

1. Introduction

1.1 Project Background

Toronto and Region Conservation Authority (TRCA) is proceeding with completion of the Don Mouth Naturalization and Port Lands Flood Protection Project Environmental Assessment (DMNP) in co-operation with Waterfront Toronto, formerly the Toronto Waterfront Revitalization Corporation (TWRC). The DMNP caps off an extensive planning process whose roots can be traced to a public meeting at the Ontario Science Centre in 1989, attended by more than 500 members of the public, government agencies, and environmental specialists. The forum inspired the community and local councillors to become actively engaged in finding and implementing solutions to the ailments of the Don River, sparking the birth of the Task Force to Bring Back the Don.

From this initial groundswell of engagement, the Task Force proposed a vision of returning wetlands to the mouth of the Don River. This vision was embraced and shaped by the Task Force to Bring Back the Don, which set the framework for the DMNP EA to proceed in its effort to provide flood protection, naturalize the mouth of the river, and function within the urban fabric of Toronto.

By 2001, the idea of transforming part of the Port Lands into a naturalized river mouth had become enshrined in the City of Toronto's Official Plan (EA) was initiated by TRCA on behalf of Waterfront Toronto in 2004.

Q) The DMNP EA to proceed in its effort to provide flood protection, naturalize the mouth of the river, and function within the urban fabric of Toronto.

1.2 Project Goals and Objectives

Ultimately this project will transform the existing mouth of the Don River, including the Keating Channel, into a healthier, more naturalized river outlet to the Toronto Inner Harbour and Lake Ontario, while at the same time removing the risk of flooding to over 290 hectares of urban land to the east and south of the river. This project is a setting project which will allow other development in the Lower Don Lands to occur in support of revitalizing the Don River.

The seven project objectives of the DMNP are as follows:

1. **Naturalization:**
The naturalization of the Don Mouth will not only improve the aquatic and terrestrial habitat conditions at the mouth of the river, but will provide for the creation of a more natural form of river mouth.
2. **Flood Protection:**
The DMNP must address flooding issues in the Port Lands and not exacerbate flooding in other areas, while meeting the first objective.
3. **Operational Management and Constructability:**
The DMNP design must adequately manage sediment, debris and ice to ensure that the DMNP supports required navigation, natural function, and existing or future flood protection works within the Lower Don River.

4. **Integration with Infrastructure:**

The DMNP must integrate with all existing and planned infrastructure that could not be reasonably moved or removed.

5. **Recreational and Cultural Opportunities:**

The DMNP should encourage and contribute to the development of compatible recreation, cultural, and heritage opportunities as well as provide for public and handicap accessibility to the Don Mouth.

6. **Co-ordination with Other Planning Initiatives:**

The DMNP must co-ordinate with other planning and development efforts, as well as between the three levels of government as recommended in the Fung Report (Toronto Waterfront Revitalization Task Force, 2000), for the revitalization and sustainability of the waterfront, and associated foreseeable infrastructure in order to ensure that the best outcome is achieved for all projects.

7. **Consistency with TWRC Sustainability Framework:**

The DMNP must be consistent with the TWRC Sustainability Framework (2005c) which seeks to ensure that sustainability principles are integrated into all facets of waterfront revitalization management, operations and decision-making.

1.3 Proponent

Waterfront Toronto and the TRCA have been identified as co-proponents for this project as it relates to environmental assessment legislation. TRCA has worked co-operatively with Waterfront Toronto, their consultants, and the three levels of government through appropriate departments, agencies and the public to ensure this project has been **co-ordinated** with the many other activities required to revitalize the waterfront.

1.4 EA Framework

Two separate EA approvals are required to implement the preferred undertaking for the DMNP. The first EA process meets the provincial EA requirements through an Individual EA, as defined in the Ontario *EA Act*. The second EA process addresses federal concerns using an Environmental Screening process as defined by the *Canadian Environmental Assessment Act (CEAA)*. The development of both reports was **co-ordinated** to streamline the process and ensure that all requirements for both levels of government are addressed.

As a result of the activities of Waterfront Toronto and others, there are numerous EAs and planning documents that have been completed or are currently ongoing throughout the Port Lands specifically and the waterfront in general. The DMNP EA has been co-ordinated with and informed by these other EAs. The list of completed EAs and planning documents includes the:

- Keating Channel EA (MTRCA, 1983);
- Central Waterfront Secondary Plan: Making Waves (City of Toronto, 2001);
- Wet Weather Flow Management Master Plan (City of Toronto, 2003);
- Lower Don River West (LDRW) Remedial Flood Protection Class EA (TRCA, 2005);
- West Don Lands Class EA Master Plan (TWRC, 2005);
- West Don Lands Precinct Plan (TWRC, 2005);
- FILMPORT Studios (Toronto Filmport Studios and TEDCO, 2005);
- East Bayfront Precinct Plan (TWRC, 2005);

- East Bayfront Class EA Master Plan (TWRC, 2006);
- Lake Ontario Park Master Plan (Waterfront Toronto, 2008);
- Port Lands Business and Implementation Strategy (Waterfront Toronto, 2009);
- Lower Don Lands Framework Plan (Waterfront Toronto, 2010);
- Lower Don Lands Infrastructure Municipal Class EA and Keating Channel Precinct Environmental Study Report (Waterfront Toronto, City of Toronto and Toronto Transit Commission, 2010);
- Keating Channel Precinct Plan (Waterfront Toronto, 2010); and
- Amendment to the Central Waterfront Secondary Plan (City of Toronto, 2010).

A number of studies were completed as part of the EA and include:

- Baseline Identification of Cultural Heritage Properties;
- Archaeological Assessment Existing Conditions;
- Navigation Risk Report;
- Hydraulic Modelling Technical Memorandum;
- Sediment Transport Modelling Memorandum; and,
- Economic Effects Assessment Technical Memorandum.

In addition, the following plans prepared by the DMNP proponents were used to guide the preparation of the EA:

- Sustainability Framework (WT, 2005);
- Erosion and Sediment Control Guidelines for Urban Construction (TRCA, December 2006);
- Environmental Management Plan for Project-Related Activities (WT, November 2009);
- Soils Management Master Plan (WT, final draft February 2010); and,
- Groundwater Management Master Plan (WT, final draft March 2010).

1.5 Other Approvals

Other environmental authorizations and approvals that will likely need to be secured in support of the DMNP are summarized in Table E-1.

Table E-1. Other Authorizations/Approvals Required for the DMNP

Level of Government	Department/Ministry/ Municipality	Authorizations/Approvals
Federal	Department of Fisheries and Oceans (Aquatic Habitat Toronto to assist)	• <i>Fisheries Act</i>
	Transport Canada	• <i>Navigable Waters Protection Act</i>
	Toronto Port Authority	• Port Authorities Operations • <i>Regulations to the Canada Marine Act</i>
Provincial	Ministry of the Environment	• Certificate of Approval under <i>Ontario Water Resources Act</i> • Record of Site Condition Regulation, Ontario Regulation 153/04 • Permit to Take Water • Part V Approval under the <i>Environmental Protection Act</i>
	Ministry of Municipal Affairs and Housing and Ministry of Natural Resources	• Amendment to the Lower Don Special Policy Area Policies
	Ministry of Natural Resources	• <i>Lakes and Rivers Improvement Act</i> ^a

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Level of Government	Department/Ministry/ Municipality	Authorizations/Approvals
	Toronto and Region Conservation Authority	<ul style="list-style-type: none"> • Regulation Of Development • Ontario Regulation 166/06, Interference with Wetlands and Alterations To Shorelines and Watercourses Regulation
	Ontario Realty Corporation	<ul style="list-style-type: none"> • Class Environmental Assessment Process For the Ministry of Energy and Infrastructure for Realty Activities other than Electricity Projects (Category B Class EA for the disposition of land in the location of the future sediment and debris management area)
Municipal	City of Toronto	<ul style="list-style-type: none"> • Site Plan Approvals under the Planning Act for future sediment and debris management area (if required) • Road Occupancy Permit (if required) • Road Cut Permit (if required) • Permit for Installation/Relocation of Public Utilities (if required) • Local Hydro Utility Building Permit (if required) • Building Permit (if required) • Toronto Sewer Use By-law • <i>City of Toronto Act</i> • Tree-cutting permits

2. Purpose of the Undertaking

2.1 Problem/Opportunity Assessment

The configuration of the existing Don Mouth was engineered primarily for the purposes of achieving transportation efficiency and to create additional land for port and other urban uses. This has resulted in the current condition with lands vulnerable to flooding, a serious reduction in ecological function of the river mouth, and an area that is neither aesthetically pleasing nor available for public use and enjoyment. Thus, the problems to be addressed by the DMNP are the lack of ecological function at the river mouth, vulnerability to flood risk, and the derelict nature of this area of the Port Lands.

Opportunities lie in the naturalization of the river mouth, alleviation of flood risk, and revitalization of the derelict Port Lands area. The naturalization of the river mouth is yet another step toward revitalizing and enhancing the quality and function of the Don River at its mouth. It represents an opportunity to naturalize the area of the Don River valley as it connects to Lake Ontario and upstream reaches, and create an area that is welcoming and aesthetically pleasing to the public while improving habitat conditions.

The DMNP is also an opportunity to alleviate the flood risk to over 290 hectares of land and more than 850 buildings south and east of the Don Mouth. The alleviation of flood risk will remove land use restrictions and provide unencumbered lands to meet waterfront revitalization objectives for development.

Finally, Waterfront Toronto recognized the challenges of creating a vibrant wetland in the proposed location identified in the 2001 Secondary Plan, and held an International Design Competition. The goals of the competition were to create an iconic identity for the Don River that accommodates crucial flood protection and habitat restoration requirements, and that integrates development, transportation infrastructure and the re-naturalized river mouth into a harmonious whole. In May 2007, Waterfront Toronto selected the Michael Van Valkenburgh Associates Inc. (MVVA) team as the winners of the Design Competition.

The design competition created three key changes for the ongoing EA work. First, the design competition created the vision for integrating the naturalized Don mouth with the surrounding community design. Second, this more evolved integration required that a larger study area be examined in order to ensure that the integration could occur effectively for all of the alternatives being considered. Third, it led to a re-examination and refinement of the previously developed alternatives in terms of the area available for naturalization, the composition and optimization of naturalized areas, and the area available for development and parkland.

2.2 Study Areas

Two specific study areas have been defined for the DMNP. The Project Study Area is the area available for the development of naturalization and flood protection alternatives. The Impact Assessment Study Area is a broader area in which direct and indirect effects of the DMNP construction and establishment may be felt.

The Project Study Area (**Figure E-1**) consists of two parts: the Don Mouth and the Don Narrows. The Don Mouth is the area available for the development of naturalization and flood protection alternatives. Therefore, it is in this area that the majority of the direct effects will occur. Within the Don Narrows, only improvements within the river channel are to be considered.

The Impact Assessment Study Area (**Figure E-2**) is a broader area in which direct and indirect effects of the DMNP Construction and Establishment/Post-Establishment may be felt.

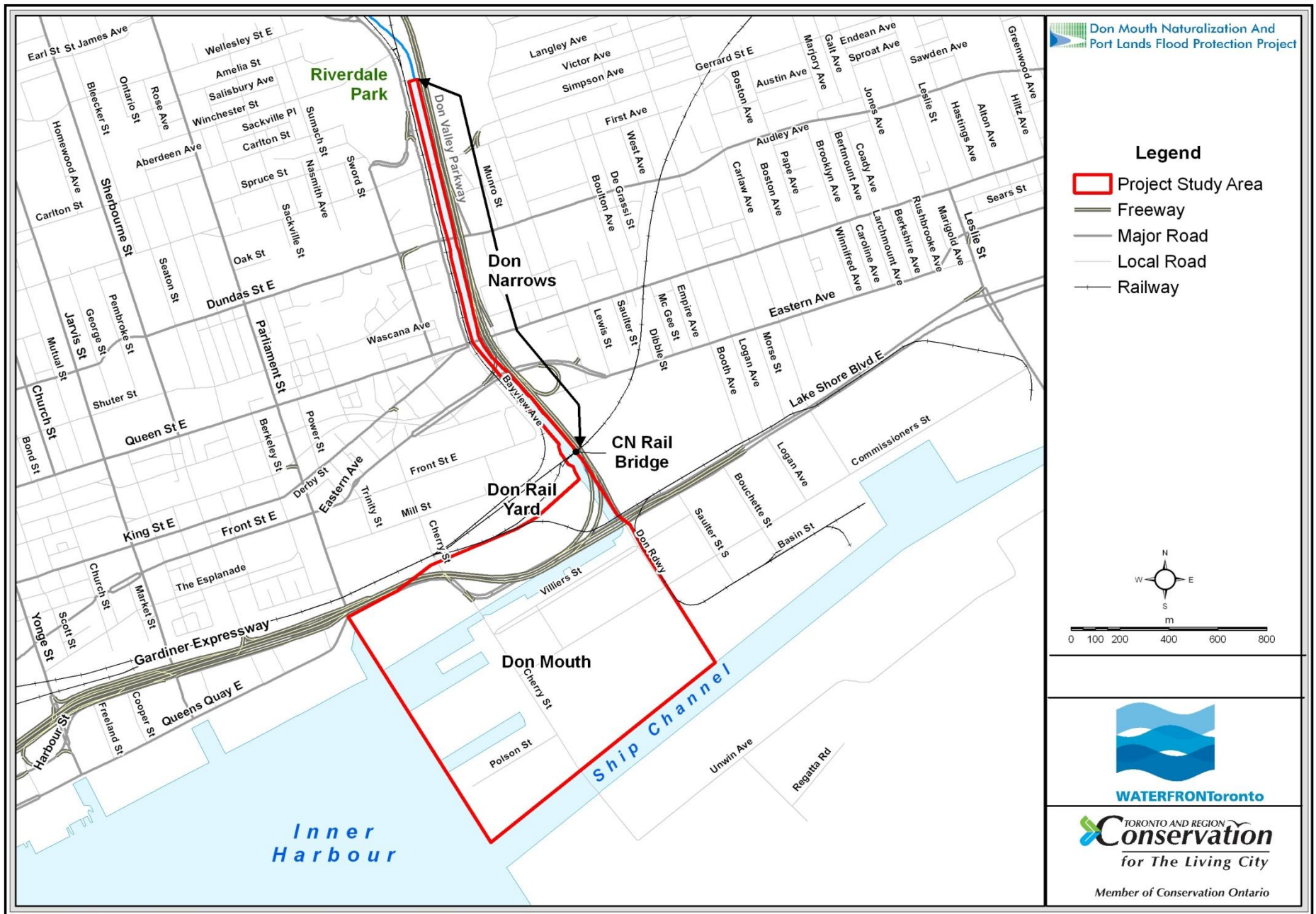


Figure E-1. Project Study Area

Legend

- Impact Assessment Study Area

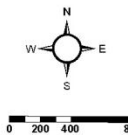


Figure E-2. Impact Assessment Study Area

3. Description of Potentially Affected Environment

This section describes: the river characteristics which will influence the development of alternatives; the natural environment including fish and fish habitat, terrestrial vegetation, and wildlife; soils and groundwater contamination; and the socio-economic components including land use, air quality and noise, archaeology, aboriginal interests, and built heritage.

River Characteristics

- The Don River from Riverdale Park downstream to the Keating Channel has been significantly altered as a result of adjacent land uses, is relatively straight through this portion, and has a depth of 1 to 2 metres.
- South of Lake Shore Boulevard, the Don enters into the Keating Channel, which extends approximately 0.7 kilometres in length, varies between 37 and 60 metres in width and has depths between 2 metres and 5 metres, depending upon lake levels and the degree of sediment accumulation in the channel.
- The urban nature of the watershed has led to a river system with no well defined annual hydrograph (i.e., no well-defined spring freshet peak), but instead a series of peaky storm runoff events occurring virtually at any time throughout the year. As a consequence, flooding can occur in the Don River at any time during the year.
- In this area of the Province of Ontario, the rainfall from Hurricane Hazel centred over the Don Watershed is used to define the limits of flooding, known as the Regulatory Flood.
- The Don River often exceeds the Provincial Water Quality Objectives (PWQOs) for many substances, especially during wet weather. The major sources of pollutants are runoff from roads and residential, industrial and commercial land uses through storm sewers, the effluent of the North Toronto Sewage Treatment Plant, combined sewer overflows along Taylor/Massey Creek and the Lower Don, and spills from industrial and commercial lands.
- The Keating Channel acts as a sediment trap for a large proportion of the total sediment load that is delivered by the Don River. Only 10-15% of the total sediment load (consisting of fine silts and clays) continues into the Inner Harbour.
- An average of 30,600 cubic metres of dredged sediment is removed each year from the Keating Channel. The vast majority of this material is composed of silts and sand and is currently disposed of in containment cells at the Leslie Street Spit.

3.1 Natural Environment

- Fish habitat features within the Lower Don and Keating Channel are generally characterized as degraded, highly disturbed conditions that are uniform in nature and lack habitat diversity and complexity. The benthic community present within the Lower Don and Keating Channel exhibits a relatively low diversity.
- Since 1997, 24 fish species have been captured along the Toronto Waterfront, with the most common species being the Common Carp and Northern Pike.
- Within the Lower Don, the most common species captured during TRCA sampling of every year were White Sucker, Emerald Shiner and Spottail Shiner

- The terrestrial environment in the Project Study Area is heavily influenced by human activities, is of little ecological value and there are no species of significance present. Similarly, only 0.7% of the vegetation in the Project Study Area is classified as wetland.

3.2 Soils and Groundwater Contamination

- The Port Lands were reclaimed during the 1800s and mid 1900s using numerous different sources of industrial fill, including dredge spoils, excavated native soils from borrow pits and construction sites, construction debris, residual stockpiled materials, etc.
- The Port Lands has a history of heavy industrial/commercial uses, which has led to widespread soil contamination within the area.
- Identified or anticipated contamination issues in groundwater and soils is represented by petroleum hydrocarbons, chlorinated and non-chlorinated organic compounds, heavy metals, polycyclic aromatic hydrocarbons, polycyclic biphenyls and general chemistry parameters.

3.3 Socio-economic Environment

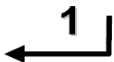
- Within the Project Study Area there are a variety of industrial uses such as food processing, transportation, entertainment, internet technology, heavy machine rental, automobile and financial services.
- Property is predominantly owned by the City of Toronto and the Toronto Port Lands Company (formerly known as TEDCO), with some holdings held by the Provincial and Federal governments and some private property holdings as well.
- A number of land-based recreational uses occur within the area, including bike trails, multi-use trails, parks, beaches, and the Toronto Islands.
- Marine use is limited to industrial cargo shipping. The Port Works Yard is located on the southern side of the Keating Channel, and the dockwall, including Polson and Cousins Quays and the Ship Channel, offers docking facilities for cargo shipping boats.
- Twelve built heritage resources exist within the Project Study Area. There is little to no potential for the survival of significant pre-contact or early contact period Aboriginal archaeological resources.

4. Description, Evaluation and Rationale for Alternatives To the Undertaking

The alternatives are defined around alternative discharge points for the river to Lake Ontario as reflected by the general area in which the Don Mouth may be relocated. The discharge points also represent functionally different ways to address the problem or opportunity in that they each provide a range of opportunities for naturalization of the river mouth, flood protection and revitalization of the waterfront. The alternatives were chosen and developed based on technical knowledge, past studies, and public consultation.

The eight alternative discharge points are summarized in **Table E-2**.

Table E-2. Alternative Discharge Points and Descriptions

Alternative Number and Discharge Morphology	Title	Description	Results of Evaluation
	Do nothing	Continuation of discharge through the Keating Channel, continued dredging of sediment and removal of debris, no naturalization of river mouth. This alternative does not alleviate flood risk, and thus no significant redevelopment of the Project Study Area could occur.	<i>Very low potential to meet key project objectives and should not be considered further in the EA. However, the EA Act requires the assessment of the 'Do Nothing' alternative throughout the EA for comparison purposes; therefore, this alternative was carried forward.</i>
	Discharge to the Inner Harbour	Creation of naturalized river mouth in vicinity of 480 Lake Shore Boulevard and lands north of Villiers Street . this alternative assumes filling in the Keating Channel.	<i>Good potential to achieve all project objectives and was considered further in the EA.</i>
	Discharge through the Port Lands to the Ship Channel	This alternative assumes filling in the Keating Channel.	<i>Good potential to meet the project objectives and was considered further in the EA.</i>
	Combination of Alternatives 2 and 3	Combination of primary discharge to Inner Harbour with secondary discharge through the Port Lands to the Ship Channel or primary discharge through the Port Lands to the Ship Channel with secondary discharge to Inner Harbour. This alternative assumes filling in the Keating Channel.	<i>Good potential to meet the project objectives and was considered further in the EA.</i>
	Combination of Alternatives 2 and 3 with a third discharge point midway between creating a wide delta with Alternative 3	Consideration of a third discharge point somewhere within the Port Lands to create a delta function . assumes land between discharge points would be permanently wetted for naturalization purposes and therefore would not be developed as per waterfront revitalization planning.	<i>Low potential to meet the project objectives and was not considered further in the EA.</i>
	Discharge through the Ship Channel and Lake Ontario Park to discharge to the Outer Harbour	This alternative would require damming the western part of the Ship Channel to just east of Cherry Street to facilitate the flow of the river to the Outer Harbour, thereby removing access to the remainder of the Ship Channel.	<i>Low potential to meet the project objectives and was not considered further in the EA.</i>
	Discharge through the Port Lands and the Ship Channel to the Outer Harbour through the eastern end of the Outer Harbour	This alternative would require damming the western part of the Ship Channel to facilitate the flow of the river to the Outer Harbour thereby removing access to the remainder of the Ship Channel.	<i>Low potential to meet the key project objectives and was not considered further in the EA.</i>
	Eastern Port Lands discharge point (Ashbridges Bay area)	Movement of the river and river mouth towards a discharge point in the Ashbridges Bay area . this alternative assumes damming and filling in of eastern half of the Ship Channel and Turning Basin.	<i>Low potential to meet the key project objectives and was not considered further in the EA.</i>

