DETROIT RIVER INTERNATIONAL CROSSING STUDY

Update of Practical Alternatives Analysis

Presentation to CANAAG
December 2006

Agenda

1. Introductions
2. Presentation of Results to Date – Crossings, Plazas, Routes
3. Questions / Discussion / Comments
4. Draft Environmental Assessment Guidelines
5. Draft Public Participation Plan
6. Cumulative Effects Assessment Work Plan
7. U.S. Update
8. Closing Remarks

Introductions

Presentation of Results to Date
Crossings, Plazas, Routes

The Border Transportation Partnership

Canada

U.S. Department of Transportation Federal Highway Administration

Ontario

MDOT Michigan Department of Transportation

Purpose of the DRIC Study

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

In order to meet 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)

In meeting these needs the Project Team is looking to implement transportation solutions which minimize community and environmental impacts as much as possible.

Community Goals

Study has also been guided by community goals:

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

All options achieve these goals

Practical Crossing, Plaza & Route Alternatives

Environmental Assessment Key Study Activities

Study Area Features, Opportunities & Constraints	April '05	Initial Public Outreach
Initial Set of Crossing Alternatives, Plaza Locations & Connecting Routes in Canada and the U.S.	June '05	PIOH1
Area of Continued Analysis	December '05	PIOH2
Specific Crossing, Plaza and Access Road Options	March '06	PIOH3
Results of Social, Economic, Environmental and Engineering Assessments	December '06	PIOH4
Preferred Crossing Location, Plaza Locations & Connecting Routes in Canada and the U.S.	Spring '07	PIOH5
Finalize Engineering and Mitigation Measures	Summer '07	PIOH6
Document Study and Submit for Approvals	End of '07	Public Review

We are here

Evaluation Factors

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

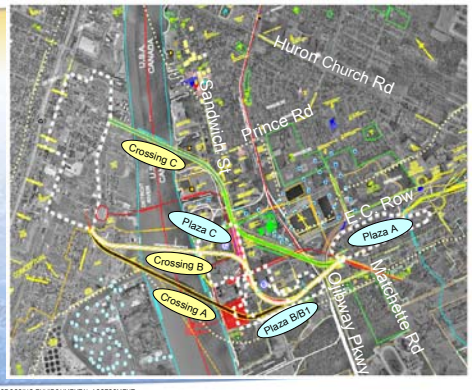
- **Changes to Air Quality**
- **Protection of Community and Neighbourhood Characteristics**
  - *includes assessment of residential and business property impacts, social features including schools, impacts to noise levels, access and community features*
- **Consistency with Existing & Planned Land Use**
- **Protection of Cultural Resources**
  - *includes parks, historic sites and areas of archaeological significance*
- **Protection of Natural Environment**
  - *includes plant and animal species and habitat features*
- **Improvements to Regional Mobility**
- **Cost and Constructability**

Status of Alternatives Analysis

- **No decisions have been made to date**
- **Analysis is on-going**
- **Results to date:**
  - **Preliminary**
  - **Subject to refinements**
  - **Do not reflect mitigation**

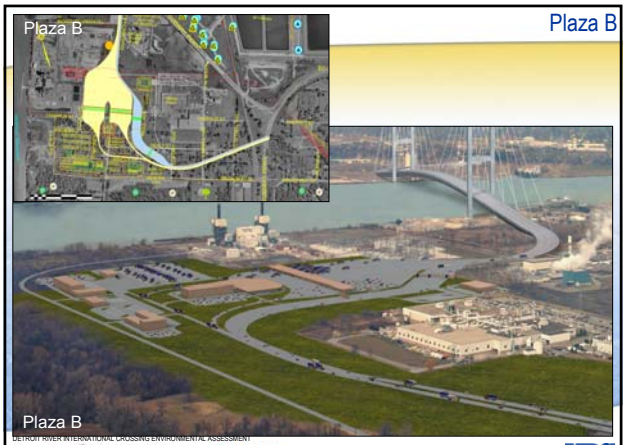
Plazas and Crossings

Crossing Alternatives A, B and C

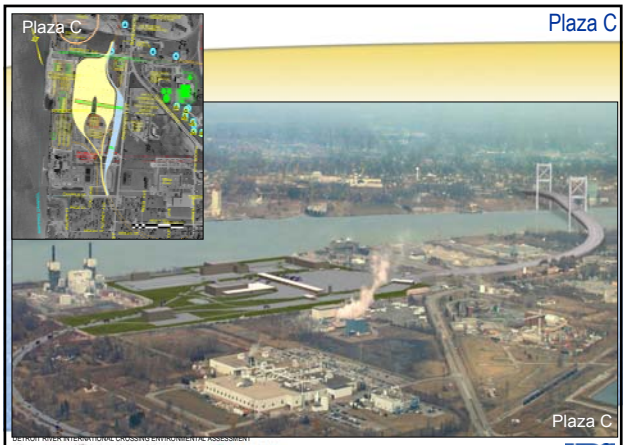


Plaza A

Plaza B



Plaza C



Changes to Air Quality

Preliminary model results – Plazas and Crossings:

- **Volatile Organic Compounds (VOC's) are predicted to remain well below provincial standards**
- **Total concentrations of NO_x are predicted to decrease due to improvements in fuels and engine technologies, even though traffic volumes will increase.**
- **Modeling results are also showing localized increases in $PM_{2.5}$ and NO_x in vicinity of plaza and crossing alternatives.**
  - **Plaza A and Crossing C alternatives are in vicinity of residential areas**

Protection of Community and Neighbourhood Features

Preliminary results – Plazas and Crossings:

- **Highest residential displacements with Plaza A alternatives (70)**
  - **Residential area at Matchette Road/Armanda Street**
- **Highest business/industry impacts with Crossing C alternatives (13)**
  - **Sterling Marine Fuels among those directly impacted**
- **Highest noise impacts (before mitigation) with Crossing C alternatives (180)**
  - **Proximity to Sandwich Town**
- **Closure/realignment of Matchette Road with Plaza A alternative**
  - **Impact to local/emergency access**

Plazas and Crossings

Consistency with Land Use:

- Plazas B, B1 and C are more consistent with industrial uses along riverfront
- Plaza A not consistent with land uses defined in Windsor's Spring Garden Planning Area

Protection of Cultural Features:

- Between 5 and 8 homes (pre-1930) displaced, depending on the plaza and crossing alternative
- All three crossings disrupt cultural landscapes
  - Brighton Beach (all alternatives)
  - Sandwich Town vista (Crossing C)
  - Tunnels ('Underground Railroad')* (Crossing C)

* - unconfirmed

Natural Environment

Preliminary results – Plazas and Crossings:

- No critical fish habitat impacted, including by possible pier locations in Detroit River
- Plaza A has greatest impact to tallgrass prairie and specimens/colonies of provincially rare plant species
- Plaza A has greatest impact to threatened Butler's gartersnake habitat

Regional Mobility

Preliminary results – Plazas and Crossings:

- Confirmed that all alternatives are practical in terms of location and layout
  - Subject to results of geotechnical investigations
- Plazas and crossings meet all four Partnership transportation and mobility needs
  - Sufficient long-term capacity
  - Improve system connectivity
  - Improved border processing capabilities
  - Reasonable and secure options

Geotechnical Investigations– Canadian Side

Cost and Constructability

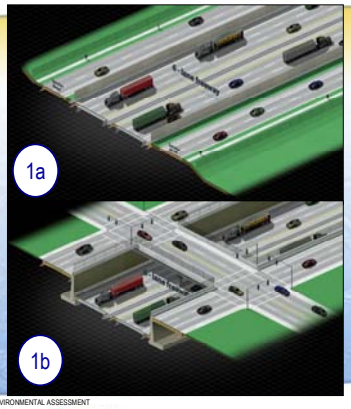
Preliminary results – Plazas and Crossings:

- Geotechnical investigations to confirm bedrock conditions are on-going
  - Completed by early 2007
- Crossing Cost is somewhat a function of length of span*:
  - Shortest Crossing (Bank to Bank) = 0.7 km (0.4 mi) (Crossing C)
  - Shortest Crossing (Plaza to Plaza) = 2.9 km (1.8 mi) (Crossing B to Plaza B1)
  - Longest Crossing (Bank to Bank) = 1.1 km (0.7 mi) (Crossing A)
  - Longest Crossing (Plaza to Plaza) = 5.4 km (2.7 mi) (Crossing C to Plaza A)
  - Plaza C displaces Keith Transformer Station

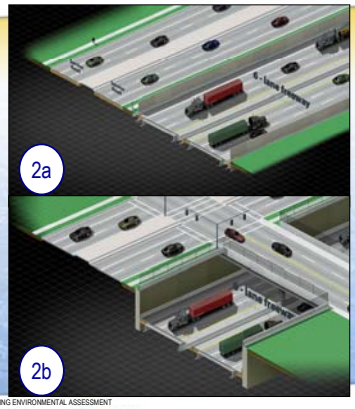
* - Meetings with Coast Guards and Great Lakes Shipping to discuss impacts of piers in river on navigability are being arranged

Access Roads

Access Road Alternatives



Access Route Alternatives



Access Route Alternatives

Changes to Air Quality

Preliminary model results – Access Roads:

- Volatile Organic Compounds (VOC's) are predicted to remain well below provincial standards
- Total concentrations of NO_x are predicted to decrease due to improvements in fuels and engine technologies, even though traffic volumes will increase.
- Predicted concentrations of $PM_{2.5}$ associated with the alternatives are higher in the future due to increases in traffic volumes
  - Tailpipe emissions of $PM_{2.5}$ are decreasing
  - Greater contribution from road dust
- Depressed roadway sections result in lower concentrations of $PM_{2.5}$ and NO_x in vicinity of ROW compared to at grade alternatives
- Tunnel results in lower concentrations of $PM_{2.5}$ in vicinity of ROW compared to at grade alternatives
  - NO_x concentrations increase over a broader area compared to at grade alternatives (greater dispersion from ventilation stacks)

Protection of Community and Neighbourhood Features

Preliminary results – Access Roads:

- **Potential acquisitions of households range from 125 to 210**
  - Highest impacts with Alternative 2A Option 1 connecting to Plaza A
  - Lowest is Alternative 3 connecting to Plaza B, B1 or C
- **Potential acquisitions of businesses range from 25 to 45**
  - Highest impacts with Alternative 1A and 1B, both Option 2
  - Tunnel also has high direct impacts (44) and higher visibility impacts
  - Lowest impacts with Alternative 2A and 2B, both Option 1
- **Noise impacts of at-grade and depressed alternatives can be addressed through mitigation**
  - Noise modeling of tunnel option is in progress

Access Roads

Consistency with Land Use:

- **All alternatives make use of existing Huron Church/Highway 3 corridor, which is a multi-functional transportation corridor for transportation of goods, international travelers, and local residents of Windsor/Essex County**
- **Localized land use impacts with each alternative**

Protection of Cultural Features:

- **No nationally or provincially designated sites impacted**
- **Nine built heritage features potentially displaced by each alternative**
- **No high or moderately significant archaeological sites impacted by any alternative**

Natural Environment

Preliminary results – Access Road:

- No critical fish habitat impacted
- Between 0.4 ha and 2 ha of rare tallgrass prairie/deciduous swamp impacted
  - Highest impacts with Alternative 2A options with connection to Plaza A
  - Lowest impacts with Alternative 1A with connection to Plaza B, B1 or C
- Between 60 and 160 specimens/colonies of provincially rare plants impacted
  - No substantial difference among the alternatives

Regional Mobility

Preliminary results – Access Road:

- If no new crossing facility is built, significant road capacity problems are expected to begin to occur by 2015.
  - by 2035, most intersections will operate over capacity.
  - travel times nearly doubling over existing conditions.
  - capacity problems will be widespread and not isolated to particular locations on Huron Church Road and Highway 3.
  - excess traffic demand will spill over to other municipal streets.
- New six-lane freeway will meet future demands to year 2035 and beyond
  - provides free flow traffic conditions from Highway 401 to the border.
  - provides flexibility to designate lanes for streaming of border traffic (e.g. separate lanes for FAST/NEXUS traffic)
  - greatly improves safety in comparison to the current roadway
- Provision of local service roads will also provide substantial travel time savings for local traffic when compared to the do nothing alternative.

Regional Mobility

Preliminary results – Access Road:

- Freeway design improves safety, compared to arterial roadway with signalized intersections
- Positive aspects of tunnels include:
  - elimination of adverse weather conditions
  - increased driver attention and/or slower speeds due to the confined driving space.
- Negative aspects of tunnels include:
  - limited visibility due to tunnel walls and light changes at the portals.
  - 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.

Cost and Constructability

Preliminary results – Access Road:

- All access road alternatives are constructible,
  - traffic flow can reasonably be maintained in the Huron Church Road/Highway 3 corridor throughout the construction period
- Access road construction is complicated by the high water table and relatively poor ground conditions,
  - problems increase with the depth of construction.
- Complex construction staging will also be required for alternatives at the Grand Marais Drain/Turkey Creek.
- Construction of the tunnel alternative is more complex and intensive than other alternatives due to the necessity to build the tunnel box, ventilation, electrical and communication systems.

Cost and Constructability

Preliminary results – Access Road:

Highway 401 to Malden Road ($CAD):

- At-grade alternatives: $620M - $920M
- Depressed alternatives: $1.03B - $1.36B
- Tunnel alternatives: $3.8B
  - Vast increase in excavation and concrete required to build the tunnel
  - Ventilation, electrical, drainage, communications and other Emergency Management Systems also increase costs
- Costs for operations and maintenance, as well as property acquisition are to be considered separately.

Next Steps

- Complete remaining field investigations and analysis
  - Geotechnical investigations
  - Air dispersion and noise modeling
  - Define tunnel ventilation and support systems requirements for emergency response/fire and life safety
  - Complete Safety Review
  - Highway interchange and intersection design refinements
  - Identify appropriate mitigation measures to reduce impacts
- Continue consultation to obtain input on analysis to date, mitigation measures and context sensitive solutions
  - Respond to comments from this round of Open Houses
  - Continue community consultation and consultation with property/business owners
  - Coordinate next round of Open Houses with U.S. Draft EIS Public Hearing
- Continue working with the public, communities, and interested groups of Windsor and Essex County, in consultation with our U.S. partners, to develop the solution that best meets current and future transportation needs, while minimizing community impacts on both sides of the border.

Next Steps

Canadian Public Information Open Houses

Wednesday, December 6, 2006
2:00 p.m. to 8:00 p.m.

Holiday Inn Select Hotel, Ballroom
1855 Huron Church Road
Windsor, Ontario

Thursday, December 7, 2006
2:00 p.m. to 8:00 p.m.

Ciociaro Club, Salon A&B
3745 North Talbot Road
Tecumseh, Ontario

Project Web Site: **www.partnershipborderstudy.com**
Toll Free : **1-800-900-2649**

Environmental Assessment Key Study Activities

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Document Study and Submit for Approvals	End of '07	Public Review

Canadian Federal EA Process

Draft Environmental Assessment Guidelines

- Describes the basis for the conduct of the federal EA, and for focusing the assessment on relevant issues and concerns
- Similar to provincial environmental assessment Terms of Reference document
- Posted on the website of the Canadian Environmental Assessment Registry: **www.ceaa-acee.tc.ca**
- Also posted on DRIC website: **www.PartnershipBorderStudy.com**
- Hard copies available for viewing at PIOH
- Notification provided in newspaper notices for PIOH
- Thirty (30) day public review period ends December 22, 2006

Federal Public Participation Plan

- A plan for providing members of the public with an opportunity to participate in the federal environmental screening being undertaken by Transport Canada (TC)
- Posted on Partnership website **www.PartnershipBorderStudy.com**
- Hard copies available for viewing at PIOH
- Notification provided in newspaper notices for PIOH

Air Monitoring

Ambient Air Monitoring

- Modeling of future conditions in Progress for access routes and plazas
- Two air quality monitoring stations installed on HCR/Hwy 3 Corridor

Opposite SCC Entrance

Windsor Health Lab

Ambient Air Monitoring

Observations (October 2006)

- Measured NOx and $PM_{2.5}$ concentrations are within the expected range
- Volatile Organic Compounds (VOC's) are well below applicable provincial standards

Preliminary Results (October 2006) - NO_X

- Measured NO_X concentrations are within the expected range
- Concentrations at both stations are slightly elevated in comparison to MOE monitoring stations.
- No observed exceedances of the 1-hour or 24-hour MOE Ambient Air Quality Criteria (AAQC) for NO_X (400 ug/m^3 and 200 ug/m^3 respectively)
- NO_X concentrations were generally elevated during the morning and afternoon rush hour periods
- Measured concentrations are slightly higher at the OPHL site in comparison to the SCC site

Observations (October 2006) - $PM_{2.5}$

- Measured $PM_{2.5}$ concentrations are within the expected range
- Concentrations at both stations are slightly elevated in comparison to MOE monitoring stations.
- 7 observed exceedances of the CCME Canada Wide Standard (CWS) of 30 ug/m^3 at the OPHL site.
- Average concentration is slightly higher at the OPHL site in comparison to the SCC site
- There were no observed exceedances of the CWS at the SCC site

Preliminary Results - VOCs

Pollutant	Monitoring Station	Maximum Concentration (ug/m^3)	MOE AAQC (ug/m^3)
Formaldehyde	OPHL	1.6	65
	SCC	2.0	
Acetaldehyde	OPHL	1.2	500
	SCC	1.2	
Acrolein	OPHL	1.2	24
	SCC	1.1	
Benzene	OPHL	0.7	NS
	SCC	1.4	

Questions / Discussion / Comments

Draft Environmental Assessment Guidelines

- describes the basis for the conduct of the federal EA and for focussing assessment on relevant issues and factors
- provide direction on federal screening report
- provide a means of communicating the federal EA process to stakeholders
- demonstrate how federal and provincial EA processes are being coordinated

Coordination with Provincial EA Process

- federal and provincial EA processes will be coordinated pursuant to Canada-Ontario Agreement on EA Cooperation
- technical studies prepared for provincial EA will be used in federal assessment
- public review activities will be coordinated

Scope of Factors to be Considered

- air quality and climate
- surface and ground water
- water levels and flows in the Detroit River
- surface and subsurface geology and soils
- vegetation, vegetation communities and wetlands

Scope of Factors to be Considered

- fish and fish habitat
- wildlife, wildlife habitat and migratory birds
- species at risk
- noise and vibration
- contaminated sites and waste management

Scope of Factors to be Considered

- human health and socio-economic factors
- physical and cultural heritage
- current use of lands and resources for traditional purposes by Aboriginal peoples
- resources of historical, archaeological, paleontological or architectural significance

❖ focus on those changes that are likely to result from predicted changes the project is likely to cause to the environment

Screening Report

- screening report will be prepared in accordance with EA Guidelines
- technical studies and documentation prepared for provincial EA process are key inputs to screening report

Draft Public Participation Plan

Goal of Federal Public Participation Plan

- provide members of the public and interested stakeholders with opportunities to participate in the federal screening process, in accordance with section 55 and subsection 18(3) of *Canadian Environmental Assessment Act* (CEAA)

Key Components of Federal Public Participation Plan

- Public Registry
- Web Site
- Public Examination and Comment on Draft EA Guidelines
- Public Examination and Comment on Screening Report

Public Registry – CEAR Postings

- Notice of Commencement
- Federal Public Participation Plan
- Draft Federal EA Guidelines
- Request for Public Comment on Draft Federal EA Guidelines

Public Examination & Comment on Draft EA Guidelines

- available to the public for a 30-day period, ending December 22, 2006
- CEAR web site posting, newspaper advertisement as part of PIOH notice and link on Partnership web site

Public Examination & Comment on Screening Report

- will be available to the public for a period of not less than 30 days, in coordination with MOE public review of provincial EA Report
- notice of availability of screening report for public comment will be posted on CEAR web site, advertised in local newspapers and link on Partnership web site

Cumulative Effects Assessment Work Plan

CEAA Requirements

Canadian Environmental Assessment Act (CEAA) Requirements

- subsection 16(1)(a) requires that cumulative effects be considered in assessment of a project
- requires a consideration of "*any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out*"

Definitions

- cumulative effects
  - "*changes to the environment that are caused by an action on the environment when the effects are combined with those from other past, existing and future human actions*"
- cumulative effects assessment (CEA)
  - *an assessment of the incremental effects of an action on the environment when the effects are combined with those from other past, existing and future actions*"

Source: CEA Agency. Cumulative Effects Practitioner's Guide. 1999.

CEA Framework

- reflects current practice
- preliminary framework → will likely be refined based on more detailed discussions
- determination of residual environmental effects of technically preferred alternative will be key input

Transboundary Issues

- data (e.g., air quality) for American portion of project will be provided by U.S. team to Canadian experts
- data will be used by Canadian experts to make determination re. significance of environmental effects

Steps in CEA Framework

- Determine Residual Effects of the Project
- Establish Scope of CEA
- Identify Other Past, Existing or Future Projects and Activities
- Review and Screen Other Projects and Activities
- Predict Potential Cumulative Effects
- Develop Recommendations for Follow-up (if required)

Steps in CEA Framework

Determine Residual Effects of Project

- key input to CEA
- approaches to identify residual environmental effects are included in disciplinary expert's work plans
- there must be a residual environmental effect associated with project in order for there to be potential for cumulative effects

Steps in CEA Framework

Establish Scope of CEA

- parameters within which potential cumulative effects may occur
- includes spatial and temporal boundaries and factors to be considered
- those factors with residual environmental effects carried forward to CEA

Steps in CEA Framework

Identify Other Past, Existing or Future Projects and Activities

- identification of other projects and activities will require input from municipal, provincial and federal departments

Steps in CEA Framework

Review and Screen Other Past, Existing or Future Projects and Activities

- involves reviewing and screening "long list" of projects and activities to determine which are to be included in CEA
- "*certainty of whether the action will actually proceed*" must be considered Source: CEA Agency. Cumulative Effects Practitioner's Guide. 1999.
- those projects and activities with potential for spatial or temporal overlap with technically preferred alternative to be included in CEA

Steps in CEA Framework

Predict Potential Cumulative Effects

- tabular format for consideration of potential overlap between residual environmental effects of project and environmental effects of other projects and activities
- assessment of environmental effects of other projects and activities will be qualitative → will involve putting forward best professional judgement

Steps in CEA Framework

Predict Potential Cumulative Effects

- mitigation measures will be developed, where required
- residual cumulative effects and their significance will be assessed
- significance framework for each environmental component will be developed
- CEA will be in accordance with established scope

Steps in CEA Framework

Develop Recommendations for Follow-up

- involves development of follow-up measures to deal with residual cumulative effects, if required

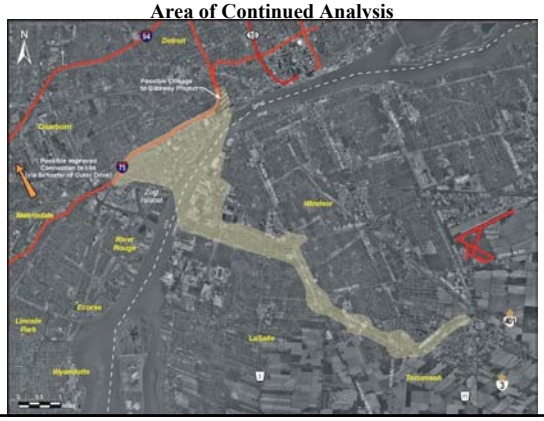
Detroit River
INTERNATIONAL CROSSING
S T U D Y

U.S. Update

Detroit River International Crossing Study

U.S. Analysis of Practical Alternatives

Detroit River International Crossing Study
Area of Continued Analysis



Detroit River International Crossing Study

Preliminary Vision Statements

Detroit River International Crossing Study

Vision Statement WITH a New River Crossing

The vision for the community WITH a new river crossing system is seen as follows:

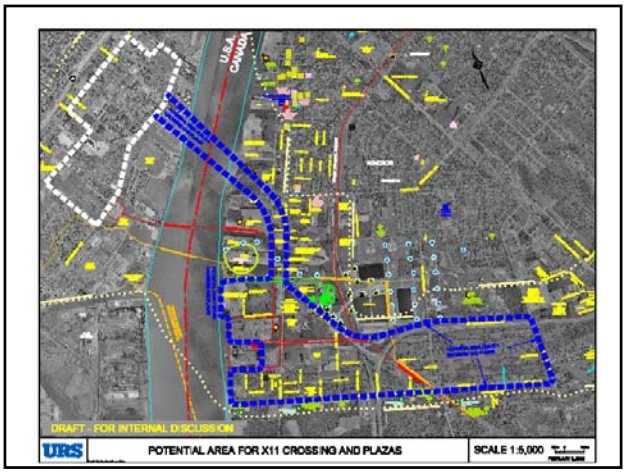
The area between Zug Island and the foot of the Ambassador Bridge, known as the "host community" of a new river crossing, is experiencing an ever-improving quality of life.

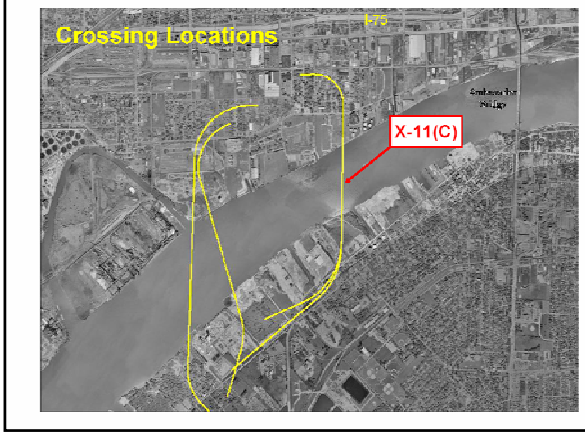
The West Delray neighborhood is intact with no relocations because of the new river crossing, which is publicly owned and operated. Free housing has been provided to those few who were relocated. Improvements to housing and small businesses in the area are financed through a special fund designed to benefit the "host community" of the new river crossing. And, programs like the Neighborhood Enterprise Zone (NEZ) control the taxes of those who have remained in, and others who moved to, the area. Development that occurs in and around the new crossing supports good paying jobs for the local residents. The City of Detroit supports this growth in a number of ways, including providing significant police and fire protection. Further support of the area, including its air quality and the health of its residents, is caused by routing heavy trucks around the area over designated routes that are built to last.

Detroit River International Crossing Study

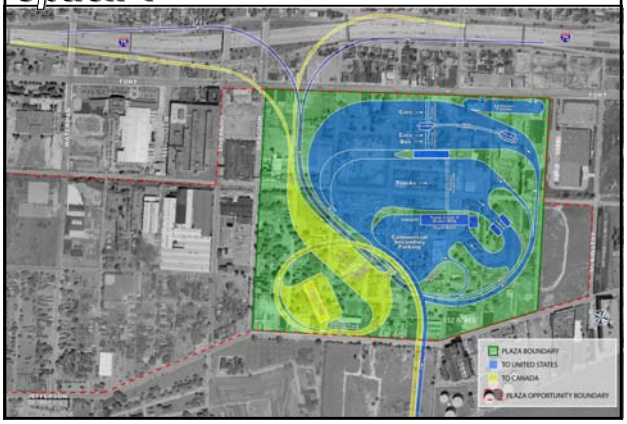
Preliminary Plaza Location

Preliminary Conceptual Plaza/Bridge/I-75 Connections

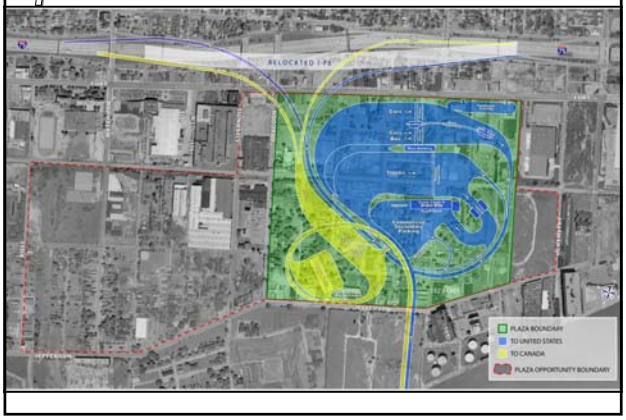




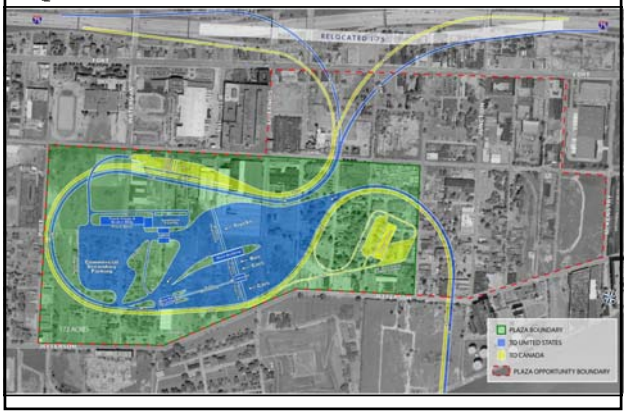
Option 1

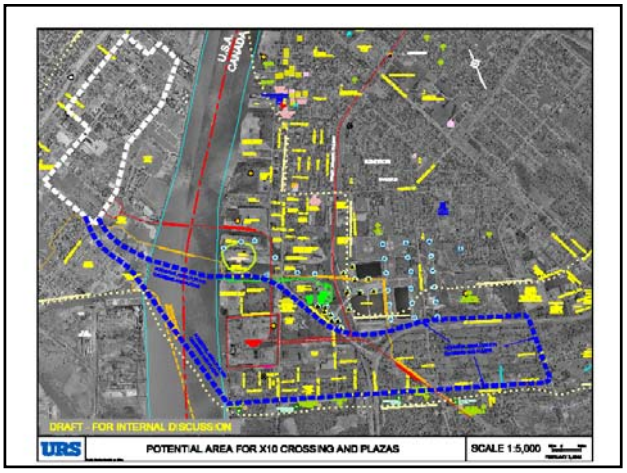


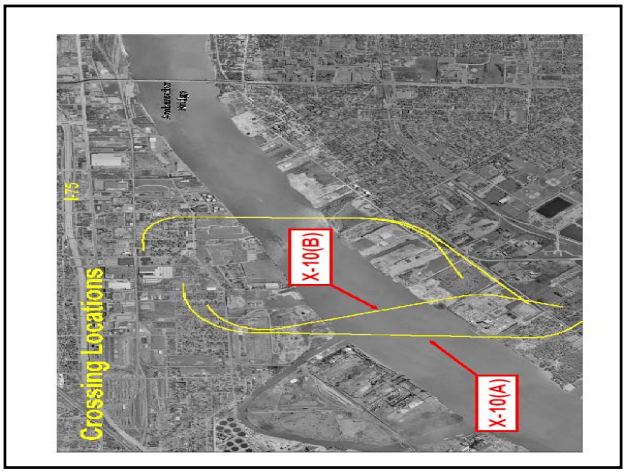
Option 1A



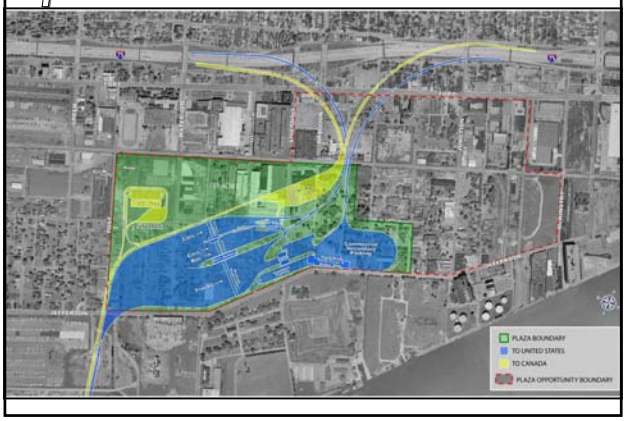
Option 2



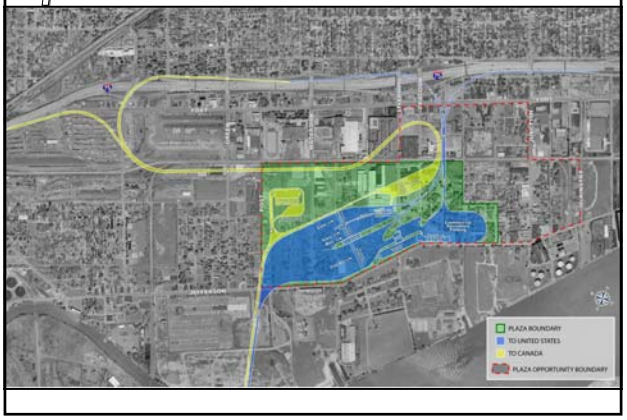




Option 3



Option 4



Detroit River International Crossing Study

Example Plaza Visualization

Option 2 Visualization

Detroit River International Crossing Study

Example Bridge Visualizations

Example Cable Stay Bridge at X-10 (B)

Source: Parson Transportation Group

Suspension Bridge at X11(C)

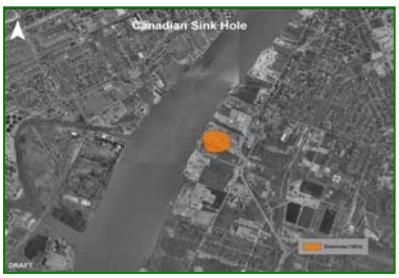
Detroit River International Crossing Study

Drilling Program

Current Situation

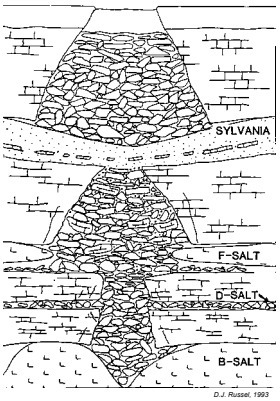
- Historical research indicates a number of potential brine wells are in the area of analysis for a new river crossing.
  - None are in the Detroit River.

- Sinkholes have developed
  - In Canada in 1954 (200 feet wide / 25 feet deep).
  - A sinkhole is also evident at Hennepin Pt.



Current Situation

- A bridge pier/foundation must avoid the cavity cone of influence zone rising to the ground surface.
  - Weight of the layers of soil/rock above cavity can cause a sinkhole.
  - Bridge pier can accelerate the creation of sinkhole.



Drilling Program

- 12 of 14 drill sites are industrial.
  - 9 of 11 are owned/controlled by City of Detroit.

Questions/Comments

Detroit River International Crossing Study

Closing Remarks

Detroit River International Crossing Study

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