

6 ILLUSTRATIVE ALTERNATIVES FOR CROSSINGS, PLAZAS AND ACCESS ROADS

This chapter summarizes the generation, assessment and evaluation of the illustrative crossing, inspection plaza and access road alternatives. For further details, the reader is referred to the following document, which is available as a supporting document:

- *Generation and Assessment of Illustrative Alternatives Report (November 2005)*

The illustrative alternatives were developed within the Preliminary Analysis Area (PAA; refer to **Exhibit 2.1**). The term “illustrative” is used to describe the conceptual, “long list” alternatives determined from the PAA. This terminology was adopted on both sides of the border to promote the coordinated approach between the two environmental study processes.

Based on an evaluation of the illustrative alternatives, the study team identified an Area of Continued Analysis (ACA), which served as the basis for the development of the practical crossing, plaza and access road alternatives. The ACA is presented in **Exhibit 6.17**, at the end of this chapter. The term “practical” is used to describe the more refined alternatives that emerge from the assessment and evaluation of the broader level conceptual alternatives, i.e. the illustrative alternatives. For further information with regard to the generation, assessment and evaluation of the practical crossing, plaza and access road alternatives, the reader is referred to **Chapter 8**.

6.1 Generation of Illustrative Alternatives

Generally, the alternatives to be considered for a new or expanded border crossing can be categorized into the following components:

- A new or expanded crossing (tunnel or bridge)
- Plazas connected to the crossing (either directly or through a secure connection) for border agencies to inspect inbound and outbound drivers, passengers, vehicles and freight. These inspection plazas may also include other functions, such as toll collection and crossing maintenance facilities, and other border related services such as duty-free shopping, brokerage offices, and other agency offices; and
- Controlled access roadways connecting the crossing plazas to the provincial or interstate freeway system.

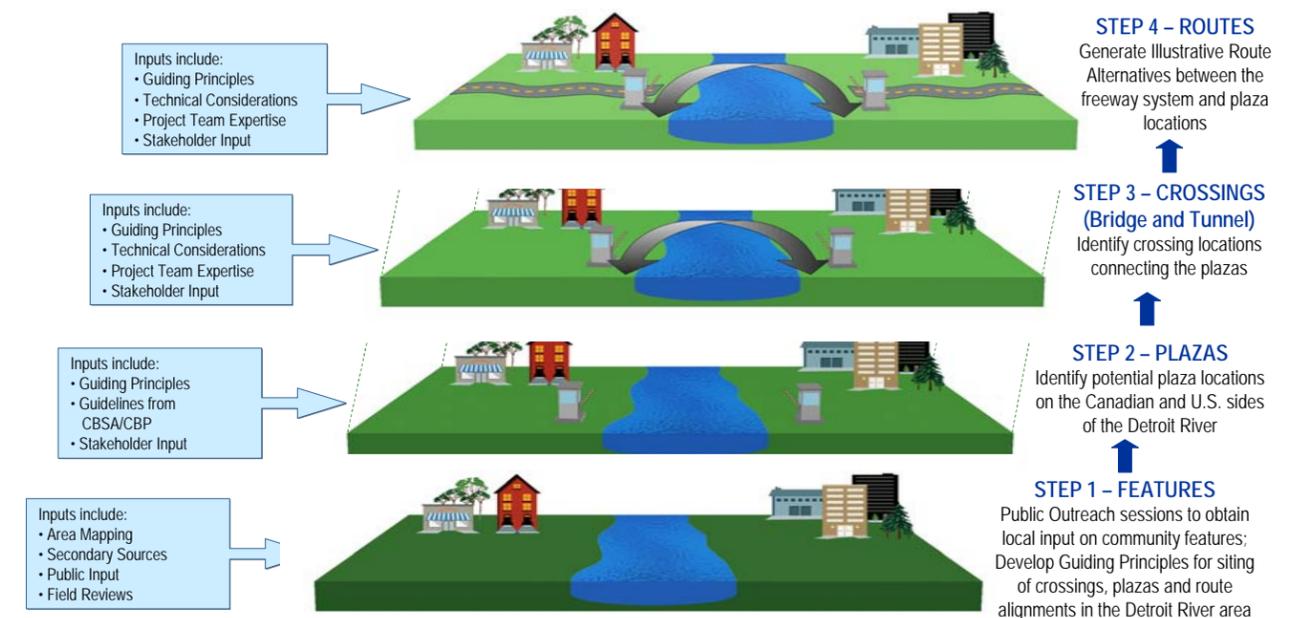
For this study, inspection plazas approximately 30 to 40 ha in size were considered for new crossings, based on the preliminary assumption that international truck traffic will be distributed equally between the new crossing and the Ambassador Bridge.

Committed road and highway improvements were identified through consultation with the Ministry of Transportation (MTO), City of Windsor and a review of the relevant area transportation plans. Through this consultation it was confirmed that Highway 401 will ultimately be widened in the Windsor area from 0.5 km east of Highway 3 to 1.0 km east of County Road 42. On this basis, an ultimate six-lane cross-section was assumed for all access road alternatives. However, as discussed, in **Section 6.1.3**, it was envisioned that four lanes would be constructed initially.

The following steps were undertaken in the generation of illustrative alternatives (refer to **Exhibit 6.1**):

- Collect data for features in the Detroit River area. This step included Initial Public Outreach sessions (refer to **Chapter 3**) to obtain local input on community features;
- Develop guiding principles for siting of river crossings, inspection plazas and access road alignments in the Detroit River area;
- Identify potential inspection plaza locations on the Canadian and U.S. sides of the Detroit River;
- Identify crossing locations connecting these plazas; and
- Generate illustrative access road alternatives between the freeway system and inspection plaza locations.

EXHIBIT 6.1 – DEVELOPMENT OF ILLUSTRATIVE ALTERNATIVES



As identified in Section 3.3.1 of the EA Terms of Reference (EA TOR), 2004, the objectives for generating alternatives were to:

- Develop alternatives that are efficient/direct;
- Meet objectives and design requirements of Partnership agencies;
- Reflect the needs of border agencies; and
- Minimize/avoid impacts to significant features to the extent possible.

Due to the nature and extent of development in the Detroit River area, it was recognized that there are no opportunities to develop a new or expanded crossing with connections to the provincial and interstate freeway system without impacting some level of environmental and community features. The following guiding principles were developed to assist in the development of the illustrative crossing, inspection plaza and access road alternatives:

- **Utilize existing infrastructure to the maximum extent** - taking advantage of existing transportation and other linear corridors may improve usage of the transportation network and/or reduce impacts to other land uses;
- **Seek areas or land uses that are compatible with transportation corridors and facilities, or areas in transition to compatible land uses** - compatible areas are those that are considered to be less impacted by new crossing, inspection plaza and access road alignments than other land uses (e.g., industrial areas may be considered to be less impacted by a new inspection plaza than residential areas). Areas in transition allow the opportunity to incorporate new access road alignments in the area planning;
- **Minimize impacts to significant natural features** - such features are usually regionally unique, protected by legislation/designations and may preclude a transportation facility; and
- **Minimize impacts to city centres** - such areas generally provide a focus for cultural, social and economic activities.

The guiding principles reflect the objectives of the Partnership to address transportation needs, take advantage of transportation opportunities, and avoid generating unacceptable impacts to the extent possible.

6.1.1 Plaza Alternatives

The identification of possible sites for inspection plazas was the initial step in the development of illustrative alternatives. This was due to the relatively large associated property requirement and specific siting requirements unique to their purpose. The crossing alternatives and road alternatives were developed subsequently, based on the alternative plaza locations.

Building upon the guiding principles for generating illustrative alternatives, the following specific siting considerations were developed for generating alternative plaza sites in consultation with the Canadian Border Service Agency and the U.S. Department of Homeland Security, Customs Border Protection Branch:

- **Proximity to Border:** Canada Border Services Agency (CBSA) and U.S. Customs and Border Protection (CBP) require that the plazas be located as close to the border as possible, to reduce security / monitoring requirements for border agencies. Where plazas cannot be directly connected to the bridge, secure connections would be required to prevent goods and travellers from avoiding inspection. In Canada, a secure roadway of 1.5 km was considered the maximum reasonable distance, subject to consideration of land use and line of sight concerns. (In the U.S., connecting the plaza directly to the crossing is the only acceptable alternative).
- **Site Area:** The site must provide adequate space to accommodate projected traffic demand, as well as turn-around opportunities for drivers and the installation of equipment systems prior to and after inspection points, on-site secondary inspection, some storage capacity for traffic queues on the plaza, and the ability to expand in the future. As discussed in the previous section, inspection plazas approximately 30 to 40 ha in size were considered for new crossings.
- **Adjacent Land Use:** The site should be located away from residential areas, schools and other community uses. Sites should not be visible from neighbouring lands, but should provide good

visibility to surrounding areas and approaches. Areas with significant development should also be avoided.

- **Environmental Sensitivities:** Consideration should be given to the presence of toxic and/or hazardous materials, wetlands and/or endangered species, cultural, social and economic impacts.
- **Existing Easements and Right-of-Ways:** Consideration should be given to gas lines, water and sewer lines, power and telecommunication lines, rail lines, and local and private roadways;
- **Emergency Services and Access:** The site should be served by more than one roadway to allow for roadway interruption; consideration should be given to response time for medical and fire emergency services, and proximity to hospitals.
- **Site Topography:** Relatively flat sites are preferred, with grades less than two to three per cent. Floodplains and/or elevations close to river or lake levels should be avoided.
- **Water Availability:** Consideration should be given to water sources and protection from sabotage or other threats of contamination.

On the basis of the guiding principles and the siting considerations identified by the study team, 13 potential plaza locations were identified on the Canadian side of the river (refer to **Exhibit 6.2**). The identification of plaza locations on the Canadian side was coordinated with the identification of plaza locations on the U.S. side.

In urban areas, plaza sites were generally sized closer to the required footprint of 30 to 40 ha in recognition of adjacent land use features. In rural areas, where there are fewer land use features, plaza opportunity areas of substantial size were identified. These areas provide the maximum flexibility for accommodating a variety of configurations of plazas.

The plaza sites were divided into three geographical categories – east plaza sites, central plaza sites, and south plaza sites. Each site is illustrated and described briefly in **Exhibits 6.3A to 6.3C**.

EXHIBIT 6.2 – POTENTIAL PLAZA LOCATIONS (CANADIAN AND U.S.)



EXHIBIT 6.3A – EAST PLAZA SITES



Plaza Site CE1
 Size: 200 acres ±
 Distance to River: 1.6 km

Plaza Site CE2
 Size: 520 acres ±
 Distance to River: 0.6 km

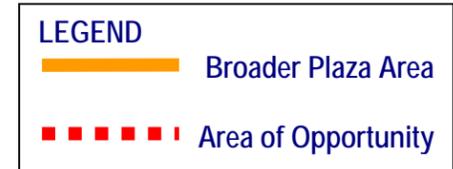


EXHIBIT 6.3B –CENTRAL PLAZA SITES



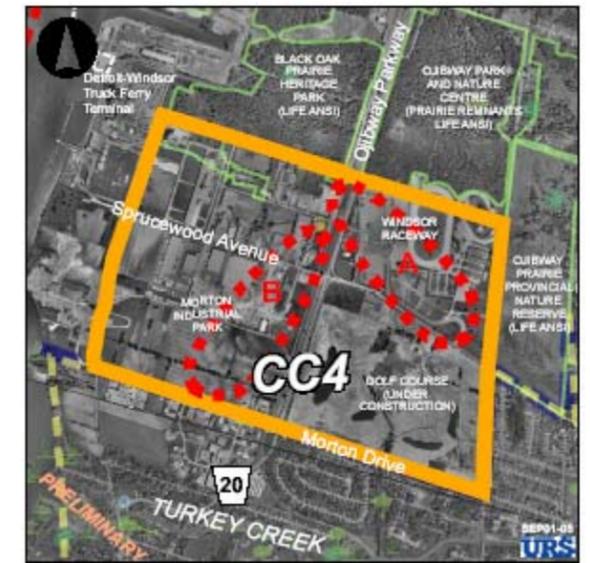
Plaza Site CC1
 Size: 80 acres ±
 Distance to River: 3.0 km



Plaza Site CC2
 Size: 214 acres ±
 Distance to River: 1.5 km



Plaza Site CC3
 Size: 80 acres ±
 Distance to River: 0.5 km



Plaza Site CC4
 Size: 760 acres ±
 Distance to River: 0.5 km



Plaza Site CC7
 Size: 80 acres ±
 Distance to River: 0.6 km



Plaza Site CT1
 Size: 120 acres ±
 Distance to River: 0.8 km



Plaza Site CR1
 Size: 80 acres ±
 Distance to River: 0.8 km

LEGEND

- Broader Plaza Area
- Area of Opportunity

EXHIBIT 6.3C –SOUTH PLAZA SITES



Plaza Site CS1
 Size: 573 acres ±
 Distance to River: N/A



Plaza Site CS2
 Size: 1451 acres ±
 Distance to River: 0.5 km



Plaza Site CS3
 Size: 430 acres ±
 Distance to River: 2.0 km



Plaza Site CS4
 Size: 254 acres ±
 Distance to River: 0.5 km

LEGEND

- Broader Plaza Area
- Area of Opportunity

6.1.2 Crossing Alternatives

Once the plaza locations were identified on the Canadian and U.S. side of the Detroit River, the study team developed international crossing alternatives (bridge and tunnel options were considered) to connect the plaza sites. New crossing alternatives were developed based on providing six lanes over/under the Detroit River.

The Detroit River is an important waterway for marine traffic on the Great Lakes. Bridges are therefore required to span the river at a clearance of at least 46 m at the shipping channel, as defined by the U.S. Coast Guard and Transport Canada – Navigable Waters Division. The height requirements and potential span lengths suggested that any bridge on the Detroit River north of Fighting Island would need to be either a suspension bridge or a cable-stayed bridge, as illustrated schematically in Exhibit 6.4.

The study team also undertook a review of available geotechnical information to assess the feasibility of constructing a tunnel below the Detroit River (refer to sketches in Exhibit 6.5 for schematic illustrations of the tunnel options considered).

The preliminary findings of the suitability of bridge and tunnel crossings are presented in Table 6.1. These findings suggested that:

- Rock tunnelling would be difficult and potentially not feasible due to the depth to bedrock in the upper portions of the river (refer to Exhibit 6.5), and the poor rock conditions in the lower portions of the river.
- Earth (bored) tunnelling may be feasible for crossings upriver of the Zug Island area, where depths of soft earth are suitable.
- Submerged tunnels in the Detroit River are not preferred due to the disruption to river sediment and impacts to shoreline natural areas such alternatives would have on the river. Initial discussions with Ontario Ministry of Natural Resources (MNR) and Michigan Department of Environmental Quality were held to discuss the possibility of using sunken tunnels. These agencies raised serious concerns as to the acceptability of this method of tunnel construction given that other less disruptive options were available.

Subsequent assessment of soft ground tunnelling upriver of Zug Island identified issues with respect to uplift and available soft earth cover over a new tunnel in this area of the river.

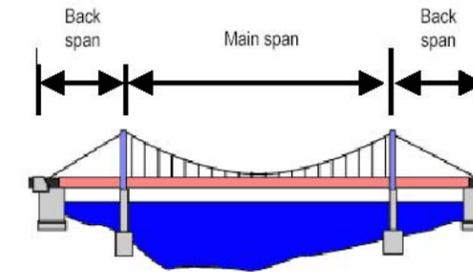
Both the Canadian and U.S. study teams concluded that for the purposes of the Detroit River International Crossing study, roadway tunnels under the Detroit River were not practically feasible upriver of Zug Island. In addition, poor rock conditions downriver of the Zug Island area and inadequate soft earth cover led both the Canadian and U.S. study teams to conclude that roadway tunnels are not practically feasible for all crossing locations.

The illustrative crossing alternatives are shown on Exhibit 6.6.

EXHIBIT 6.4 – DETROIT RIVER BRIDGE OPTIONS NORTH OF FIGHTING ISLAND AREA

Suspension Bridge

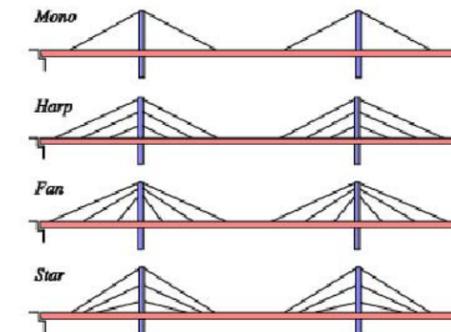
Suitable for spans over 500m.



Typical Elevation (left) and Ambassador Bridge, Windsor/Detroit (right)

Cable Stayed Bridge

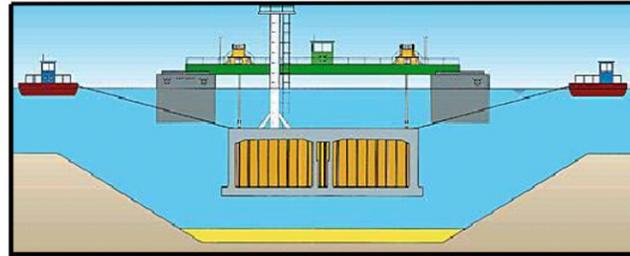
Suitable for spans up to 900m.



Typical Elevations (left) and Pont de Normandie, France (right)

EXHIBIT 6.5 – DETROIT RIVER TUNNEL OPTIONS CONSIDERED

Submerged Tunnel



Tunnel Boring Machine (Rock or Soft Ground Tunnelling)

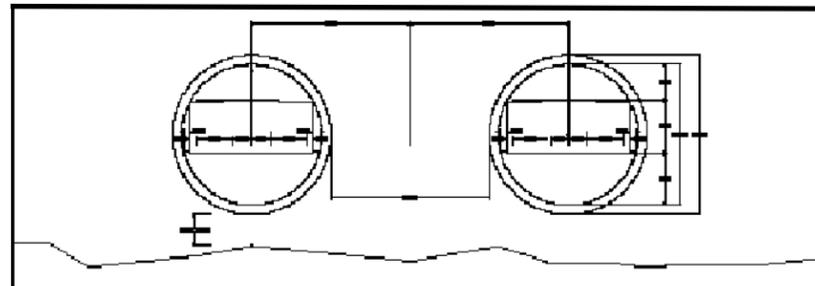


Image courtesy of Parsons Transportation/The Corradino Group

Triple-Tunnel

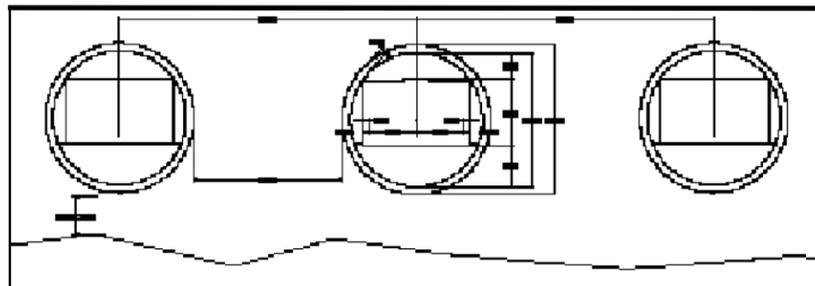


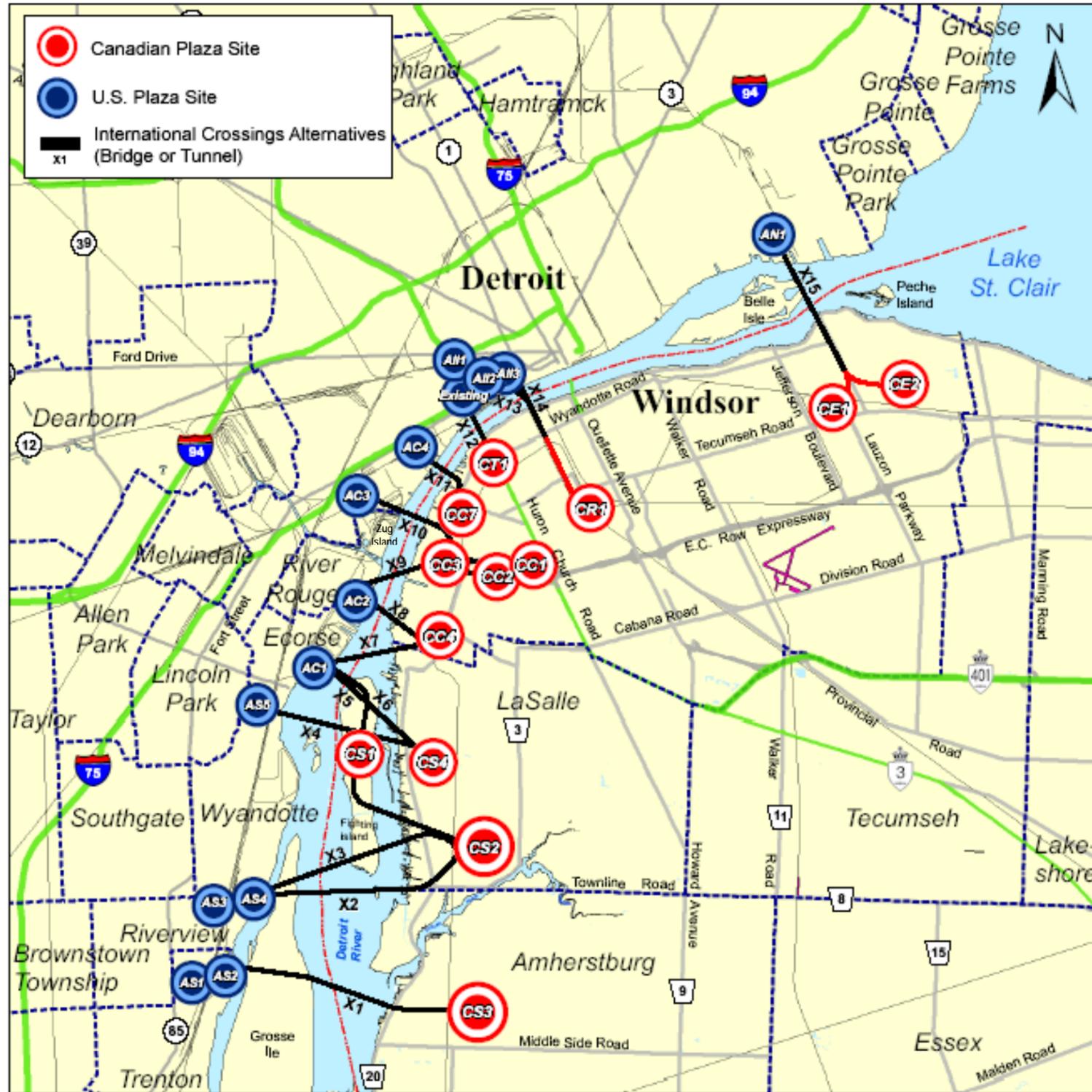
Image courtesy of Parsons Transportation/The Corradino Group

TABLE 6.1 – GEOTECHNICAL SUMMARY OF CROSSING OPTIONS AND CONCERNS

Location	Area of Fighting Island	Area of Zug Island	Area of Ambassador Bridge	Area of Belle Isle
Bridge	<ul style="list-style-type: none"> • Solution Mining • Foundations on bedrock, 15 to 20m below ground surface • Potential artesian groundwater • Methane and hydrogensulphide • Approach embankments on compressible soils <p>✓ Carried forward for continued study</p>	<ul style="list-style-type: none"> • Solution Mining • Foundations on bedrock, 25 to 30m below ground surface • Methane and hydrogensulphide • Potential artesian groundwater • Dry salt mining <p>✓ Carried forward for continued study</p>	<ul style="list-style-type: none"> • Solution Mining • Foundations on bedrock, 35 to 40m below ground surface • Methane and hydrogensulphide • Potential artesian groundwater • Approach embankments on compressible soils <p>✓ Carried forward for continued study</p>	<ul style="list-style-type: none"> • Foundations on bedrock, 40 to 50m below ground surface • Methane and hydrogen sulphide • Potential artesian groundwater • Approach embankments on compressible soils <p>✓ Carried forward for continued study</p>
Immersed Tube	<ul style="list-style-type: none"> • Solution Mining • Excavations in bedrock required • Potential artesian groundwater • Sediment disturbance and disposal creates numerous environmental concerns <p>✗ Not practically feasible</p>	<ul style="list-style-type: none"> • Solution Mining • Excavations may penetrate near the bedrock interface • Potential artesian groundwater • Sediment disturbance and disposal • Dry salt mining <p>✗ Not practically feasible</p>	<ul style="list-style-type: none"> • Excavations may penetrate near the bedrock interface • Potential artesian groundwater • Sediment disturbance and disposal creates numerous environmental concerns <p>✗ Not practically feasible</p>	<ul style="list-style-type: none"> • Tunnel potentially seated on soft clay • Sediment disturbance and disposal creates numerous environmental concerns <p>✗ Not practically feasible</p>
Soft Ground Tunnel	<ul style="list-style-type: none"> • Solution Mining • Insufficient soft earth cover in river bed therefore not feasible for 13m diameter tunnel • Groundwater control <p>✗ Not practically feasible</p>	<ul style="list-style-type: none"> • Solution Mining • Insufficient soft earth cover in river bed therefore not feasible for 13m diameter tunnel • Groundwater control • Dry salt mining <p>✗ Not practically feasible</p>	<ul style="list-style-type: none"> • Insufficient soft earth cover therefore not feasible for 13m diameter tunnel • Groundwater control <p>✗ Not practically feasible</p>	<ul style="list-style-type: none"> • Groundwater control • Limited soft earth cover • Approach construction in soft soil <p>✗ Not practically feasible</p>
Rock Tunnel	<ul style="list-style-type: none"> • Solution Mining • Potential artesian groundwater • Approach construction, excavations of 15 to 20m • Use of double-shield rock TBM • Poor quality of rock <p>✗ Not practically feasible</p>	<ul style="list-style-type: none"> • Solution Mining • Groundwater control • Gas control • Approach construction, excavations of 25 to 30m • Dry salt mining areas • Use of double-shield rock TBM • Poor quality of rock <p>✗ Not practically feasible</p>	<ul style="list-style-type: none"> • Approach construction, excavations of 30 to 35m • Groundwater control • Gas control • Use of double-shield rock TBM • Uplift and lack of adequate cover <p>✗ Not practically feasible</p>	<ul style="list-style-type: none"> • Groundwater control • Gas control • Approach construction excavations of 40 to 50m, beyond practical limit • Use of double-shield rock TBM • Uplift and adequate cover <p>✗ Not practically feasible</p>

Note: Area of Fighting Island relates to south plaza sites: CS1, CS2, CS3 and CS4
 Area of Zug Island relates to central plaza sites: CC1, CC2, CC3 and CC4
 Area of Ambassador Bridge relates to central plaza sites: CC7, CT1 and CR1
 Area of Belle Island relates to east plaza sites: CE1 and CE2

EXHIBIT 6.6 – ILLUSTRATIVE CROSSING ALTERNATIVES (X1 TO X15)



6.1.3 Access Road Alternatives

Illustrative access road alternatives connecting Highway 401 in the Windsor-Essex County area to the alternative plaza locations are illustrated on **Exhibit 6.7** and were developed based on the guiding principles identified in **Section 6.1**. The significant features considered during the development of access road alternatives included the following:

Component	Feature
Natural Environment	Groundwater Quality and Quantity Surface Water Quality and Quantity Agricultural Lands Wetlands Areas of Natural and Scientific Interest (ANSIs) Environmentally Sensitive Areas (ESAs) Woodlands Wildlife Preserves Species at Risk / Endangered Species
Cultural Environment	Historical, Archaeological and Cultural Sites National, State & Provincial Parks, and Conservation/Recreational Areas
Social Environment	Landfills and Hazardous Waste Sites Areas of Residential Development Areas of Commercial / Institutional Development

The access road alternatives were developed as multi-lane freeways with the following design characteristics:

- Design speed of 120 km/h;
- Initially four-lane urban freeway, but will protect sufficient property for ultimate six lanes;
- 80 m to 110 m Right-of-Way;
- Three per cent maximum mainline grade;
- 650 m minimum horizontal curve radius in urban areas; and
- 1700 m minimum horizontal curve radius in rural areas.

Route optimization software (Quantm) was also used to aid in the generation of illustrative access road alternatives to verify the range of alternatives identified by the study team. Quantm utilizes a computerized approach that considers environmental features and cost data to identify optimal route locations. The information generated by Quantm was incorporated in the set of illustrative access road alternatives developed by the study team.

SOUTH ALTERNATIVES

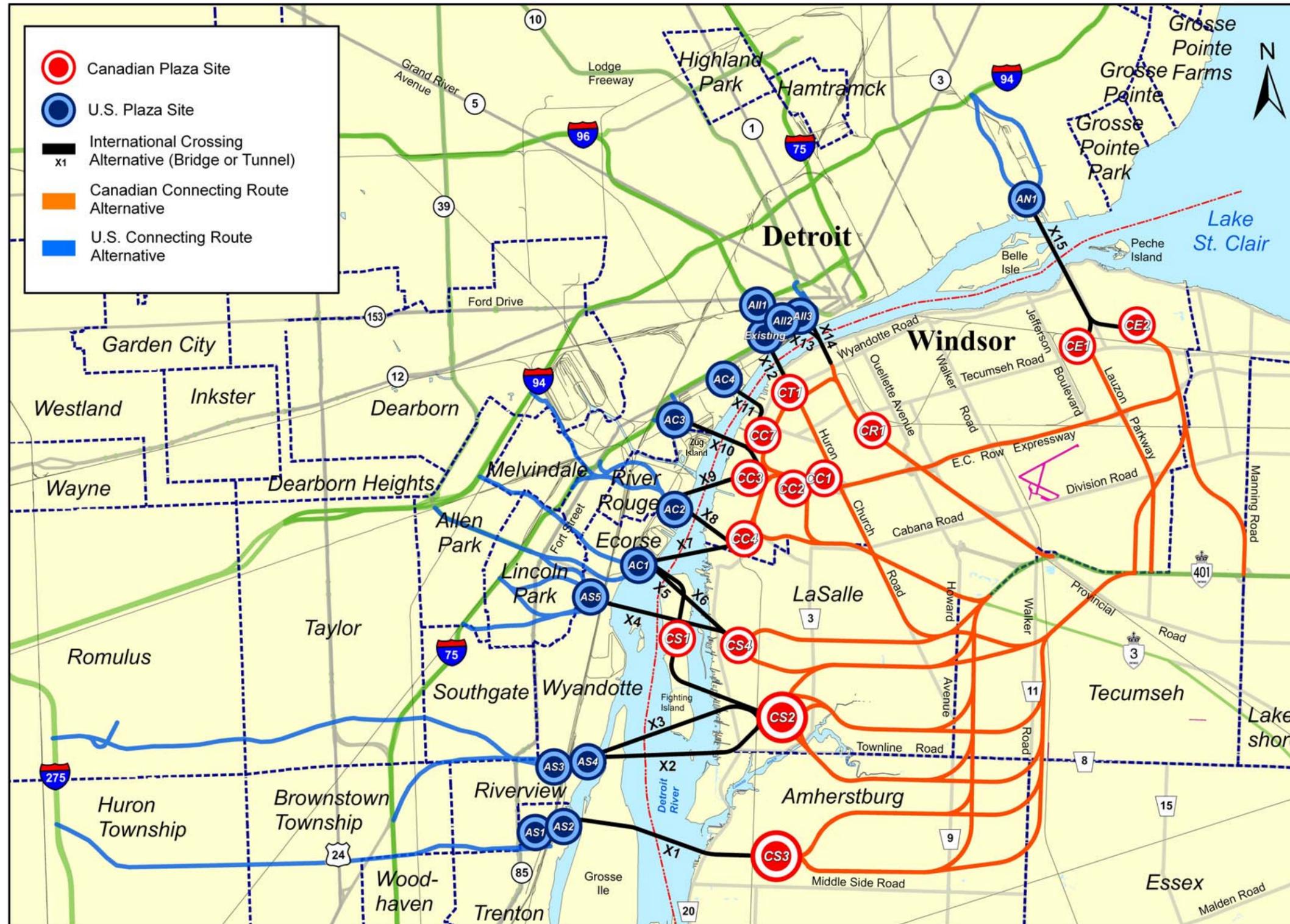
Considering the plaza locations along the Detroit River and the location of Highway 401, the study team developed alignments for access roads that would reduce impacts to land uses and avoid where possible impacts to key community features would occur (refer to **Exhibit 6.8A**). The land use in the southern area is primarily agricultural. Therefore, alignments were developed which generally followed the property and field fabric in LaSalle, Amherstburg and Tecumseh. This resulted in alignments that were generally aligned east-west and north-south, rather than diagonally, to reduce impacts to agricultural operations and minimize landlocked severances.

The east-west access road segments connecting to Plaza CS3 were developed to avoid the active Allied Chemical Quarry between Concession Road 6 and Howard Avenue in Amherstburg. The north-south segments followed the rear lot lines paralleling Walker Road and Howard Avenue to avoid the existing development (agricultural buildings, residences and other retail/industrial uses) that is generally located along the frontages of these principal roads. The segment paralleling Howard Avenue connects to Highway 401 at the Highway 3 interchange. The segment that parallels Walker Road avoids the settlement area of Oldcastle in the Town of Tecumseh and connects to Highway 401 in the area of Concession Road 10, where Highway 401 is on tangent.

The east-west access road segments connecting to Plazas CS1 and CS2 were developed to avoid the clusters of residential development and improved lands (e.g., golf courses, race tracks) found south of the future urban area boundary in LaSalle. As can be seen in **Exhibit 6.8A**, one east-west access road segment (CF-CG) follows along this boundary north of the plaza, while another (SE-SM) is approximately one-half concession north of the LaSalle/Amherstburg municipal boundary. This latter segment swings north to avoid a crossing of the Canard River and the residential area along the north bank of the river near Malden Road. A third access road segment (SH-SM) is located approximately one-half concession south of the LaSalle/Amherstburg municipal boundary. This alternative crosses the Canard River immediately east of the settlement area along the southern bank of the river. The connection to Plaza CS1 is aligned south of Martin Lane, parallel with the property fabric, which is generally perpendicular to the Detroit River. As with the other southern alternatives, the east-west segments were connected to two north-south segments, connecting to Highway 401 at either Highway 3 or near Concession Road 10.

The east-west segments connecting to Plaza CS4 in LaSalle include an alignment that follows the town's future urban area boundary, then swings south to avoid the Essex Golf and Country Club, which was identified as a significant community feature. The other access road segment is located south of Bouffard Road within the town's future urban area to determine whether there would be any advantage to having a new east-west freeway facility to serve this growing community, and whether the plans for the urban area of LaSalle could accommodate a new east-west transportation corridor. These east-west segments were also connected to the two north-south segments connecting to Highway 401 at either Highway 3 or at the end of the long tangent section near Concession Road 10.

EXHIBIT 6.7 – ILLUSTRATIVE CROSSING, PLAZA AND ACCESS ROAD ALTERNATIVES



CENTRAL ALTERNATIVES

Most of the central alternatives were located in the highly developed urban areas of Windsor and LaSalle (refer to **Exhibit 6.8B**). To reduce impacts to existing communities and neighbourhoods, existing transportation corridors were considered for a new freeway connecting the central plaza sites (CC1, CC2, CC3, CC4, CC7, CT1 and CR1) to Highway 401. The Huron Church/Talbot Road/Highway 3 corridor was one alternative, as was the former Canadian Southern (CASO) rail corridor (now the Detroit River Tunnel Partnership [DRTP] Rail Corridor). The E.C. Row Expressway corridor, with connections at Huron Church Road, the DRTP rail corridor, or a Lauzon Parkway Extension, were also considered as corridors for conveying international traffic between Highway 401 and the Detroit River.

A new highway corridor was considered in the Talbot Road area to bypass the existing residential uses that currently have direct access to Talbot Road. This segment (CC-CE-CI) passes within the designated urban area boundary of LaSalle, through an active development area, and along the Huron Church Line corridor to the Huron Church Road/Todd Lane area.

Other new highway corridors were developed in the area of Ojibway Prairie. One such segment parallels Todd Lane west of Huron Church Road along the Windsor/LaSalle municipal boundary, westerly to Ojibway Parkway. This alignment is derived from the recommended alignment for a truck bypass route connected to a traffic management centre in the Brighton Beach area identified in the *Windsor Gateway Study, Sam Schwartz Engineering, January 2005*.

Another segment parallels Todd Lane west of Huron Church Road along the Windsor/LaSalle municipal boundary to Malden Road, then follows the Malden Road corridor to the E.C. Row Corridor. This segment avoids severance impacts to the Ojibway Prairie Provincial Nature Reserve and the development along Huron Church Road north of Todd Lane/Cabana Road West.

Alternative routes to using the Highway 3/Huron Church Road corridor to access the Ambassador Bridge were also developed. These included a new corridor from the western terminal of the E.C. Row Expressway along the Essex Terminal Railway (ETR) corridor to the Ambassador Bridge plaza (segment CP-CQ-CT). This segment is a part of what has been referred to locally as the Ambassador Ring Road concept. Another corridor was developed with a similar concept for using the ETR corridor to access the Ambassador Bridge from the DRTP Rail Corridor (segment CS-CT).

EAST ALTERNATIVES

To connect plazas CE1 and CE2 to Highway 401, access road segments were developed along the Lauzon Parkway/Concession Road 10 corridor and the Banwell Road/Manning Road corridor (refer to **Exhibit 6.8C**). North of the E.C. Row Expressway, existing transportation corridors were considered for a new freeway to reduce impacts to existing communities and neighbourhoods. South of E.C. Row, the land uses are primarily agricultural. Two segments were considered in the Concession Road 10 corridor: one segment along Concession 10, and another between Concession 9 and 10 to reduce impacts to agricultural operations, residences and other development that is presently along the frontage of Concession Road 10.

Connections between the Concession Road 10/Lauzon Parkway corridor and the Banwell Road corridor were provided via access road segments ED-EE and EG-EF (i.e., E.C. Row Expressway).

The illustrative crossing, plaza and access road alternatives were carried forward for analysis and evaluation to determine the practical alternatives to be carried forward for additional analysis.

EXHIBIT 6.8A – ILLUSTRATIVE ALTERNATIVES – SOUTH CORRIDOR – ACCESS ROAD ROUTES CONNECTING TO CROSSINGS X1, X2, X3, X4, X5 AND X6

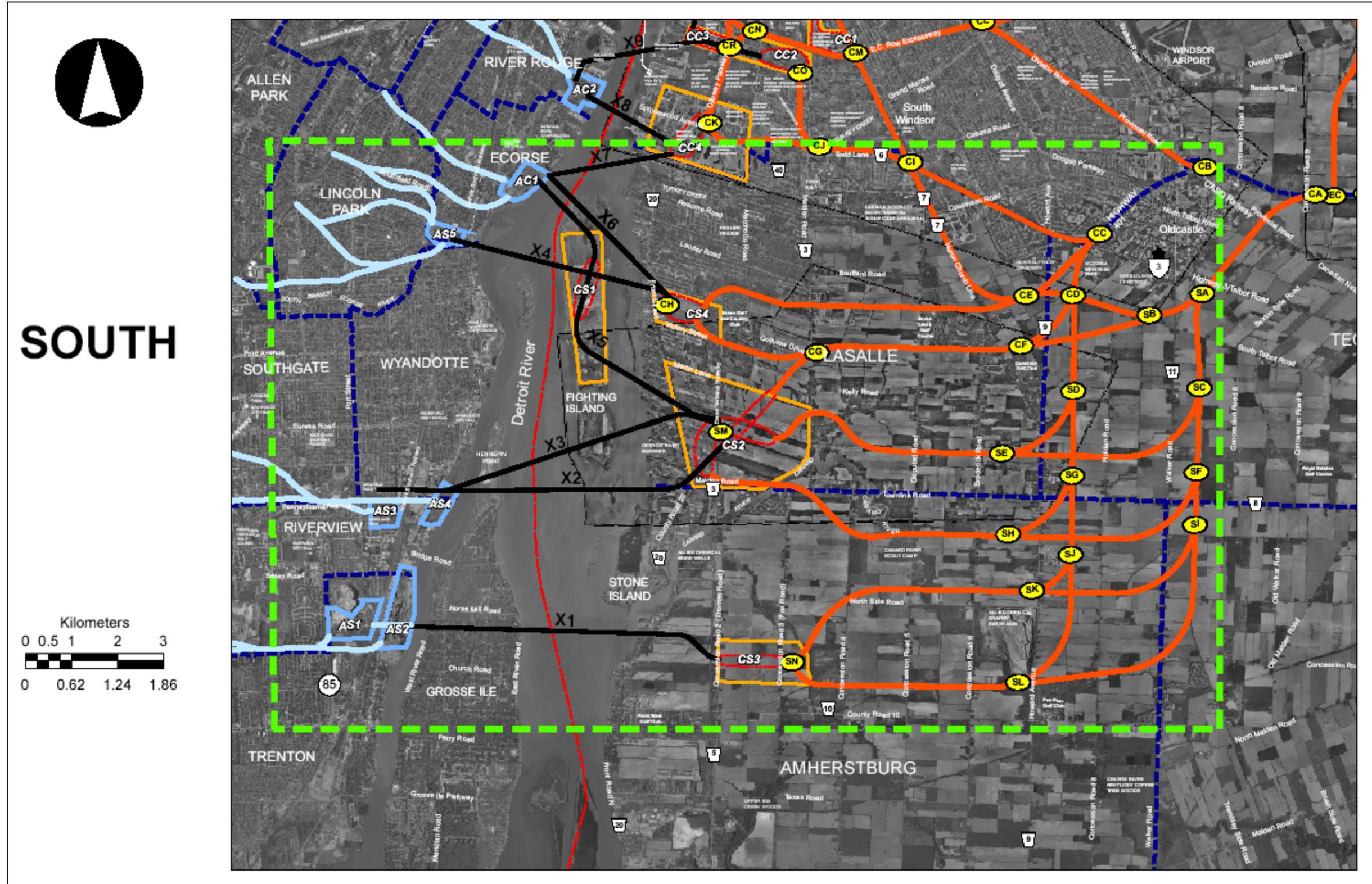


EXHIBIT 6.8B – ILLUSTRATIVE ALTERNATIVES – CENTRAL CORRIDOR – ACCESS ROAD ROUTES CONNECTING TO CROSSINGS X7, X8, X9, X10, X11, X12, X13 AND X14

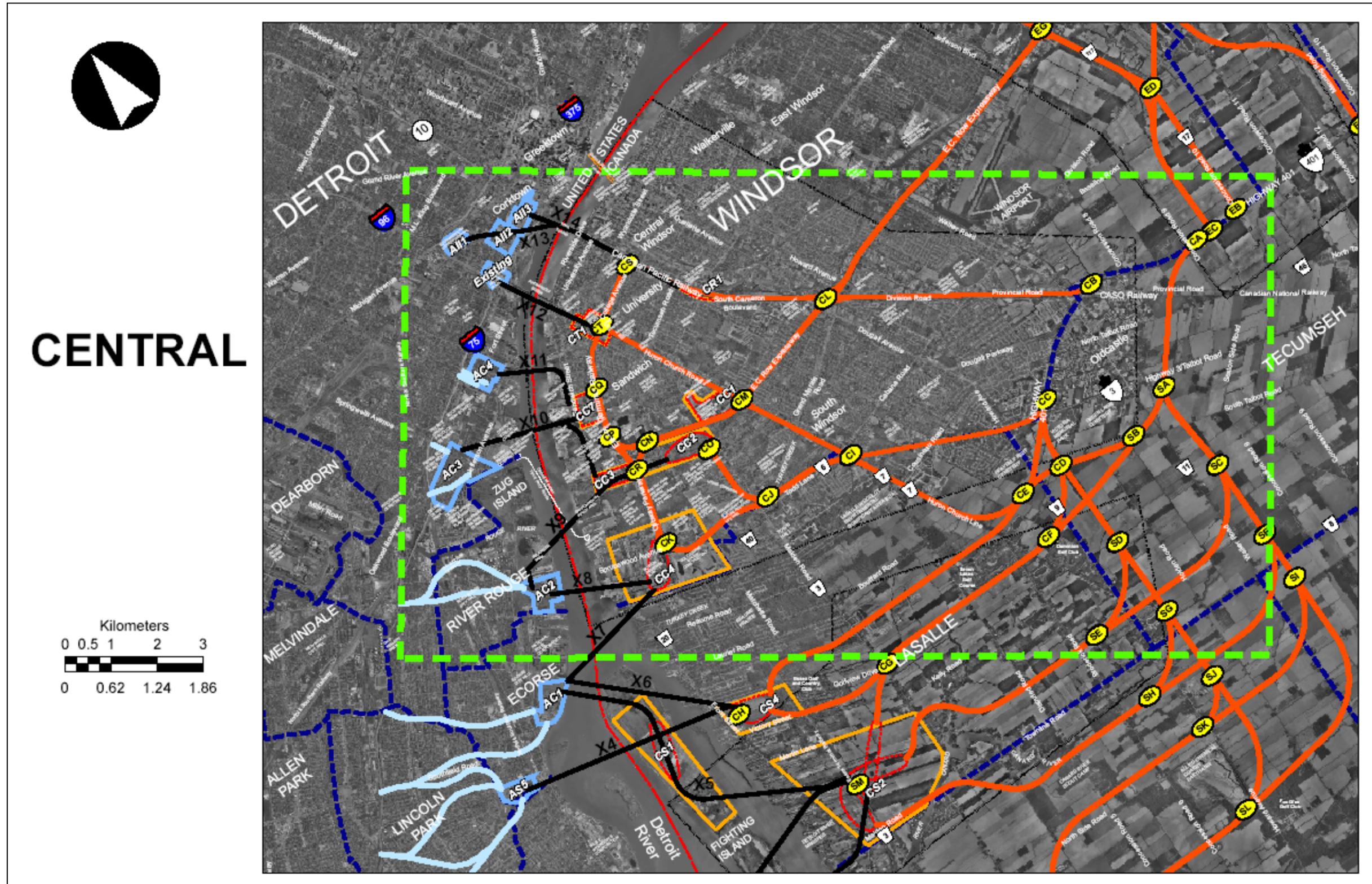
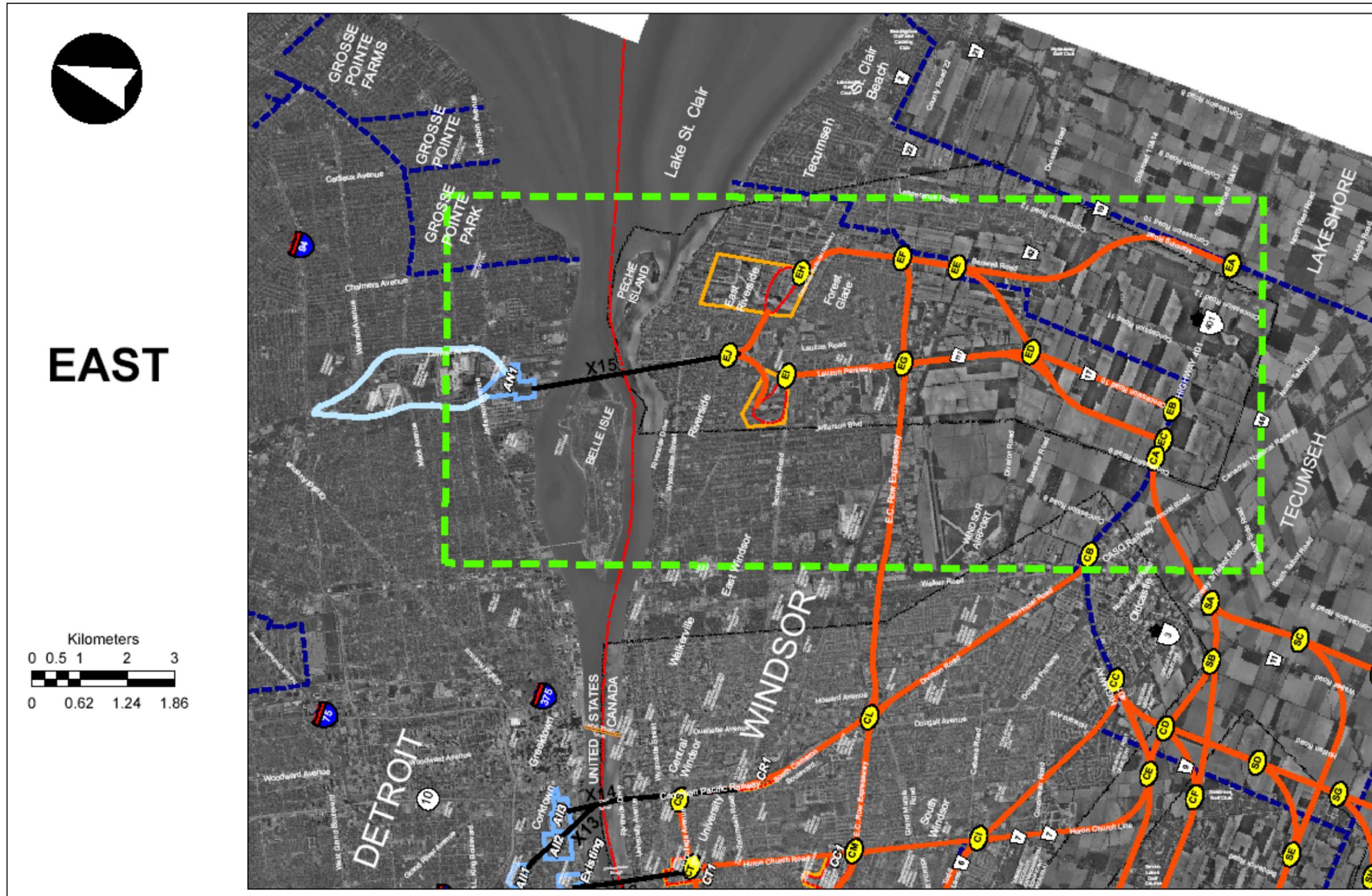


EXHIBIT 6.8C – ILLUSTRATIVE ALTERNATIVES – EAST CORRIDOR – ACCESS ROAD ROUTES CONNECTING TO CROSSING X15



6.2 Process for Evaluating Illustrative Alternatives

Given the nature and extent of land uses and development along the Detroit River in both Canada and the U.S., it was recognized that it is not possible to develop a new or expanded river crossing, plaza and access road that entirely avoids impacts on local communities and the environment.

This section describes the approach implemented on the Canadian side for evaluating the illustrative crossing, inspection plaza and access road alternatives in order to identify an Area of Continued Analysis (ACA) within which to develop the more refined practical crossing, inspection plaza and access road alternatives.

6.2.1 Evaluation Sequence

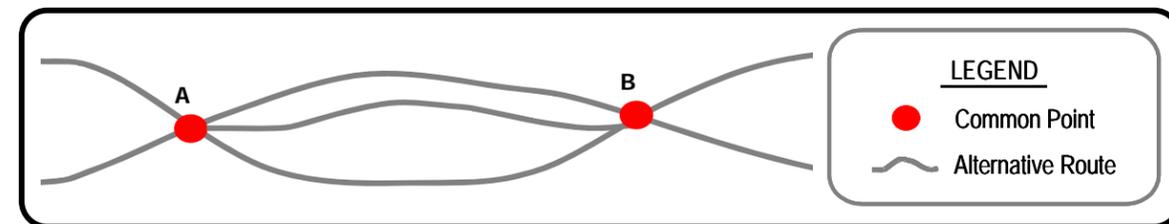
The illustrative crossing, inspection plaza and access road alternatives were evaluated following a multi-stage process, which is summarized in Section 6.3.

Initially, the illustrative crossing, plaza and access road alternatives were assessed and evaluated separately on the Canadian and U.S. sides. The U.S. study team used the same evaluation criteria as the Canadian study team, with modifications as appropriate to reflect the unique requirements and characteristics of the U.S. study area.

The results of the U.S. and Canadian analyses were compiled for an end-to-end assessment of illustrative crossing, plaza and access road alternatives for connecting Highway 401 in Ontario to the interstate freeway system in Michigan.

It should be noted that in evaluating the access road alternatives, an analysis was undertaken to determine preferred alternatives for portions of the PAA rather than comprehensively examining all combinations of alternatives for the entire region. Common points among the alternatives were identified, and alternative segments between each common point were evaluated. For example, in Exhibit 6.9, access road alternatives between common points "A" and "B" were compared to select a preferred alternative for that segment of the access road prior to assessing alternatives beyond common point "B".

EXHIBIT 6.9 – GENERIC ROUTE SEGMENT



6.2.2 Evaluation Criteria

Table 3.4 of the approved EA TOR provides a listing of 18 proposed evaluation factors and 35 criteria for the Detroit River International Crossing study (refer to Table 6.2). The Canadian and U.S. study teams developed a revised evaluation table that simplified the number of factor areas to be considered

from 18 to seven, to enable the public to more easily provide input to the study teams in terms of rating the importance of the factors.

The seven factors in the revised evaluation table are consistent with those of the approved EA TOR and cover a broad range of issues, including the ability of the alternative to meet the Partnership's underlying transportation objectives, as well as natural, social, cultural, economic, and technical considerations.

Performance measures used in the analysis of illustrative alternatives include the 35 criteria from the approved EA TOR. These have been retained and added to, based on comments received during the public consultations.

The seven evaluation factors and the performance measures used for the Detroit River International Crossing study, as well as the corresponding criteria reference from Table 3.4 of the approved EA TOR (where applicable) are shown in Table 6.3.

TABLE 6.2 – CRITERIA FOR EVALUATING ILLUSTRATIVE AND PRACTICAL ALTERNATIVES – FROM APPROVED OEA TOR

FACTOR	CRITERIA
Socio-Economic Environment	
1. Property and Access	1) Impacts to residential areas (i.e., property, access impacts) 2) Impacts to commercial/industrial areas (i.e., property, access impacts) 3) Impacts to agricultural operations
2. Community Effects	4) Nuisance impacts (e.g., noise, lighting) 5) Impacts to cemeteries, schools, places of worship, unique community features 6) Effects on community activity / mobility 7) Effects on aesthetics / community character
3. Governmental Land Use Strategies	8) Compatibility with government goals / objectives / policies 9) Effects on approved private development proposals
Cultural Environment	
4. Archaeology	10) Impacts to historic/archaeological sites
5. Heritage and Recreation	11) Impacts to built heritage features and cultural landscape units 12) Impacts to National, State/Provincial and local parks/recreation sites
Natural Environment	
6. Groundwater	13) Impacts to groundwater recharge and discharge areas, as well as identified wellhead and source protection areas and areas susceptible to groundwater contamination
7. Aquatic Habitat, Fisheries, and Surface Water	14) Impacts to critical fish habitat features (spawning, rearing, nursery, important feeding areas) 15) Number of watercourse crossings required 16) Impacts to water bodies, including channel realignments and fill
8. Agricultural	17) Impacts to prime agricultural areas
9. Wetlands	18) Impacts to Provincially Significant Wetlands and wetland function 19) Impacts to evaluated and unevaluated wetlands

FACTOR	CRITERIA
10. Wildlife	20) Effects on species at risk / endangered species (vegetation, fish and wildlife) 21) Effects on ecologically functional areas such as connective corridors or travel ways
11. Special Areas	22) Impacts to important wildlife areas such as deeryards, heronries, waterfowl areas, important bird areas (IBA). Other areas to be considered are any identified wildlife management, rehabilitation and research program sites. 23) Impacts to environmentally significant features such as Environmentally Sensitive Areas (ESAs), Areas of Natural and Scientific Interest (ANSIs) or other areas of provincial, regional or local significance and the functions of these features 24) Impacts to special spaces including the Detroit River, Conservation Authority Lands and NEPA 4(f) lands including the function of these features
12. Air Quality	25) Effects on sensitive receptors to air quality 26) Air pollutants and GHG emissions
13. Woodlands	27) Impacts to significant forest stands and woodlots (including interior forest habitat)
14. Resources	28) Impacts to mineral, petroleum and mineral aggregate resources
15. Property Waste & Contamination	29) Effect on operating and closed waste disposal sites 30) Impacts to other known contaminated sites
Technical Considerations	
16. Transportation	31) Transportation Operations 32) Network Compatibility 33) Border Processing
17. Engineering	34) Constructability Issues
18. Cost	35) Cost

Note: The EA TOR identified that this set of factors and criteria represents the minimum criteria to be considered during the evaluation of alternatives (practical and illustrative alternatives) and are subject to refinement and modification during the Integrated Environmental Study Process based on study findings and input received from stakeholders.

TABLE 6.3 – EVALUATION FACTORS AND PERFORMANCE MEASURES – CANADIAN SIDE

RATING FACTOR	PERFORMANCE MEASURE CATEGORIES	PERFORMANCE MEASURE	CORRESPONDING CRITERIA REFERENCE IN EA TOR TABLE 3.4
Changes in Air Quality	Regional Burden	Analysis based on traffic model results.	25, 26
	Dispersion (CO and PM _{2.5} and other Greenhouse Gases/pollutants)	Analysis for key roadway links [to be measured at practical alternatives stage]	25, 26
Protect Community/ Neighborhood Characteristics	Traffic Impacts <ul style="list-style-type: none"> Volumes by Vehicle Type 	Peak period volumes on specific links by mode (cars, trucks, and int'l. trucks).	31, 33
	<ul style="list-style-type: none"> Local Access 	Number of streets crossed, closed, or connected with an interchange.	31, 33
	Noise	Analysis based on traffic model results for key roadway links.	4
	Community Cohesion/Community Character	Encroachment/severance on neighborhood based on professional judgment. Impact on delivery of community services (function of road closures) based on professional judgment.	6, 7
	Acquisitions (Whole or Partial) <ul style="list-style-type: none"> Residential 	Number of dwelling units by type; population estimate based on average persons per dwelling unit	1
	<ul style="list-style-type: none"> Business 	Number of business establishments; employment estimate based on average employees per business for area.	2

RATING FACTOR	PERFORMANCE MEASURE CATEGORIES	PERFORMANCE MEASURE	CORRESPONDING CRITERIA REFERENCE IN EA TOR TABLE 3.4
	• Institutions	Number of institutions by type (church, schools, etc.).	5
	• Farm Property / Structures	Operations/structures affected.	3
	Public Safety/Security (Plaza Only)	Assessment based on professional judgment.	NEW
Maintain Consistency with Existing and Planned Land Use	Land Use (existing and planned)	Designation of "consistent," "not consistent," or "not applicable" with goals, objectives and/or policies based on review of official planning documents.	8
	Development Plans	Designation of "compatible," "not compatible," or "not applicable" with plans for upcoming development that may not be covered by official plans.	9
	Contaminated Sites/Disposal Sites	Number of documented sites affected.	29, 30
	Historical	Number of listed sites affected.	10, 11
Protect Cultural Resources	Parklands	Number of parks by type; number of hectares affected. Includes subset for Coastal Zone Management sites.	12
	Archaeological Sites	Number of known sites affected.	10
	Environmentally Significant Features	Area (in hectares) affected by type.	14-19, 21, 23, 24, 27
Protect the Natural Environment	Environmentally Significant Features	Area (in hectares) affected by type.	14-19, 21, 23, 24, 27

RATING FACTOR	PERFORMANCE MEASURE CATEGORIES	PERFORMANCE MEASURE	CORRESPONDING CRITERIA REFERENCE IN EA TOR TABLE 3.4
	Surface Water Quality/Groundwater	Area of floodplains affected (hectares); number of water crossings (including secondary rivers and streams); Detroit River channel alteration; number and general location of in-water piers; wells/groundwater sources affected; number of water intakes affected.	13, 16
	Environmentally Significant Species/ Habitat	Area of habitat (hectares) affected by type; list of species; other significant features.	20, 23
	Farmland/Prime Agricultural Soils	Area affected (hectares) by soil type	17
	Other Natural Resources	Area affected measured by area of right-of-way.	28
Improve Regional Mobility	Highway Network Effectiveness	Level of Service (LOS) classification by major facility type.	31, 32
	• Service Levels	By major facility type.	31, 32
	• Vehicle Kilometres of Travel	By major facility type.	31, 32
	• Vehicle Hours of Travel	By major facility type.	31, 32
	• Distance Travelled	Average kilometres for car, local truck, and international truck.	31, 32
	Continuous/ongoing river crossing capacity (i.e., redundancy)	Assessment of availability of crossing options.	32, 33

RATING FACTOR	PERFORMANCE MEASURE CATEGORIES	PERFORMANCE MEASURE	CORRESPONDING CRITERIA REFERENCE IN EA TOR TABLE 3.4
	Operational Considerations of Crossing System (River Crossing and Plaza)	Distance to plaza from international border; accessibility; serviceability; security; flexibility for expansion.	32, 33
Minimize Cost	Millions of Dollars (2005)	Length of alternative, preliminary construction costs, constructability including site constraints; geotechnical constraints; construction staging/ duration; traffic maintenance; risk assessment.	34, 35

6.2.3 Evaluation Methods

The approved EA TOR, 2004 identified two evaluation methods to be employed in the evaluation process: reasoned argument method and arithmetic method. Each method is summarized in the following sections:

REASONED ARGUMENT METHOD

The reasoned argument method was the primary evaluation method employed. This method highlights the differences in net impacts associated with the various alternatives. Based on these differences, the advantages and disadvantages of each alternative are identified. The relative importance of the impacts is examined to provide a clear rationale for the selection of a preferred alternative. The rationale that favours the selection of one alternative over all others is derived from the following sources:

- Government legislation, policies and guidelines;
- Existing land use and municipal policy (i.e., Official Plans);
- Technical Considerations (i.e., degree to which the identified transportation problems are addressed);
- Issues and concerns identified during consultation with ministries, departments and agencies, municipalities, ratepayer and interest groups and the general public - including input obtained through the weighting of the relative level of importance of evaluation criteria (described in further detail in the next section); and
- Study team expertise.

ARITHMETIC METHOD

The arithmetic evaluation was the secondary method employed for this study. This method incorporates numeric values for both the level of importance of each environmental attribute (referred to as the weight) and the magnitude of the impact or benefit associated with an alternative (referred to as the score). The weight is multiplied by the score to obtain a total weighted score. The totals for each alternative are compared to determine the preferred alternative. The Arithmetic Method also allows for sensitivity testing as numerous weighting scenarios can be developed.

Weighting (level of importance)

For the evaluation of illustrative alternatives, separate Canadian and American weighting scenarios were developed to allow the Canadian and U.S. teams to reflect the unique differences in study areas in the evaluation. Within Canada, one weighting scenario was developed by the Canadian study team (refer to **Table 6.4**). In addition, the Partnership recognized that input from the public, government ministries, departments and agencies, local municipalities and other stakeholders is essential to successful planning of major transportation improvements, such as the Detroit River International Crossing study. Stakeholders and interested individuals were encouraged to provide input to the evaluation of illustrative alternatives.

Public input to the weighting of the seven evaluation factors was obtained through a rating tool distributed at the first round of public consultation in June 2005. Rating tools were made available at Public Information Open Houses as well as at the local Project Office and on the project website. Interested members of the public were asked to provide the study team with their opinion as to how highly (on a scale of 0 to 100) each factor should be considered in deciding on what alternatives to carry forward for additional study.

A total of 61 valid rating tools were received, including 45 responses from the general public, 15 responses from members of the Community Consultation Group (CCG) and one from a government agency.

The rating tools received from the public and other stakeholders were arithmetically combined and normalized to percentages. The public and CCG weighting scenarios were developed mathematically. The weighting scenarios therefore do not reflect a consensus among study participants. Individuals that participated in the rating exercise may hold views that vary significantly from those represented in the weighting scenarios.

In addition, more than 150 comment sheets were received during the first round of consultation. The most frequent comments received included concerns with:

- Protection of natural features;
- Reduction of impacts to residential areas; and
- Air quality/human health.

The range of views represented in the rating tools and comment sheets received from the first round of consultation provided the Canadian study team with an understanding of community values with respect to the relative importance of each environmental feature, which subsequently was considered in the study team weighting.

Scoring (degree of impact)

Study team specialists with expertise in all of the environmental factors areas assessed the degree of impact and benefit and assigned a score for each alternative. The study team specialists based their assessment of impacts on field measurements, results of prediction models, secondary data sources and other means as appropriate.

The score assigned to each environmental attribute by the qualified specialist was based on the relative degree of impact or benefit generated. Relative impacts can range from those that are positive (benefit the environment) to negative (detrimental to the environment).

TABLE 6.4 – CANADIAN STUDY TEAM WEIGHTING SCENARIO

Factor	Rationale	Rating
Improve Regional Mobility	The study team considered this factor of highest importance as it reflects one of the primary purposes of the project; a new or expanded crossing and associated inspection plazas and freeway connections are essential to the international economies of Canada and the U.S., Ontario and Michigan and the local economies in the Windsor/Essex County-Detroit/Wayne County region. The new facility will serve the border transportation network well beyond the 30-year planning horizon of this study. Given that this project is likely to have an impact on the local communities, and over time, communities will adjust to the new transportation network, it is imperative that the selected improvements satisfy the long-term mobility needs of the border transportation network.	100
Protection of Community & Neighbourhood Characteristics	The study team considered this factor of high importance on the basis that the community and neighbourhoods are sensitive to impacts associated with a major transportation project such as the DRIC. The DRIC will provide direct freeway access from Highway 401 to the new/expanded crossing; as a high-volume, high-speed facility, this project will have an impact on properties and access that could change the function and character of a community or neighbourhood. Reducing the impacts on the community associated with the international traffic facility is a high priority of the study team.	90
Protection of Natural Environment	The study team considered this factor to be of high importance on the basis that the remaining woodlot, prairie and wetland features provide unique habitat for some rare and endangered species. Federal, provincial and local municipal designations have been placed on many of the remaining natural features in the Preliminary Analysis Area. Local municipalities have incorporated the sensitive natural areas into their local planning to preserve and protect these features for their habitat value, as well as their community recreational benefits.	90

Factor	Rationale	Rating
Minimize Cost	The study team considered this factor to be of moderate to high importance on the basis that this factor addresses cost and constructability of the new or expanded crossing. This project will be paid for by government funds and/or through tolls paid by users; minimizing the costs of the project will reduce the costs to users and/or taxpayers. In addition, the objectives of this project call for a new or expanded crossing to be in place as quickly as possible to reduce the potential for disruption to the movement of people and goods at this crucial border crossing. Reducing construction impacts and risks is important for the timely completion of this project.	75
Changes to Air Quality	This factor was considered of moderate importance by the study team on the basis that transportation is a minor contributor to ambient pollutants in the Windsor-Essex area. The majority of airborne pollutants and toxins are from industrial sources in the Windsor-Detroit area and external sources. The study team observed that by giving greater importance to protection of community and neighbourhood characteristics and protection of natural features, impacts to sensitive receivers for air quality will be reduced.	70
Protection of Cultural Resources	The study team considered this factor to be of moderate importance on the basis that much of the project area is disturbed by development and/or agriculture. As well, the level of importance assigned to this factor reflects that impacts to such features can usually be mitigated to reduce the effects to the resource. MTO has established procedures to avoid or minimize impacts to archaeological features. Built features can usually be mitigated by avoidance or relocation of the feature.	70
Maintain Consistency with Existing and Planned Land Use	The study team considered this factor to be of moderate importance on the basis that many of the aspects of minimizing impacts to existing land use are addressed in the assessment of impacts to neighbourhoods and communities, and that future land use designations can be changed to reflect provincial and federal land use initiatives and priorities. It is recognized that the local municipalities in the Windsor-Essex County area have Official Plans that identify municipal planning objectives for land use and municipal aspirations for growth.	70

6.3 Analysis and Evaluation of Illustrative Alternatives – Canadian Side

6.3.1 Access Road Alternatives

As noted in Section 6.2, the illustrative access road alternatives were evaluated on a segmental basis. Common points among the alternatives were identified, and alternative segments between each common point were evaluated. The following sections summarize the evaluation of the illustrative access road alternatives.

SOUTH ALTERNATIVES – CORRESPONDING TO CROSSINGS X1, X2, X3, X4, X5 AND X6

As shown in Exhibit 6.10, the south alternatives share a common connection to Highway 401 at Highway 3, they all bypass the existing metropolitan areas of Windsor, LaSalle and Tecumseh, and they primarily traverse sparsely populated rural lands. Another defining characteristic common to the south alternatives is the width of the Detroit River, which varies from approximately 4500 m at the north end of Grosse Ile to 2500 m at the north end of Fighting Island. At these lengths, multi-span structures with piers in the river and/or on the islands in this area of the river would be required. In comparison, the width of the river in the central sections near the Ambassador Bridge is in the order of 600 to 900 m, and 1500 m in the eastern sections of the river near Belle Isle.

Connecting Route to Plaza CS3/Crossing X1

Table 6.5 provides a summary of the evaluation of the route segments connecting to plaza CS3. The best way to Plaza CS3/Crossing X1 was determined as the combination of route segments CC-CD-SD-SG-SJ-SK-SN. Details of this assessment are included in the *Generation and Assessment of Illustrative Alternatives Report (November 2005)*.

From the Highway 401/Highway 3 interchange, the alignment generally parallels Howard Avenue north-south through the Town of LaSalle into the Town of Amherstburg, and runs east-west along a line north of North Side Road to Plaza CS3.

Connecting Route to Plaza CS2/Crossing X2/X3 and Plaza CS1/Crossing X5

Table 6.6 provides a summary of the evaluation of the route segments connecting to plaza CS2 and the east portion of crossing X5. The best way to Plaza CS2 and the east portion of crossing X5 was determined as the combination of route segments CC-CD-CF-CG-SM. Details of this assessment are included in the *Generation and Assessment of Illustrative Alternatives Report (November 2005)*.

From the Highway 401/Highway 3 interchange, the alignment generally aligns with the southern limit of the future urban area in the Town of LaSalle. At Malden Road, the alignment bears south-westerly across Martin Lane, to a plaza opportunity area designated CS2, which is a large area of agricultural land north of River Canard. Within this opportunity area, plazas can be configured to connect to Crossings X2 and X3. Crossing X2 is aligned to avoid Fighting Island and cross at 90 degrees to the Detroit River.

Connecting Route to Plaza CS2/Crossing X3

Similar to Crossing X2, Crossing X3 also connects to Plaza CS2. The X3 crossing/plaza/connecting route combination also incorporates the combination of route segments CC-CD-CF-CG-SM. The

alignment of Crossing X3 crosses over the south end of Fighting Island, resulting in a slightly different location for Plaza CS2.

Connecting Route to Plaza CS4/Crossings X4 and X6

Table 6.7 provides a summary of the evaluation of the route segments connecting to plaza CS4. The best way to Plaza CS4 was determined as the combination of route segments CC-CD-CF-CG-CH. From the Highway 401/Highway 3 interchange the alignment also aligns with the southern limit of the future urban area in the Town of LaSalle. However, at Malden Road, the alignment continues westerly to a large open area west of the Essex Golf and Country Club, north of Victory Street. From Plaza CS4, connections to Crossing X4 over central Fighting Island to U.S. Plaza AS5, and Crossing X6 to U.S. Plaza AC1 were considered.

EXHIBIT 6.10 – SOUTH ALTERNATIVES

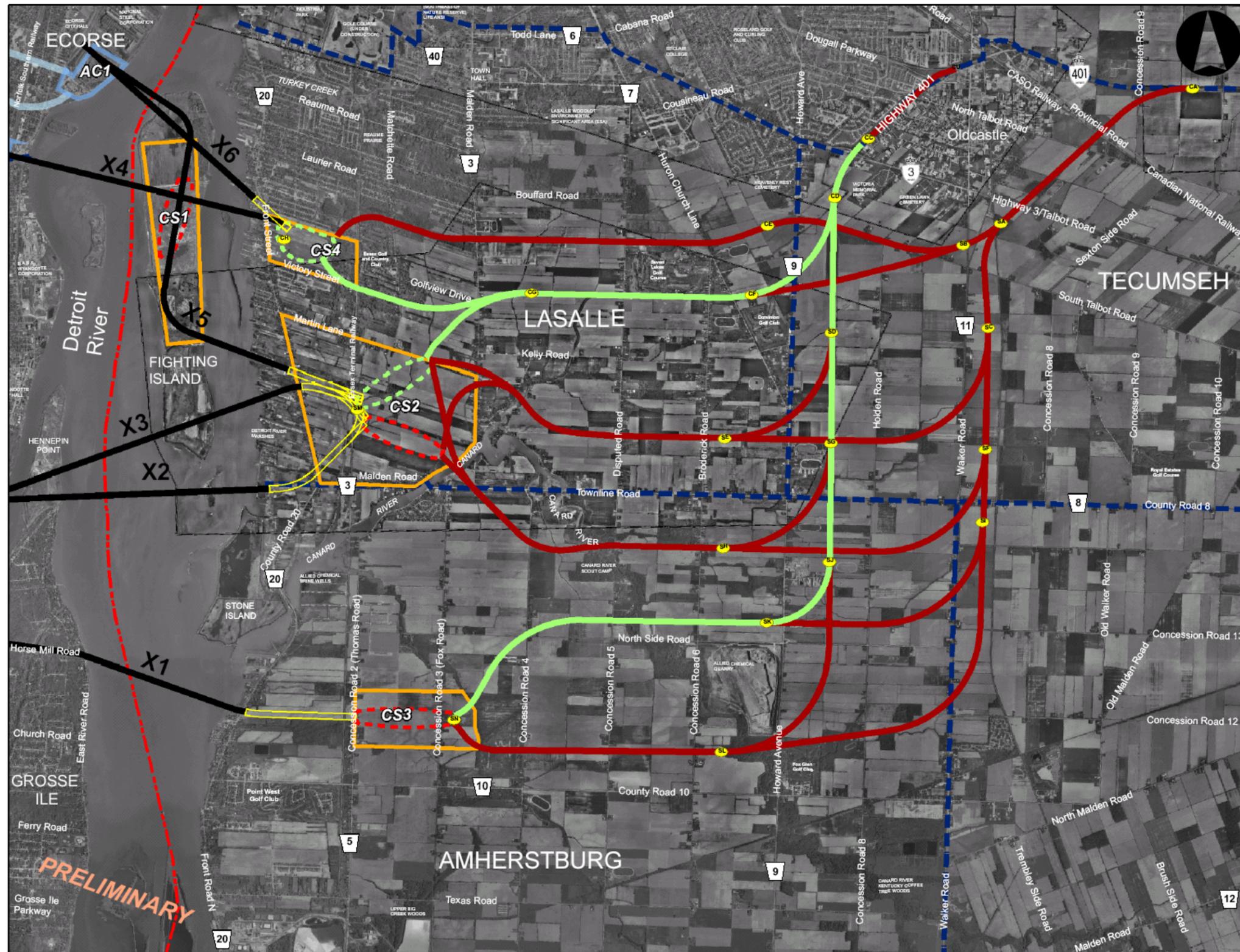


TABLE 6.5 – SUMMARY OF ASSESSMENT OF SOUTH ROUTE SEGMENTS – CONNECTION TO PLAZA CS3/CROSSING X1

FACTOR	Howard Ave/North Side Road (CC-SK-SN)	Walker Rd/North Side Road (CA-SK-SN)	Howard Ave/Cty Rd 10 (CC-SL-SN)	Walker Rd/Cty Rd 10 (CA-SL-SN)
Changes to Air Quality	Small to moderate increase in pollutants on a system-wide basis	Small to moderate increase in pollutants on a system-wide basis	Small to moderate increase in pollutants on a system-wide basis	Small to moderate increase in pollutants on a system-wide basis
Community and Neighbourhood Impacts	Impacts to agricultural area: Displacements: <10 Households; <5 Businesses; <10 Farm building complexes Disruption: 60+ Households within 250 m of centreline; <5 Businesses; <20 Farm building complexes	Impacts to agricultural area and hamlet of Paquette Corners: Displacements: 10+ Households <5 Businesses; <10 Farm Building Complexes Disruption: 60+ Households within 250 m of centreline; <5 Businesses; 20+ Farm building complexes	Impacts to agricultural area: Displacements: <5 Households <5 Businesses; <5 Farm Building Complexes Disruption: 60+ Households within 250 m of centreline; <5 Businesses; 10+ Farm building complexes	Impacts to agricultural area, MacGregor Square (development area) and hamlet of Paquette Corners: Displacements: 10+ Households <5 Businesses; 5+ Farm Building Complexes Disruption: 80+ Households within 250 m of centreline; <5 Businesses; <20 Farm building complexes
Consistency with Land Use	Impacts to rural agricultural uses; generally consistent	Impacts to rural agricultural uses; generally consistent; impacts to hamlet of Paquette Corners and Oldcastle settlement area and Trans-Canada Trail	Impacts to rural agricultural uses; generally consistent; impact to proposed gravel pit operation	Impacts to rural agricultural uses; generally consistent; impacts to MacGregor, hamlet of Paquette Corners and Oldcastle settlement area and Trans-Canada Trail
Impacts to Cultural Resources	2 known significant archaeological sites impacted; low potential for impacting unknown sites	3 known significant archaeological sites impacted; low potential for impacting unknown sites; impacts Trans-Canada Trail	3 known significant archaeological sites impacted; low potential for impacting unknown sites	4 known significant archaeological sites impacted; low potential for impacting unknown sites; impacts Trans-Canada Trail
Natural Environment	Proximity impacts to two ESAs; overall low impacts	Impacts a greater area of forest blocks than Howard Ave alternatives; overall low impacts	Direct impacts to natural features; overall low impacts	Impacts a greatest area of forest blocks than other alternatives; overall low impacts
Improve Regional Mobility	Provides new freeway route; limited improvement for local Windsor area international traffic	Provides new freeway route; limited improvement for local Windsor area international traffic	Provides new freeway route; limited improvement for local Windsor area international traffic	Provides new freeway route; limited improvement for local Windsor area international traffic
Cost	Comparable to other options for cost and constructability;	Comparable to other options for cost and constructability;	Comparable to other options for cost and constructability;	Comparable to other options for cost and constructability;
Conclusions	The Howard Avenue alternatives avoid impacts to Paquette Corners, as well as MacGregor and Oldcastle developments; North Side Road alignment preferred over County Road 10 alignment due to lower impacts to cultural and natural features. Route segment CC-SK-SN is preferred.			

TABLE 6.6 – SUMMARY OF ASSESSMENT OF SOUTH ROUTE SEGMENTS – CONNECTION TO PLAZA CS2/CROSSING X2/X3 AND PLAZA CS1/CROSSING X5

FACTOR	Howard Ave/LaSalle Urban Boundary (CC-CF-SM)	Walker Rd/LaSalle Urban Boundary (CA-SB-CF-SM)	Howard Ave/North of Townline Road (CC-SE-SM)	Walker Rd/North of Townline Road (CA-SC-SE-SM)	Howard Ave/South of Townline Road (CC-SH-SM)	Walker Rd/South of Townline Road (CA-SF-SH-SM)
Changes to Air Quality	Small to moderate increase in pollutants on a system-wide basis	Small to moderate increase in pollutants on a system-wide basis	Small to moderate increase in pollutants on a system-wide basis	Small to moderate increase in pollutants on a system-wide basis	Small to moderate increase in pollutants on a system-wide basis	Small to moderate increase in pollutants on a system-wide basis
Community and Neighbourhood Impacts	Impacts boundary of LaSalle future urban area and agricultural area: Displacements: <5 Households <5 Businesses; 0+ Farm Building Complexes Disruption: 80+ Households within 250 m of centreline; <5 Businesses; <10 Farm building complexes	Impacts boundary of LaSalle future urban area, parks and agricultural area, Displacements: <5 Households <5 Businesses; <5 Farm Building Complexes Disruption: <50 Households within 250 m of centreline; <5 Businesses; 15+ Farm building complexes	Impacts to agricultural area: Displacements: 10+ Households; 0+ Businesses; 5+ Farm building complexes Disruption: <95 Households within 250 m of centreline; <5 Businesses; <15 Farm building complexes	Impacts to agricultural area Displacements: <10 Households 0+ Businesses; 10+ Farm Building Complexes Disruption: 70+ Households within 250 m of centreline; <5 Businesses; <30 Farm building complexes	Impacts to agricultural area and hamlet of Loiselleville: Displacements: 5+ Households; 0+ Businesses; <10 Farm building complexes Disruption: 140+ Households within 250 m of centreline; <5 Businesses; 20+ Farm building complexes	Impacts to agricultural area: hamlets of Paquette Corners and Loiselleville: Displacements: <15 Households; 0+ Businesses; 5+ Farm building complexes Disruption: 140+ Households within 250 m of centreline; 0+ Businesses; <25 Farm building complexes
Consistency with Land Use	Impacts boundary of LaSalle future urban area and to rural agricultural uses; generally consistent	Impacts boundary of LaSalle future urban area and to rural agricultural uses; generally consistent; impacts to Oldcastle settlement area and Trans-Canada Trail	Impacts to rural agricultural uses; generally consistent	Impacts to rural agricultural uses; generally consistent; impacts to Oldcastle settlement area and Trans-Canada Trail	Impacts to rural agricultural uses; hamlet of Loiselleville generally consistent	Impacts to rural agricultural uses; generally consistent; impacts to Oldcastle settlement area and hamlets of Paquette Corners and Loiselleville and Trans-Canada Trail
Impacts to Cultural Resources	No known significant archaeological sites impacted; moderate potential for impacting unknown sites	No known significant archaeological sites impacted; moderate potential for impacting unknown sites	No known significant archaeological sites impacted; low potential for impacting unknown sites	No known significant archaeological sites impacted; low potential for impacting unknown sites	No known significant archaeological sites impacted; moderate potential for impacting unknown sites	No known significant archaeological sites impacted; moderate potential for impacting unknown sites
Natural Environment	Avoids impacts to Canard River; low impacts to other features	Avoids impacts to Canard River; higher impacts to forest blocks and watercourses than Howard Ave option;	Direct impacts to Canard River and marshes (provincially significant);	Direct impacts to Canard River and marshes (provincially significant);	Direct impacts to Canard River and marshes (provincially significant);	Direct impacts to Canard River and marshes (provincially significant);
Improve Regional Mobility	Provides new freeway route; limited improvement for local Windsor area int'l traffic	Provides new freeway route; limited improvement for local Windsor area int'l traffic	Provides new freeway route; limited improvement for local Windsor area int'l traffic	Provides new freeway route; limited improvement for local Windsor area int'l traffic	Provides new freeway route; limited improvement for local Windsor area int'l traffic	Provides new freeway route; limited improvement for local Windsor area int'l traffic
Cost	Comparable to other options for cost and constructability;	Comparable to other options for cost and constructability;	Comparable to other options for cost and constructability;	Comparable to other options for cost and constructability;	Comparable to other options for cost and constructability;	Comparable to other options for cost and constructability;
Conclusions	Alternatives south of Townline Road impact the community of Loiselleville and provincially significant Canard River wetlands and are the least preferred; alternatives following LaSalle future urban boundary avoid Canard River wetlands and are therefore preferred over other alternatives; Howard Avenue alternative identified as having slightly fewer impacts to community characteristics, land use, cultural resources and natural environment. Route Segment CC-CF-SM is preferred.					

TABLE 6.7 – SUMMARY OF ASSESSMENT OF SOUTH ROUTE SEGMENTS – CONNECTION TO PLAZA CS4/CROSSING X4 AND X6

FACTOR	Howard Ave/LaSalle Urban Boundary (CC-CF-CH)	Walker Rd/LaSalle Urban Boundary (CA-SB-CF-CH)	Howard Ave/Laurier Drive (CC-CE-CH)	Walker Rd/Laurier Drive (CA-SC-CE-CH)
Changes to Air Quality	Small to moderate increase in pollutants on a system-wide basis	Small to moderate increase in pollutants on a system-wide basis	Small to moderate increase in pollutants on a system-wide basis	Small to moderate increase in pollutants on a system-wide basis
Community and Neighbourhood Impacts	Impacts boundary of LaSalle future urban area, residential area at Victory Street inside urban boundary; Displacements: 75+ Households <5 Businesses; <5 Farm building complexes Disruption: 155+ Households within 250 m of centreline; <5 Businesses; 10+ Farm building complexes	Impacts boundary of LaSalle future urban area, parks and agricultural area, Displacements: 75+ Households <5 Businesses; <5 Farm building complexes Disruption: 125+ Households within 250 m of centreline; <5 Businesses; 15+ Farm building complexes	Impacts to LaSalle's new community centre and recreation complex and planned Town Centre Displacements: <30 Households; <5 Businesses; 0+ Farm building complexes Disruption: 215+ Households within 250 m of centreline; <5 Business; <10 Farm building complexes	Impacts to LaSalle's new community centre and recreation complex, parks and planned Town Centre Displacements: <30 Households <5 Businesses; 10+ Farm building complexes Disruption: 175+ Households within 250 m of centreline; <5 Business; <15 Farm building complexes
Consistency with Land Use	Impacts boundary of LaSalle future urban area and residential uses near Victory Street;	Impacts boundary of LaSalle future urban area and residential uses near Victory Street; impacts to Oldcastle settlement area and Trans-Canada Trail	Not consistent with Town of LaSalle's existing and planned urban area uses; impact to new Town Centre	Not consistent with Town of LaSalle's existing and planned urban area uses; impact to new Town Centre; impacts to Oldcastle settlement area and Trans-Canada Trail
Impacts to Cultural Resources	No known significant archaeological sites impacted; high potential for impacting unknown sites	No known significant archaeological sites impacted; high potential for impacting unknown sites	No known significant archaeological sites impacted; high potential for impacting unknown sites	No known significant archaeological sites impacted; high potential for impacting unknown sites
Natural Environment	Minimal impacts to ETS ¹ /habitat	Minimal impacts to ETS ¹ /habitat; higher impacts to forest blocks and watercourses than Howard Ave option;	Direct impacts to <10 ha of ETS ¹ /habitat	Direct impacts to <10 ha of ETS ¹ /habitat; higher impacts to forest blocks and watercourses than Howard Ave option
Improve Regional Mobility	Provides new freeway route; limited improvement for local Windsor area int'l traffic	Provides new freeway route; limited improvement for local Windsor area int'l traffic	Provides new freeway route; limited improvement for local Windsor area int'l traffic	Provides new freeway route; limited improvement for local Windsor area int'l traffic
Cost	Comparable to other options for cost and constructability;	Comparable to other options for cost and constructability;	Comparable to other options for cost and constructability;	Comparable to other options for cost and constructability;
Conclusions	Laurier Drive alternatives impact LaSalle's future urban area and carry higher natural environment impacts; Alternatives that follow urban boundary have higher direct impacts to existing residential area at Victory Street; the impacts to the planned Town Centre for LaSalle are considered to be of higher significance so Laurier Drive alternatives are least preferred; Howard Avenue alternative following LaSalle future urban boundary identified as having slightly fewer impacts to community characteristics, land use, cultural resources and natural environment. Route Segment CC-CF-CH is preferred.			

¹ Endangered or Threatened Species

EAST ALTERNATIVE – CORRESPONDING TO CROSSING X15

The best way to Crossing X15 was determined as the combination of route segments EC-ED-EG-EI to Plaza CE1 (refer to **Table 6.8**). This route generally follows the alignment of Lauzon Parkway/Lauzon Road (see **Exhibit 6.11**). The proposed plaza site for this alternative is located north of Tecumseh Road west of Lauzon Road in an area currently occupied by 'big box' commercial uses, including Wal-Mart, Home Depot, Rona and other ancillary retail. The alignment of the crossing X15 is parallel to and adjacent to Lauzon Road. Due to the location of the shipping channel relative to the shoreline in this area of the Detroit River, a bridge crossing designed to provide the required navigational clearances would extend inland approximately 800 m. This area of the Detroit River features Belle Isle, a 390 ha (980 acre) urban park owned by the City of Detroit on the American side of the river, and Peche Island, a small day-use only provincial park on the Canadian side of the river.

RAIL CORRIDOR ALTERNATIVES – CORRESPONDING TO CROSSINGS X13 AND X14

The use of the former CASO rail corridor was considered in two ways. First, the study team considered the Detroit River Tunnel Partnership (DRTP) proposal for a two-lane truckway connecting to the refurbished rail tunnel. The study team also considered the use of the rail corridor for a new six-lane freeway connecting Highway 401 in Windsor to a new river crossing (bridge or tunnel) also connecting to the freeway system in Detroit. The rail corridor is identified in **Exhibit 6.12**.

For more information on the summary of assessment of the rail corridor alternatives considered as part of the illustrative alternatives stage, the reader is referred to the *Generation and Assessment of Illustrative Alternatives Report (November 2005)*.

Crossing X13 (DRTP Proposal)

DRTP is a partnership between two major private enterprises, Canadian Pacific Railway and Borealis Transportation Infrastructure Trust. CP Rail controls the operating rights on the rail corridor that extends from the Detroit River southerly to Highway 401 and beyond (segments CB-CL-CS).

In September 2002, DRTP filed a Notice of Intent to make an application to the Canadian Transportation Agency for approval to construct the Canadian portion of the truckway project. DRTP had begun to prepare an environmental assessment in accordance with the *Canadian Environmental Assessment Act (CEAA)*.

A new truck route on the Canadian side will be built along the rail corridor from the existing tunnels to Highway 401. The truckway will make use of available portions of the rail right-of-way north of the Van der Water Yard. South of the Yard, the proposal will use the entire rail right-of-way by taking the CASO rail line out of service.

DRTP owns the rail corridor and additional properties adjacent to the rail corridor. Some additional property is required on the Canadian side in the vicinity of proposed grade separations at Howard Avenue, Walker Road, Cabana Road West and 6th Concession Road.

Crossing X14 (Rail Corridor with Freeway and New Crossing)

As part of the generation of illustrative alternatives, the study team developed an option for a six-lane controlled access roadway that makes use of the rail corridor in connecting Highway 401 to the Detroit River.

This alternative utilizes the DRTP rail corridor to connect Highway 401 to the river. The assessment of this corridor was based on a six-lane freeway designed for use by both truck and auto traffic; a right-of-way of 80 m was assumed for the freeway connection, which is wider than the existing rail corridor

south of E.C. Row. In addition, this assessment has assumed that the use of the rail corridor south of Van der Water Yard by CN will be discontinued either through termination of lease agreements between CP and CN, or through agreements worked out through the Rail Rationalization Study being undertaken by the City of Windsor.

EXHIBIT 6.11 – EAST ALTERNATIVE – CROSSING X15

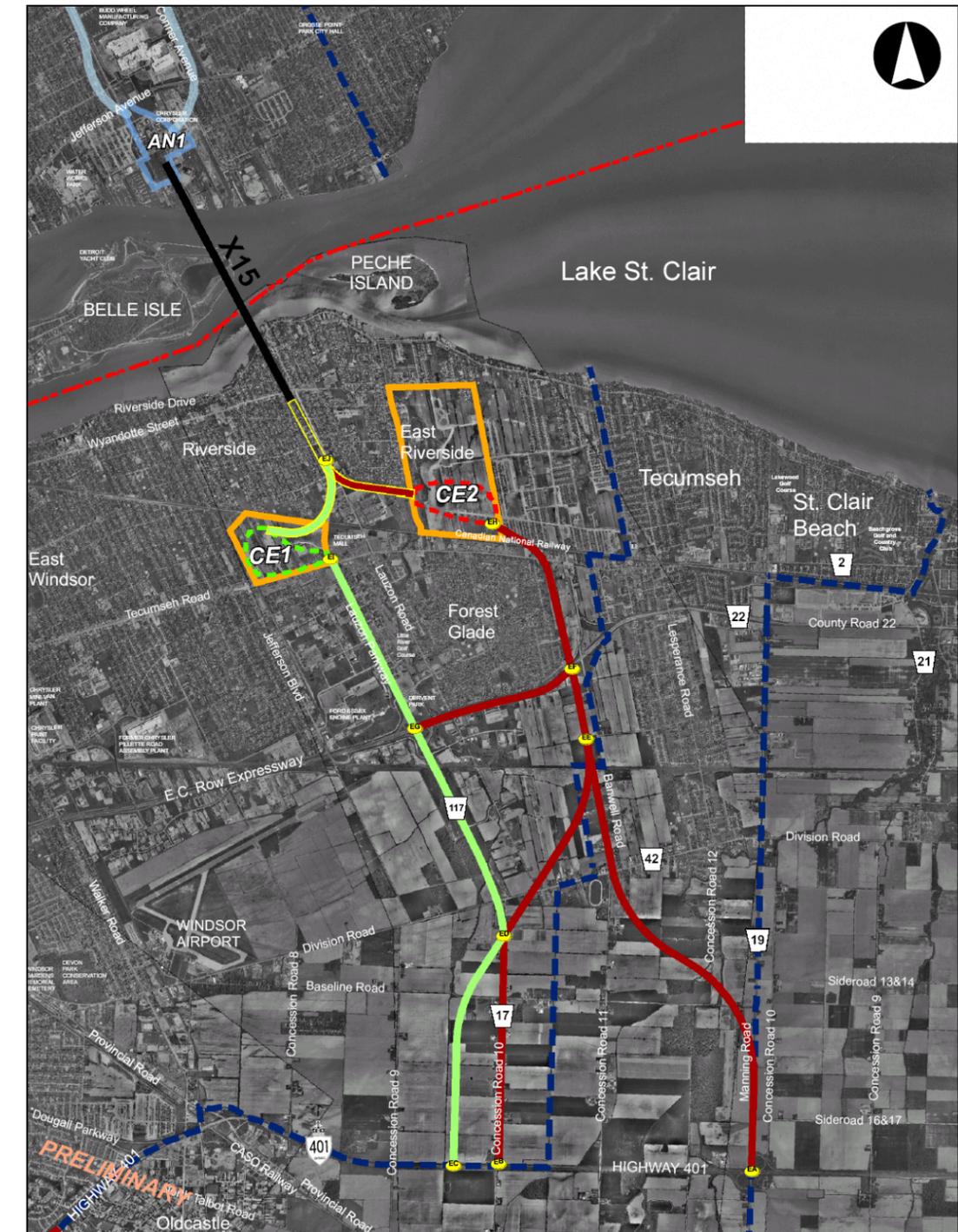
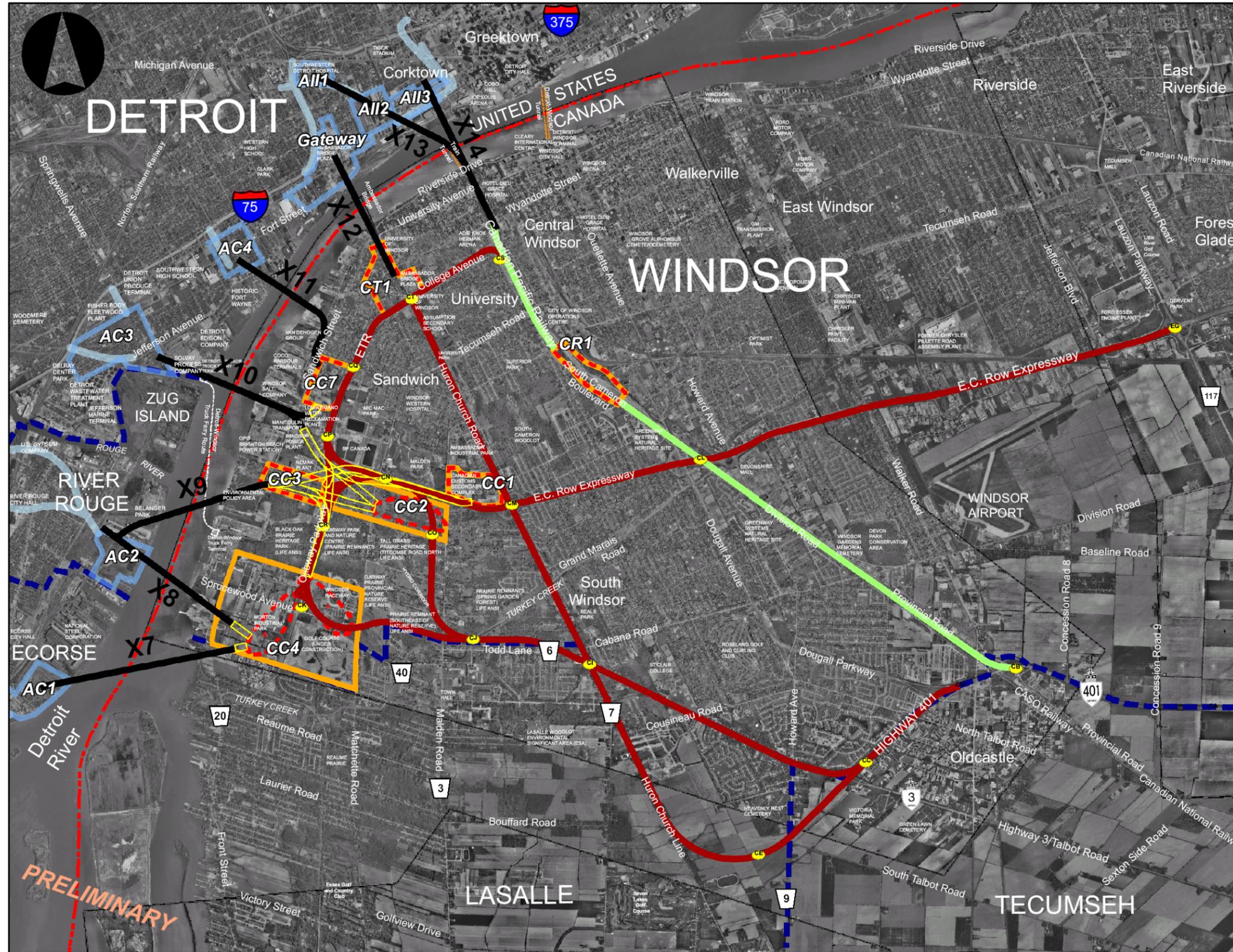


TABLE 6.8 – SUMMARY OF ASSESSMENT OF EAST ROUTE SEGMENTS – CONNECTION TO CROSSING X15

FACTOR	Con Rd 10/Lauzon Pkwy (EC-EG-EJ) to Plaza CE1	Manning Road/Banwell Road (EA-EF-EJ) to Plaza CE2	Manning Road/E.C. Row/Lauzon Pkwy (EA-EF-EG-EJ) to Plaza CE1	Con Rd 10/E.C. Row/Banwell Road (EC-EG-EH-EJ) to Plaza CE2
Changes to Air Quality	Small to moderate increase in pollutants on a system-wide basis;	Small to moderate increase in pollutants on a system-wide basis	Small to moderate increase in pollutants on a system-wide basis	Small to moderate increase in pollutants on a system-wide basis
Community and Neighbourhood Impacts	Impacts urban areas of east Windsor north of E.C. Row; south of E.C. Row, impacts to agricultural area; following rear lot lines west of Con Rd 10 avoids impacts to 8 residences and 13 farm complexes fronting this road Displacements: 380+ Households 15+ Businesses; <5 Farm building complexes Disruption: 1140+ Households within 250 m of centreline; <75 Businesses; <5 Farm building complexes	Impacts urban areas of east Windsor north of E.C. Row; south of E.C. Row, impacts to agricultural area Displacements: 1030+ Households <35 Businesses; <5 Farm building complexes Disruption: 1610+ Households within 250 m of centreline; <10 Businesses; <15 Farm building complexes	Impacts urban areas of east Windsor north of E.C. Row; south of E.C. Row, impacts to agricultural area Displacements: 1020+ Households 30+ Businesses; 5+ Farm building complexes Disruption: 1980+ Households within 250 m of centreline; <10 Businesses; <5 Farm building complexes	Impacts urban areas of east Windsor north of E.C. Row; south of E.C. Row, impacts to agricultural area; following rear lot lines west of Con Rd 10 avoids impacts to 8 residences and 13 farm complexes fronting this road Displacements: 390+ Households 15+ Businesses; <5 Farm building complexes Disruption: 1570+ Households within 250 m of centreline; <75 Businesses; <15 Farm building complexes
Consistency with Land Use	Consistent with land uses south of E.C. Row; Plaza and route north of E.C. Row is not consistent with existing and planned land uses (residential/retail commercial)	Consistent with land uses south of E.C. Row; Plaza and route north of E.C. Row is not consistent with existing and planned land uses (residential/retail commercial); greater impacts to land use than Lauzon Pkwy options	Consistent with land uses south of E.C. Row; Plaza and route north of E.C. Row is not consistent with existing and planned land uses (residential/retail commercial)	Consistent with land uses south of E.C. Row; Plaza and route north of E.C. Row is not consistent with existing and planned land uses (residential/retail commercial); greater impacts to land use than Lauzon Pkwy options
Impacts to Cultural Resources	No known significant archaeological sites impacted; low to moderate potential for impacting unknown sites	1 known significant archaeological site impacted; low potential for impacting unknown sites	No known significant archaeological sites impacted; low potential for impacting unknown sites	1 known significant archaeological sites impacted; low potential for impacting unknown sites
Natural Environment	Avoids designated Environmentally Significant Area but directly impacts 2+ha ETS ¹ /habitat	Proximity impacts to 15+ ha designated Environmentally Significant Area; directly impacts 4+ha ETS ¹ /habitat	Proximity impacts to 15+ ha designated Environmentally Significant Area; directly impacts 4+ha ETS ¹ /habitat	Proximity impacts to 15+ ha designated Environmentally Significant Area; directly impacts 2+ha ETS ¹ /habitat
Improve Regional Mobility	Provides new freeway route; limited improvement for local and long distance int'l truck traffic	Provides new freeway route; limited improvement for local and long distance int'l truck traffic; EA-EE-EF segment noted as being substantially more direct than the EC-EE-EF segment, reducing vehicle-km and vehicle-hours	Provides new freeway route; limited improvement for local and long distance int'l truck traffic; utilizes a portion of E.C. Row for international traffic; lower ability to provided continuous capacity for international traffic; EA-EE-EF segment noted as being substantially more direct than the EC-EE-EF segment, reducing vehicle-km and vehicle-hours	Provides new freeway route; limited improvement for local and long distance int'l truck traffic; utilizes a portion of E.C. Row for international traffic; lower ability to provided continuous capacity for international traffic; EA-EE-EF segment noted as being substantially more direct than the EC-EE-EF segment, reducing vehicle-km and vehicle-hours
Cost	Lower costs in comparison to other options for cost and constructability; 1 complex interchange at E.C. Row	Lower costs in comparison to other options for cost and constructability; 1 complex interchange at E.C. Row	Substantially higher costs and constructability risks in comparison to other options associated with widening and 2 complex interchanges at E.C. Row;	Substantially higher costs and constructability risks in comparison to other options associated with widening and 2 complex interchanges at E.C. Row;
Conclusions	All options resulted in high community impacts to area north of E.C. Row Expressway and overall low benefits to regional mobility. The route segments that did not use a portion of E.C. Row Expressway were preferred over other alternatives due to lower community and cost impacts and greater mobility benefits; Con Rd 10/Lauzon Parkway has lower impacts to existing and planned land uses and natural features. Route Segment EC-EG-EJ to Plaza CE1 is preferred			

¹ Endangered or Threatened Species

EXHIBIT 6.12 – RAIL CORRIDOR ALTERNATIVES – CROSSINGS X13 AND X14



CENTRAL ALTERNATIVES – CORRESPONDING TO CROSSINGS X7, X8, X9, X10, X11

Connecting Route CC-CI-CM

In determining the best route to the plazas serving the central crossings (i.e., Plazas CC1, CC2, CC3, CC4, CC7), the study team considered connecting route alternatives along segment CC-CI-CM that included:

- Expand Huron Church Road/Talbot Road to a freeway from E.C. Row Expressway to Highway 401;
- Widen E.C. Row Expressway from Huron Church Road easterly to Lauzon Parkway, with an extension of the Parkway southerly to Highway 401;
- Widen E.C. Row Expressway from Huron Church Road easterly to the DRTP Rail Corridor, with a new roadway connection constructed using the rail corridor southerly to Highway 401;
- A new route from Talbot Road/Todd Lane utilizing a portion of the Huron Church Line to by-pass the Talbot Road area, connecting to Highway 3/Highway 401.
- A new route from Ojibway Parkway using E.C. Row Expressway/Malden Road or passing through Ojibway Prairie to north of Todd Lane, connecting to Huron Church Road, then expanding Huron Church Road/Talbot Road to a freeway to Highway 401; and,

The illustrative crossing, inspection plaza and connecting route alternatives are shown in **Exhibit 6.13**. The results are summarized in **Table 6.9**. Recognizing the greater complexity of the trade-offs to be made in the evaluation of these segments, a discussion of the results of this analysis is provided below.

Changes to Air Quality

Changes to air quality were assessed on a system-wide basis. A new freeway from Highway 401 to the Detroit River was found to have no impact or low impacts to the regional airshed, with small to moderate increase in pollutants on a system-wide basis.

Impact to community and neighbourhood characteristics

Talbot Road (Highway 3) is situated within the Town of LaSalle, along the Town's boundary with the City of Windsor. Lands south of Talbot Road in LaSalle are currently undergoing development to residential subdivisions. This development is a part of the Town's approved plans for the growth of the urban area that will see the population in the Town grow from more than 25,000 to between 35,000 and 40,000 by the year 2019. In the Town's development plans, Huron Church/Talbot Road is identified as the major transportation corridor serving this area of the Town. A new route aligned to by-pass the Talbot Road area and follow the Huron Church Line corridor would displace approximately 85 households, and disrupt approved development plans, in addition to disruption of planned local community retail and social services. The Talbot Road by-pass alternative would have a high impact to community cohesion and character in that the area between the new route and Talbot Road would be segmented by two major transportation facilities.

Huron Church Road/Talbot Road is a high volume multi-lane roadway serving international traffic. Between Howard Avenue and E.C. Row Expressway, the existing Huron Church Road/Talbot Road corridor dominates the character of the neighbourhoods. While recent development along this corridor has been built around a high volume road corridor, many of the residences along this corridor were

built prior to 1990, when volumes, particularly truck volumes on the roadway began increasing substantially. Upgrading Huron Church Road/Talbot Road to a freeway will impact approximately 130 households, primarily single-family units. Although the Huron Church Road/Talbot Road alternative will impact more residences and businesses, changing the Huron Church Road/Talbot Road corridor to a freeway has a relatively lower impact to community character and cohesion than a Talbot Road by-pass.

A new 80 m freeway right-of-way from Highway 401 to E.C. Row Expressway along the DRTP rail corridor would displace the rail corridor as well as the lands between the rail corridor and Provincial Road. Approximately 45 businesses would be displaced, including one major industrial use (ThyssenKrupp Falco), as well as commercial and retail uses, including retail shopping centres, supermarkets, car dealerships, etc., and mid-size industrial operations. Devonshire Mall, the Roundhouse Plaza and numerous other retail uses would also be affected by a new freeway facility in the rail corridor. The businesses along the rail corridor represent a more sizable portion of regional economic activity and some may not be easily replaced if impacted.

By comparison, approximately 25 businesses would be impacted by the expansion of Huron Church Road/Talbot Road, many of which are highway-oriented (e.g., accommodations, restaurants, gas stations). Few of these businesses would be considered to significantly contribute to the neighbourhood retail structure and none would be considered significant to the regional retail structure. The industrial businesses along this section of Huron Church Road/Talbot Road are also smaller and more related to auto and truck services. These businesses would be more likely to find alternative locations to provide this locally-oriented activity. The business impacts associated with the expansion of the Huron Church Road/Talbot Road corridor were considered to be substantially less than those of the rail corridor/E.C. Row Expressway alternative.

While both alternatives will result in the disruption of a significant number of residences, the change from a low volume rail line to a high volume freeway was considered to be a higher community impact.

As for the alternative that passes north of Todd Lane, the study team found that local neighbourhoods in the Todd Lane/Malden Road area strongly identify themselves with the natural features in this area of Windsor and LaSalle. The neighbourhoods are within walking distance of large wooded areas, many of which are designated natural areas, and a recreational trail system. Separating these neighbourhoods from the natural features with a new freeway corridor was considered as having a higher impact to the community character and cohesion in this area of Windsor/LaSalle than the expansion of Huron Church Road/Talbot Road.

Consistency with existing and planned land use

Generally, alternatives that made use of existing infrastructure were considered to be more consistent with existing and planned land use than other alternatives. The alternative north of Todd Lane impacting the Ojibway Prairie Provincial Nature Preserve, Spring Garden Forest and other designated natural areas was considered to be highly inconsistent with local land use. The expansion of Huron Church Road/Talbot Road is considered compatible with existing and planned land use.

Impacts to Cultural Resources

All the alternatives would result in some impacts to cultural resources. The Todd Lane/Malden Road alternatives would have higher impacts than the others as they impact four known significant archaeological sites.

Impacts to Natural Environment

An alternative extending from Huron Church Road towards the river north of Todd Lane would have significant impacts to the natural areas west of Huron Church, namely Ojibway Prairie Provincial Prairie Reserve and Spring Garden Forest. The Ojibway Prairie is designated as a Provincial Nature Reserve, Provincially Significant Life Science Area of Natural and Scientific Interest (ANSI), Environmentally Sensitive Area (ESA) and Candidate Natural Heritage Site (CNHS). Numerous plants and animals inhabiting this natural heritage area are designated as "special concern", "threatened" or "endangered" under the *Species at Risk Act* and vegetation communities located within this natural heritage area are considered extremely rare on a global and provincial basis. The Ojibway Prairie is connected to the Detroit River by the Black Oak Woods, thus creating an ecologically important landscape linkage. The study team specialists in natural environment noted that the local, provincial and national significance of the Ojibway Prairie cannot be overstated. More than 21 ha of this protected habitat area would be impacted directly with an alternative along Todd Lane, and more than 140 ha of features would be disrupted (i.e., are within 250m of the centreline).

Routes that severed portions of the Ojibway Prairie or created major barriers across natural corridors were considered to be a high impact. These high impact routes included the alignment north of Todd Lane as proposed by the *Windsor Gateway Study*¹, January 2005, as well as options that utilize the Malden Road corridor and the Ojibway Parkway corridor south of E.C. Row. In its assessment, the study team specialists noted that a large, contiguous natural area is more diverse and stable than a small, fragmented natural area. The approach used in the assessment also follows the ecological principle that natural corridors should be maintained as pathways for material flows and animal/plant migration/dispersion.

The Huron Church Road/Talbot Road alternative would avoid altogether the natural heritage areas designated as Provincial Nature Reserve, ANSI and ESA with one possible minor exception on the west side of Huron Church Road. However, the route would encroach along the perimeter of natural heritage areas identified as Candidate Natural Heritage Sites by Windsor/LaSalle and Potential Natural Heritage Features identified by the study team. These areas, such as along the west side of Huron Church Road, are located adjacent or in close proximity to the Ojibway Prairie and may support similar composition, structure and function as the Ojibway Prairie. As a result, while the Huron Church/Talbot Road route is superior to a route that severs these designated features, there may still be substantial adverse environmental effects (both displacement and disturbance) that will require mitigation.

Improve Regional Mobility

Expansion of Huron Church Road/Talbot Road has a greater ability to provide continuous/ongoing capacity for the border transportation network as compared to widening of E.C. Row Expressway, while also providing the means to separate local and long-distance international traffic. The E.C. Row Expressway extends from the Ojibway Parkway near the river in the west end of Windsor, to County Road 22 in the Town of Tecumseh. Passing through central Windsor with interchanges at major north-south arterial roads, the expressway is a key link in the regional road network. Portions of this expressway are currently operating at or near capacity during peak travel periods. Studies have identified that expansion of this facility from the current four lanes to six to eight lanes is required by 2021 to serve the projected growth in local traffic. Using E.C. Row Expressway east of Huron Church

Road to convey international traffic to a new or expanded crossing will require additional widening of this facility to 10 to 12 lanes. While this widening can generally be accommodated within the existing right-of-way on the sections east of Dougall Avenue, west of this point, additional property will be required.

The major road network in the Windsor-Essex County region serves two primary functions: one function is to facilitate access to areas within Windsor-Essex County for local traffic. The second function, owing to the region's unique proximity to border crossings into the United States, is to efficiently convey international traffic to the border crossings to facilitate the movement of people and cross-border goods. Using E.C. Row Expressway to serve both of these primary functions would provide substantially fewer benefits to regional mobility. Reliable access to border crossings in this key trade corridor is of vital importance to the national, regional and local economies. Multiple freeway links connecting to the border crossings would improve regional mobility. A freeway facility on the Huron Church Road/Talbot Road corridor would have greater benefits to regional mobility than widening E.C. Row Expressway by:

- Serving long distance international traffic, while also providing a choice for local traffic;
- Providing additional roadway capacity to meet the long-term needs of the region;
- Providing flexibility in the regional network to respond to incidences (such as collisions or maintenance) and unusual events; and
- Providing flexibility to respond to future changes, such as changes in local land use or changes in manufacturing processes or increased trade, resulting in increased goods movement.

On this basis, alternatives that required use of portions of E.C. Row Expressway east of Huron Church Road to convey international traffic were not preferred.

Cost

In terms of cost and constructability, the widening of the section of E.C. Row Expressway from Huron Church Road to Lauzon Parkway to accommodate local and long distance international traffic as well as local east-west traffic, is more complex and would have a higher associated cost (approximately \$650 million [CDN]) than either the construction of the new freeway on the rail corridor or on Huron Church Road/Talbot Road (approximately \$560 million [CDN]). The rail corridor option would also require widening of a section of E.C. Row. The costs and constructability of this option were considered comparable to the Huron Church Road/Talbot Road option.

The constructability of the alternatives that involve a new alignment north of Todd Lane does not involve complex traffic management, but would require consideration of minimizing impacts to the sensitive natural features associated with the Ojibway Prairie.

Conclusion

The Huron Church Road/Talbot Road (Segments CC-CI-CM) was preferred on the basis that this alternative:

- Would provide greater improvement to regional mobility than the alternatives that utilize the E.C. Row Expressway by providing another freeway connection leading to the border crossings.
- Would be less disruptive to existing and planned land uses than the Talbot Road bypass alternative and the Todd Lane/Malden Road/Ojibway alternatives; and

¹ Windsor Gateway Report, dated January 2005, Prepared by Sam Schwartz Engineering PLLC

- Would have fewer impacts to the important natural features west of Huron Church Road than the Todd Lane/Malden Road/Ojibway alternatives.

Although the options that would utilize all or a portion of E.C. Row Expressway would avoid the sensitive natural features west of Huron Church Road, the benefits to regional mobility associated with the Huron Church Road/Talbot Road alternative were considered of greater importance than the impacts to the edges of these features in selecting the alternative to carry forward for further study.

EXHIBIT 6.13 – CENTRAL ALTERNATIVES – CROSSINGS X7, X8, X9, X10 AND X11

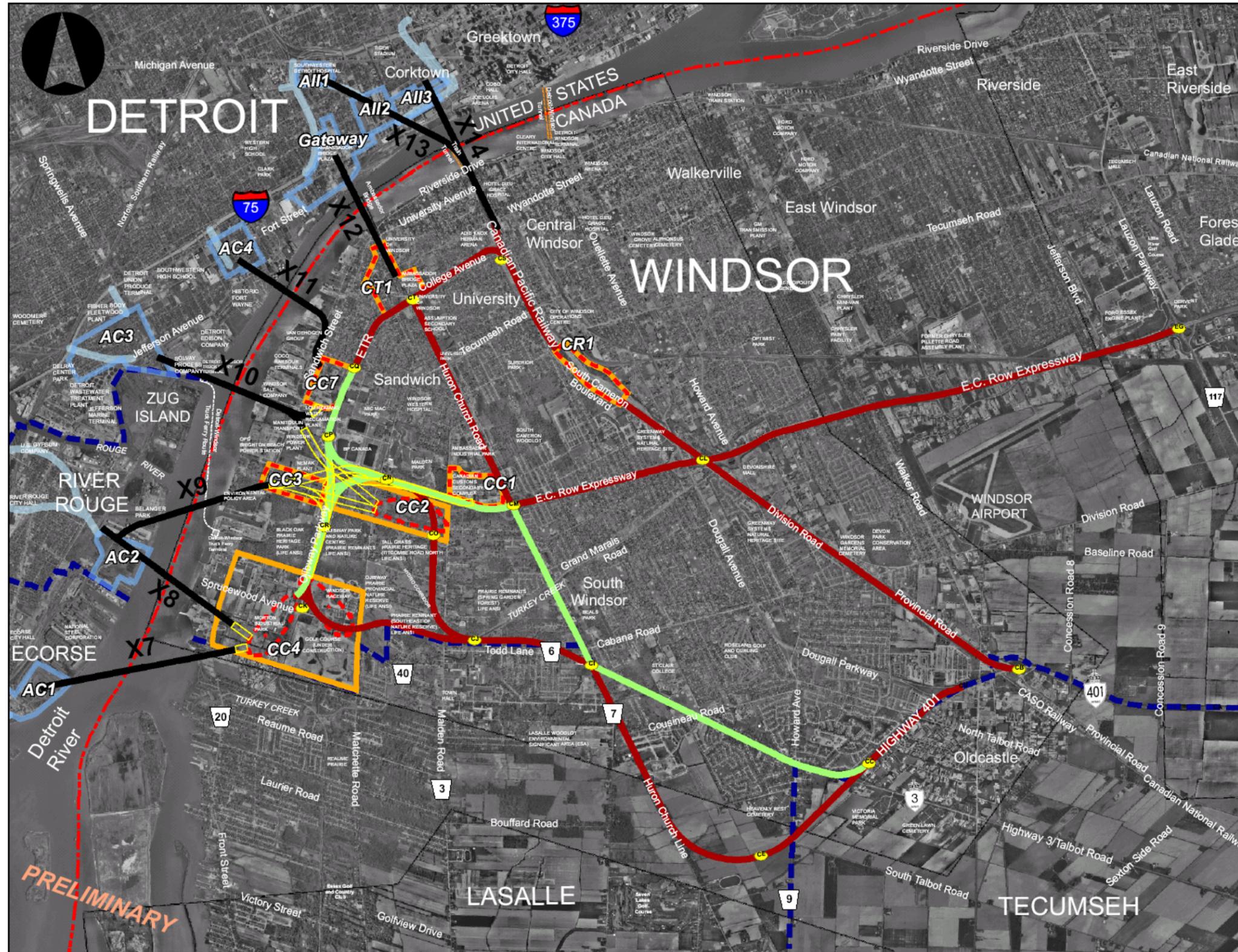


TABLE 6.9 – SUMMARY OF ASSESSMENT OF CENTRAL CONNECTING ROUTE SEGMENTS

FACTOR	HCR/ Talbot Road to ECR (CC-CI-CM-CN)	ECR/Lauzon Pkwy (EG-CL-CM-CN)	ECR/Rail Corridor (CB-CL-CM-CN)	Talbot Road Bypass/HCR (CB-CC-CE-CI-CM-CN)	HCR/Talbot Road – Todd Lane/ Malden Road (CB-CC-CI-CJ-CO-CN)
Changes to Air Quality	No to Low impact Small to moderate increase in pollutants on a system-wide basis	No to Low impact Small to moderate increase in pollutants on a system-wide basis	No to Low impact Small to moderate increase in pollutants on a system-wide basis	No to Low impact Small to moderate increase in pollutants on a system-wide basis	No to Low impact Small to moderate increase in pollutants on a system-wide basis
Community and Neighbourhood Impacts	Impacts along existing road corridor: Displacements: 130+ Households 25+ Businesses Disruption: 1260 households within 200 m	Impacts along existing road corridor; creates new road corridor in rural area of east Windsor: Displacements: 40+ Households <10 Businesses Disruption: 1850 households within 200 m	Impacts along existing road corridor; creates new road corridor in urban area: Displacements: 40+ Households 45+ Businesses Disruption: 1890 households within 200 m	Impacts along existing road corridor; creates new corridor in LaSalle Displacements: 85+ Households 5+ Businesses Disruption: 1300+ households within 200 m	Impacts along existing HCR corridor and creates new corridor in natural areas: Displacements: 120+ Households 25+ Businesses Disruption: 1270-1370 households within 200 m
Consistency with Land Use	Consistent as existing route to Ambassador Bridge; not consistent as freeway	Consistent as freeway; not consistent as primary route for int'l traffic to border crossing(s)	Consistent as freeway for ECR portion; not consistent as primary route for int'l traffic on ECR; not consistent in changing rail corridor to freeway in central urban area of Windsor	Not consistent with current/future residential community development	Not consistent with protected natural areas, residential community
Impacts to Cultural Resources	1 locally designated Heritage site; 2 known significant archaeological sites impacted	2 known significant archaeological sites impacted	2 Built Heritage sites; 2 known significant archaeological sites impacted	2 known significant archaeological sites impacted	2 Built Heritage Sites; 4 known significant archaeological sites impacted
Natural Environment	Impacts to edges of sensitive natural areas	Avoids sensitive natural areas; low impacts to other features	Avoids sensitive natural areas; low impacts to other features	Avoids sensitive natural areas; low impacts to other features	Severance impacts to designated natural areas
Improve Regional Mobility	Provides new freeway route; can separate int'l traffic and provide choice for local traffic	Widening of existing freeway; mixing of int'l and local traffic; no choice for local traffic	Widening of existing freeway; mixing of int'l and local traffic; no choice for local traffic	Provides new freeway route; can separate int'l traffic and provide choice for local traffic	Provides new freeway route; can separate int'l traffic and provide choice for local traffic
Cost	Comparable to other options for cost and constructability; traffic management	Higher costs; greater complexity of construction	Comparable to other options for cost and constructability; traffic management; complex freeway construction	Comparable to other options for cost and constructability; relocate municipal infrastructure	Comparable to other options for cost and constructability; mitigation of natural features impacts during construction

¹ Endangered or Threatened Species

TWINNED AMBASSADOR ALTERNATIVE – CROSSING X12

The illustrative access road route alternatives assessed to connect to a twinned Ambassador Bridge included:

- Expanding the Rail Corridor to a freeway from Highway 401 to the area of College Avenue/ETR corridor, then following the ETR corridor westerly to the Ambassador Bridge.
- Various alternatives connecting Highway 401 to the area of Ojibway Parkway/Essex Terminal Railway (ETR) corridor, then following along the rail corridor to the Ambassador Bridge (often referred to as the Ring Road concept); and,
- Upgrading Huron Church Road/Talbot Road to a freeway.

The alternatives considered are identified in **Exhibit 6.14**.

For more information on the summary of assessment for the route alternatives to connect to a twinned Ambassador Bridge, the reader is referred to the *Generation and Assessment of Illustrative Alternatives Report (November 2005)*.

D RTP Rail Corridor/ETR Corridor – Route Segments CB-CL-CS-CT

The use of the ETR corridor between the D RTP Rail Corridor and the Ambassador Bridge would have high community impacts, displacing an additional 175 households and 10 businesses.

The use of the ETR Corridor for a new freeway to the Ambassador Bridge is also considered to be equally inconsistent with land uses in the area, having a high impact to the central urban area of Windsor.

One advantage noted with this alternative is that a new freeway to the Ambassador Bridge using the rail corridors would improve regional mobility by having a greater ability to provide continuous/ongoing capacity in the road network for accessing the Ambassador Bridge.

Ring Road Concept – Route Segments CP-CQ-CT

The alternatives considered with the Ring Road concept included:

- Huron Church/Talbot Road and E.C. Row Expressway,
- An alignment from Huron Church Road/Talbot Road north of Todd Lane connecting to Ojibway Parkway near Windsor Raceway, and paralleling the ETR Corridor; and
- An alignment north of Todd Lane to Malden Road, along Malden Road to E.C. Row Expressway, and along E.C. Row Expressway to Ojibway Parkway/ETR.

All the alternatives were considered to have high negative impacts to community cohesion, character and function. The portion of the ring road from Prince Road to the Ambassador Bridge would sever the Sandwich neighbourhood. This was considered a highly negative effect on community structure and function. The ring road alternative was considered to have high negative impacts to land use, in that a new freeway through the established neighbourhood area of Sandwich is not consistent with existing and planned land uses in the area.

The ring road alternatives that impacted the Ojibway/Spring Garden designated natural features and the neighbourhoods adjacent to these features were the least preferred due to the higher impacts to natural environment and community features.

As with the D RTP Rail Corridor/ETR Corridor alternative, an advantage noted with the ring road alternative is that it would improve regional mobility by having a greater ability to provide continuous/ongoing capacity in the road network for accessing the Ambassador Bridge.

Upgrading Huron Church Road/Talbot Road – Route Segments CC-CI-CM-CT

Huron Church Road/Talbot Road has long served as the primary route to the Ambassador Bridge for commercial traffic, travellers and commuters. The community along the Huron Church Road north of E.C. Row Expressway has been affected by the existing transportation corridor and demonstrates a much lower degree of community cohesiveness than the areas impacted by the other alternatives connecting to the Ambassador Bridge.

Upgrading Huron Church Road north of E.C. Row Expressway to a freeway will displace approximately 30 residential units (including apartments). Another 800 residences would be disrupted (i.e. within 250 m of the centreline). Approximately 50 businesses would be displaced and another 25 businesses would be disrupted. The Huron Church corridor north of E.C. Row Expressway is highly tourism/traveller oriented, with a significant concentration of accommodation/restaurant businesses that are generally not highly valued in terms of community cohesion and function. Expanding Huron Church Road to a freeway was considered to have a moderate impact to community and neighbourhood characteristics.

Connecting to the Ambassador Bridge by expanding the Huron Church corridor north of E.C. Row Expressway to a freeway was considered to have lower impacts in terms of consistency with land use, in comparison to the other alternatives connecting to the Ambassador Bridge. The 2.2 km section of Huron Church Road between E.C. Row Expressway and Tecumseh Road is characterized as a six-lane arterial road with five signalized intersections and more than 40 commercial and private entrances. Over the past 20 years, the City has reduced the number of street entrances and unsignalized intersections along Huron Church Road. Alternate access to many properties fronting Huron Church Road is available through parallel roads such as Ambassador Drive and Daytona Avenue. The land uses north of Tecumseh Road to the Ambassador Bridge plaza include a residential area along the west side, a shopping centre, Assumption High School, a fast food restaurant and a provincial tourist information centre. Also along this corridor at College Avenue is the University of Windsor Stadium and Recreation Complex. The University has recently completed a multi-million dollar upgrade of its stadium facility to accommodate international track and field events, such as the Pan-Am Games.

Expanding Huron Church Road to a freeway connecting to Ambassador Bridge provides the capacity required to meet the long-term travel demands of the region, but would not provide a new link in the network for accessing the crossing. The ability to provide continuous/ongoing capacity in the network (i.e., redundancy) is a stated objective of the Partnership. In the context of connecting to a twinned Ambassador Bridge (as opposed to a new crossing), using Huron Church Road was considered to provide only a low benefit to regional mobility, while the other alternatives offered a moderate benefit.

In addition, construction of a new freeway on the primary access route to the busiest border crossing between Canada and the U.S. has greater constructability risks in terms of staging, traffic management and timing of construction to minimize congestion and delay, than other alternatives. These risks have greater potential of increasing the costs of this alternative relative to the others.

Summary – Connecting Route

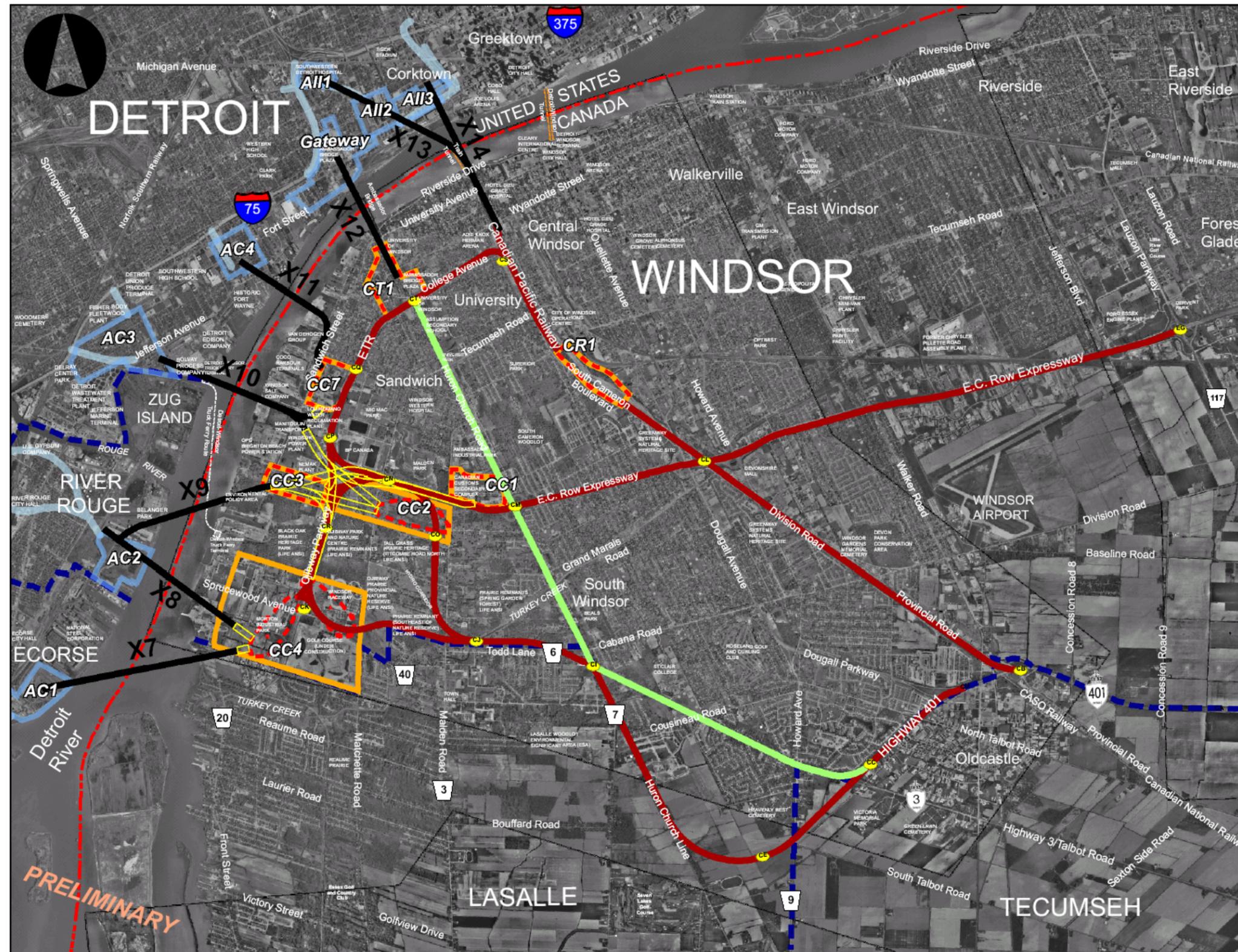
All alternatives for a new freeway connecting Highway 401 to a twinned Ambassador Bridge have a high impact to the urban area of Windsor. Expanding Huron Church Road to a freeway to the Ambassador Bridge has less overall impact than a new freeway corridor to the Ambassador Bridge. While using the Huron Church Road corridor provides a lower benefit to regional mobility and carries greater constructability concerns, the lower impacts to the community were considered of greater importance in determining which alternative to carry forward as the connecting route to the Ambassador Bridge.

The existing right-of-way of Huron Church Road is generally 36 m wide. Expansion of this corridor to a freeway will require an 80 m right-of-way, with interchanges at major crossing roads, grade separations and service roads as required to maintain access. As the primary connecting route to the Ambassador Bridge, disruptions to international trade, and maintaining safety and access for people and goods movement, as well as the high impacts to the urban area, are concerns that remain with this alternative.

In addition to the reasoned argument evaluation of the illustrative access road alternatives presented above, the study team undertook an arithmetic evaluation of the access road alternatives. These evaluations are documented in the *Generation and Assessment of Illustrative Alternatives Report (November 2005)*. In these evaluations, the results of the Canadian study team were consistent with those of the public weighting scenario in every evaluation, i.e., the highest ranking access road segment identified by the study team weighting scenario was also the highest ranking access road segment as identified by the public weighting scenario in every evaluation.

The study team considered the results of the arithmetic method as a validation of the recommendations developed through the reasoned arguments presented in this report.

EXHIBIT 6.14 – TWINNED AMBASSADOR BRIDGE ALTERNATIVE – CROSSING X12



6.3.2 Crossing/Plaza Alternatives

As described in Section 6.2.3, the Canadian study team developed a weighting scenario for the seven major evaluation factors. The study team weights were used to establish decision rules for the reasoned argument evaluation method, as well to develop weighted scores for the arithmetic evaluation method. Both evaluations are described in more detail in the following paragraphs.

As noted in Section 6.2.3, in addition to the study team's weighting scenario, a weighting scenario was also developed by arithmetically combining the factor weights provided by individuals of the public through a rating tool exercise conducted as part of the first round of consultation in June 2005 (refer to Chapter 3 for further details). A third weighting scenario was developed by arithmetically combining the factor weights submitted by individuals of the Community Consultation Group (CCG).

REASONED ARGUMENT METHOD

On the basis of the evaluation of the access road alternatives described in Section 6.3.1, the Canadian study team combined the preferred access road alternative with each of the corresponding illustrative crossing/inspection plaza alternatives and evaluated the illustrative crossing/inspection plaza/access road alternatives to identify the candidates for a short list of practical alternatives.

A summary of the evaluation of the illustrative plaza and crossing alternatives is provided in Tables 6.10 to 6.12. In these tables, an assessment is made with regard to the degree of impact/benefit. An assessment of "Low" indicates that the impact/benefit is relatively insignificant in comparison to the impacts associated with other alternatives (including alternatives considered in other evaluation tables), whereas an assessment of "High" impact/benefit suggests that the alternative results in a significantly greater benefit/impact than the other alternatives. For further details with regard to the analysis and evaluation of the illustrative alternatives, the reader is referred to the *Generation and Assessment of Illustrative Alternatives Report (November 2005)*.

Based on the results of the evaluation of crossing/plaza/access road alternatives, the Canadian study team brought forward the following preliminary recommendations for comparison to the U.S. findings as part of an end-to-end evaluation:

- **Crossing X1, X2, X3 and X4 alternatives** were not carried forward. These alternatives do not meet Partnership objectives for improvement to regional mobility.
- **Crossing X5, X6 and X7 alternatives** were eliminated from further consideration due to issues of constructability/feasibility (refer to the *Generation and Assessment of Illustrative Alternatives Report [November 2005] for further details*).
- **Crossing X8 and X9 alternatives** were subject to a review by both teams in determining whether to carry forward as practical alternatives. Crossing X8 and X9 alternatives were found to provide high benefits to regional mobility and avoid the community of Sandwich, but had higher impacts to natural features than other central alternatives on the Canadian side. In determining whether to carry these alternatives forward as practical alternatives, it was necessary to consider the impacts and benefits of these alternatives on the U.S. side.
- **Crossing X10 and X11 alternatives** were carried forward for further study. These alternatives were found to have the best overall balance of meeting regional mobility needs and impacts to community features.

- **Crossing X12 alternative** was not carried forward due to the high community impacts, high potential for disruption to international traffic during construction and the limited ability to provide continuous/ongoing river crossing capacity;
- **Crossing X13 alternative** was eliminated from further consideration due to inadequate capacity to meet long-term needs and high community impacts.
- **Crossing X14 alternative** was not carried forward due to high impacts to communities and neighbourhoods in central and south Windsor.
- **Crossing X15 alternative** was not carried forward. This alternative does meet Partnership objectives for improvement to regional mobility and was found to have high community impacts;

These recommendations based on the reasoned argument evaluation were reinforced by the results of the arithmetic evaluation described in the next section, and correspond to an area of continued study on the Canadian side extending from the Windsor/ LaSalle border to the north end of the Sandwich Portlands (refer to Exhibit 6.15).

ARITHMETIC METHOD

The evaluation of illustrative crossing, plaza and access road alternatives was also conducted using an arithmetic method based on numerical weighting and scoring of impacts. As noted in the previous section, crossing X5, X6 and X7 alternatives were eliminated from further study on the basis that additional investigation of plaza sites CS1 on Fighting Island and AC1 on the National Steel property determined that these sites were not feasible. As well, the DRTP two-lane truckway proposal (using crossing X13) was eliminated from further study on the basis that the capacity provided by this alternative was not sufficient to meet the long-term travel demand needs of the region. A new freeway tunnel as crossing X13 was also eliminated from further study due to issues of constructability.

The results of the arithmetic evaluation of the eleven crossing/plaza/access road alternatives are summarized in Table 6.13 and 6.14.

Unweighted Scores

The unweighted scores represent the total of the impact scores determined by the Canadian study team based on the degree of impacts or benefits of each alternative. Crossing X1 and X10 alternatives were ranked highest overall, with crossing X3, X4 and X11 alternatives also highly ranked.

The higher rankings of the crossing X10 and X11 alternatives can be attributed to the balance of benefits to regional mobility and impacts to the community that these options represent compared to the other alternatives.

The higher rankings of crossing X1, X3 and X4 alternatives can be primarily attributed to relatively low community impacts associated with these options due to the less developed rural areas these alternatives are located in. However, as noted in the previous section, these southern alternatives were not carried forward for further study on the basis that they do not meet Partnership objectives of providing for the free flow of people and goods at the border crossings through the year 2035 (the planning horizon year for this study).

The crossing X8 and X9 alternatives had the lowest unweighted scores of the central alternatives, reflecting that these alternatives have less of a balance in terms of benefits to regional mobility and impacts to the community.

Weighted Scores

The weighted scores reflect the level of importance as well as the degree of impacts and benefits of each alternative. Study team specialists with expertise in all of the environmental factors areas assessed the degree of impact and benefit and assigned a score for each alternative. The study team specialists based their assessment of impacts on field measurements, results of prediction models, secondary data sources and other means as appropriate.

The results of the arithmetic evaluation indicated that:

- The Canadian study team, public and CCG weighting scenarios identified crossing X10 as the highest ranking alternative; consistent with the unweighted scores. This result reflects the balance of high benefits to regional mobility and generally low to moderate impacts to the community associated with the options in the Windsor portlands area.
- Crossing X1, X3 and X4 alternatives were highly ranked by the Canadian study team, public and CCG weighting scenarios, which is consistent with the unweighted scoring results. This reflects the effect on regional air quality (no change) and relatively low impacts to community and natural features, which were all highly weighted by most members of the public.
- The Canadian study team weighting scenario identified crossing X11 scenario as the third highest rated alternative (after X10 and X1). This weighted score reflects that the alternative has higher community impacts than the southern alternatives, but lower impacts than other alternatives in the urban area of Windsor (i.e. crossing X12 and X14 alternatives). This balance is also reflected in the public and CCG weighted score scenarios, where crossing X11 alternative was ranked fourth, higher than the other 'urban' alternatives.
- Crossing X8 and X9 alternatives had lower weighted scores than the other central crossing alternatives.

TABLE 6.10 – SUMMARY OF ASSESSMENT OF ILLUSTRATIVE ALTERNATIVES, CANADIAN SIDE, SOUTH AREA - HIGHWAY 401 TO DETROIT RIVER

FACTOR	CROSSING X1/PLAZA CS3	CROSSING X2/PLAZA CS2	CROSSING X3/PLAZA CS2	CROSSING X4/PLAZA CS4
Changes to Air Quality	NO IMPACT Slight decrease in pollutants on a system-wide basis	LOW IMPACT Small to moderate increase in pollutants on a system-wide basis	LOW IMPACT Moderate increase in pollutants on a system-wide basis	NO IMPACT Little to increase in pollutants on a system-wide basis
Community and Neighbourhood Impacts	LOW IMPACT Displacements: 10+ Households < 5 Businesses Disruption: 90+ households within 250 m of centreline; <5 businesses	LOW IMPACT Displacements: 10+ Households <5 Businesses Disruption: 100+ households within 250 m of centreline; <5 businesses	LOW IMPACT Displacements: 10+ Households 1+ Businesses Disruption: 90+ households within 250 m of centreline; <5 businesses	LOW IMPACT Displacements: 80+ Households <5 Businesses Disruption: 380+ households within 250 m of centreline; <5 businesses
Consistency with Land Use	LOW IMPACT Access road primarily impacts rural areas of LaSalle and Amherstburg, which are somewhat consistent for a new freeway; plaza and crossing have limited impacts on planned land use	LOW IMPACT Access road primarily impacts rural areas/boundary of future urban area of LaSalle, which are somewhat consistent for a new freeway; plaza and crossing have limited impacts on current/planned land use	LOW IMPACT Access road primarily impacts rural area/boundary of future urban area of LaSalle, which is somewhat consistent for a new freeway; plaza and crossing have limited impacts on current/planned land use	MODERATE IMPACT Access road impacts primarily rural area/boundary of future urban area of LaSalle, which is somewhat consistent for a new freeway; plaza and crossing are within in the urban area boundary of LaSalle impacting current/ future residential land use – not consistent
Impacts to Cultural Resources	LOW IMPACT Impacts to 0 built feature, 3 known archaeological sites; moderate potential for impacting unknown sites	LOW IMPACT Impacts to 0 built feature, 1 known archaeological site; high potential for impacting unknown sites	LOW IMPACT Impacts to 0 built features; 1 known archaeological site; high potential for impacting unknown sites	LOW IMPACT Impacts to 0 built features; 1 known archaeological sites; high potential for impacting unknown sites
Natural Environment	MODERATE IMPACT Loss of 22+ ha of designated/ undesignated features; direct impacts to 17+ ha of ETS ¹ /habitat;	HIGH IMPACT Loss of 55+ ha of designated/ undesignated features; direct impacts to 31+ ha of ETS ¹ /habitat;	MODERATE IMPACT Loss of 33+ ha of designated/ undesignated features; direct impacts to 44+ ha of ETS ¹ /habitat;	MODERATE IMPACT Loss of 21+ ha of designated/ undesignated features; direct impacts to 32+ ha of ETS ¹ /habitat
Improve Regional Mobility	LOW BENEFITS Provides additional capacity/new crossing; inadequate benefits to existing crossings and key connecting roadways in Windsor which operate over capacity during daily peak travel periods in long term; does not meet Partnership objectives	LOW BENEFITS Provides additional capacity/new crossing; inadequate benefits to existing crossings and key connecting roadways in Windsor which operate over capacity during daily peak travel periods in long term; does not meet Partnership objectives	LOW BENEFITS Provides additional capacity/new crossing; inadequate benefits to existing crossings and key connecting roadways in Windsor which operate over capacity during daily peak travel periods in long term; does not meet Partnership objectives	LOW BENEFITS Provides additional capacity/new crossing; inadequate benefits to existing crossings and key connecting roadways in Windsor which operate over capacity during daily peak travel periods in long term; does not meet Partnership objectives
Cost	HIGH IMPACTS CDN\$850 M ² ; Constructability risks include construction of 2 km crossing over Detroit River on Canadian side	HIGH IMPACTS CDN\$1030 M ² ; Constructability risks include active salt mines and construction of 2+ km crossing over Detroit River on Canadian side.	HIGH IMPACTS CDN \$980 M ² ; Constructability risks include active salt mines, Fighting Island soils/ contamination issues and construction of 2+ km crossing over Detroit River on Canadian side.	HIGH IMPACTS CDN\$870 M ² ; Constructability risks include active salt mines, Fighting Island soils/ contamination issues, construction of 2 km crossing over Detroit River/Fighting Island on Canadian side.
CONCLUSIONS: The Southern alternatives generally have lower impacts to community features, which is a primary objective of this project, and have comparable costs and constructability risks to the other alternatives. However, these alternatives do not provide adequate improvement to regional mobility in the long term. These alternatives are therefore not recommended for continued analysis.				

¹ Endangered or Threatened Species

² Preliminary planning costs of access road, plaza and one-half of crossing

TABLE 6.11– SUMMARY OF ASSESSMENT OF ILLUSTRATIVE ALTERNATIVES, CANADIAN SIDE, CENTRAL AREA - HIGHWAY 401 TO DETROIT RIVER

FACTOR	CROSSING X8/PLAZA CC4	CROSSING X9/PLAZA CC3	CROSSING X10/PLAZA CC3	CROSSING X11/PLAZA CC7
Changes to Air Quality	LOW IMPACT No noticeable change in regional air shed	LOW IMPACT No noticeable change in regional airshed	LOW IMPACT No noticeable change in regional airshed	LOW IMPACT No noticeable change in regional airshed
Community and Neighbourhood Impacts	MODERATE IMPACT Displacements: 130+ Households 40+ Businesses Disruption: 1600+ households within 250 m of centreline; 10+ businesses	MODERATE IMPACT Displacements: 150+ Households 40+ Businesses Disruption: 1400+ households within 250 m of centreline; <10 businesses	MODERATE IMPACT Displacements: 140+ Households 45+ Businesses Disruption: 1450+ households within 250 m of centreline; 10+ businesses	MODERATE TO HIGH IMPACT Displacements: 180+ Households 55+ Businesses Disruption: 2080+ households within 250 m of centreline; <10 businesses
Consistency with Land Use	MODERATE IMPACT Huron Church/Talbot is somewhat consistent for a new freeway; plaza and crossing in active industrial areas considered consistent	LOW IMPACT Huron Church/Talbot is somewhat consistent for a new freeway; plaza and crossing in undeveloped industrial areas highly consistent	LOW IMPACT Huron Church/Talbot is somewhat consistent for a new freeway; plaza and crossing in undeveloped industrial areas highly consistent	LOW TO MODERATE IMPACT Huron Church/Talbot is somewhat consistent for a new freeway; plaza adjacent to residential not consistent; crossing in industrial areas consistent
Impacts to Cultural Resources	MODERATE IMPACT Impacts to 1 built features, 3 known archaeological sites; high potential for impacting unknown sites	MODERATE IMPACT Impacts to 1 built features, 6 known archaeological sites; high potential for impacting unknown sites	MODERATE IMPACT Impacts to 2 built features; 2 known archaeological sites; high potential for impacting unknown sites	MODERATE TO HIGH IMPACT Impacts to 10 built features; 2 known archaeological sites; high potential for impacting unknown sites
Natural Environment	HIGH IMPACT Severs Ojibway features from riverfront; Loss of approx. 26 ha of designated/ undesignated features; direct impacts to 25+ ha of ETS ¹ /habitat;	HIGH IMPACT Potential for severing Ojibway features from riverfront; Loss of approx. 30 ha of designated/ undesignated features; direct impacts to 20+ ha of ETS ¹ /habitat;	MODERATE IMPACT Loss of 20+ ha of designated/ undesignated features; direct impacts to 14+ ha of ETS ¹ /habitat;	MODERATE IMPACT Loss of 25+ ha of designated/ undesignated features; direct impacts to 13+ ha of ETS ¹ /habitat;
Improve Regional Mobility	HIGH BENEFITS Provides additional capacity/new crossing; existing crossings operate well; D-W tunnel approaching unstable flow in 2035	HIGH BENEFITS Provides additional capacity/new crossing; existing crossings operate well; D-W tunnel approaching unstable flow in 2035	HIGH BENEFITS Provides additional capacity/new crossing; existing crossings operate well;	HIGH BENEFITS Provides additional capacity/new crossing; existing crossings operate well;
Cost	HIGH IMPACTS CDN\$1.5 B ² ; Constructability risks include traffic/utility management on HCR/Talbot corridor, active mines, brine wells	HIGH IMPACTS CDN\$1.4 B ² ; Constructability risks include traffic/utility management on HCR/Talbot corridor, active mines, brine wells	HIGH IMPACTS CDN\$1.4 B ² ; Constructability risks include traffic/utility management on HCR/Talbot corridor, active mines, brine wells	HIGH IMPACTS CDN\$1.2 B ² ; Constructability risks include traffic/utility management on HCR/Talbot corridor, active mines, brine wells
CONCLUSIONS: The Central alternatives represent a reasonable balance between benefits to regional mobility and community impacts. These alternatives are recommended for continued analysis.				

¹ Endangered or Threatened Species

² Preliminary planning costs of access road, plaza and one-half of crossing

TABLE 6.12 – SUMMARY OF ASSESSMENT OF ILLUSTRATIVE ALTERNATIVES, CANADIAN SIDE, X12, X14 AND X15 - HIGHWAY 401 TO DETROIT RIVER

FACTOR	CROSSING X12/PLAZA CT1	CROSSING X14/PLAZA CR1	CROSSING X15/PLAZA CE1
Changes to Air Quality	NO IMPACT Slight increase in pollutant levels on a system-wide basis vs. do nothing	NO IMPACT Little change in pollutant levels on a system-wide basis vs. do nothing	NO IMPACT Little change in pollutant levels on a system-wide basis vs. do nothing
Community and Neighbourhood Impacts	HIGH IMPACT Displacements: 420+ households 85+ Businesses Disruption: 3490+ households within 250 m of centreline; 25+ businesses	HIGH IMPACT Displacements: 125+ households 75+ Businesses Disruption: 2180+ households within 250 m of centreline; 10+ businesses	HIGH IMPACT Displacements: 570+ households 40+ Businesses Disruption: 2600+ households within 250 m of centreline; 40+ businesses
Consistency with Land Use	MODERATE IMPACT Huron Church/Talbot is somewhat consistent for a new freeway; plaza and crossing in historic residential area are highly inconsistent	HIGH IMPACT High impacts to land use; especially regional commercial uses; crossing, plaza and freeway highly inconsistent with local land uses and city plans	HIGH IMPACT Crossing, plaza and access road north of E.C. Row highly inconsistent with current and planned land uses; access road south of E.C. Row to Highway 401 is somewhat consistent
Impacts to Cultural Resources	HIGH IMPACT Impacts to 45 built features, 3 known archaeological sites; high potential for impacting unknown sites	HIGH IMPACT Impacts to 14 built features, no known archaeological sites impacted; moderate potential for impacting unknown sites	MODERATE IMPACT Impacts to 10 built features; no known archaeological sites impacted; moderate potential for impacting unknown sites
Natural Environment	LOW IMPACT Loss of 15+ ha of designated/ undesignated features; direct impacts to 11+ ha of ETS ¹ /habitat	HIGH IMPACT Loss of 21+ ha of designated/ undesignated features; direct impacts to 18+ ha of ETS ¹ /habitat	LOW IMPACT Loss of 13+ ha of designated/ undesignated features; direct impacts to 9+ ha of ETS ¹ /habitat
Improve Regional Mobility	HIGH BENEFITS Provides additional capacity/new crossing; existing crossings operate below capacity; D-W tunnel approaching unstable flow in 2035 during daily peak travel periods in long term	HIGH BENEFITS Provides additional capacity/new crossing; existing crossings and connecting roadways operate well during daily peak travel periods in long term	LOW BENEFITS Provides additional capacity/new crossing; inadequate benefits to existing crossings and key connecting roadways in Windsor which operate over capacity during daily peak travel periods in long term; does not meet Partnership objectives
Cost	HIGH IMPACTS CDN\$1.5 B ² ; Constructability risks include traffic/utility management and access on HCR/Talbot Rd/Hwy 3; complex interchange at Huron Church and E.C. Row Expressway	HIGH IMPACTS CDN\$1.9 B ² ; Constructability risks include interchange reconfiguration at Hwy 401; complex interchange at E.C. Row including reconfiguration of Howard and Dougall interchanges; traffic/utility management and access in Provincial Road corridor; maintenance of rail traffic	HIGH IMPACTS CDN\$1.6 B ² ; Constructability risks include interchange on E.C. Row/Lauzon Parkway; traffic/utility management and access on Lauzon Parkway/plaza area/new crossing
CONCLUSIONS: The Crossing X12 and X14 alternatives provide adequate improvements to regional mobility but have higher community impacts than the central alternatives. The crossing X15 alternative has high community impacts and does not provide adequate improvement to regional mobility in the long term. These alternatives are therefore not recommended for continued analysis.			

¹ Endangered or Threatened Species

² Preliminary planning costs of access road, plaza and one-half of crossing

EXHIBIT 6.15 – RECOMMENDED AREA OF CONTINUED STUDY, CANADIAN SIDE



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TABLE 6.13 – RESULTS OF ARITHMETIC EVALUATION

ARITHMETIC EVALUATION - Project Team Weighting Scenario																							
Summary of Evaluation (1)	Weighting (2)	X1		X2		X3		X4		X8		X9		X10		X11		X12		X14		X15	
		Score (4)	Weight x Score	Score	Weight x Score	Score	Weight x Score																
		Changes in Air Quality	12.39	4	49.56	3	37.17	3	37.17	4	49.56	3	37.17	3	37.17	4	49.56	3	37.17	4	49.56	4	49.56
Protect Community/ Neighbourhood Characteristics	15.93	3	47.79	3	47.79	3	47.79	3	47.79	2	31.86	2	31.86	2	31.86	2	31.86	1	15.93	1	15.93	1	15.93
Maintain Consistency with Existing and Planned Land Use	12.39	3	37.17	3	37.17	3	37.17	2	24.78	2	24.78	3	37.17	3	37.17	3	37.17	2	24.78	1	12.39	1	12.39
Protect Cultural Resources	12.39	3	37.17	3	37.17	3	37.17	3	37.17	2	24.78	2	24.78	2	24.78	2	24.78	1	12.39	1	12.39	2	24.78
Protect the Natural Environment	15.93	2	31.86	1	15.93	2	31.86	2	31.86	1	15.93	1	15.93	2	31.86	2	31.86	3	47.79	3	47.79	3	47.79
Improve Regional Mobility	17.70	5	88.50	5	88.50	5	88.50	5	88.50	7	123.90	7	123.90	7	123.90	7	123.90	7	123.90	7	123.90	5	88.50
Minimize Cost	13.27	1	13.27	1	13.27	1	13.27	1	13.27	1	13.27	1	13.27	1	13.27	1	13.27	1	13.27	1	13.27	1	13.27
Unweighted Score			21		19		20		20		18		19		21		20		19		18		17
Ranking			1		6		3		3		9		6		1		3		6		9		11
Project Team Weighted Score																							
	100.00		305.32		277.00		292.93		292.93		271.69		284.08		312.40		300.01		287.62		275.23		252.22
Ranking			2		8		4		4		10		7		1		3		6		9		11
ARITHMETIC EVALUATION - Public Weighting Scenario																							
Summary of Evaluation	Weighting (3)	X1		X2		X3		X4		X8		X9		X10		X11		X12		X14		X15	
		Score (4)	Weight x Score	Score	Weight x Score	Score	Weight x Score																
		Changes in Air Quality	17.32	4	69.28	3	51.96	3	51.96	4	69.28	3	51.96	3	51.96	4	69.28	3	51.96	4	69.28	4	69.28
Protect Community/ Neighbourhood Characteristics	15.49	3	46.47	3	46.47	3	46.47	3	46.47	2	30.98	2	30.98	2	30.98	2	30.98	1	15.49	1	15.49	1	15.49
Maintain Consistency with Existing and Planned Land Use	12.89	3	38.67	3	38.67	3	38.67	2	25.78	2	25.78	3	38.67	3	38.67	3	38.67	2	25.78	1	12.89	1	12.89
Protect Cultural Resources	13.14	3	39.42	3	39.42	3	39.42	3	39.42	2	26.28	2	26.28	2	26.28	2	26.28	1	13.14	1	13.14	2	26.28
Protect the Natural Environment	16.34	2	32.68	1	16.34	2	32.68	2	32.68	1	16.34	1	16.34	2	32.68	2	32.68	3	49.02	3	49.02	3	49.02
Improve Regional Mobility	15.28	5	76.40	5	76.40	5	76.40	5	76.40	7	106.96	7	106.96	7	106.96	7	106.96	7	106.96	7	106.96	5	76.40
Minimize Cost	9.54	1	9.54	1	9.54	1	9.54	1	9.54	1	9.54	1	9.54	1	9.54	1	9.54	1	9.54	1	9.54	1	9.54
Public Weighted Score	100.00		312.46		278.80		295.14		299.57		267.84		280.73		314.39		297.07		289.21		276.32		258.90
Ranking			2		8		5		3		10		7		1		4		6		9		11
ARITHMETIC EVALUATION - Community Consultation Group Weighting Scenario																							
Summary of Evaluation	Weighting (3)	X1		X2		X3		X4		X8		X9		X10		X11		X12		X13/14		X15	
		Score (4)	Weight x Score	Score	Weight x Score	Score	Weight x Score																
		Changes in Air Quality	17.30	4	69.20	3	51.90	3	51.90	4	69.20	3	51.90	3	51.90	4	69.20	3	51.90	4	69.20	4	69.20
Protect Community/ Neighbourhood Characteristics	13.88	3	41.64	3	41.64	3	41.64	3	41.64	2	27.76	2	27.76	2	27.76	2	27.76	1	13.88	1	13.88	1	13.88
Maintain Consistency with Existing and Planned Land Use	13.69	3	41.07	3	41.07	3	41.07	2	27.38	2	27.38	3	41.07	3	41.07	3	41.07	2	27.38	1	13.69	1	13.69
Protect Cultural Resources	13.12	3	39.36	3	39.36	3	39.36	3	39.36	2	26.24	2	26.24	2	26.24	2	26.24	1	13.12	1	13.12	2	26.24
Protect the Natural Environment	17.11	2	34.22	1	17.11	2	34.22	2	34.22	1	17.11	1	17.11	2	34.22	2	34.22	3	51.33	3	51.33	3	51.33
Improve Regional Mobility	14.83	5	74.15	5	74.15	5	74.15	5	74.15	7	103.81	7	103.81	7	103.81	7	103.81	7	103.81	7	103.81	5	74.15
Minimize Cost	10.07	1	10.07	1	10.07	1	10.07	1	10.07	1	10.07	1	10.07	1	10.07	1	10.07	1	10.07	1	10.07	1	10.07
Public Weighted Score	100.00		309.71		275.30		292.41		296.02		264.27		277.96		312.37		295.07		288.79		275.10		258.56
Ranking			2		8		5		3		10		7		1		4		6		9		11

NOTES:
 (1) - Crossing X5, X6, X7 and X13 alternatives were eliminated from further study and therefore were not ranked
 (2) - Members of the Canadian Project Team collaboratively developed one set of weightings.
 (3) - Public and Canadian Consultation Group weighting scenarios were developed by arithmetically combining individual submissions on factor weightings
 (4) - Scores were assigned to each alternative by Project Team specialists and are the same for all weighting scenarios

TABLE 6.14 – SUMMARY OF RESULTS OF ARITHMETIC EVALUATION

ALTERNATIVE	UNWEIGHTED		CANADIAN PROJECT TEAM**		CANADIAN PUBLIC***		CONSULTATION GROUP***	
	SCORE	RANK	WEIGHTED SCORE	RANK	WEIGHTED SCORE	RANK	WEIGHTED SCORE	RANK
X1	21	1	305.32	2	312.46	2	309.71	2
X2	19	6	277.00	8	278.80	8	275.30	8
X3	20	3	292.93	4	295.14	5	292.41	5
X4	20	3	292.93	4	299.57	3	296.02	3
X5	Eliminated - not feasible*							
X6	Eliminated - not feasible*							
X7	Eliminated - not feasible*							
X8	18	9	271.69	10	267.84	10	264.27	10
X9	19	6	284.08	7	280.73	7	277.96	7
X10	21	1	312.40	1	314.39	1	312.37	1
X11	20	3	300.01	3	297.07	4	295.07	4
X12	19	6	287.62	6	289.21	6	288.79	6
X13 TRUCKWAY	Eliminated - not feasible*							
X14	18	9	275.23	9	276.32	9	275.10	9
X15	17	11	252.22	11	258.90	11	258.56	11

* - Crossing X5, X6, X7 and X13 alternatives were eliminated from further study and therefore were not ranked
 ** - Members of the Canadian Project Team collaboratively developed one set of weightings.
 *** - Public and Canadian Consultation Group weightings were developed by arithmetically combining individual submissions on factor weightings

6.4 Analysis and Evaluation of Illustrative Alternatives – United States Side

The U.S. study team analyzed 37 combinations (or systems) of illustrative crossing, plaza and access road alternatives connecting the 15 crossing locations at the Detroit River to the interstate freeway system in the U.S.

These alternatives were assessed using the same seven performance factors used by the Canadian evaluation, however with certain unique criteria and measures that reflect the requirements and conditions on the U.S. side of the Detroit River.

The U.S. study team assessed the performance based on level of benefit or impact associated with each crossing/plaza/access road alternative. The performance of each system was compared to the others to identify the top performing systems, which were recommended to be carried forward for comparison to the results of the Canadian evaluation as part of an end-to-end process.

For further details with regard to the analysis and evaluation of the illustrative alternatives on the U.S. side, the reader is referred to the *Evaluation of Illustrative Alternatives on the United States Side of the Border, August 2005*.

A summary discussion of the findings of the U.S. study team brought forward for an end-to-end evaluation is provided in this section of the report.

6.4.1 Downriver Alternatives – Crossings X1, X2, X3, X4, X5 and X6

Further investigation by the U.S. study team into the feasibility of constructing an inspection plaza on lands currently used for slag processing and disposal related to the National Steel operation identified significant community impacts and unacceptable disruption to the steel mill operation. The U.S. Team eliminated the AC1 plaza site from further consideration.

Crossing X5 and X6 alternatives were therefore eliminated from further consideration by the Canadian and U.S. teams.

The U.S. study team analyzed 21 crossing/plaza/access road alternatives in this area of the river. None were recommended to be carried forward on the basis that from the U.S. perspective, they were not effective in meeting the needs of the project while reducing associated impacts, and were not cost-effective.

The findings of the U.S. analysis of improvement to regional mobility supported the Canadian team's assessment that the downriver alternatives would not adequately meet the long-term needs of the regional transportation network. The U.S. analysis found that a new downriver crossing would have limited improvement to traffic operations on the U.S. freeway system in the region. The downriver alternatives had poorer performance than most of the alternatives in terms of improvements to regional mobility, and none were among the top performers overall.

In terms of protecting community/neighbourhood characteristics, four of the five crossing X4/Plaza AS5 alternatives were the top performers among the 37 alternatives analyzed; these alternatives feature a crossing in the Fighting Island area connected to a plaza site in Ecorse, which is an abandoned industrial site. Of these, one alternative (X4/S5/Moran/I-75) was also among the top performers in constructability. The other downriver alternatives had poorer performance than the other alternatives in terms of community impacts.

The southern alternatives (downriver) also generally resulted in higher impacts to natural features than other alternatives considered; most of the southern alternatives had poorer performance than the other alternatives and none were among the top performers.

Five downriver alternatives were the top performers in terms of maintaining air quality. By virtue of their more direct end-to-end alignment between the interstate freeway system and Highway 401, the alternatives reduce total vehicle-miles and vehicle-hours on the U.S. network, resulting in a slightly higher reduction in emissions than other alternatives.

6.4.2 North Alternatives – Crossing X15

The U.S. study team analyzed two crossing/plaza/access road alternatives in the Belle Isle/East Detroit area of the river. Neither was recommended to be carried forward on the basis that, from the U.S. perspective, they were not effective in meeting the needs of the project while reducing associated impacts, and were not cost-effective.

The findings of the U.S. analysis of improvement to regional mobility supported the Canadian team's assessment that a new crossing in the Belle Isle area would not adequately meet the long-term needs of the regional transportation network. The U.S. analysis found that a new crossing in the

Belle Isle area would have only limited improvement to traffic operations on the US freeway system in the region. Both alternatives had a poorer performance in improving regional mobility than most of the other alternatives.

The alternatives in the Belle Isle area were found to have poorer performance than most other alternatives in terms of impacts to community and neighbourhood characteristics, consistency with land use plans, impacts to cultural resources, and impacts to air quality.

While the north alternatives were found to perform better than most alternatives on the U.S. side in terms of impacts to natural features and constructability, they were not among the best performers in these factor areas in comparison to other alternatives.

6.4.3 I-75/I-96 Area – Crossings X13 and X14

The U.S. study team analyzed four crossing/plaza/access road alternatives in the 'Interstates' area, which includes the rail corridor proposed for the DRTP truckway (crossing X13 alternative).

The findings of the U.S. assessment of the truckway proposal supported the Canadian analysis that the capacity provided by the truckway proposal is not sufficient to meet the long-term needs of the region. The U.S. assessment found that the truckway had little benefit to mobility in terms of reducing congestion at the existing crossings in 2035. Further, the U.S. analysis identified that with additional border capacity in place through another new or expanded road crossing on the Detroit River in addition to the DRTP proposal, the truckway will carry virtually no truck traffic during the 2035 peak travel periods.

In addition, on the U.S. side, the truckway proposal connecting to I-75 was found to have negative community impacts and impacts to cultural features associated with the plaza and the crossing. In addition, the access road was determined to be incompatible with local land use, conflicting with plans for residential/commercial revitalization in this area of the City.

The U.S. assessment of the truckway proposal concluded that the truckway proposal does not meet the needs of the Partnership and is not recommended to be carried forward for further analysis as a practical alternative. The DRTP could continue to seek U.S. and Canadian permits/approvals for a truckway and new high clearance rail tunnel as part of a separate process. As a new freeway tunnel, the X13 crossing was determined not to be practically feasible and was eliminated from further study.

Two crossing X14 alternatives connecting the rail corridor in Canada to a new plaza and road connection to the freeway system in downtown Detroit were considered on the U.S. side. Overall, the crossing X14 alternatives performed better than most other alternatives, although neither was a top performer.

The X14/Plaza II2/Connection to M-10 alternative performed better than most alternatives in terms of community/neighbourhood impacts, consistency with local planning, protecting natural features and improving regional mobility. This alternative was also among the top performers in terms of constructability. The U.S. analysis noted that a crossing and inspection plaza in this area of Detroit would negatively affect the local community including impacts to businesses, schools and residences.

The X14/Plaza II3/Connection to M-10 alternative performed better than most alternatives in terms of improving regional mobility. This alternative was also among the top performers in terms of protecting natural features and constructability.

Both alternatives had a poorer performance than most other alternatives in terms of the protection of cultural features and maintaining air quality. The Corktown Historic District, several sites eligible for registration as nationally significant cultural sites and the City's Riverwalk were identified as important features potentially impacted by a new crossing/plaza/access road alternative in this area of the city.

The U.S. analysis determined that neither of these alternatives was among the top overall performers on the U.S. side. However, the X14 alternatives performed better than most alternatives overall. The U.S. team carried both X14 alternatives forward to the end-to-end evaluation for consideration on the short list of practical alternatives.

6.4.4 I-75/I-96 Area – Crossing X12 Alternative

The crossing X12 alternative (twin Ambassador Bridge) was identified as one of the top overall performers on the U.S. side in terms of effectiveness and cost-effectiveness.

The Ambassador Bridge is connected to three interstate freeways in Michigan. Construction is underway on the *Ambassador Bridge Gateway Project* in Detroit, Michigan. This project, by the Michigan Department of Transportation is expected to be completed by December 2009. It will connect the Ambassador Bridge plaza and the interstate freeway system.

Expansion of the existing bridge was the top performer on the U.S. side in terms of community/neighbourhood impacts, consistency with local planning and protecting natural features and among the top performers in terms of constructability. This alternative also had a better performance than most alternatives in terms of improvement to regional mobility.

The notable impacts associated with the expansion of the Ambassador Bridge plaza include impacts to the local community: the plaza expansion will displace 26 homes and seven businesses, disrupt 150 homes and negatively impact community cohesion and character in a disadvantaged area of the city.

The crossing X12 alternative was found to exhibit poorer performance than most other alternatives in terms of maintaining air quality and protecting cultural features. The expansion of the plaza and construction of a new span at this location would have a high impact to cultural resources, impacting eight candidate sites eligible for designation as nationally significant and 18 known archaeological sites; there is a high potential for more as yet undiscovered sites being disturbed by construction activity.

In comparison to other crossing alternatives, the impacts and costs associated with the crossing, inspection plaza and access road are less with the crossing X12 alternative than most other alternatives considered. The U.S. study team recommended the crossing X12 alternative for consideration on the short list of practical alternatives.

6.4.5 Central Alternatives – Crossings X7, X8, X9, X10 and X11

Further investigation by the U.S. study team into the feasibility of constructing an inspection plaza on lands currently used for slag processing related to the National Steel operation identified significant community impacts and unacceptable disruption to the steel mill operation. The U.S. Team eliminated the AC1 plaza site and crossing X7 from further consideration. Both the U.S. and Canadian Teams therefore eliminated crossing X7 from further consideration.

The U.S. study team analyzed eleven crossing/plaza/access road alternatives in the central area of the river. The findings of the U.S. analysis supported the Canadian team's assessment that a new crossing in the central area would meet the long-term needs of the regional transportation network and provide high benefits to regional mobility. All eleven alternatives performed better than most of the other alternatives considered in terms of improvement to regional mobility; further, the eleven central alternatives were the top performers on this factor.

The U.S. analysis of cost-effectiveness, which considered the benefits and impacts as well as cost of the crossing, plaza and access road on the U.S. side, identified three central alternatives as being among the top overall performers:

- Crossing X11/Plaza AC4/Access Road Dragoon/I-75
- Crossing X10/Plaza AC3/Access Road Dearborn/I-75
- Crossing X10/Plaza AC3/Access Road Springwells/I-75.

These alternatives, located between Zug Island and the Ambassador Bridge, are located in an area of southwest Detroit that is a mix of industrial, residential, institutional and cultural land uses. Plazas AC3 and AC4 were identified as having negative impacts to community cohesion and character, as well as environmental justice impacts. Plaza AC3 would likely result in the displacement of approximately 300 residential units, while plaza AC4 would displace more than 60 residences. The AC4 plaza and access road to I-75 was found to be somewhat consistent with local plans, while plaza AC3 was not consistent with plans for residential redevelopment.

Other central alternatives that had overall better performance than most other alternatives included alternatives connected to Plaza AC2 (i.e. crossings X8 and X9). Plaza AC2 is sited on the grounds of the National Steel plant. The plaza site is currently used for storage of raw materials for the rolling mill adjacent to the site. The crossings X8 and X9 would directly impact this rolling mill. A new crossing and plaza in this area would require relocating the rolling mill without disrupting the mill's production. Unlike the slag pile issue identified with plaza AC1, relocating the rolling mill could likely be accomplished within other parts of the National Steel property without adversely affecting the mill's operations or the surrounding community. However, the relocation of the rolling mill would increase the constructability risks associated with the new crossing in terms of time and cost.

The U.S. study team recommended these alternatives for consideration on the short list of practical alternatives as part of an end-to-end evaluation.

6.4.6 Conclusions – United States Side Evaluation

Following the assessment of 37 crossing/plaza/access road alternatives connecting the 15 crossings in the Detroit River to the interstate freeway system, the U.S. study team identified an area of focus for a new border crossing system within which a short list of practical alternatives could be identified that would meet the needs of the border transportation network while having acceptable impacts on the U.S. side (refer to **Exhibit 6.14**). This area extended from the River Rouge/Melvindale area in the south to the downtown Detroit/M-10 area.

6.5 End-to-End Evaluation of Illustrative Alternatives

The Canadian study team recommendations for alternatives to be carried forward as practical alternatives corresponded to an area of continued study on the Canadian side of the Detroit River extending from the Windsor/ LaSalle border to the north end of the Sandwich Portlands (**Exhibit 6.15**).

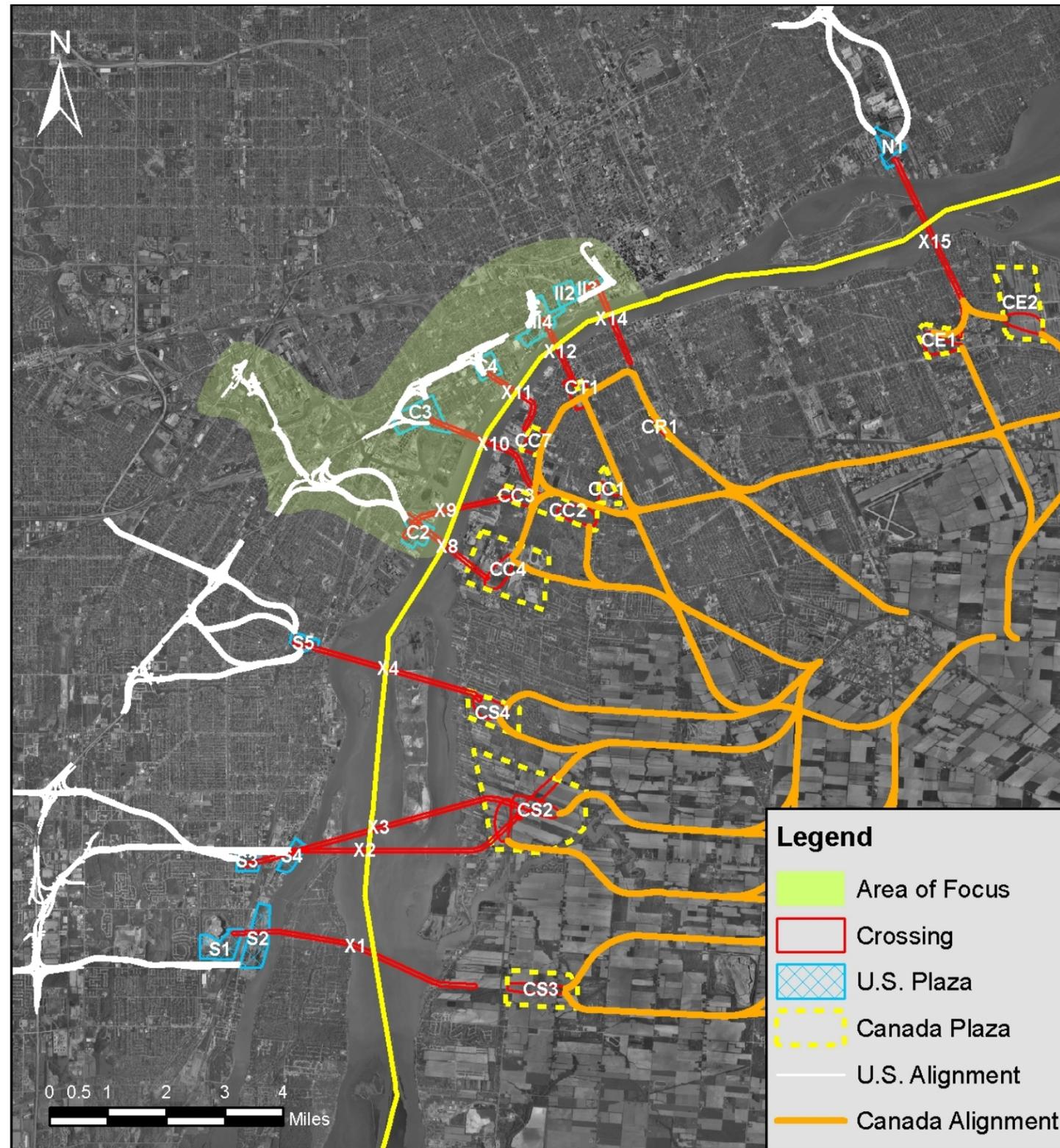
The U.S. study team also identified an area of focus for a new border crossing system within which a short list of practical alternatives could be identified that would meet the needs of the border transportation network while having acceptable impacts on the U.S. side (**Exhibit 6.16**). This area extended from the River Rouge/Melvindale area in the south to the downtown Detroit/M-10 area.

Based on the separate evaluations conducted by both study teams, the following conclusions were identified:

- **Crossings X1, X2, X3, X4, X5, X6, X7, X13 and X15** should be eliminated from further study. This was jointly supported by the analysis of both study teams.
- **Crossings X10 and X11** should be carried forward for further study. This was jointly supported by the analysis of both study teams.
- **Crossings X8 and X9** to be reviewed in determining whether to carry forward as practical alternatives. Both teams recommended carrying forward Crossings X8 and X9 for consideration as practical alternatives. However, the analysis of both teams suggested these alternatives do not perform as well on either side of the river as other recommended crossing alternatives.
- **Crossings X12 and X14** to be reviewed in determining whether to carry forward as practical alternatives. The U.S. study team recommended both of these alternatives be carried forward for consideration as practical alternatives while the Canadian study team did not.

The Partnership, together with the Canadian and U.S. study teams jointly reviewed the Crossing X8, X9, X12 and X14 evaluation results on an end-to-end basis in determining the final recommendations for alternatives to be carried forward for continued analysis.

EXHIBIT 6.16 – U.S. AREA OF FOCUS FOR FURTHER ANALYSIS



6.5.1 Crossings X8 and X9

The Canadian evaluation identified that crossing X8 and X9 alternatives offer high regional mobility benefits. The Canadian study team also identified that, in terms of improvements to regional mobility, the crossing X8 and X9 alternatives offers slightly lower benefits to regional mobility than the other central alternatives (X10 and X11).

On the Canadian side, the crossing X8 and X9 alternatives have high impacts to the significant natural features in the Ojibway area of west Windsor. The access road alternative for crossing X8 follows the Ojibway Parkway; this alternative impacts the Black Oak Prairie Heritage Park and Ojibway Prairie complex. This alternative would result in the loss of more than 25 ha of designated and undesignated natural features and a similar area of endangered or threatened species habitat. More significantly, a new freeway in the Ojibway Prairie corridor would likely sever the linkage between the Black Oak Prairie area and the Ojibway Prairie Complex, resulting in a landscape scale impact.

The crossing X9 alternative directly impacts the Black Oak Prairie Heritage Park and an Environmental Policy Area along the riverfront. This alternative would result in the loss of approximately 30 ha of natural features, including direct impacts to more than 20 ha of endangered or threatened species habitat. The crossing X9 alternative would also threaten connectivity between the Ojibway Prairie complex and the riverfront.

The U.S. study team identified constructability risks associated with Plaza AC2 (i.e. crossings X8 and X9). Plaza AC2 is sited on the grounds of the National Steel plant. The plaza site is currently used for storage of raw materials for the rolling mill adjacent to the site. The crossings X8 and X9 would directly impact this rolling mill. A new crossing and plaza in this area would require relocating the rolling mill without disrupting the mill's production. The relocation of the rolling mill would increase constructability risks associated with the new crossing in terms of cost and time, possibly impacting upon the Partnership's ability to meet the stated objective of completing the crossing by 2013.

On the basis that the X8 and X9 alternatives are not the top performers in either country and that both alternatives have unique high impacts and risks, on an end-to-end basis, the disadvantages of these options outweighed the advantages.

Crossing X8 and X9 alternatives were eliminated from further study.

6.5.2 Crossing X12

In the evaluation of illustrative alternatives, the crossing X12 alternative was unique in that this alternative had relatively high negative impacts on the Canadian side in comparison to other Canadian alternatives, but relatively low negative impacts on the U.S. side compared to other U.S. alternatives. In terms of benefits provided to regional mobility, the alternative provides improved regional mobility for the border transportation network on both sides of the river, but was considered by the Canadian study team to have limited ability to provide continuous/ongoing capacity.

In consideration of the high community impacts to the residential area impacted by the expansion of the Canadian bridge plaza and the expansion of Huron Church Road to a freeway facility on the

Canadian side, and the potential for disruption to border traffic during construction of the plaza and freeway, on an end-to-end basis, the disadvantages of this alternative outweighed the advantages.

Crossing X12 was eliminated from further study. The expanded U.S. plaza of the Ambassador Bridge, with the improved connections to the interstate freeway system was carried forward within the Area for Continued Analysis as a possible U.S. plaza site for a new crossing connecting to a new inspection plaza and connecting roadway on the Canadian side located downriver of the Ambassador Bridge.

6.5.3 Crossing X14

The Canadian Team determined that as a six-lane freeway with a new bridge or tunnel, the Rail Corridor alternative has a high benefit to regional mobility. However, a new freeway through central and south Windsor is not consistent with current and future land use plans for the City. This alternative would have high community impacts associated with a new freeway corridor through central and south Windsor in terms of impacts to regional commercial/retail areas and employment areas south of E.C. Row Expressway and negative impacts to community character and cohesion both in south Windsor and for the older neighbourhoods near the riverfront.

The Canadian study team also noted concerns with constructability of this alternative and concerns with the security/monitoring of the remote plaza approximately 2500 m (1.5 mi.) inland from the border.

On the basis that other alternatives provided comparable transportation benefits with lower community impacts, the Canadian study team did not recommend the rail corridor alternatives be carried forward for further study.

Two crossing X14 alternatives connecting the rail corridor in Canada to a new plaza and road connection to the freeway system in downtown Detroit were considered on the U.S. side.

The X14/Plaza I12/Connection to M-10 alternative performed better than most alternatives in terms of community/neighbourhood impacts, consistency with local planning, protecting natural features and improving regional mobility; this alternative was also among the top performers in terms of constructability. The U.S. analysis noted that a crossing and inspection plaza in this area of Detroit would negatively affect the local community including impacts to businesses, schools and residences.

The X14/Plaza I13/Connection to M-10 alternative performed better than most alternatives in terms of improving regional mobility. This alternative was also among the top performers in terms of protecting natural features and constructability.

Both alternatives had a poorer performance than most other alternatives in terms of protection of cultural features and maintaining air quality. The Corktown Historic District, several sites eligible for registration as nationally significant cultural sites and the city's Riverwalk were identified as important features potentially impacted by a new crossing/plaza/access road alternative in this area of the city.

The U.S. team further noted that that neither of the X14 alternatives was among the top overall performers on the U.S. side. In addition, other alternatives provided comparable transportation benefits with lower community impacts on the Canadian side, and other alternatives were more effective and cost-effective in terms of meeting the needs of the project and having acceptable

impacts on the U.S. side. On an end-to-end basis, the disadvantages of the rail corridor option outweighed the advantages.

Crossing X14 alternative was eliminated from further study.

6.6 Area of Continued Analysis

The results of the end-to-end evaluation of illustrative alternatives led to the identification of an Area of Continued Analysis (ACA) for possible practical crossing, plaza and access road alternatives (refer to **Exhibit 6.17**). These practical alternatives represent refinements of crossing alternatives X10 and X11, as well as possible alternatives connecting to the Ambassador Bridge Gateway and expanded plaza area on the U.S. side. This area extends from Zug Island to the vicinity of the Ambassador Bridge on the U.S. side, and from Broadway Avenue to Brock Street in Sandwich Towne on the Canadian side.

On the Canadian side, this area would encompass plazas CC2, CC3 and CC7 and be defined to provide sufficient area to enable a range of access road alignments and crossing alignments to be developed for continued analysis. The area would also accommodate refinement to the locations and alignments of crossing, plaza and access road alignments in the Ojibway Industrial Park area.

The residential community of Sandwich and Black Oak/Ojibway protected natural areas would limit the extent of the Area of Continued Analysis on the Canadian side. The area also includes the Huron Church Road/Talbot Road corridor and the Highway 401 corridor from Highway 3 to Dougall Parkway.

As discussed in **Chapter 8**, these corridors were examined for freeway design alternatives, including interchange locations and configurations, crossing road treatments (closure or grade separation) and service roads for access.

On the U.S. side, the area would encompass the area of southwest Detroit between the I-75 corridor and the riverfront between Zug Island and the Ambassador Bridge.

Possible improvements to connections to I-94 along Schaefer Road or Outer Drive were further examined by the U.S. study team. A complete description of the U.S. Team's evaluation of illustrative alternatives is documented in *Evaluation of Illustrative Alternatives on the United States Side of the Border, October 2007*.

EXHIBIT 6.17 – AREA OF CONTINUED ANALYSIS

