Canada-U.S.-Ontario-Michigan Border Transportation Partnership

Consultation Group Meetings

Wednesday, May 28, 2003

Canada-U.S.-Ontario-Michigan Border Transportation Partnership Planning/Need and Feasibility Study

("The Bi-National Study")

- Commissioned by provincial, state, and federal governments ("The Partnership")
- Mandate to develop a 30-year transportation strategy
- Consistent with environmental assessment requirements:
  - NEPA
  - OEAA
  - CEAA

The Bi-National Study Team is initiating its 2nd Round of Consultation May – June, 2003

Public Sector Consultation Group – May 28

Private Sector Consultation Group – May 28

Municipal Councils – June 2 to June 10

Public Information Open Houses – June 16 to 18

What's Being Discussed

- Economic Importance of the Border Crossing
- Elements of a 30-year Strategy – Draft for Consultation
- Road-Based Corridors – Assessment to Date
- Initiation of Formal EA/EIS Processes for Road-Based Corridors

Next Phases (Summer / Fall 2003)

- Finalize P/NF Study
  (Elements of a 30-year Strategy)
- Start Scoping Stage of Environmental Studies for New/Expanded Crossing

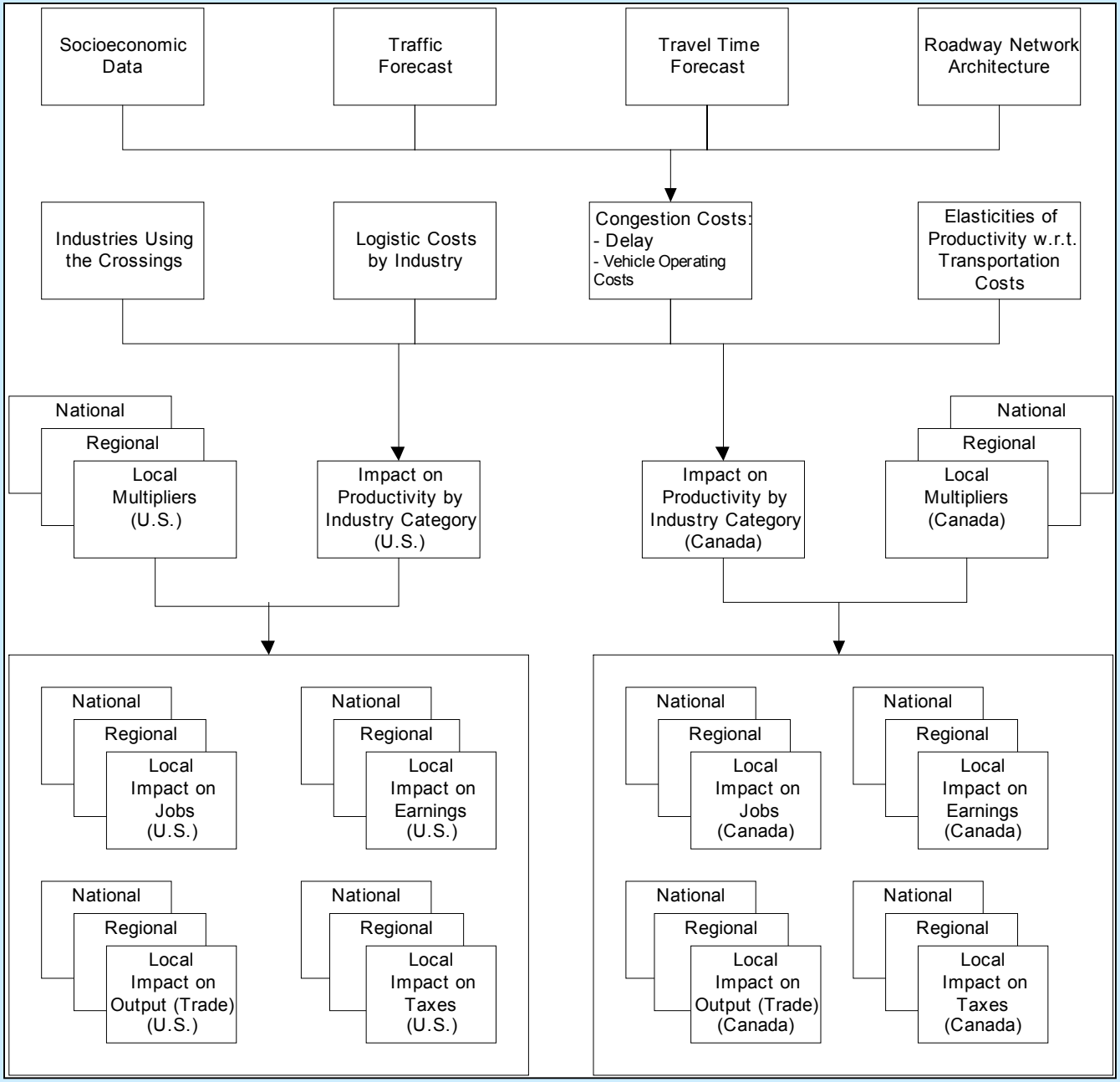
Regional and National Economic Impact of Increasing Delay and Delay related costs at the Windsor-Detroit crossings

PRELIMINARY RESULTS

Objectives

- **To provide an economic assessment of the impact of the increasing traffic congestion in the Windsor-Detroit crossings on:**
  - The industrial productivity in the area,
  - The economic activity, and
  - Tourism traffic at the local, regional and the national level.

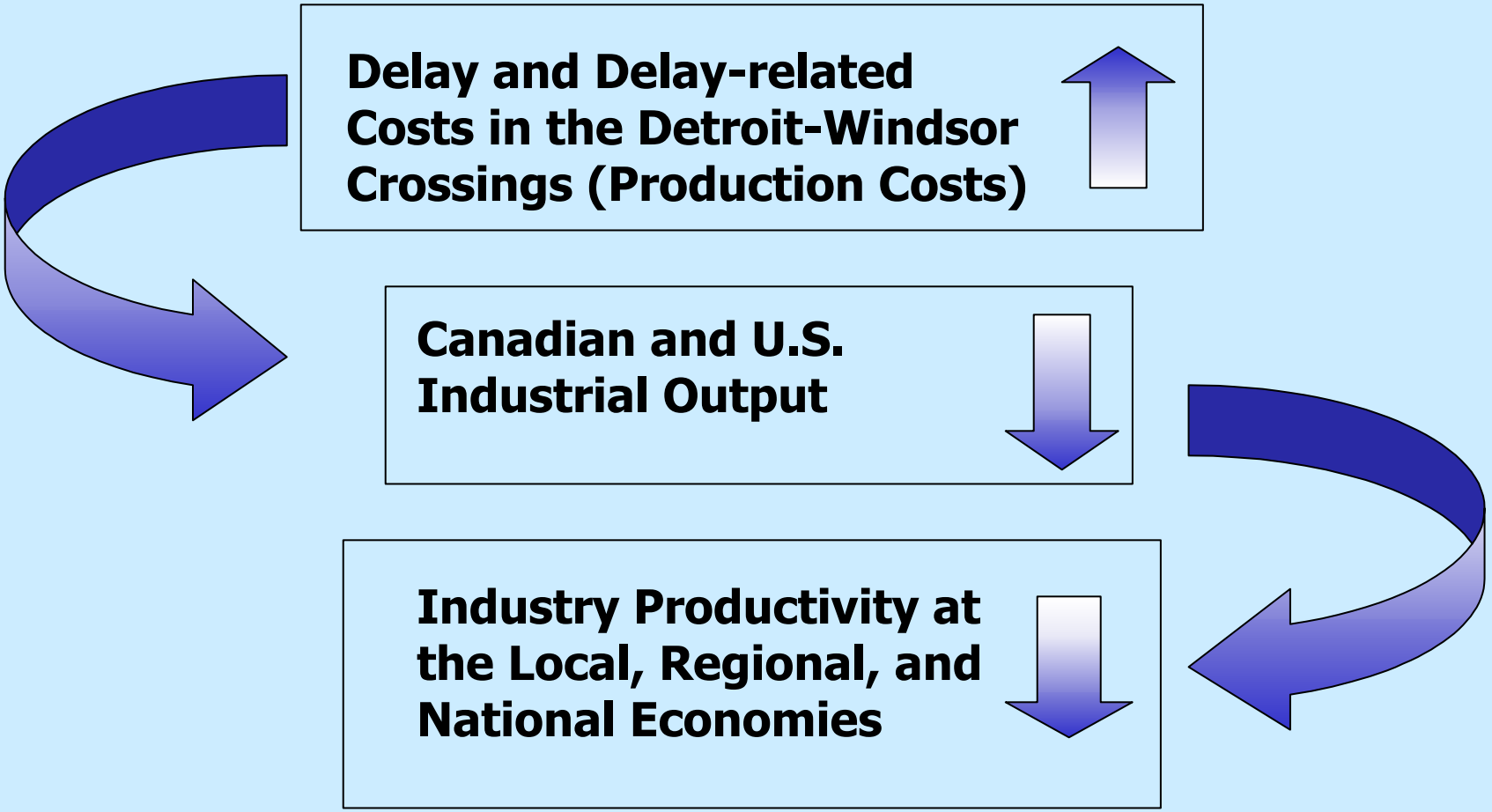
Methodology Overview (Freight)



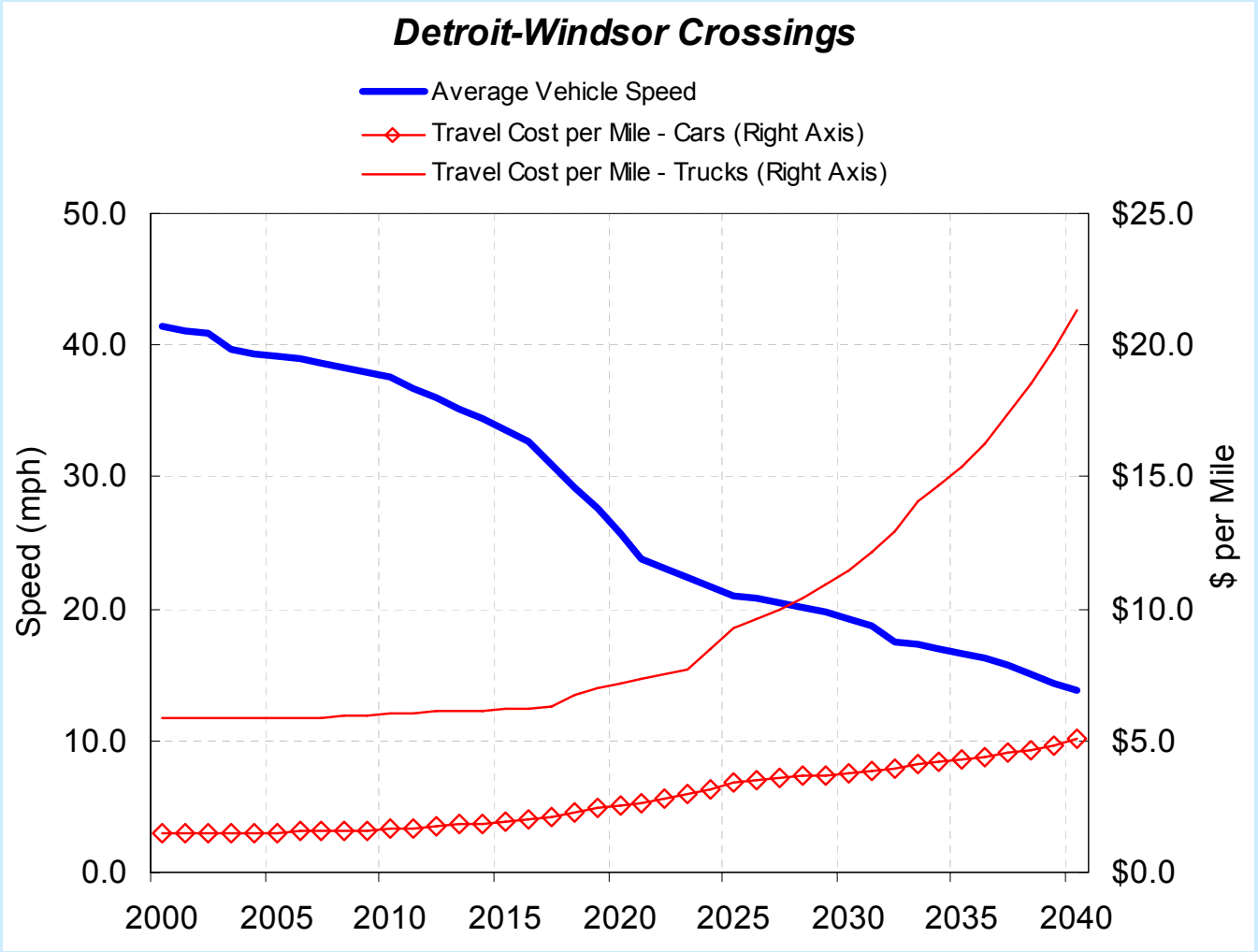
Data Sources:

- –Statistics Canada
- –Transport Canada
- –FHWA
- –MDOT
- –Census Bureau
- –BTS

Economic Impact Process for Freight Movement



Speed and Corresponding Cost Per Mile for Trucks and Passenger Cars



Projected Cross Border Goods Movements - Total Growth from Base Year (Percent)

Commodity	Trade Volume in 2000 (M of 2000 CAN$)	2000 to 2010		2000 to 2020		2000 to 2030	
		Canada to US	US to Canada	Canada to US	US to Canada	Canada to US	US to Canada
Animal/Plant	$ 8,197	42%	62%	91%	137%	146%	216%
Auto	$ 62,850	20%	17%	52%	41%	107%	68%
Forest	$ 4,481	1%	7%	-2%	33%	1%	133%
Machinery/Electronics	$ 53,299	53%	31%	135%	78%	249%	141%
Metal	$ 11,843	20%	17%	52%	41%	107%	68%
Other	$ 34,029	31%	18%	96%	60%	204%	135%

Source: Value figures are based on Industry Canada CCRA. Projection are based on Informetrica July 2002

Potential Economic Impact from Impaired Freight Movements and Productivity Losses

Annual Production Potentially Affected

(Values are in millions of 2000 US$)

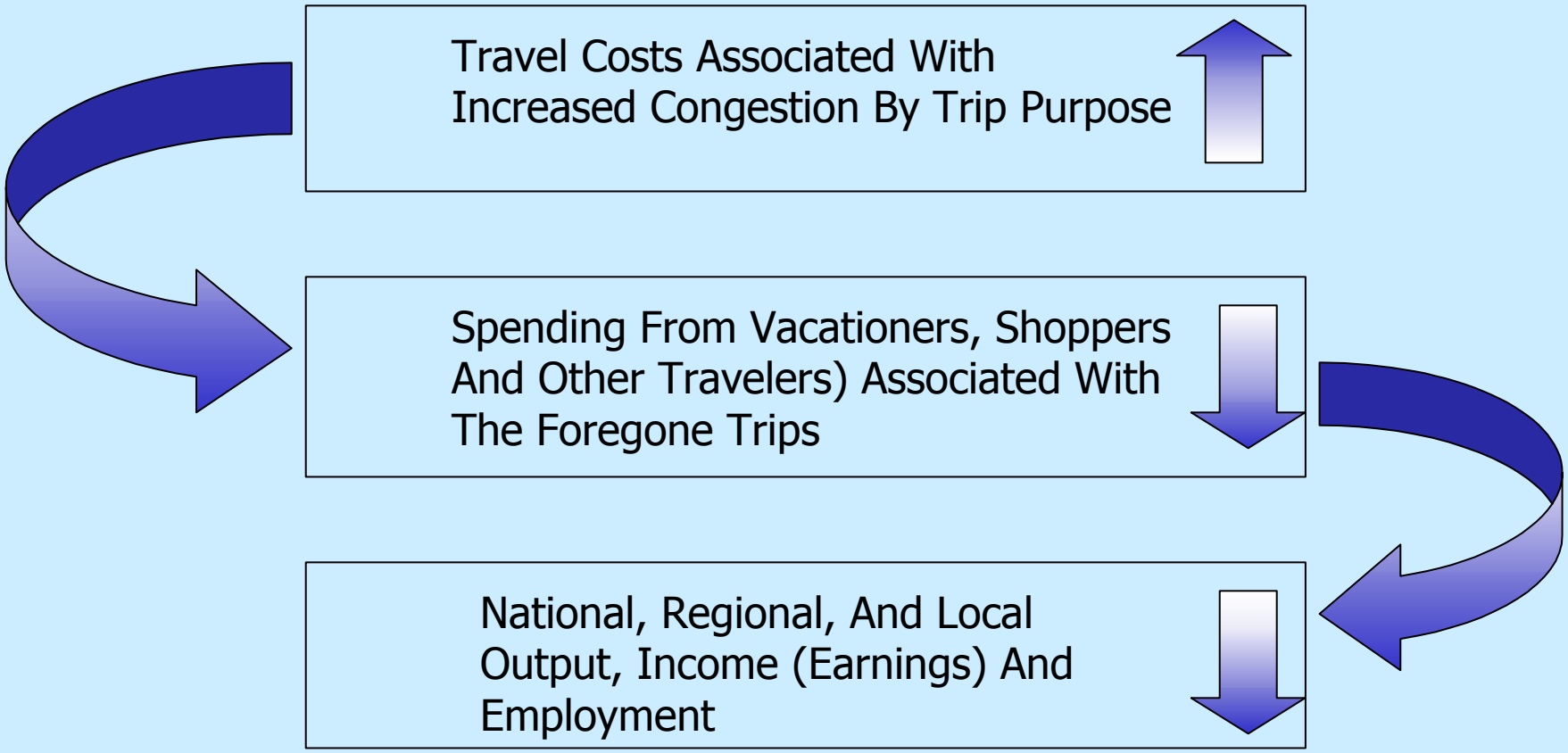
Year	Potential Impact on the SEMCOG-ESSEX Economy	Potential Impact on the State of Michigan and Province of Ontario Economy
2020	($620) – ($675)	($1,000) – ($1,300)
2030	($3,000) – ($3,300)	($5,500) – ($6,000)

Cumulative Employment Potentially Affected

(Full Time Equivalent Jobs)

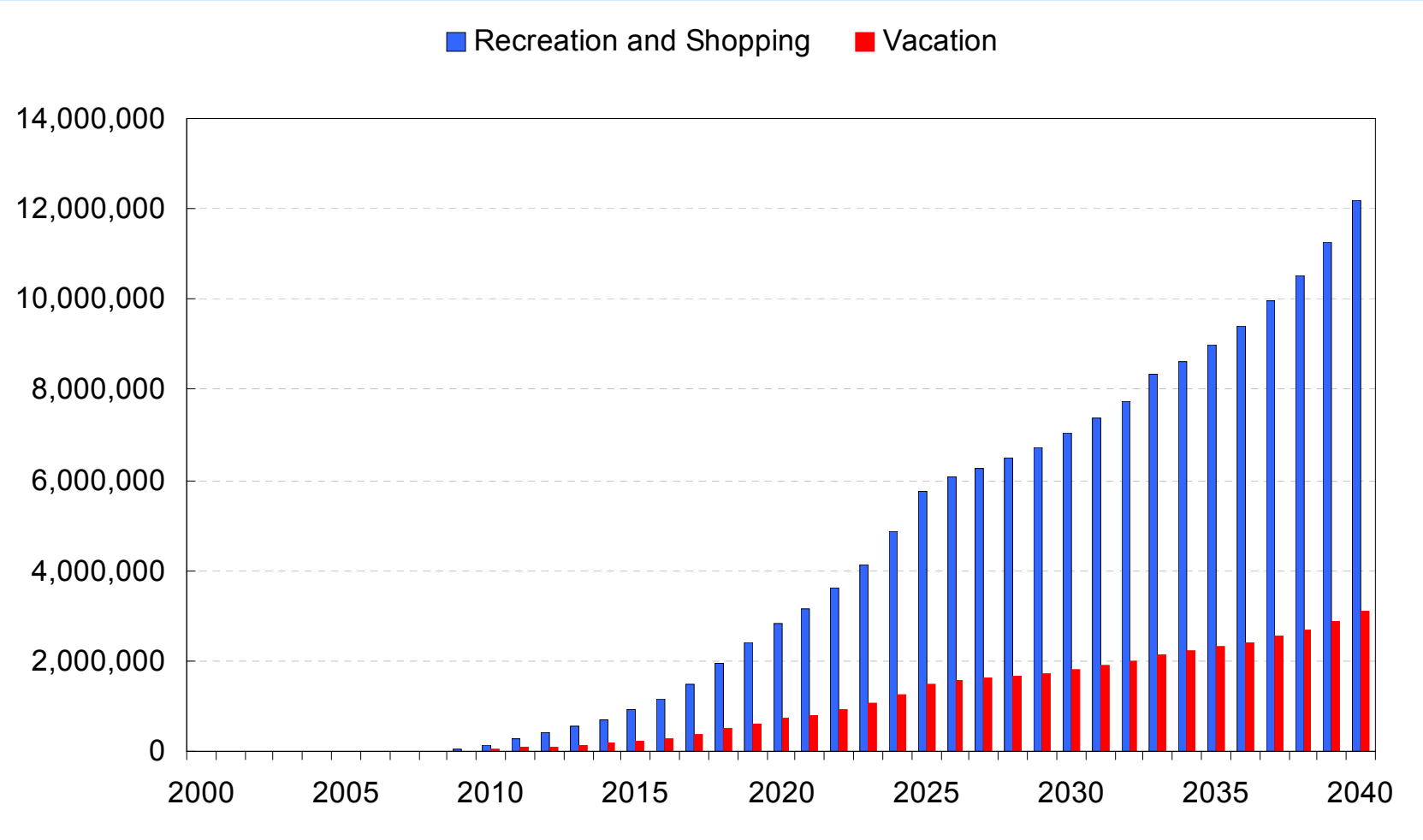
Year	Potential Impact on the SEMCOG-ESSEX Economy	Potential Impact on the State of Michigan and Province of Ontario Economy
2020	(3,000) - (4,000)	(8,000) – (12,000)
2030	(16,000) – (20,000)	(50,000) – (60,000)

Economic Impact Estimation Process for Tourism Movement



Methodology Overview (Tourism)

Cross-Border Trips, Passenger Cars Potentially Affected



Potential Economic Impact from Reduced Personal Trip-Making

Annual Production Potentially Affected

(Values are in millions of 2000 US$)

Year	Potential Impact on the SEMCOG-ESSEX Economy	Potential Impact on the State of Michigan and Province of Ontario Economy
2020	($10) – ($15)	($120 - $165)
2030	($60) – ($70)	($700) – ($800)

Cumulative Employment Potentially Affected

(Full Time Equivalent Jobs)

Year	Potential Impact on the SEMCOG-ESSEX Economy	Potential Impact on the State of Michigan and Province of Ontario Economy
2020	(700) – (800)	(4,000) – (4,500)
2030	(3,750) – (4,000)	(20,000) – (24,000)

Combined Potential Economic Impacts

Annual Production Potentially Affected

(Values are in millions of 2000 Dollars)

Year	Potential Impact on the SEMCOG-ESSEX Economy	Potential Impact on the State of Michigan and Province of Ontario Economy
2020	($630) – ($690)	($1,120) – ($1,465)
2030	($3,060) – ($3,370)	($6,200) – ($6,800)

Cumulative Employment Potentially Affected

(Full Time Equivalent Jobs)

Year	Potential Impact on the SEMCOG-ESSEX Economy	Potential Impact on the State of Michigan and Province of Ontario Economy
2020	(3,700) - (4,800)	(12,000) – (16,500)
2030	(19,750) – (24,000)	(70,000) – (84,000)

Risks and Redundancy

- The key trade route through Detroit-Windsor is dependent upon border crossings that are over 70 years old.
- Given the significance of this key trade route, delays and disruption on the road network from major incidents and maintenance operations must be addressed.
- Upgrading/expansion of the trade route with a new border crossing or expansion of an existing crossing is essential to reduce the risks of major economic disruption.

Proposed Elements of a 30-Year Strategy

- Ensure sufficient border processing resources to serve travel demand at the crossings.
- Construct a new or expand an existing international crossing connecting the interstate freeway system in Michigan to the provincial highway system in Ontario.
- Optimize the use of existing network in the short to medium-term (5 – 10 years).
- Implement travel demand measures and encourage use of other modes to reduce travel demand on the transportation network.

Proposed Elements of a 30-Year Strategy - Border Processing

- Optimize border processing resources.

  This element is required in all cases to ensure the border crossings are functioning efficiently

  - Border Processing Staffing
  - Border Processing Facilities
  - Implement and encourage greater use of NEXUS/FAST and employ new systems to minimize processing time
  - Commercial Vehicle Processing Centre
  - Partnership of Municipalities, Transportation and Border Processing Agencies

Proposed Elements of a 30-Year Strategy -
Road-Based Network

- Construct a new or expand an existing international crossing connecting the interstate freeway system in Michigan to the provincial highway system in Ontario

Provides capacity to meet future travel needs.

Adds redundancy to the network.

(Implementing a new or expanded crossing can require 8 to 10 years, requiring successful completion of environmental processes in Canada and the United States, as well as time to design and construct the new crossing.)

- Initiate Formal Environmental Processes for a New or Expanded International Crossing

Proposed Elements of a 30-Year Strategy - Road-Based Network

- Optimize the use of the existing road network in the short to medium-term (5 – 10 years)

Canadian side:

– Implement the Windsor Gateway Action Plan as finalized by the governments of Canada and Ontario;

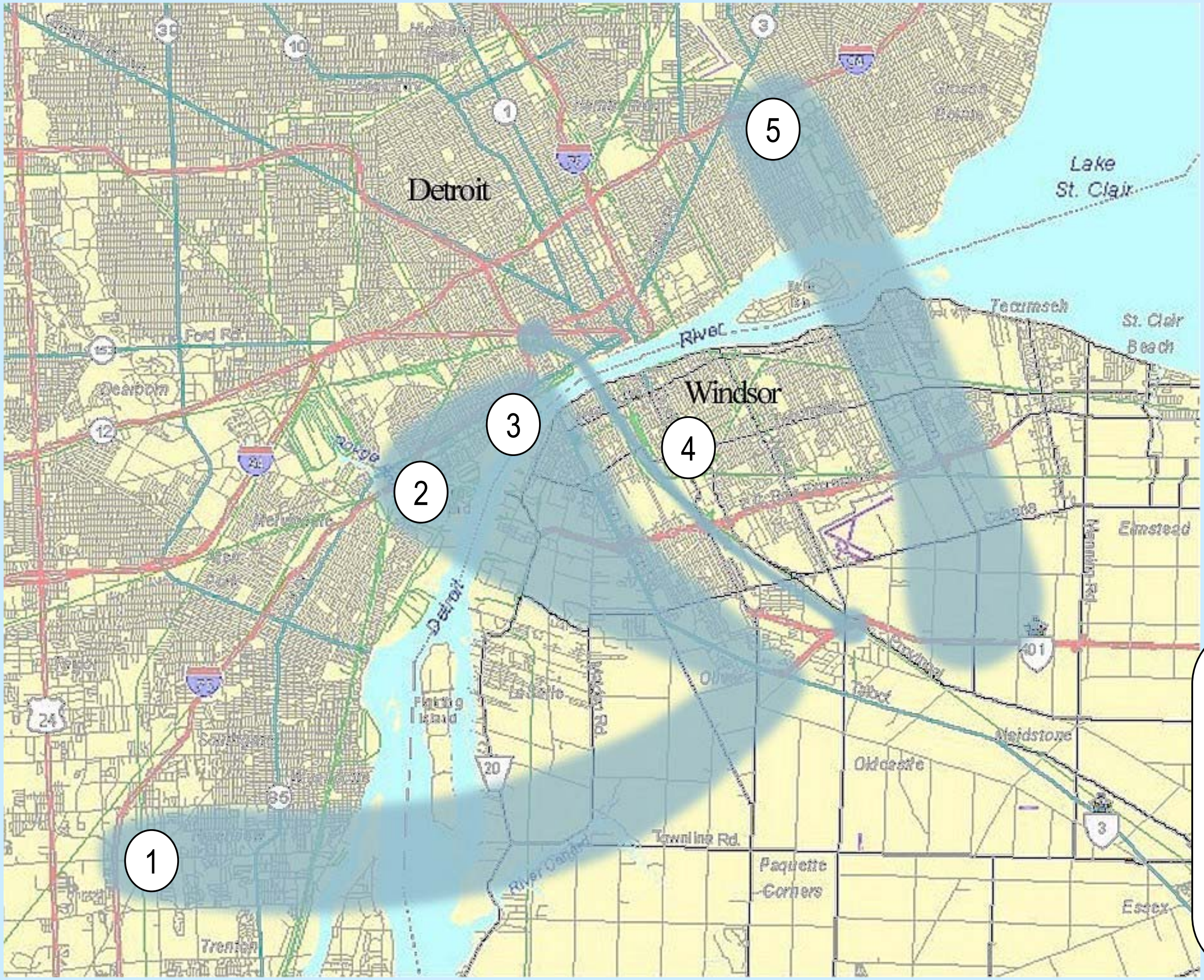
U.S. side:

– Implement the Ambassador Bridge Gateway Project as finalized by the U.S. federal and Michigan state governments;

Proposed Elements of a 30-Year Strategy - TDM and Other Modes

- Implement travel demand measures and encourage use of other modes:
  - Intelligent Transportation Systems (ITS) strategy, Electronic Data Interchange (EDI), and improved signage to improve traffic operations;
  - Greater use of Blue Water Bridge;
  - Education and Information Dissemination;
  - Greater Use of Intermodal Rail;
  - Encourage New Inter-City Passenger Rail;
  - Encourage New/Improved Transit Services;
  - Greater Use of Ferry Services;
  - Greater Use of Marine Vessel Services.

Road-Based Opportunity Corridors



*Connections between corridors will also be considered in environmental planning stages

1. South Crossing Corridor
2. Central Crossing Corridor
3. Twinned Ambassador Bridge Corridor
4. Truck Tunnel
5. East Crossing Corridor

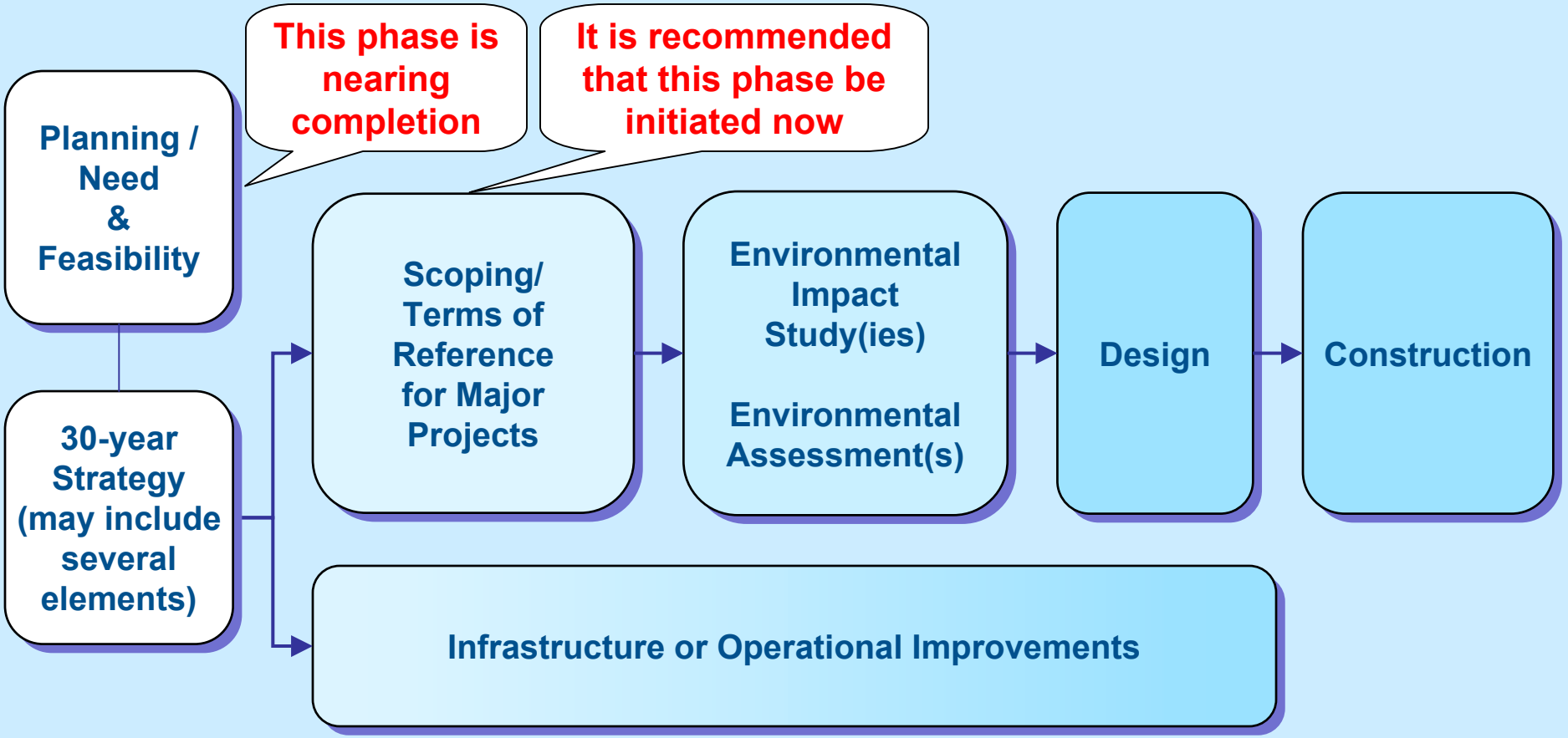
Factors for Evaluation of Proposed Alternatives

Factors	The Project Team will consider whether or not the proposed alternative(s) will:
Transportation Network Improvement	•Support local international traffic between Detroit and Windsor •Support long distance freight travel •Divert international truck and/or vehicle congestion •Support long distance passenger travel •Relieve traffic congestion
Transportation Opportunities	•Optimize the existing infrastructure
Government Land Use, Transportation Planning, and Tourism Objectives	•Support existing plans •Support future plans •Support the transportation system •Maintain security and provide redundancy
Border Processing	•Meet the long term needs for commercial processing •Meet the long term needs for passenger crossings
Environmental Feasibility	•Impacts to natural features •Impacts to socioeconomic features •Impacts to cultural features
Technical Feasibility	•Provide for good design and reasonable construction costs

Preliminary Assessment of Opportunity Corridors

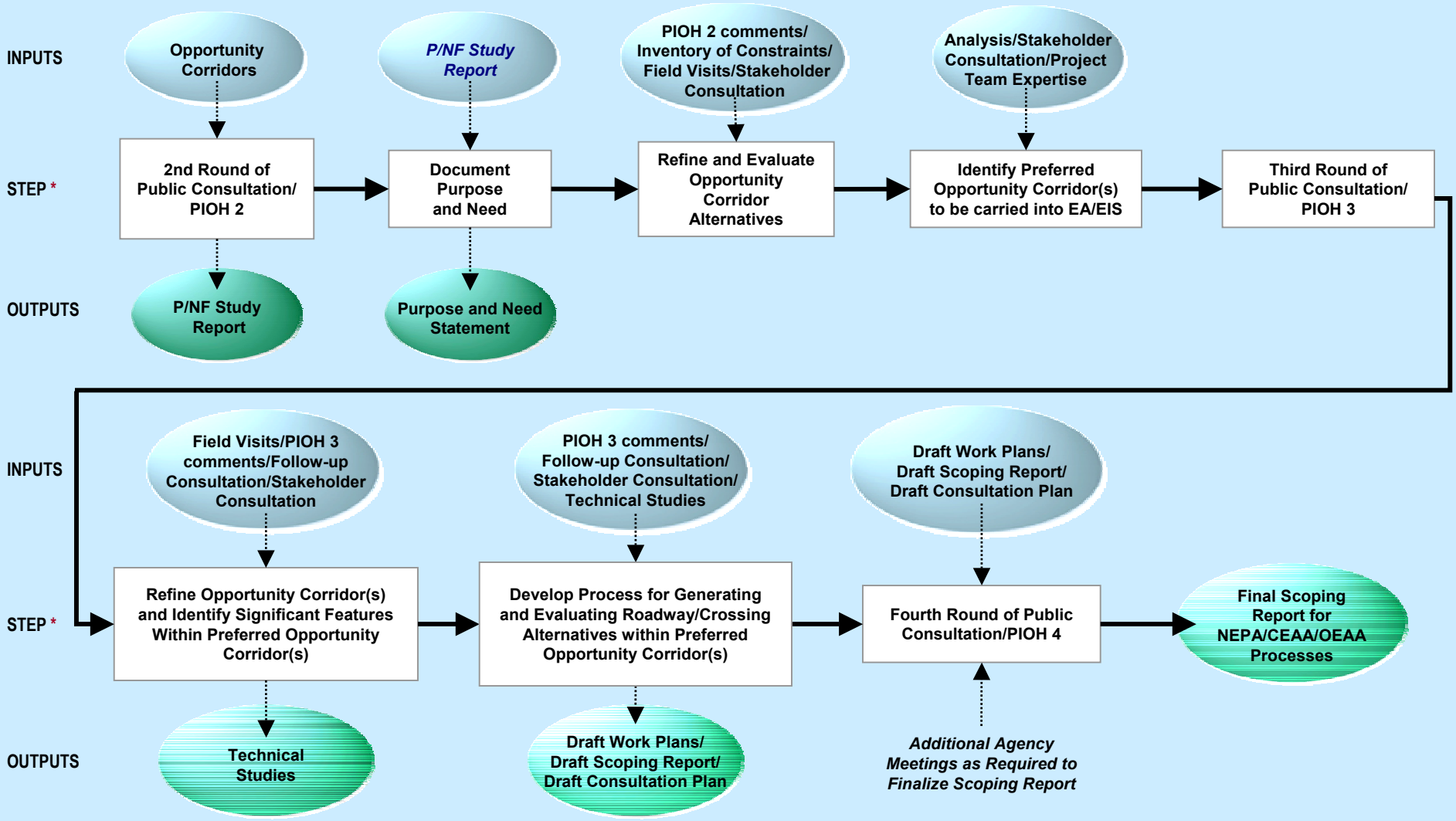
- Each corridor permits at least one feasible route.
- Each corridor provides network benefits by increasing capacity.
- The location of a route and connections to the freeway system determines the degree of benefits to the road network.
- All corridors result in some impacts to residential, commercial and significant natural areas.

The Border Improvements Planning Process



Proposed Scoping Process for Roadway Alternatives

*** - All Steps in the Scoping Process will be carried out in a manner consistent with environmental processes in both the U.S. and Canada**



Transport Canada | Transports Canada | U.S. Department of Transportation Federal Highway Administration | Ontario | MDOT Michigan Department of Transportation

MAY 28, 2003

June Presentations and Consultations

DATE	PURPOSE	TIME	LOCATION
June 2	Windsor City Council	6:00 p.m.	Windsor City Hall
	Wyandotte City Council	7:00 p.m.	City Hall Council Chambers
June 3	SEMCOG Meeting	1:30 p.m.	Buhl Building, Detroit
June 4	Lambton County Council	1:00 p.m.	Lambton County Municipal Building
	Essex County Council	6:15 p.m.	Essex County Civic Centre
June 10	LaSalle Town Council	7:00 p.m.	Town Hall Council Chambers
June 16	PIOH #2 – Windsor	2 – 9 p.m.	Cleary International Centre, Dieppe Room
June 17	PIOH #2 – Wyandotte	3 – 9 p.m.	Biddle Hall
June 18	PIOH #2 – Detroit	3 – 9 p.m.	Southwestern High School

Schedule

- **Fall 2003**
  - Identify Preferred Opportunity Corridor(s)
- **Spring 2004**
  - Present Draft Scoping Report for Comments

- *Throughout Scoping Stage, Consultation with Public and Private Sector Consultation Groups will continue.*

- *Consultation with Community Groups will also be on-going.*

ASSESSMENT OF TRANSPORTATION NETWORK IMPROVEMENT FACTORS							
Factors	**Measures**	**Base Case (No Action)**	**South Crossing**	**Central Crossing**	**Twinned Ambassador Bridge**	**Truck Tunnel**	**East Crossing**
Support local international traffic Support long distance international freight travel Support long distance international passenger travel	• ***Travel time on the network aggregated to total vehicle-hrs during the peak hr****: Travel time is a measure of network efficiency; travel time was assessed relative to the base case (do nothing) scenario; the lower the total travel time the less congestion and delay assumed on the network* • ***Travel distance on the network aggregated to total vehicle-km during the peak hr*** *Travel distance is a measure of network congestion; Travel time is a measure of network efficiency; travel distance was assessed relative to the base case (do nothing) scenario; the lower the total travel distance, the less congestion and delay assumed on the network*	• Alternative will not support international traffic • Without additional capacity, worsening congestion levels at existing crossings lead to increased delays	• Alternative provides limited support to local international traffic; does support long distance travel to I-75 and possibly I-94 • Can provide sufficient additional capacity to meet long-term travel needs of the region • Alternative does not divert sufficient passenger car traffic to relieve congestion at existing border crossings	• Alternative supports local and long distance international traffic • Can provide sufficient additional capacity to meet long-term travel needs of the region • Diverts sufficient traffic to relieve congestion on local road network in vicinity of existing crossings	• Alternative supports local and long distance international traffic • Can provide sufficient additional capacity to meet long-term travel needs of the region • Does not require diversion of international traffic, but requires modifications to local road network to provide additional capacity	• Alternative provides limited support to international truck traffic • Provides additional capacity for network, but capacity provided is insufficient to meet long-term travel needs of the region • Provides redundancy as an alternate river crossing for trucks • Doesn't serve passenger car traffic	• Alternative provides limited support to international traffic • Can provide sufficient additional capacity to meet long-term travel needs of the region • Alternative does not divert sufficient traffic to relieve congestion at existing border crossings
Impacts to access and mobility on local road networks (Divert int'l truck and/or vehicle congestion)	• *Assessment based on assumed road connections, crossings and closures developed for a representative alignment within each corridor*	• Without improvements, congestion and delays at border crossings and connecting roadways will reduce local mobility and access	• Alternative does not divert sufficient international passenger car traffic to relieve congestion at existing border crossings; this could affect local mobility and access • May require modifications to local road network which could affect local mobility and access	• Diverts sufficient international traffic to relieve congestion on local road network in vicinity of existing crossings • May require modifications to local road network	• Does not divert international traffic to other areas of the local road network • Requires modifications to local road network which could affect local mobility and access	• Capacity provided is insufficient to meet long-term travel needs of the region; congestion on local road network in vicinity of river crossings could affect local access and mobility • May require modifications to local road network	• Alternative does not divert sufficient international traffic to relieve congestion at existing border crossings; • May require modifications to local road network

ASSESSMENT OF GOVERNMENT LAND USE, TRANSPORTATION PLANNING, AND TOURISM OBJECTIVES							
Factors	**Measures**	**Base Case (No Action)**	**South Crossing**	**Central Crossing**	**Twinned Ambassador Bridge**	**Truck Tunnel**	**East Crossing**
Support existing and future plans	• *Subjective assessment of compatibility with public planning documents*	• Not compatible with Windsor Area Long Term Transportation Study (WALTS) recommendations, which identifies need for network improvements related to increased cross-border development	• Compatible with existing and future plans in the Canadian portion of the corridor; avoids majority of proposed urban expansion area of Laalle • Corridor in Wyandotte area includes a heavily developed mix of land uses which are not all compatible with highway uses	• Portion of corridor south of EC Row Expressway in Windsor/Lasalle consistent with WALTS recommendations • Corridor includes a mix of land uses which are not all compatible with highway uses	• Portion of corridor south of EC Row Expressway in Windsor/Lasalle consistent with WALTS recommendations • Corridor includes a mix of land uses which are not all compatible with highway uses	• Compatible with existing and future plans in that it improves use of existing transportation corridor, but adjacent land uses are not all compatible with highway uses • Introduces international truck traffic into areas of Windsor/Detroit currently lesser exposed to such traffic	• Portion of corridor south of EC Row Expressway in Windsor/Tecumseh consistent with WALTS recommendations • Corridor includes a mix of land uses which are not all compatible with highway uses
Support the transportation system	• *Subjective assessment of compatibility with public transportation plans and systems*	• Does not support the transportation system; significant portions of the network will fail by year 2030	• Increases capacity of the existing system but, due to lack of travel demand in this corridor, alternative provides lesser improvements to network operations than other alternatives	• Increases capacity of the existing system and provides greater improvement to network operations than other alternatives	• Increases capacity of the border crossing and provides improvement to network operations in Windsor	• Increases capacity of the border crossing, but does not provide sufficient capacity to meet long-term traffic needs; as a result, alternative provides lesser improvements to network operations than other alternatives	• Increases capacity of the existing system but alternative provides lesser improvements to network operations than other alternatives
Maintain security and provide redundancy	• *Subjective assessment of road network risks/weaknesses*	• No reduction of potential risks/ weaknesses in border crossing network	• Provides redundancy as a new crossing location in network	• Provides redundancy as a new crossing location in network	• Provides redundancy as a twin span, but does not provide a new crossing location in network	• Provides limited redundancy as a new crossing location for trucks	• Provides redundancy as a new crossing location in network

ASSESSMENT OF BORDER PROCESSING FACTORS							
Factors	**Measures**	**Base Case (No Action)**	**South Crossing**	**Central Crossing**	**Twinned Ambassador Bridge**	**Truck Tunnel**	**East Crossing**
Meet the long term needs for commercial processing and passenger crossings	• *Subjective assessment of possible border processing issues and constraints associated with each alternative*	• Low-risk traffic mixing with high-risk traffic limits effectiveness/ ability of initiatives to reduce processing times • At Ambassador Bridge, secondary inspection of Canada-bound trucks occurs off-site; at Detroit-Windsor Tunnel, secondary inspection of all trucks occurs off-site; unsecured connections between primary and secondary inspection areas not consistent with long-term needs of border processing agencies	• Existing development in corridor may limit size/flexibility of plaza area to complete border processing requirements	• Existing development in corridor may limit size/flexibility of plaza area to complete border processing requirements	• Existing development in corridor may limit size/flexibility of plaza area to complete border processing requirements	• Existing development around rail tunnel portal may limit size/flexibility of plaza area to complete border processing requirements • Proposal would provide direct improvements for commercial vehicle processing only; no change from base case for passenger car crossings	• Existing development in corridor may limit size/flexibility of plaza area to complete border processing requirements

ASSESSMENT OF TECHNICAL FEASIBILITY							
Factors	**Measures**	**Base Case (No Action)**	**South Crossing**	**Central Crossing**	**Twinned Ambassador Bridge**	**Truck Tunnel**	**East Crossing**
Technical Considerations	• *Length of Corridor* • *Length of river crossing* • *Maximum road grade·* • *Structure types*	• N/A	• Total length of corridor (approx.) = 24 km (15 mi) • Length of River Crossing = 3.5 to 4.5 km (2.2 to 2.8 mi) which could necessitate in-water work and structures • (Assumed) max. grade of 3% consistent with highway design standards	• Total length of corridor (approx.) = 15 km (9.5 mi) • Width of Detroit River at crossing (approx.) = 0.6 to 0.75km (0.4 to 0.5 mi) • (Assumed) max. grade of 3% consistent with highway design standards	• Total length of corridor (approx.) = 15 km (9.5 mi) • Width of Detroit River at crossing (approx.) = 0.6 km (0.4 mi) • Max. Grade of 5% on river crossing structure is not consistent with highway design standards but satisfies arterial road design standards	• Total length of corridor (approx.) = 15 km (9.5 mi) • Width of Detroit River at crossing (approx.) = 0.6 km (0.4 mi) • (Assumed) max. grade of 3% consistent with highway design standards; facility would operate at substantially lower posted speeds • Not a direct freeway connection on US side, but this should not limit operations • Emergency services operations/ equipment are limited with tunnel facility	• Total length of corridor (approx.) = 20 km (12.5 mi) • Width of Detroit River at crossing (approx.) = 1.5 to 2 km (0.9 to 1.3 mi) which could necessitate in-water work and structures • (Assumed) max. grade of 3% consistent with highway design standards • Constraints may preclude a direct freeway connection on US side
Capital Construction Cost Estimate	• *$ (2003 base year) Estimated cost to construct new crossing and roadway connection between Highway 401 in Windsor/Essex County and Interstate Freeway System in Detroit/Wayne County*	• N/A	• TBD	• TBD	• TBD	• TBD	• TBD
Constructability and Related Impacts	• *Subjective assessment*	• N/A	• Significant disruptions to vehicular traffic during construction on US side; • Some disruption to marine traffic during construction of river crossing • Minor disruptions to vehicular traffic during construction on Canadian side • Possibility of permanent structures in river which would affect marine navigation in river	• Significant disruptions to vehicular traffic during construction • Some disruption to marine traffic during construction of river crossing • Minor disruptions to vehicular traffic during construction on Canadian side	• Significant disruptions to vehicular traffic during construction in Windsor • Some disruption to vehicular traffic during construction in Detroit • Some disruption to marine traffic during construction of river crossing	• Some minor disruptions to vehicular traffic during construction and conversion of twin rail tunnels	• Significant disruptions to vehicular traffic during construction on US side; • Some disruption to marine traffic during construction of river crossing • Minor disruptions to vehicular traffic during construction on Canadian side • Possibility of permanent structures in river which would affect marine navigation in river

ASSESSMENT OF TRANSPORTATION OPPORTUNITY FACTORS						
Factors	**Base Case (No Action)**	**South Crossing**	**Central Crossing**	**Twinned Ambassador Bridge**	**Truck Tunnel**	**East Crossing**
Optimize use of the existing infrastructure (transportation corridors and facilities)	• No optimized use of infrastructure; with no increases in road capacity, increasing traffic volumes will result in increased congestion, bottlenecks and inefficient use of infrastructure	• Some degree of optimization of existing infrastructure is possible by making use of existing major road and/or rail corridors; • Direct access to I-75; 9 km (5.5 mi) to I-94 (via Telegraph Road), 20 km (12 mi) to I-96 (via I-75)	• Some degree of optimization of existing infrastructure is possible by making use of existing major road and/or rail corridors; • Direct access to I-75; 8 km (5 mi) to I-94 (via Southfield Hwy), 8 km (5 mi) to I-96 (via I-75) • Truck ferry facilities are situated within this corridor; improvements to road network in this corridor may also improve connectivity to ferry	• Some degree of optimization of existing infrastructure is possible by making use of existing major road and/or rail corridors; • Direct access to I-75/I-94/I-96 • Can take better advantage of the US Gateway Project which expands US plaza and improves connections to freeway system • Improvements to road network in this corridor may also improve connectivity to truck ferry.	• Alternative offers some degree of optimization of existing infrastructure by making use of existing rail corridor and tunnel to provide additional capacity and a new crossing for international truck traffic; • Indirect connection to US interstate highway system (I-75) • Alternative incorporates a new, larger rail tunnel, which would improve rail facilities at this crossing	• Some degree of optimization of existing infrastructure is possible by making use of existing major road and/or rail corridors; • Direct access to I-94; 6 km (4 mi) to I-75 (via I–94), 11 km (7 mi) to I-96 (via I-94)

ASSESSMENT OF ENVIRONMENTAL FACTORS						
Factors	**Base Case (No Action)**	**South Crossing**	**Central Crossing**	**Twinned Ambassador Bridge**	**Truck Tunnel**	**East Crossing**
Natural Features						
Air Quality	• Meets Regional AQ standards	• All new crossings would result in similar Regional Air Quality Impacts				
Ground Water	• No impact	• No significant impact	• No significant impact	• No significant impact	• No significant impact	• No significant impact
Surface Water	• No impact	• New crossings at Detroit River, Canard River tributaries, West Branch Cahill Drain, and Lepain Drain requiring permits	• New crossings at Detroit River, Turkey Creek, Lennon Drain, Cahill Drain, and Lepain Drain requiring permits	• New crossing at Detroit River requiring permits • Crossing at Grand Marais/Turkey Creek requiring permits	• Temporary construction impacts requiring permits	• New crossing at Detroit River requiring permits
Agricultural Lands	• No impact	• Potential to impact agricultural areas	• Potential to impact agricultural areas	• Potential to impact agricultural areas	• No agricultural lands impacted	• Potential to impact agricultural areas
Wetlands	• No impact	• Potential to impact the Detroit River Marsh Wetland Complex Provincially Significant Wetland	• Potential to impact wetland areas	• Potential to impact wetland areas	• No wetlands impacted	• Potential to impact wetland areas
Environmentally Sensitive Areas	• No impact	• Requires a new crossing of Detroit River, which is a designated Heritage River in both U.S. and Canada • Impact upon Detroit River Floodprone Area requiring permits • Potential impacts to Grosse Ile as well as a portion of the Detroit River which are both designated as International Wildlife Refuge	• Requires a new crossing of Detroit River, which is a designated Heritage River in both U.S. and Canada • Potential to impact Ojibway Park and Prairie Reserve area, one of the largest protected prairie and oak savannah habitats in Canada. • Potential to impact Candidate Natural Heritage sites in Windsor	• Requires a new crossing of Detroit River, which is a designated Heritage River in both U.S. and Canada • Potential to impact Ojibway Park and Prairie Reserve area, one of the largest protected prairie and oak savannah habitats in Canada • Potential to impact Candidate Natural Heritage sites in Windsor	• Potential to impact Candidate Natural Heritage site in Windsor	• Requires a new crossing of Detroit River, which is a designated Heritage River in both U.S. and Canada • Potential to impact portion of Detroit River, islands, and adjacent shorelands that are all designated as International Wildlife Refuge • Potential to impact wildlife habitat (Blue Herron lagoon on Belle Isle) • Potential to impact Candidate Natural Heritage sites in Windsor
Endangered Species	• No known impacts	• No known impacts – this will be investigated further in next stage of project	• No known impacts – this will be investigated further in next stage of project	• No known impacts – this will be investigated further in next stage of project	• No known impacts – this will be investigated further during next stage of project	• No known impacts – this will be investigated further in next stage of project
Cultural Features						
Historic/Archaeological Sites	• No impact	• Potential to impact historical/ archaeological sites	• Potential to impact historical/ archaeological sites	• Potential impact to Ambassador Bridge	• Potential impact to historical/ archaeological sites within/adjacent to rail corridor	• Potential to impact Belle Isle (Natural Historic Landmark)
National, State, and Local Parks/ Recreation Sites	• No impact	• No Impacts	• Potential impacts to recreation areas and local parks	• Potential impact to McKee Municipal Park • Potential impact to Clark Municipal Park • Potential impact to Riverside Municipal Park	• Potential impacts municipal parks adjacent to rail corridor	• Potential to impact Belle Isle, a Natural Historic Landmark and the largest municipal island park in the U.S. • Potential impacts municipal parks (Kiwanis Park and Derwent Park)

ASSESSMENT OF ENVIRONMENTAL FACTORS						
Factors	**Base Case (No Action)**	**South Crossing**	**Central Crossing**	**Twinned Ambassador Bridge**	**Truck Tunnel**	**East Crossing**
Socioeconomic Features						
Residential Areas	• Potential impacts to residential areas in communities adjacent to existing crossings and connecting roadways	• Potential impacts to residential areas	• Potential impacts to residential areas	• Potential impacts to residential areas	• Potential impacts to residential areas adjacent to rail corridor	• Potential impacts to residential areas
Commercial/Industrial Areas	• Potential impacts to commercial and industrial areas in communities adjacent to existing crossings and connecting roadways	• Potential impacts to commercial and industrial areas	• Potential impacts to commercial and industrial areas	• Potential impacts to commercial and industrial areas	• Potential impacts to commercial and industrial areas adjacent to rail corridor	• Potential impacts to commercial and industrial areas
Cemeteries, Schools, Places of Worship	• Potential impacts to cemeteries, schools, places of worship in communities adjacent to existing crossings and connecting roadways	• Potential impacts to cemeteries, schools, places of worship adjacent to rail corridor	• Potential impacts to cemeteries, schools, places of worship	• Potential impacts to cemeteries, schools, places of worship	• Potential impacts to cemeteries, schools, places of worship	• Potential impacts to cemeteries, schools, places of worship
Environmental Justice	• No impact	• Corridor includes areas where environmental justice must be considered	• Corridor includes areas where environmental justice must be considered	• Corridor includes areas where environmental justice must be considered	• Corridor does not include areas where environmental justice must be considered	• Corridor does not include areas where environmental justice must be considered
Landfills / Hazardous Waste Sites	• No impact	• Potential impact on gas, oil, and disposal wells • Potential impacts to contaminated sites	• Potential impact upon Malden Park (former landfill) • Potential impacts to oil, gas, or disposal wells • Potential impacts to contaminated sites	• Potential impact upon Malden Park (former landfill) • Potential impacts to contaminated sites	• Potential impacts to active landfill areas • Potential impacts to contaminated sites	• Potential impacts to contaminated sites