

Feasible Transportation Alternatives (Alternatives to the Undertaking) Report

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1. Introduction

The Feasible Transportation Alternatives Report describes the transportation alternatives considered (Alternatives To the Undertaking), and the assessment of those alternatives, to address the need for a new international crossing of the Detroit River.

Transportation planning alternatives represent reasonable means of addressing the stated transportation problems and opportunities, as well as meeting the purpose of the undertaking. In addition to 'doing nothing', alternatives to address deficiencies in the transportation network capacity typically include those that increase network capacity or reduce transportation demand and combinations thereof. It is understood that such alternatives can also address the need by reducing dependency on the current crossings by reducing demand or shifting demand to other border crossings, or enhancing the role of other crossings in the network.

The Canada-U.S.-Ontario-Michigan Border Transportation partnership (the Partnership) prepared a Planning/Need and Feasibility (P/NF) Report that identified several transportation planning alternatives, which have been revisited in the Detroit River International Crossing (DRIC) Environmental Assessment (EA) study. The alternatives considered include:

- Do nothing;
- Improvements to border processing;
- Transportation demand management;
- New and/or improved rail alternatives including a new and/or expanded international rail crossing;
- New and/or improved transit services;
- New and/or improved marine services;
- New and/or improved road alternatives with a new or expanded international road crossing; and
- Combinations of the above.

The assessment of transportation planning alternatives provides an opportunity to examine fundamentally different ways of addressing transportation problems. In recognition of these fundamental differences among the planning alternatives, it is appropriate to assess the effectiveness of each type of alternative in addressing the problems and taking advantage of opportunities at a functional level.

The transportation alternatives considered for this report include roadway and non-roadway alternatives.

The basis for the identification, assessment and selection of feasible transportation alternatives including work completed to date is documented in the Detroit River International Crossing Transportation Planning and Needs Report.

The findings provided in this document will be incorporated in the DRIC EA and will be presented as advice to the Partnership.

2. Transportation Alternatives

2.1 Description of the Alternatives Considered

The Problems and Needs Report defines international transportation problems and needs across the Detroit River, which extends from Lake Erie to Lake St. Clair. The Detroit River has been used as a general international crossing area on which to identify and assess transportation alternatives. Consistent with environmental approval processes in both Canada and the U.S., the transportation alternatives considered included roadway and non-roadway based options. The transportation alternatives considered are defined as follows:

The “Do-Nothing” Alternative

This alternative was defined as taking no significant action to expand infrastructure, manage demand or improve operations. It includes transportation improvements already contained in the existing plans and programs for geographical areas encompassed by the Southeast Michigan Council of Governments (SEMCOG) and the Windsor-Essex area. It does not include improvements to existing border processing capacity.

Improvements to Border Processing

Border processing is a key component in the transportation network in that it can restrict the capacity of the transportation network. Alternatives that improve border processing rates to a level equal to or greater than the flow rate of traffic across the border will to some degree address the transportation problems on the network.

Transportation Demand Management

Travel demand management focuses on the optimal use of existing and future infrastructure. This alternative includes measures such as Intelligent Transportation Systems (ITS) technologies as well as transportation and land use policies with incentives to reduce, shift or divert transportation demand, thereby deferring the need for expansion of the transportation network.

New and/or Improved Rail Alternatives With New or Expanded International Crossing

Rail currently plays a role in the movement of international and inter-regional goods in the area. Improvements to the rail network and/or expansion of the existing crossing may address transportation problems by diverting sufficient truck traffic from the road network to impact the need or timing of roadway-based improvements.

New and/or Improved Transit and Marine Services

Capacity and/or service improvements/expansions to transit and marine services may reduce, shift or divert road-based passenger and freight travel demand.

New and/or Improved Road Alternatives With New or Expanded International Crossing

Provincial roads are generally freeways and highways designed to accommodate high volumes of international and inter-regional long distance, traffic. Connections between Highway 401 in the Windsor/Essex County area to the interstate freeway system in the Detroit/Wayne County area are required with this alternative to maintain continuity of the freeway network. The highway connections would be designed to appropriate freeway standards standards.

The river crossing could be either a new crossing (bridge or tunnel) or an expanded existing crossing. For the purposes of this study, a second span at the Ambassador Bridge crossing is considered to be an expansion of the existing crossing. Converting a rail tunnel to accommodate vehicular traffic is considered to provide a new crossing for road-based traffic.

Operational or structural changes of the existing crossings, such as modifications to plaza layouts or lane configurations are considered as expansion to existing crossings.

Combinations of the above

Several of the above alternatives may be consolidated and put forward as a transportation network improvement strategy to both expand the transportation network and reduce, shift or divert various aspects of travel demand.

The above-noted alternatives were assessed during the P/NF Study. 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 assessment studies, design of the approved improvements and ultimately, construction.

The transportation alternatives 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.

2.2 Evaluation of Transportation Alternatives

The transportation alternatives were assessed and evaluated using broad factors to determine which alternatives were practical and feasible from a transportation, environmental and border processing perspective.

The evaluation factors were established to achieve the objectives of the DRIC Study and are consistent with environmental approval processes in both Canada and the U.S. The factors developed for evaluating the practicality and feasibility of transportation alternatives are as follows:

- Transportation Network Improvement;
- Transportation Opportunities;
- Governmental Land Use, Transportation Planning and Tourism Objectives;
- Border Processing;
- Environmental Feasibility; and;
- Technical Feasibility.

The rationale and method of assessment used in the evaluation are listed in Table 2.1.

TABLE 2.1: EVALUATION FACTORS

Factor	Rationale	Method of Assessment
Transportation Network Improvement	Alternative would be considered feasible only if it enhances the performance of the transportation system with respect to the quality of travel as defined by levels of service and volume/capacity at the crossings of the Detroit River	Assessment of ability of the alternative to address congestion and provide for continuous on-going river capacity on the transportation network by improving travel time and reliability for international passenger and freight movement.
Transportation Opportunities	Improvements to transportation efficiency may be gained by improving the utility of inefficient or underutilized transportation corridors as well as making use of planned network improvements.	Assessment of the ability of the alternative to optimize use of existing transportation corridors or planned network improvements.
Governmental Land Use, Transportation Planning and Tourism Objectives	Recognizing the importance and impacts of accommodating the free flow of international passengers and goods, consideration must be given to the degree to which alternatives support local, regional, provincial, state and national planning and tourism objectives.	Assessment of the degree to which the alternative is consistent with approved land use, transportation planning and tourism objectives.
Border Processing	Alternatives would be considered feasible only if the long-term needs of the U.S. and Canadian border processing agencies can be met.	Assessment of the ability of the alternative to meet long-term needs of border processing agencies.
Environmental Feasibility	Consideration of potential impacts to environmental constraints (including natural, social and cultural features) is required under	Assessment as to whether environmental constraints in the area (including natural, social and cultural features) preclude the alternative.

Factor	Rationale	Method of Assessment
	the environmental approval processes in both Canada and the U.S.	
Technical Feasibility	Alternatives requiring new or expanded facilities would be considered feasible only if technical requirements related to alignment (both horizontal and vertical) and cross-section can be achieved at a reasonable cost.	Assessment of the ability of alternative requiring new or expanded facilities to achieve minimum technical requirements at a reasonable construction/implementation cost.

Do Nothing

One objective of the DRIC Study is to identify feasible alternatives to address the transportation problems and needs of the international road network. Future forecasts of future travel demand show clearly that delays and queuing experienced in the past years at the Ambassador Bridge and the Detroit-Windsor Tunnel will return and be significant in the future. Doing nothing will not reduce the likelihood of disruption to the transportation network on this strategic trade corridor, nor will it address the lack of sufficient river crossing capacity to meet existing and future travel demand in the Detroit-Windsor area.

Doing nothing will result in a capacity deficiency and increased travel delays. Extended delays at border crossings and queuing on approach roadways will negatively impact the local communities. The effects of congested border crossings in Windsor-Detroit will extend beyond the border communities to other regions in both countries.

Unless steps are taken to expand infrastructure capacity at the principal border crossings between Michigan and Ontario, by 2025, mounting congestion and delay will cost the United States more than US\$1.4 billion and Canada more than CAN\$206 million a year in foregone production and output. Exponentially rising congestion over the subsequent ten years (2025 to 2035) would lead to further production losses of US\$9.3 billion per year to the U.S. and CAN\$ 1.5 billion per year by 2035.

Lost production means fewer jobs. Failure to address the congestion problem, and the production losses arising accordingly, means 10,000 fewer jobs in the U.S. and 3,000 fewer jobs in Canada by 2025, rising to over 94,000 fewer jobs by 2035 in both countries. Job losses on this scale imply sharp reductions in personal incomes and living standards, and lost tax revenues for the provision of public services, particularly in the local jurisdictions of Michigan and Ontario.

The Do-nothing alternative will not be carried forward as a possible solution. However, the Do Nothing or “Base Case” alternative will be carried forward as a benchmark from which to compare and assess other alternatives.

Improvements to Border Processing

Many of the delays and queuing experienced in recent years on the approaches to the border crossings were related to border processing deficiencies and border security concerns. The issues of border security will be on-going and will require additional efforts among border processing agencies, transportation agencies and local community agencies to accommodate security procedures implemented during periods of high level risk.

In the past, many of the deficiencies in border processing related to improper or inaccurate documentation by drivers, passengers, or shippers, a lack of available border processing staff and facilities to accommodate border processing requirements, limited use of Intelligent Transportation Systems (ITS) and a low participation rate in border processing programs. These elements combined resulted in delays and queuing at the border crossings.

In recent years, the U.S. government has provided additional staffing at the Detroit border crossings and the launch of the NEXUS and FAST programs are addressing to some degree the issues of identifying high and low risk border users and proper documentation. In addition, commercial vehicle pre-processing centres are being brought into use in Ontario to ensure documentation of commercial border users is properly and accurately completed. The Canadian Transit Company, owner of the Ambassador Bridge, has opened such a centre along the Highway 401 Corridor west of London, as well as one in Windsor at Industrial Road. The purpose of these facilities is to reduce processing times at the border crossings.

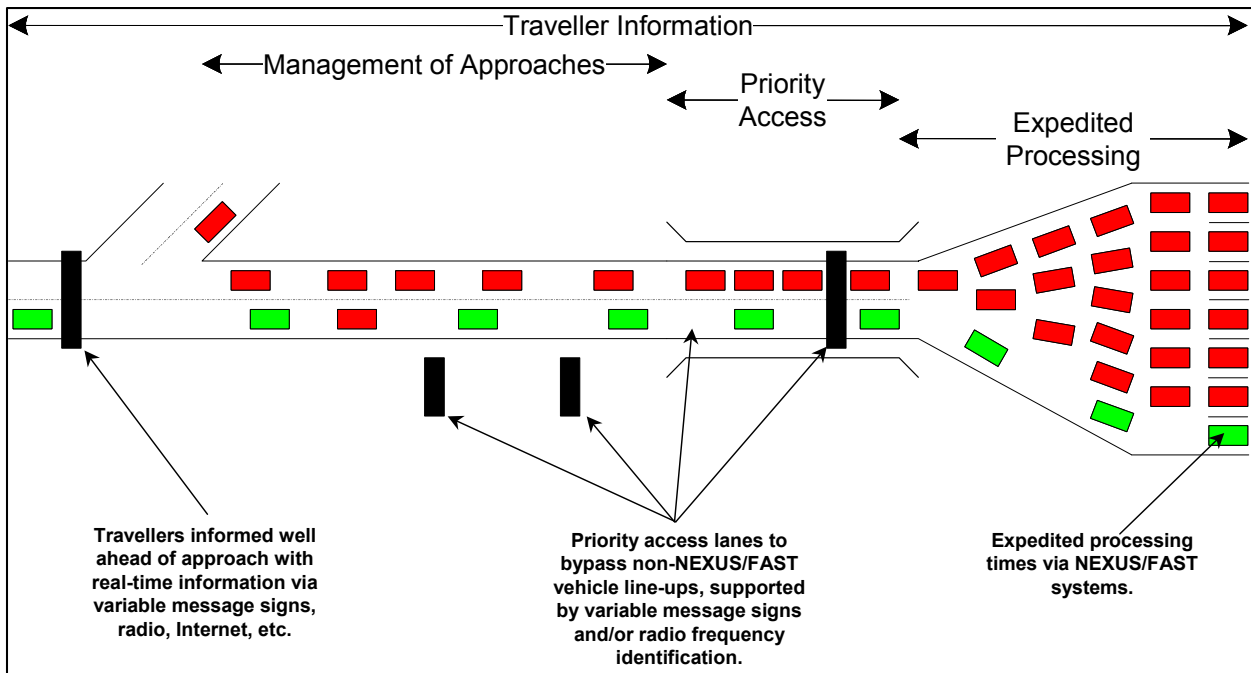
In November 2004, the U.S. Government began enforcing the U.S. Trade Act, which requires all U.S.-bound shipments to forward data to the U.S. port of entry one hour prior to the shipment arriving (30 minutes advance notice is required for FAST trucks). This requirement has reduced the need to send trucks to a secondary inspection area to complete paperwork and has contributed to reductions in extended delays at Ambassador Bridge.

Operators at the existing border crossings have identified additional facilities, additional staffing as being the most important issue facing the border over the short term. Governments have responded and are adding more staff and opening more inspection booths at the border crossings. In the longer term, more inspection facilities, increased staffing and greater use of NEXUS and FAST are seen as being the more cost-effective method of addressing the projected increases in travel demand at the border crossings.

International border crossings present unique opportunities for the implementation of Intelligent Transportation System technologies and systems, particularly in terms of improving the security, safety and efficiency of passenger and commercial vehicle processing. In particular, ITS could provide expedited processing, priority access, approach management and traveller information in support of the NEXUS and FAST systems at the Detroit-Windsor crossings.

The NEXUS and FAST systems are designed to expedite inspection and processing times for passengers and commercial vehicles as well as their drivers. Ensuring effective use of these programs and higher participation rates will require that users experience travel time or convenience benefits. This may require infrastructure improvements such as providing priority access lanes for NEXUS and FAST users to get around other vehicles queuing for inspection. ITS applications that can support these lanes include variable message signs (i.e. signs that can be automatically altered) to indicate priority lanes or radio frequency identification (RFID) to enforce their use by NEXUS/FAST participants only (refer to illustration in Exhibit 2.1).

EXHIBIT 2.1 – POSSIBLE APPLICATIONS FOR ITS AT BORDER CROSSINGS



The efficient use of a system of several border crossings can be managed well ahead of arrival through the implementation of traveler information systems. Real-time (i.e. up-to-the-minute) knowledge of the conditions at each crossing would allow more effective management of the border crossing system as a whole and provide useful guidance and information to cross-border travelers in determining the time and route of travel. Real-time information can be used to distribute resources and manage traffic at crossings and assist in the staffing of inspection resources. The media that could be used to disseminate this information could include dynamic signs at strategic road junctions, local low power radio (highway advisory radio), Internet information channels (which could be used for example, by truck dispatchers) and closed-circuit television. Such information dissemination would not only use these diversion strategies but also might influence the timing of arrival at the border.

In the U.S., MDOT and FHWA are finalizing plans for improvements to connections between the interstate freeway system and the Ambassador Bridge plaza. These improvements will provide for some expansion of secondary inspection facilities, a frequent cause of delays for U.S.-bound commercial traffic.

These measures have and will assist border processing agencies to improve processing rates and reduce the likelihood of extensive queuing and delays. Increasing border processing capacity, in fact, responds to one of the four stated needs as identified in the Problems and Needs Report. However, these improvements alone are not sufficient to address the need for reasonable options for maintaining the movement of people and goods and the need for additional network capacity to accommodate future travel demand. Specifically, they do not address the need for capacity increases on the approach roads or

the crossings which are also integral parts of the transportation network linking Highway 401 to the U.S. Interstate system.

In addition, the Ambassador Bridge Company has identified the capability to significantly expand Customs and Immigration facilities on the U.S. side of the bridge. In the spring of 2005, it identified a plan to accommodate up to 200 inspection booths and provide a secure connection to the existing Windsor/Detroit tunnel, thereby linking the two facilities. Although this proposal provides for up to 200 inspection booths in the U.S provides significant customs and inspection on the U.S. side but none on the Canadian side, thus relying on the concept of “joint inspection” where all facilities are located on one side of the border. At present, this concept is not acceptable to border agencies in either country that need to maintain the ability to undertake customs and immigration in their respective countries.

Improvements to border processing can maximize the use of existing transportation corridors and would be consistent with government planning and tourism objectives in that they lead to improved flow across the border. Less congestion and delay may encourage cross-border travel, which in turn helps the regional tourism industry and the economies in general.

Improvements to border processing facilities may result in impacts to area features. However, the impacts can be avoided, minimized or mitigated through proper development and application of border processing technologies.

‘Improvements to Border Processing’ addresses one of the four needs of the undertaking as stated in the Problems and Needs Report and is a component of any solution to the transportation problems in the area, although not the only component. As such, improvements (including the ITS technologies identified in Exhibit 2.1) will be considered as part of the recommended transportation alternative. However, in itself it cannot meet the purpose of this undertaking and (by itself) will not be considered as an alternative means of addressing the stated problems.

Transportation Demand Management

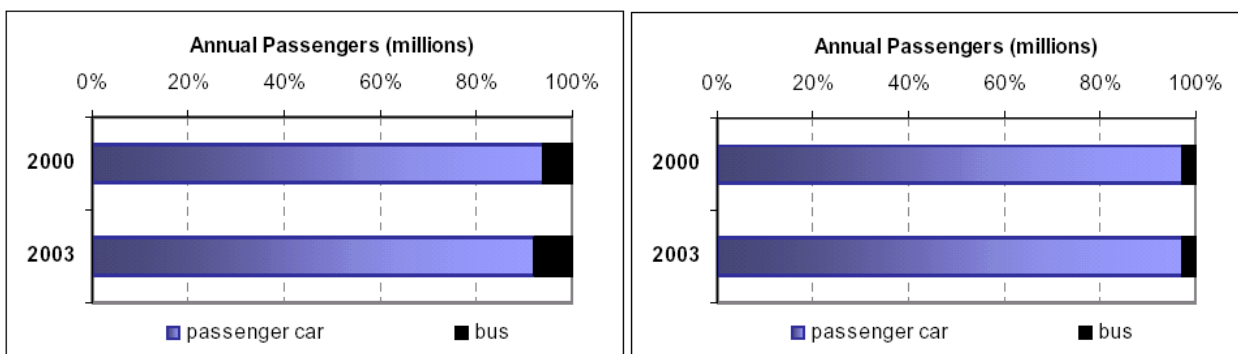
Transportation Demand Management (TDM) is the application of technologies, policies or other methods to reduce, shift or divert transportation demand.

As represented in Exhibit 2.2, the vast majority of international trips in the area are road-based. The modal shares depicted in this exhibit are expected to remain relatively constant over the long term, with the exception of a slight shift from truck to inter-modal rail, which will be discussed in a subsequent section of this report.

**EXHIBIT 2.2 –MODE SHARE AT DETROIT RIVER AND ST. CLAIR RIVER CROSSINGS,
2000-2004**

Detroit River Crossings

St. Clair River Crossing



Work and business trips represented approximately 16,000 to 18,000 weekday trips in 2004, representing almost half of the traffic using the Detroit River crossings on a typical Fall weekday. Canadian residents employed in the U.S. are the dominant proportion representing almost 80% of the cross-border work and business travel.

In 2004, it is estimated that there were approximately 2,000 Fall weekday and 4,000 Summer weekday vacation trips using the Detroit River crossings. It represents 5% of the international passenger car traffic on a typical Fall weekday. Vacation travel has been much less affected by 9/11, SARS, the Iraq War and overall heightened security levels at the border as compared to same-day discretionary trips, as the border delay represents a much smaller proportion of the travel time for longer-distance overnight trips.

There were approximately 15,000 same-day recreation, entertainment, and shopping trips using the Detroit River crossings on a Summer weekday and 14,000 on a Fall weekday in 2004. This represents 40% of cross-border travel on a Summer 2004 weekday, but is a dramatic decrease from 27,000 trips and 49% of Summer 2000 weekday trips.

EXHIBIT 2.3 – WEEKDAY PASSENGER CAR TRIP PATTERNS AT DETROIT RIVER AND ST. CLAIR RIVER CROSSINGS, 2004

Trip Type	Crossing							
	Ambassador Bridge		Detroit-Windsor Tunnel		Detroit River Crossings		Blue Water Bridge ¹	
	Volume	%	Volume	%	Volume	%	Volume	%
LOCAL to LOCAL	13,450	71	15,000	88	28,450	79	4,550	46
LOCAL (Southeastern Michigan) to/from LONG-DISTANCE (beyond Windsor-Essex)	1,850	10	900	5	2,700	8	2,400	24
LOCAL (Windsor-Essex) LONG-DISTANCE (beyond Southeastern Michigan)	1,700	9	900	5	2,600	7	900	9
LONG-DISTANCE to LONG-DISTANCE	1,800	10	150	0.9	2,000	6	2,050	20
OTHER ²	70	0.4	50	0.3	120	0.3	60	0.6
TOTAL TRIPS	18,850	100	17,000	60	35,850	100	10,000	100

¹The local trip area for Blue Water Bridge crossings is Sarnia and area (Lambton County) in Canada.

² This includes unexpected/atypical trips where the shortest route is not taken.

Source: Ontario-Michigan Border Crossing Traffic Study

This information, together with other data presented in the Detroit River International Crossing Study Travel Demand Forecasts Report was used to evaluate the feasibility and practicality of TDM as a transportation alternative.

Demand Reduction Measures

Demand reduction measures for passenger trips in the area, such as ride sharing and use of transit would have little effect on the operations of the transportation network. The average auto occupancy for cross-border trips at the Ambassador Bridge is 1.85 and at the Detroit-Windsor Tunnel is 1.75, which suggests that ride-sharing is already being practiced by cross-border travelers (typical occupancy rates for metropolitan areas are around 1.1 persons per vehicle). Further promotion of ride sharing can be expected to yield only marginal reductions in demand on the network.

Demand reduction measures for freight traffic in the area include use of rail and marine. These alternatives are discussed separately in this section.

Challenges and possible benefits of improving transit ridership are discussed under New and/or Improved Transit and Marine Services.

Measures to Shift Demand

Shifting travel demand to less busy days of the week or off-peak periods of the day or other international crossings was also considered. At present, congestion at the border crossings is not severe. However, based on the findings of the P/NF Study *Existing and Future Travel Demand Working Paper – November 2002*, the transportation network exhibited attempts by users at that time to manage demand during peak travel periods throughout the week at that time. For example:

- the number of passenger cars crossing the Ambassador Bridge and Detroit-Windsor Tunnel was greatest on the weekend and Fridays when commercial vehicle traffic is lowest, suggesting drivers were deferring leisure trips to non-workdays;
- weekday cross-border passenger car travel was characterized by morning and afternoon peaks; weekday cross-border commercial vehicle traffic was highest during mid-day periods, suggesting truckers attempted to avoid peak periods for passenger car travel;
- weekday to weekend traffic volume comparisons suggest passenger car traffic diverted to the Detroit-Windsor tunnel during the week to avoid high truck traffic levels on the Ambassador Bridge.

Given the degree of demand management currently practiced by network users, encouragement of any such measures would be expected to yield only marginal improvements to network operations once congestion becomes a recurring problem.

Measures to Divert Demand

One measure to reduce demand on the traffic network across the Detroit River is to divert travel demand to other international crossings outside of the area. Shifting passenger and commercial traffic to border crossings in the Sarnia-Port Huron area, for example, would preserve capacity on the Detroit-Windsor crossings.

Work completed as part of the Detroit River International Crossing – Travel Demand Model Update and Traffic Demand Forecasts Reports, identified that approximately 17% of commercial vehicle traffic currently using the Ambassador Bridge on a weekday could also use the Blue Water Bridge without significant travel time increases.

There are a number of reasons why the Detroit-Windsor crossings are preferred by such trip-makers, including:

- operators may be more familiar with the routing and comfortable with customs brokers at the Ambassador Bridge, resulting in the formation of travel habits;
- the Blue Water Bridge has experienced queues and delays as well;
- it is easier (or habitual) for the administrative departments of operators to deal with one bridge for matters such as pre-clearance papers;
- aggressive voucher redemption program and marketing by the Ambassador Bridge;
- convenient rest stops en route to the Ambassador Bridge;
- there is better access to I-75 south of Detroit via Windsor, as travelling down I-94 via Sarnia-Port Huron requires going through the core of Detroit; and,
- there is a perception of a shorter trip distance via the Ambassador Bridge for more of the total trips between Ontario and Michigan.

Changes to border processing procedures under the FAST program to allow for the use of any border crossing in southwestern Ontario-southeastern Michigan, as well as increased education and awareness programs may encourage long-distance travelers to divert from the Windsor-Detroit border crossings. The Travel Demand Model Update and Forecasting

found that diversion of traffic to the Blue Water Bridge could differ the point at which the Detroit/Windsor crossings reach capacity by about 6 years. Achieving a high degree of diversion from these candidate trips would defer, but not eliminate the need for improvements to the transportation network across the Detroit River.

Other measures to reduce demand include:

- incentives to encourage reduction of trips (e.g. promoting telecommuting); and
- land use and transportation planning policies and other policies and procedures that result in less single occupancy vehicle use, less commuting, higher transit use, and more efficient use of the transportation network.

The development of effective measures to divert demand away from the Detroit River is made complicated by the bi-national nature of the transportation network. Implementation of some of these measures would require international agreement by various levels of governments in both countries, each with their own legislation and policies to address issues that are unique to them. Nevertheless, measures to reduce or change this aspect of travel demand may be effective in achieving some reduction in the growth of travel demand across the transportation network.

Transportation Systems Management

Transportation Systems Management (TSM) relates to a wide range of systems and technology to improve the efficiency and safety of existing and future highways. Driver messaging and directional signing, traffic metering, and incident monitoring can improve traffic flow during high congestion periods, bad winter weather, traffic accident, special events, etc. Operations on the transportation network are carefully monitored by a number of sources, including local media, border agencies, border crossing operators and the trucking community. These various information sources provide updates of border crossing conditions, allowing motorists, and trucking dispatchers, to make informed choices about whether and where to travel. Improving communications and the increased use of technologies to better inform drivers may provide some benefit to network operations, but would not eliminate the need for other improvements, including additional road based capacity.

Localized improvements, such as improved signal timing and improvements to intersections may better utilize existing facilities and roads by increasing their efficiency, but would similarly yield only marginal improvements to network operations.

The nature of international travel demand on the transportation network means that implementing TDM measures alone will not eliminate the need for other network improvements to accommodate the 2035 travel demand. In addition, TDM does not address the need for reasonable options for maintaining the movement of people and goods on the transportation network. However, implementing TDM measures can provide some benefit to network operations, and they support other government and tourism objectives. In addition, TDM could be implemented in conjunction with border processing requirements with minor impacts to environmental features. Therefore, TDM including encouraging long distance trips to use the Blue Water Bridge will be pursued by the Partnership as part of a long-term strategy. However, in

itself, TDM is not a long-term solution to the international transportation needs at Windsor/Detroit.

New and/or Improved Rail Alternatives

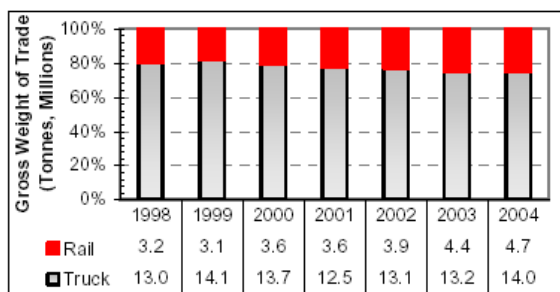
The capacity of the existing rail network has been determined to be sufficient to meet the long-term needs of rail transport. The rail network in the area is capable of accommodating projected 2035 demand, assuming main line capacity on links outside the area also keep pace with the growth through investment in additions and renewals. Rail alternatives considered in this study are therefore of two types: 1) alternatives that provide new rail service and facilities where not currently provided across the Detroit River, and 2) alternatives that increase the use of rail.

There is no international passenger rail service across the Detroit River, and rail presently carries approximately 20% of the value of international freight. Measures could be introduced to encourage the use of railway passenger services across the border. At present, there are no known plans for the introduction of passenger rail services across the Detroit River. It is unlikely that such a service could achieve appropriate ridership to sufficiently address network operational needs.

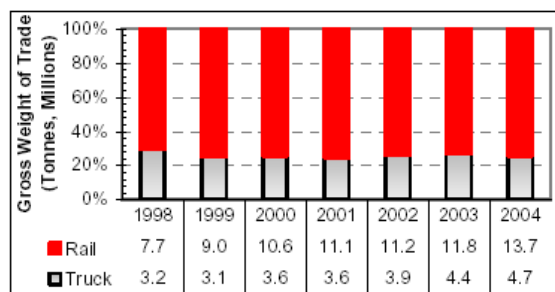
The modest shift of freight transport from truck to intermodal rail observed over the past five years at Detroit River and St. Clair River crossings (see exhibit 2.4) has been supported by significant investment in intermodal facilities infrastructure. Although the existing rail crossing facilities have sufficient capacity, further growth will require continued investment, notably to mainline capacity in Canada, which is currently restricting cross-border intermodal rail growth. CP cancelled its Toronto-Detroit Xpressay service in 2004. From a technical perspective, rail corridors and tunnels are technically feasible to construct and implementing rail improvements would allow for the use of existing transportation corridors. In addition, a new or expanded international rail crossing, would provide an option for maintaining the movement of people and goods in cases of disruption to any of the existing border crossings on the transportation network.

EXHIBIT 2.4 - GROSS SHIPPING WEIGHT OF TRADE BY MODE FOR DETROIT AND ST. CLAIR RIVER CROSSINGS, 1998-2004, CANADA TO U.S.

DETROIT RIVER



ST CLAIR RIVER



Source: BTS Transborder Surface Freight Database

Given the present dominance of the truck mode in transporting freight at the Detroit River and St. Clair River crossings, the DRIC Travel Demand Update assumes that the truck mode share remains constant over the study horizon for the purposes of the Base Forecast. This reflects that the auto industry use of intermodal rail is relatively mature and the significant proportion of the machinery and electronics goods that are transported at the border crossing, which are not conducive to intermodal rail.

That report examines the possible impact of alternatives that could divert demand from over-capacity road-based crossings, to other modes where there is excess capacity available. This would involve fundamental changes in the transportation characteristics and behaviour currently exhibited by the passenger car and commercial vehicle users of the Detroit River border crossing facilities. This consists of a shift in the proportion of commercial vehicles to intermodal rail for trip markets that could be diverted where rail transportation has become (or is becoming) competitive with truck transportation in terms of price and service. Divertible traffic generally consists of relatively long-distance trips. As the vast majority of traffic at the Detroit-Windsor Tunnel is considered non-divertible (99% and 95% for autos and commercial vehicles, respectively), only traffic using the Ambassador Bridge is considered.

It is anticipated that intermodal rail will grow over the study horizon, although any increase or shift from the truck mode is not expected to dramatically change the truck modal share. The base forecast in the Travel Demand Forecasting Working Paper assumes that intermodal rail increase by approximately 2.5% per year in terms of the weight of goods transported, which will maintain its freight share by commodity type and direction. The base forecast also assumes continued ongoing investment in rail over the study horizon to accommodate the assumed growth. A significant diversion of freight to intermodal rail through major investments and transportation policies was considered and is discussed in the Travel Demand Forecast Report.

That report concludes that, even under such an optimistic diversion scenario, rail improvements would defer, but not eliminate the need for improvements to the transportation network. This alternative would therefore only marginally improve congestion on the road-based transportation network.

As a result, delays and queuing on the road network would continue to occur and gradually worsen as traffic volumes increased. Such delays and queuing on the road-based network of this international trade corridor are not consistent with governmental planning objectives or tourism objectives. Similarly, improvements to rail would only partially address border processing needs; improvements to rail may assist in the processing of freight traffic, but would have little benefit to truck and passenger vehicle inspection processes on the road network. Rail improvements would likely also result in impacts to environmental features within or adjacent to existing or proposed rail corridors, but these impacts could be avoided or mitigated to the extent possible as with the road alternatives.

As noted in the previously completed Planning/Need and Feasibility Study, improvements to rail services are recommended as part of a long-term border strategy. However, diversion of truck and passenger car traffic to rail will not in itself address the identified problems or meet the long term transportation requirements.

New and/or Improved Transit and Marine Services

Presently, transit and marine services across the Detroit River serve minor roles in the transportation network.

Transit

Currently, the only public transit available between Windsor and Detroit is the Tunnel Bus operated by Transit Windsor. In developing the travel demand projections, increased frequencies of existing services were assumed at levels to support a continuation of current market shares, but no new local or intercity services were included.

However, a number of alternatives for improving transit services can be implemented to provide choices for cross-border travelers. These alternatives include:

- Increase tunnel bus services - Current levels of service are rather low and increased services might encourage greater utilization.
- Extend tunnel bus or introduce new commuter express services to major destinations - For example, many Windsor residents work at the hospital complex in downtown Detroit. A direct bus to the hospital complex could encourage transfers. Similarly the other origins and destinations in Detroit/Windsor might be linked with a better bus service.
- Introduction of Ambassador Bridge bus service - Similar to the bus through the tunnel, a bus crossing Ambassador Bridge could provide connections between areas in Windsor and Detroit for local commuters and visitors.
- Alternative public transit systems - These could include new systems such as a gondola system across the river, the introduction of a passenger ferry service (possibly similar to the Seabus service in Vancouver), development of a shuttle rail service through the existing rail tunnel, extension of planned commuter rail services in the Detroit region to Windsor and other measures.

Improvements to transit services are not likely to adequately reduce travel demand on the road network sufficiently to overcome the need for road improvements. Transit improvements could make use of use of existing transportation corridors and can be implemented, in most cases, at a reasonable cost and in a relatively short time frame (as compared to major infrastructure improvements).

However, delays and queuing on the road-based network would result even with the transit service improvements. This result is not consistent with planning or tourism objectives. Similarly, improvements to transit services would only partially address border processing needs (for example, transit improvements would only address passenger travel). Transit improvements may result in impacts to environmental features within or adjacent to existing or proposed new transit corridors, but these impacts could be avoided, minimized or mitigated to the extent possible as with other infrastructure improvement alternatives.

Marine

Marine services can be considered as being of two types – long-distance and local. Long-distance marine services are comparable to rail in that such services can reduce travel demand at the Detroit River crossings. Local ferry services are comparable to the tunnel bus service for passengers and an alternative road-based crossing for trucks and cars (the ferry terminals are accessed via the road network).

Long-distance shipping on the Great Lakes primarily serves bulk goods transport (e.g. ore, aggregates, salt). In the past, package freighters have operated on the Great Lakes. However, given the just-in-time inventory processes now practiced by many North American industries and the time sensitivities to many goods presently being transported by truck, the potential market for long-distance shipping is only a fraction of that which crosses the Detroit-Windsor border today. A feasibility study is expected to be initiated shortly to investigate opportunities for improving navigability on the Great Lakes- St. Lawrence Seaway (GL-STS) System. Issues related to ground-side access to marine ports have also been identified as constraints to increasing the role of Great Lakes shipping. However, the major impediment to the increased use of marine services is the seasonality of this service. Navigation on the GL-STS System is typically suspended from the end of December to April the following year. Even with improved use of marine services, there will still be a need to provide for ground shipments during the winter months. These issues make it highly unlikely that marine services would be able to provide the necessary transportation network improvements in the Detroit River area.

The Detroit-Windsor Truck Ferry provides local ferry services. Currently, the truck ferry has a relatively small but vital role. The service is relied upon to ferry oversize shipments and hazardous goods across the Detroit River, but in no way restricts its use to these two markets. There are possibilities to increase the use of the service to divert passengers and other freight services from the bridge and tunnel. The ferry is currently operating at about 25% of capacity. The operation also has the capability of adding barges and tugs to increase its daily operating capacity. Others have expressed an interest in launching new truck and passenger ferry services on the Detroit River.

It is possible that these services could be increased to the point that several hundred trucks per day could be transported across the border. This would be an important contribution to the overall capacity of the border crossing system. However, the traffic demands analysis projects an increase of several thousand trucks per day. At full capacity and with additional barges, ferry services alone cannot provide sufficient transportation network improvements to meet the long-term needs of the region. Adding or improving these marine services is technically feasible, can make use of use of existing transportation corridors along the riverfront and can be implemented, in most cases, at a reasonable cost and in a relatively short time frame (as compared to major infrastructure improvements).

However, delays and queuing on the road-based network would result even with the marine service improvements. This result is not consistent with planning or tourism objectives. Similarly, improvements to marine services would only partially address border processing needs (for example, new ferry services could increase border processing staffing requirements at the border). Marine services would likely also result in impacts to environmental features within or adjacent to existing or proposed marine terminals and

facilities, but these impacts could be avoided, minimized or mitigated to the extent possible, as with other alternatives.

New and/or Improved Road Alternatives With New or Expanded International Crossing

Expanding the road network will provide an option for maintaining the movement of people and goods and alleviating congestion. The majority of cross-border trips on the network (97% of passenger trips and 65% of the value of freight shipments) currently use road-based transportation modes. This trend is likely to continue over the planning horizon of this study. Providing additional road-based capacity directly addresses the needs of the network. Through proper planning, such expansion can maximize use of existing corridors and be implemented in a manner consistent with planning and tourism objectives.

New or expanded border crossings must be designed to meet the long-term needs of border processing agencies. These needs include: size and flexibility of plaza area to accommodate border processing requirements, the ability to identify and separate low and high-risk traffic and security of the primary and secondary inspection areas. These improvements can be incorporated into existing border crossings or a new crossing.

Improvements to the existing crossings can provide some relief but would not fully address the need for reasonable options for maintaining the movement of people and goods in cases of disruption at any of the existing border crossings. Further, while improvements to existing crossings would achieve limited additional road capacity, such improvements are not likely to provide sufficient capacity to address future travel needs. However, improvements to the existing crossings can increase utilization of existing infrastructure and improve operations on the network.

New road alternatives, whether federal, provincial, state or municipally governed, can be designed to comply with design standards. Given the nature and extent of development and other land uses in the area, expansion of the road network will generate impacts to natural, social and cultural features. The four transportation agencies that comprise the Partnership, in consultation with agencies, other government offices and departments, stakeholder groups and the public, will develop and apply methodologies to avoid, minimize or mitigate impacts to the extent possible, as appropriate.

'New or improved road alternatives with new or improved international crossing' is a feasible alternative and will be carried forward for further study.

Combinations of the Alternatives

In order to satisfy the study goals and objectives, including the basic transportation demand (the movement of people and goods), it is apparent from the traffic analysis, that several of the planning alternatives, implemented in concert will be required to address future transportation needs across the Detroit River. Border processing improvements will be required on a continuing basis. The implementation of these improvements is not under the direct control of the Partnership. The Partnership, however, is continuing to work with border processing agencies to encourage and support initiatives that improve border processing at

the Windsor-Detroit crossings. However, it is also clear that the only combination of alternatives that can practically accommodate a significant amount of increased demand for travel and effectively provide reasonable options for maintaining the movement of people and goods in cases of disruptions at any of the existing border crossings is one which includes ‘new and/or improved roads with new or improved international crossing’ alternative. All other alternatives, even in combination, will not provide sufficient long-term border capacity to meet future needs.

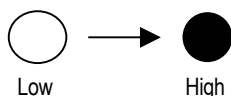
2.3 Conclusions

The evaluation of transportation alternatives is summarized in graphic form in Exhibit 2.5.

EXHIBIT 2.5 – SUMMARY OF EVALUATION OF TRANSPORTATION ALTERNATIVES

Factor	Do Nothing	Border Processing	TDM (including diversion)	Rail Improvements	Transit Improvements	Marine Improvements	New and/or Expanded Roadways
Transportation Network Improvement							
Transportation Opportunities							
Governmental Land Use, Transportation Planning and Tourism Objectives							
Border Processing							
Environmental Feasibility							
Technical Feasibility	N/A						

Shading represents the degree to which the alternative addresses each factor, relative to the other alternatives



The assessment of transportation alternatives clearly shows that the only planning alternative that can meet the identified needs is one which includes the provision of new and/or improved roads with a new or improved crossing. It is recognized that improved and expanded border processing capacity is an integral component of this solution. The road improvements alternative has been identified as the most effective at addressing the transportation network requirements, border processing requirements, and provides the highest overall level of “support” to planning and tourism objectives. This alternative has a comparable degree of environmental and technical feasibility as the other

alternatives on the basis that impacts could be avoided, reduced or mitigated to the extent possible as with other infrastructure improvement alternatives.

In terms of addressing transportation network requirements for people and goods movement, a multi-modal approach provides choice for travelers and offers viable mechanisms to reduce auto use. However, alternatives for travel demand management, rail, transit, ferries, etc. cannot independently address the diverse user needs, sufficiently alleviate traffic congestion on the transportation network nor effectively provide reasonable options for maintaining the movement of people and goods in cases of disruptions at any of the existing border crossings.

The analysis also supports the inclusion of travel demand management measures as well as rail, transit and ferry service improvements as part a multi-modal strategy for the medium and long-term needs of the transportation network in the area.

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3. Study Area

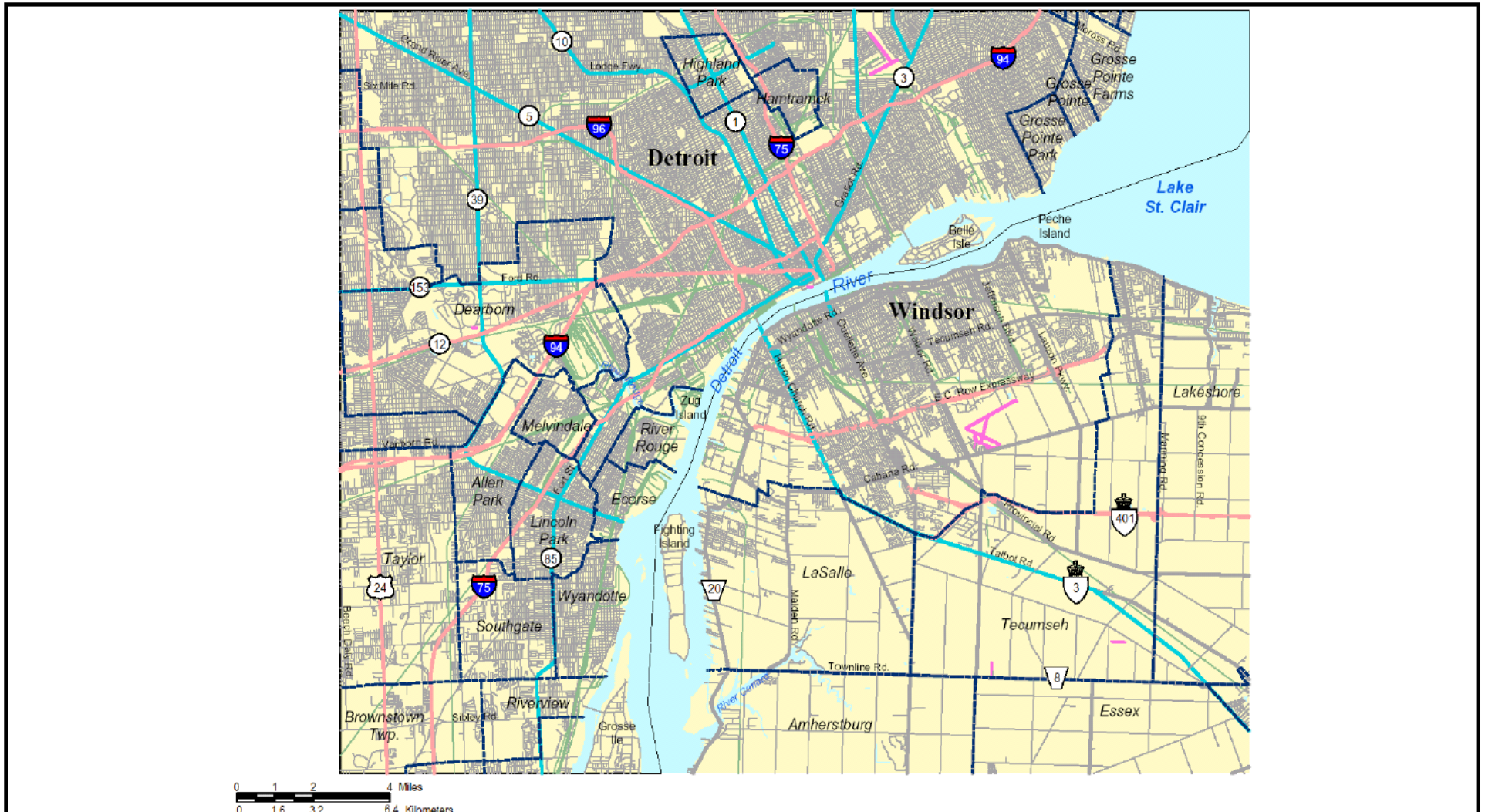
The Terms of Reference proposed the following process for generating a Study Area:

- Identify significant physical constraints that may preclude the development of feasible alternatives (e.g. large waterbodies, severe changes in terrain) as well as sensitive land uses (current and future planned land use). For example, the width of the water body between Canada and the U.S. beyond the Detroit River area generally precludes any reasonable fixed link linear facility alternatives.
- Establish study area limits that provide continuous corridors of sufficient area to generate a range of linear transportation facility alternatives.
- Verify that the study area will accommodate the generation of alternatives that can reasonably address the stated problems and take advantage of opportunities. Alternatives generated must be effective in serving the existing and future travel demand on the transportation network and provide a sufficient level of traffic service.

On the basis of the transportation problems identified in the Planning and Needs Report with the Ambassador Bridge and Detroit-Windsor Tunnel, a Study Area was established in the Windsor/Essex County – Detroit/Wayne County area. In establishing the Study Area, the need to provide for a range of feasible alternatives was considered. Exhibit 3.1 identifies the Study Area proposed for the generation, assessment and evaluation of alternatives. The rationale for the general limits of the Study Area are provided below:

- North and West Limits: These limits are defined to allow for connections between the existing Provincial Highway and Interstate Freeway System for road-based alternatives. These limits are established to generally include the I-94 and I-75 corridors to ensure that the road-based alternatives considered can access the high-order road facilities in both Michigan and Ontario. Such access is highly desirable given the nature of international traffic using the existing border crossings.
- East Limit: This limit was generally defined by the technical and environmental constraints associated with Lake St. Clair. The Detroit River widens at the base of the lake. The width of the water body between Canada and the US beyond the proposed east limit generally precludes any reasonable fixed link road-based alternatives.
- South Limit: This limit was generally defined by the northern limit of the urbanized area in Amherstburg and in the U.S. To be effective in serving the existing and future travel demand, transportation corridors must be suitably located in proximity to the population and employment areas to attract sufficient traffic away from the existing crossings to alleviate traffic congestion. In addition, the transportation corridors should integrate with the existing transportation network. To effectively address the need for additional road-based capacity, corridors must attract sufficient traffic to allow the existing crossings to operate well for at least 30 years. It is anticipated that corridors south of the proposed south limit would not divert sufficient traffic to address the problem. This will be confirmed or reassessed when assignment results from the traffic forecasting become known.

Throughout the course of the environmental study, if required, the study area limits can be refined or modified to accommodate any reasonable alternatives that may be developed and for the purpose of assessing impacts.



Canada-US-Ontario-Michigan Border Transportation Partnership
Planning/Need and Feasibility Study

Proposed Study Area

EXHIBIT
3.1