a potential interaction with residual environmental effects of the Project identified in Chapter 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009) (i.e., to act cumulatively).

Table 1.1 – Potential Interactions of Residual Effects of the Project and Other Projects

Other Projects and Activities	Potential Effects of the Project							
	Air Quality & Climate	Noise & Vibration	Groundwater	Surface Water – Inland Watercourses	Fish and Fish Habitat	Vegetation, Vegetation Communities & Wetlands	Wildlife, Wildlife Habitat & Migratory Birds	Species at Risk
Sandwich Neighbourhood Waterfront Special Policy Area				X				
Olde Sandwich Town Community Plan	X			X				
Huron Church Road Corridor Special Policy Area	X			X				
Spring Garden Planning Area and Secondary Plan							X	X
Talbot Planning District – Town of LaSalle	X			X				
Huron Church Road at Industrial Drive								
Intersection Improvements on Highway 3 at Outer Drive and Walker Road								
Walker Road/CPR Grade Separation								
Manning Road Widening: North of Essex County Road 22 to VIA Rail Line								
Howard Avenue/CPR Grade Separation								
Truck Ferry Road Infrastructure – Signing Improvements and Operations				X	X			
Highway 401 Widening East of Highway 3/North Talbot Road to West of Manning Road	X			X	X		X	
Manning Road Widening from Highway 401 to County Road 22								
Improvements to Highway 3 – Essex County								
Windsor-Detroit Tunnel Plaza Master Plan and Improvements								

Other Projects and Activities	Potential Effects of the Project							
	Air Quality & Climate	Noise & Vibration	Groundwater	Surface Water – Inland Watercourses	Fish and Fish Habitat	Vegetation, Vegetation Communities & Wetlands	Wildlife, Wildlife Habitat & Migratory Birds	Species at Risk
U.S. Portion of the DRIC Project	X			X	X		X	
Ambassador Bridge Enhancement Project	X	X		X	X	X	X	
Existing Ambassador Bridge	X			X	X		X	
Existing Ambassador Bridge (4-lane) in combination with the Ambassador Bridge Enhancement Project (future 6-lane)	X	X		X	X	X	X	
Brighton Beach Power Plant	X	X						
E.C. Row Expressway	X		X	X	X			

Table 1.2 – Identification of Other Past, Present and Foreseeable Future Projects and Activities

Other Project or Activity	Potential Residual Effects Resulting from Other Project or Activity	Potential for Interaction with the DRIC Project	Potential for Cumulative Effects	
			Yes	No
Canadian Projects - Municipal				
Sandwich Neighbourhood Waterfront Special Policy Area • This policy area is likely to result in the development of Waterfront Recreation land uses, as well as residential development. • Located approximately 2 km north of the Project plaza site and crossing along the Detroit River.	• Potential residual effect on surface water from the Sandwich Neighbourhood Waterfront Special Policy Area project was considered during construction and operations.	• Residual effects on surface water from Sandwich Neighbourhood Waterfront Special Policy Area may potentially interact with residual effects on surface water from the plaza and crossing during operation of the Project. • Due to the unknown time frame of the Sandwich Neighbourhood Waterfront Special Policy Area there is the potential for a surface water interaction during construction between the two projects.	X	
Olde Sandwich Town Community Plan • The plan is likely to result in the continuation of industrial land uses in the waterfront area south of Watkins Road; areas south of Prince Road will be rezoned to industrial; and, improvements to the waterfront port (existing industrial land uses). • Located approximately 2 km north of the Project and adjacent to the Detroit River.	• Potential residual effects on air quality/climate and surface water from the Olde Sandwich Town Community Plan were considered during construction and operations.	• Residual effects on air quality/climate and surface water from Olde Sandwich Town Community Plan may potentially interact with residual effects on air quality and surface water from the plaza and crossing during operation of the Project. • Due to the unknown time frame of the Olde Sandwich Town Community Plan there is the potential for an air quality/climate and surface water interaction during construction between the two projects.	X	
Huron Church Road Corridor Special Policy Area • This policy is likely to result in residential and commercial development throughout the Huron Church Road Corridor. • Located along Huron Church Road approximately 1 km north of the E.C. Row Expressway / Huron Church Road interchange.	• Potential residual effects on air quality/climate associated with construction and surface water from the Huron Church Road Corridor Special Policy Area project were considered during construction and operations.	• Residual effects on air quality/climate and surface water from the Huron Church Road Corridor Special Policy Area may potentially interact with residual air quality and surface water effects from the Project. • Due to the unknown time frame of the Huron Church Road Corridor Special Policy Area there is the potential for an air quality/climate surface water interaction during	X	

Other Project or Activity	Potential Residual Effects Resulting from Other Project or Activity	Potential for Interaction with the DRIC Project	Potential for Cumulative Effects	
			Yes	No
		construction between the two projects.		
Spring Garden Planning Area and Secondary Plan • This plan is likely to result in future residential development within an expansive natural area feature (283 ha). • Located within the Project area, and is bound by The Windsor-Essex Parkway, Malden Road, Todd Lane, and Huron Church Road.	• Potential residual effects associated with the displacement/disturbance of wildlife and wildlife habitat and species at risk from the Spring Garden Planning Area and Secondary Plan were considered during construction and operations.	• Residual effects on wildlife and wildlife habitat and species at risk for the Spring Garden Planning Area and Secondary Plan may potentially interact with residual effects wildlife and wildlife habitat and species at risk from the Project given the permanent displacement of habitat.	X	
Talbot Planning District – Town of LaSalle • Future residential and highway commercial development of vacant land just south of Highway 3 / Talbot Road. • Located adjacent to The Windsor-Essex Parkway. The district is bound by Huron Church Line, Highway 3 / Talbot Road (future Windsor-Essex Parkway), Howard Avenue and Sixth Concession Road.	• Potential residual effects on air quality/climate and surface water from the Talbot Planning District – Town of LaSalle were considered during construction and operations.	• Residual effects on air quality/climate and surface water from the Talbot Planning District – Town of LaSalle projects may potentially interact with residual air quality and surface water effects from the Project during operations. • Due to the unknown time frame of the Talbot Planning District – Town of LaSalle projects there is the potential for an air quality/climate and surface water interaction during construction between the two projects.	X	
Canadian Projects - Provincial				
Huron Church Road at Industrial Drive • Intersection improvements to extend the northbound left turn lane on Huron Church Road will improve traffic flow by reducing congestion related to truck queues waiting to turn. • Located approximately 0.5 km north of the E.C. Row Expressway / Huron Church Road	• Intersection improvements on Huron Church Road at Industrial Drive were considered, and no potential residual effects are expected.	• No potential for interaction of residual effects were identified between the Project and the intersection improvements on Huron Church Road at Industrial Drive.		X

Other Project or Activity	Potential Residual Effects Resulting from Other Project or Activity	Potential for Interaction with the DRIC Project	Potential for Cumulative Effects	
			Yes	No
interchange.				
Intersection Improvements on Highway 3 at Outer Drive and Walker Road • Highway 3 intersection improvements at Outer Drive and Walker Road were completed in November 2005, and include: new traffic signals at Outer Drive, new left and right-turn lanes on Highway 3, a new southbound right-turn lane on Outer Drive, and left-turn lane extensions and pavement resurfacing of the intersections. • Located along Highway 3 at Outer Drive approximately 1 km from The Windsor-Essex Parkway. • Located along Highway 3 at Walker Road approximately 2 km from The Windsor-Essex Parkway.	• Intersection improvements on Highway 3 at Outer Drive and Walker Road were considered, and no potential residual effects are expected.	• No potential for interaction of residual effects were identified between the Project and the intersection improvements on Highway 3 at Outer Drive and Walker Road.		X
Walker Road/CPR Grade Separation • A rail bridge above Walker Road to reduce traffic delays was constructed in October 2008. • Located approximately 4 km northeast of The Windsor-Essex Parkway.	• The Walker Road/CPR Grade Separation project was considered, and no potential residual effects are expected.	• No potential for interaction of residual effects were identified between the Project and the Walker Road/CPR Grade Separation.		X
Manning Road Widening: North of Essex County Road 22 to VIA Rail Line • Widening Manning Road (Essex County Road 19) from two lanes to five lanes was completed in October 2007. • Located approximately 16 km northeast of The	• Potential residual effects considered for construction and operations of the Manning Road Widening: North of Essex County Road 22 to VIA Rail Line include: - Surface Water - Fish and Fish Habitat - Vegetation and Vegetation Communities	• No potential for interaction of residual effects were identified between the Project and the Manning Road Widening: North of Essex County Road 22 to VIA Rail Line. • The residual effects for both projects are localized and geographically separated.		X

Other Project or Activity	Potential Residual Effects Resulting from Other Project or Activity	Potential for Interaction with the DRIC Project	Potential for Cumulative Effects	
			Yes	No
Windsor-Essex Parkway.				
Howard Avenue/CPR Grade Separation • A proposed rail bridge above Howard Avenue to reduce traffic delays. • Located approximately 4 km north of The Windsor-Essex Parkway.	• The Howard Avenue/CPR Grade Separation project was considered, and no potential residual effects are expected.	• No potential for interaction of residual effects were identified between the Project and Howard Avenue/CPR Grade Separation.		X
Truck Ferry Road Infrastructure – Signing Improvements and Operations • Truck Ferry transports commercial vehicles transporting hazardous materials restricted by U.S. law from both the Ambassador Bridge and the Windsor-Detroit Tunnel. The ferry also carries over-size loads that are unable to cross at the bridge or tunnel due to clearance restrictions. In addition, the ferry serves as an alternate crossing option when the Ambassador Bridge is closed or experiencing significant delays. Traffic averages less than 40 trucks during the 7 AM to 4 PM daily schedule. • Operational improvements include road infrastructure, ferry terminal, and signing. • The truck ferry terminal is located approximately 1 km downstream of the crossing along the Detroit River.	• Potential residual effects on surface water and fish and fish habitat from the Truck Ferry Road Infrastructure and Signing Improvements were considered during construction. • Land based infrastructure improvements are expected to eliminate or substantially reduce the potential for operational residual effects on surface water quality.	• Residual surface water and fish and fish habitat effects from the Truck Ferry Road operations may potentially interact with residual surface water and fish and fish habitat effects from the Project. These residual effects could potentially interact during construction and operations given the limited geographic separation between the both projects.	X	
Highway 401 Widening East of Highway 3 /North Talbot Road to West of Manning Road • Reconstruction and widening of 6 km of Highway 401 from four to six-lanes includes the construction of a new concrete barrier to separate opposing traffic, drainage improvements, new paved shoulders, bridge	• Potential residual effects considered for the Highway 401 Widening East of Highway 3 to West of Manning Road include: - Air Quality / Climate - Surface Water	• Potential for interaction of residual effects on surface water quality, wildlife and wildlife habitat and fish and fish habitat during construction, however these effects will be localized to both projects. • Residual air quality/climate effects from the operations of Highway 401 Widening East of Highway 3 to West of	X	

Other Project or Activity	Potential Residual Effects Resulting from Other Project or Activity	Potential for Interaction with the DRIC Project	Potential for Cumulative Effects	
			Yes	No
replacements and rehabilitations, and interchange improvements at Provincial Road. Construction is underway. • Located along Highway 401 from the east limit of The Windsor-Essex Parkway for approximately 11 km to the Highway 401 and Manning Road interchange.	- Wildlife and Wildlife Habitat - Fish and Fish Habitat	Manning Road may potentially interact with residual air quality effects from the Project.		
Manning Road Widening from Highway 401 to County Road 22 • Widening Manning Road (Essex County Road 19) from two lanes to four lanes and intersection and interchange improvements at Manning Road and Highway 401. EA study in progress. • Located approximately 11 km east of The Windsor-Essex Parkway.	• Potential residual effects considered for the Manning Road Widening from Highway 401 to County Road 22 include: - Surface Water - Fish and Fish Habitat - Vegetation and Vegetation Communities	• No potential for interaction of residual effects were identified between the Project and the Manning Road Widening from Highway 401 to County Road 22. • The residual effects for both projects are localized and geographically separated.		X
Improvements to Highway 3 – Essex County • *Phase 1*: Widening of Highway 3 from two lanes to four lanes from the west junction of Essex County Road 34 to Essex County Road 8 near Windsor was completed in 2008. • *Phase 2*: Widening of Highway 3 from two lanes to five lanes from Essex County Road 11 to the west junction of Essex County Road 34. Construction is expected to begin in 2009. • Located along Highway 3 approximately 7 km from The Windsor-Essex Parkway.	• Potential residual effects considered for the improvements to Highway 3 – Essex County include: - Surface Water - Fish and Fish Habitat - Vegetation and Vegetation Communities	• No potential for interaction of residual effects were identified between the Project and the improvements to Highway 3 – Essex County. • The residual effects for both projects are localized and geographically separated.		X
Windsor-Detroit Tunnel Plaza Master Plan and Improvements	• The Windsor-Detroit Tunnel Plaza Master Plan and Improvements were considered, and no potential	• No potential for interaction for residual effect were identified between the Project and Windsor-Detroit Tunnel		X

Other Project or Activity	Potential Residual Effects Resulting from Other Project or Activity	Potential for Interaction with the DRIC Project	Potential for Cumulative Effects	
			Yes	No
• Operational improvements to the Windsor-Detroit tunnel plaza. The EA study is currently underway. • Located approximately 8 km north of The Windsor-Essex Parkway and 8 km upstream of the crossing along the Detroit River.	residual effects are expected.	Plaza Master Plan and Improvements.		
United States Projects				
U.S. Portion of the DRIC Project • Proposed U.S. portion of the international crossing as well as 200 acre inspection plaza. • The U.S. and Canadian portions of the DRIC Project are the preferred end-to-end solution.	• Potential residual effects during construction and operations were considered for the U.S. Portion of the DRIC Project include: - Air Quality / Climate - Surface water - Fish and Fish Habitat - Migratory birds	• Potential interactions between residual effects for the U.S. Portion of the DRIC Project and the Project include: - Air Quality /Climate - Surface water - Fish and Fish Habitat - Migratory birds • The potential for interaction of residual effects on air quality during construction are not anticipated to be predicted as the effects will be localized for the Canadian and U.S. portion of the DRIC Project.	X	
Private Sector Projects				
Ambassador Bridge Enhancement Project • The proposed project is located adjacent to the existing Ambassador Bridge and includes a new 6 lane cable-stayed bridge over the Detroit River. • Located approximately 4 km north of The Windsor-Essex Parkway and 3 km upstream of the crossing along the Detroit River.	• Potential residual effects during construction and operations were considered for the Ambassador Bridge Enhancement include: - Air Quality /Climate - Surface water - Vegetation and Vegetation Communities (construction) - Fish and Fish Habitat - Migratory birds	• Potential interactions between residual effects for the Ambassador Bridge Enhancement Project and the Project include: - Air Quality /Climate - Surface water - Fish and Fish Habitat - Migratory birds • The potential for interaction of residual effects on air quality and vegetation and vegetation communities during	X	

Other Project or Activity	Potential Residual Effects Resulting from Other Project or Activity	Potential for Interaction with the DRIC Project	Potential for Cumulative Effects	
			Yes	No
		construction are not anticipated to be predicted as the effects will be localized for the Ambassador Bridge Enhancement Project.		
Existing Ambassador Bridge • 4-lane suspension bridge over the Detroit River. • Located approximately 4 km north of The Windsor-Essex Parkway and 3 km upstream of the crossing along the Detroit River.	• Potential residual effects during construction and operations were considered for the existing Ambassador Bridge include: - Air Quality /Climate - Surface water - Fish and Fish Habitat - Migratory birds	• Potential interactions between residual effects for the existing Ambassador Bridge include: - Air Quality /Climate - Surface water - Fish and Fish Habitat - Migratory birds	X	
Existing Ambassador Bridge (4-lane) in combination with the Ambassador Bridge Enhancement Project (future 6-lane) • The existing Ambassador Bridge (4-lane suspension bridge over the Detroit River) combined with the proposed project located adjacent to the existing Ambassador Bridge (6-lane cable-stayed bridge over the Detroit River). • Located approximately 4 km north of The Windsor-Essex Parkway and 3km upstream of the crossing along the Detroit River.	• Potential residual effects during construction and operations were considered for the Existing Ambassador Bridge in combination with the Ambassador Bridge Enhancement Project include: - Air Quality /Climate - Surface water - Fish and Fish Habitat - Migratory birds	• Potential interactions between residual effects for the Existing Ambassador Bridge in combination with the Ambassador Bridge Enhancement Project and the Project include: - Air Quality /Climate - Surface water - Fish and Fish Habitat - Migratory birds	X	
Existing Brighton Beach Power Plant • The existing Brighton Beach Power Plant is a natural gas fired power plant. • Located adjacent to the inspection plaza (to the west).	• Potential residual effects on air quality and surface water from the existing Brighton Beach Power Plant were considered.	• Residual air quality effects from the existing Brighton Beach Power Plant may potentially interact with residual air quality effects from the Project during construction.	X	
E.C. Row Expressway	• Potential residual effects on air quality/climate,	• Potential interactions between residual effects for the	X	

Other Project or Activity	Potential Residual Effects Resulting from Other Project or Activity	Potential for Interaction with the DRIC Project	Potential for Cumulative Effects	
			Yes	No
• Existing 6-lane freeway that will be integrated with The Windsor-Essex Parkway through the Spring Garden area.	groundwater, surface water, and fish and fish habitat from the existing E.C. Row Expressway were considered during construction and operations were	existing E.C. Row Expressway and the Project include: - Air Quality / Climate - Groundwater - Surface water - Fish and Fish Habitat		

Therefore, Table 1.2 has determined that the following projects and activities are to be assessed for cumulative environmental residual effects and significance:

- Sandwich Neighbourhood Waterfront Special Policy Area;
- Olde Sandwich Town Community Plan;
- Huron Church Road Corridor Special Policy Area;
- Spring Garden Planning Area and Secondary Plan;
- Talbot Planning District – Town of LaSalle;
- Truck Ferry Road Infrastructure – Signing Improvements and Operations;
- Highway 401 Widening East of Highway 3 to West of Manning Road;
- U.S. Portion of the DRIC Project;
- The Ambassador Bridge Enhancement Project;
- Existing Ambassador Bridge;
- The Existing Ambassador Bridge (4 lanes) in combination with the Ambassador Bridge Enhancement Project (6 lanes);
- Existing Brighton Beach Power Plant; and,
- Existing E.C. Row Expressway.

These projects were carried forward to Section 1.5 based on their potential to interact either spatially or temporally with the residual environmental effects identified for the Project (Chapter 7.0 of the *DRIC Draft CEAA Report* (July 2009)) of the Project.

1.4 Determination of Cumulative Effects, Mitigation and Follow-up Measures

The prediction of potential cumulative effects involved tabulating the residual effects associated with the Project as identified in Chapter 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009). The residual effects of other past, existing or future projects or activities with the potential to overlap/interact with the environmental effects of the Project were also tabulated. The assessment of potential effects associated with these other projects or activities was qualitative in nature and involved professional judgment since the same level of information was not available as for the Project. Based on information available for the Project, in combination with these other projects and activities, the potential for cumulative environmental effects was determined.

1.5 Summary of Potential Cumulative Effects and Their Significance

This section provides a summary of potential cumulative effects and their significance only for environmental components that have residual effects as determined in Chapter 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009). Mitigation measures identified in Chapter 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009) will be employed, where required, to address potential cumulative residual effects.

All the conclusions in the CEA are considered in light of the existing baseline condition that is reflective of extensive anthropogenic activity. The project is located within an urban area that has undergone development over a long period of time.

Air Quality & Climate

The Project has the potential to result in air quality & climate residual effects. The DRIC Project in combination with the following list of projects and activities as determined from Table 1.2 has the potential to result in a cumulative effect.

- Olde Sandwich Town Community Plan
- Huron Church Road Corridor Special Policy Area
- Talbot Planning District – Town of LaSalle
- Highway 401 Widening East of Highway 3 and Manning Road
- U.S. Portion of the DRIC Project
- Ambassador Bridge Enhancement Project
- Existing Ambassador Bridge
- Existing Ambassador Bridge (4-lane) in combination with the Ambassador Bridge Enhancement Project (future 6-lane)
- Existing Brighton Beach Power Plant
- Existing E.C. Row Expressway

Possible residual effects resulting from dust generated during construction have the potential to interact with other projects and activities noted above. However, given the mitigation measures outlined in Chapter 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009) for the DRIC Project, cumulative effects are not anticipated.

During operations, the Project is anticipated to result in some improvement in regional air quality when compared to the future conditions without the Project. Components of the projects listed above are anticipated to result in effects which are localized and low in magnitude thereby resulting in localized air quality effects. Overall, based on the analysis, and considering the mitigation proposed for the Project, cumulative effects on air quality and climate are considered negligible and not likely to be significant. As such, no additional mitigation is required.

Groundwater

The Project has the potential to result in a groundwater residual effect and potential cumulative effect when considered in conjunction with the following projects.

- Existing E.C. Row Expressway

Given that a portion of the Windsor-Essex Parkway alignment will be shifted to integrate The

Windsor-Essex Parkway into the E.C. Row Expressway corridor, further away from the Spring Garden area, there is the potential for a residual cumulative effect resulting from groundwater associated with construction of the core collector system.

The potential effect is considered to be localized and is anticipated to be low magnitude given the mitigation measures outline in Chapter 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009). Overall, based on the analysis, and considering the mitigation proposed for the Project, cumulative effects on groundwater are considered negligible and not likely to be significant. As such, no additional mitigation is required.

Surface Water

The Project has the potential to result in surface water residual effects. The DRIC Project in combination with the following list of projects and activities as determined from Table 1.2 has the potential to result in a cumulative effect.

- Sandwich Neighbourhood Waterfront Special Policy Area
- Olde Sandwich Town Community Plan
- Huron Church Road Corridor Special Policy Area
- Talbot Planning District – Town of LaSalle
- Truck Ferry Road Infrastructure – Signing Improvements and Operations
- Highway 401 Widening East of Highway 3 /North Talbot Road to West of Manning Road
- U.S. Portion of the DRIC Project
- Ambassador Bridge Enhancement Project
- Existing Ambassador Bridge
- Existing Ambassador Bridge (4-lane) in combination with the Ambassador Bridge Enhancement Project (future 6-lane)
- Existing E.C. Row Expressway

Overall the stormwater management plan for the Project will improve water quality along The Windsor-Essex Parkway by providing stormwater quality treatment not currently provided. The stormwater management plan will also prevent water quality impacts to the Detroit River associated with operation of the inspection plaza and crossing.

Potential residual effects to surface water during construction and operations have the potential to interact with other projects and activities noted above.

The Project is anticipated to result in minor residual surface water effects as it will be required to meet standards prior to discharging, best management practices will be employed,, and any residual effects resulting from the Project will be infrequent and temporary. Overall, based on the analysis, and considering the mitigation proposed for the Project, cumulative effects on surface water are considered negligible and not likely to be significant. As such, no additional mitigation is required.

Noise & Vibration

The Project has the potential to result in noise & vibration residual effects. The DRIC Project in combination with the following list of projects and activities as determined from Table 1.2 has the potential to result in a cumulative effect.

- Ambassador Bridge Enhancement Project

- Existing Ambassador Bridge (4-lane) in combination with the Ambassador Bridge Enhancement Project (future 6-lane)
- Brighton Beach Power Plant

Noise levels in many areas will be reduced by the combination of lowering the highway, eliminating stop and go traffic on the route to the border, and the strategic placement of tunnels, noise barriers and/or earth berms.

With a 5 m high barrier in place, the proposed Project is predicted to result in no to a marginal noise impact for the Windsor-Essex Parkway. It should also be noted that for many receptors, especially along the north side of the Windsor-Essex Parkway, a decrease in noise levels compared to future "No-Build" noise levels was predicted.

Potential residual effects during construction resulting from Noise and Vibration have the potential to interact with other projects and activities noted above. Overall, based on the analysis, and considering the mitigation proposed for the Project, cumulative effects on noise and vibration are considered negligible and not likely to be significant. As such, no additional mitigation is required.

Fish & Fish Habitat

The Project has the potential to result in fish and fish habitat residual effects. The DRIC Project in combination with the following list of projects and activities as determined from Table 1.2 has the potential to result in a cumulative effect.

- Truck Ferry Road Infrastructure – Signing Improvements and Operations
- Highway 401 Widening East of Highway 3 /North Talbot Road to West of Manning Road
- U.S. Portion of the DRIC Project
- Ambassador Bridge Enhancement Project
- Existing Ambassador Bridge
- Existing Ambassador Bridge (4-lane) in combination with the Ambassador Bridge Enhancement Project (future 6-lane)
- Existing E.C. Row Expressway

Potential cumulative effects to fish and fish habitat associated with water quality impairment are not anticipated during construction and operations as no surface water cumulative residual effects are anticipated (see surface water above).

Where potential direct impacts to fish habitat are identified, appropriate mitigation and/or compensation strategies will be employed as required to obtain Federal *Fisheries Act* approval. Overall, based on the analysis, and considering the mitigation and *Fisheries* Act compensation proposed for the Project, cumulative effects on fish and fish habitat are considered negligible and not likely to be significant. As such, no additional mitigation is required.

Vegetation, Vegetation Communities & Wetlands

The Project has the potential to result in residual effects to vegetation, vegetation communities & wetlands. Construction and operation of the DRIC Project in combination with the following list of projects and activities as determined from Table 1.2 has the possibility to result in a potential cumulative effect.

- Ambassador Bridge Enhancement Project
- Existing Ambassador Bridge (4-lane) in combination with the Ambassador Bridge

Enhancement Project (future 6-lane)

The area for vegetation removals has been minimized to the extent possible based on the location and design of the Project. In addition, restoration and enhancement mitigation measures to be implemented for this Project during the operations and maintenance phases will offset the temporary loss of vegetation and vegetation communities during the construction phase.

Overall, based on the analysis, and considering the mitigation proposed for the Project, cumulative effects on vegetation, vegetation communities and wetlands are considered negligible and not likely to be significant. As such, no additional mitigation is required.

Wildlife, Wildlife Habitat and Migratory Birds

The Project has the potential to result in residual effects to wildlife, wildlife habitat and migratory birds. The DRIC Project in relation to the following list of projects and activities as determined from Table 1.2 has the potential to result in a cumulative effect.

- Spring Garden Planning Area and Secondary Plan
- Highway 401 Widening East of Highway 3 /North Talbot Road to West of Manning Road
- U.S. Portion of the DRIC Project
- Ambassador Bridge Enhancement Project
- Existing Ambassador Bridge
- Existing Ambassador Bridge (4-lane) in combination with the Ambassador Bridge Enhancement Project (future 6-lane)

Potential residual effects of the Project on wildlife and wildlife habitat are not anticipated to result in a cumulative effect. However, a potential residual effect of the Project on migratory birds has potential for a cumulative effect when considered in combination with the above noted projects (with the exception of the Spring Garden Planning Area and Secondary Plan project).

Habitat restoration and enhancement will be used to replace habitat lost during construction along The Windsor-Essex Parkway and is designed to offset habitat loss and help to establish connections between designated natural areas. The enhancement and restoration will take place prior to, during, and after construction.

Further work will be undertaken during future design stages to confirm and mitigate the potential for effects of the Project on migratory birds. Radar studies, acoustic studies and point count surveys will be carried out by Transport Canada in consultation with Environment Canada to provide input to bridge design. A Terms of Reference document has been prepared by Transport Canada which outlines how further work is to be carried out.

Measures to mitigate potential bird mortality from the crossing will be investigated in greater detail during future design stages. Final bridge design and lighting will need to take appropriate safety measures into account, in consideration of marine navigation on the Detroit River, the needs of motorists using the bridge and the aviation warning system.

Overall, based on the analysis, and considering the mitigation proposed for the Project, migratory bird mortality is possible, however the cumulative effect is not likely to be significant considering the mitigation measures as outlined in Chapter 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009) for the DRIC Project. As such, no additional mitigation is required.

Species At Risk

The Project has the potential to result in a residual effect to Species At Risk. The DRIC Project in combination with the following planning projects as determined from Table 1.2 has the potential to result in a cumulative effect.

- Spring Garden Planning Area and Secondary Plan

A potential residual effect from the Project (i.e. displacement/disturbance) on Species at Risk from construction activities and operations has the potential to interact with the development of the Spring Garden Planning Area and Secondary Plan given the geographic proximity to the these projects. Mitigation measures as outlined in Chapter 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009) for the DRIC Project will contribute to the enhancement and restoration of Species at Risk and their habitat. Overall, given mitigation measures proposed for Species at Risk and permits/approvals that will be secured under the Endangered Species Act and Species at Risk Act, a potential cumulative effect is anticipated, however it is not considered to be significant. The potential residual cumulative effect is anticipated to be low in magnitude as adaptive management techniques will be employed to ensure that mitigation practices are successful.

1.5.1 Residual Cumulative Effects and Significance

Overall the proposed mitigation measures as outlined in Chapter 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009) will limit the potential for cumulative effects during construction and operations of the Project. The proposed mitigation measures are considered adequate in addressing any cumulative effects resulting from the DRIC Project.

1.6 Conclusion

Based on the results of the cumulative effects assessment outlined above in Section 1.5, and given the extensive mitigation measures proposed for the Project (Chapter 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009)), it can be concluded that cumulative residual effects on species at risk (in the Spring Garden area) and migratory birds (in the vicinity of the Detroit River) are anticipated to result from the Project in combination with other past, present, and reasonably foreseeable projects or activities. These cumulative residual effects are not anticipated to be significant due to the mitigation measures (Chapter 7.0 of the *DRIC Draft CEAA Screening Report* (July 2009)) and follow-up and monitoring programs (Chapter 9.0 of the *DRIC Draft CEAA Screening Report* (July 2009)) identified for the Project.

2.0 References

ATCO Power. 2009. *Brighten Beach Power Plant* 2009. <http://www.atcopower.com/Our+Facilities/North+America/Brighton+Beach+(ON)/>

Ambassador Bridge Enhancement Project. 1996-2009. <http://www.ambassadorbridge.com/ambassador-project.html>

Ambassador Bridge. 1996-2009. http://www.ambassadorbridge.com/siteindex.html

Canadian Environmental Assessment Agency. 1992. *Canadian Environmental Assessment Act, 1992*. Government of Canada. < http://laws.justice.gc.ca/en/showdoc/cs/C-15.2///en?page=1>

Canadian Environmental Assessment Agency. 2007. *Operational Policy Statement on Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act*, November 2007. <http://www.ceaa.gc.ca/default.asp?lang=En&n=1F77F3C2-1>

City of Windsor Official Plan. 2007. *Chapter 5: Spring Garden Planning Area - Spring Garden Schedules*. < http://www.citywindsor.ca/000990.asp>

City of Windsor Official Plan – Volume 11 – Special Policy Area. 2007. *Sandwich Neighbourhood Waterfront Special Policy Area.* < http://www.citywindsor.ca/DisplayAttach.asp?AttachID=10390>.

City of Windsor Official Plan – Volume 11 – Special Policy Area. 2007. Huron Church Road Corridor. <http://www.citywindsor.ca/DisplayAttach.asp?AttachID=10390>.

City of Windsor. 2009. *Olde Sandwich Towne Community Improvement Plan*. <http://www.citywindsor.ca/002734.asp>.

Cumulative Effects Assessment Working Group & AXYS Environmental Consulting Ltd. 1999. *Cumulative Effects Assessment Practitioners Guide*, February 2009. <http://www.ceaa.gc.ca/default.asp?lang=En&n=43952694-1&toc=hide>

Detroit International Bridge Company Canadian Transit Company. 2009. *CEAA Environmental Impact Statement Ambassador Bridge Proposed Project Replacement Span Report.* December 2007. <http://www.ambassadorbridge.com/environmental-assessment-final.html>. Prepared for Transport Canada.

Environment Canada. 2002. *Species At Risk Act (SARA), 2002*. Government of Canada. <http://laws.justice.gc.ca/en/s-15.3/text.html>

Ministry of Natural Resources. 2007. *Endangered Species Act, 2007*. The Province of Ontario. <http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_07e06_e.htmcological>

Ministry of Transportation. 2007. *Manning Road Widening: North of Essex County Road 22 to the VIA Rail Line.* The Province of Ontario. <http://www.mto.gov.on.ca/english/engineering/border/windsor/project6.shtml>

Ministry of Transportation. 2008. *Walker Road-CPR Grade Separation*. The Province of Ontario. <http://www.mto.gov.on.ca/english/engineering/border/windsor/project5.shtml>

Ministry of Transportation. 2009. *Highway 3 Intersection Improvements at Outer Drive and at Walker Road.* The Province of Ontario. <http://www.mto.gov.on.ca/english/engineering/border/windsor/project2.shtml>

Ministry of Transportation. 2009. *Huron Church-Industrial Drive Intersection Improvements.* The Province of Ontario. <http://www.mto.gov.on.ca/english/engineering/border/windsor/project3.shtml>

Ministry of Transportation. 2009. *Highway 401 Widening East of Highway 3 to West of Manning Road.* The Province of Ontario. <http://www.mto.gov.on.ca/english/engineering/border/windsor/project10.shtml>

Ministry of Transportation. 2009. T*ruck Ferry Road Infrastructure and Signing Improvements.* The Province of Ontario. <http://www.mto.gov.on.ca/english/engineering/border/windsor/project7.shtml>

Ministry of Transportation. 2009. *Howard Avenue-CPR Grade Separation.* The Province of Ontario. <http://www.mto.gov.on.ca/english/engineering/border/windsor/project8.shtml>

Ministry of Transportation. 2009. *Windsor-Detroit Tunnel Plaza Master Plan and Improvements.* The Province of Ontario.

http://www.mto.gov.on.ca/english/engineering/border/windsor/project9.shtml

Ministry of Transportation. 2009. M*anning Road Widening from Highway 401 to County Road 22*. The Province of Ontario.

<http://www.mto.gov.on.ca/english/engineering/border/windsor/project12.shtml>

Ministry of Transportation. 2009. *Truck Marshalling Yard*. The Province of Ontario. http://www.mto.gov.on.ca/english/engineering/border/windsor/project13.shtml

Ontario Power Authority. 2009. *Brighten Beach Power Plant* 2009. <http://www.powerauthority.on.ca/Page.asp?PageID=924&ContentID=5137>

Town of LaSalle Official Plan .2003. *Talbot Planning District – Town of LaSalle*. <http://www.town.lasalle.on.ca/Planning/OfficialPlan/OP-schedB-3.pdf>

Transport Canada. 2009. *Final EA Guidelines under the Canadian Environmental Assessment Act for the Detroit River International Crossing Project*. November 2006, revised February 2009. Prepared for the Canada-United States-Ontario-Michigan Border Partnership.

URS Canada Inc. 2004. *Detroit River International Crossing Study Environmental Assessment Terms of Reference.* May 2004. Prepared for the Canada-United States-Ontario-Michigan Border Partnership.

URS Canada Inc. 2008. *Final Environmental Assessment Report – Environmental Assessment W.O. 04-33-002: Detroit River International Crossing Study, City of Windsor, County of Essex, Town of LaSalle, Town of Tecumseh.* December 2008. Prepared for the Canada-United States-Ontario-Michigan Border Partnership.

URS Canada Inc. 2009. *Canadian Environmental Assessment Act Report Screening Report – CEAR No. 06-01-18170 Detroit River International Crossing Study* July 2009. Prepared for the Canada-United States-Ontario-Michigan Border Partnership.

U.S. Department of Transportation Federal Highway Administration and Michigan Department of Transportation. 2008. *Final Environmental Impact Statement and Final Section 4(f) Evaluation.* < http://www.partnershipborderstudy.com/reports_us.asp>