

Detroit River
INTERNATIONAL CROSSING
S T U D Y

Transportation Planning and Needs Report

DRAFT November 2005

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Preface

Between 2001 and 2004, the Canadian, U.S., Ontario and Michigan governments conducted a Planning/Needs and Feasibility Study to provide a long-term strategy that will ensure the safe and efficient movement of people, goods and services between Southeastern Michigan and Southwestern Ontario. The study assessed the transportation network, including border crossings, and identified medium- and long-term transportation needs, alternatives and potential new crossings between Southeast Michigan and Southwest Ontario.

The objectives of the Planning/Needs and Feasibility Study were as follows:

- a) Identify existing and future transportation problems and opportunities with respect to capacity of border crossings, and the linkage to, and capacity of, existing and planned future national, provincial and municipal transportation systems.
- b) Identify a focused analysis area within which transportation alternatives will be studied.
- c) Identify and analyze surface transportation alternatives (highway, arterial road, rail and marine) that are practical and feasible from a transportation, environmental, border processing and financial perspective.
- d) Recommend feasible international crossing alternatives that address the identified transportation problems and opportunities.
- e) Develop an overall 30-year transportation strategy, which includes implementation strategies for any international crossing alternatives.

The results of the Planning/Needs and Feasibility Study were used to initiate the Terms of Reference for an environmental study to meet the requirements of the Ontario Environmental Assessment Act (OEAA).

The Ontario EA for a new Detroit River International Crossing was initiated in January 2005. In the U.S., a notice of intent to proceed with an environmental impact study (EIS) in accordance with the National Environmental Policy Act (NEPA) was placed on the public record by the Federal Highway Administration (FHWA) in March, 2003.

This report forms part of the Ontario Environmental Assessment and was prepared in accordance with the approved Terms of Reference. It was assembled and coordinated by URS with excerpts taken directly from the following working papers prepared by subconsultants to URS:

- 1) IBI Group – Detroit River International Crossing Study Travel Demand Forecasts Working Paper (July 2005);
- 2) IBI Group – Detroit River International Crossing Travel Demand Model Update (September 2005); and
- 3) HLB Decision Economics – Detroit River International Crossing Study Regional and National Economic Impact of Increasing Delay and Delay-Related Costs at the Detroit River Crossings (July 2005).

The report is issued for review and comment at this time and is subject to revision and/or update by the Partnership prior to submission of the final Environmental Assessment documents.

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1. Introduction

The Transportation Planning and Needs Report provides an introduction of the four government partners and their objectives. It also provides an overview of the nature and extent of problems and needs to be addressed by the Detroit River International Crossing (DRIC) Environmental Assessment (EA).

The objective of the Transportation Planning and Needs Report is to describe the existing transportation system, identify future problems as they relate to cross-border surface traffic (cars and trucks) and define the needs for international crossings of the Detroit River.

1.1. The Partnership

The Canada-US-Ontario-Michigan Border Transportation Partnership includes the transportation authorities from two federal governments and two provincial/state governments. The Federal Highway Administration (FHWA) is an arm of the U.S. Department of Transportation and Transport Canada (TC) is the corresponding federal level agency in Canada. The Ontario Ministry of Transportation (MTO) and the Michigan Department of Transportation (MDOT) are the provincial and state agencies that have roadway jurisdiction on each side of the border between Ontario and Michigan.

Each of the four partners has among their mandates, statements of mission, purpose, or vision, an expression of the importance of the border crossings that are the focus of this study.

1.1.1. Transport Canada (TC)

The Canada Transportation Act – 1966 – c.10 – strives to ensure that “each carrier or mode of transportation, as far as is practicable, carries traffic to or from any point in Canada under fares, rates and conditions that do not constitute...(iv) an unreasonable discouragement to the development of primary or secondary industries, to export trade in or from any region of Canada or to the movement of commodities through Canadian ports.”

TC’s 2001-2004 Business Plan states that, “to effectively plan for continual increases in international traffic, the federal government will participate in several border crossing studies/projects to identify future demand.”

1.1.2. Ontario Ministry of Transportation (MTO)

The primary goal of the MTO’s “Strategic Transportation Directions” process is to develop a fiscally and environmentally sustainable transportation system that will foster economic development while addressing the needs of the transportation users, industry and the public. In Southwest Ontario that is expressed in an objective that proposes to support the efficient operation of international and interprovincial trade corridors and gateways.

The Toll Bridges Act – R.S.O. 1990, c T-11, section 5 states that the Minister of Transportation “may on behalf of Her majesty in right of Ontario enter into agreements with any Canadian or foreign authority for the joint financing, construction or operation of any international bridge or tunnel and for any matter incidental thereto.”

1.1.3. U.S. Federal Highway Administration (FHWA)

The general responsibilities of the Secretary of the U.S. Department of Transportation, the Cabinet officer under whom the FHWA functions, listed in 49 CFR 1.1.4 (a)(1) includes “Leadership in formulating and executing well-balanced national and international transportation objectives, policies, and programs.”

The FHWA responsibilities include in 49 CFR 1.4 (d)(2) “Providing for improving, in cooperation with the States, roads on the Federal-aid primary, secondary, and interstate highway systems and urban extensions thereof.”

The vision of the Federal Highway Administration is to improve transportation for a strong America. The mission of the Federal Highway Administration is to enhance mobility through innovative leadership and public service.

1.1.4. Michigan Department of Transportation (MDOT)

Public Act 51 of 1951 states that the state shall “provide for the continuing review of transportation needs within the state;”

and

Public Act 286 of 1964 Section 247.806a, paragraph (d) describes the powers of the Secretary of the Michigan Department of Transportation and states that the Secretary may “establish a program of current and long-range planning for the transportation systems under the department’s jurisdiction.”

In its application MDOT’s mission is to provide “the highest quality transportation for economic benefit and improved quality of life.”

1.2. Consultation Incorporated in the Transportation Planning and Needs Report

The DRIC EA includes a consultation program designed to obtain meaningful input and share information with public sector and private sector stakeholders, as well as the general public.

Summary data, reflecting the project needs, alternatives to the undertaking and the area of the Detroit River in which alternatives were developed, was presented as part of the consultation program. Input from the general public, as well as the other consultation groups, on the work completed to date as discussed in this report is encouraged. The comments received from the first round of consultation as well as comments related to this document will be taken under advisement for future work of the study.

2. Background

2.1. Background

The Partnership has been formed for the purpose of improving safe and efficient movement of people and goods across the U.S./Canadian border at the Detroit River, including improved connections to national, provincial and regional systems, such as I-75 and Highway 401.

In support of the purpose, the Partnership will evaluate, identify and enable implementation of trans-border transportation infrastructure improvements that meet the following objectives to the maximum extent possible:

- To provide for the safe, efficient and secure movement of people and goods across the Canadian-U.S. border in the Detroit River area to support the economies of Ontario, Michigan, Canada and the U.S.;
- To enhance local and regional economic vitality and Canadian/U.S. trade;
- To meet long-term transportation infrastructure needs;
- To consider all modes of surface transportation including road, transit, rail and marine.
- To expedite, facilitate and complete the planning, design and implementation of new or expanded border-crossing facilities;
- To use a coordinated planning and environmental study process, hereafter referred to as the "Coordinated Process", resulting in a joint solution having environmental clearance in both countries;
- To involve public and private stakeholders in the decision-making process;
- To develop solutions, in compliance with all relevant and applicable federal, provincial, state and/or municipal laws, regulations, bylaws, ordinances or other binding enactments that have been validly created by bodies having legislative or rule-making authority;
- To conduct the activities of the Partnership in a timely and financially responsible manner;
- To consider the best available procedures and technologies to enhance border-crossing efficiency, including provision of intelligent transportation systems as applicable;
- To support short-term measures to improve efficiency of existing border crossings;
- To develop a governance framework for new or expanded border crossing facilities.

The Partnership jointly commissioned a Planning/Need and Feasibility Study (P/NF), which identified a long-term strategy to address the safe and efficient movement of people and goods between Southeast Michigan and Southwest Ontario. Although conducted in a manner consistent with the environmental study processes in both countries, the P/NF Study was not completed within the formal environmental study framework. The findings

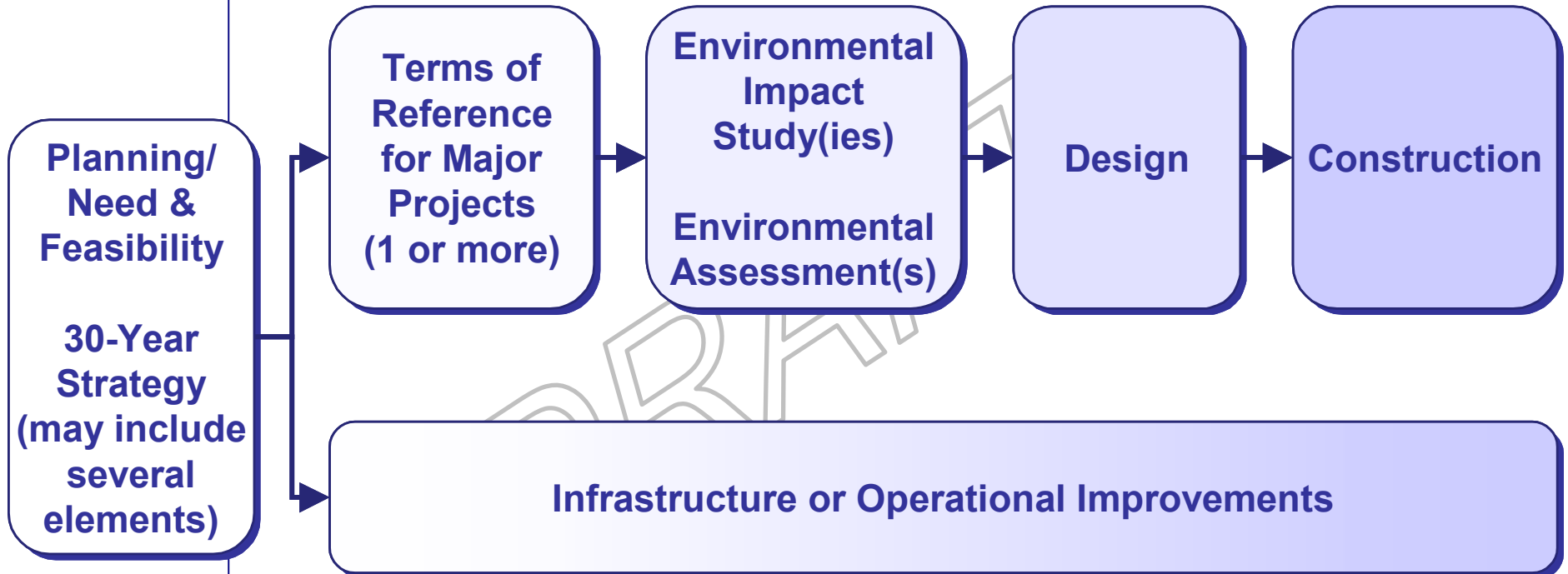
of the P/NF Study, however, serve as an important basis for governments to move forward in the development and improvement of cross-border transportation services, including proceeding with the environmental study processes in the U.S. and Canada for major transportation improvements at the Detroit River international crossing. The process relating the Planning/Need and Feasibility Study to implementation of border crossing improvements is illustrated schematically in Exhibit 1.1.

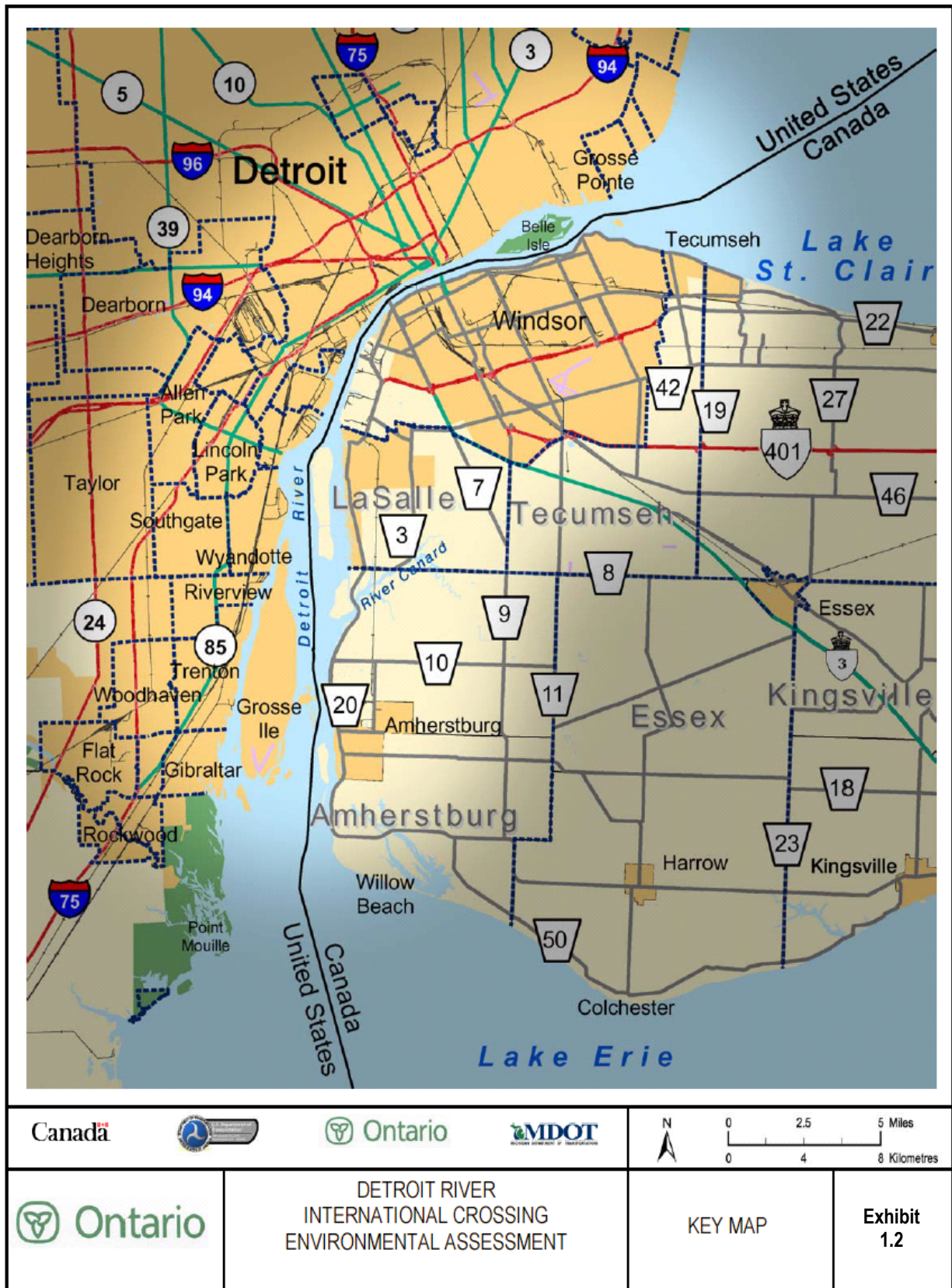
A consultation component was incorporated in the P/NF Study process. Canadian and U.S. government departments, ministries and agencies, local municipalities, First Nations groups, private sector stakeholders in border transportation issues, as well as the general public were engaged in the course of the study. Throughout the P/NF Study, the Partnership affirmed that the findings of the P/NF Study may be used to initiate environmental studies in accordance with the requirements of the U.S. National Environmental Policy Act (NEPA), Canadian Environmental Assessment Act (CEAA) and Ontario Environmental Assessment Act (OEAA). This step would be followed by completion of the appropriate environmental impact/assessment studies, design of the approved improvements and ultimately, construction. Recommendations considered to be minor infrastructure or operational improvements could be implemented more directly, in accordance with the appropriate legislation. It is important to note that the Partnership is committed to implementing effective consultation programs throughout the study process.

The transportation problems and opportunities identified during the P/NF Study provided the basis for the Partnership to initiate the environmental study processes for the development and assessment of transportation alternatives at the Detroit River international crossing. A key map is provided in Exhibit 1.2.

In Ontario, the environmental study process requires that major transportation improvements be carried forward as an environmental assessment. The first step in completing an environmental assessment in Ontario is the preparation of an Environmental Assessment Terms of Reference (TOR). The TOR for the Detroit River International Crossing Environmental Assessment Study was submitted to the Ontario Minister of the Environment for approval in May 2004 and subsequently approved in September 2004.

EXHIBIT 1.1 – BI-NATIONAL PLANNING AND ENVIRONMENTAL PROCESS





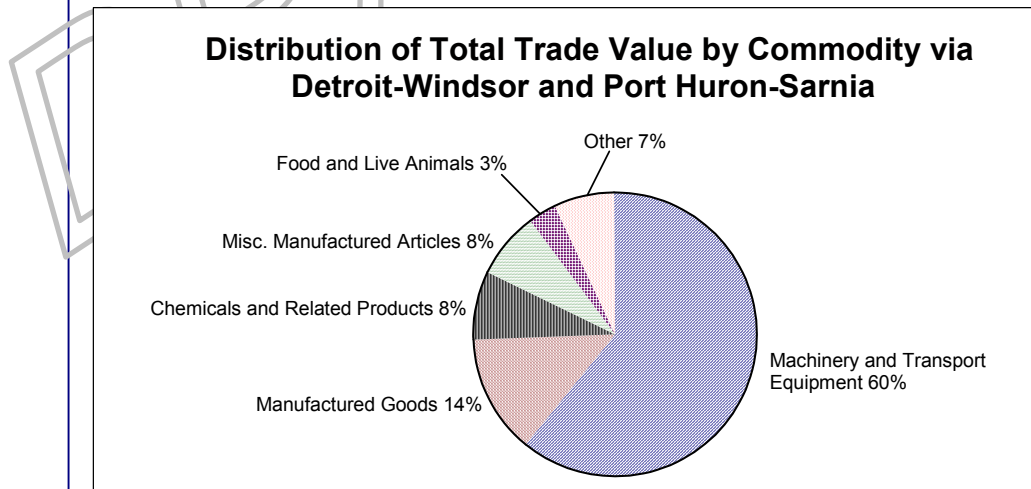
3. Canada/U.S. Trade at Detroit-Windsor Overview

3.1. Trade

Canada and the United States are the largest bilateral trade partners in the world with the total value of goods traded between them reaching U.S.\$428 billion in 2004. The North American Free Trade Agreement has had significant impact on trade between the two nations, solidifying and reinforcing access to both markets. In 2004, 85 percent of total Canadian exports were destined for the United States while 59 percent of imports were sourced from the U.S. The Detroit River crossings, especially the Ambassador Bridge, represent key gateways for cross-border trade between Canada and the United States and hold great importance to the economies of both countries. Total cross-border trade in the Detroit-Windsor corridor was estimated at U.S.\$113 billion in 2004¹ representing approximately one-quarter of total bilateral trade.

The nature of commodity trade via Detroit-Windsor and Port Huron-Sarnia is illustrated in Exhibit 3.1.

EXHIBIT 3.1 – DISTRIBUTION OF TOTAL TRADE VALUE BY COMMODITY VIA DETROIT-WINDSOR AND PORT HURON-SARNIA



Source: U.S. Census Bureau – 2000 Data

¹ Estimate of Detroit River crossing trade provided by IBI Group.

In terms of value of shipments, Detroit was the largest point of entry for Canadian exports to the U.S. and Port Huron was the second largest, indicating the significance of these trade corridors not just to the local economies or provincial/state economies, but also to Canada and the United States in general. Approximately one-fifth of the value of total Canadian exports to the U.S. passes through each of these ports annually.

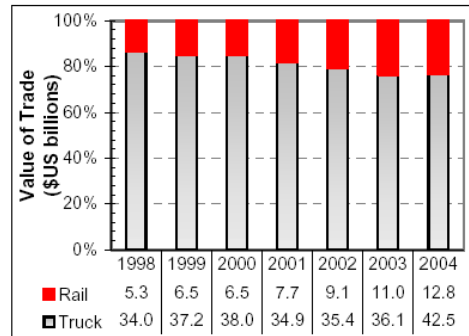
The most significant component of this bilateral trade is related to the automotive industry. The Autopact, the 1965 agreement between Canada and the U.S. that opened the way for Canadian auto plants to produce automobiles for sale in the U.S., followed by the North American Free Trade Act (NAFTA), has propelled Canada into an ongoing trade surplus situation with the United States. Exports to the United States were negligible prior to the pact but now cars and trucks are Canada's largest items of export. With the "Big Three" original automakers located next door in Detroit, Ontario has become a leader in automotive manufacturing exports to the United States. Similarly, Michigan has become a major importer of Canadian products. That the economic linkages between Michigan and Ontario are particularly strong can be exhibited by the fact that the U.S. traded U.S. \$255 billion in goods with the province of Ontario alone in 2004, of which over 25 percent represented trade with Michigan.

Approximately 80% of the value of surface freight between Southeast Michigan – Southwest Ontario is carried on trucks (reference Exhibit 3.1). Rail carries approximately 20% of the freight by value. In terms of the division of this trade by crossing location, the data presented in Table 3.1 identifies the Detroit River crossings consistently carry about 65% of the total value of cross-border trade in the Southeast Michigan – Southwest Ontario frontier.

EXHIBIT 3.2 – VALUE OF TRADE BY MODE FOR DETROIT & ST. CLAIR RIVER CROSSINGS, 1998 TO 2004

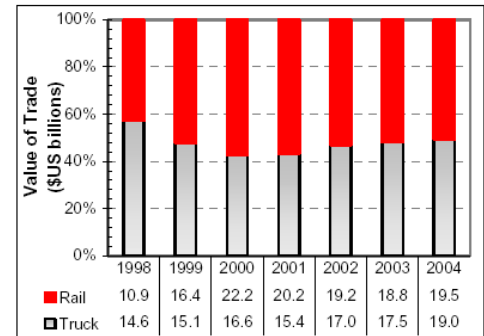
DETROIT RIVER

Canada to US

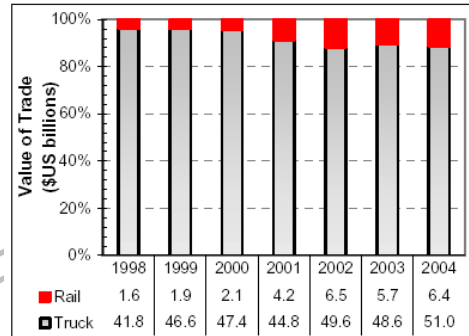


ST CLAIR RIVER

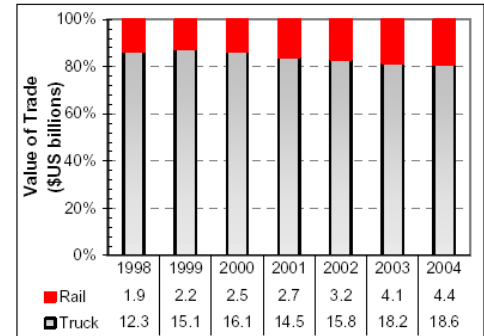
Canada to US



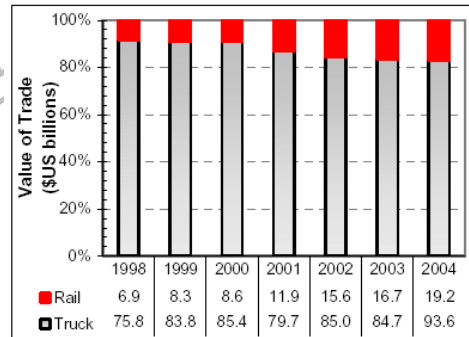
US to Canada



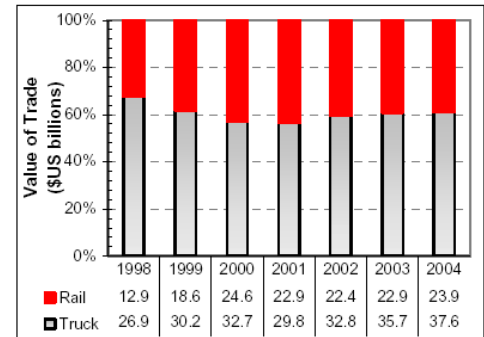
US to Canada



Total Two-Way Trade



Total Two-Way Trade



Source: BTS Transborder Surface Freight Database

Exhibit 3.3 presents annual commercial vehicle volumes for Ontario-US crossings for 2000 and 2004. The Ambassador Bridge is the dominant commercial vehicle crossing and carried 3.37 million commercial vehicles in 2004. The Detroit-Windsor Tunnel serves a small number of commercial vehicles (0.16 million in 2004), with infrastructure constraints of the tunnel precluding most large trucks from using this facility. These two Detroit River crossings represented 41.5% of Ontario-US commercial vehicle traffic.

EXHIBIT 3.3 – COMMERCIAL VEHICLE VOLUMES AT ONTARIO-U.S. CROSSINGS, 2000 TO 2004

Crossing	2000 Volume (Millions)	2004 Volume (Millions)	Absolute Increase	Percent Change
Ambassador Bridge	3.49	3.37	(0.12)	(3.4%)
Detroit-Windsor Tunnel	0.18	0.16	(0.02)	(11.1%)
Blue Water Bridge	1.48	1.80	+0.32	+21.6%
Lewiston-Queenston Bridge	1.04	1.01	(0.03)	(2.9%)
Ogdensburg Bridge	0.06	0.10	+0.04	+66.6%
Peace Bridge	1.45	1.30	(0.15)	(10.3%)
Sault St. Marie Bridge	0.13	0.13	0.00	0.0%
Seaway International Bridge	0.13	0.16	+0.03	+23.1%
Thousand Islands Bridge	0.54	0.48	(0.06)	(11.1%)
TOTAL	8.50	8.51	+0.01	0.1%
Share of Detroit River Crossings	43.2%	41.5%	-	-
Total Detroit River Crossings	3.67	3.53	(0.14)	(3.8%)
Total St. Clair River Crossings	1.48	1.80	+0.32	+21.6%
Total Niagara River Crossings	2.49	2.31	(0.18)	(7.2%)
Total St. Lawrence River Crossings	0.73	0.74	+0.01	(1.3%)

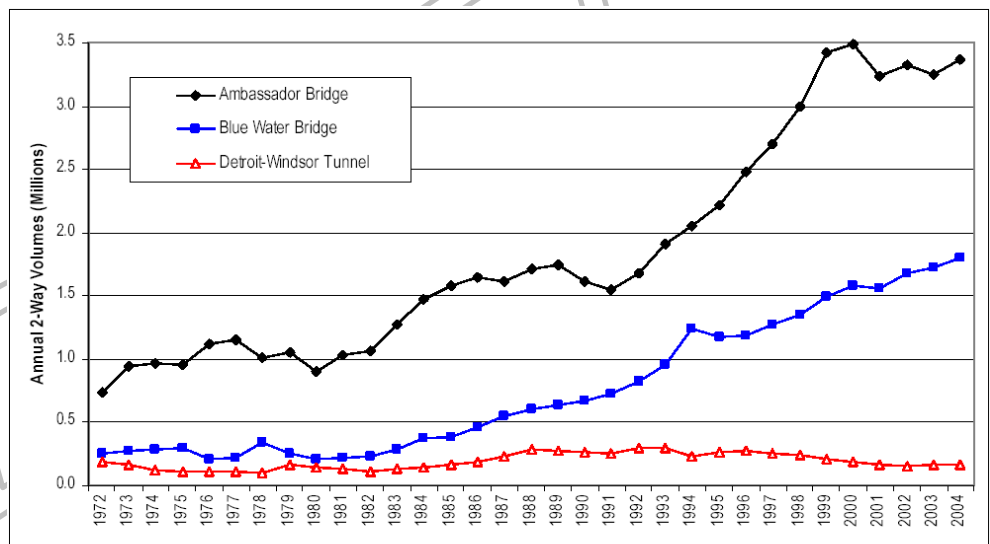
Source: Bridge and Tunnel Operators Association

Since 2000, total commercial vehicle traffic at Ontario-US crossings has been relatively constant at approximately 8.5 million vehicles, with growth impeded by a downturn in the U.S. economy that started in 2000, the events of 9/11 and the associated border delays and more rigorous security procedures. Annual commercial vehicle traffic at the Ambassador Bridge decreased by 0.12 million vehicles or by 3.4% between 2000 and 2004. The Blue Water Bridge increased by 0.32 million vehicles over this same time period, representing a 21.6% increase. The Ambassador Bridge and Blue Water Bridge operate as a transportation system, as many long distance trips can use either crossing and the combined Detroit and St. Clair River crossings experienced a net growth of 0.18 million vehicles. A proportion of Ambassador Bridge trips have diverted to the Blue Water Bridge, owing to actual and/or perceived delays at border inspection in Windsor-Detroit, as well as a small shift in travel patterns between 2000 and 2004, with a slightly higher proportion of trade to mid-western states that are more easily accessed via the Blue Water Bridge.

In combination, the Detroit and St. Clair River crossings have increased their share of commercial vehicle among Ontario-US crossings. The Niagara River commercial vehicle crossings, consisting of the Lewiston-Queenston and Peace Bridges experienced a decline in commercial vehicle traffic from 2.49 million in 2000 to 2.31 million in 2004, representing a 7.2% decrease.

Exhibit 3.4 shows annual commercial vehicle volumes for the three crossings from 1972 to 2004. Previous to 2000, commercial vehicle volumes had increased very rapidly in the 1990s and more than doubled at Ambassador Bridge and Blue Water Bridge, to 3.49 million commercial vehicles at Ambassador Bridge in 2000 and 1.58 million at Blue Water Bridge. Volumes at the Detroit-Windsor Tunnel, however, steadily decreased over the same period to 182,000 commercial vehicles in 2000, about half of the volume in 1990. Volumes at all crossings are lower in 2001 than in 2000 by 6% due to the effects of 9/11: 7.1% lower at the Ambassador Bridge, 6.8% lower at the Detroit-Windsor Tunnel and 1.3% lower at the Blue Water Bridge.

EXHIBIT 3.4 – ANNUAL COMMERCIAL VEHICLE VOLUMES, 1972 TO 2004



Source: Bridge and Tunnel Operators Association

In total, since 1994, growth in commercial vehicle volumes exhibited at the Detroit River crossings has been much stronger than that of other Canada-US border regions. Overall, the rate of growth has been strong over the past 30-year period, owing to increases in industrial production in both Canada and the U.S. Growth in the auto sector and increases in Canadian assembly plant activity have particularly influenced the increase in commercial vehicle traffic between Southeastern Michigan and Southwestern Ontario. This is largely due to the 1965 Auto Pact between the U.S. and Canada, which has since been superseded by the North American Free Trade Agreement (NAFTA). In terms of overall levels of commercial vehicle traffic, the movement to just-in-time inventories has resulted in significantly increased demand in the trucking industry in general, and increased competitiveness of the trucking mode relative to rail. This trend to just-in-time inventories is most prevalent in the auto industry, which is the dominant industry in the

corridor. This, together with general trends to more frequent shipments of smaller quantities, has led to increased commercial vehicle traffic through North America, which is very much reflected at the Detroit and St. Clair River crossings.

As well, the North American Free Trade Agreement (NAFTA) between the U.S., Canada and Mexico came into effect in January of 1994. Prior to NAFTA, Mexico had highly restrictive trade barrier and entrance into its market place was difficult; commercial vehicles are now able to drive across North America with virtually no border restrictions. The full benefits of NAFTA are still being realized, which are expected by most economists to facilitate trade growing between Canada and the U.S. at a rate greater than the growth in Gross National Products.

The Detroit River frontier represents the busiest corridor for trade between Canada and the United States. The benefits of such trade to the local, regional and national economies is represented in the prosperity, opportunities and high standards of living each country enjoys, and the prospect of continued increased trade passing through this corridor must be encouraged as well as protected. The governments of Canada, United States, Ontario and Michigan each have a duty and responsibility to provide for and reduce the likelihood of disruption to the safe, continuous transport of people and goods across the Detroit River frontier.

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4. Existing Transportation System

This chapter provides an overview of the existing transportation system, comprising the road, rail and marine border crossing facilities and the supporting transportation infrastructure for the Detroit River and St. Clair River crossings.

4.1. Bridge & Tunnel Crossings

There are three road crossings between Southeastern Michigan and Southwestern Ontario, consisting of the Ambassador Bridge and Detroit Windsor Tunnel crossing the Detroit River in Windsor-Detroit and the Blue Water Bridge crossing the St. Clair River in Sarnia-Port Huron.

4.1.1. Ambassador Bridge

The Ambassador Bridge was opened in 1929 and connects the local road network in west Windsor with the U.S. interstate system in southwest Detroit. From entrance to exit, the suspension bridge is 2.8 kilometres (9,200 feet) long, and rises as high as (46 m (152 feet) above the Detroit River at its centre. Two lanes in each direction are provided along its length; currently one is used for cars and one for commercial vehicles. All tolls are collected on the U.S. side of the bridge, although toll collection facilities also exist on the Canadian side on the approach to the bridge.

For entry to the U.S., Department of Homeland Security (DHS) operates separate border processing facilities for commercial vehicles and for passenger cars. Commercial vehicles are routed via a ramp from the bridge to a processing area below and to the east of the bridge with thirteen primary inspection booths. Passenger cars continue straight ahead from the Bridge to twelve primary inspection booths. Toll booths are provided after primary inspection for cars and commercial vehicles.

For entry to Canada, Canada Border Services Agency (CBSA) operates ten passenger car and ten truck primary inspection lanes. Secondary inspection for cars occurs beyond the primary inspection booths. Secondary inspection for commercial vehicles is located off-site at Malden Road, approximately two kilometres south off of Huron Church Road, although there is a small area for secondary commercial inspection at the plaza.

4.1.2. Detroit-Windsor Tunnel

The Detroit-Windsor Tunnel was opened in 1930 and connects downtown Windsor and downtown Detroit. The tunnel is approximately 1.6 kilometres (1 mile) long and extends 23 metres (75 feet) below the surface of the Detroit River. The tunnel is illuminated and ventilated. One lane is provided in each direction. The tunnel has a height clearance of 4.0 metres (13'2") and a 330-degree bend in the tunnel, which restricts the types of commercial vehicles that can use the tunnel.

Primary inspection facilities are provided at the entry to both Canada and the U.S. Due to the downtown location of the plazas, the space for secondary commercial inspection is limited and most secondary inspection for commercial vehicles is carried out off-site.

There are twelve primary inspection lanes on the U.S. side, including three booths available for use by commercial vehicles. Secondary inspection for cars is carried out immediately adjacent to the primary inspection with twenty-three spaces available. In Canada, there are twelve primary inspection lanes, with commercial vehicle primary inspection lanes to the east of the tunnel exit portal and leading onto Goyeau Street. Primary inspection lanes for cars are on the west side of the tunnel exit portal, leading onto Park Street. Secondary inspection for cars is located directly after passing through the primary inspection. Secondary inspection for commercial vehicles is located off-site at Hanna Street, approximately 1.5 kilometres south of the tunnel plaza, although there is a small area for secondary commercial inspection on the plaza itself.

4.1.3. Blue Water Bridge

The Blue Water Bridge was opened in 1938. The original three-lane, 6,200-foot (1.88-km) cantilever truss bridge over the St. Clair River connects Sarnia and Port Huron. A second three-lane, 6,100-foot (1.86-km) continuous tied arch bridge was opened in 1997 to allow the closure of the first span for major deck rehabilitation. In 1999, both spans were open to traffic, providing a significant increase in roadbed capacity.

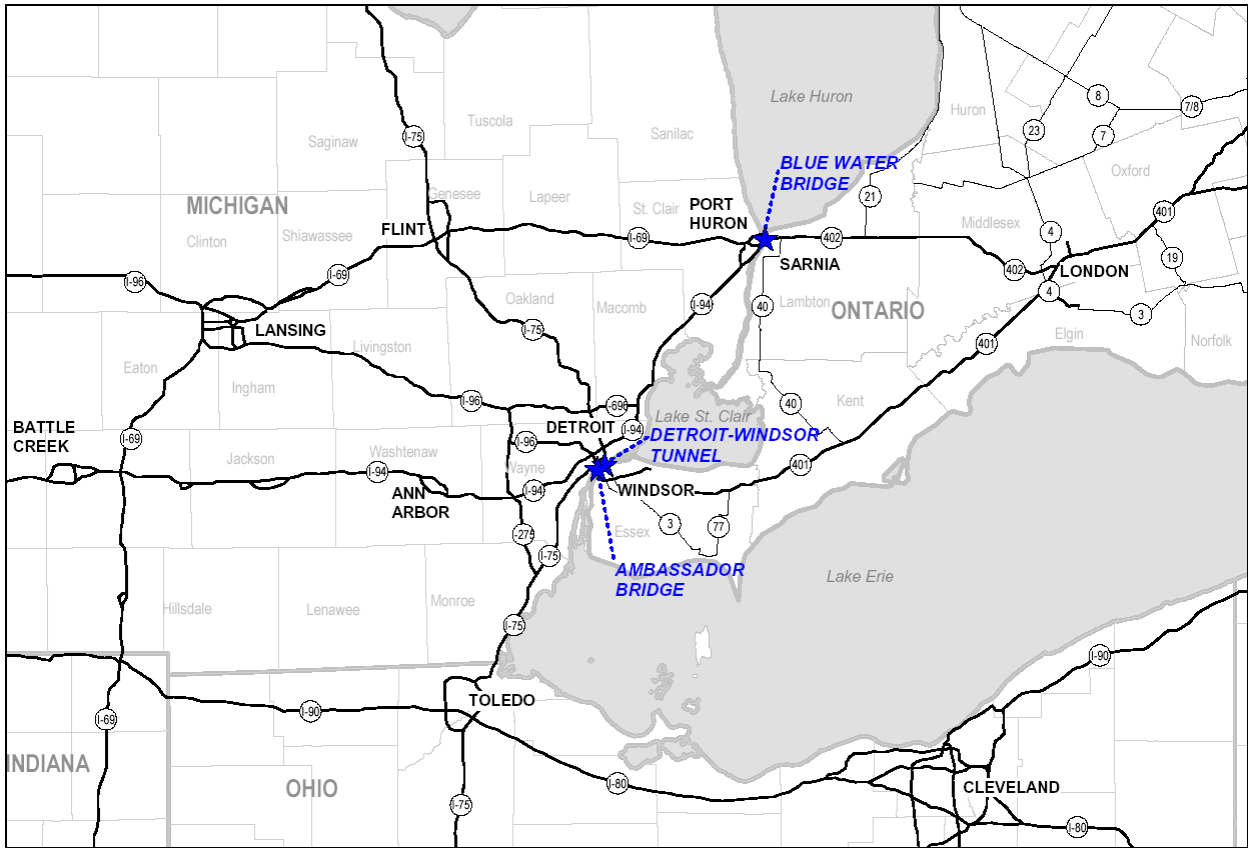
4.2. Highway System

The road border crossings in the study area are served by a network of provincial highways in Ontario and interstate highways in Michigan. The layout of the highway network in the broad geographic study area is a key aspect of cross-border route selection (see Exhibit 4.1).

Highway 401 is the dominant corridor in Canada, extending from beyond the Greater Toronto Area to Windsor, with local road access to the Ambassador Bridge. In Detroit, the Ambassador Bridge connects with the interstate system, with the main long distance travel flows being I-75 for travel to south U.S. and I-94 for travel west to Chicago and beyond.

For travel via Sarnia-Port Huron, Highway 402 branches off of Highway 401 west of London to Sarnia and connecting with the Blue Water Bridge. In the U.S., I-94 connects with the Blue Water Bridge and provides freeway access south to Detroit. I-69 provides a westward connection from Port Huron, linking with I-94 near Battle Creek. For trips from Highway 401 to points west via I-94 or south via I-69, the routes using the Ambassador Bridge and the Blue Water Bridge are almost equal in length.

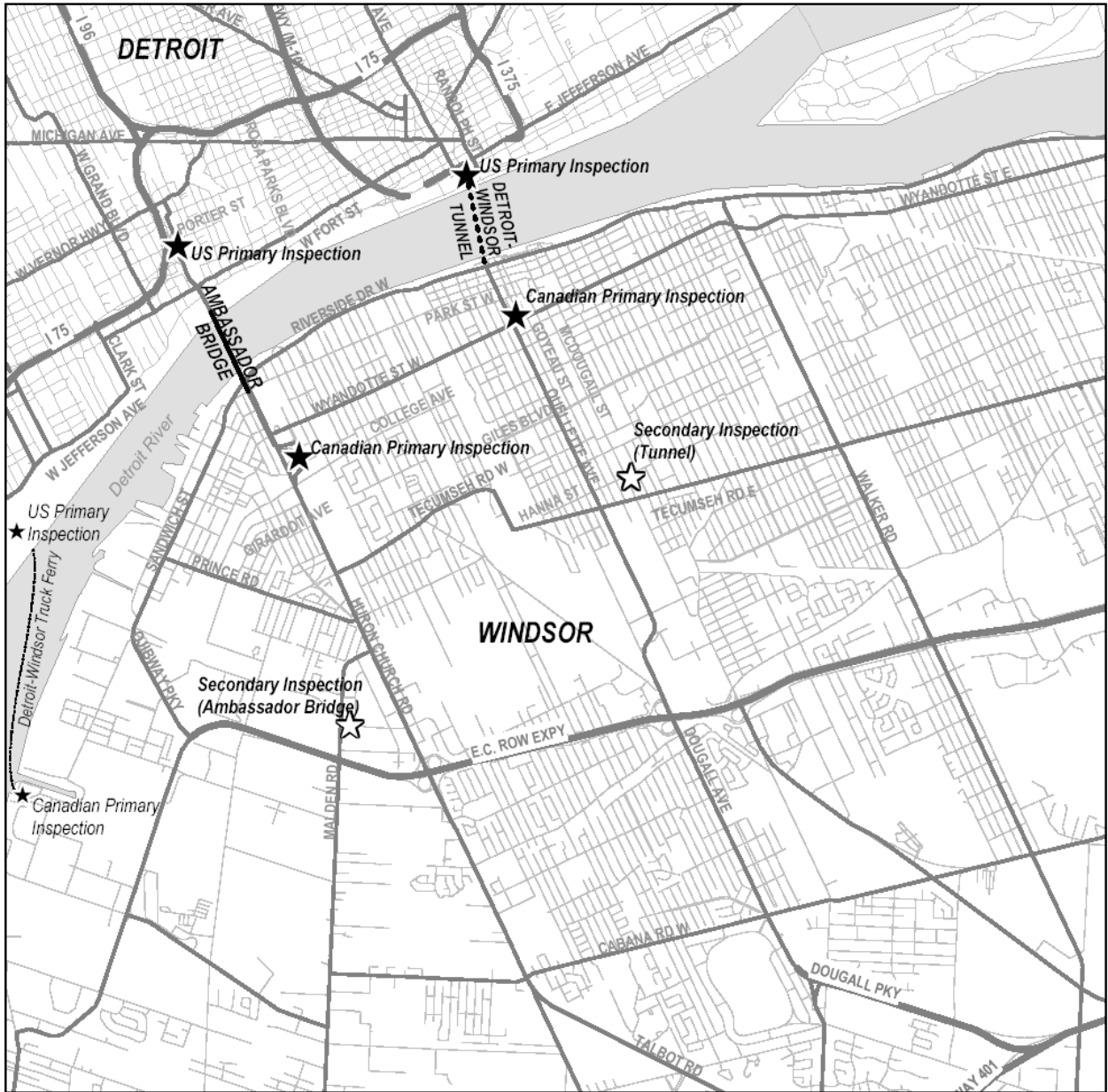
EXHIBIT 4.1 – SOUTHEASTERN MICHIGAN/SOUTHWESTERN ONTARIO HIGHWAY SYSTEM



4.3. Road System

Exhibit 4.2 shows the road system and access roads in the vicinity of the Ambassador Bridge and the Detroit-Windsor Tunnel in Detroit/Windsor.

EXHIBIT 4.2 – ACCESS ROAD SYSTEM



4.3.1. Canadian Access Roads

Huron Church Road is the main access road to the Ambassador Bridge on the Canadian side, extending as a 6-lane urban arterial road linking Highway 401 to the Ambassador Bridge via **Highway 3/Talbot Road**. The posted speed limit on Huron Church Road is 80 km/h from Highway 3/Talbot Road to Pulford Street (south of the E.C. Row Expressway), and 60 km/h from Pulford Street to College Avenue, near the bridge plaza. There are 17 signalized intersections on Huron Church Road and Highway 3/Talbot Road between Highway 401 and the Ambassador Bridge.

Given the high commercial vehicle volumes, overhead signs direct commercial vehicles to use the centre lane, local traffic to use the right lane, and international cars to use the left lane. Further north, at Northwood Street (north of the E.C. Row Expressway) cars are directed to use the left lane, while commercial vehicles use the centre and right lanes.

Significant development and facilities along Huron Church Road also contribute to traffic levels on this route. Significant traffic generators along Huron Church Road include, from north to south, the University of Windsor at College Avenue, Assumption High School at Wyandotte Street, the University Mall at Tecumseh Road, and, further south on the Highway 401/Huron Church corridor, St. Clair College on Talbot Road.

The Detroit-Windsor Tunnel is accessed from **Goyeau Street**, an arterial road in the central business district. From Highway 401, the route to the tunnel follows the urban arterial roads of Dougall Avenue/Ouellette Avenue, then Wyandotte Street and Goyeau Street to the tunnel entrance in downtown Windsor. For trips arriving in Canada from the Tunnel, exit from the Tunnel into Windsor is onto Park Street, then either onto Goyeau Street or Ouellette Avenue. The route along Dougall Avenue/Ouellette Avenue is a four-lane urban arterial road. The Dougall Avenue exit on westbound Highway 401 is signed on the highway as a route to the Detroit-Windsor Tunnel, although the primary function of these roads are as local roads.

4.3.2. U.S. Access Roads

For traffic using the Ambassador Bridge, cars and commercial vehicles have many route options, given the proximity to several Interstate freeways. Cars exit onto Porter Street, which has ramps at signalized intersections to/from I-75 and I-96 and intersects with service roads paralleling the freeways. All commercial vehicles entering the U.S. from the Ambassador Bridge follow a ramp to the truck customs inspection facility, and then exit onto West Fort Street, south of the plaza. Commercial vehicles can link with I-75 by travelling west on Fort Street then north on Clark Street, or by travelling east then north on Rosa Parks Boulevard. I-75 provides a connection south toward Ohio and north toward Northern Michigan. It can also be used to access I-96, which connects to western Michigan and is the link to I-94 for travel toward Chicago. The arrangement from the bridge to the Interstate freeway systems is a confusing arrangement for drivers and hazardous due to the high level of weaving traffic. The Ambassador Bridge Gateway Project, planned for construction, will address these traffic issues.

At the Detroit-Windsor Tunnel, commercial vehicles are part of the same traffic stream as cars. All traffic entering or leaving the Detroit-Windsor Tunnel must pass through the signalized intersection of the Tunnel access to the south, Randolph Street to the north, and Jefferson Avenue to the east and west. Interstate 375 and M-10 (John C. Lodge Freeway) link with Jefferson Avenue in close proximity to the Tunnel. The M-10 provides access to the I-96 and I-75 freeways from the tunnel.

4.4. Rail System

The rail network serving the study area roughly parallels the U.S. interstate/Ontario provincial road system. Exhibit 4.3 is a map of the rail network and operators.

A Canadian National Railway (CN) line runs from London to Sarnia parallel to the Highway 402 corridor, and continues through Port Huron, following I-69 to Battle Creek, then continues toward Illinois and beyond. VIA rail and Amtrak passenger services use this line although the one through train was discontinued in 2004. Another CN line roughly follows the Highway 401 corridor from London to Windsor, carrying VIA passenger service. The line continues through Detroit, northwest toward Flint. Amtrak passenger services are available on this line from Detroit to Pontiac. In Canada, this line roughly parallels a Canadian Pacific Railway (CPR) line from London to Windsor. The CPR line continues through Detroit to Lansing, Chicago (via trackage rights) and beyond. A CN line connects Detroit and Port Huron on the Michigan side.

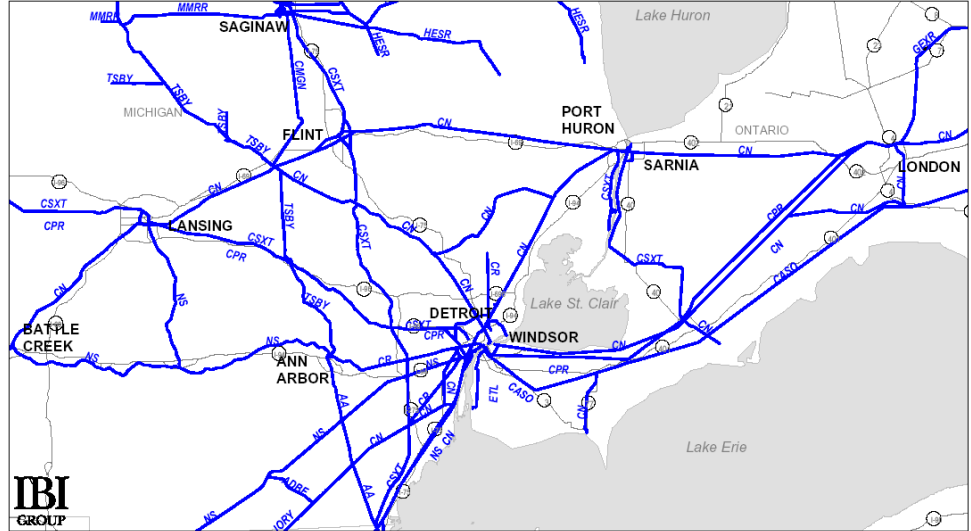
Other rail operators have connections in Detroit. A Norfolk Southern (NS) line, used by Amtrak, runs between Detroit and Chicago roughly along I-94. Another NS line runs south toward Toledo then branches east and west. An Indiana & Ohio Railway (IORY) line runs south toward Cincinnati. CSX Transportation (CSXT) lines run north toward Saginaw, and south toward Cincinnati or Columbus. A Tuscola and Saginaw Bay Railway Company (TSBY) line connects in Ann Arbor to service northwest Michigan. A CSXT line also links Sarnia and Chatham on the Canadian side, roughly along the Highway 40 corridor.

For rail freight, two underground railway crossings are located at Sarnia-Port Huron and at Detroit-Windsor. The former is owned and controlled by CN and the latter, comprised of one well-used line and one unused line, is controlled by CPR and owned by a joint venture of CPR and Borealis Infrastructure Fund. The locations of these tunnels are also shown in Exhibit 4.3.

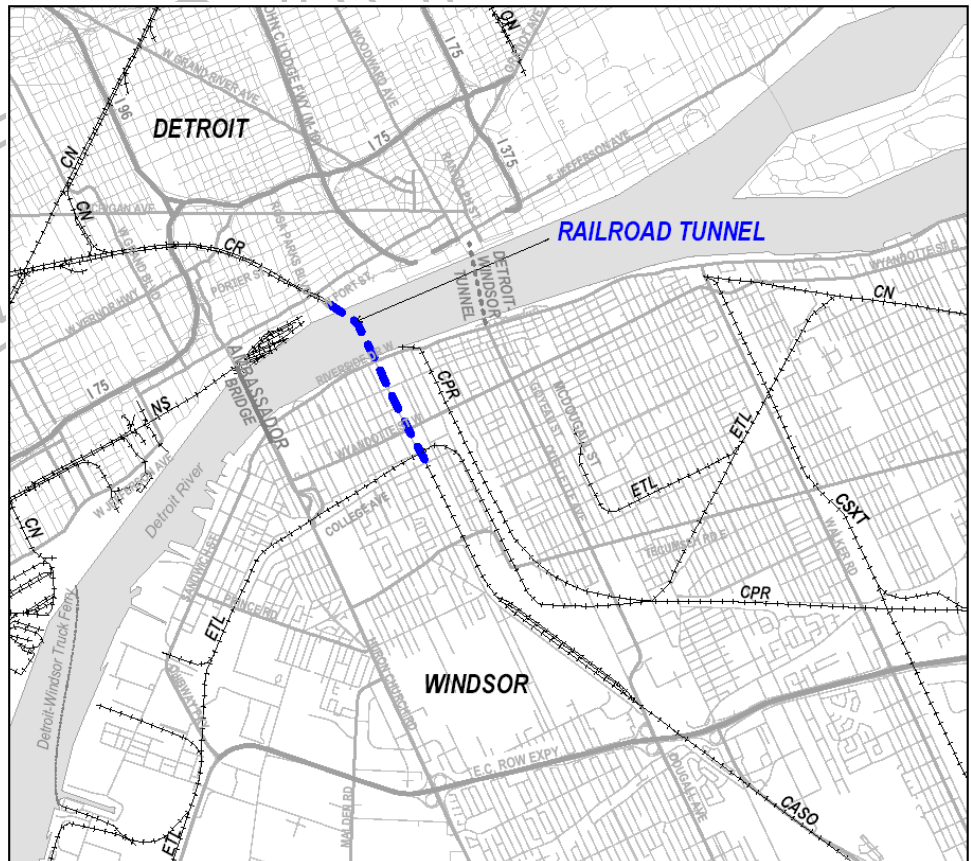
During the 1990s, both crossings were expanded to accommodate larger vehicles. The CN tunnel at Sarnia accommodates the largest vehicles that operate across the North American railway system. CPR expanded one of the two existing tunnels between Detroit and Windsor to the maximum dimensions structurally possible; this is not quite as large as the CN tunnels and cannot accommodate double stack containers; however, it is capable of handling double stack international containers, intermodal trailers on flat cars (TOFC), as well as domestic auto tri-level cars which were the primary target market.

EXHIBIT 4.3 – RAIL SYSTEM

A. SOUTHEASTERN MICHIGAN/SOUTHWESTERN ONTARIO



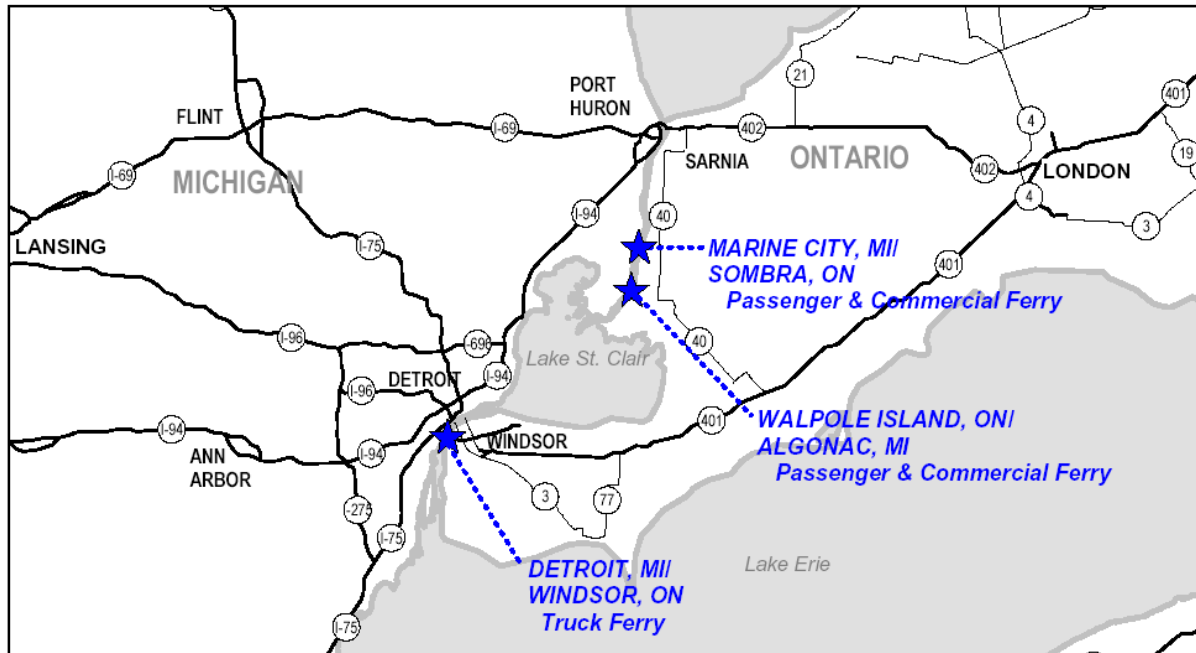
B. WINDSOR-DETROIT



4.5. Marine Services

There are currently three ferry services operating in the study area, consisting of the Walpole Island Ferry, Marine City Ferry and Detroit-Windsor Truck Ferry. The locations of these are shown in Exhibit 4.4. Each service has relatively limited vehicle capacity.

EXHIBIT 4.4 – MARINE SERVICES



The **Walpole Island Ferry** provides daily service at 20-minute headways between Algonac, Michigan and Walpole Island, Ontario at the northern end of Lake St. Clair, weather permitting. Two boats are available, each capable of servicing 20 passenger cars and/or small commercial vehicles. Ferries leave Walpole Island from 6:20 a.m. to 9:45 p.m., and return from Marine City from 6:50 a.m. to 10:00 p.m. The one-way cost is approximately \$4 U.S. and travel time is 6 minutes.

The **Marine City Ferry** operates daily between Marine City, Michigan and Sombra, Ontario, weather permitting. Two boats are used when busy. The ferries can transport 12 passenger cars each, but will also take commercial vehicles. The larger of the two ferries can hold up to two tractor trailers or larger vehicles up to 80,000 pounds gross weight each. The service runs approximately every 15 minutes, 7 days a week year round at a cost of \$5 U.S. per car each way and \$2 for foot passengers. Ferries leave Sombra from 6:40 a.m. to 10:15 p.m., and return from Marine City from 7:00 a.m. to 10:30 p.m. Travel time is 7 minutes.

The **Detroit-Windsor Truck Ferry** was started in 1990 for the purpose of handling commercial vehicles carrying dangerous goods (Classes 1, 3, 7 and 8) which are banned from the bridge and tunnel crossings in accordance with Michigan State law. The ferry also handles over-sized loads that cannot use the bridge or tunnel, but its use is not

restricted to these two markets. The ferry operates hourly 10 hours per day and can accommodate 8 trucks per crossing.

The truck ferry provides a significant distance savings to commercial vehicles carrying dangerous goods or heavy loads by allowing them to cross at Windsor-Detroit as opposed to having to travel to alternate ports that support this market. The alternative for vehicles with dangerous goods within the study area is Port Huron-Sarnia; very heavy vehicles must cross much further away by land between Minnesota and Ontario. It is estimated that more than 50% of the trips using the ferry crossing are from London (i.e. the point at which travel distances across the corridor via Port Huron-Sarnia and Detroit-Windsor are similar) inward, with a similar market range on the Michigan side.

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5. Transportation Problems and Needs

As documented in the Terms of Reference, the purpose of this undertaking is **to provide for the safe, efficient, and secure movement of people and goods across the Canadian-U.S. border in the Detroit River area to support the economies of Ontario, Michigan, Canada and the U.S.** The Purpose and Need Statement was developed on the extensive work undertaken during the Planning/Need and Feasibility (P/NF) Study. As stated previously, although conducted in a manner consistent with the environmental study processes in both countries, the P/NF Study was not completed within the formal environmental study framework. The findings of the P/NF Study, however, serve as an important basis for governments to move forward in the development and improvement of cross-border transportation services, including proceeding with the environmental study processes in the U.S. and Canada for major transportation improvements at the Detroit River international crossing.

A consultation component was incorporated in the P/NF Study process. Canadian and U.S. government departments, ministries and agencies, local municipalities, First Nations groups, private sector stakeholders in border transportation issues, as well as the general public were engaged in the course of the study. Throughout the P/NF Study, the Partnership affirmed that the findings of the P/NF Study may be used to initiate environmental studies in accordance with the requirements of the U.S. National Environmental Policy Act (NEPA), Canadian Environmental Assessment Act (CEAA) and Ontario Environmental Assessment Act (OEAA). This step would be followed by completion of the appropriate environmental impact/assessment studies, design of the approved improvements and ultimately, construction.

The transportation problems and opportunities identified during the P/NF Study provide the basis for the Partnership to initiate the environmental study processes for the development and assessment of transportation alternatives at the Detroit River international crossing.

The findings of the P/NF Study have been brought forward into the formal environmental study process for consultation. The work completed under the P/NF Study has been updated to reflect changes in traffic and network demands. The updated problems and needs are documented as follows. Based on these the Partnership confirms the statement of Purpose and Need as documented at the outset of this chapter.

5.1. Transportation Problems

5.1.1. Capacity Problems

The Travel Demand Forecasts Working Paper outlines the current and future deficiencies in the roadway network serving the international border crossings at Windsor/Detroit that are anticipated within the 30-year time frame.

These deficiencies are summarized in Exhibit 5.1.

EXHIBIT 5.1 – SUMMARY OF FUTURE DETROIT RIVER CROSSINGS CAPACITY NEEDS

Crossing	Time Capacity Reached				
	U.S. Road Access	U.S. Border Processing	Bridge/Tunnel Roadbed ¹	Canadian Border Processing	Canadian Road Access
Ambassador Bridge	Beyond 30 years	5 to 10 years	10 to 15 years	5 to 10 years	5 to 10 years
Detroit-Windsor Tunnel	0 to 5 years	5 to 10 years	30 years ¹	5 to 10 years	5 to 10 years

¹ If no improvements are made at the Detroit River, there would be some diversion from the Ambassador Bridge to the Detroit-Windsor Tunnel. Diversion of car traffic may move the timeframe that capacity is reached to between 25 and 30 years. Physical restrictions of the Tunnel limit the diversion of most types of trucks.

Delays at border processing and lack of roadway capacity along Huron Church Road will result in congestion and delays at the Ambassador Bridge border crossing. Even with improvements of these access facilities the bridge crossing itself is expected to reach capacity within 10-15 years. Similarly, delays at border processing and lack of capacity at the connections to the plazas at the Detroit-Windsor tunnel will result in congestion and delays at the Detroit Windsor Tunnel. The Ambassador Bridge and Detroit-Windsor Tunnel represent two of the busiest border crossings in North America. They carry over 16 million passenger vehicles and 3.7 million commercial vehicles annually and handle 23% of the total surface trade between Canada and the U.S. The delays and resultant queuing at these crossings will have several negative effects associated with poor transportation network operations, including the following:

- Increased highway safety concerns, including higher potential for collisions at intersections, entrances and queue ends;
- Lost economic opportunity costs;
- Increased air pollution;
- Impacts to access and adjacent land uses in the vicinity of the border crossings;
- Infiltration of cross-border traffic onto local roads;
- Impacts to incident/emergency response;
- Increased vehicle operating costs and fuel consumption; and
- Increased driver frustration.

As travel demand continues to increase, the effects of increased congestion and delays will continue to worsen.

Given the importance of this trade corridor and the substantial number of people dependent upon safe, reliable access across the Detroit River on a daily basis, governments must take all reasonable steps to reduce the likelihood of disruption to this corridor.

5.1.2. System Connectivity Problems

In general, the MTO strives to have an interconnected network of highways so that people and goods can move through the province on a continuous transportation system. This is appropriate to help minimize long distance traffic movements (cars and trucks) on local municipal networks, and thereby minimize traffic-related impacts on local communities and maximize economic and personal productivity.

As well as being connected throughout the province, it is important that the provincial transportation network connect directly with the United States. Again, direct connections can help maximize productivity while minimizing negative impacts associated with transportation corridors.

The provincial highway network connecting Highway 401 with the Detroit/Windsor crossings is not continuous. In fact, traffic must exit Highway 401 at the junction of Highway 3/Talbot Road and traverse approximately 11.4 km of arterial road before reaching the Ambassador Bridge. A total of 17 signalized intersections are situated along this section of road as well as numerous commercial and residential entrances. Travel time along this section of roadway is approximately 17 minutes even under relatively non-congested traffic conditions. This represents a delay of approximately 10 minutes compared to a freeway network that would directly connect Highway 401 to the Ambassador Bridge. That delay results in increased noise, air pollution and travel costs for both cars and trucks and inhibits economic productivity in Ontario and other parts of Canada.

The lack of system connectivity from Highway 401 to the U.S. interstate network system is a serious network deficiency that needs to be corrected.

5.1.3. Border Processing Problems

Addressing issues related to border processing facilities, resources and procedures is not within direct control of the transportation agencies sponsoring this study. This responsibility lies primarily with agencies such as Canada Border Services Agency (CBSA), U.S. Department of Homeland Security (DHS) and U.S. General Services Agency (GSA). However it is recognized that delays at border processing result in congestion and delays at the Ambassador Bridge border crossing. Similarly, delays at border processing and lack of capacity at the connections to the plazas at the Detroit-Windsor tunnel results in congestion and delays at the Detroit Windsor Tunnel.

During both the P/NF and DRIC EA studies, border processing agencies have been working with the Partnership to identify issues and concerns related to border processing at the existing crossings, as well as identify the proposed increases to staffing, improvements to border processing facilities to increase capacity and programs to facilitate border processing procedures.

As a result of the terrorist attacks on the U.S. on September 11, 2001, and of ongoing national security concerns, heightened border security is a new reality facing all border

crossings. Security priorities affect border crossing operations; periods of rigorous inspection of all passengers and goods using border crossings effectively reduce border crossing capacity, and can lead to congestion on the road network in the vicinity of the border crossings. Transportation agencies must develop solutions to accommodate the capacity requirements of international traffic, while ensuring security concerns are also addressed.

The border processing agencies have moved forward on implementing improvements to the border crossings, to increase capacity and reduce congestion, while maintaining their objectives related to having a safe and secure border. Initiatives such as the Ambassador Bridge Gateway Project and the proposed improvements to the Detroit-Windsor Tunnel are intended to increase capacity of border processing facilities at these crossings.

Similarly, programs such as NEXUS and FAST are reducing processing times for vehicles crossing the border, thereby increasing capacity and potentially lessening the need for additional staffing at the crossings. In addition, the U.S. government recently enacted the U.S. Trade Act which requires all U.S.-bound carriers to provide pre-notification of their shipment to U.S. Customs one hour in advance of their truck arriving at the border (30 minutes advance notice is required for FAST trucks). The ability of these improvements and programs to meet future travel demand is not certain. Staffing at the border crossings will continue to be of critical importance to the border capacity issue. The presently low, but increasing, participation rate in the various border crossing programs will have a direct effect on the success of these programs to increase capacity of border processing. Transportation agencies will need to continue to coordinate border processing capacity and security issues with border processing agencies.

5.1.4. Network Options (Redundancy) Problems

As discussed earlier in this report the international crossings at Windsor-Detroit are vital to the local, provincial and national economies. Although there are two crossings (the bridge and tunnel), the vast majority of traffic, particularly trucks, uses (and will continue to use) the bridge. This is due to the fact that the tunnel is only one lane per direction with a height restriction that limits the use of trucks and the dense urban fabric of downtown Windsor and Detroit which effectively limits roadway access and customs plaza size.

Therefore the majority of trade crossing at Detroit-Windsor is dependent on one facility, the Ambassador Bridge. Any prolonged capacity reduction or shut down at the Ambassador Bridge and/or its customs plazas would have serious implications on the national and local economies in both Canada and the United States.

5.2. Transportation Needs

In order to relieve the above-noted problems and meet the purpose as defined at the outset of this chapter, the DRIC Environmental Assessment Study must address the following regional transportation and mobility needs:

- Provide new border crossing capacity to meet increased long-term travel demand;

- Improve system connectivity to enhance the continuous flow of people and goods;
- Improve operations and processing capabilities at the border; and
- Provide reasonable and secure crossing options (i.e. network redundancy).

A range of transportation alternatives that could potentially respond to these needs is discussed in the Feasible Transportation Alternatives (Alternatives to the Undertaking) Report.

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