

Welcome to the Fifth  
Public Information Open House  
for the

**DETROIT RIVER INTERNATIONAL CROSSING**  
E N V I R O N M E N T A L A S S E S S M E N T

**August 14 & 15, 2007**

**>> Please Sign In <<**

Members of the Study Team are available to discuss any questions that you may have.

## Contact Information - Canadian Study Team

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U.S. Department of Transportation  
**Federal Highway  
Administration**



**Ontario**



The Detroit River International Crossing Study follows an Environmental Assessment process that is a proven, legislated process used throughout Ontario and Canada on infrastructure projects, ranging from simple road widenings to complex long span bridges.

The task of completing the DRIC EA falls to the Border Transportation Partnership, a dedicated bi-national team of leading engineers, planners, and policy experts from Transport Canada, the Ontario Ministry of Transportation, the U.S. Federal Highways Administration, and the Michigan Department of Transportation – committed to a new border crossing by 2013.

The **Canadian Environmental Assessment Act** (the Act) applies to federal authorities when they contemplate certain actions in relation to a *project* (e.g. funding and certain regulatory permits). Federal departments that have an environmental assessment (EA) responsibility in relation to a project are called Responsible Authorities (RAs).

**Transport Canada (TC)** is an RA for the Detroit River International Crossing project because TC is a co-proponent of the project, together with the Ontario Ministry of Transportation. As an RA, TC must ensure that an environmental assessment is carried out under the Act. The Windsor Port Authority also has an EA responsibility under the *Canada Port Authority Environmental Assessment Regulations*. The DRIC study has been designated to coordinate the federal and provincial EA requirements.

The CEAA process was formally initiated in March 2006, and a Notice of Commencement was posted on the Canadian Environmental Assessment Register, registry number 06-01-18170. Federal authorities also participating in the assessment include:

Environment Canada	Foreign Affairs Canada	Canadian Transportation Agency
Health Canada	Natural Resources Canada	Canada Border Services Agency
Fisheries and Oceans Canada		

Federal authorities have been participating in the coordinated EA process since it began in 2004, by reviewing the draft work plans to ensure that the information being collected as part of the DRIC process will be sufficient to meet federal information needs under CEAA.

Draft federal Environmental Assessment Guidelines have been developed to outline the specific requirements of the CEAA process. These guidelines were made available for public review in December 2006, and are currently being updated to reflect public input. In addition, the federal Public Participation Plan was developed, to describe the opportunities the public will have to provide input directly into the federal process. Both of these documents are available on the CEAA website at [www.ceaa.gc.ca](http://www.ceaa.gc.ca).

For more information about the CEAA process please contact:

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# Coordination of CEAA & Ontario EA Processes

This study is being undertaken through a coordinated federal-provincial Environmental Assessment (EA) process. Both governments have agreed to coordinate their respective EA processes as outlined in the *Canada-Ontario Agreement on EA Cooperation* (November, 2004), which states that federal and provincial governments:

*“will coordinate the environmental assessment processes whenever projects are subject to review by both jurisdictions...The agreement maintains the current level of environmental standards and the legislative and decision-making responsibilities of both governments. While projects requiring both provincial and federal environmental assessment approvals will still require separate approvals, decisions will be based on the same body of information and there will be an ability to make decisions concurrently”.*

The federal EA process was initiated early in the project planning stages in order to maximize opportunities for coordination with the provincial EA process.

All technical studies being prepared as part of the provincial individual EA process will form the basis for meeting the requirements of the *Canadian Environmental Assessment Act*.

Federal departments provided input into the development of the Work Plans developed for each of the various disciplines required for this study, as part of the coordinated process.

## Public Oversight

The Partnership has heard that public oversight of a new crossing is important. We are committed to protecting the public interest with public oversight. The Partnership is exploring various forms of collaboration and innovation with the private sector, while maintaining an appropriate level of public oversight.

## New Crossing and Plaza

The Government of Canada is the lead in the implementation of the bridge and inspection plaza on the Canadian side of the crossing system. Canada has indicated it intends to explore the opportunity for private-sector participation in the construction, financing, and operation of the new bridge. A public-private partnership will not affect the ownership of the new crossing and the Government of Canada remains committed to public ownership of the new bridge and inspection plaza.

## New Access Road

Ontario is the lead in the development of the access road from Highway 401 to the new plaza in Canada and is also exploring various roles for the private sector in the delivery of the access road. The Government of Canada, in recognition of the importance of this project, has committed to cover 50 per cent of the eligible capital cost of the new access road.

## Study Process

An Ontario Environmental Assessment Terms of Reference, outlining the process for the Detroit River International Study, was prepared by the Partnership.

### Submitted Terms of Reference, May 2004



## Consultation

Public Information Open House, June 2003  
Meetings with private sector and agencies  
Meetings with Municipalities (Sarnia, Windsor, LaSalle, Essex County, Tecumseh, Amherstburg)  
MOE Approval, September 2004

Coordinate the U.S. and Canadian work programs.

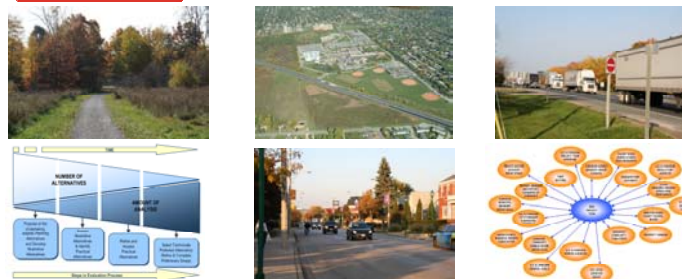
Investigate engineering, social, economic, cultural and natural environment.

Present assessment of impacts for public review.

Incorporate public and agency input.

### Detroit River INTERNATIONAL CROSSING S T U D Y

### Initiated Environmental Assessment, January 2005



Public Information Open Houses scheduled at study milestones

Meetings with public, private sector and agencies throughout the study.

Community Consultation Group formed.

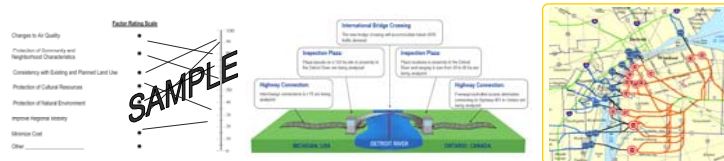
## Study Process

Developed initial set of alternatives based on public, agency and municipal input, Guiding Principles and recommendations made by other studies.

Identified sensitive community features.

Sought public input on the level of importance of each evaluation factor.

### Developed Illustrative Crossing, Plaza Locations & Connecting Route Alternatives in Canada and the U.S., Summer 2005



## Consultation

Initial Public Outreach, April 2005

Workshops

Tours of Detroit River area

Meetings with public, private sector municipalities and agencies

Public Information Open House 1, June 2005

Based on the assessment of Illustrative Alternatives, Area of Continued Analysis was identified.

Assessment considered Specialists' Evaluation and public input to level of importance of Evaluation Factors.

At-grade and below-grade alternatives considered.

### Identified Area of Continued Analysis, Fall 2005



Workshops

Tours of Detroit River area

Meetings with public, private sector municipalities and agencies

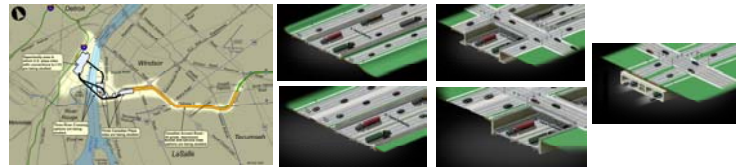
Public Information Open House 2, November 2005

## Study Process

## Consultation

Established Guiding Principles in generating practical alternatives.  
Specific options generated based on community objectives, public, agency, municipal and specialists input.

### Identified Practical Crossing, Plaza and Access Road Alternatives, Spring 2006



Public Workshops to define specific options and explore Context Sensitive Solutions.  
Tours of Detroit River area.  
Meetings with public, private sector municipalities and agencies.  
Public Information Open House 3, March 2006.

Study Team sought and gathered information on key community features.  
Field data, modeling, design work and secondary source info, incorporated in analysis of impacts and benefits.  
Compile all analysis data.

### Present Preliminary Analysis of Practical Alternatives, December 2006



Context Sensitive Solutions Workshops  
Tours of Detroit River area  
Workshops  
Meetings with public, private sector municipalities and agencies  
Public Information Open House 4, December 2006

Used knowledge gained from analysis of original practical alternatives and community input to develop the Parkway alternative.  
Continued with foundation investigations for the plaza and crossing alternatives.  
Compiled data, finalize and present analysis to public.

### Update of Preliminary Analysis of Practical Alternatives, August 2007



Meetings with public, private sector municipalities and agencies  
Public Information Open House 5, August 2007

Because options are still being studied and evaluated, the Partnership cannot identify exact property requirements at this time. Once the project has received Environmental Assessment (EA) approval, the Partnership members will approach homeowners and business owners to acquire property in a mutually agreeable way.

However, prior to this, owners may initiate the sale of their property on a willing buyer/willing seller basis.

In response to feedback from the community, the Partnership will consider **purchase requests** from owners of properties currently having direct access to existing Highway 3 (Talbot Road) or Huron Church Road between Highway 401 and E.C. Row Expressway. Other residential and commercial properties may also qualify. These will be considered on a case by case basis if you wish to discuss whether your property may qualify, please contact the Ministry of Transportation.

After EA approval has been obtained, a representative will contact you if any part of your property is required. They will carry identification that you should insist on seeing. They will explain the procedures for the sale of your property.

Compensation will be based on a market value appraisal of your property. The market value appraisal is based on what similar land might be expected to sell for if sold on the open market by a willing buyer, based on historic and present market conditions in the local area. There are also provisions for payment of other reasonable expenses.

For more information on property matters, please speak to a representative at this meeting or contact the Ministry of Transportation, Windsor Border Initiatives Implementation Group.

Phone: 519-973-7367 or 1-800-265-6072 ext.4800 or email: [detroit.river@ontario.ca](mailto:detroit.river@ontario.ca)

To provide for the safe, efficient and secure movement of people and goods across the Canada-U.S. border in the Detroit River area to support the economies of Ontario, Michigan, Canada and the U.S.

To construct a new end-to-end transportation system that will link Highway 401 to the U.S. interstate system with inspection plazas and a new river crossing in between.

In meeting the purpose, this study must address the following regional transportation and mobility needs:

- Provide new border crossing capacity to meet increased long-term travel demand;
- Improve system connectivity to enhance the continuous flow of people and goods;
- Improve operations and processing capabilities at the border; and
- Provide reasonable and secure crossing options (i.e. network redundancy).

The Study Team seeks to implement transportation solutions which minimize community and environmental impacts as much as possible. In particular, the Canadian Study Team is looking to address the local communities' goals to:

- *Improve quality of life*
- *Take trucks off local streets*
- *Improve traffic movement across the border*



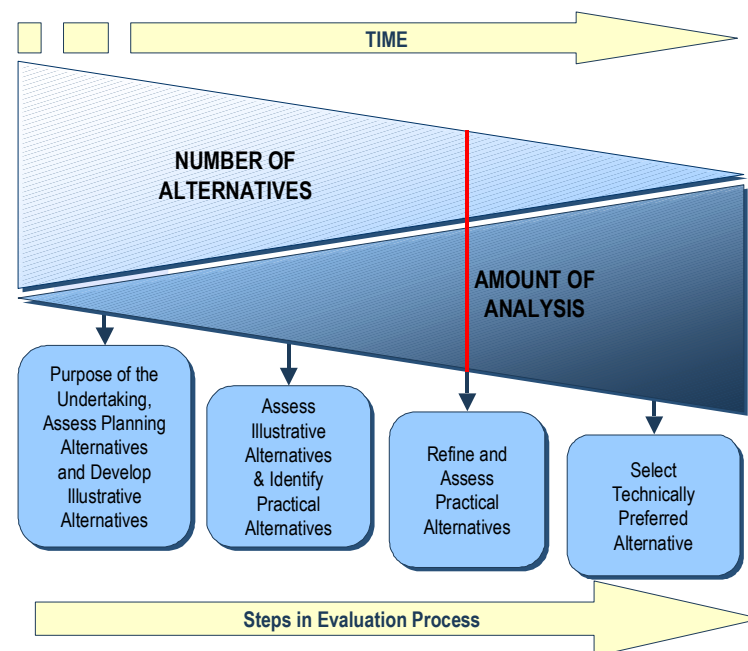
The assessment of Crossing, Plaza and Access Road alternatives will be conducted in accordance with the Environmental and Technical Work Plans and will be based on the following factors and measures:

## Factors Performance Measures for Assessment of Practical Alternatives

<b>Changes to Air Quality</b>	Particulate Matter Gaseous Pollutants	
<b>Protection of Community and Neighborhood Characteristics</b>	Residences and Social Features Existing Businesses Residents and Social Features	Noise and Vibration Community and Neighbourhood Impacts to Access
<b>Maintain Consistency with Existing and Planned Land Use</b>	Land Use (existing and planned) Development Plans Contaminated Sites/Disposal Sites	
<b>Protect Cultural Resources</b>	Built Heritage Features Parklands	Archaeological Features
<b>Protect the Natural Environment</b>	Ecological Landscapes Communities/Ecosystems Population/Species	Surface Water/Groundwater Recharge Areas Other Natural Resources
<b>Improve Regional Mobility</b>	Highway Network Effectiveness Continuous/ongoing River Crossing Capacity Operational Considerations of Crossing System (River Crossing and Plaza)	
<b>Cost and Constructability</b>	Cost Construction Duration	Construction Risk Utility Impacts

### Alternatives Generation and Evaluation Process:

start with a broad perspective and become more focused/detailed as the study progresses



The evaluation process for the Practical Alternatives will involve two methods: **Reasoned Argument Method** and **Arithmetic Method**. The Reasoned Argument is the primary evaluation method with the Arithmetic approach used to substantiate the findings of the Reasoned Argument evaluation.

## Reasoned Argument Method

Considers the **advantages** and **disadvantages** of each alternative and the relative significance of the impacts. The rationale to be used to select alternatives over others was derived from the following sources:

- National and international significance of the crossing;
- Government legislation, policies and guidelines;
- Existing Land Use and Municipal policy;
- Technical Considerations
- Issues and concerns identified during consultation; and
- Study Team expertise.

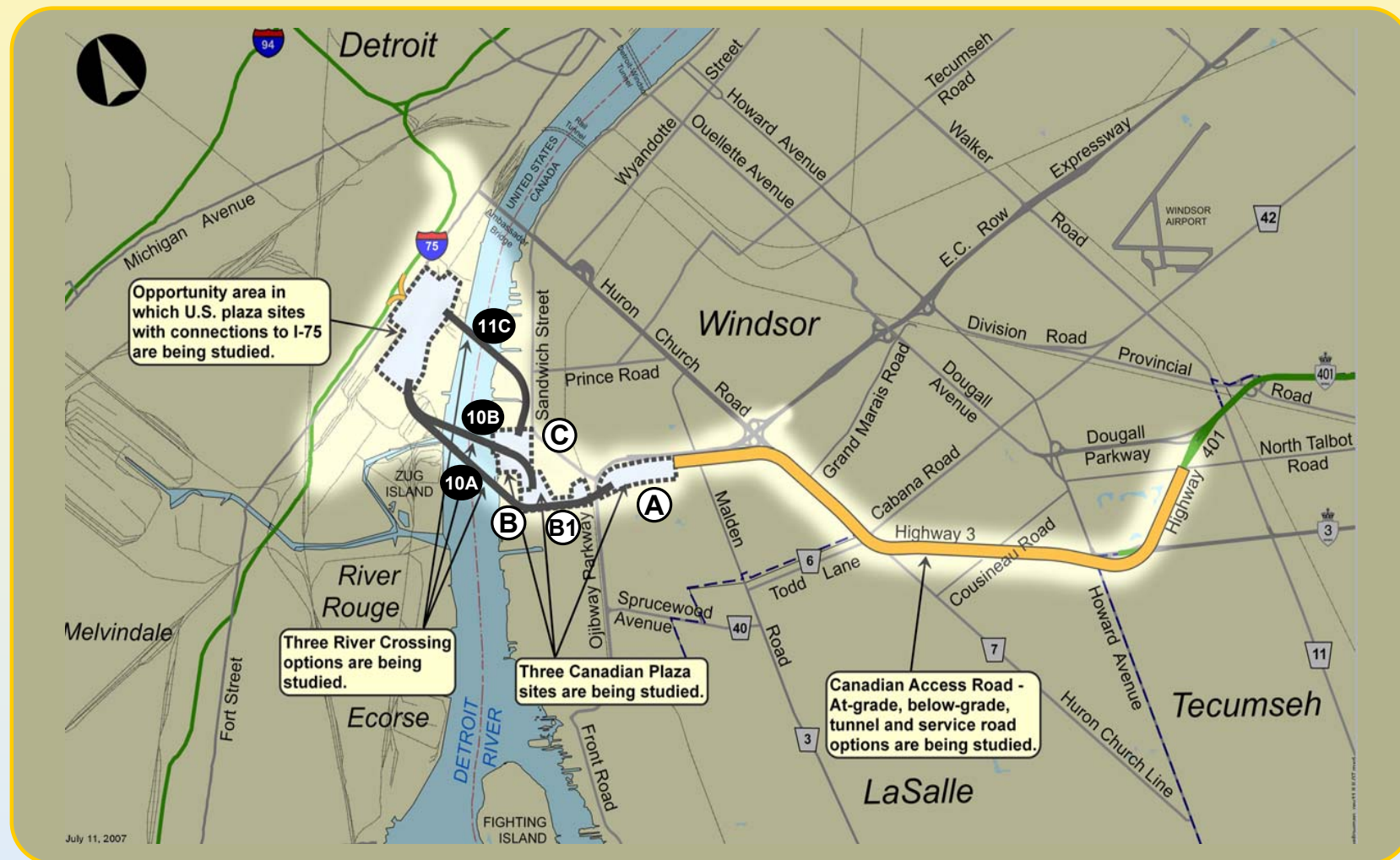
## Arithmetic Method

Considers both the level of importance of each environmental attribute (i.e. weight) and the magnitude of the impact or benefit (i.e. score). Generally, more weight is assigned to features that are felt to be more important in assessing impacts.

Weighting scenarios were developed based on feedback from the general public and other stakeholders. The results were presented in the *Draft Generation and Assessment of Illustrative Alternatives Report, November 2005*.

In evaluating alternatives using the Reasoned Argument or Arithmetic Method, the decision-making will:

- Incorporate input from municipalities, communities, stakeholders and government agencies, First Nations and the general public;
- Considers the context of the national and international significance of the Detroit River crossing;
- Be replicable and defensible;
- Use a common set of criteria in both countries for all alternatives;
- Be traceable and open; and
- Reflect the bi-national needs and requirements of the project.



These images depict the Practical Access Road Alternatives presented at the Public Information Open Houses in March 2006 and December 2006. The Study Team has completed analysis of these five access road alternatives. The results of this analysis are presented on the following displays.



**1A** One-way service roads on either side of 6-lane freeway at grade.



**1B** One-way service roads either side of 6-lane freeway below-grade.



**2A** Six-lane freeway at grade, along side Huron Church/Highway 3.



**2B** Six-lane freeway below-grade, parallel to Huron Church/Highway 3.



**3** Cut and cover tunnel below rebuilt Huron Church Road/Highway 3 Corridor.



## Summary of Analysis – Access Road Alternatives

The DRIC Study Team identified seven evaluation factors that would provide the basis for the assessment of alternatives. At the Public Information Open Houses in December 2006 the DRIC Study Team reported on the preliminary results of the analysis of the practical crossing, plaza and access road alternatives based on the seven evaluation factors. The community has also expressed its local goals for the project as:

- **Improving quality of life**
- **Taking trucks off local streets**
- **Improving the movement of traffic across the border**

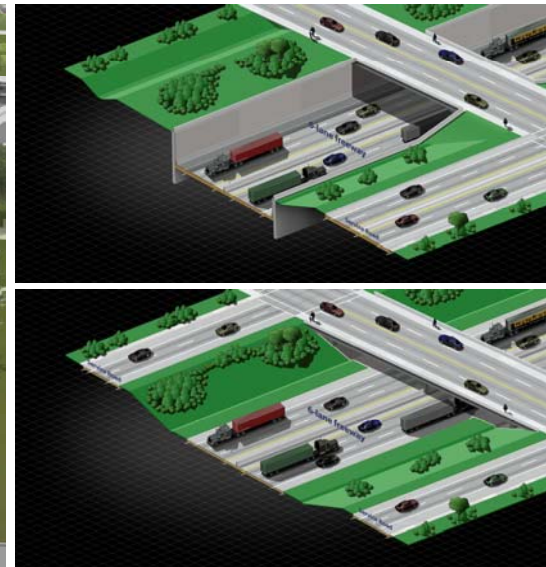
### Conclusions

- The results of the analysis do not support further analysis of an at-grade roadway (Alternatives 1A and 2A)
  - least costly solution and fewer constructability risks
  - fewer benefits in terms of protecting community and neighbourhood characteristics
- The results of the analysis do not support further investigation of an end-to-end tunnelled access road (Alternative 3)
  - limited benefits do not justify additional cost when compared to other alternatives
  - other alternatives are available that offer similar benefits with less cost and less risks
- An enhanced, Parkway with below-grade access road alternative has been developed based on refinements to Alternatives 1B and 2B

## The Parkway: A New Option

A Parkway alternative has been developed, based on refinements to the below-grade Practical Alternatives (Alternatives 1B and 2B), and reflecting the study goals and the community input received to date.

The Parkway will allow communities on both sides of the corridor to reconnect and can provide opportunities for new trails for pedestrians and cyclists and linkages for wildlife. The access road for international traffic would be below-grade from Howard Avenue to E.C. Row Expressway, with a number of short tunnels. The Parkway could address the future transportation and mobility needs of the region and improve traffic operations and safety, protect people and communities.



# Summary of Analysis – Access Road Alternatives

The concept of the Parkway, as developed by the study team, can address all of the requirements for the access road identified by the community and the study team listed above. The plan we are showing in August is not the final access road option. We will look to the community for their input on the look and feel of the Parkway. Community input continues to be an essential part of the DRIC study process. Community input helped to lead us to the Parkway and with community input, we can make this refined option even better. Before any final decisions are made, the Parkway will be analyzed in the same level of detail as the initial five Practical Alternatives.






## What's Next?

- Refine Parkway alternative and analyze in the same level of detail as the initial five Practical Alternatives.
- Complete the technical and environmental studies and continue to consult with the public.
- With our U.S. partners, present a single technically and environmentally preferred alternative
- Final study documents sent to approving agencies and made available for public review
- Construction could begin in 2010 and a new border crossing system will be complete in 2013.







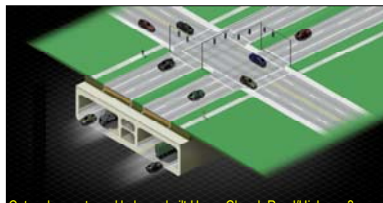


# Summary of Analysis – Access Road Alternatives

FACTOR/ MEASURE	ALTERNATIVE 1A		ALTERNATIVE 1B		ALTERNATIVE 2A		ALTERNATIVE 2B		ALTERNATIVE 3		
	 One-way service roads on either side of 6-lane freeway at grade.		 One-way service roads either side of 6-lane freeway below grade.		 Six-lane freeway at grade, along side Huron Church/Highway 3.		 Six-lane freeway below grade, parallel to Huron Church/Highway 3.		 Cut and cover tunnel below rebuilt Huron Church Road/Highway 3 Corridor.		
	Option 1 (Widen to North on Hwy 3)	Option 2 (Widen to South on Hwy 3)	Option 1 (Widen to North on Hwy 3)	Option 2 (Widen to South on Hwy 3)	Option 1 (Widen to North on Hwy 3)	Option 2 (Widen to South on Hwy 3)	Option 1 (Widen to North on Hwy 3)	Option 2 (Widen to South on Hwy 3)			
Changes to Air Quality											
Results of modeling to date (before mitigation)	<ul style="list-style-type: none"><li>Predicted concentrations of NO<sub>x</sub> are lower in the future compared to today's values due to changes in fuels and vehicular technologies.</li><li>Concentrations of Volatile Organic Compounds (VOC's) predicted to be well below provincial standards.</li></ul>		<ul style="list-style-type: none"><li>Predicted concentrations of NO<sub>x</sub> are lower in the future compared to today's values due to changes in fuels and vehicular technologies.</li><li>Concentrations of Volatile Organic Compounds (VOC's) predicted to be well below provincial standards.</li><li>Depressed alternatives result in slightly lower PM<sub>2.5</sub> concentrations in comparison to the at-grade alternatives.</li></ul>		<ul style="list-style-type: none"><li>Predicted concentrations of NO<sub>x</sub> are lower in the future compared to today's values due to changes in fuels and vehicular technologies.</li><li>Concentrations of Volatile Organic Compounds (VOC's) predicted to be well below provincial standards.</li></ul>		<ul style="list-style-type: none"><li>Predicted concentrations of NO<sub>x</sub> are lower in the future compared to today's values due to changes in fuels and vehicular technologies.</li><li>Concentrations of Volatile Organic Compounds (VOC's) predicted to be well below provincial standards.</li><li>Depressed alternatives result in slightly lower PM<sub>2.5</sub> concentrations in comparison to the at-grade alternatives.</li></ul>		<ul style="list-style-type: none"><li>Predicted concentrations of NO<sub>x</sub> are lower in the future compared to today's values due to changes in fuels and vehicular technologies but NO<sub>x</sub> concentrations are greater compared to non-tunnel alternatives over a broader area (greater dispersion from ventilation stacks)</li><li>Concentrations of Volatile Organic Compounds (VOC's) predicted to be well below provincial standards.</li><li>Tunnel results in lower concentrations of PM<sub>2.5</sub> in vicinity of the first 50m from the ROW compared to the other alternatives.</li></ul>		
Protection of Community and Neighbourhood Characteristics											
Potential Acquisitions	Residences Businesses	<ul style="list-style-type: none"><li>180-230</li><li>31</li></ul>	<ul style="list-style-type: none"><li>160-210</li><li>45</li></ul>	<ul style="list-style-type: none"><li>180-230</li><li>31</li></ul>	<ul style="list-style-type: none"><li>160-210</li><li>45</li></ul>	<ul style="list-style-type: none"><li>190-230</li><li>26</li></ul>	<ul style="list-style-type: none"><li>170-220</li><li>40</li></ul>	<ul style="list-style-type: none"><li>180-230</li><li>26</li></ul>	<ul style="list-style-type: none"><li>170-220</li><li>40</li></ul>	<ul style="list-style-type: none"><li>140-180</li><li>43-45</li></ul>	
Community Features Potentially Displaced	<ul style="list-style-type: none"><li>3 – Montessori Preschool, Royal Canadian Legion, Heritage Park Alliance Church</li></ul>		<ul style="list-style-type: none"><li>4 – Montessori Preschool, Royal Canadian Legion, Heritage Park Alliance Church, Trillium Court Housing (partial)</li></ul>		<ul style="list-style-type: none"><li>3 – Montessori Preschool, Royal Canadian Legion, Heritage Park Alliance Church</li></ul>	<ul style="list-style-type: none"><li>4 – Montessori Preschool, Royal Canadian Legion, Heritage Park Alliance Church, Trillium Court Housing (partial)</li></ul>	<ul style="list-style-type: none"><li>3 – Montessori Preschool, Royal Canadian Legion, Heritage Park Alliance Church (partial)</li></ul>	<ul style="list-style-type: none"><li>4 – Montessori Preschool, Royal Canadian Legion, Heritage Park Alliance Church, Trillium Court Housing (partial)</li></ul>	<ul style="list-style-type: none"><li>3 – Montessori Preschool, Royal Canadian Legion, Heritage Park Alliance Church (partial)</li></ul>	<ul style="list-style-type: none"><li>4 – Montessori Preschool, Royal Canadian Legion, Heritage Park Alliance Church, Trillium Court Housing (partial)</li></ul>	<ul style="list-style-type: none"><li>4 – Montessori Preschool, Royal Canadian Legion, Heritage Park Alliance Church, Trillium Court Housing (partial)</li></ul>
Noise Receptors with >5 dB increase (after mitigation)	<ul style="list-style-type: none"><li>1</li></ul>		<ul style="list-style-type: none"><li>0</li></ul>		<ul style="list-style-type: none"><li>1</li></ul>	<ul style="list-style-type: none"><li>0</li></ul>	<ul style="list-style-type: none"><li>0</li></ul>	<ul style="list-style-type: none"><li>0</li></ul>	<ul style="list-style-type: none"><li>0</li></ul>	<ul style="list-style-type: none"><li>0</li></ul>	
Effect on Access	<ul style="list-style-type: none"><li>9 road closings</li><li>20 local access connections to new transportation facility</li><li>No access to the new corridor from Cabana Road/Todd Lane; no access to Howard Avenue from Highway 401 Eastbound.</li><li>Full access to St. Clair College.</li></ul>		<ul style="list-style-type: none"><li>13 road closings</li><li>14-15 local access connections to new transportation facility</li><li>Partial access to/ from the new corridor from/to Cabana Road/Todd Lane.</li><li>Full access to St. Clair College</li><li>No direct access to Howard Avenue.</li></ul>		<ul style="list-style-type: none"><li>15 road closings</li><li>15 local access connections to new transportation facility</li><li>Full access to/from the new corridor from/to Cabana Road/Todd Lane; no direct access to St. Clair College or Howard Avenue</li></ul>	<ul style="list-style-type: none"><li>15 road closings</li><li>14 local access connections to new transportation facility</li><li>Full access to/from the new corridor from/to Cabana Road/Todd Lane; no direct access to St. Clair College or Howard Avenue</li></ul>	<ul style="list-style-type: none"><li>14 road closings</li><li>10 local access connections to new transportation facility</li><li>Full access to/from the new corridor from/to Cabana Road/Todd Lane; no direct access to St. Clair College or Howard Avenue</li></ul>	<ul style="list-style-type: none"><li>14 road closings</li><li>11 local access connections to new transportation facility</li><li>Full access to/from the new corridor from/to Cabana Road/Todd Lane; no direct access to St. Clair College or Howard Avenue.</li></ul>	<ul style="list-style-type: none"><li>14 road closings</li><li>11 local access connections to new transportation facility</li><li>Full access to/from the new corridor from/to Cabana Road/Todd Lane; no direct access to St. Clair College or Howard Avenue.</li></ul>	<ul style="list-style-type: none"><li>9 road closings</li><li>13 local access connections to new transportation facility</li><li>No access to/from Cabana Road/Todd Lane; No access to Howard Avenue from Highway 401 Eastbound.</li></ul>	








# Summary of Analysis – Access Road Alternatives

FACTOR/ MEASURE	ALTERNATIVE 1A		ALTERNATIVE 1B		ALTERNATIVE 2A		ALTERNATIVE 2B		ALTERNATIVE 3	
	 One-way service roads on either side of 6-lane freeway at grade.		 One-way service roads either side of 6-lane freeway below grade.		 Six-lane freeway at grade, along side Huron Church/Highway 3.		 Six-lane freeway below grade, parallel to Huron Church/Highway 3.		 Cut and cover tunnel below rebuilt Huron Church Road/Highway 3 Corridor.	
Impact on Community Character/Cohesion	<ul style="list-style-type: none"><li>Overall, similar impacts to community compared to other alternatives</li><li>Communities of Spring Garden, Bethlehem Street, Reddock Street and Talbot Road (between Cousineau Road and Howard Avenue) Montgomery-Chelsea Drive and Mero Avenue will experience change to community character and cohesion</li><li>The displacement of households within the neighbourhoods will result in a change in character within each community</li><li>Reddock Street will experience a change in community character and cohesion due to the access road alignment encroaching into the community</li><li>The Bethlehem community will experience a change in character and cohesion due to development of Bethlehem Street to accommodate local traffic traveling from Spring Garden to Huron Church Road</li></ul>		<ul style="list-style-type: none"><li>Overall, similar impact to community compared to other alternatives</li><li>Communities of Spring Garden, Bethlehem Street, Reddock Street, Kendleton Court, and Talbot Road (between Cousineau Road and Howard Avenue) and Mero Avenue will experience change to community character and cohesion</li><li>Below grade alternative has lower aesthetic impacts than the at-grade options</li><li>Reddock Street will experience a change in community character and cohesion due to the access road alignment encroaching into the community</li><li>Removes traffic from the viewshed of adjacent neighbourhoods</li></ul>		<ul style="list-style-type: none"><li>Overall, similar impact to community compared to other alternatives</li><li>Communities of Spring Garden, Bethlehem Street, Reddock Street and Talbot Road (between Cousineau Road and Howard Avenue) and Mero Avenue will experience change to community character and cohesion</li><li>Over half of the households on Reddock Street will be displaced</li><li>The residential in-fill area of Kendleton Court will be displaced with option 1; no households will be displaced in Kendleton Court with option 2</li><li>Talbot Road community will experience a change in character and cohesion due to the displacement of one entire side of Talbot Road, with either option 1 or option 2</li></ul>		<ul style="list-style-type: none"><li>Overall, similar impact to community compared to other alternatives</li><li>Communities of Spring Garden, Bethlehem Street, Reddock Street and Talbot Road (between Cousineau Road and Howard Avenue) and Mero Avenue will experience change to community character and cohesion</li><li>All Kendleton Court households will be displaced with alignment option 1; with alignment option 2 only one Kendleton Court household is displaced</li><li>Provides for some aesthetic benefits to the community at large and to adjacent neighbourhoods</li><li>Removes traffic from the viewshed of adjacent neighbourhoods</li></ul>		<ul style="list-style-type: none"><li>Overall, similar impact to community compared to other alternatives</li><li>Impacts to Spring Garden, Talbot Road, Bethlehem Street, Mero Avenue, and Montgomery-Chelsea Drive neighbourhoods</li><li>In the Talbot Road community, the displacement of households is limited to the LaSalle side of Talbot Road; resulting in a change in community character and cohesion as approximately one half of the community is displaced</li><li>Tunnel alignment to Plaza A will result in a displacement of 32 out of 48 households on Bethlehem Street; which will result in a change in character and cohesion</li><li>Lowest aesthetic impact, but visual impact of ventilation buildings, which are not compatible with the surrounding landscape; residents will have the ventilation buildings and stacks as part of their permanent viewshed</li></ul>	
Consistency with Existing & Planned Land Use										
Consistency	<ul style="list-style-type: none"><li>Alternative utilizes Huron Church Road/Highway 3 Corridor (major roadway, historical connection to border crossing);</li><li>Proposed facility is consistent with local Official Plans.</li></ul>		<ul style="list-style-type: none"><li>Alternative utilizes Huron Church Road/Highway 3 Corridor (major roadway, historical connection to border crossing);</li><li>Proposed facility is consistent with local Official Plans.</li></ul>		<ul style="list-style-type: none"><li>Alternative utilizes Huron Church Road/Highway 3 Corridor (major roadway, historical connection to border crossing)</li><li>Proposed facility is consistent with local Official Plans.</li></ul>		<ul style="list-style-type: none"><li>Alternative utilizes Huron Church Road/Highway 3 Corridor (major roadway, historical connection to border crossing)</li><li>Proposed facility is consistent with local Official Plans.</li></ul>		<ul style="list-style-type: none"><li>[Alternative utilizes Huron Church Road/Highway 3 Corridor (major roadway, historical connection to border crossing)</li><li>Proposed facility is consistent with local Official Plans.</li></ul>	
Total area of land use impacts	• 78 ha	• 74 ha	• 75 ha	• 78 ha	• 81 ha	• 78 ha	• 80 ha	• 85 ha	• 65 ha	
Contaminated Sites/Potentially impacted area of high potential for contamination	• 17/9 ha	• 17/3.6 ha	• 18/3.5 ha	• 13/3.6 ha	• 17/4 ha	• 17/4 ha	• 16/3.8 ha	• 16/4 ha	• 16/3 ha	



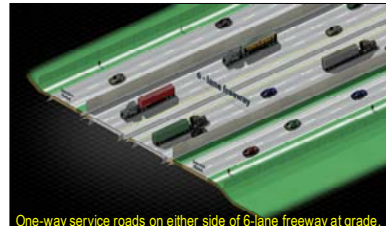




# Summary of Analysis – Access Road Alternatives

FACTOR/ MEASURE	ALTERNATIVE 1A 		ALTERNATIVE 1B 		ALTERNATIVE 2A 		ALTERNATIVE 2B 		ALTERNATIVE 3 
	Option 1 (Widen to North on Hwy 3)	Option 2 (Widen to South on Hwy 3)	Option 1 (Widen to North on Hwy 3)	Option 2 (Widen to South on Hwy 3)	Option 1 (Widen to North on Hwy 3)	Option 2 (Widen to South on Hwy 3)	Option 1 (Widen to North on Hwy 3)	Option 2 (Widen to South on Hwy 3)	
<b>Protection of Cultural Resources</b>									
Built Heritage Features Displaced	• 7 to 9 field identified built heritage features displaced		• 6 to 8 field identified built heritage features displaced		• 4 to 5 field identified built heritage features displaced		• 4 to 5 field identified built heritage features displaced		• 5 to 8 field identified built heritage features displaced
Disrupted	• 1 to 2 field identified built heritage features disrupted		• 2 field identified built heritage features disrupted		• 4 to 5 field identified built heritage features disrupted	• 5 to 6 field identified built heritage features disrupted	• 3 to 5 field identified built heritage features disrupted		• 2 to 3 field identified built heritage features disrupted
Parks	• 1 Impacted – Property taking • 5 impacted – potential disruption to access	• 6 Impacted – Potential disruption to access	• 1 Impacted – Property taking • 5 impacted – potential disruption to access	• 6 Impacted – Potential disruption to access	• 1 Impacted – Property taking • 5 impacted – potential disruption to access	• 6 Impacted – Potential disruption to access	• 1 Impacted – Property taking • 5 impacted – potential disruption to access	• 6 Impacted – Potential disruption to access	• 1 Impacted – Property taking • 5 impacted – potential disruption to access
Archaeology Disturbance or destruction of known significant archaeological sites	• 7 to 12 small pre-contact habitation sites • 5 to 6 pre-contact findspots	• 9 to 10 small pre-contact habitation sites • 5 to 6 pre-contact findspots • e.g. No known sites of high to moderate significance impacted	• 9 to 10 small pre-contact habitation sites • 5 to 6 pre-contact findspots	• 9 to 1- small pre-contact habitation sites • 5 to 9 pre-contact findspots	• 9 small pre-contact habitation sites • 7 to 9 pre-contact findspots	• 9 small pre-contact habitation sites • 6 pre-contact findspots	• 8 to 9 small pre-contact habitation sites • 7 pre-contact findspots	• 9 small pre-contact habitation sites • 6 pre-contact findspots	• 8 to 10 small pre-contact habitation sites • 5 to 6 pre-contact findspots
<b>Protection of Natural Environment</b>									
Fish and Fish Habitat	• No critical fish habitat impacted by any access road alternatives								
Plant/Vegetation Species	• 0.44 ha to 1.43 ha of provincially rare vegetation impacted	• 0.50 ha to 1.53 ha of provincially rare vegetation impacted	• 0.43 ha to 1.46 ha of provincially rare vegetation impacted	• 0.54 ha to 1.46 ha of provincially rare vegetation impacted	• 1.19 ha to 2.22 ha of provincially rare vegetation impacted	• 1.18 ha to 2.22 ha of provincially rare vegetation impacted	• 0.82 ha to 1.86 ha of provincially rare vegetation impacted		• 0.50 ha to 1.48 ha of provincially rare vegetation impacted
Wildlife Species and Habitat	• 102 to 142 specimens/colonies of species at risk	• 92 to 134 specimens/colonies of species at risk	• 112 to 152 specimens/colonies of species at risk	• 103 to 152 specimens/colonies of species at risk	• 122 to 162 specimens/colonies of species at risk	• 116 to 155 specimens/colonies of species at risk	• 105 to 145 specimens/colonies of species at risk		• 92 to 131 specimens/colonies of species at risk

PRELIMINARY



# Summary of Analysis – Access Road Alternatives

FACTOR/ MEASURE	ALTERNATIVE 1A		ALTERNATIVE 1B		ALTERNATIVE 2A		ALTERNATIVE 2B		ALTERNATIVE 3	
	 <small>One-way service roads on either side of 6-lane freeway at grade.</small>		 <small>One-way service roads either side of 6-lane freeway below grade.</small>		 <small>Six-lane freeway at grade, along side Huron Church/Highway 3.</small>		 <small>Six-lane freeway below grade, parallel to Huron Church/Highway 3.</small>		 <small>Cut and cover tunnel below rebuilt Huron Church Road/Highway 3 Corridor.</small>	
	Option 1 (Widen to North on Hwy 3)	Option 2 (Widen to South on Hwy 3)	Option 1 (Widen to North on Hwy 3)	Option 2 (Widen to South on Hwy 3)	Option 1 (Widen to North on Hwy 3)	Option 2 (Widen to South on Hwy 3)	Option 1 (Widen to North on Hwy 3)	Option 2 (Widen to South on Hwy 3)		
Improvements to Regional Mobility										
Highway Capacity	• Six lane freeway with controlled access and service roads provides sufficient capacity to meet future (2035) travel demand; Peak Hour LOS (2035) = C									
Continuous Capacity	• All alternatives provide comparable access between the service roads and the cross streets with slight differences: • Safety of controlled access freeway for access road is greatly increased compared to present arterial roadway with signalized intersections and other entrances/conflict points • Provides increased local and regional mobility over the “do nothing” alternative • Provides substantial travel time savings for local traffic when compared to the “do nothing” alternative		• Safety of controlled access freeway for access road is greatly increased compared to present arterial roadway with signalized intersections and other entrances/conflict points • Provides increased local and regional mobility over the “do nothing” alternative • Provides substantial travel time savings for local traffic when compared to the “do nothing” alternative		• Safety of controlled access freeway for access road is greatly increased compared to present arterial roadway with signalized intersections and other entrances/conflict points • Provides increased local and regional mobility over the “do nothing” alternative • Provides substantial travel time savings for local traffic when compared to the “do nothing” alternative		• Safety of controlled access freeway for access road is greatly increased compared to present arterial roadway with signalized intersections and other entrances/conflict points • Provides increased local and regional mobility over the “do nothing” alternative • Provides substantial travel time savings for local traffic when compared to the “do nothing” alternative		• Safety of controlled access freeway for access road is greatly increased compared to present arterial roadway with signalized intersections and other entrances/conflict points • Provides increased local and regional mobility over the “do nothing” alternative • Provides substantial travel time savings for local traffic when compared to the “do nothing” alternative • The positive effects of tunnels on safety include elimination of adverse weather conditions and increased driver attention and/or slower speeds due to the confined driving space • Elements of tunnel driving that negatively affect safety may include limited visibility due to tunnel walls and light changes at the portals; it is much more difficult to control events in a tunnel crash; motorists’ escape is not simple, and it is harder for emergency response teams to reach the crash site • The consequences of a crash in a tunnel are greatly increased over those on an open road, however, the frequency of catastrophic events is low, and the occurrence of general traffic crashes (on a tunneled freeway) is marginally less than on an open road	
Reasonable and Secure Options	• All access road alternatives provide connections to Huron Church Road at E.C. Row enabling choice between new and existing crossings									
Cost and Constructability										
Estimated (\$CAD) Construction Cost	\$750 M to \$920 M		\$1.19 B to \$1.36 B		\$620 M to \$790 M		\$1.03 B to \$1.20 B		\$3.6 B to \$3.78 B	
Key Constructability Issues	• Traffic management during construction • Availability of resources and materials • Utility relocations • Watercourse crossings • 250 m zone requiring soil stabilization techniques		• Traffic management during construction • Availability of resources and materials • Utility relocations • Watercourse crossings • Soil stabilization techniques required over 3600 m		• Traffic management during construction • Availability of resources and materials • Utility relocations • Watercourse crossings • 250 m zone requiring soil stabilization techniques		• Traffic management during construction • Availability of resources and materials • Utility relocations • Watercourse crossings • Soil stabilization techniques required over 3600 m		• Traffic management during construction • Availability of resources and materials • Utility relocations • Watercourse crossings • Soil stabilization required over 7500 m • Testing, commissioning and maintenance of tunnel support systems (ventilation, lighting communications, etc.)	

## Summary of Assessment

- Local air quality is more strongly influenced by background sources and transboundary flow than by transportation sources.
- Concentrations of fine particulate are projected to be higher in the corridor than present due primarily to increased road dust as traffic increases. Particulate from vehicle tailpipes are predicted to decrease.
- Tunnel alternative reduces particulate concentrations, but increases concentrations of gaseous pollutants emitted over a larger area beyond the access road corridor from the ventilation buildings.
- Total concentrations of nitrogen oxides (NO<sub>x</sub>) are predicted to decrease due to improvements in fuels and engine technologies.
- Below-grade alternatives result in slightly lower particulate and NO<sub>x</sub> concentrations in comparison to at-grade alternatives.
- The air quality benefits of a below-grade roadway may be further enhanced through buffer zones, plantings and maintenance practices to reduce road dust.

## What's Next?

- Conduct analysis of enhanced Parkway alternative.
- Model additional air pollutants and compare to MOE criteria and guidelines.
- Conduct more detailed analysis of the Technically and Environmentally Preferred Alternative.
- Assess potential construction impacts and recommend mitigation measures.

## Analysis Results

Performance Measure	Criteria/Indicator	Measurement/Units	Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B		Alternative 3
			Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	
Effect on changes in concentration of particulate matter	Change in concentration of PM <sub>2.5</sub> versus Do Nothing	Subjective assessment at identified receptors versus Do Nothing	While tunnel generally results in the lowest PM2.5 concentrations at sensitive receptors such as schools and residences, local air quality is strongly influenced by background sources and transboundary flow. Thus, all Alternatives result in similar AQ conditions at these locations.								
	Change in the number of 24 hr periods where concentrations of PM <sub>2.5</sub> is > 30 µg/m <sup>3</sup> versus do nothing in 2015	Distance from Roadway - 50m	-6	-6	-9	-10	-9	-10	-10	-10	-10
		Distance from Roadway - 100m	1	-1	-1	-1	-1	-1	-1	-1	-1
		Distance from Roadway - 250m	0	0	0	0	0	0	0	0	0
		Maximum concentration relative to Do Nothing (at 50m)	95%	94%	89%	87%	89%	83%	82%	83%	71%
		Assessment of Results	All alternatives result in an improvement in concentrations in comparison to "Do Nothing". Depressed alternatives result in slightly lower PM2.5 concentrations in comparison to at-grade alternatives. Tunnel alternatives results in lowest PM2.5 concentrations of all Alternatives. All Alternatives result in similar air quality conditions at 100 m from the roadway. Option 1 and Option 2 Alignments result in similar maximum concentrations and number of relative exceedances.								
	Change in the number of 24 hr periods where concentrations of PM <sub>2.5</sub> is > 30 µg/m <sup>3</sup> versus Do Nothing in 2025	Distance from Roadway - 50m	-9	-15	-18	-22	-16	-21	-21	-22	-25
		Distance from Roadway - 100m	2	1	-1	1	-2	-2	-3	-2	-3
		Distance from Roadway - 250m	0	0	0	0	0	0	0	0	0
		Maximum concentration relative to Do Nothing (at 50m)	95%	95%	88%	86%	91%	87%	85%	84%	67%
		Assessment of Results	All alternatives result in an improvement in concentrations in comparison to "Do Nothing". Depressed alternatives result in slightly lower PM2.5 concentrations in comparison to at-grade alternatives. Tunnel alternatives results in lowest PM2.5 concentrations of all Alternatives. all Alternatives result in similar air quality conditions at 100 m from the roadway. Option 1 and Option 2 Alignments result in similar maximum concentrations and number of relative exceedances.								
	Change in the number of 24 hr periods where concentrations of PM <sub>2.5</sub> is > 30 µg/m <sup>3</sup> versus Do Nothing in 2035	Distance from Roadway - 50m	-14	-23	-36	-39	-25	-38	-40	-43	-49
		Distance from Roadway - 100m	4	3	-3	-3	-2	-4	-6	-6	-7
		Distance from Roadway - 250m	0	0	0	0	0	0	0	0	0
		Maximum concentration relative to Do Nothing (at 50m)	96%	95%	85%	84%	93%	86%	82%	79%	64%
		Assessment of Results	All alternatives result in an improvement in concentrations in comparison to "Do Nothing". Depressed alternatives result in slightly lower PM2.5 concentrations in comparison to at-grade alternatives. Tunnel alternatives results in lowest PM2.5 concentrations of all Alternatives. all Alternatives result in similar air quality conditions at 100 m from the roadway. Option 1 and Option 2 Alignments result in similar maximum concentrations and number of relative exceedances.								
	Does the average annual concentration of PM <sub>2.5</sub> exceed 15 µg/m <sup>3</sup> in 2015	Yes/No	No	No	No	No	No	No	No	No	No
	Does the average annual concentration of PM <sub>2.5</sub> exceed 15 µg/m <sup>3</sup> in 2025	Yes/No	No	No	No	No	No	No	No	No	No
	Does the average annual concentration of PM <sub>2.5</sub> exceed 15 µg/m <sup>3</sup> in 2035	Yes/No	No	No	No	No	No	No	No	No	No
	Summary of effect on concentration of particulate matter	Subjective assessment	While tunnel is slightly preferred within the first 50 m from the Right of Way, all Alternatives result in similar AQ conditions at 100 m and beyond from the right of way.								
Effect on changes in concentration of gaseous pollutants	Change in concentration of NOx versus Do Nothing	Subjective Assessment based on changes at identified receptors versus Do Nothing	Local air quality is strongly influenced by background sources and transboundary flow. Thus, all Alternatives result in similar AQ conditions at sensitive receptor locations such as schools, etc that are located greater than 250 m from the Right of Way.								
	Change in the number of 24 hr periods where concentrations of NOx >400 µg/m <sup>3</sup> versus Do Nothing in 2015	Distance from Roadway - 50m	0	0	0	0	0	0	0	0	0
		Distance from Roadway - 100m	0	0	0	0	0	0	0	0	0
		Distance from Roadway - 250m	0	0	0	0	0	0	0	0	0
		Maximum concentration relative to Do Nothing (at 50m)	74%	60%	69%	56%	59%	54%	55%	54%	74%
		Assessment of Results	All predicted maximum concentrations are below the relevant criteria and guidelines at 50 m from the roadway. All alternatives result in an improvement in concentrations in comparison to "Do Nothing". Depressed alternatives result in slightly lower NOx concentrations in comparison to at-grade alternatives. Option 2 Alignments result in slightly lower NOx concentrations than Option 1 Alignments, on average. Tunnel alternatives results in highest Nox concentrations on average along the corridor.								
	Change in the number of 24 hr periods where concentrations of NOx > 400 µg/m <sup>3</sup> versus Do Nothing in 2025	Distance from Roadway - 50m	0	0	0	0	0	0	0	0	0
		Distance from Roadway - 100m	0	0	0	0	0	0	0	0	0
		Distance from Roadway - 250m	0	0	0	0	0	0	0	0	0
		Maximum concentration relative to Do Nothing (at 50m)	61%	54%	58%	51%	55%	52%	52%	50%	60%
		Assessment of Results	All predicted maximum concentrations are below the relevant criteria and guidelines at 50 m from the roadway. All alternatives result in an improvement in concentrations in comparison to "Do Nothing". Depressed alternatives result in slightly lower NOx concentrations in comparison to at-grade alternatives. Option 2 Alignments result in slightly lower NOx concentrations than Option 1 Alignments, on average. Tunnel alternatives results in highest Nox concentrations on average along the corridor.								
	Change in the number of 24 hr periods where concentrations of NOx > 400 µg/m <sup>3</sup> versus Do Nothing in 2035	Distance from Roadway - 50m	0	0	0	0	0	0	0	0	0
		Distance from Roadway - 100m	0	0	0	0	0	0	0	0	0
		Distance from Roadway - 250m	0	0	0	0	0	0	0	0	0
		Maximum concentration relative to Do Nothing (at 50m)	53%	48%	51%	46%	49%	47%	48%	46%	53%
		Assessment of Results	All predicted maximum concentrations are below the relevant criteria and guidelines at 50 m from the roadway. All alternatives result in similar concentrations and reductions in comparison to "Do Nothing" in 2035.								
	Summary of effect on concentration of gaseous pollutants	Subjective assessment	Although all concentrations below the relevant standards and guidelines, the tunnel alternative results in the highest NOx concentrations and thus is least preferred for NOx concentrations. All Alternatives result in similar AQ conditions at 100 m and beyond from the right of way.								
Overall Assessment	Implementation of any Alternative results in a net AQ benefit over "Do Nothing". While tunnel is slightly preferred within the first 50 m from the Right of Way for PM2.5 concentrations, it is least preferred for NOx concentrations. Thus the influence of Nox and PM2.5 cancel each other out, and there is no difference in overall AQ effects between Alt 3 (tunnel) and other alternatives. Also, effects between depressed and at-grade alternatives are similar overall, and thus there is no difference in AQ between any of the alternatives.										

Notes:  
1. Do Nothing defined as no transportation improvements other than those already identified/approved  
2. Year 2015 reflects effects upon opening of facility  
3. Provincial guideline for acceptable maximum 24-hr average PM2.5 concentration is <30µg/m3  
4. Year 2025 reflects effects 10 years post construction  
5. Year 2035 reflects effects at 30 year planning horizon  
6. Federal objective for acceptable average annual concentration of PM2.5 is < 15µg/m3



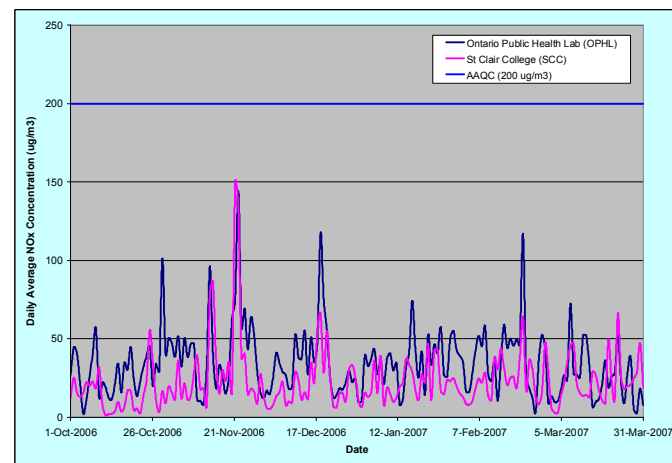
## Ambient Air Monitoring – Results: October 2006 – March 2007



- Two ambient air monitoring stations installed in Huron Church Road/Highway 3 corridor
- Adjacent to Ontario Public Health Laboratory and across from entrance to St.Clair College
- Measuring fine particulate matter (i.e.  $PM_{2.5}$ ), nitrogen oxides ( $NO_x$ ), volatile organic compounds (VOCs) and weather
- Observations from these two monitoring stations are being compared to data obtained from existing MOE monitoring stations located at College & South St. and University Avenue

### $NO_x$ Results

24-Hour Average Measured  $NO_x$  Concentrations ( $\mu g/m^3$ )  
(from Observed Data at Monitoring Stations)

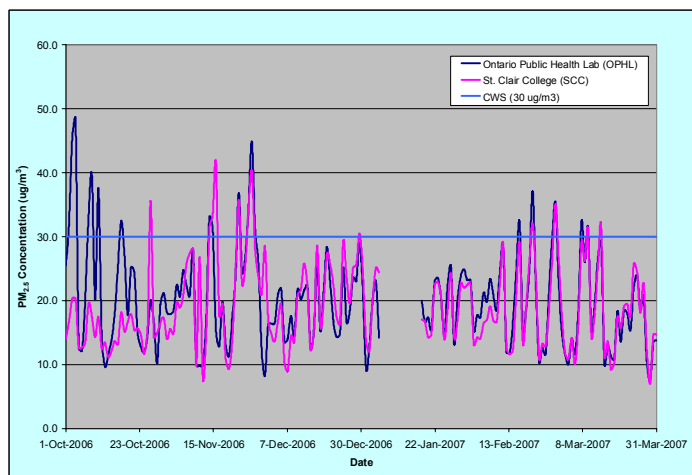


- Measured  $NO_x$  concentrations are within the expected range
- No observed exceedances of the 24-hour MOE Ambient Air Quality Criterion (AAQC) for  $NO_x$  ( $200 \mu g/m^3$ )
- Concentrations at both stations are slightly elevated in comparison to MOE monitoring stations, but remain well below the criteria
- Observed  $NO_x$  concentrations reflect local + transboundary sources, traffic patterns and meteorological conditions



## PM<sub>2.5</sub> Results

24-Hour Average Measured PM<sub>2.5</sub> Concentrations (µg/m<sup>3</sup>)  
(from Observed Data at Monitoring Stations)



- Measured PM<sub>2.5</sub> concentrations are within the expected range
- Concentrations at both stations are slightly elevated in comparison to MOE monitoring stations.
- Several observed exceedances of 30 µg/m<sup>3</sup> at both sites
- Concentrations are generally similar at both sites
- Observed PM concentrations reflect local + transboundary sources, traffic patterns and meteorological conditions

## VOC Results

Daily Max/Min/Average VOC Concentrations (µg/m<sup>3</sup>)  
(from Observed Data at Monitoring Stations)

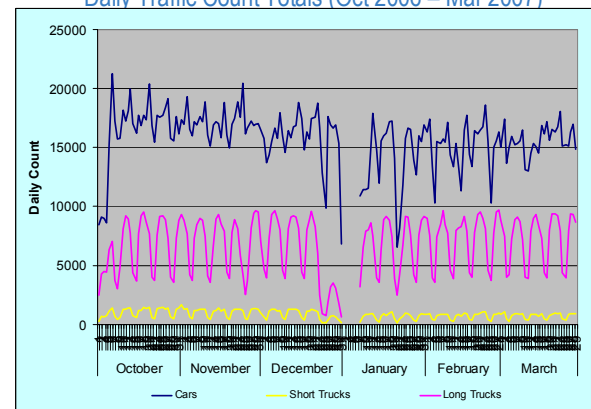
Monitoring Station	Contaminant	MOE 24-hr AAQC (µg/m <sup>3</sup> )	Maximum Measured Concentration (µg/m <sup>3</sup> )		Minimum Measured Concentration* (µg/m <sup>3</sup> )		Average Concentration (µg/m <sup>3</sup> )	
			Jan-Mar 2007 (Q2)	Sampling Period to-Date (Q1+Q2)	Jan-Mar 2007 (Q2)	Sampling Period to-Date (Q1+Q2)	Jan-Mar 2007 (Q2)	Sampling Period to-Date (Q1+Q2)
Ontario Public Health Laboratory (OPHL)	Acetaldehyde	500	1.2	2.4	0.6	0.3	0.8	1.0
	Formaldehyde	65	2.8	5.0	1.0	1.0	1.8	2.2
	Acrolein	9.6*	2.7	2.7	0.1	0.1	0.4	0.4
	Benzene	60*	1.8	1.8	0.3	0.3	0.6	0.6
St. Clair College (SCC)	Acetaldehyde	500	1.3	2.5	0.6	0.4	0.8	1.1
	Formaldehyde	65	3.2	5.7	0.9	0.8	1.7	2.4
	Acrolein	9.6*	1.5	1.5	0.1	0.1	0.3	0.4
	Benzene	60*	1.3	3.1	0.3	0.3	0.6	0.6

Guideline Limits: \* - converted to 24-hr from 1-hr  
+ - not a health-based limit

- Observed VOC concentrations are well below the relevant MOE standards and guidelines.

## Traffic Data

Daily Traffic Count Totals (Oct 2006 – Mar 2007)



- Observed traffic patterns are cyclical on a weekly basis, but relatively constant.

## Tunnel Ventilation and Contaminant Removal Technologies

The Study Team considered the effectiveness of contaminant removal technologies for the tunnel alternative:

- The primary reason for the use of contaminant removal technologies in other tunnels has been to improve in-tunnel air quality where visibility problems arise, and access to fresh air is difficult.
- Many tunnels with air pollution control systems treat only a portion (i.e. less than 100%) of the tunnel air via a by-pass stream. Most by-pass systems treat only a small portion of the tunnel air, which is typically less than 25%.
- Tunnels that employ particulate removal devices, including electrostatic precipitator devices do so for in-tunnel visibility reasons, not to improve external air quality.
- Electrostatic particulators in roadway tunnels do not remove all particulates. The collection efficiencies depend upon air velocity, contamination composition, particle size, and concentrations in the air stream. When used in tunnels, removal efficiencies of fine particulates (i.e.  $PM_{2.5}$ ) are limited due to comparatively low concentrations in relation to the industrial applications for which they were developed.
- Examples around the world that employ nitrogen oxide ( $NO_x$ ) removal technologies do so to improve in-tunnel air quality, rather than external air quality. There are fewer examples of tunnels employing  $NO_x$  removal technologies.

# Protection of Community and Neighbourhood Characteristics

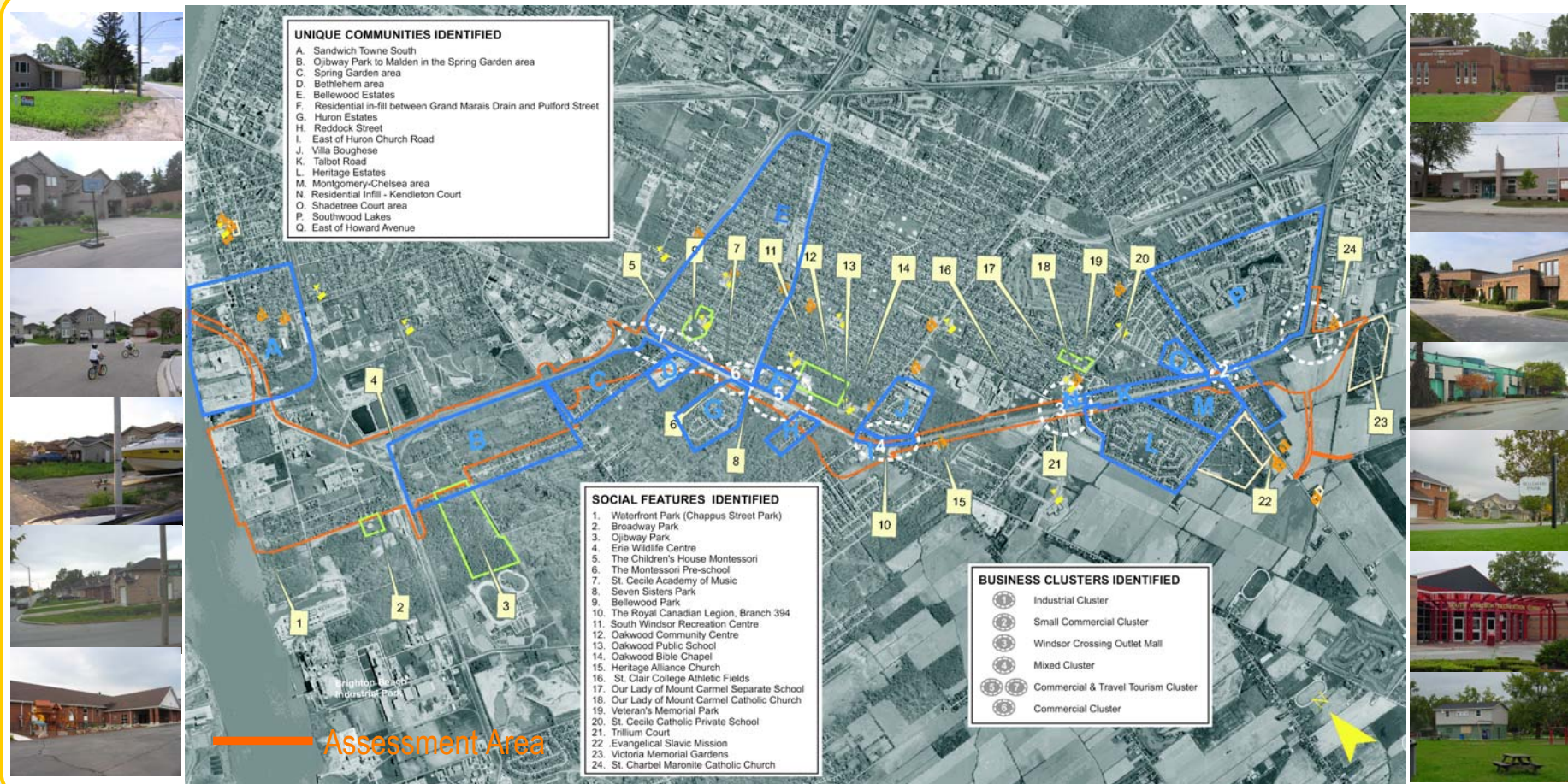
## Summary of Assessment

- Displaced households (households displaced are primarily located beside the Huron Church Road/Highway 3 corridor)
  - 160 to 230 households for Alternatives 1A and 1B;
  - 170 to 230 for Alternatives 2A and 2B; and
  - 140 to 180 for Alternative 3.
- None to marginal noise impacts for all access road alternatives (Alternatives 1A and 1B each result in increases in noise levels greater than 5 dB for one receptor). The use of berms and barriers is being considered along the access road alternatives.
- The tunnel alternative is considered to have the highest overall impacts on businesses when considering the number of displacements and reduced visibility of business from the roadway.
- Both the tunnel and below-grade options improve the aesthetics of the corridor by reducing visibility of the roadway from nearby residences.

## What's Next?

- Conduct detailed analysis of enhanced Parkway alternative.
- Identify and evaluate displacement and disruption impacts by neighbourhood community.
- Identify and evaluate effects to social features and municipal services disruptions to neighbourhoods, displacement of homes.
- Conduct analysis of the Technically and Environmentally Preferred Alternative.
- Coordination with noise and air disciplines to determine community impacts.
- Assess potential construction impacts and recommend mitigation measures.
- Agency, community stakeholder consultation.
- Investigate opportunities to enhance visibility and signage for businesses along the new access road alternative.

# Protection of Community and Neighbourhood Characteristics





## Analysis Results

Performance Measure	Criteria/Indicator	Measurement/Units	Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B		Alternative 3
			Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	
Traffic Impacts	Effect on Local Access	No of streets crossed, closed, or connected with an interchange	9 Crossings 11 Closings 20 Connections	9 Crossings 10 Closings 20 Connections	13 Crossing 10 Closings 14 Connections	13 Crossing 9 Closings 15 Connections	10 Crossings 15 Closings 15 Connections	10 Crossings 15 Closings 14 Connections	11 Crossings 14 Closings 10 Connections	11 Crossings 14 Closings 11 Connections	8 Crossings 9 Closings 13 Connections
	Effect on Local Access (out-of-way travel)	Subjective Assessment	Alternative maintains connection to/from the Ambassador Bridge crossing and provides access to/from the new crossing. Local access is improved through the separation of local and international traffic, primarily due to shifting international traffic away from Huron Church Road/Highway 3 corridor and onto the new freeway facility. Travel time on Service Road is at least five minutes less than on Huron Church Road from E.C. Row Expressway to Howard Avenue under the 2035 no-build condition, during the peak hour.  One-way Service Roads and new freeway facility require certain crossings, closings and connections (i.e. right-in, right out access) that result in out-of-way travel. Greatest distance between turnaround locations for one-way Service Roads (i.e. out-of-way travel) is 1.5 km, resulting in a trip delay of less than two minutes (50km/h average speed). Impact of out-of-way travel is considered low.	Alternative maintains connection to/from the Ambassador Bridge crossing and provides access to/from the new crossing. Local access is improved through the separation of local and international traffic, primarily due to shifting international traffic away from Huron Church Road/Highway 3 corridor and onto the new freeway facility. Travel time on Service Road is at least five minutes less than on Huron Church Road from E.C. Row Expressway to Howard Avenue under the 2035 no-build condition, during the peak hour.  One-way Service Roads and new freeway facility require certain crossings, closings and connections (i.e. right-in, right out access) that result in out-of-way travel. Greatest distance between turnaround locations for one-way Service Roads (i.e. out-of-way travel) is 1.5 km, resulting in a trip delay of less than two minutes (50km/h average speed). Impact of out-of-way travel is considered low.	Alternative maintains connection to/from the Ambassador Bridge crossing and provides access to/from the new crossing. Local access is improved through the separation of local and international traffic, primarily due to shifting international traffic away from Huron Church Road/Highway 3 corridor and onto the new freeway facility. Travel time on Service Road is at least five minutes less than on Huron Church Road from E.C. Row Expressway to Howard Avenue under the 2035 no-build condition, during the peak hour.  Service Roads and new freeway facility require certain crossings, closings and connections that result in a maximum out-of-way travel of 1.5km (delay of less than two minutes at an average speed of 50 km/h). Impact of out-of-way travel is considered low.	Alternative maintains connection to/from the Ambassador Bridge crossing and provides access to/from the new crossing. Local access is improved through the separation of local and international traffic, primarily due to shifting international traffic away from Huron Church Road/Highway 3 corridor and onto the new freeway facility. Travel time on Service Road is at least five minutes less than on Huron Church Road from E.C. Row Expressway to Howard Avenue under the 2035 no-build condition, during the peak hour.  Service Roads and new freeway facility require certain crossings, closings and connections that result in a maximum out-of-way travel of 1.5km (delay of less than two minutes at an average speed of 50 km/h). Impact of out-of-way travel is considered low.	Alternative maintains connection to/from the Ambassador Bridge crossing and provides access to/from the new crossing. Local access is improved through the separation of local and international traffic, primarily due to shifting international traffic away from Huron Church Road/Highway 3 corridor and onto the new freeway facility. Travel time on Service Road is at least five minutes less than on Huron Church Road from E.C. Row Expressway to Howard Avenue under the 2035 no-build condition, during the peak hour.  Service Roads and new freeway facility require certain crossings, closings and connections that result in a maximum out-of-way travel of 1.0km (delay of less than two minutes at an average speed of 50 km/h). Impact of out-of-way travel is considered low.				
Noise and Vibration	Receptors with change in noise <5 dBA increase vs Do Nothing (see note 1)	Number of receptors (2035 post mitigation scenario)	30	31	30	31	31	31	31	31	31
	Receptors with change in noise levels >5 dBA to <10 dBA versus Do Nothing	Number of receptors (2035 post mitigation scenario)	1	0	1	0	0	0	0	0	0
	Receptors with change in noise levels >10 dBA versus Do Nothing	Number of receptors (2035 post mitigation scenario)	0	0	0	0	0	0	0	0	0
	Assessment of change in noise levels	Subjective Assessment	Generally, with standard mitigation of a 5m high acoustic barrier, the depressed alternatives (1B and 2B) generate lower noise levels in comparison with at-grade alternatives (1A and 2A). Of all the alternatives, Alternative 3 had the lowest noise levels.								
	# of sensitive receptors with vibration exceeding 0.14 mm/sec vibration frequency (see note 2)	Number of houses	225 (connection to Plaza A) 212 (connection to other plaza)	258 (connection to Plaza A) 245 (connection to other plaza)	228 (connection to Plaza A) 210 (connection to other plaza)	258 (connection to Plaza A) 240 (connection to other plaza)	191 (connection to Plaza A) 185 (connection to other plaza)	169 (connection to Plaza A) 163 (connection to other plaza)	189 (connection to Plaza A) 178 (connection to other plaza)	167 (connection to Plaza A) 156 (connection to other plaza)	251 (connection to Plaza A) 231 (connection to other plaza)
	# sensitive receptors exceeding 50 mm/sec vibration frequency (see note 3)	Number of houses	0	0	0	0	0	0	0	0	0
	Assessment of vibration impacts	Subjective Assessment	Baseline vibration levels measured in 2006 at eight locations indicate vibration levels measured were within the threshold of perception limit of 0.14 mm/sec. Results indicate that no sensitive receptors will experience vibration > 50 mm/sec during operation of new access road; vibration impacts due to construction activities will be reviewed during later design stages.								
DISPLACEMENTS-RESIDENTIAL/SOCIAL											
Displacements of Residents	Number of households/dwellings displaced within the project area	Quantitative assessment of the number of household/dwellings displaced by the proposed ROW	Plaza A - 230 Plaza B/C - 180	Plaza A - 210 Plaza B/C - 160	Plaza A - 230 Plaza B/C - 180	Plaza A - 210 Plaza B/C - 160	Plaza A - 230 Plaza B/C - 190	Plaza A - 220 Plaza B/C - 170	Plaza A - 230 Plaza B/C - 180	Plaza A - 220 Plaza B/C - 170	Plaza A - 180 Plaza B/C - 140
		Quantitative assessment of the total number of people within displaced household/dwelling	332	293	373	297	377	338	324	343	339
		Quantitative assessment of residents potentially displaced and their "attachment" to home (length of tenure, ownership) (see note 4)									
		<5 years	Plaza A - 35% Plaza B/C - 31%	Plaza A - 28% Plaza B/C - 21%	Plaza A - 35% Plaza B/C - 32%	Plaza A - 29% Plaza B/C - 22%	Plaza A - 39% Plaza B/C - 36%	Plaza A - 30% Plaza B/C - 24%	Plaza A - 38% Plaza B/C - 35%	Plaza A - 29% Plaza B/C - 23%	Plaza A - 30% Plaza B/C - 21%
		5-10 years	Plaza A - 18% Plaza B/C - 18%	Plaza A - 17% Plaza B/C - 17%	Plaza A - 18% Plaza B/C - 18%	Plaza A - 17% Plaza B/C - 17%	Plaza A - 19% Plaza B/C - 20%	Plaza A - 18% Plaza B/C - 19%	Plaza A - 18% Plaza B/C - 20%	Plaza A - 18% Plaza B/C - 20%	Plaza A - 16% Plaza B/C - 17%
		11-30 years	Plaza A - 28% Plaza B/C - 30%	Plaza A - 37% Plaza B/C - 44%	Plaza A - 27% Plaza B/C - 29%	Plaza A - 37% Plaza B/C - 43%	Plaza A - 28% Plaza B/C - 28%	Plaza A - 38% Plaza B/C - 42%	Plaza A - 28% Plaza B/C - 29%	Plaza A - 40% Plaza B/C - 43%	Plaza A - 37% Plaza B/C - 46%
		>30 years	Plaza A - 20% Plaza B/C - 20%	Plaza A - 17% Plaza B/C - 17%	Plaza A - 20% Plaza B/C - 20%	Plaza A - 17% Plaza B/C - 17%	Plaza A - 14% Plaza B/C - 15%	Plaza A - 14% Plaza B/C - 14%	Plaza A - 15% Plaza B/C - 15%	Plaza A - 14% Plaza B/C - 14%	Plaza A - 16% Plaza B/C - 15%
		Quantitative assessment of the total "special population" (demography, minority, language, social characteristics) (see note 5)									
		Children	Plaza A - 26% Plaza B/C - 21%	Plaza A - 23% Plaza B/C - 16%	Plaza A - 26% Plaza B/C - 21%	Plaza A - 23% Plaza B/C - 17%	Plaza A - 27% Plaza B/C - 23%	Plaza A - 25% Plaza B/C - 19%	Plaza A - 27% Plaza B/C - 23%	Plaza A - 25% Plaza B/C - 19%	Plaza A - 25% Plaza B/C - 20%
		Adults > Age 65	Plaza A - 22% Plaza B/C - 19%	Plaza A - 24% Plaza B/C - 20%	Plaza A - 18% Plaza B/C - 19%	Plaza A - 24% Plaza B/C - 20%	Plaza A - 18% Plaza B/C - 16%	Plaza A - 20% Plaza B/C - 17%	Plaza A - 19% Plaza B/C - 18%	Plaza A - 20% Plaza B/C - 18%	Plaza A - 21% Plaza B/C - 16%
Special Needs	Plaza A - 4% Plaza B/C - 3%	Plaza A - 5% Plaza B/C - 4%	Plaza A - 4% Plaza B/C - 3%	Plaza A - 5% Plaza B/C - 4%	Plaza A - 3% Plaza B/C - 2%	Plaza A - 5% Plaza B/C - 3%	Plaza A - 3% Plaza B/C - 2%	Plaza A - 5% Plaza B/C - 3%	Plaza A - 6% Plaza B/C - 3%		

Notes:

1. Change in noise levels determined in accordance with MTO/MOE protocol; considers outdoor living area (OLA); change <3 dBA is considered imperceptible; areas where change in noise levels >5dBA warrant consideration for mitigation

2. Vibration frequency of 0.14mm/sec represents level at which average person feels vibration

3. Sustained vibration frequency of >50 mm/sec can lead to structural damage

4. Based on results of questionnaires sent to residences within ACA; analysis is ongoing

5. Based on results of questionnaires sent to residences within ACA, interviews and census data; analysis is ongoing

## Analysis Results

Performance Measure	Criteria/Indicator	Measurement/Units	Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B		Alternative 3
			Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	
Displacement of Social Features (e.g. school, community centres, daycare centres, extended care facilities)	Social features (institutional, recreational) within the project area	Number of social features (institutional, recreational) displaced	3 - Montessori Pre-School in Lambton Plaza, Royal Canadian Legion, Heritage Park Alliance Church (partial property taking - 0.1ha)	4 - Montessori Pre-School in Lambton Plaza, Royal Canadian Legion, Heritage Park Alliance Church (partial property taking - 0.1ha), Trillium Court Housing (partially - 14 dwellings)	3 - Montessori Pre-School in Lambton Plaza, Royal Canadian Legion, Heritage Park Alliance Church (partial property taking - 0.1ha)	4 - Montessori Pre-School in Lambton Plaza, Royal Canadian Legion, Heritage Park Alliance Church (partial property taking - 0.1ha), Trillium Court Housing (partially - 14 dwellings)	3 - Montessori Pre-School in Lambton Plaza, Royal Canadian Legion, Heritage Park Alliance Church	4 - Montessori Pre-School in Lambton Plaza, Royal Canadian Legion, Heritage Park Alliance Church (partial property taking - 0.1ha), Trillium Court Housing (partially - 14 dwellings)	3 - Montessori Pre-School in Lambton Plaza, Royal Canadian Legion, Heritage Park Alliance Church	4 - Montessori Pre-School in Lambton Plaza, Royal Canadian Legion, Heritage Park Alliance Church (partial property taking - 0.1ha), Trillium Court Housing (partially - 14 dwellings)	4 - Montessori Pre-School in Lambton Plaza, Royal Canadian Legion, Heritage Park Alliance Church (partial property taking - 0.1ha), Trillium Court Housing (partially - 14 dwellings)
		Qualitative assessment of impacts on the use of displaced facility (characterization of use, number and location of users, facility access and catchment area, etc.)	Displacement of pre-school education programming; memorial cenotaph & social programming; these social features can be relocated in the community with minor impacts to users and programming; entrance-way to Church can be relocated.	Displacement of pre-school education programming; memorial cenotaph & social programming; these social features can be relocated in the community with minor impacts to users and programming; entrance-way to Church can be relocated. Loss of geared-to-income housing units could reduce the availability of such housing in the community (presently there's a waiting list for geared-to-income housing).	Displacement of pre-school education programming; memorial cenotaph & social programming; these social features can be relocated in the community with minor impacts to users and programming; entrance-way to Church can be relocated.	Displacement of pre-school education programming; memorial cenotaph & social programming; these social features can be relocated in the community with minor impacts to users and programming; entrance-way to Church can be relocated. Loss of geared-to-income housing units could reduce the availability of such housing in the community (presently there's a waiting list for geared-to-income housing).	Displacement of pre-school education programming; memorial cenotaph & social programming; these social features can be relocated in the community with minor impacts to users and programming; entrance-way to Church can be relocated.	Displacement of pre-school education programming; memorial cenotaph & social programming; these social features can be relocated in the community with minor impacts to users and programming; entrance-way to Church can be relocated. Loss of geared-to-income housing units could reduce the availability of such housing in the community (presently there's a waiting list for geared-to-income housing).	Displacement of pre-school education programming; memorial cenotaph & social programming; these social features can be relocated in the community with minor impacts to users and programming; entrance-way to Church can be relocated.	Displacement of pre-school education programming; memorial cenotaph & social programming; these social features can be relocated in the community with minor impacts to users and programming; entrance-way to Church can be relocated. Loss of geared-to-income housing units could reduce the availability of such housing in the community (presently there's a waiting list for geared-to-income housing).	Displacement of pre-school education programming; memorial cenotaph & social programming; these social features can be relocated in the community with minor impacts to users and programming; entrance-way to Church can be relocated. Loss of geared-to-income housing units could reduce the availability of such housing in the community (presently there's a waiting list for geared-to-income housing).
DISRUPTIONS-SOCIAL											
Disruption of day-to-day use and enjoyment of residential property	Disruption of day-to-day use and enjoyment of property for residents during and post construction	Quantitative assessment of nuisance impacts (noise, dust, air) significance of effect of number of people affected  Noise (no build compared to project in 2035)  Air (no build compared to project in 2035)	No difference in nuisance noise effects anticipated across all access route alternatives.								
			Generally, improvement in local air quality predicted with all alternatives vs. no build. However, nuisance impacts are predicted with all alternatives under certain conditions in the vicinity of E.C. Row/Malden Road and Chelsea area (Hwy 3 and Howard Ave).								
Disruption of Social Features (e.g. schools, community centres, daycare centres, extended care facilities)	Effect on institutional features (schools, community facilities, churches)	Quantitative assessment of the total number of institutional features disrupted by the project	7 - The Children's House Montessori, St. Cecile Academy of Music, Oakwood Public School, Heritage Park Alliance Church, Our Lady of Mount Carmel Separate School, Trillium Court Housing and St. Charbel Maronite Catholic Church	8 - The Children's House Montessori, St. Cecile Academy of Music, Oakwood Public School, Heritage Park Alliance Church, Our Lady of Mount Carmel Separate School, St. Clair College Athletic Field, Trillium Court Housing and St. Charbel Maronite Catholic Church	7 - The Children's House Montessori, St. Cecile Academy of Music, Oakwood Public School, Heritage Park Alliance Church, Our Lady of Mount Carmel Separate School, Trillium Court Housing and St. Charbel Maronite Catholic Church	8 - The Children's House Montessori, St. Cecile Academy of Music, Oakwood Public School, Heritage Park Alliance Church, Our Lady of Mount Carmel Separate School, St. Clair College Athletic Field, Trillium Court Housing and St. Charbel Maronite Catholic Church	7 - The Children's House Montessori, St. Cecile Academy of Music, Oakwood Public School, Our Lady of Mount Carmel Separate School, St. Clair College Athletic Field, Trillium Court Housing and St. Charbel Maronite Catholic Church			8 - The Children's House Montessori, St. Cecile Academy of Music, Oakwood Public School, Heritage Park Alliance Church, Our Lady of Mount Carmel Separate School, St. Clair College Athletic Field, Trillium Court Housing and St. Charbel Maronite Catholic Church	
	Effect on use of institutional feature	Qualitative assessment of impacts on the use of feature (characterization of use, number and location of users, facility access and catchment area, etc.)	Uses maintained at all disrupted features but potential for reduced access during construction and nuisance effects; . Permanent change to St. Charbel Church access via Industrial Park as Outer Drive is closed at Highway 3.								
	Effect on recreational uses (parks, community centres)	Quantitative assessment of impacts on the use of feature (characterization of use, number and location of users, facility access and catchment area, etc.)	6 - Bellewood Park, Seven Sisters Park, South Windsor Recreational Centre, Oakwood Community Centre, Veteran's Memorial Park and St. Clair College Athletic Field					5 - Bellewood Park, Seven Sisters Park, South Windsor Recreational Centre, Veteran's Memorial Park and St. Clair College Athletic Field	6 - Bellewood Park, Seven Sisters Park, South Windsor Recreational Centre, Oakwood Community Centre, Veteran's Memorial Park and St. Clair College Athletic Field		
	Effect on use of facility	Qualitative assessment of impacts on the use of feature (characterization of use, number and location of users, facility access and catchment area, etc.)	Uses maintained at all features; potential for reduced access during construction and nuisance effects (noise, dust); one-way access roads on either side of highway means doubling back to access facilities such as the South Windsor Recreation Complex for some users	Uses maintained at all features; potential for reduced access during construction and nuisance effects (noise, dust); one-way access roads on either side of highway means doubling back to access some facilities for some users.		Uses maintained at all features; potential for reduced access during construction and nuisance effects (noise, dust)					
Community/Neighborhood Impacts	Community cohesion, character	Qualitative assessment of the impact of the alternative on the function of the existing neighborhood/ community (e.g. community functions, school and community centre catchment areas, pedestrian routes)	Significant change in character to Plaza A area as natural park-like setting replaced by freeway; limited change in character on remaining route due to existing transportation corridor; significant loss of cohesion for Talbot Road residents, but limited to loss of cohesion for other communities adjacent to the transportation corridor.								
	Impacts to Municipal Services	Number of public transit routes affected	5 (South Windsor 7, Dominion 5, Dougall 6 Express, Dougall 6, Walkerville 8)								
		Qualitative assessment of effect on delivery of public transit	Interruption of service may be experienced during construction phase, and a new location for a bus stop may be required at the Outlet Mall								
		Effect on school bus routes	1 (Oakwood PS) Route alteration required - no access to Huron Church Road from Spring Garden Road								
		Effect on the delivery of emergency services (police fire, ambulance)	No entrance/egress from Todd Lane to the proposed highway; northbound Howard Ave. access. Increased response times to adjacent neighbourhood and freeway								



## Analysis Results

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			Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	
DISPLACEMENTS-BUSINESS											
	Businesses Displaced	Number of Businesses Displaced	31 - Century Fire Equip., Garry St.John, Blue Bell Motel/Restaurant, Comfort Inn, Golden Griddle, Feelgoods, King Kone, Petro Canada, Euro Tech, Aqua Turf, Lambton Plaza (10 businesses), Tim Horton's, Fred's Farm Fresh, Best Western, Sand Castle, LA Collision Auto Service, Mac's, Town and Country Animal Clinic, XTR Gas, Vachon Bakery Outlet, Nature Health Consulting, Sleep Factory	45 - Century Fire Equip., Garry St.John, Blue Bell Motel/Restaurant, Comfort Inn, Golden Griddle, Feelgoods, King Kone, Petro Canada, Euro Tech, Aqua Turf, Lambton Plaza (10 businesses), Tim Horton's, Fred's Farm Fresh, Best Western, Sand Castle, LA Collision Auto Service, Mac's, Town and Country Animal Clinic, XTR Gas, Vachon Bakery Outlet, Nature Health Consulting, Sleep Factory, and 15 stores of the Windsor Crossing Outlet Mall	31 - Century Fire Equip., Garry St.John, Blue Bell Motel/Restaurant, Comfort Inn, Golden Griddle, Feelgoods, King Kone, Petro Canada, Euro Tech, Aqua Turf, Lambton Plaza (10 businesses), Tim Horton's, Fred's Farm Fresh, Best Western, Sand Castle, LA Collision Auto Service, Mac's, Town and Country Animal Clinic, XTR Gas, Vachon Bakery Outlet, Nature Health Consulting, Sleep Factory	45 - Century Fire Equip., Garry St.John, Blue Bell Motel/Restaurant, Comfort Inn, Golden Griddle, Feelgoods, King Kone, Petro Canada, Euro Tech, Aqua Turf, Lambton Plaza (10 businesses), Tim Horton's, Fred's Farm Fresh, Best Western, Sand Castle, LA Collision Auto Service, Mac's, Town and Country Animal Clinic, XTR Gas, Vachon Bakery Outlet, Nature Health Consulting, Sleep Factory, and 15 stores of the Windsor Crossing Outlet Mall	26 - (Century Fire Equip., Blue Bell Motel & Restaurant, Comfort Inn, Golden Griddle, Lambton Plaza (10 businesses), Euro Tech, Aqua Turf, Best Western, Sand Castle, LA Collision Auto Service, Joe's Woodcraft, Mac's, Town County Animal Clinic, XTR Gas, Vachon Bakery Outlet, Natures Health Consulting & Sleep factory	40 - (Century Fire Equip., Comfort Inn, Golden Griddle, Lambton Plaza (10 businesses), Euro Tech, Aqua Turf, Best Western, Sand Castle, LA Collision Auto Service, Joe's Woodcraft, Mac's, Town County Animal Clinic, XTR Gas, Vachon Bakery Outlet, Natures Health Consulting & Sleep factory	26 - (Century Fire Equip., Blue Bell Motel & Restaurant, Comfort Inn, Golden Griddle, Lambton Plaza (10 businesses), Euro Tech, Aqua Turf, Best Western, Sand Castle, LA Collision Auto Service, Joe's Woodcraft, Mac's, Town County Animal Clinic, XTR Gas, Vachon Bakery Outlet, Natures Health Consulting & Sleep factory	40 - (Century Fire Equip., Comfort Inn, Golden Griddle, Lambton Plaza (10 businesses), Euro Tech, Aqua Turf, Best Western, Sand Castle, LA Collision Auto Service, Joe's Woodcraft, Mac's, Town County Animal Clinic, XTR Gas, Vachon Bakery Outlet, Natures Health Consulting, Sleep factory& 15 stores of the Windsor Crossing Outlet Mall.	45/43 - (Garry St. John, Blue Bell Motel & Restaurant, Comfort Inn, Golden Griddle, Feelgood's, King Kone, Petro Canada, Lambton Plaza (10 businesses), Euro Tech, Aqua Turf, Tim Hortons, Fred's Farm Fresh, Best Western, Sand Castle, LA Collision Auto Service, Mac's, Town County Animal Clinic, XTR Gas, Vachon Bakery Outlet, Natures Health Consulting, Sleep factory& 15 stores of the Windsor Crossing Outlet Mall. If the Alignment with Plaza A is used, only 43 are displaced (Garry St. John and Blue Bell Motel are not displaced in this scenario)
		Number of employees affected; impact on gross revenues; impact on property values	239+/- employees; \$28+/- Million in revenues, and \$16+/- million in lost property assessment	335+/- employees; \$41+/- Million in revenues, and \$26+/- million in lost property assessment	239+/- employees; \$28+/- Million in revenues, and \$16+/- million in lost property assessment	335+/- employees; \$41+/- Million in revenues, and \$26+/- million in lost property assessment	200+/- employees; \$19+/- Million in revenues, and \$13+/- million in lost property assessment	296+/- employees; \$32+/- million in revenues, and \$24+/- million in lost property assessment	200+/- employees; \$19+/- Million in revenues, and \$13+/- million in lost property assessment	296+/- employees; \$32+/- million in revenues, and \$24+/- million in lost property assessment	333/327+/- employees; \$40/39+/- million in revenues, and \$27/28+/- million in lost property assessment
DISRUPTIONS-BUSINESS											
Direct Effects on Existing Businesses in Area of Continued Analysis	Businesses disrupted (partial property impacts)	Number of Businesses	51	37	51	37	57	43	57	43	36/37
		Subjective assessment of impact of disrupted businesses considering impact to employment, revenues and property values	For the businesses in Windsor Crossing, change in access and visibility would have negative effects. Potential for change in types of businesses located at this facility. For other businesses along corridor, many are highway/ tourism oriented and able to relocate elsewhere in vicinity of access road.	For the businesses in Windsor Crossing, change in access, visibility and displacement of 15 stores would have negative effects. Potential for change in types of businesses located at this facility. For other businesses along corridor, many are highway/ tourism oriented and able to relocate elsewhere in vicinity of access road.	For the businesses in Windsor Crossing, change in access and visibility would have negative effects. Potential for change in types of businesses located at this facility. For other businesses along corridor, many are highway/ tourism oriented and able to relocate elsewhere in vicinity of access road.	For the businesses in Windsor Crossing, change in access, visibility and displacement of 15 stores would have negative effects. Potential for change in types of businesses located at this facility. For other businesses along corridor, many are highway/ tourism oriented and able to relocate elsewhere in vicinity of access road.	For the businesses in Windsor Crossing, change in access and visibility would have negative effects. Potential for change in types of businesses located at this facility. Tim Hortons, Feelgoods, Petro Canada and Freds Farm Fresh would also likely be moderately affected. For other businesses along corridor, many are highway/ tourism oriented and able to relocate elsewhere in vicinity of access road.	For the businesses in Windsor Crossing, change in access, visibility and displacement of 15 stores would have negative effects. Potential for change in types of businesses located at this facility. Blue Bell Motel, Tim Hortons, Feelgoods, Petro Canada and Freds Farm Fresh would also likely be moderately affected. For other businesses along corridor, many are highway/ tourism oriented and able to relocate elsewhere in vicinity of access road.	For the businesses in Windsor Crossing, change in access and visibility would have negative effects. Potential for change in types of businesses located at this facility. Tim Hortons, Feelgoods, Petro Canada and Freds Farm Fresh would also likely be moderately affected. For other businesses along corridor, many are highway/ tourism oriented and able to relocate elsewhere in vicinity of access road.	For the businesses in Windsor Crossing, change in access, visibility and displacement of 15 stores would have negative effects. Potential for change in types of businesses located at this facility. Blue Bell Motel, Tim Hortons, Feelgoods, Petro Canada and Freds Farm Fresh would also likely be moderately affected. For other businesses along corridor, many are highway/ tourism oriented and able to relocate elsewhere in vicinity of access road.	For the businesses in Windsor Crossing, change in access, visibility and displacement of 15 stores would have negative effects. Potential for change in types of businesses located at this facility. For other businesses along corridor, many are highway/ tourism oriented and able to relocate elsewhere in vicinity of access road.
Indirect Impact on Businesses outside Area of Continued Analysis	Regional business impacts - Industrial	Subjective Assessment	Regional economic impacts, beyond the ACA, are mostly positive. Industrial businesses, especially those located in industrial areas close to the proposed crossing and access route, will be positively affected as a result of less traffic congestion and improved transportation for the movement of Goods. Most Industrial land in the area will become more attractive and likely more valuable.								
	Potential opportunity for future commercial development	Subjective Assessment	The nature of the retail businesses affected is such that the commercial businesses that were displaced within the ACA and the jobs lost will likely be replaced elsewhere in the Windsor area through both existing and new developments. Furthermore, commercial businesses outside ACA will be slightly better off due to an increase of non-local traffic coming through the area and the decrease in congestion. Some of the positive impacts will be off-set by, as a result of the improved transit through Windsor to and from the border, less non-local traffic making unplanned stops or stopping for any significant period of time.								
	Potential Opportunities for travel and tourism related development	Subjective Assessment	Similar to commercial businesses outside the ACA, tourism related businesses will also benefit from less traffic congestion and an increase in tourists travelling through the region. Again, some of the positive impacts will likely be offset due to a decrease in non-local people making unplanned and/or long stops in the area.								
Summary of Impact Assessment											



# Maintain Consistency with Existing and Planned Land Use

## Summary of Assessment

- All alternatives use existing Huron Church Road/Highway 3 corridor – the historical connection to the border.
- Impacts to the various types of land uses along the corridor are considered to be similar for all alternatives. It is anticipated that the majority of land uses displaced can be re-established in other areas.
- All alternatives may cause localized influences on land use, requiring rezoning of certain parcels of land.
- No known contaminated/disposal sites impacted by any of the access road alternatives. All alternatives have similar impacts to areas of high to moderate potential for contamination.

## What's Next?

- Monitor new development plans and changes to zoning within the Area of Continued Analysis (ACA).
- Conduct analysis of enhanced Parkway alternative
- Conduct detailed analysis of the Technically and Environmentally Preferred Alternative.
- Assess potential construction impacts and recommend mitigation measures.

## Land use documents consulted:



# Maintain Consistency with Existing and Planned Land Use





## Analysis Results

Performance Measure	Criteria/Indicator	Measurement/Units	Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B		Alternative 3
			Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	
LAND USE (Existing and Planned)	Type of land use impacted: residential	Hectares	16	16	16	17	21	18	21	25	13
	Type of land use impacted: commercial	Hectares	9	9	9	10	9	10	9	10	8
	Type of land use impacted: industrial	Hectares	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Type of land use impacted: recreational	Hectares	0	0	0	0	0	0	0	0	0
	Type of land use impacted: government and institutional	Hectares	5	1	3	1	3	2	3	3	1
	Type of land use impacted: vacant	Hectares	37	38	37	40	37	37	36	36	34
	Type of land use impacted: agricultural	Hectares	10	9	9	9	10	10	10	10	8
	Availability of vacant/developable land in vicinity of project area	Subjective assessment	Vacant land located near Spring Garden Road and adjacent to Huron Estates residential development is zoned for residential development, with a hold provision which places a hold on the issuance of a building permit until specific development preconditions have been satisfied. Future residential and highway commercial development is planned in the Town of LaSalle on lands opposite St. Clair College.								
Special Policy Areas			New access route impacts Windsor Special Policy Area for Huron Church Road Corridor; this special policy identifies setbacks to roadway for new residential uses and guides location for new commercial uses along corridor. New access route impacts City of Windsor Spring Garden Planning Area (OPA #5); the policies of this planning area include identifying setback distances for residential and commercial development along Huron Church Road, restrictions on direct access to Huron Church Road for commercial uses and offsets to designated sensitive natural features.								
Consistency with Land Use			Use of existing transportation corridor (Highway 3 and Huron Church Road) is generally consistent with the existing land use planning; greater impact to institutional land uses (St. Clair College) and residential land uses on north side of Highway 3 between Cousineau and Howard	Use of existing transportation corridor (Highway 3 and Huron Church Road) is generally consistent with the existing land use planning; greater impact to residential land uses on south side of Hwy 3 between Cousineau and Howard; impacts to commercial land uses (Windsor Crossing Outlet Mall)	Use of existing transportation corridor (Highway 3 and Huron Church Road) is generally consistent with the existing land use planning; greater impact to institutional land uses (St. Clair College); residential land uses on north side of Highway 3 between Cousineau and Howard	Use of existing transportation corridor (Highway 3 and Huron Church Road) is generally consistent with the existing land use planning; greater impact to residential land uses on south side of Highway 3 between Cousineau and Howard; commercial land uses (Windsor Crossing Outlet Mall)	Use of existing transportation corridor (Highway 3 and Huron Church Road) is generally consistent with the existing land use planning; greater impact to residential land uses located north of Hwy 3 between Howard Ave and Cousineau Road; impacts to vacant (undeveloped) land located south of Highway 3 between Cousineau and Huron Church Line.	Use of existing transportation corridor (Highway 3 and Huron Church Road) is generally consistent with the existing land use planning; greater impact to residential land uses located south of Hwy 3 between Howard Ave and Cousineau Road; impacts to vacant (undeveloped) land located south of Highway 3 between Cousineau and Huron Church Line.	Use of existing transportation corridor (Highway 3 and Huron Church Road) is generally consistent with the existing land use planning; greater impact to residential land uses located north of Hwy 3 between Howard Ave and Cousineau Road; impacts to vacant (undeveloped) land located south of Highway 3 between Cousineau and Huron Church Line.	Use of existing transportation corridor (Highway 3 and Huron Church Road) is generally consistent with the existing land use planning; greater impact to residential land uses located south of Hwy 3 between Howard Ave and Cousineau Road; impacts to vacant (undeveloped) land located south of Highway 3 between Cousineau and Huron Church Line.	Use of existing transportation corridor (Highway 3 and Huron Church Road) is generally consistent with the existing land use planning; greater impact to residential land uses located south of Hwy 3 between Howard Ave and Cousineau Road; impacts to commercial land uses (Windsor Crossing Outlet Mall), highway oriented commercial land uses.
DEVELOPMENT PLANS	Impact to present and approved development applications in the project area	Qualitative and quantitative assessment; number and type	Impact to one large residential development (Matchette Rd. and E.C. Row Expressway). Residential development has been halted due to the uncertainty of the location of the proposed plaza and crossing location.								
CONTAMINATED SITES/ DISPOSAL SITES	Displacement and/or disruption to <b>known</b> contaminated sites/disposal sites	Impacted area in ROW/total area of ROW properties, in ha./no. impacted properties	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
	Displacement and/or disruption to areas of high potential for contamination	Impacted area in ROW/total area of ROW properties, in ha./no. impacted properties	9.0/25.3/17	3.6/9.9/17	3.5/10.0/18	3.6/10.0/13	3.9/9.8/17	4.1/9.8/17	3.8/9.8/16	4.0/9.8/16	3.1/9.8/16
	Displacement and/or disruption to areas of moderate potential for contamination	Impacted area in ROW/total area of ROW properties, in ha./no. impacted properties	4.4/15.8/27	7.8/25.9/28	6.3/25.5/26	6.0/19.1/26	6.6/14.3/17	7.6/23.2/18	6.6/15.3/19	7.6/24.2/20	5.9/25.2/25
	Displacement and/or disruption to areas of low potential for contamination	Impacted area in ROW/total area of ROW properties, in ha./no. impacted properties	63.2/190.6/533	62.2/182.7/557	65.0/194.3/599	64.1/184.5/567	68.2/186.7/612	65.0/124.6/571	66.8/185.5/599	71.8/191.8/632	56.43/178.7/500

## Summary of Assessment

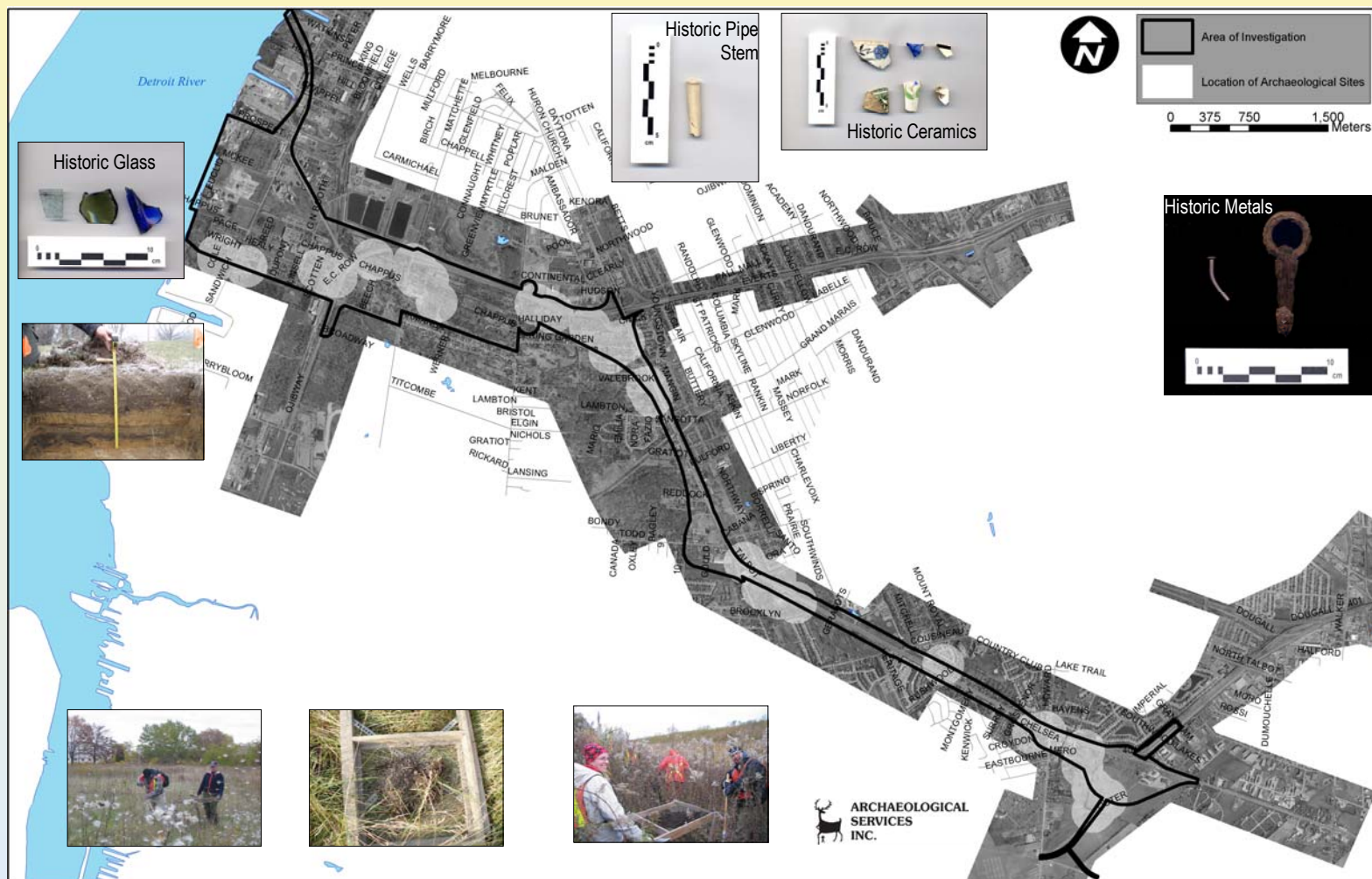
- Potentially impacted features are without any recognized heritage status – all alternatives are considered to have a low impact.
- All access road alternatives impact six parks/recreation areas. Alternative 2A will disrupt access to the St. Clair College baseball and soccer fields. Other parks/recreation areas will experience minor disruptions.
- Little to no difference between access road alternatives in terms of impact to archaeological features. All access road alternatives have low to medium impact to known archaeological sites.

## What's Next?

- Conduct analysis of enhanced Parkway alternative
- Conduct more detailed analysis of the Technically and Environmentally Preferred Alternative.
- Conduct an archaeological site-specific assessment (test unit excavation) on sites within the Technically and Environmentally Preferred Alternative
- Assess potential construction impacts and recommend mitigation measures.
- Stage 2 and 3 Archaeological Assessments for the Technically and Environmentally Preferred Alternative as required.

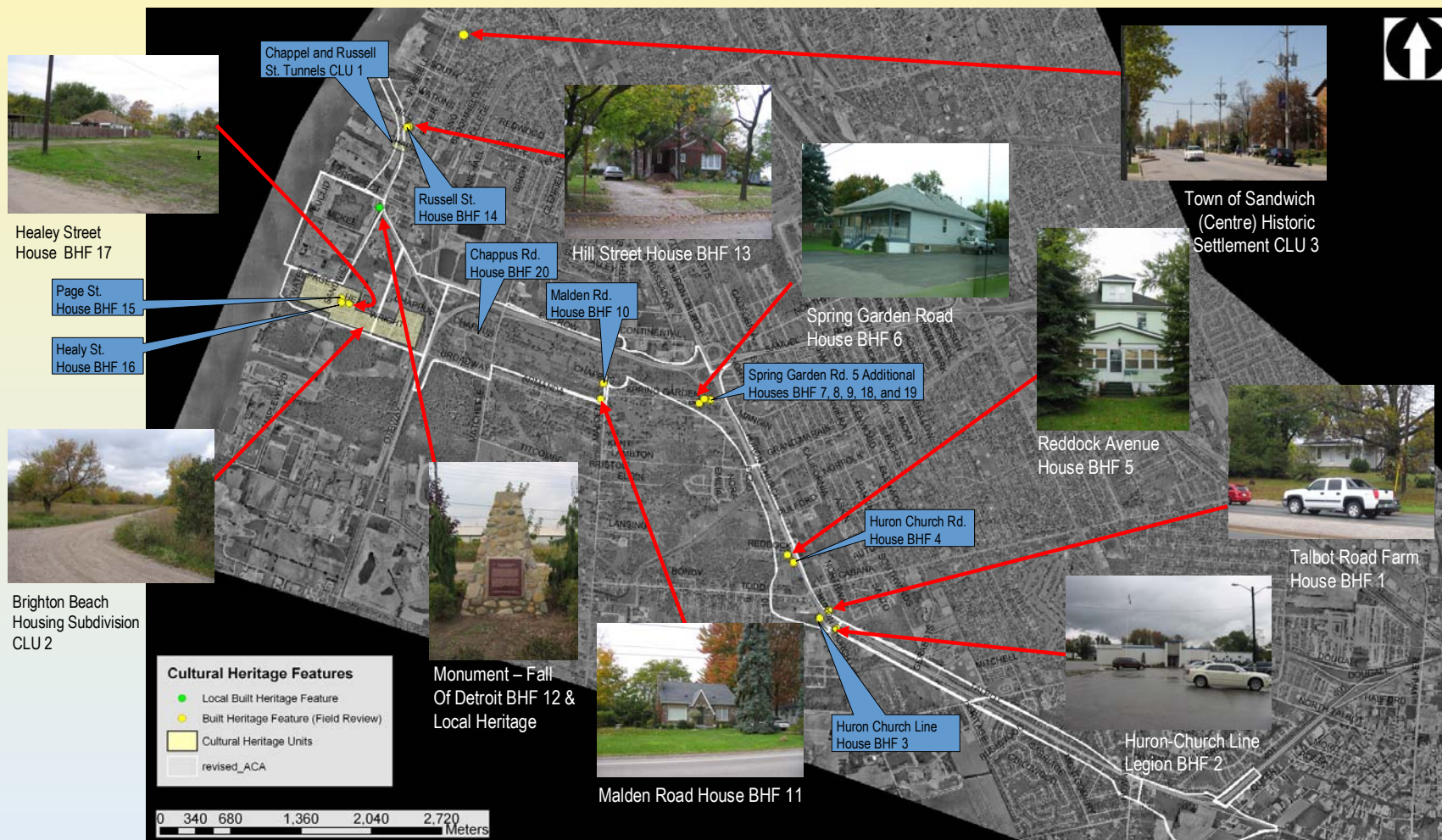


# Protect Cultural Resources— Archaeological Features





# Protect Cultural Resources – Built Heritage Features





## Analysis Results

Performance Measure	Criteria/Indicator	Measurement/Units	Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B		Alternative 3
			Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	
BUILT HERITAGE FEATURES	Displacement of built heritage features	a) Number of national historic sites displaced	0	0	0	0	0	0	0	0	0
		b) Number of provincially designated properties displaced	0	0	0	0	0	0	0	0	0
		c) Number of features with heritage easements displaced	0	0	0	0	0	0	0	0	0
		d) Number of municipally listed built heritage features displaced	0	0	0	0	0	0	0	0	0
		e) Number of locally identified built heritage features displaced	0	0	0	0	0	0	0	0	0
		f) Number of field review identified built heritage features displaced	7 to 9	7 to 9	6 to 8	6 to 8	4 to 5	4 to 5	4 to 5	4 to 5	5 to 8
	Disruption of built heritage features (see Note 1)	a) Number of national historic sites disrupted	0	0	0	0	0	0	0	0	0
		b) Number of provincially designated properties disrupted	0	0	0	0	0	0	0	0	0
		c) Number of features with heritage easements disrupted	0	0	0	0	0	0	0	0	0
		d) Number of municipally listed built heritage features disrupted	0	0	0	0	0	0	0	0	0
		e) Number of locally identified built heritage features disrupted	0	0	0	0	0	0	0	0	0
		f) Number of field review identified built heritage features disrupted	1 to 2	1 to 2	2	2	4 to 5	5 to 6	3 to 5	3 to 5	2 to 3
		g) Subjective assessment	The impacted features are without any recognized heritage status, so all alternatives are considered to have a low impact. Two impacted features of greatest potential for heritage significance (a pre-1900 farmhouse and the Royal Canadian Legion building). Generally, the access road options connecting to Plaza A have less impact to built heritage features than those options connecting to Plaza B or C.								
CULTURAL LANDSCAPE UNITS	Displacement or disruption of built cultural landscape features	a) Number of cultural landscapes displaced	0	0	0	0	0	0	0	0	0
		b) Number of cultural landscapes disrupted	0	0	0	0	0	0	0	0	0
PARKLANDS	Impacts to National, Provincial and local parks/recreation areas	Number of known sites affected; area	Results indicate disruption to 6 parks through partial property taking and/or impact on access with all alternatives: Bellewood Park, Aboriginal (Indian) Memorial Park, Beals Park (Oakwood Bush), Veteran's Memorial Park, St. Clair College Athletic Field, Matthew Rodzick Park								
ARCHAEOLOGICAL FEATURES	Disturbance or destruction of known significant archaeological sites	a) Number of known Rank 1 archaeological sites affected (sites with human remains [or potential for burials] or on National Inventory)	0	0	0	0	0	0	0	0	0
		b) Number of known Rank 2 archaeological sites affected (large pre-contact habitation sites [villages])	0	0	0	0	0	0	0	0	0
		c) Number of known Rank 3 archaeological sites affected (small pre-contact habitation sites [e.g. campsites] or Euro-Canadian homestead sites)	7 to 12	9 to 10	9 to 10	9 to 10	9	9	8 to 9	9	8 to 10
		d) Number of known Rank 4 sites archaeological sites affected (pre-contact findspots)	5 to 6	5 to 6	5 to 6	5 to 9	7 to 9	6	7	6	5 to 6
		e) Percentage of acreage with archaeological site potential affected	> 50%	> 50%	> 50%	> 50%	> 50%	> 50%	> 50%	> 50%	> 50%
		f) Subjective assessment	All alternative access roads are similar in impact for archaeological features with an average of 8-9 small pre-contact Aboriginal campsites or euro_Canadian homesteads and an average of 6 pre-contact findspots within the footprint of every access road.								

Notes:  
1. Disruption to a feature is defined as the introduction of a physical, visual, audible or atmospheric elements within 50 m that are not in keeping with the resources and/or their setting.

## Summary of Assessment

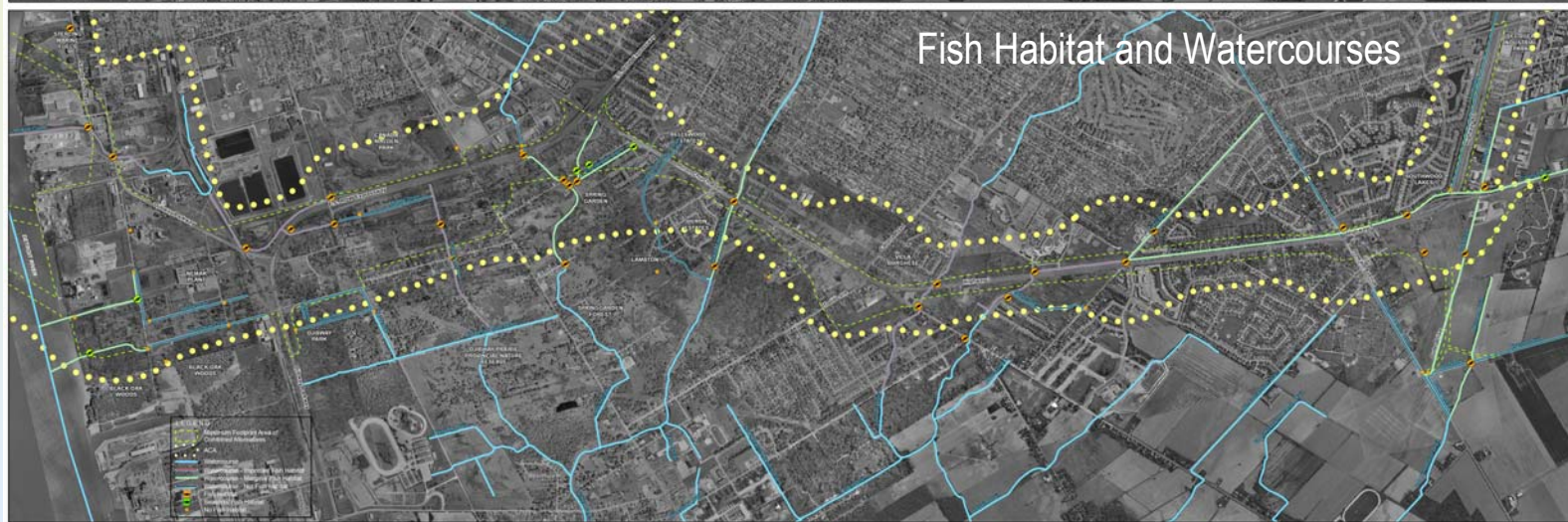
- There is no significant difference among the alternatives because footprint impacts are comparable.
- None of the access road alternatives directly impact any designated Areas of Natural and Scientific Interest (ANSIs) including the Ojibway Prairie Complex.
- Access road alternatives connecting to Plazas B and C have relatively low impacts.
- Access roads alternatives connecting to Plaza A have relatively moderate impacts, as these displace more provincially rare vegetation communities and species at risk in the Malden Road area.
- Below-grade alternatives (Alternatives 1B and 2B) and tunnel alternative (Alternative 3) may increase the potential risk to nearby natural heritage areas due to dewatering requirements.
- Alternatives 1A, 1B and 3 encroach on the St. Clair College Prairie ESA.

## What's Next?

- Conduct analysis of enhanced Parkway alternative.
- Conduct detailed analysis of the Technically and Environmentally Preferred Alternative.
- Perform a site-specific impact assessment and identify environmental protection measures.
- Perform supplemental field investigations where required to identify opportunities for compensation, restoration and enhancement.
- Meet with regulatory agencies to discuss environmental protection measures and secure approvals-in-principle.
- Identify site-specific impacts and environmental protection measures.







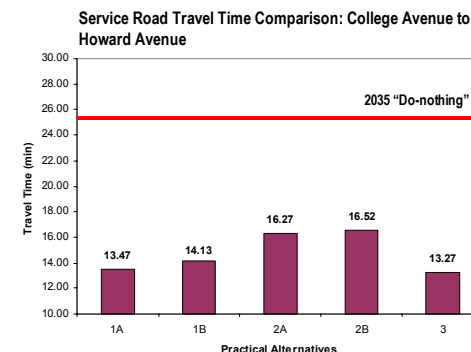
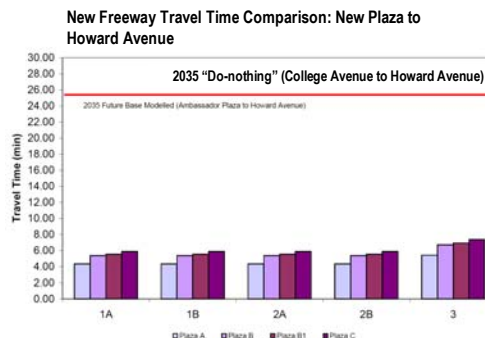
## Analysis Results

Performance Measure	Criteria/Indicator	Measurement/Units	Alternative 1A		Alternative 1A		Alternative 1B		Alternative 1B		Alternative 2A		Alternative 2A		Alternative 2B		Alternative 2B		Alternative 3	
			Option 1		Option 2		Option 1		Option 2		Option 1		Option 2		Option 1		Option 2		Option 2	
			To Plaza A	To Plaza B or C	To Plaza A	To Plaza B or C	To Plaza A	To Plaza B or C	To Plaza A	To Plaza B or C	To Plaza A	To Plaza B or C	To Plaza A	To Plaza B or C	To Plaza A	To Plaza B or C	To Plaza A	To Plaza B or C	To Plaza A	To Plaza B or C
Ecological Landscapes	Impacts to Ecological Landscapes	Impact area (in hectares) of tallgrass prairie	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19	Moderate - 3 Low - 19
Communities/Ecosystems	Impacts to Terrestrial Communities/ Ecosystems	Area of impact to features of high significance	1.43 ha	0.44 ha	1.53 ha	0.50 ha	1.46 ha	0.43 ha	1.46 ha	0.54 ha	2.22 ha	1.19 ha	2.22 ha	1.18 ha	1.86 ha	0.82 ha	1.86 ha	0.82 ha	1.48 ha	0.50 ha
		Area of impact to features of moderate significance	7.25 ha	3.14 ha	7.79 ha	3.68 ha	7.29 ha	3.18 ha	7.29 ha	3.82 ha	7.65 ha	3.64 ha	7.80 ha	3.79 ha	7.60 ha	3.60 ha	7.75 ha	3.75 ha	7.41 ha	3.40 ha
		Area of impact to features of low significance	16.35 ha	13.51 ha	17.32 ha	14.41 ha	17.03 ha	13.69 ha	17.04 ha	14.92 ha	18.35 ha	14.92 ha	18.66 ha	15.46 ha	17.61 ha	14.28 ha	18.23 ha	14.90 ha	14.36 ha	11.46 ha
		Total area of impact	25.03 ha	17.10 ha	26.63 ha	18.58 ha	25.78 ha	17.30 ha	25.79 ha	19.28 ha	28.22 ha	19.75 ha	28.68 ha	20.43 ha	27.07 ha	18.70 ha	27.84 ha	19.47 ha	23.25 ha	15.36 ha
	Impacts to Aquatic Communities/ Ecosystems	Area of impact to features of high significance	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha	0 ha
		Area of impact to features of moderate significance	0.39 ha	0.39 ha	0.31 ha	0.31 ha	0.40 ha	0.40 ha	0.40 ha	0.28 ha	0.38 ha	0.38 ha	0.08 ha	0.08 ha	0.38 ha	0.38 ha	0.38 ha	0.38 ha	0.37 ha	0.37 ha
		Area of impact to features of low significance	0.85 ha	0.74 ha	0.45 ha	0.17 ha	0.83 ha	0.74 ha	0.84 ha	0.18 ha	0.87 ha	0.71 ha	0.26 ha	0.16 ha	0.87 ha	0.77 ha	0.87 ha	0.77 ha	0.39 ha	0.28 ha
		Area of impact to features of "none" significance	0.06 ha	0.03 ha	0.09 ha	0.03 ha	0.08 ha	0.03 ha	0.07 ha	0.03 ha	0.05 ha	0.02 ha	0.05 ha	0.02 ha	0.05 ha	0.02 ha	0.05 ha	0.02 ha	0.06 ha	0.02 ha
		Total area of impact	1.29 ha	1.16 ha	0.85 ha	0.51 ha	1.32 ha	1.17 ha	1.32 ha	0.49 ha	1.30 ha	1.11 ha	0.40 ha	0.26 ha	1.31 ha	1.17 ha	1.31 ha	1.17 ha	0.82 ha	0.67 ha
Populations/Species	Impacts to Species at Risk	Quantitative assessment of impacts	loss of 142 provincially rare specimens/ colonies	loss of 102 provincially rare specimens/ colonies	loss of 134 provincially rare specimens/ colonies	loss of 92 provincially rare specimens/ colonies	loss of 152 provincially rare specimens/ colonies	loss of 112 provincially rare specimens/ colonies	loss of 152 provincially rare specimens/ colonies	loss of 103 provincially rare specimens/ colonies	loss of 162 provincially rare specimens/ colonies	loss of 122 provincially rare specimens/ colonies	loss of 155 provincially rare specimens/ colonies	loss of 116 provincially rare specimens/ colonies	loss of 145 provincially rare specimens/ colonies	loss of 105 provincially rare specimens/ colonies	loss of 145 provincially rare specimens/ colonies	loss of 105 provincially rare specimens/ colonies	loss of 131 provincially rare specimens/ colonies	loss of 92 provincially rare specimens/ colonies
Designated Natural Areas	Impacts to Designated Natural Areas located off site	Area (in hectares)	54.49	44.34	54.82	44.67	54.18	44.10	54.51	44.62	55.54	46.07	55.26	45.79	53.88	44.41	53.61	44.14	53.50	43.38
Surface Water	Changes in surface water conditions (quality and quantity)	Area (in hectares) of surface drainage altered by each alternative	54.0		54.0		54.0		54.0		33.9		33.9		35.3		35.3		27.3	
		Number of surface water drainages crossings by stream type	3 - Basin - Mangin/Turkey 1 - Lennon 2 - Cahill		3 - Basin - Mangin/Turkey 1 - Lennon 2 - Cahill		3 - Basin - Mangin/Turkey 1 - Lennon 2 - Cahill		3 - Basin - Mangin/Turkey 1 - Lennon 2 - Cahill 1 - Wolfe Drain		3 - Basin - Mangin/Turkey 1 - Lennon 2 - Cahill 1 - Wolfe Drain		3 - Basin - Mangin/Turkey 1 - Lennon 2 - Cahill 1 - Wolfe Drain		3 - Basin - Mangin/Turkey 1 - Lennon 2 - Cahill 1 - Wolfe Drain		N/A			
		Number of encroachments on or severances of surface water drainages	2-Cahill 1 - Wolfe Drain		2-Cahill 1 - Wolfe Drain		Turkey Lennon Cahill Wolfe Drain		Turkey Lennon Cahill Wolfe Drain		Turkey Lennon Cahill Wolfe Drain		Turkey Lennon Cahill Wolfe Drain		Turkey Lennon Cahill Wolfe Drain		N/A			
		Degree of compliance with Provincial and Federal Water Quality Guidelines and Stormwater Management requirements (Protection level: Enhanced, Normal or Basic)	Enhanced (80% long-term Total Suspended Solids; removal and quantity control to be provided)																	
Groundwater	Change in groundwater conditions (quality and quantity)	Area of infiltration zones affected	33 ha		33 ha		39 ha		39 ha		33 ha		33 ha		39 ha		39 ha		18 ha	
		Area of groundwater recharge affected	33 ha		33 ha		39 ha		39 ha		33 ha		33 ha		39 ha		39 ha		18 ha	
		Areas of seepage affected	n/a		n/a		n/a		n/a		n/a		n/a		n/a		n/a		n/a	
		Area of water table affected by each alternative (draw down zone)	Area of drawdown without mitigation may reach 88 ha Degree of drawdown depends on wall type. Drawdown may be mitigated significantly and difference between options may be negligible. Permanent drawdown only to affect water pressures in silt & clay upper soil profile and not bedrock aquifer.		Area of drawdown without mitigation may reach 88 ha Degree of drawdown depends on wall type. Drawdown may be mitigated significantly and difference between options may be negligible. Permanent drawdown only to affect water pressures in silt & clay upper soil profile and not bedrock aquifer.		Area of drawdown without mitigation may reach 120 ha Degree of drawdown depends on wall type. Drawdown may be mitigated significantly and difference between options may be negligible. Permanent drawdown only to affect water pressures in silt & clay upper soil profile and not bedrock aquifer.		Area of drawdown without mitigation may reach 120 ha Degree of drawdown depends on wall type. Drawdown may be mitigated significantly and difference between options may be negligible. Permanent drawdown only to affect water pressures in silt & clay upper soil profile and not bedrock aquifer.		Area of drawdown without mitigation may reach 88 ha Degree of drawdown depends on wall type. Drawdown may be mitigated significantly and difference between options may be negligible. Permanent drawdown only to affect water pressures in silt & clay upper soil profile and not bedrock aquifer.		Area of drawdown without mitigation may reach 88 ha Degree of drawdown depends on wall type. Drawdown may be mitigated significantly and difference between options may be negligible. Permanent drawdown only to affect water pressures in silt & clay upper soil profile and not bedrock aquifer.		Area of drawdown without mitigation may reach 88 ha Degree of drawdown depends on wall type. Drawdown may be mitigated significantly and difference between options may be negligible. Permanent drawdown only to affect water pressures in silt & clay upper soil profile and not bedrock aquifer.		Area of drawdown without mitigation may reach 120 ha Degree of drawdown depends on wall type. Drawdown may be mitigated significantly and difference between options may be negligible. Permanent drawdown only to affect water pressures in silt & clay upper soil profile and not bedrock aquifer.			
		Proximity of alternative to public and private drinking water wells	Eight wells are mapped within the MOE Water Well Database within 300 m of the alternative. All wells are likely bedrock aquifer wells. Status of the wells is unknown. Drawdown (above) likely will not affect water wells.		Eight wells are mapped within the MOE Water Well Database within 300 m of the alternative. All wells are likely bedrock aquifer wells. Status of the wells is unknown. Drawdown (above) likely will not affect water wells.		Eight wells are mapped within the MOE Water Well Database within 300 m of the alternative. All wells are likely bedrock aquifer wells. Status of the wells is unknown. Drawdown (above) likely will not affect water wells.		Eight wells are mapped within the MOE Water Well Database within 300 m of the alternative. All wells are likely bedrock aquifer wells. Status of the wells is unknown. Drawdown (above) likely will not affect water wells.		Eight wells are mapped within the MOE Water Well Database within 300 m of the alternative. All wells are likely bedrock aquifer wells. Status of the wells is unknown. Drawdown (above) likely will not affect water wells.		Eight wells are mapped within the MOE Water Well Database within 300 m of the alternative. All wells are likely bedrock aquifer wells. Status of the wells is unknown. Drawdown (above) likely will not affect water wells.		Eight wells are mapped within the MOE Water Well Database within 300 m of the alternative. All wells are likely bedrock aquifer wells. Status of the wells is unknown. Drawdown (above) likely will not affect water wells.		Eight wells are mapped within the MOE Water Well Database within 300 m of the alternative. All wells are likely bedrock aquifer wells. Status of the wells is unknown. Drawdown (above) likely will not affect water wells.		Eight wells are mapped within the MOE Water Well Database within 300 m of the alternative. All wells are likely bedrock aquifer wells. Status of the wells is unknown. Drawdown (above) likely will not affect water wells.	
Other Natural Resources	Impacts to mineral, petroleum, granular (quarry) lands/ easements	Area (in hectares) within ROW	None found		None found		None found		None found		None found		None found		None found		None found		None found	



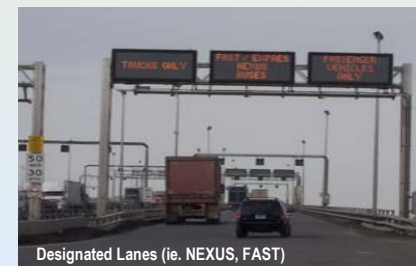
## Summary of Assessment

- All alternatives provide a significant improvement to regional mobility by getting long distance truck traffic off local streets and providing full freeway access to and from the border.
- With the tunnel, existing side-street connections could remain in place. Street connections in the other alternatives would require modification, which in some cases results in some minor out-of-way travel.
- There are no substantive differences in the safety performance between a tunnel and non-tunnel alternatives. Studies suggest that frequency of crashes in a tunnel may be less than a non-tunnel, but the consequences of crashes within a tunnel are generally more severe and challenging for emergency services.
- All alternatives provide a safety benefit compared to “do-nothing” by transferring long distance traffic from existing Huron Church Road to a controlled access freeway.



## What's Next?

- Assess refinements to alternatives with ongoing consultation with municipalities, including ongoing analysis of Highway 3 interchange.
- Conduct analysis of enhanced Parkway alternative.
- Conduct more detailed analysis of the Technically and Environmentally Preferred Alternative.



## Analysis Results

Performance Measure	Criteria/Indicator	Measurement/Units	Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B		Alternative 3	
			Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	Option1	Option 2		
Highway Network Effectiveness	Transportation service on access road (See Note 1)	Level of Service (LOS), Travel Time, Average Speed (peak direction/peak hour)	Overall, good operations on freeway LOS C or better Travel time: 5.4 min Avg Speed: 100 km/h		Overall, good operations on freeway LOS C or better Travel time: 5.4 min Avg Speed: 100 km/h		Overall, good operations on freeway LOS C or better Travel time: 5.4 min Avg Speed: 100 km/h		Overall, good operations on freeway LOS C or better Travel time: 5.4 min Avg Speed: 100 km/h		Overall, good operations on freeway LOS C or better Travel time: 6.0 min Avg Speed: 90 km/h	
	Transportation service on service roads (See Note 1)	Level of Service, Travel Time, Average Speed (peak direction/peak hour)	Overall, good operations on service road, LOS B or better Travel time: 7.0 - 7.8 min Avg Speed: 50 - 58 km/h		Overall, good operations on service road, LOS B Travel time: 7.6 - 8.1 min Avg Speed: 48 - 53 km/h		Overall, good operations on service road, LOS C or better Travel time: 7.6 - 9.3 min Avg Speed: 43 - 51 km/h		Overall, good operations on service road, LOS C or better Travel time: 8.2 - 9.6 min Avg Speed: 41 - 48 km/h		Overall, good operations on service road, LOS B Travel time: 8.1 - 8.3 min Avg Speed: 48 - 49 km/h	
	Operations at interchanges and intersections	Subjective assesment based on analysis	Overall, service roads operate well		Overall, service roads operate well		Overall, service roads operate well. Localized congestion at the Cabana/Todd/Highway 401 interchange (queues on Cabana/Todd)		Overall, service roads operate well. Localized congestion at the Cabana/Todd/Highway 401 interchange (queues on Cabana/Todd)		Overall, service roads operate well	
Continuous/ongoing river crossing capacity (i.e. redundancy)	Assessment of access to/across access road in cases of incidents/emergency/maintenance	Qualitative	Probability of incidents are reduced in comparison to do nothing; there is a safety benefit from alternatives maintaining connection to/from the Ambassador Bridge crossing and providing access to/from the new crossing; improved regional mobility through additional capacity and separating international and local traffic.									
			All alternatives provide comparable access between the service roads and the cross streets with slight differences: - direct access is not provided between the service road and Bethlehem Street and Labelle Street. Direct access between Huron Church Road and Huron Church Line is not provided and there is only right-in, right-out access at Surrey Drive and Grosvenor Drive (the intersection in the base case condition allows for all moves) on the Highway 3 section. This will require minor out-of-way travel.		All alternatives provide comparable access between the service roads and the cross streets with slight differences: - provides access to all cross streets, but with only right-in, right-out access at Surrey Drive and Grosvenor Drive (the intersection in the base case condition allows for all moves) on the Highway 3 section. This will require minor out-of-way travel		All alternatives provide comparable access between the service roads and the cross streets with slight differences: - no direct access Montgomery Drive, Surrey Drive and Grosvenor Drive do not provide direct access to the service road via these streets. This will require some out-of-way travel for residents of the neighborhood bounded by Highway 3, Howard Avenue, 6th Concession and Sandwich West Parkway		All alternatives provide comparable access between the service roads and the cross streets with slight differences: - intersection treatments at Montgomery Drive, Surrey Drive and Grosvenor Drive do not provide direct access to the service road via these streets. This will require some out-of-way travel for residents of the neighborhood bounded by Highway 3, Howard Avenue, 6th Concession and Sandwich West Parkway.		All alternatives provide comparable access between the service roads and the cross streets with slight differences: - provides good access to all cross streets	
			An access point between the freeway and service road is provided at only at St. Clair College. There is no direct access at Todd Lane Road/Cabana Road West or Howard Avenue.		Provides highest degree of access with two major access points between the freeway and service road. A fully directional interchange at St. Clair College and a partial interchange at Todd Lane Road/Cabana Road West		An access point between the freeway and service road is provided at only at Todd Lane Cabana. There is no direct access at St. Clair College or Howard Avenue.		An access point between the freeway and service road is provided at only at Todd Lane Cabana. There is no direct access at St. Clair College or Howard Avenue.		An access point between the freeway and service road is provided at only at St. Clair College. There is no direct access at Todd Lane Road/Cabana Road West or Howard Avenue.	
			Freeway is readily accessable from Service Road		Freeway is readily accessable from Service Road		Freeway is readily accessable from Service Road		Freeway is readily accessable from Service Road		Access in situations of incidents, emergency and maintenance is further limited by physical separation between the service road above and tunneled freeway below.	
	Degree of separation of international and local traffic	Qualitative	Good separation of local and international traffic for all practical alternatives									

Notes:  
1. Range based on 2035 northbound AM peak hour, and 2035 southbound PM peak hour.



## Summary of Assessment

- All access road alternatives are constructable. Traffic flow can be reasonably maintained in the Huron Church Road/Highway 3 corridor throughout the construction period.
- Construction is complicated by the high water table and relatively poor ground conditions, and those problems increase with the depth of construction.
- Cost estimate (\$CDN for year 2011) access road alternatives from Highway 401 to Malden Road is:
  - At-grade alternatives: \$620 million to \$920 million
  - Below-grade alternatives: \$1.0 billion to \$1.4 billion
  - Tunnel alternative: \$3.6 billion to \$3.8 billion
- Complexity of construction, risks to schedule and overall project costs are greatest for a tunnelled option.

### What's Next:

- Conduct analysis of enhanced Parkway alternative
- Conduct detailed analysis of the Technically and Environmentally Preferred Alternative.
- Conduct preliminary design for Technically and Environmentally Preferred Alternative.
- Complete the geotechnical deep borehole program to confirm the integrity of the underlying bedrock and any impacts from past salt mining activities in the area for Crossings B and C.

## Analysis Results

Performance Measure	Criteria/Indicator	Measurement/Units	Alternative 1A		Alternative 1B		Alternative 2A		Alternative 2B		Alternative 3
			Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	Option 1	Option 2	
Preliminary Construction Costs Assessment of Constructability	Length of Alternative (Hwy 401 to Malden)	Kilometres	9		9		9		9		9
	Preliminary Construction Costs (property costs not included)	\$ millions CAD (2011)	920.0 (Plaza A)		1.360 (Plaza A)		790.0 (Plaza A)		1.200 (Plaza A)		3.780 (Plaza A)
			750.0 (Plaza B and C)		1.190 (Plaza B and C)		620.0 (Plaza B and C)		1.030 (Plaza B and C)		3.610 (Plaza B and C)
	Life Cycle Cost	Qualitative	The life cycle cost for Alternative 1A is approximately 13% higher than Alternative 2A.		The life cycle cost for Alternative 1B is approximately 58% higher than Alternative 2A.		Alternative 2A has the lowest life cycle cost.		The life cycle cost for Alternative 2B is approximately 43% higher than Alternative 2A.		The life cycle cost for Alternative 3 is four times higher than Alternative 2A. This is primarily due to higher maintenance costs associated with safety support systems.
	Site constraints (eg. utilities, watercourse crossings)	Qualitative	All alternatives will require a similar degree of utility relocation prior to construction. Watercourses can be crossed by constructing a bridge at Grand Marais Drain / Turkey Creek, and culverts at Cahill and Lennon drains.  4 Pumping Station & 10 SWM Ponds required		All alternatives will require a similar degree of utility relocation prior to construction. Relocation of utilities for below grade alternatives such as Alternative 1B may be slightly more complex as additional excavation may be required. Watercourses will be crossed by constructing a short tunnel section under Grand Marais Drain / Turkey Creek, and syphons at Cahill and Lennon drain.  5 Pumping Stations & 8 SWM Ponds required		All alternatives will require a similar degree of utility relocation prior to construction. Alternative 2A will have a slightly less impact on utilities since some utilities parallel to Highway 3/Huron Church Road can be retained, since most of the existing road will be maintained at the current location. Watercourses can be crossed by constructing a bridge at Grand Marais Drain / Turkey Creek, and culverts at Cahill and Lennon drains  4 Pumping Stations & 8 SWM Ponds required		All alternatives will require a similar degree of utility relocation prior to construction. Alternative 2B will have a slightly less impact on utilities since some utilities parallel to Highway 3/Huron Church Road can be retained, since most of the existing road will be maintained at the current location. However, relocation of utilities for below grade roadways may be slightly more complex as additional excavation may be required. Watercourses will be crossed by constructing a short tunnel section under Grand Marais Drain / Turkey Creek, and syphons at Cahill and Lennon drain.  4 Pumping Stations & 8 SWM Ponds required		AAll alternatives will require a similar degree of utility relocation prior to construction. Relocation of utilities for below grade alternatives such as Alternative 3 may be slightly more complex as additional excavation may be required. Watercourses will be crossed by constructing a tunnel under Grand Marais Drain / Turkey Creek, Cahill and Lennon drain.  4 Pumping Stations & 3 SWM Ponds required
	Geotechnical considerations	Qualitative and quantitative assessment of subsurface conditions	Existing soil conditions become progressively softer and less favourable for conventional construction methods north of Grand Marais Drain. The construction of below grade cross-sections should be feasible up to a depth of 10m without undertaking additional measures to control soil.								
		Lengths of above grade, at grade, depressed and tunnel sections	0.6 km above grade, 3.8 km at grade, 4.6 km below grade, 0 km tunnel.	0.6 km above grade, 1.5 km at grade, 6.8 km below grade, 0.1 km tunnel.	0.6 km above grade, 4.1 km at grade, 4.3 km below grade, 0 km tunnel.	0.6 km above grade, 1.3 km at grade, 7.0 km below grade, 0.1 km tunnel.	0.6 km above grade, 1.9 km at grade, 0.5 km below grade, 6.0 km tunnel.				
	Construction staging/duration	Qualitative assessment of staging duration for access road, plaza and crossing	Construction staging associated with constructing retaining wall systems is complex and will require a moderate effort to construct. At grade alternatives will require a moderate to long duration to construct. Access to and from affected properties can be maintained during construction.	Construction staging associated with constructing extensive retaining wall systems and short tunnel section below Grand Marais Drain / Turkey Creek is complex and will require a moderate to high effort to construct. Below grade alternatives will require a moderate to long duration to construct. Access to and from affected properties can be maintained during construction.	Construction staging associated with constructing retaining wall systems is complex and will require a moderate effort to construct. At grade alternatives will require a moderate to long duration to construct. Access to and from affected properties can be maintained during construction.	Construction staging associated with constructing extensive retaining wall systems and short tunnel section below Grand Marais Drain / Turkey Creek is complex and will require a moderate to high effort to construct. Below grade alternatives will require a moderate to long duration to construct. Access to and from affected properties can be maintained during construction.	Construction staging associated with the tunnel alternative is the most complex and will require the most intense effort to construct. The tunnel will require the longest duration to construct. Access to and from affected properties can be maintained during construction.				
	Assessment of construction risks	Qualitative and quantitative assessment of effects of traffic management, utility relocations, subsurface conditions on completion of construction within project timeframe (2013)	Moderate to high resource requirements result in a moderate to high risk that the tunnel will not be completed within the 2013 time frame.	Moderate to high resource requirements result in a moderate to high risk that the tunnel will not be completed within the 2013 time frame.	Moderate to high resource requirements result in a moderate to high risk that the tunnel will not be completed within the 2013 time frame.	Moderate to high resource requirements result in a moderate to high risk that the tunnel will not be completed within the 2013 time frame.	Higher construction complexity and resource requirements result in a high risk that the tunnel will not be completed within the 2013 time frame.				
	Degree of impact on traffic during construction	Qualitative and quantitative assessment of ability to maintain access to existing crossings during construction	Access to and from existing crossings can be maintained for all alternatives. New structures will be constructed for the main crossing roads.								
	Maintenance requirements	Qualitative assessment of costs and disruption due to maintenance operations	Yearly operation and maintenance requirements for at grade alternatives are lower than the tunnel.  Pumping stations require routine maintenance measures and monitoring to provide debris trapping removal and sediments handling and removal. Typical features for monitoring include: high water in the wet well, number of starts for each motor, leakage, sediments level, motor/ engine failure, smoke, gases, etc.	Yearly operation and maintenance requirements for below grade alternatives are lower than the tunnel. Some additional maintenance is required for syphons under Cahill and Lennon drains.  Pumping stations require routine maintenance measures and monitoring to provide debris trapping removal and sediments handling and removal. Typical features for monitoring include: high water in the wet well, number of starts for each motor, leakage, sediments level, motor/ engine failure, smoke, gases, etc.	Yearly operation and maintenance requirements for at grade alternatives are lower than the tunnel.  Pumping stations require routine maintenance measures and monitoring to provide debris trapping removal and sediments handling and removal. Typical features for monitoring include: high water in the wet well, number of starts for each motor, leakage, sediments level, motor/ engine failure, smoke, gases, etc.	Yearly operation and maintenance requirements for below grade alternatives are lower than the tunnel. Some additional maintenance is required for syphons under Cahill and Lennon drains.  Pumping stations require routine maintenance measures and monitoring to provide debris trapping removal and sediments handling and removal. Typical features for monitoring include: high water in the wet well, number of starts for each motor, leakage, sediments level, motor/ engine failure, smoke, gases, etc.	Yearly operation and maintenance requirements for the tunnel including safety support systems (ventilation, lighting, CCTV) are high.  Pumping stations require routine maintenance measures and monitoring to provide debris trapping removal and sediments handling and removal. Typical features for monitoring include: high water in the wet well, number of starts for each motor, leakage, sediments level, motor/ engine failure, smoke, gases, etc.				

# Geotechnical Explorations and Analyses – Access Roads

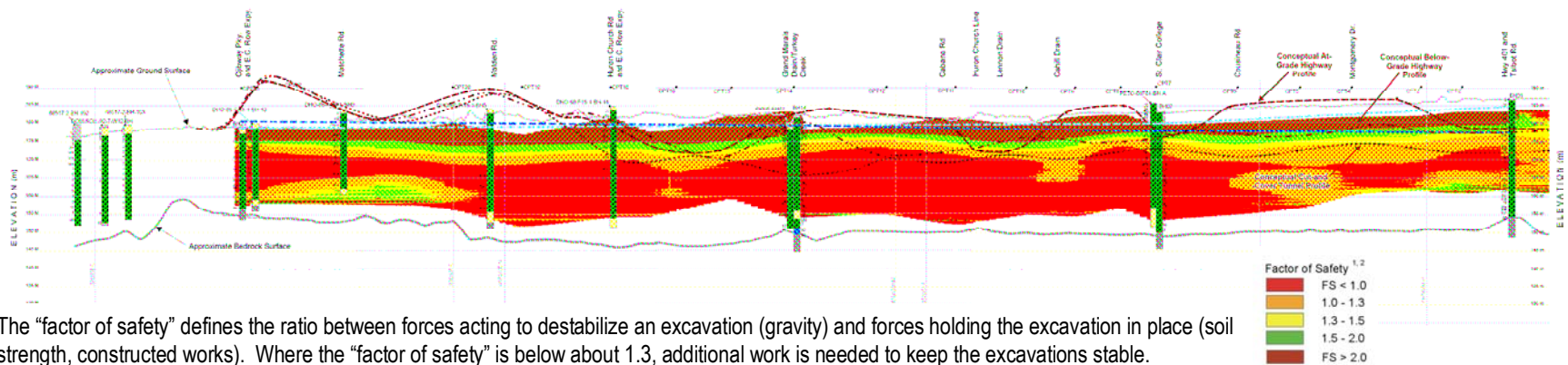
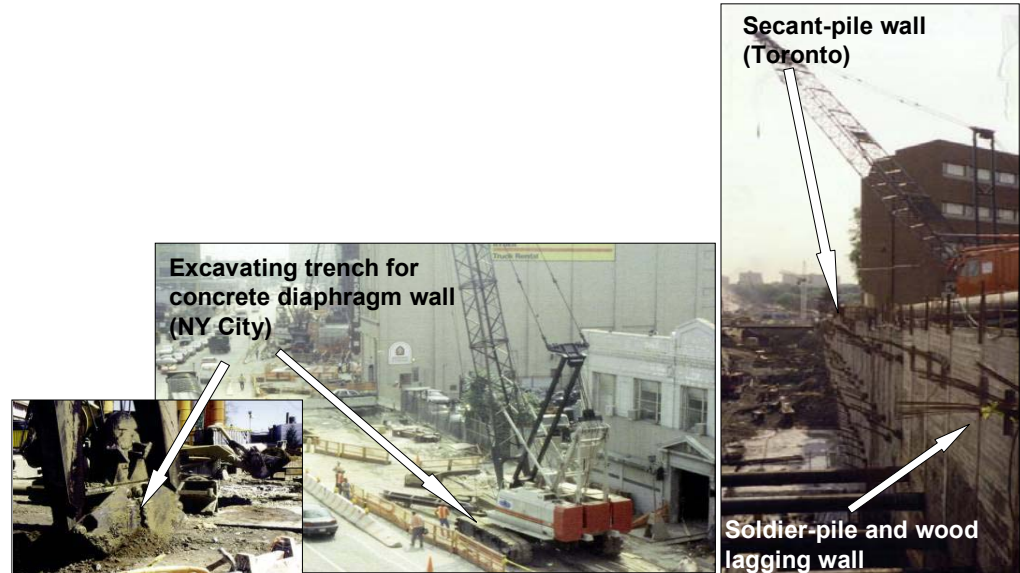
## Underground Construction

The ground conditions influence constructability and cost because:

- The silt and clay soils have a strong “crust” in the top 5 to 10 m, below which they become much weaker
- Groundwater in the bedrock produces hydrogen sulphide gas when exposed to air

Construction methods suitable for constructing below-grade retaining walls:

- Conventional retaining walls (< 5 m)
- Soldier-piles and lagging (limited applications)
- Secant-pile or concrete diaphragm walls (deep excavations)



The Parkway, with a below-grade access road and a number of short tunnels, could address the future transportation and mobility needs of the region, improve traffic operations and safety, protect people and communities.

The Study Team is currently seeking comments on the Parkway alternative. In developing this alternative, two goals were identified based on the transportation and mobility needs and community input:

1. Improve Regional Mobility

- Provide connections to and from new and existing border crossings and maintain separation of international and local traffic

2. Reduce/eliminate the potential for the access road to act as a 'barrier' between communities

- Maintain/enhance local access and maintain/enhance community connections

The following display identifies areas where the Study Team is considering enhancements to reduce impacts and enhance the benefits of a new access road corridor. Your comments on the locations for enhancement opportunities and the types of enhancements under consideration are encouraged.



# The Parkway-A New Option

Based on your feedback and ideas, the Study Team identified requirements of local residents in selecting access road alternatives:

- Takes trucks off local streets
- Reduces the amount of pollutants in the air
- Improves the movement of border-bound traffic
- Is not intrusive
- Is state-of-the-art
- Will not be determined on cost alone
- Improves the quality of life
- Provides a long-term solution

A new Parkway alternative has been developed for the access road, reflecting the study goals and the community input. Described as a green transportation corridor, the access road for international traffic would be below-grade with a number of short tunnels. It can address all of the requirements for the access road identified by the community and the study team listed above. This plan not the final access road option. We will look to the community for their input on the look and feel of the Parkway.

Before any final decision are made, the Parkway will be analyzed in the same level of detail as the initial five Practical Alternatives.

Other features of the Parkway include:

- People-friendly spaces including wider bridges to allow communities on both sides of the corridor to connect
- New trails for pedestrians and cyclists
- Linkages for wildlife
- Landscaped buffer zones
- Entrance points for local traffic
- Reduced impact of international traffic on neighbourhoods
- Opportunities to create a signature



# Context Sensitive Solutions (CSS)

A collaborative, interdisciplinary approach to transportation planning that considers the greater context within which a transportation improvement project will exist. CSS involves all stakeholders in the development of a transportation facility that fits its physical setting and preserves the scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility.

CSS is a key component of the development of practical alternatives for DRIC. CSS workshops and activities held over the course of the study included:

- **Inspection Plaza Location Development** – January 2006
- **Access Road Refinement** – February 2006 and April 2006
- **Context Sensitive Solutions Concept Preference** – June 2006
- **Bus Tour of Bridges, Toledo, Ohio and Port Huron, Michigan** – June 2006
- **Bus Tour of Freeway Types, Detroit, Michigan** – June 2006
- **Access Road and Plaza CSS Themes** – October 2006
- **Crossing Concepts and Preference Survey** – November 2006
- **Crossing Concepts and Preference Survey** – August 2007 (U.S. Side)



# Summary of Analysis – Crossing and Plaza Alternatives

## Update

The environmental and technical analysis completed to date are presented in the following displays.

The foundations investigations near the known brine well areas are nearing completion. This information is necessary to make a sound decision on the location of the new river crossing. Once the findings of this work are available, the Partnership will be in a position to recommend a preferred crossing location.

## Changes in Air Quality

- Each plaza results in increases in fine particulates and nitrogen oxides (NO<sub>x</sub>) up to 250m from the plaza
- In the vicinity of Plaza A, implementation of any alternative results in increased PM<sub>2.5</sub> and NO<sub>x</sub> concentrations in relation to the No Build Alternative
- Plaza A results in marginally higher PM<sub>2.5</sub> and NO<sub>x</sub> concentration than Plaza B
- The effects of Plazas B, B1 and C are predominantly seen in the area to the west of Ojibway Parkway/E.C. Row Expressway interchange at non-sensitive receptors.
- None of the plaza options would result in a discernible difference in the maximum predicted concentrations for Sandwich Towne.

## Protection of Community and Neighbourhood Characteristics

- Plaza A alternatives result in the highest residential displacements (between 62-66 households); Plazas B, B1 and C result in 35-38 households displaced
- The noise generated from the plaza locations is not expected to cause a high noise impact for areas closest to the plazas after mitigation
- With Crossing C, over 100 households will increase in > 5dB before mitigation; however, an acoustic barrier on the crossing can reduce noise impacts to <5dB. The cost effectiveness of this barrier, as well as other mitigation measures will be considered.
- Crossing C alternatives displace 5-6 businesses, the other crossings displace one business

## Consistency with Existing & Planned Land Use

- Plaza A is the least consistent with existing land use, which consists of predominately residential/natural areas
- Crossing B alternatives and Plaza C/Crossing C disrupt water dependent land uses (marine fuelling station)
- Plaza C/Crossing C has the greatest impact to known contaminant sites

## Protection of Cultural Resources

- Of the remaining lands to be examined, half have no archaeological potential, and a portion of Plaza B, B1 and C are within the area of a 1749 French Settlement.
- There are no significant differences among the options in terms of impacts to historical, cultural and archaeological features.



# Summary of Analysis – Crossing and Plaza Alternatives

## Protection of Natural Environment

- Plazas C/Crossing C has the least impacts to natural features while Plaza A alternatives have the highest impacts to natural features

## Improve Regional Mobility

- All alternatives can accommodate the future (2035) travel demands
- Distance between the border and plaza is the greatest with the Plaza A alternatives
- Proximity to marine fuelling station with Crossing C is a manageable risk

## Cost and Constructability

- Based on consultation with Canadian and U.S. agencies and shipping industry representatives, the Study Teams are not considering any alternative with piers in the Detroit River. The new crossing will clear span the entire river.
- The cost estimates for the Canadian inspection plazas and crossings are as follows:
  - Plazas: \$180 mil to \$280 mil (Yr 2011 CAD)
  - Crossings:
    - Crossing A: \$770 mil to \$920 mil (Yr 2011 USD)
    - Crossing B: \$430 mil to \$540 mil (Yr 2011 USD)
    - Crossing C: \$450 mil to \$580 mil (Yr 2011 USD)
- Crossing C approach roadway crosses known brinewell areas while Crossing B is located adjacent to known brinewells. Final results of the Geotechnical Investigations are expected to be available by early 2008. This information is necessary to make a sound decision on the location of the new river crossing. Once the findings of this work are available, the Partnership will be in a position to recommend a preferred crossing location.

US Analysis*						CDN Analysis*	
Plaza 4	Crossing A	Plaza Loc 6	Crossing A	Measure		Measure	Crossing A - Plaza A
Refer to Graphic		Refer to Graphic		CO Concentration Hotspots		Changes in PM <sub>10</sub> Concentration	Slight increases in PM <sub>10</sub> within 250 m of crossing and plaza.
						Changes in NO <sub>x</sub> Concentration	Slight increases in NO <sub>x</sub> within 250 m of crossing and plaza.
14	0	14	0	Streets Closed	Traffic	Effect on Local Access - Roads crossed/closed	7/7 - Minor out-of-way travel.
101	0	101	4	Frontline Exposure (Total Residential)	Noise	Receptors with change in noise levels >5 dBA (2035; before mitigation; compared to future doing nothing)	21
151	0	151	0	Occupied Residential	Potential Acquisition	Potential Acquisitions Households	60
18	3	18	3	Active Businesses		Potential Acquisitions Businesses/Industries	1
3-New Day Church, Saint Paul Church, Abundant Life Church	0	3-New Day Church, Saint Paul Church, Abundant Life Church	0	Schools/Places of Worship/Significant Others		Social features (institutional) displaced	1 - Erie Wildlife Rescue
No	Yes	No	Yes	Consistency	Official Plans	Consistency	Plaza location not consistent with existing land uses of the Spring Garden Planning Area; impacts to existing and planned residential uses. Crossing and approaches located in vacant industrial area; consistent.
6	2	6	2	Number	Environmental Sites Affecting Plan Implementation	Known Contaminant Sites Impacted	0
0	0	0	0	Number/Site	Above Ground Historic Resources	Designated built heritage features potentially displaced	1 Cultural Landscape Unit - Brighton Beach
1-Rademacher Park	0	1-Rademacher Park	0	Number/Site	Parklands	Direct Impacts to Parks	Ojibway Park (0.7 ha)
2	0	2	0	Number	Archaeologic Sites	Potential archaeological sites affected	4 - pre-contact habitation sites/Euro-Canadian homesteads 5 - pre-contact findspots
1-St.Paul A.M.E	0	1-St.Paul A.M.E	0	Number/Site	Potentially Eligible Structure		
0	0	0	0	Number/Site	Significant Habitat	Feature Impacts	Loss of 2.98 ha of provincially rare vegetation communities. Loss of 232 specimens/colonies of species at risk.
37,000 Vehicles		37,400 Vehicles		2035 ADT	2035 Average Daily Crossing Volume 2-Way (ADT)	2035 Average Daily Car and Truck Volume	Canadian Plaza and Crossing sized to accommodate 39,000 vehicles daily in 2035 (AADT, truck and auto)
				Key Issues		Is it constructable?	Yes, subject to result of brine well investigations on U.S. side.
Utility Relocation, Braided Ramps	Bridge Length/Complexity, Contaminated Soils	Utility Relocation, Braided Ramps	Bridge Length/Complexity, Contaminated Soils			Key Issues	Direct impacts OPG Brighton Beach Power Station shore facilities. 4 crossings of HydroOne Power transmission lines. 2 grade separated crossings of ETR Railway. 4 crossings of BP Canada High Pressure line.

## US Plaza – Crossing 10A – Plaza A Preliminary Analysis Summary



Length of River Crossing (Bank to Bank) = 1.1 km  
Total Length of Crossing (Plaza to Plaza) = 4.3 km

\*Cdn analysis updated to reflect results of analysis to date; U.S. analysis in this exhibit unchanged from that presented in Dec. 2006

## US Plaza – Crossing B – Plaza A Preliminary Analysis Summary

US Analysis *						CDN Analysis*	
Plaza 4	Crossing B	Plaza Loc 6	Crossing B	Measure	Evaluation Factor	Measure	Crossing B - Plaza A
Refer to Graphic		Refer to Graphic		CO Concentration Hotspots	Changes in Air Quality	Changes in PM <sub>2.5</sub> Concentration	Slight increases in PM <sub>2.5</sub> within 250 m of crossing and plaza.
						Changes in NO <sub>x</sub> Concentration	Slight increases in NO <sub>x</sub> within 250 m of crossing and plaza.
14	0	14	0	Streets Closed	Traffic	Effect on Local Access - Roads crossed/ closed	4/9 - Access maintained. Minor out-of-way.
101	0	101	4	Frontline Exposure (Total Residential)	Noise	Receptors with change in noise levels >5 dBA (before mitigation; compared to future do-nothing)	19
151	0	151	0	Occupied Residential	Potential Acquisition	Potential Acquisitions Households	70
18	2	18	2	Active Businesses		Potential Acquisitions Businesses/Industries	1
3 - New Day Church, Saint Paul Church, Abundant Life Church	0	3 - New Day Church, Saint Paul Church, Abundant Life Church	0	Significant Others/ Schools/Places of Worship		Social features (institutional) displaced	1 - Erie Wildlife Rescue
No	Yes	No	Yes	Consistency	Official Plans	Consistency	Plaza location not consistent with existing land uses of the Spring Garden Planning Area; impacts to existing and planned residential uses. Crossing and approaches located in occupied and vacant industrial areas; consistent.
6	2	6	2	Number	Environmental Sites Affecting Plans Implementation	Known Contaminant Sites Impacted	2
0	0	0	0	Number/Site	Above Ground Historic Resources	Designated built heritage features potentially displaced	1 Cultural Landscape Unit - Brighton Beach 1 Built Heritage Feature - house
1-Rademacher Park	0	1-Rademacher Park	0	Number/Site	Parklands	Direct Impacts to Parks	Ojibway Park (0.7 ha)
2	0	2	0	Number	Archaeologic Sites	Potential archaeological sites affected	1 - pre-contact habitation sites/Euro-Canadian homesteads 4 - pre-contact findspots
1 - St.Paul A.M.E	0	1 - St.Paul A.M.E	0	Number/Site	Potentially Eligible Structure	Feature Impacts	Loss of 2.70 ha of provincially rare vegetation communities. Loss of 223 specimens/colonies of species at risk...
0	0	0	0	Number/Site	Significant Habitat	2035 Average Daily Car and Truck Volume	Canadian Plaza and Crossing sized to accommodate 39,000 vehicles daily in 2035 (AADT, truck and auto)
37,000 Vehicles		37,400 Vehicles		2035 ADT	2035 Average Daily Crossing Volume 2-Way (ADT)	Is it constructable?	Yes, subject to result of brine well investigations
Utility Relocation, Braided Ramps	Contaminated Soils, Utilities	Utility Relocation, Braided Ramps	Contaminated Soils, Utilities	Refer to Individual Crossing Alignments	Key Issues	Key Issues	Relocation/reconfiguration Keith transformer station, 6 crossings of HydroOne transmission lines, 2 crossings of ETR Railway, 2 crossings of BP Canada High Pressure lines.
						Cost and Constructability	



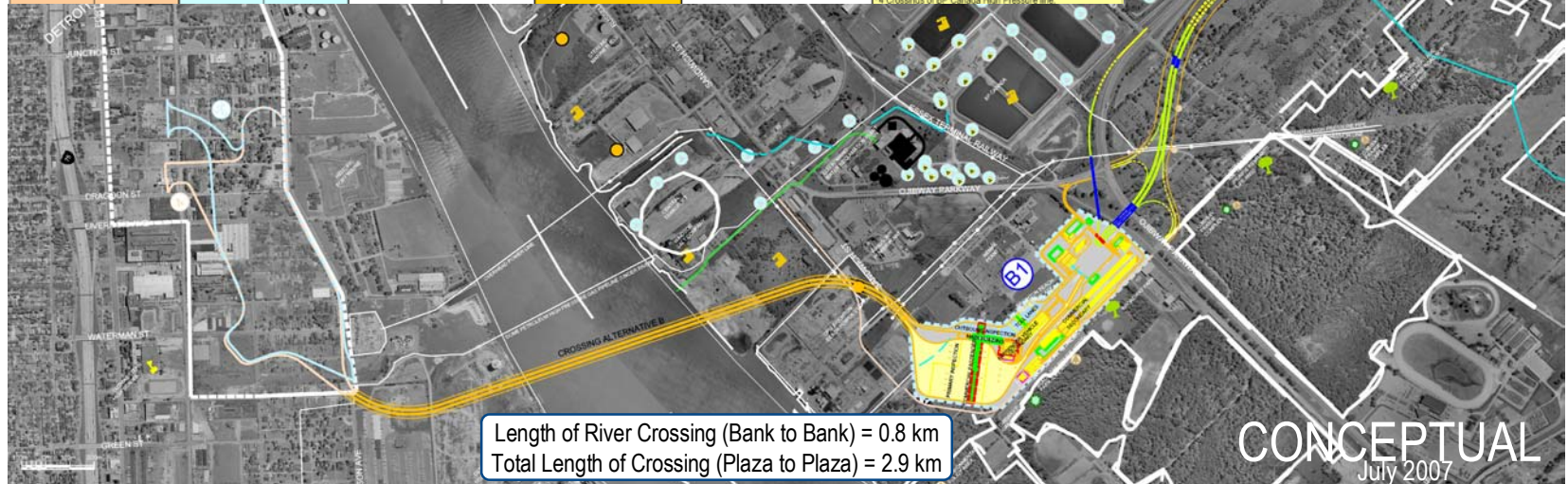
Length of River Crossing (Bank to Bank) = 0.8 km  
Total Length of Crossing (Plaza to Plaza) = 4.3 km

\*Cdn analysis updated to reflect results of analysis to date; U.S. analysis in this exhibit unchanged from that presented in Dec. 2006



## US Plaza – Crossing B – Plaza B1 Preliminary Analysis Summary

US Analysis *					Evaluation Factor	CDN Analysis*	
Plaza 4	Crossing B	Plaza Loc 6	Crossing B	Measure		Measure	Crossing B - Plaza B1
Refer to Graphic		Refer to Graphic		CO Concentration Hotspots	Changes in Air Quality	Changes in PM <sub>2.5</sub> Concentration	Slight increases in PM <sub>2.5</sub> within 250 m of crossing and plaza.
14	0	14	0	Streets Closed	Protection of Community and Neighbourhood Characteristics	Changes in NO <sub>2</sub> Concentration	Slight increases in NO <sub>2</sub> within 250 m of crossing and plaza.
101	0	101	4	Frontline Exposure (Total Residential)		Effect on Local Access - Roads crossed/ closed	4/12 - Minor out-of-way travel
151	0	151	0	Occupied Residential		Receptors with change in noise levels >5 dBA (2035; before mitigation; compared to future do-nothing)	14
18	2	18	2	Active Businesses		Potential Acquisitions Households	30
3 - New Day Church, Saint Paul Church, Abundant Life Church	0	3 - New Day Church, Saint Paul Church, Abundant Life Church	0	Significant Others/ Schools/Places of Worship		Potential Acquisitions Businesses/Industries	1
No	Yes	No	Yes	Consistency	Maintain Consistency with Existing and Planned Land Use	Social features (institutional) displaced	1 - Erie Wildlife Reserve
6	2	6	2	Official Plans		Consistency	Plaza location located in occupied and vacant industrial areas; consistent
0	0	0	0	Number		Known Contaminant Sites Impacted	Crossing and approaches located in occupied and vacant industrial areas; consistent.
1-Rademacher Park	0	1-Rademacher Park	0	Environmental Sites Affecting Plan Implementation		Designated built heritage features potentially displaced	5
2	0	2	0	Number/Site		Above Ground Historic Resources	1 Cultural Landscape Unit - Brighton Beach
1 - St Paul A.M.E	0	1 - St Paul A.M.E	0	Number/Site		Potential archaeological sites affected	3 Built Heritage Features - houses
0	0	0	0	Number/Site		Feature Impacts	Oybay Park (0.7 ha)
37,000 Vehicles		37,400 Vehicles		2035 ADT	Improve Regional Mobility	2035 Average Daily Car and Truck Volume	4 - pre-contact habitation sites/Euro-Canadian homesteads
Utility Relocation, Braided Ramps	Contaminated Soils, Utilities	Utility Relocation, Braided Ramps	Contaminated Soils, Utilities	Refer to Individual Crossing Alignments	Cost and Constructability	Is it constructable?	3 - pre-contact findspots
				Key Issues		Key Issues	Loss of 1.09 ha of provincially rare vegetation communities
							Loss of 185 specimens/colonies of species at risk.
							Canadian Plaza and Crossing sized to accommodate 38,000 vehicles daily in 2035 (ADT, truck and auto)
							Yes, subject to result of brine well investigations
							Relocation/reconfiguration Keith transformer station.
							11 Crossings of HydroOne transmission lines.
							3 Crossings of ETR Railway.
							4 Crossings of BP Canada High Pressure line.



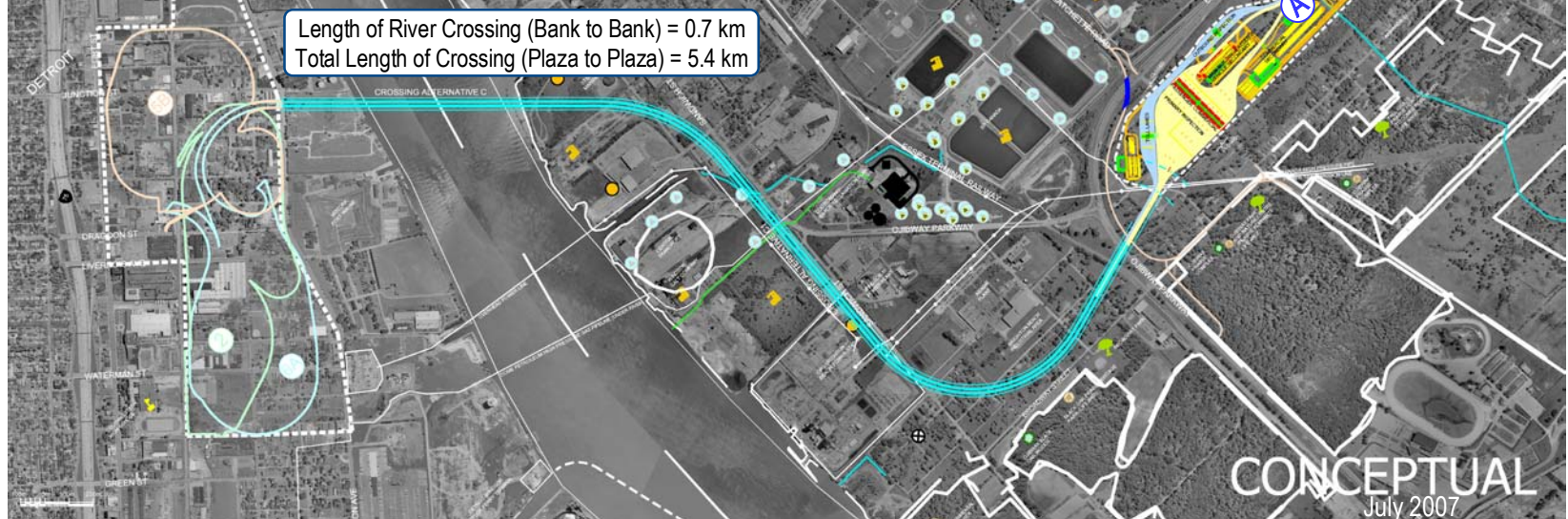
\*Cdn analysis updated to reflect results of analysis to date; U.S. analysis in this exhibit unchanged from that presented in Dec. 2006



## US Plaza – Crossing C (via Brighton Beach) – Plaza A Preliminary Analysis Summary

US Analysis *						CDN Analysis *	
Plaza 5B	Crossing C	Plaza 6A	Crossing C	Plaza 2	Crossing C	Measure	CDN Analysis * Crossing C - Plaza A (via Brighton Beach Industrial Area)
Refer to Graphic		Refer to Graphic		Refer to Graphic		CO Concentration: Indistinct	Changes in PM <sub>2.5</sub> Concentration Slight increases in PM <sub>2.5</sub> within 250 m of crossing and plaza Slight increases in NO <sub>x</sub> within 250 m of crossing and plaza
14	0	12	4	17	0	Streets Closed	Effect on Local Access - Roads (street) closed
55	0	105	4	72	0	Frontline Exposure (Total Residential)	Receptors with change in noise levels > 6 dB(A) 2025, before mitigation, compared to future do-nothing
113	0	158	19	150	0	Occupied Residential	100
25	0	10	3	20	0	Active Businesses	10
1-7th Lakeside Church	0	3-Mary Church, Saint Paul Church, Abundant Life Apostolic, Overcoming Holy Church of God	0	4-First Lutheran, Detroit Friends Meeting Quarters, Old Landmark Church, Saint School (Parish)	0	Potential Acquisition: Significant Others	1- Erie Wildlife Rescue
Yes	Yes	No	Yes	No	Yes	Consistency: Official Plans	Consistency
7	3	6	3	7	3	Number: Environmental Sites Affecting Park	Plaza location not consistent with existing land uses of the Spring Garden Planning Area, impacts to existing and planned residential uses
0	0	1	1	1	1	Number/Site: Above Ground Historic Resources	Crossing and approaches located in occupied and vacant industrial areas, consistent
1-Detroit City Park	0	1-Roadmasher Park	0	1-Roadmasher Park	0	Number/Site: Parklands	2 Cultural Landscape Units - Brighton Beach, unconfirmed tunnel
2	1	2	1	2	1	Number/Site: Archaeological Sites	Direct impacts to Parks
2-Robert's Brass MFG. District (General Bank)	0	1-St Paul A.M.E. Church	1	1-St Paul A.M.E. Church	1	Number/Site: Potentially Significant	Oblique Park (0.1 ha)
0	0	0	0	0	0	Number/Site: Significant historic	2- pre-contact habitation sites/Early Canadian homesteads
32,000 Vehicles		34,200 Vehicles		27,900 Vehicles		2025 ADT	4- pre-contact Redoubt
Significant Sewer Relocation, Potential Contaminated Soils, Railway Relocation	Contaminated Soils, Shading Fuels, River Width	Utility Relocation, Potential Contaminated Soils	Contaminated Soils, Shading Fuels, River Width	Utility Relocation, Potential Contaminated Soils	Contaminated Soils, Shading Fuels, River Width	2025 Average Daily Crossing Volume 2-Way (ADT)	Loss of 2.55 ha of provincially rare vegetation communities
						Refer to Individual Crossing Alignments	Loss of 231 landscape/crowns of species at risk
						Key Issues	Canadian Plaza and Crossing sized to accommodate 30,000 vehicles daily in 2025 (VADT, truck and auto)
						Key Issues	Yes, subject to result of brown well investigations
						Key Issues	Direct Impact to Starting Marine Tugs Tugboat, Relocation/reconfiguration of North transformer station
							2 Crossing site under site from Low Rise/River Water Federation Part, 8 Crossing of HydroOne Transmission lines, 2 Grade separated crossings of ETR Railway, 6 Crossing of SR Canada High Pressure Pipe, Length of approach roadway between Crossing C and Plaza A (0.2 km)

Length of River Crossing (Bank to Bank) = 0.7 km  
Total Length of Crossing (Plaza to Plaza) = 5.4 km

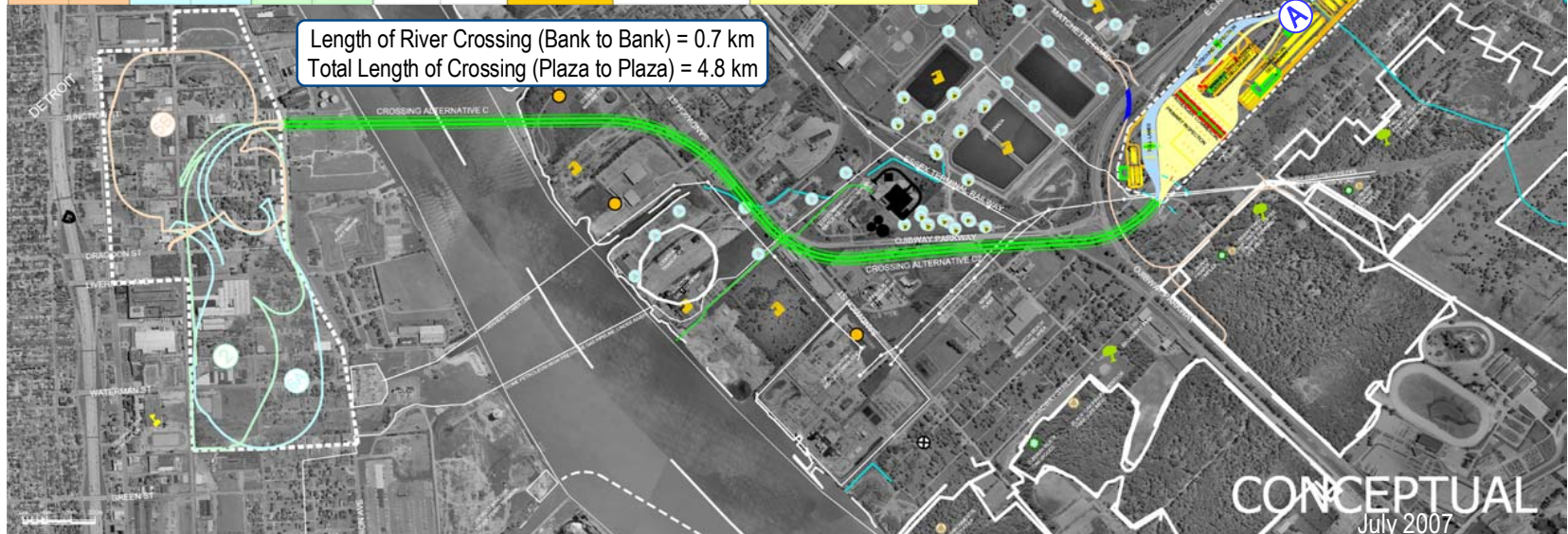


\*Cdn analysis updated to reflect results of analysis to date; U.S. analysis in this exhibit unchanged from that presented in Dec. 2006



## US Plaza – Crossing C (via Ojibway Parkway) – Plaza A Preliminary Analysis Summary

US Analysis*						CDN Analysis*		
Plaza 5B	Crossing C	Plaza 6A	Crossing C	Plaza 2	Crossing C	Measure	Evaluation Factor	Measure
Refer to Graphic						CO Concentration: Hotspots	Changes in Air Quality	Changes in PM <sub>2.5</sub> Concentration
14	0	17	4	17	0	Streets Closed	Traffic	Effect on Local Access - Roads crossed closed
95	0	105	4	72	0	Frontier Exposure (Total Residential)	Noise	Receptors with change in noise levels >5 dBA (before mitigation; compared to future do-nothing)
113	0	168	16	160	0	Occupied Residential Active Businesses	Potential Acquisition	Potential Acquisitions Households
26	0	18	3	22	0	Significant Other Schools/Places of Worship	Protection of Community and Neighbourhood Characteristics	Potential Acquisitions Businesses/Industries
1 Faith Tabernacle Church	0	3 New City Church, Saint Paul Church, Abundant Life Apostolic, Overcoming Holy Church of God	0	4 First Lutheran, Saint Paul Church, Meeting Quakers, Old Landmark Church, Board School (Partial)	0	Consistency	Official Plans	Consistency
Yes	Yes	No	Yes	No	Yes	Number	Environmental Sites Affecting Plan Implementation	Consistency
7	3	6	3	7	3	Number	Environmental Sites Affecting Plan Implementation	Known Contaminant Sites Impacted
0	0	1	1	1	1	Number	Significant Habitat	Designated built heritage features potentially displaced
1 Detroit City Park	0	1 Radenmacher Park	0	1 Radenmacher Park	0	Number	Significant Habitat	2 Cultural Landscapes Units - Brighton Beach, unconfined tunnel
2	1	2	1	2	1	Number	Archaeological Sites	1 Built Heritage Feature - house
2 Roberts Bros MFG, Detroit Secor Bank	1 - Motorsky Power Station	0	0	1 - St Paul A.M.E Church	1	Number	Significant Habitat	Oblique Park (0.7 ha)
0	0	0	0	0	0	Number	Significant Habitat	3 - pre-contact habitation sites/Euro-Canadian homesteads
32,000 Vehicles	24,200 Vehicles	27,500 Vehicles	27,500 Vehicles	27,500 Vehicles	27,500 Vehicles	2035 ADT	2035 Average Daily Crossing Volume	2 - pre-contact habitation sites
Significant Sewer Relocation, Potential Contaminated Soils, Railway Relocation	Contaminated Soils, Sterkling Fault, River Width	Utility Relocation, Potential Contaminated Soils	Contaminated Soils, Sterkling Fault, River Width	Utility Relocation, Potential Contaminated Soils	Contaminated Soils, Sterkling Fault, River Width	2035 ADT	2035 Average Daily Crossing Volume	Loss of 2.73 ha of provincially rare vegetation communities. Loss of 166 species/subspecies of species at risk.
						Refer to Individual Crossing Alignment	Key Issues	Canadian Plaza and Crossing sized to accommodate 39,000 vehicles daily in 2035 (AADT, truck and auto)
							Key Issues	Yes, subject to result of three well investigations
							Key Issues	Direct impact to Sterling Marine Fuels Testing Report.
							Key Issues	2 Crossings of oil/gas line from Lou Roman Water Reclamation Plant.
							Key Issues	8 Crossing s of HydroOne Transmission lines
							Key Issues	2 Grade separated crossings of TTC Railways
							Key Issues	6 Crossings of BP Canada High Pressure Pipe.
							Key Issues	Length of approach roadway between Crossing C and Plaza A (2.5 km)



\*Cdn analysis updated to reflect results of analysis to date; U.S. analysis in this exhibit unchanged from that presented in Dec. 2006



## US Plaza – Crossing C – Plaza B Preliminary Analysis Summary

US Analysis *						CDN Analysis*	
Plaza 5B	Crossing C	Plaza 6A	Crossing C	Plaza 2	Crossing C	Measure	Measure
Refer to Graphic						CO Concentration - Industries	Changes in PM <sub>2.5</sub> Concentration
Refer to Graphic						Changes in Air Quality	Slight increases in PM <sub>2.5</sub> within 250 m of crossing and plaza
14	0	17	4	17	0	Street Closed	Slight increases in NO <sub>x</sub> within 250 m of crossing and plaza
96	0	104	4	72	0	Frontline Exposure (Total Residential)	(778) - Minor out-of-way travel
119	0	158	16	160	0	Occupied Residential	106
26	0	18	3	22	0	Active Businesses	40
1 Faith Tabernacle Church	0	2 New City Church, Saint Paul Church, Abundant Life Apostolic, Overcoming Holy Church of God	0	6 First Lutheran Church, Central Friends Meeting, Quakers, Old Lutheran Church, Board School (Partial)	0	Significant Other Schools/Places of Worship	9
Yes	Yes	No	Yes	No	Yes	Consistency	1 - Erie Wildlife Refuge
7	3	6	3	7	3	Number	Phase 1a located in occupied and vacant industrial areas; consistent
0	0	1	1	1	1	Number/Size	Crossing and approaches located in occupied and vacant industrial areas; consistent
1 Detroit City Park	1	1 Rademacher Park	0	1 Rademacher Park	0	Number/Size	11
2 Detroit River MFO, Detroit River Park	1	1 - Makenzie River Station	1	1 - St Paul A.M.E. Church	1	Number/Size	2 Cultural Landscape Units - Brighton Beach, unconfirmed
0	0	0	0	0	0	Number/Size	3 Built Heritage Features - houses
32,000 vehicles		24,200 vehicles		27,500 vehicles		2025 ADT	3 - pre-contact habitation sites, Euro-Canadian homesteads
Significant River Relocation Potential	Contaminated Soils, River Relocation	Utility Relocation, Potential Contaminated Soils	Contaminated Soils, River Relocation	Utility Relocation, Potential Contaminated Soils	Contaminated Soils, River Relocation	2025 Average Daily Crossing Volume, 2-Way (ADT)	6 - pre-contact bridges
Refer to Individual Crossing Alignments						Key Issues	Loss of 2,000 ha of provincially rare vegetation communities
						Key Issues	Loss of 100 specimens/businesses of species at risk
						Key Issues	Canadian Plaza and Crossing sized to accommodate 30,000 vehicles daily in 2025 (AADT, truck and auto)
						Key Issues	Yes, subject to result of time and investigations
						Key Issues	Direct impacts to Starting Marine Farm's existing, 2002 Crossing of outlet pipe from Low River Water Reclamation Plant
						Key Issues	Relocation/reconfiguration of Keith Transformer Station, 11 Crossings of HydroOne Power transmission lines, 3 Grade separated crossings of TTC Railway, 6 Crossings of BNSF Canada High Pressure Pipe

Length of River Crossing (Bank to Bank) = 0.7 km  
Total Length of Crossing (Plaza to Plaza) = 3.8 km

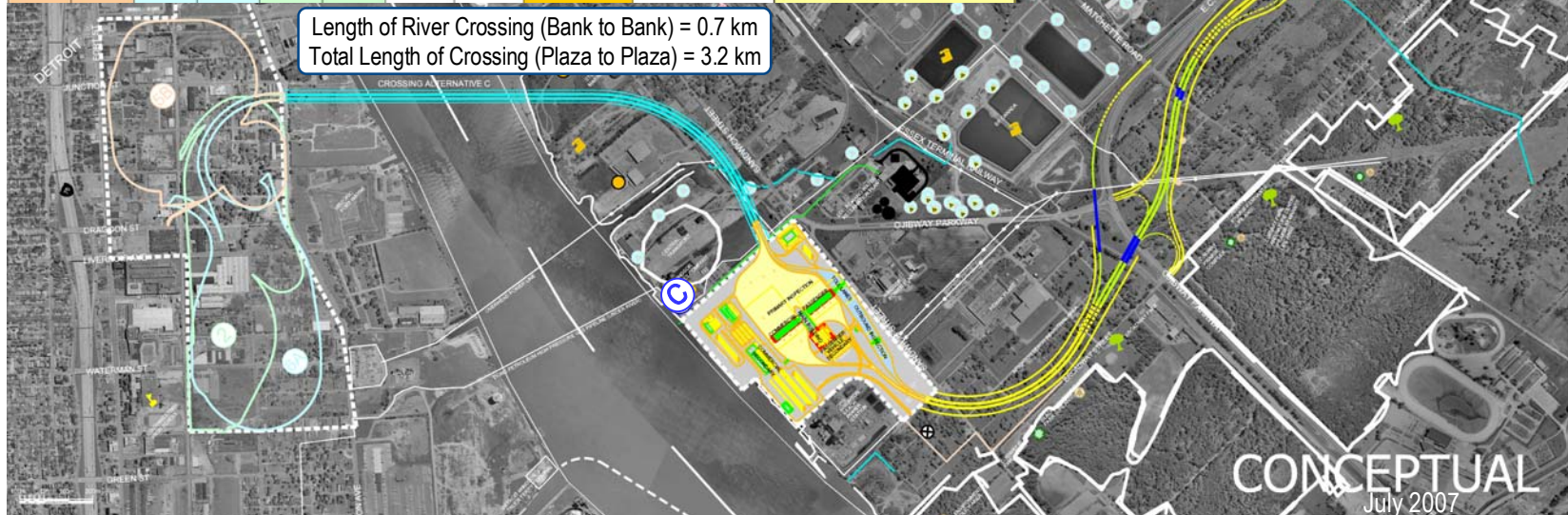


\*Cdn analysis updated to reflect results of analysis to date; U.S. analysis in this exhibit unchanged from that presented in Dec. 2006



## US Plaza – Crossing C – Plaza C Preliminary Analysis Summary

US Analysis *						CDN Analysis *	
Plaza 5B	Crossing C	Plaza 6A	Crossing C	Plaza 2	Crossing C	Measure	Measure
Refer to Graphic		Refer to Graphic		Refer to Graphic		CO Concentration: Highway	Changes in PM <sub>2.5</sub> Concentration
14	0	17	4	17	0	Streets Closed	Changes in PM <sub>2.5</sub> Concentration
95	0	105	4	72	0	Frontline Exposure (Total Residential)	Slight increases in PM <sub>2.5</sub> within 250 m of crossing and plaza
113	0	188	16	180	0	Occupied Residential	Slight increases in NO <sub>x</sub> within 250 m of crossing and plaza
26	0	18	3	22	0	Active Businesses	3/13 - Minor out-of-way travel
1-Faith Tabernacle Church	0	3-New Day Church, Saint Paul Church, Abundant Life Apostolic, Overcoming Holy Church of God	0	4-First Lutheran Baptist, Detroit Friends Meeting Quakers, Old Landmark Church, Saint School (Partial)	0	Potential Acquisitions	105
Yes	Yes	No	Yes	No	Yes	Potential Acquisitions Households	40
7	3	6	3	7	3	Potential Acquisitions Businesses/Industries	5
0	0	1	1	1	1	Social Features (institutional) displaced	1 - One Wildlife Rescue
1-Detroit City Park	0	1-Rademacher Park	0	1-Rademacher Park	0	Consistency	Plaza located in occupied and vacant industrial areas; consistent
2-Roberts Bank MFG, Detroit Savings Bank	1 - Midway Power Station	1 - St Paul A.M.E. Church	1	1 - St Paul A.M.E. Church	1	Number	Crossing and approaches located in occupied and vacant industrial areas; consistent
0	0	0	0	0	0	Number/Site	12
32,000 Vehicles	24,200 Vehicles	27,900 Vehicles				Number/Site	2 Cultural Landscape Units - Brighton Beach, unconfined tunnel
Significant Sewer Relocation, Potential Contaminated Soils, Railway Relocation	Contaminated Soils, Starting Fuel, River Width	Utility Relocation, Potential Contaminated Soils	Contaminated Soils, Starting Fuel, River Width	Utility Relocation, Potential Contaminated Soils	Contaminated Soils, Starting Fuel, River Width	Number/Site	2 Built Heritage Features - Houses
						Number/Site	Cyberway Park (5.7 ha)
						Number/Site	2 - pre-contact habitation sites Euro-Canadian homesteads
						Number/Site	2 - pre-contact Indians
						Number/Site	Loss of 0.65 ha of provincially rare vegetation communities
						Number/Site	Loss of 153 specimens/collections of species at risk
						Number/Site	Canadian Plaza and Crossing sized to accommodate 35,000 vehicles daily in 2035 (AADT, truck and auto)
						Number/Site	Yes, subject to result of future well investigations
						Number/Site	Sited impacts to Sleeping Marine Fishes being deep
						Number/Site	10 Crossings of HydroOne transmission lines (including 2 lines within plaza)
						Number/Site	Relocation of north transformer station
						Number/Site	2 Crossings of buried pipe from Lake Huron Water Reclamation Plant
						Number/Site	3 Crossings of ETR Railway
						Number/Site	4 Crossings of BP Canada High-Pressure line








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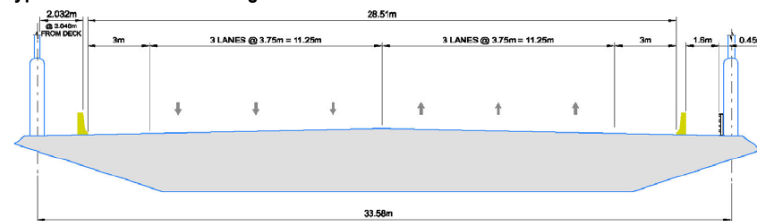
The Canadian and U.S. Study Teams recently completed a study of the types of bridges to be considered for the new Detroit River crossing. The study considered 11 different crossing options, and based on an assessment of initial cost, constructability and safety and security, five crossing options (shown below) were identified for further study.

Canadian Side Image  
Suspension Bridge  
X10B



Type Study Option Evaluation	Type Study Option	Bridge Type	Main Span Length	U.S. Approach Length	CAN Approach Length
<b>X10(A)</b>					
	Option 1	Suspension	1,300 m	929 m (3048 ft)	1771 m (5810 ft)
<b>X10(B)</b>					
	Option 4	Cable Stay	860 m	637 m (2090 ft)	387 m (1270 ft)
	Option 7	Suspension	870 m	1022 m (3353 ft)	592 m (1942 ft)
<b>X11(C)</b>					
	Option 9	Cable Stay	750 m	391 m (1283 ft)	Plaza B: 1151 m (3776 ft) Plaza C: 956 m (3136 ft)
	Option 10	Suspension	750 m	785 m (2575 ft)	Plaza B: 1514 m (4967 ft) Plaza C: 1316 m (4318 ft)

Typical Detroit River Crossing Cross Section



All alternatives feature 6 traffic lanes and a clear span of the Detroit River.

Canadian Side Image  
Cable Stay Bridge  
X11C



## Next Steps

- Completion of foundations investigations to verify feasibility/constructability.
- Consultation with the public on Context Sensitive Solutions (CSS).
- Additional engineering as required to determine cost and impacts, and appropriate mitigation measures for inclusion in evaluation of practical alternatives.
- Once a preferred crossing is identified, initiate concept design of preferred crossing.



Since December 2005, the U.S. Study Team, together with the Canadian Study Team, has defined, refined, and evaluated the proposed plaza, interchange and crossing alternatives. The “zone” within which the plazas would be located was determined at public workshops.

In early 2007, with public input and through engineering peer evaluations, plus review of input by the U.S. General Services Administration/Customs Border Protection Agency, the 15 alternatives identified on the U.S. side were evaluated and acceptance criteria were developed to rank each of the interchange alternatives.

Criteria for performance included:

- Access to/from plaza;
- Traffic operations on I-75;
- Local access within corridor;
- Local traffic operations; and
- Bridge geometry/retaining wall.

The acceptance criteria included:

- Protect Community/neighbourhood characteristics;
- Impact to neighbourhoods to north and south;
- Constructability;
- Impact to utilities;
- Driver comfort; and,
- Impact to Delay.

The evaluation conducted on the 15 U.S. alternatives led to a decision to retain only those with the best opportunity to be implemented. The attached table shows each alternative with its corresponding interchange/plaza configuration, and the reasons for its elimination from further analysis. The elimination of seven alternatives, leaves eight to undergo further analysis. No crossings have been eliminated.

**Status of Interchanges and Plazas following Value Planning, GSA/CBP and Public Input**

Alternative	Interchange	Plaza	Crossing	Proposed Status
#1	A	P-a	X-10	Retain for future analysis
#2	B	P-a		Retain for future analysis
#3	C	P-a		Retain for future analysis
<del>#4</del>	<del>D</del> <sup>1,2</sup>	P-a		Eliminate from further analysis <sup>1,2</sup>
#5	E	P-a	X-11	Retain for future analysis
<del>#6</del>	A	<del>P-b</del> <sup>3,4</sup>		Eliminate from further analysis <sup>3,4</sup>
#7	A	P-c		Retain for future analysis
<del>#8</del>	B	<del>P-b</del> <sup>3,4</sup>		Eliminate from further analysis <sup>3,4</sup>
#9	B	P-c		Retain for future analysis
<del>#10</del>	C	<del>P-b</del> <sup>3,4</sup>		Eliminate from further analysis <sup>3,4</sup>
#11	C	P-c		Retain for future analysis
<del>#12</del>	<del>D</del> <sup>1,2</sup>	<del>P-b</del> <sup>3,4</sup>		Eliminate from further analysis <sup>1,2,3,4</sup>
<del>#13</del>	<del>E</del> <sup>1</sup>	<del>P-d</del> <sup>4</sup>		Eliminate from further analysis <sup>1,4</sup>
#14	G	P-a	X-10	Retain for future analysis
<del>#15</del>	<del>H</del> <sup>2</sup>	P-a	X-10	Eliminate from further analysis <sup>2</sup>

<sup>1</sup>Unacceptable community impacts.

<sup>2</sup>Unacceptable engineering impacts.

<sup>3</sup>Unacceptable impacts on Fort Wayne due to proposed utility placement.

<sup>4</sup>Unacceptable impacts as judged by U.S. General Services Administration/Customs and Border Protection Agency input.

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**1-800-900-2649 (Toll Free)**

The fourth round of Public Information Open House meetings were held December 6 and 7, 2006.  
The public provided feedback on the analysis of Practical Alternatives.

## Frequently Provided Comments

Air quality should be the primary consideration

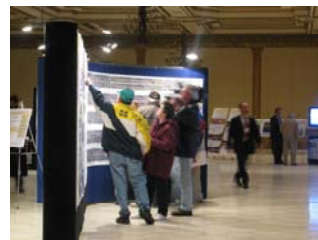
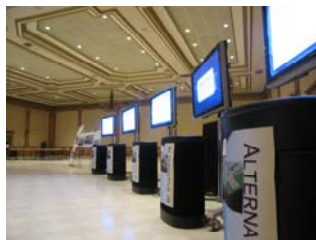
Crossing C is too close to Sandwich Towne

Federal and Provincial government should cover costs of project;  
not Windsor residents

Plaza A has high community impact; too close too Armanda Street,  
Spring Garden Road and Malden Road

Protect natural habitats; protect endangered and rare species

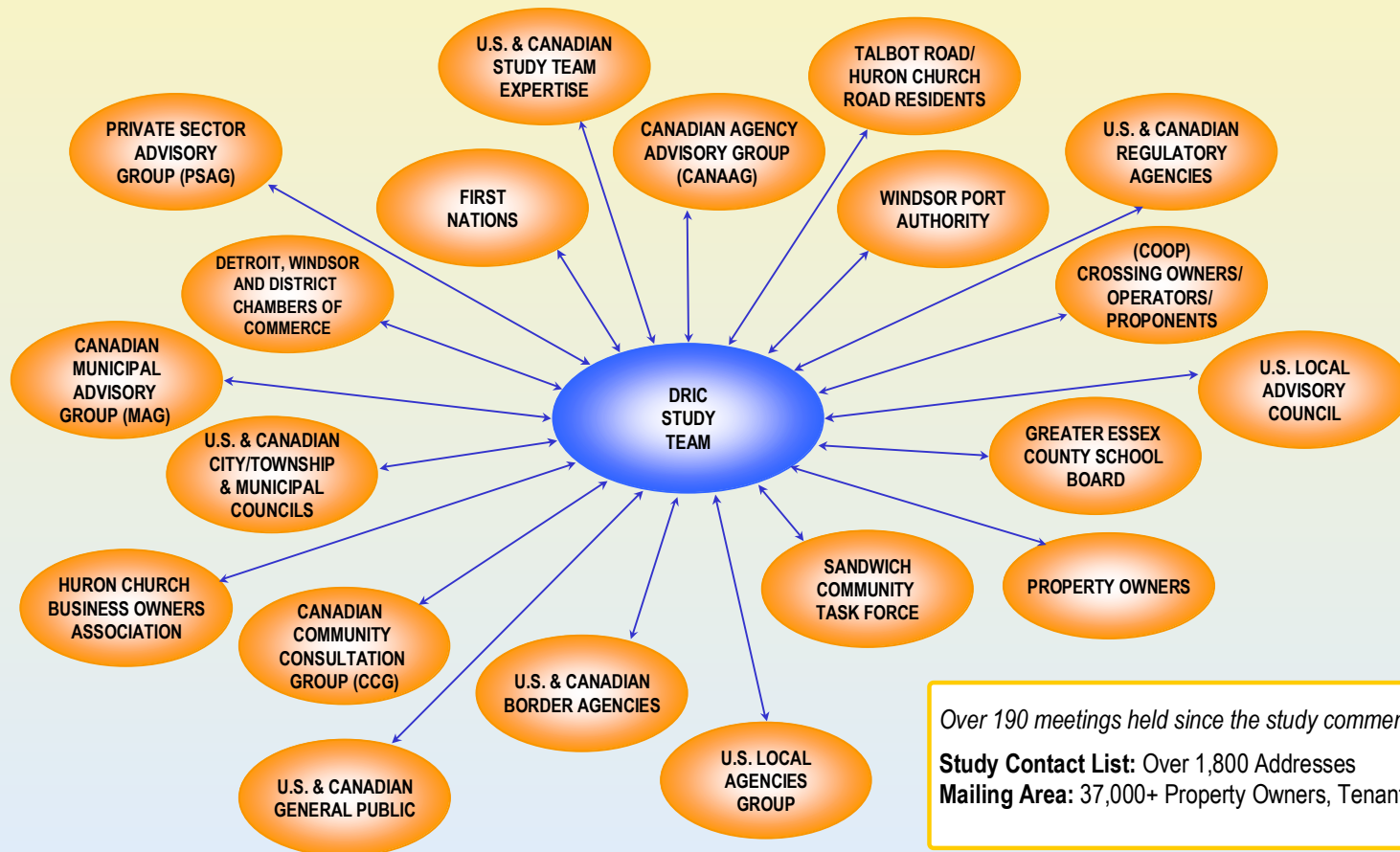
Tunnel as much of the route as possible



| Attendance: 500 + | Comment sheets received: 50 + | Venues: *Holiday Inn Select Hotel & Ciociaro Club* |  
| Related meetings: CANAAG, PSAG, MAG | Workshops: *January 9 & 10, 2007* |



Community Consultation continues to provide valuable input and unique perspectives. The concerns of residents, business owners, municipalities and politicians are important as suggestions made by the public are factored into the overall decision-making and assessment process. We are committed to listening to communities, addressing their concerns and incorporating their ideas whenever possible.



## Environmental Assessment Key Study Activities

✓ Identify Study Area Features, Opportunities & Constraints	April 2005
✓ Develop Initial Set of Crossing Alternatives, Plaza Locations & Connecting Routes in Canada and the U.S.	June 2005
✓ Define Area of Continued Analysis	Dec. 2005
✓ Present Specific Crossing, Plaza and Access Road Options	March 2006
Complete Social, Economic, Environmental and Engineering Assessments	Fall/Winter 2007/2008
Identify Preferred Crossing Location, Plaza Locations & Connecting Routes in Canada and the U.S.	Spring 2008
Finalize Engineering and Mitigation Measures	Summer 2008
Document Study and Submit for Approvals	Fall 2008

## Proposed Public Meetings

Summer 2007 Workshops:

August 22– 6:30 to 9pm  
South Windsor Arena, Auditorium

August 23 – 6:30 to 9pm  
South Windsor Arena, Auditorium

**REGISTER TODAY!**

*More dates to follow*