Backgrounder: West Plug Removal – Port Lands Flood Protection

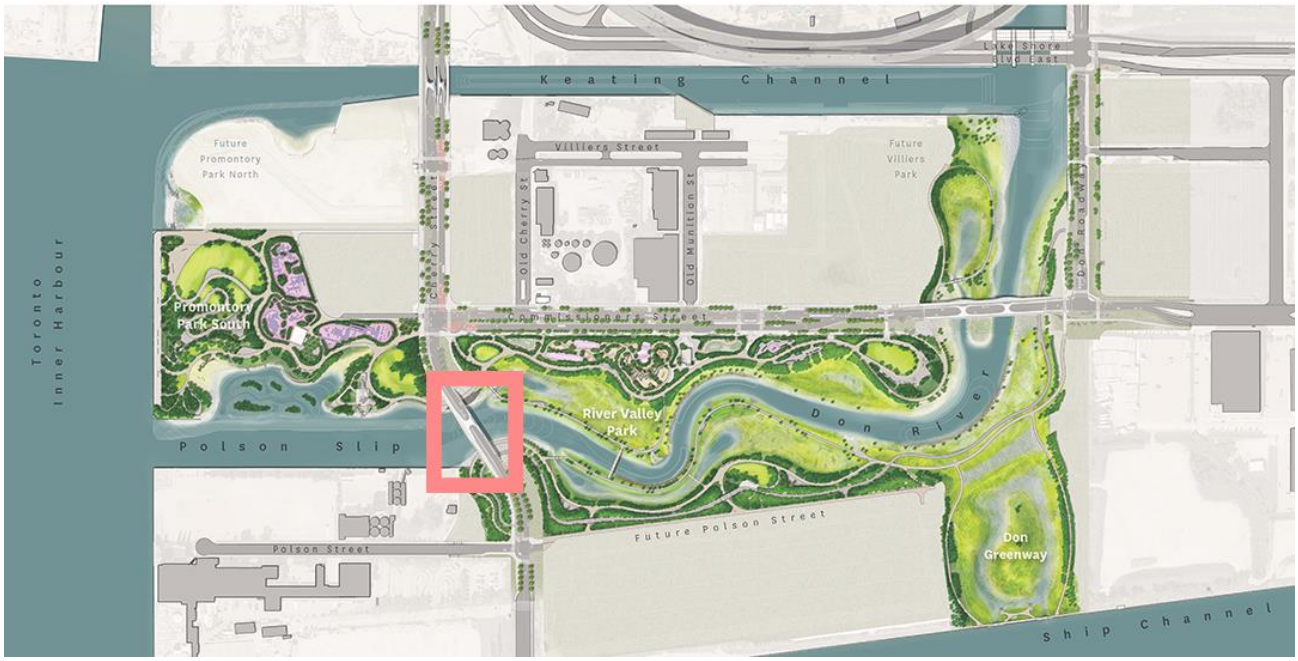
As part of the $1.35-billion Port Lands Flood Protection project, Waterfront Toronto has engineered a kilometre-long extension of the Don River.

The entire river valley is surrounded by cutoff walls – underwater walls that contain the new river system. In the locations where water needs to flow, these walls were reinforced so they could function like dams once excavation was complete and the river was flooded. These reinforced sections are known as “plugs” because they are separating the new river from the surrounding water bodies. In January 2024, the new river was inundated with water, but the plugs remained to allow for a slow and controlled process. Now that the water in the river is at the same level as the lake water, the plugs that separate the river from the lake can be removed. The first to be removed is the “west plug” at the location where the new river meets Lake Ontario.

About the West Plug

- The west plug is the portion of the wall that separates the river from the lake. It is roughly underneath the yellow Cherry Street South bridge.
- The wall is approximately 50 metres long, from riverbank to riverbank, and 1 metre thick, from river side to lake side.
- To remove the plug, the wall will be cut into 10 panels, each one weighing between 50 and 60 metric tons.

The Location



The “west plug” sits under the Cherry South Bridge at Polson and Cherry Streets – its location is identified on this map.

The Port Lands: History and Context

Looking southeast from downtown Toronto towards the Port Lands.

Bounded by the Keating Channel/Don River and Lake Shore Boulevard in the north, the Toronto Inner Harbour in the west, Ashbridges Bay in the east and Lake Ontario and Tommy Thompson Park in the south, the Port Lands was created by decades of infilling what was once one of the largest wetlands on Lake Ontario. Beginning in the late 1800s, the area was gradually filled in to make more land available for industry and shipping. As the natural mouth of the Don River was filled in, the Keating Channel was created to provide an outlet for the Don River watershed into Lake Ontario and a means to convey storm water.

Today, the Port Lands area sits within a designated floodplain, which is an area anticipated to experience flooding in the event of a regional storm or the 100-year flood – whichever is greater. Providing flood protection for the Port Lands was identified as a top priority by all three orders of government when they first established Waterfront Toronto in 2001.

In the last decade, governments across the country have had to contend with weather events that are occurring with more frequency and severity. In particular, floods are happening more often in urban areas and the financial risk to governments to pay for the damages is also increasing.

About Port Lands Flood Protection

Area shown in blue is currently at risk of flooding from the Don River during a Regulatory Storm, defined as the greater of 100-year storm or 1954's Hurricane Hazel.

Currently, about 290 hectares (715 acres) of southeastern downtown Toronto, including parts of the Port Lands, South Riverdale, Leslieville, south of Eastern Avenue and the East Harbour development site, are at risk of flooding from the Don River watershed and cannot be revitalized until they are flood protected. Port Lands Flood Protection is a comprehensive solution to flood protection that also addresses the fundamental challenge of transforming the underused and post-industrial Port Lands into a long-term asset that will support Toronto's growth and economic competitiveness.

The project will create a new mouth for the Don River in the middle of the Port Lands between the Ship Channel and the Keating Channel, as well as the foundations of a new urban island neighbourhood called Villiers Island, and more waterfront access for everyone. It will also create new natural habitats and re-establish wetlands in the area, which provide social and environmental benefits and naturally moderate the effects of flooding and erosion. Naturalizing the mouth of the Don River will provide the necessary flood protection and unlock the development potential of this premier waterfront area.

Project Breakdown

Left: An aerial view of the Port Lands before the start of construction. Right: Future vision of the Port Lands once Port Lands Flood Protection is complete. Villiers Island will emerge as a connected and complete community with parks and opens spaces along the Don River, the Keating Channel and Lake Ontario.

The project's separate components can be divided among four broad categories:

Flood Protection

This includes:

- Excavating the river valley and remediating contaminated soil
- Creating the new grading around the river's banks
- Creating the wetlands and Don Greenway
- Structures and features that allow for better conveyance and control of storm waters

Bridges

This includes:

- New Cherry Street Bridges replace the existing bridge over the Keating Channel and accommodate the future extension of transit into the Port Lands
- Cherry Street South Bridge spans the new river valley north of the Ship Channel
- Commissioners Street Bridge spans the new river valley west of Don Roadway
- Existing Lake Shore Bridge lengthened to accommodate widening of the Don River

Roads and other municipal infrastructure

This includes:

- Stormwater and wastewater systems
- Realigning a section of Cherry Street
- Rebuilding a section of Commissioners Street
- Rebuilding a section of the Don Roadway

Parks

Includes:

- Parks along the new river valley
- Park along the edge of Toronto Harbour
- Pedestrian and bike trails and paths, and waterfront access through new naturalized areas

Find a project breakdown with details about each component at https://portlandsto.ca/interactive-project-map/

Project Timeline:

The project has been informed by extensive engagement and consultation with the public, government agencies, stakeholders, landowners and developers, and is consistent with the City of Toronto's primary waterfront planning document, the Central Waterfront Secondary Plan. Waterfront Toronto has worked closely with Indigenous communities throughout the process of studies, envisioning the waterfront design and early construction and has continued to engage and consult as design and construction progress.

In October 2016, Waterfront Toronto completed a Due Diligence Report, which was aimed at providing more information on the project to inform government decision-making on funding. The report provides great certainty on the costs, risks, scheduling and implementation strategy associated with the project. This report is available on the project website: https://goo.gl/HjWvv9

In June 2017, $1.25 billion in shared funding was announced by the governments of Canada, Ontario and Toronto to deliver the full Port Lands Flood Protection project.

In December 2017, construction began on the Cherry Street Lakefilling project, part of the larger Port Lands Flood Protection project. This early start was thanks to $65-million in tri-government funding through the Clean Water and Wastewater Fund. Construction on Cherry Street Lakefilling was completed in 2021.

Construction began on the full Port Lands Flood Protection project in July 2018. Work to date includes installation of on-site soil management and water treatment facilities, completion of dock walls in the Keating Channel, extensive marine landscaping, site preparation at the location of future parks and roads, bridge foundations at three locations, site preparation north of Lake Shore Boulevard and ongoing deep excavation of the river valley and Don Greenway. Flood protection is forecasted to be complete by the end of 2024, with parks and the new river valley opening in 2025.

What does Flood Protection Deliver?

Live

Unlocking the Port Lands for revitalization will help address the critical need for housing as part of a development of new communities next to Toronto's downtown core that are connected by transit and cycling networks.

A new island community will emerge as a result of this project. Temporarily called "Villiers Island," this is envisioned as an innovative model for a climate positive community. As planned, it will deliver as many as 2,700 affordable rental units, helping to address a critical need for housing in the city.

Work

Flood protection is also vital for the development of the East Harbour site, which offers significant potential as an employment hub.

Play

The naturalized river will include:

- 25 hectares of publicly accessible greenspace, plus additional habitats for wildlife
- 11 hectares of imaginative parkland, creating a global destination at the front-door to Toronto's waterfront

Economic Impact and Jobs

UrbanMetrics estimates that the project's construction phase could deliver wide economic benefits. At completion, spending on design and construction of the project will generate approximately:

- $1.1 billion in value to the Canadian economy
- 10,829 person years of employment
- $373 million in tax revenues to all orders of government

This creative approach to flood protection will improve Toronto's resiliency by creating:

- More than 1,000 metres of new river channel
- 14 hectares of new coastal wetland
- Three hectares of terrestrial habitat to strengthen biodiversity and help clean our water