



WATERFRONToronto

## Port Lands Flood Protection and Enabling Infrastructure Project Due Diligence and Community-Based Risk Assessment Presentation

Stakeholder Advisory Committee  
Landowner and User Advisory Committee

December 8, 2016





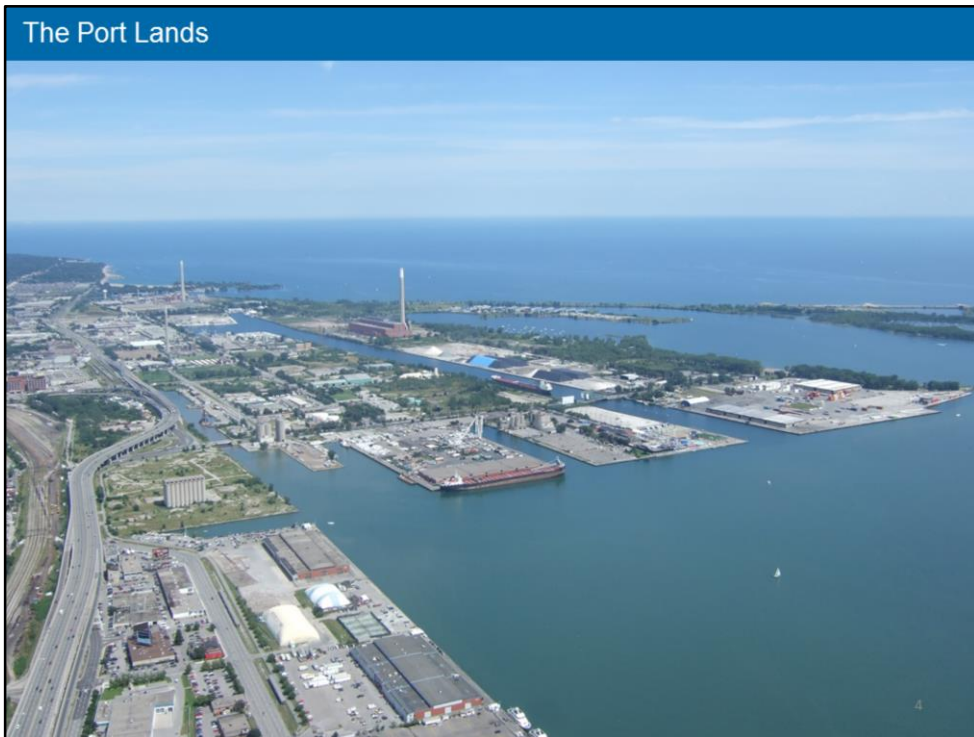
**Julius Gombos**  
**Senior Project Director**

- Welcome and introductions
- Project partners: Toronto and Region Conservation Authority, City of Toronto and Toronto Port Lands Corporation

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1. **The Port Lands**
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8. **Community-Based Risk Assessment (CBRA)**
9. **Timeline and Next Steps**

- The purpose to today's meeting is to provide an update on the Don Mouth Naturalization and Port Lands Flood Protection and Enabling Infrastructure Project (the Project) due diligence program and introduce the Community-based Risk Assessment (CBRA)
- As funding is not yet in place for the Project, there is no start official start date for construction
- Agenda review



- One of the key priority projects assigned to Waterfront Toronto when established: flood protect the Port Lands and spur revitalization and development
- Waterfront Toronto and partners have spent over a decade developing the solution to those challenges.
- The Project provides:
  - comprehensive flood protection for the Port Lands
  - the needed infrastructure to spur revitalization and development, and
  - the space the city needs to continue its population and jobs growth
- The Port Lands is important to Toronto's future:
  - the last significant undeveloped space in the downtown – about a 30-minute walk from Cherry and Commissioners Streets to 20 Bay Street
  - opportunity to address the need for more space for the city to grow
  - public amenities like parks and greenspace, and
  - it's also an economic development opportunity that could have a tremendous impact on the city's economy, as well as the province and nation
- No other North American city has such a piece of land on the doorstep of downtown, or a plan to unlock such large-scale waterfront development so close to the downtown

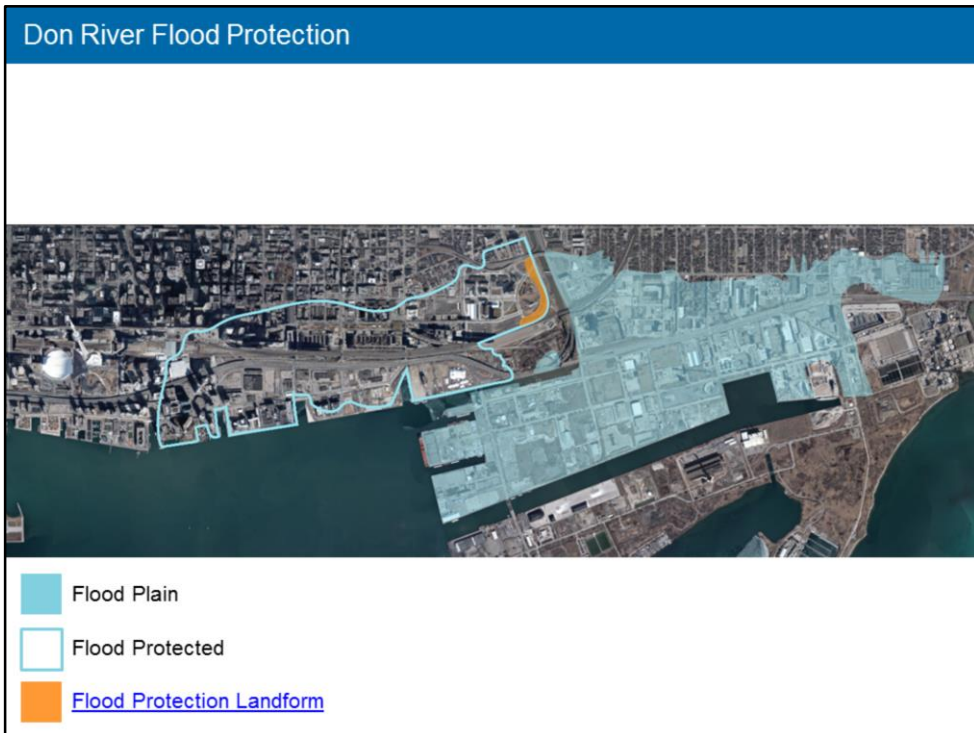
## The Port Lands



- Formerly one of the largest wetlands on Lake Ontario, the Port Lands was created through decades of infilling – similar to much of the downtown waterfront
- The lakefilling has contributed to some of the construction challenges this area poses
- Current and historical uses include storage facilities for coal and oil, an electrical generating station, cement storage and production, a residential waste transfer station, an incinerator and a variety of other municipal yards and services
- There's a very high water table and contaminated soil to manage: good examples of why we decided to undertake a rigorous due diligence program – we needed to have a much deeper investigation of the underground conditions

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- 62 years ago Hurricane Hazel hit Toronto – over the Humber River not the Don River
- Set the standard for the regional storm and defines floodplains
- The flood in Toronto in July of 2013 serves as a reminder of what floods can do – caused about \$1 Billion in damages
- Floods are happening more frequently and the financial risk to governments to pay for the damages is also increasing
- Investing strategically in this Project unlocks development value, protects existing neighbourhoods and protects governments from significant financial risk
- Canadian National Disaster Management Strategy’s estimated cost-benefit ratio for investment in flood protection: every dollar invested in flood protection saves you five dollars of clean-up from the damages
- The blue outlined area and the shaded area indicate the Don River floodplain
- 210 hectares (519 acres) of the eastern downtown have already been removed from the floodplain: the orange shape is the flood protection landform that protects the West Don Lands and a large swath of downtown
- This Project will protect about 290 hectares (717 acres) of the remaining blue shaded area (includes parts of Riverside, Leslieville, south of Eastern Avenue and the First Gulf/Unilever development site)

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## The Project: The Port Lands Today



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This is what the western portion of Port Lands looks like currently:

- Lots of under-used land
- Mostly industrial or light industrial and storage
- Lack of infrastructure
- Lots of parking
- Very little recreational space
- Contaminated soil from past industrial uses

## The Project: The Port Lands Flood Protection Project



### Unique and Unprecedented:

- River Mouth concept as flood protection
- No established regulatory approval process for creating a river in brownfield

### After Flood Protection:

- New Don River mouth
- Don Greenway (north of the Ship Channel)
- Improved Keating Channel
- Additional Infrastructure to drive development

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- Create a new river mouth and a greenway in order to handle the massive volume of water in the event of a flood
- Raise the grade in most areas by an average of about 2 metres
- Other elements to also contribute to protection
- Flood protection of this type is a unique form of infrastructure
- It is unprecedented in that there is no established environmental regulatory approval process to oversee the creation of a river in brownfield
- Informed and guided by two environmental assessments: Don Mouth Naturalization and Port Lands Flood Protection Project EA (DMNP EA) and the Lower Don Lands Master Plan Class EA (LDL MP EA) – both of which benefitted from extensive public consultation and have been approved by the Ministry of Environment and Climate Change (MOECC)
- Broadly speaking, the Project will produce:
  - Incredible, resilient green infrastructure:
    - A new river channel for the Don River that has the capacity to handle large volumes of flood water
    - Don greenway that provides excess capacity to convey flood water
    - The Keating Channel will also be improved as a means to convey floodwater
    - Wetlands, meadows, forested valley slopes that will provide habitat for fish, birds, reptiles and other wildlife, and passive use park land and trails
  - And development-enabling infrastructure:
    - Three new bridges
    - A new, realigned Cherry Street and re-built Commissioners Street
    - Transit rights-of-way and
    - Critical servicing (watermains, storm and sanitary sewers)

## The Project: Over a Decade of Work; an Evolving Design



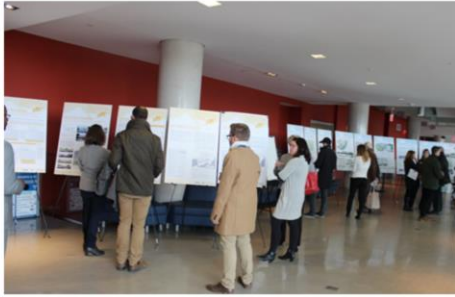
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This project has been in the works for over a decade, including:

- international design competition
- two Environmental Assessments
- business plans
- consultation
- precinct plans and implementation plans

This work has shaped the evolving design for the area

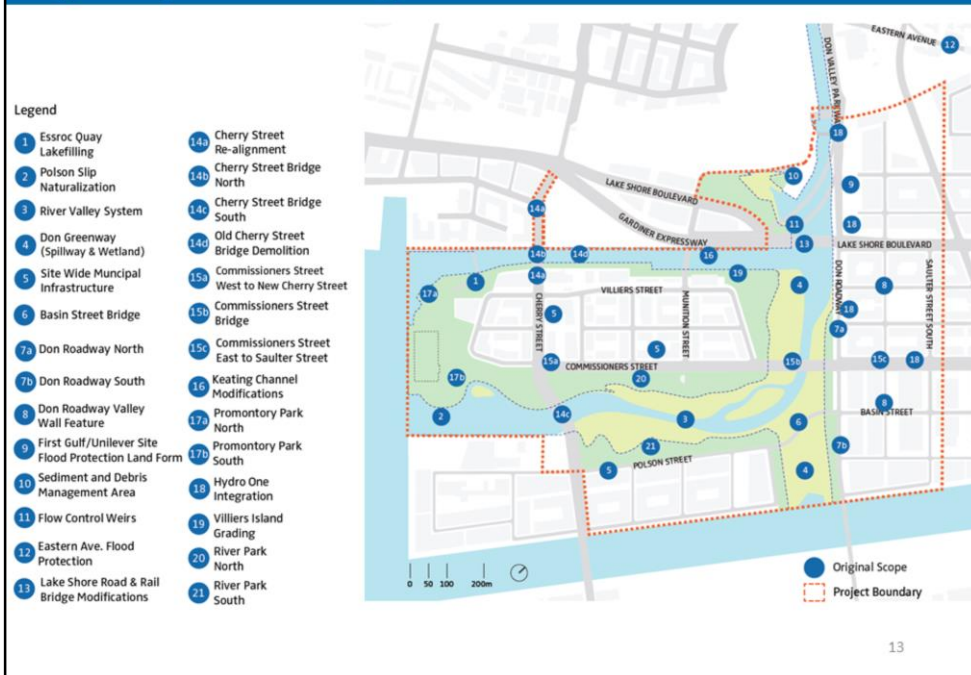
## Public Consultation and Engagement



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- Considerable consultation and engagement with the public, Indigenous communities, regulators, utilities and various governmental bodies
  - About 45 public meetings have been held that have included approximately 4,000 participants
- The future of the Port Lands area is being shaped by planning studies and public consultation in other ways:
  - Villiers Island Precinct Plan
  - Port Lands Framework Plan
  - South of Eastern Transportation and Servicing Master Plan
- Waterfront Toronto and the City have been working on refining these plans since the public consultation in Fall 2015 and will be coming back to the public in the new year

## Project Scope: Individual Components

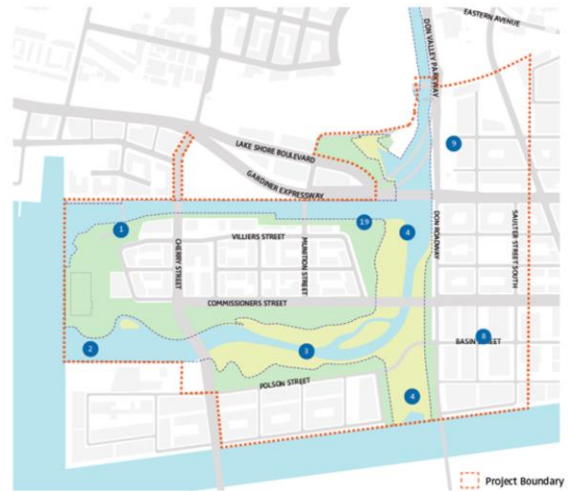


- Here are the original components of the project, they include:
  - flood protection features
  - parks and public spaces
  - road and bridges, and
  - new and updated municipal infrastructure.
- Most of these components were in the DMNP EA and helped to inform the original cost estimates, before the due diligence process
- To make this complex project simpler, we have divided these components into four broad categories...

## Project Scope: Earthworks & Lakefilling

### Legend

- 1 Essroc Quay Lakefilling
- 2 Polson Slip Naturalization
- 3 River Valley System
- 4 Don Greenway (Spillway & Wetland)
- 5 Site Wide Municipal Infrastructure
- 6 Basin Street Bridge
- 7a Don Roadway North
- 7b Don Roadway South
- 8 Don Roadway Valley Wall Feature
- 9 First Gulf/Unilever Site Flood Protection Land Form
- 10 Sediment and Debris Management Area
- 11 Flow Control Weirs
- 12 Eastern Ave. Flood Protection
- 13 Lake Shore Road & Rail Bridge Modifications
- 14a Cherry Street Re-alignment
- 14b Cherry Street Bridge North
- 14c Cherry Street Bridge South
- 14d Old Cherry Street Bridge Demolition
- 15a Commissioners Street West to New Cherry Street
- 15b Commissioners Street Bridge
- 15c Commissioners Street East to Saulter Street
- 16 Keating Channel Modifications
- 17a Promontory Park North
- 17b Promontory Park South
- 18 Hydro One Integration
- 19 Villiers Island Grading
- 20 River Park North
- 21 River Park South



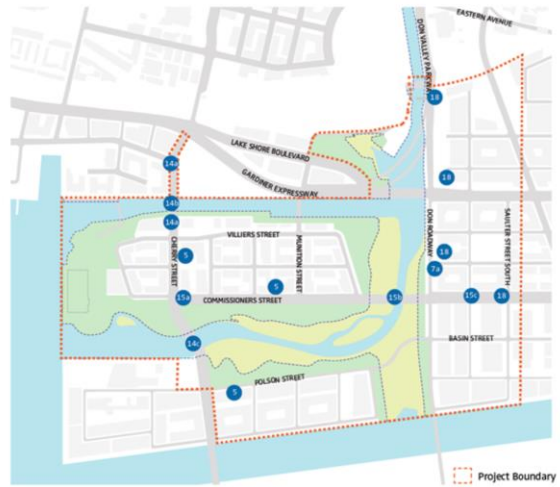
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Earthworks and Lakefilling – which is the excavation of soil and the placement of soil elsewhere on the site or as lakefill

## Project Scope: Roads, Bridges + Municipal Infrastructure

### Legend

- 1 Essroc Quay Lakefilling
- 2 Polson Slip Naturalization
- 3 River Valley System
- 4 Don Greenway (Spillway & Wetland)
- 5 **Site Wide Municipal Infrastructure**
- 6 Basin Street Bridge
- 7a **Don Roadway North**
- 7b Don Roadway South
- 8 Don Roadway Valley Wall Feature
- 9 First Gull/Unilever Site Flood Protection Land Form
- 10 Sediment and Debris Management Area
- 11 Flow Control Weirs
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- 21 River Park South



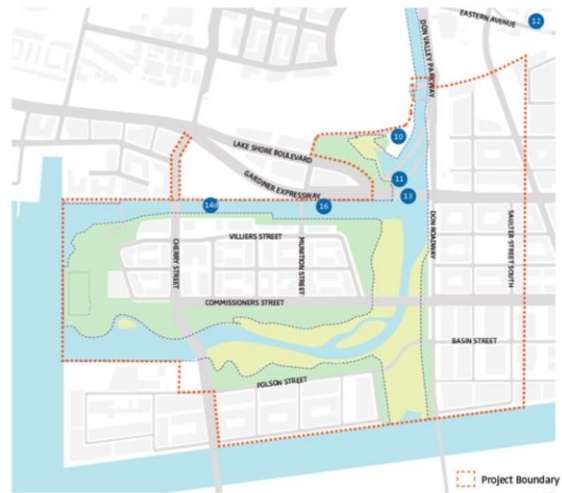
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Roads, bridges and other municipal infrastructure including storm water and waste water systems

## Project Scope: Flood Protection Structures

### Legend

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- 2 Polson Slip Naturalization
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- 5 Site Wide Municipal Infrastructure
- 6 Basin Street Bridge
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- 7b Don Roadway South
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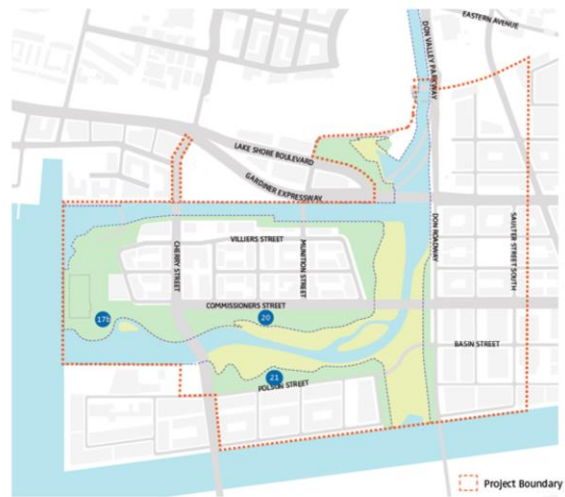
Flood protection structures are components that allow for better conveyance and control of flood waters within the project area



## Project Scope: Public Realm

### Legend

- |   |  |
|---|--|
| 1 Essroc Quay Lakefilling                             | 14a Cherry Street Re-alignment                     |
| 2 Polson Slip Naturalization                          | 14b Cherry Street Bridge North                     |
| 3 River Valley System                                 | 14c Cherry Street Bridge South                     |
| 4 Don Greenway (Spillway & Wetland)                   | 14d Old Cherry Street Bridge Demolition            |
| 5 Site Wide Municipal Infrastructure                  | 15a Commissioners Street West to New Cherry Street |
| 6 Basin Street Bridge                                 | 15b Commissioners Street Bridge                    |
| 7a Don Roadway North                                  | 15c Commissioners Street East to Saulter Street    |
| 7b Don Roadway South                                  | 16 Keating Channel Modifications                   |
| 8 Don Roadway Valley Wall Feature                     | 17a Promontory Park North                          |
| 9 First Gull/Unilever Site Flood Protection Land Form | 17b <b>Promontory Park South</b>                   |
| 10 Sediment and Debris Management Area                | 18 Hydro One Integration                           |
| 11 Flow Control Weirs                                 | 19 Villiers Island Grading                         |
| 12 Eastern Ave. Flood Protection                      | 20 <b>River Park North</b>                         |
|   | 21 <b>River Park South</b>                         |



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- These are parks and other public spaces that will be created
- Promontory Park South, River Park North and River Park South will be completed as part of the Project
- Promontory Park North will have an interim finish until development takes place

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## Why Due Diligence?

**Understand the project's unknowns and provide as much assurance as possible on costs, risks, and schedule to reduce uncertainty**

- Develop the design concept for the project – beyond the EA design
- Define project scope
- Detailed site-specific information on soils, etc.
- Environmental and regulatory approval requirements and processes
- Construction logistics
- Risk identification, assessment and quantification = contingency setting
- Implementation strategies and schedule

**Achieves an exceptional level of due diligence for a large public infrastructure project**

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- Before Due Diligence, details were based on the Project's basic design and the information used during the Environmental Assessment
- Waterfront Toronto decided that it was necessary to undertake a rigorous due diligence program to provide greater assurance to decision-makers on cost, the nature of the risks, the timelines and other important information

## Due Diligence: Deliverables

- **Conceptual designs** prepared for key project components allowed for better understanding of unknown conditions
  - Informed how the project will be constructed and implications for the cost, schedule and risk
- **Refined Project scope** to better balance flood protection and development-enabling infrastructure in light of the new cost, schedule and risk information
- **Updated construction cost estimate** based on the concept design and refined project scope
- **Updated project schedule** that includes design, regulatory and environmental approvals and construction
- **Risk Register** comprehensive list of potential risks and opportunities,
- **Probabilistic risk simulation model** developed using updated schedule, cost and risk register
  - Identified the probability of the project meeting its cost and schedule goals
  - Informed decision making on schedule, cost estimate and risks contingencies

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9. Questions

## Due Diligence: Key Findings

**Cost Estimate:** \$1.25 billion

**Probability of completion within \$1.25 billion:** 90%

**Major Risks/Cost Drivers:**

- Site Conditions: flowing sand, compressible peat
- No established regulatory approval process for creating a river in brownfield

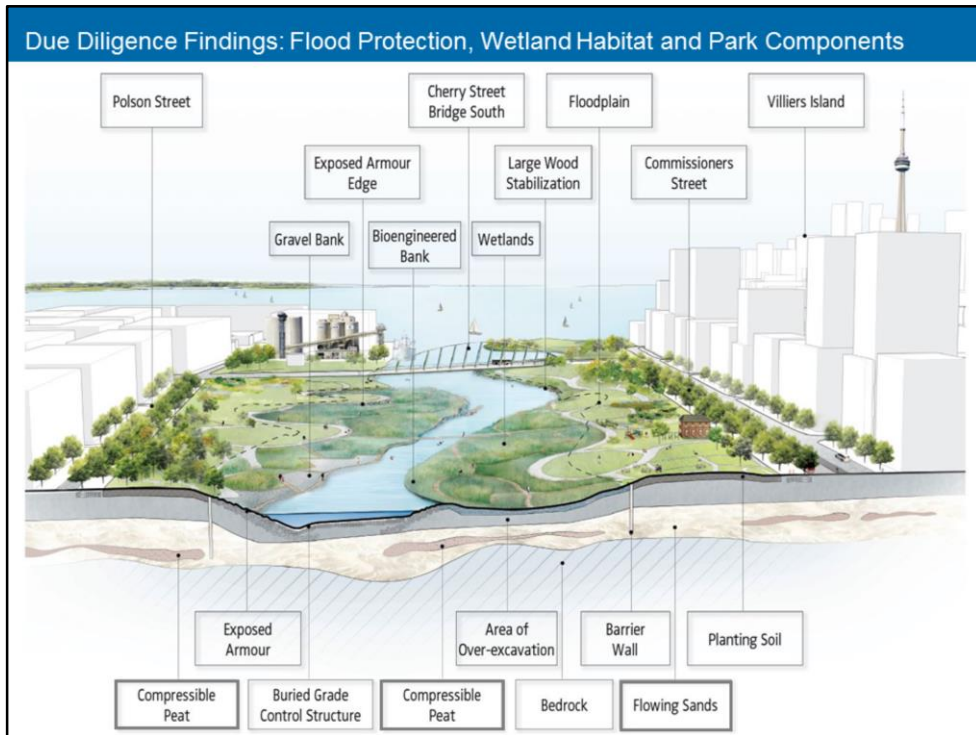
**Contingency:** 30%

**Timeline:** Seven-year construction period



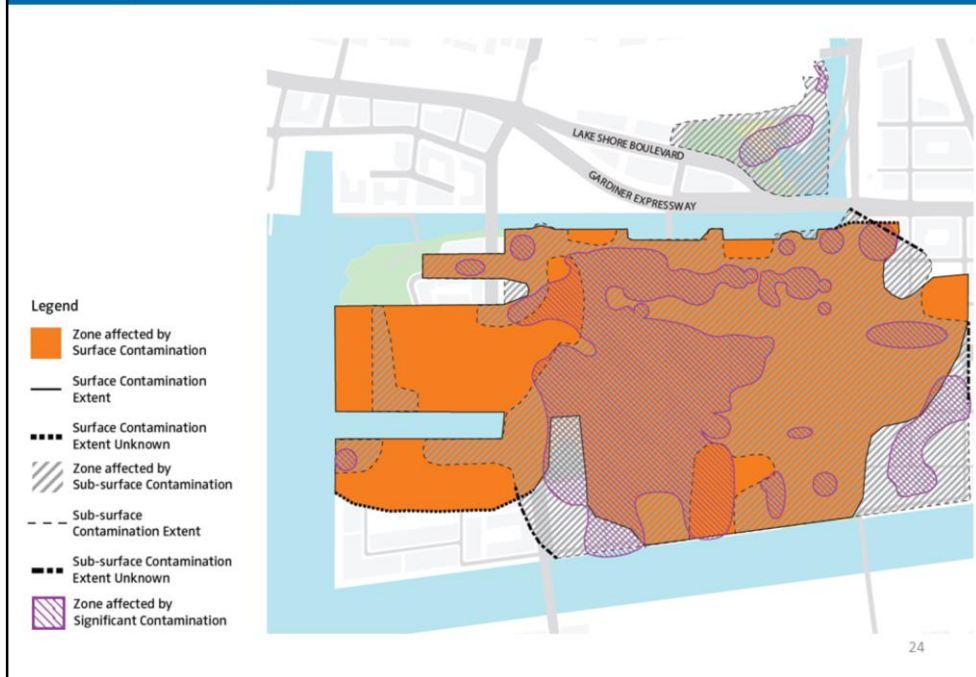
Here are the headlines from the Due Diligence Report:

- Cost estimate is \$1.25 billion
- Probabilistic computer risk simulation model puts on-budget probability at 90% (based on approximately 10,000 simulations)
- Major identified risks and cost drivers include flowing sand and compressible peat in the river valley and adjacent areas – with consequences for excavation methodology, filling and raising grades
- Another risk is the lack of established regulatory approval process for a Project of this nature
- Contingency – which is shaped by the risks – is 30% of the cost estimate
- About seven years to construct (once funding is in place and construction starts)



- Now, let's look at the findings as it relates to conditions at the project site
- Before you start construction, or digging the river valley, you first need to know what's under the surface and how to manage any challenges and risks
- Investigated the unknowns – the soil and ground conditions where we want to excavate and build the new river valley. Given that the entire site is lakefill, we need to make sure we understand what we're building on:
  - drilled 179 new boreholes and 98 monitoring wells on a 50x50 metre grid over where the new river valley will be excavated
  - also examined data from 288 existing boreholes
- The site has flowing sands, which are a challenge when excavating and also in terms of keeping the river valley stable so that it won't get altered or washed away by flood waters
- It also contains layers of compressible peat, which compress or flatten with too much weight on them. Since we are using and moving excavated soils to raise the grade in many areas as an component of flood protection, this is an important element of risk to assess and address.
- When finished, this will look like a normal river valley, with the lighter-coloured areas in the floodplain and the adjacent park areas serving as buffers

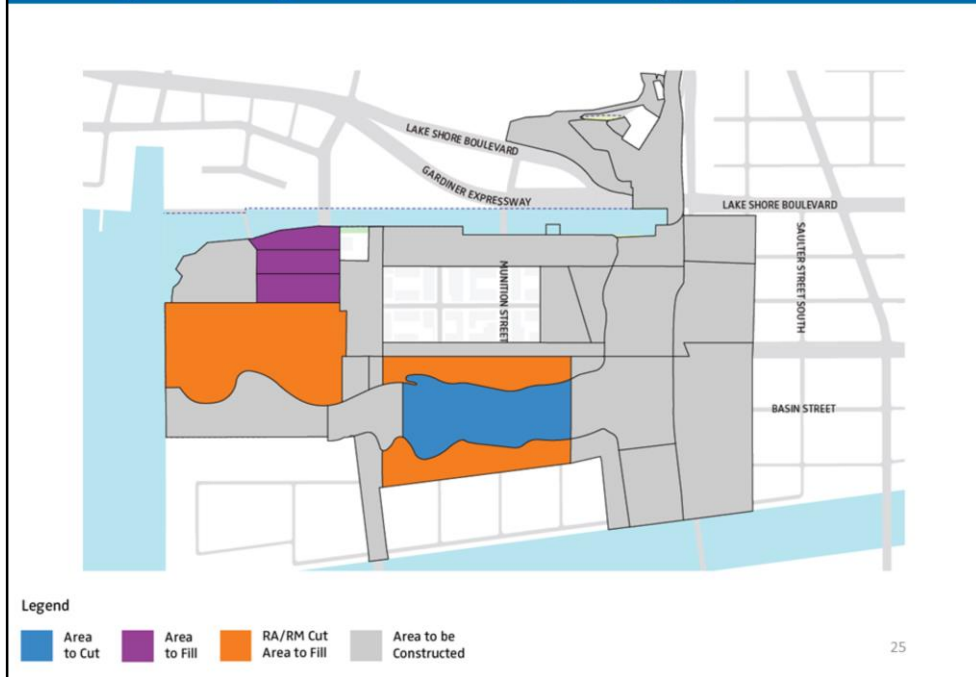
## Due Diligence Findings: Soil & Water Contamination Profile



- A variety of chemical contaminants are present across the area, all of which are common to the previous and current industrial uses
- Levels and distribution of contaminants in the soil is important since there will be a lot of excavation and moving soils elsewhere on the project site to raise grades in many areas
- Soil remediation (wash/clean and reuse), removal or capping – as determined by the process the Project will use for environmental approvals
- Waterfront Toronto, the Ministry of Environment and Climate Change, TRCA and Aquatic Habitat Toronto are collaborating on an iterative regulatory approvals process – Community-based Risk Assessment (CBRA)

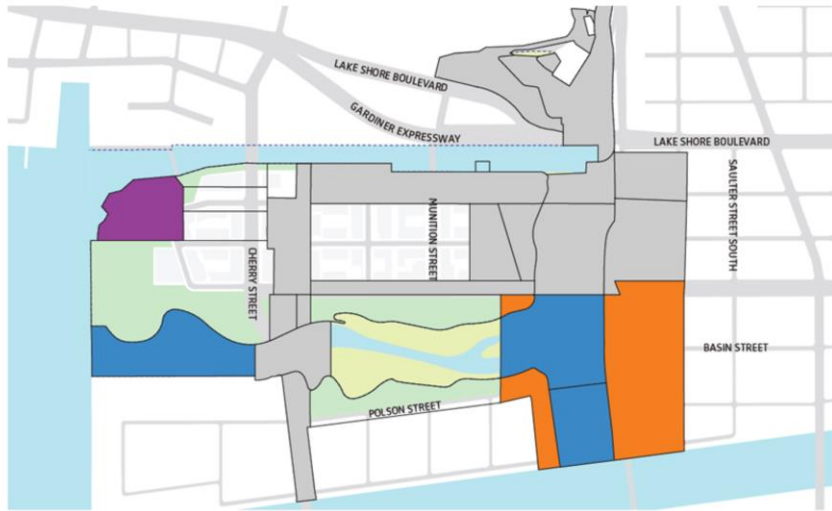


## Due Diligence Findings: Excavation & Fill Sequencing, Stage 1



- The new data (i.e. contamination, flowing sands, compressible peat) has shaped the order in which we plan to excavate and fill, and, in broad terms, how the Project will be constructed
- This series of illustrations demonstrate a possible sequence of excavation (cut) and fill to create the river and raise the grades

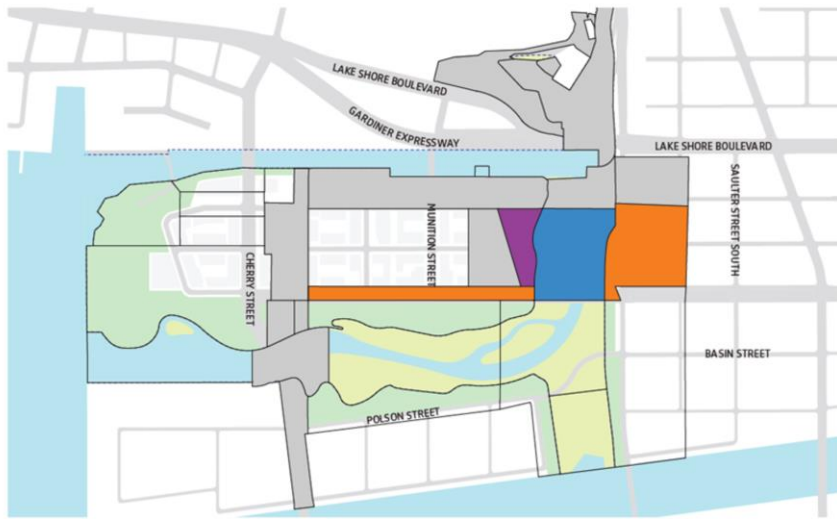
## Due Diligence Findings: Excavation & Fill Sequencing, Stage 2



### Legend

- Area to Cut
- Area to Fill
- RA/RM Cut Area to Fill
- Area to be Constructed

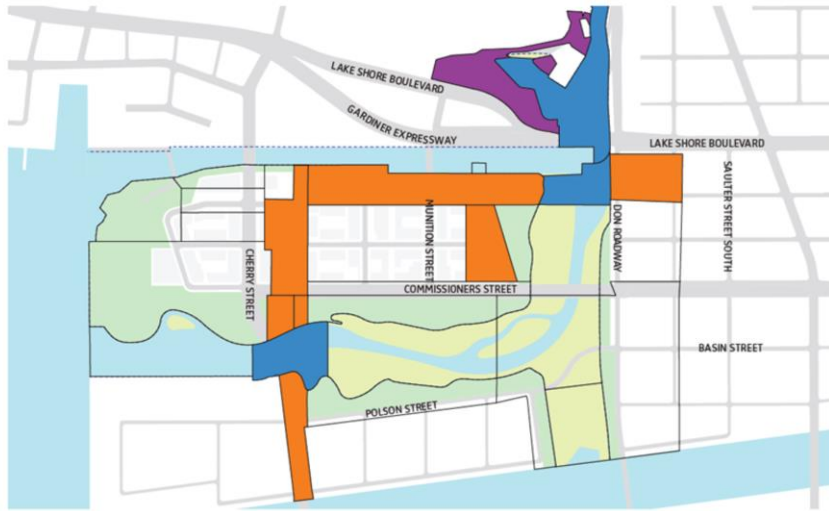
### Due Diligence Findings: Excavation & Fill Sequencing, Stage 3



**Legend**

- Area to Cut
- Area to Fill
- RA/RM Cut Area to Fill
- Area to be Constructed

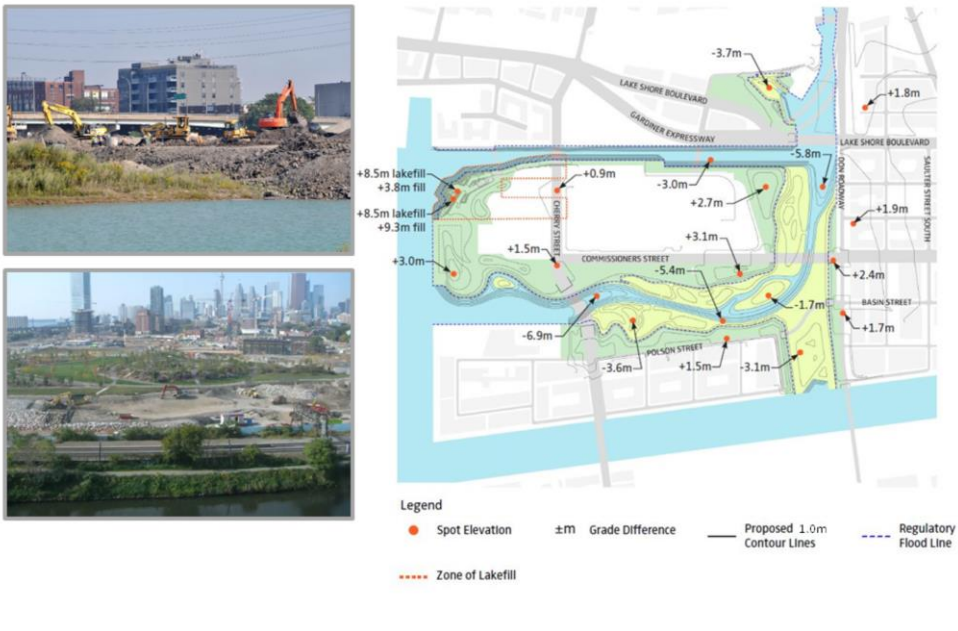
## Due Diligence Findings: Excavation & Fill Sequencing, Stage 4



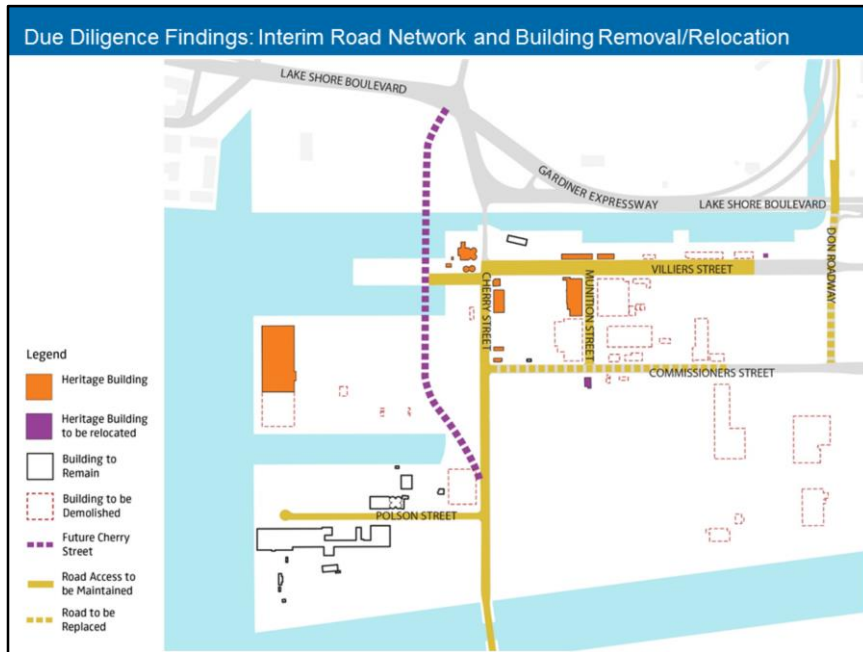
### Legend

- Area to Cut
- Area to Fill
- RA/RM Cut Area to Fill
- Area to be Constructed

## Due Diligence Findings: Site Grading



- Excavating the river and filling means a lot of different grades on the site
- The Project plans detail required grading along the new river edge, the green spillway and Keating Channel that will provide full flood protection upon the completion of the Project
- Grades on individual sites within the Project boundaries will need to be raised when development takes place
- These reference images are from the West Don Lands



- Majority of properties in the Project area are government-owned with about six privately-held properties
- The Project team continues to engage with owners and tenants and will work closely with them once there is certainty about funding and a start date
- Maintaining access to the area during construction will be a priority

## Due Diligence Findings: Flood Protection Components



- The new river valley must withstand the force of flood waters in addition to the river's normal flow. As a result, a variety of treatments need to be incorporated in the river valley to ensure it doesn't erode or weaken
- These components include things like stone, gravel or even wood armouring
- The plantings in the flood plain also act as flood protection elements and help prevent erosion

## Due Diligence Findings: Wetland Habitat and Park Components



- Part of flood protection is ensuring that floodplain areas are kept clear and naturalized – as wetlands
- The adjacent areas include a variety of park lands – ranging from open lawns to recreational areas to gardens – and access to the water for recreational uses
- This illustration reflects the full vision. Please reference Project Scope in Slide 17



## Due Diligence Findings: Bridges and Roads



- In addition to the new river valley, the other flood protection elements and the parklands, new infrastructure is also needed for the area
- Currently, the Port Lands have very old and inadequate infrastructure, such as roads and services, and lack what is required to unlock development potential
- The Project includes a three new bridges: Cherry Street North, Cherry Street South and Commissioners Street
- Cherry Street will be re-aligned and Commissioners Street will also be re-constructed; both will include a right-of-way for future transit service – interim bus rapid transit (BRT) / future LRT

## Due Diligence Findings: New and Replacement Services



- Future development also requires municipal services, such as water, waste water and storm water
- Here you can see the proposed new and replacement services for the area that will support development – commercial, residential and institutional
- Some services are needed to support existing businesses

## Due Diligence Findings: Project Scope and Cost Estimate

Original Cost Estimate (\$YoE): \$975 million

- Key finding that shaped revised cost estimate
  - Site Conditions: flowing sand, compressible peat = additional soil excavation, soil/groundwater treatment
  - Escalation/Inflation
- Re-evaluated Project Scope
  - Three new components identified
  - Three components deferred
  - Scope reductions

Current Cost Estimate (\$YoE): \$1.25 billion

Includes:

- Contingency
- Design Allowance
- Indirect Contractor Costs
- Soft costs (legal, approvals, engineering)
- Non-recoverable HST

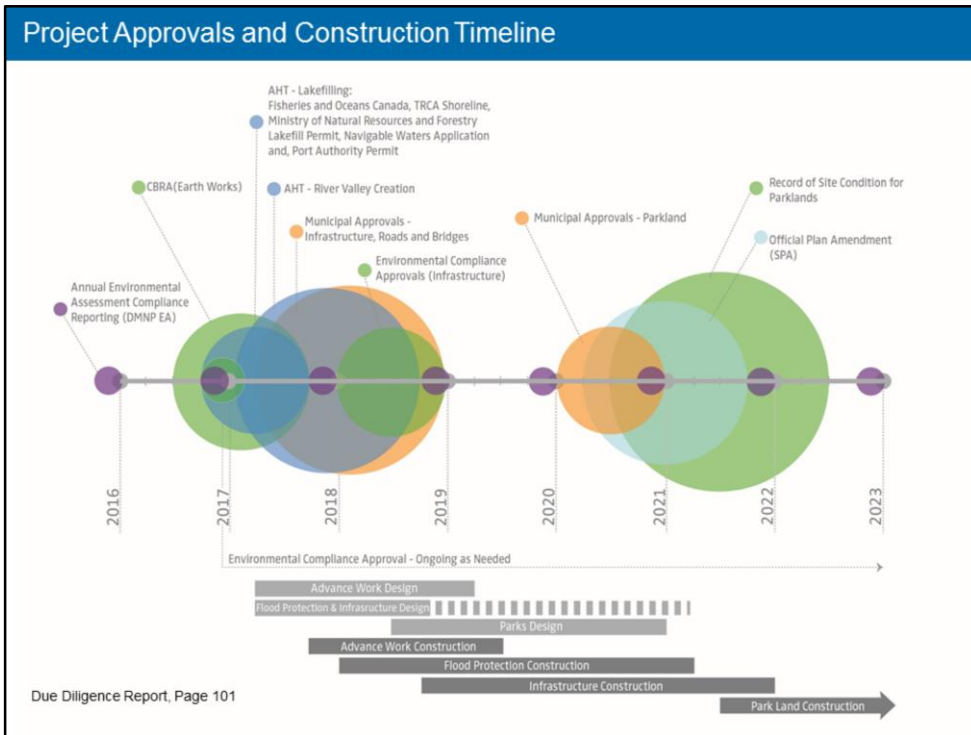
	Estimated cost (YoE)	Revised cost	Original cost	Variance	Explanation
Water Study Labelling and Water Quality Investigation	\$ 125	\$ 60	\$ 125	-\$ 65	Reduced scope of labelling and investigation due to more extensive site characterization.
Water Valley System and On-Campus Stormwater	\$ 486	\$ 125	\$ 486	-\$ 361	Reduced scope of water quality and on-campus stormwater management.
Site-wide Municipal Infrastructure	\$ 100	\$ 36	\$ 100	-\$ 64	Municipal services originally assumed with roads to meet level of service for the area.
Acute Street Bridge	-	\$ 27	\$ 27	\$ 27	Added scope.
Old Chertys Street Bridge	\$ 7	\$ 63	\$ 7	\$ 56	Added scope. Current estimate includes bridge and approach structures for both U.S. 18.
Old Reynolds Valley Road Bridge	\$ 27	\$ 12	\$ 27	-\$ 15	Reduced scope.
Old East-Central Road Bridge	\$ 5	\$ 5	\$ 5	\$ 0	Reduced scope.
Highway and Bridge Maintenance and Repair	\$ 78	\$ 14	\$ 78	-\$ 64	Reduced scope.
Flow Control Works	\$ 28	\$ 28	\$ 28	\$ 0	Reduced scope.
Acute Street Bridge	\$ 5	\$ 5	\$ 5	\$ 0	Reduced scope.
Old Chertys Street and East Bridge Infrastructure	\$ 19	\$ 75	\$ 19	\$ 56	Scope added from other alternatives. Proposed Chertys Street Bridge investigation for alternative used for Old and East Bridge modifications.
Chertys Street Realignment (see 401)	\$ 27	\$ 42	\$ 27	\$ 15	Current estimate includes cost for municipal services for both U.S. 18 alternatives. Original scope of Chertys Street.
Chertys Street Bridge North (see 401)	\$ 55	\$ 52	\$ 55	-\$ 3	Reduced pricing components and additional design alternatives.
Chertys Street Bridge South (see 401)	\$ 42	\$ 42	\$ 42	\$ 0	Reduced scope.
Old Chertys Street Bridge (see 401)	\$ 4	\$ 14	\$ 4	\$ 10	Reduced extent of deckwork work needed for identification.
Companions Street West	\$ 28	\$ 40	\$ 28	\$ 12	Current estimate includes cost for municipal services for both U.S. 18 alternatives.
Companions Street East	\$ 43	\$ 14	\$ 43	-\$ 29	Reduced pricing components and additional design alternatives.
Companions Street East (see 401)	\$ 2	\$ 62	\$ 2	\$ 60	Current estimate includes cost for municipal services for both U.S. 18 alternatives.
Highway and Bridge Maintenance	\$ 28	\$ 28	\$ 28	\$ 0	Highway bridge maintenance.
Highway and Bridge Maintenance	\$ 40	\$ 40	\$ 40	\$ 0	Reduced design and post-programming. Full retaining walls for both U.S. 18 alternatives.
Highway Integration	\$ 52	\$ 23	\$ 52	-\$ 29	Reduced scope of work. Original proposal specifically included additional work for both U.S. 18 alternatives. (see 401 and 402).
Villiers Island Grading	\$ 28	\$ 28	\$ 28	\$ 0	Work scope required to address complete flood protection and other related development programs.
West Park North	\$ 23	\$ 23	\$ 23	\$ 0	Partially captured deferred portion of RiverPark Park.
West Park South	\$ 27	\$ 27	\$ 27	\$ 0	Partially captured deferred portion of RiverPark Park.
<b>Total</b>	<b>\$ 1,250</b>	<b>\$ 1,215</b>	<b>\$ 975</b>	<b>\$ 270</b>	

Due Diligence Report, Page 83

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Implications of due diligence findings on the Project's cost estimate:

- The original \$975 million cost estimate was based on the substantial work in the Environmental Assessment. This cost estimate, while reasonable, did not have the benefit of extensive site characterization and other detailed work (such as design development) completed through the due diligence program, which provided a greater understanding of the extent of flowing sand and compressible soils, and the need for enhanced erosion control and risk management measures. This identified additional excavation, soil and groundwater treatment, and material handling and import costs; the need to complete River Park North and South; and, also identified that the additional grading on Villiers Island, which the original plan deferred until future development occurred, needs to be completed together with other flood protection earthworks.
- The Project scope was also examined to identify opportunities to defer non-essential work that wouldn't impact on the Project goals, i.e. ensuring flood protection, the necessary infrastructure and municipal services, and sufficient parks and public realm to attract private investment for development.
- The new cost estimate is \$1.25 billion, including hard costs, a contingency of 30 per cent, a design reserve, soft costs (such as engineering, and permitting/approval fees), inflation calculated until the final year of construction and non-recoverable taxes.



- A high-level look at the schedule for approvals and construction
- In order to develop a cost estimate and schedule, certain assumptions had to be made, including assumptions around when funding would be received (assumed second calendar quarter 2017) and when detailed design and construction mobilization would begin (assumed fourth calendar quarter of 2017)
- Should the timeline be delayed, additional costs of approximately \$30 million annually would be incurred, due to the impact of construction escalation
- Contingent on funding and the timing of funding

## Due Diligence Key Findings: Construction Coordination



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- There are other large infrastructure projects with similar construction schedules planned in the immediate area:
  - Removal of the Gardiner Expressway from the Don Valley Parkway to Cherry Street and the construction of the new Gardiner Hybrid
  - widening of the rail bridge over the Don River
  - GO Transit electrification
  - Expansion of the Metrolinx rail yard
  - Construction of a large sanitary and storm water system, and
  - Eventual planning and development of the First Gulf/Unilever site
- A coordination committee with Waterfront Toronto, the City, Metrolinx and Infrastructure Ontario will be formed to develop a coordinated schedule for these projects and minimize any conflict.

## Due Diligence Key Findings: Peer Review

- Unprecedented Project
- Important to Peer Review
- Independent review by qualified organizations
- Examine Report's adequacy and accuracy



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As this project is unprecedented for Toronto, Waterfront Toronto made the decision to have the Due Diligence Report peer reviewed by two organizations with extensive comparable experience to ensure the Report's adequacy and accuracy.

Rijkswaterstaat, is the organization that designs, constructs, manages and maintains flood protection, water, and road infrastructure on behalf of the Ministry for Infrastructure and the Environment in the Netherlands. The Rijkswaterstaat is a world leader in the assessment and delivery of comparable infrastructure projects, and is responsible for approximately \$1.75 billion annually in water-related infrastructure development.

Rijkswaterstaat's findings include:

- \$1.25 billion is sufficient to deliver the Project
- Budget contingency matched similar projects
- Excavation of the river valley, soil handling and filling will drive construction phasing
- Project can be completed in 2023
- Project's identified risks are well documented and comparable with its projects
- Scale and complexity of managing soil in the Project is exceptional; risk of unknown soil characteristics will remain significant

The second review, which was competitively procured, was undertaken by the Peter

Kiewit Infrastructure Co., a global construction services provider specializing in water and marine-based projects. Kiewit provided the complementary perspective of a heavy civil contractor with expertise in executing projects of similar scale and complexity using a range of traditional and innovative delivery models. Kiewit has constructed many of the most complex projects in North America.

Kiewit's findings include:

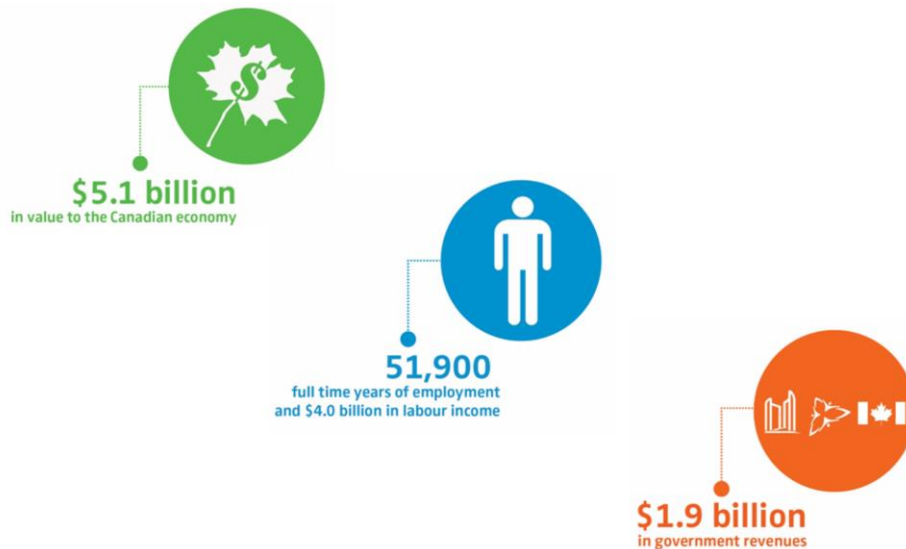
- Project components that pose the greatest risks: poor subsurface conditions, confirming the regulatory requirements with respect to soil contaminants, associated Risk Management Measures
- Recommend developing a Ground Improvement Plan to improve the strength of the soils/subsurface conditions
- Due Diligence work was appropriately detailed

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## Project Benefits: Economic Impact & Jobs



Source: Economic Impacts of Planned Investments, urbanMetrics, 2016

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- Like other Waterfront Toronto projects, such as the West Don Lands, our model rests on leveraging public investment to attract private sector investment and the jobs that investment creates
- Waterfront Toronto previously commissioned a study on the economic impact of Port Lands Flood Protection, which was updated and validated it as part of Due Diligence
- The construction of the Project is projected to create:
  - \$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
- Combining the Project construction and future development in the Port Lands, is projected to create:
  - \$5.1 billion in value added to the Canadian economy
  - 51,900 person years of employment
  - \$1.9 billion in revenues to governments
- These results do not include the economic impact of developing the First Gulf/Unilever property

## What does flood protection deliver?



[ANIMATED FLY-THROUGH VIDEO]

- Waterfront Toronto's ultimate vision for the Port Lands goes further than what was done in the West Don Lands
- Cities around the world are attempting to gain a better understanding of the necessary changes to design, planning, transit, infrastructure and technology to create more sustainable, inclusive and livable cities
- The future development of Villiers Island is a great opportunity to build a 21<sup>st</sup> century community from scratch
- It is an opportunity to develop platforms to showcase innovative products, policies, solutions and processes in strategic economic sectors such as cleantech, design, sustainable construction and energy systems
- This Project will facilitate the delivery of climate-positive strategies and outcomes, setting a compelling environmental and economic example for other cities to follow

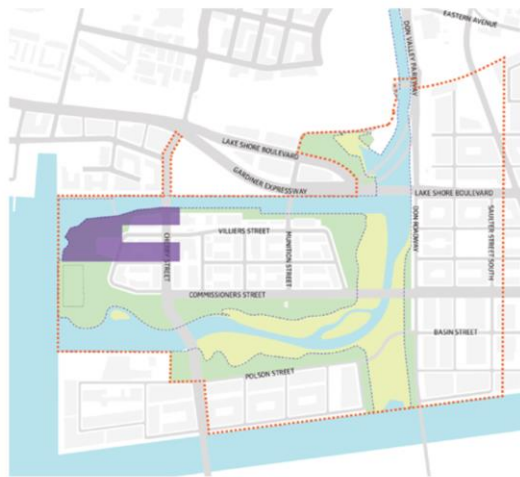
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## Essroc Quay Lakefilling Project

**September 14<sup>th</sup>, the three orders of Government announced \$65M for the Essroc Quay Lakefilling Project:**

- Part of the broader Project yet can be completed on a stand-alone basis
- Create a new landmass around the current Essroc Quay and stabilize the area shoreline under flood conditions
- Improve water quality, optimize water and storm water infrastructure
- Create new naturalized open spaces and aquatic habitat
- Facilitate the construction of roads and transit into the Port Lands



Scope of work includes the design and construction of:

- Confinement berm structures
- Rock armoring and dockwall structures
- Lakefilling
- Aquatic habitat structures and features
- Diversion of an existing storm sewer

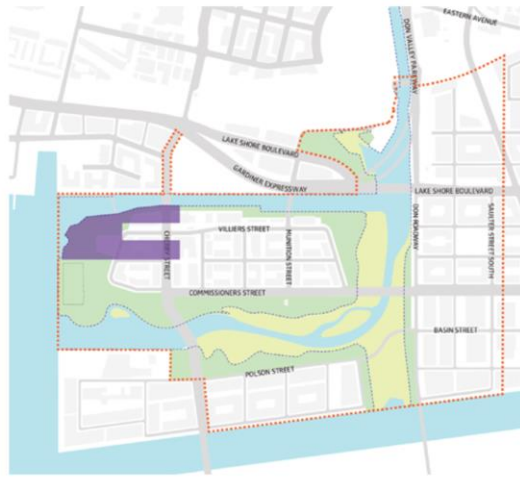
## Essroc Quay Lakefilling Project

### Timeline:

- Detailed design: February 2017
- Construction: August 2017

### Zoning by-law:

- Under the former City of Toronto Official Plan, Council must first enact a Zoning by-law to permit the intended use - lakefilling
- Early in 2017 a zoning by-law will be brought to Council indicating the lands subject to lakefilling.
- The City and Waterfront Toronto are working together on the details of the zoning by-law



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**Meggen Janes**  
**Project Manager, CH2M**

## Community-Based Risk Assessment

- What is a CBRA?
- Why is a CBRA Needed?
- What's in a CBRA?
- CBRA Considerations
- CBRA Stages
- Community Involvement





## Community-Based Risk Assessment: What is it?

- An approach to **evaluate** the soil and groundwater quality **over a large area**
- **Assess** potential **health concerns** for people and ecological systems (wildlife and aquatic habitat)
- Define **remediation objectives**, soil and groundwater management procedures and **long term environmental protection** requirements
- Based on well-established processes outlined in **guidance** from the **Ministry of the Environment and Climate Change (MOECC)** that consider contaminants, receptors and exposure pathways
- A **collaborative, iterative** and **voluntary** process



- Due to the unique nature of the Project – creating a river through a brownfield site – and the need to manage the contaminants present throughout the construction site, we are undertaking a process outlined by the MOECC called a Community-Based Risk Assessment, or CBRA.
- The CBRA allows us to evaluate multiple properties across the Port Lands that will be impacted by the flood protection construction work in order to identify potential health concerns for people and ecological systems (wildlife and aquatic habitat) associated with existing contamination, and to outline soil and groundwater management plans to provide long term protection.
- The CBRA helps identify Risks. This is done by identifying and examining the contaminants, the “receptors” – humans and ecological systems, such as plant, animal and aquatic populations – that may be exposed to the contaminants, and the various ways in which the receptors may come into contact with the contaminants (the exposure pathways). Where these intersect, there is a potential for Risk that needs to be assessed.
- The CBRA is being completed as a voluntary undertaking to support the flood protection and revitalization of the Port Lands, and will follow the process outlined by the MOECC: “Draft for Discussion, Guidance for Conducting Community Based Risk Assessments.”
- Developing the CBRA is a dynamic and iterative process, affording a number of opportunities for relevant government agencies and the public to provide feedback.

## Community-Based Risk Assessment: Why is it needed?

- The Port Lands are contaminated from infilling and industrial uses
- No current environmental regulatory approval process in Ontario for a project of this nature – creating a river through a brownfield
- Allows us to identify and evaluate the risks to human health and the environment, and develop effective measures to mitigate or remove those risks
- Allows for the development of a comprehensive strategy for treating and reusing soil within the project area – meaning that soils can be moved, treated and placed across the entire site
- Will support the creation of the new landmass around Essroc Quay, the new river mouth, flood protection landforms, municipal infrastructure and other project components



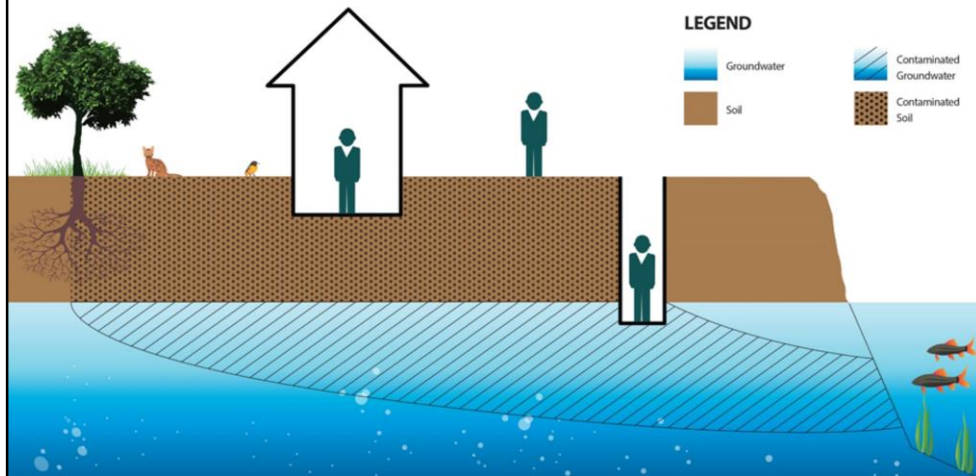
## Community-Based Risk Assessment: Study Area



## Community-Based Risk Assessment: Considerations

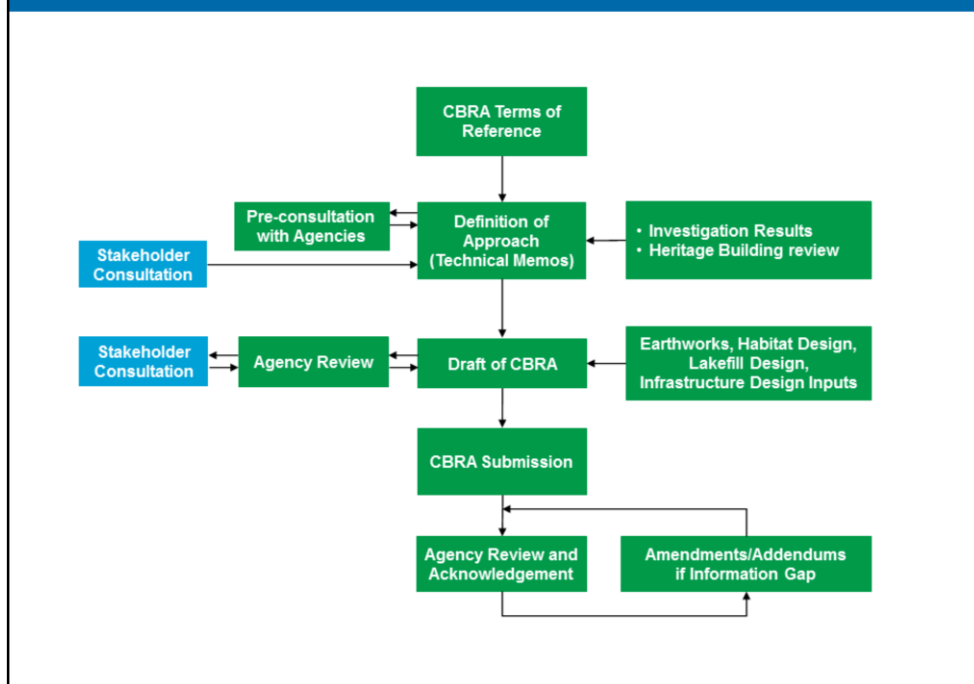
What is the risk of exposure to soil and groundwater for:

- Construction workers
- Indoor Workers
- Recreational site visitors
- Birds, mammals, aquatic life
- Plants and shallow vegetation
- Deep rooted vegetation



- Examine the potential exposure to and impacts of contaminants in the soil and groundwater.
- Evaluate the variety of ways in which “receptors” – humans and ecological receptors, such as plant, animal and aquatic populations – may come into contact with contaminants.
- Consider mitigation measures, such as building physical barriers to limit contact with contaminants under a variety of exposure and land use scenarios.
- The results of the risk assessment will also be used to support the sustainable reuse of excavated soil and sediment material within the CBRA area, and to identify where risk management measures may be required for future land use.

## Community-Based Risk Assessment: What's Involved?



- Developing the CBRA is a dynamic and iterative process, affording a number of opportunities for relevant government agencies and the public to provide feedback.
- CBRA Terms of Reference outlines the content, intent, and scope of the CBRA
- Extensive workshops, meetings, review and commentary by regulators, including:
  - Ministry of the Environment and Climate Change
  - Aquatic Habitat Toronto (including representatives from Department of Fisheries and Ocean, Environment Canada, Ports Toronto, TRCA, Ministry of Natural Resources and Forestry)
  - City of Toronto
  - Toronto Port Lands Corporation
- Consultation/Engagement with:
  - Landowners and Users / Stakeholder Advisory Committee
  - Public
  - Indigenous communities

## Community-Based Risk Assessment: Stages/Timeline



## Community-Based Risk Assessment: Community Role

Terms of Reference Comment Period:	November 28-January 10
Stakeholder Update:	December 2016
Stakeholder Consultation (Draft CBRA):	January/February 2017
Public Forum:	February 2017

Ongoing engagement during planning and implementation

- What are we asking of the community?
- The CBRA Terms of Reference is posted on the Waterfront Toronto website with comments and feedback invited by January 10, 2017.
- The Terms of Reference provides the detailed outline, direction and scope for the CBRA and is a good place to start to get an understanding of a CBRA.
- Examples of public input could include:
  - Scenarios for use: with your understanding of the future development how you would use or continue to use the area? Information on your expectations will inform assumptions of how people are going to work, live and play in the area
  - Details and discussion on your current use of the study area so that the environment can be protected during construction
  - Historical and anecdotal information on animals, wildlife and aquatic receptors and plants in the area
  - Knowledge of former land uses; potential environmental concerns; unusual subsurface features particularly in the alignment of the new river valley
  - Comments on the potential risk management measures and personnel experience regarding the vegetative surfacings that works in the Port Lands
  - Concerns or suggestions for soil and groundwater reuse

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## Status and Next Steps

### The Project:

#### Funding:

- City of Toronto Council has directed staff to identify funding its one-third share through the 2017-2026 capital budget process.
- The Government of Canada and Province of Ontario have not yet committed funding

#### Start Date:

- The Project is not yet fully funded and, as a result, there is no official start date for construction at this time, with the exception of the Essroc Quay Lakefilling Project

#### CBRA:

- Stakeholder and public engagement will continue in early 2017

- City of Toronto Council has directed staff to identify funding its one-third share through the 2017-2026 capital budget process
- The Government of Canada and Province of Ontario have not yet committed funding
- No official start date for construction at this time
- Engagement with the community will continue and will evolve as the project progresses through the CBRA process, and – once funded – through the detailed design, implementation and construction phases
- During the implementation stage, consultation will focus on updates on new work that is about to proceed and potential impacts on the community, actions to minimize or mitigate disruption during construction, information on how construction related complaints may be raised and the completion of key milestones
- At the appropriate time, a structured forum will be established for residents, businesses and land owners in the immediate vicinity to discuss issues related to construction
- But we're not there quite yet...
- A draft of the CBRA will be presented for comment early in 2017. Watch for a future notice with further details

## Status and Next Steps

### Essroc Quay Lakefilling:

#### Funding:

- Committed

#### Start Date:

- Detailed Design Starts February 2017
- Construction Starts August 2017

#### Consultation:

- Stakeholder engagement in early 2017

### Port Lands Framework Plan, Villiers Island Precinct Plan, and Transportation and Servicing Master Plan:

- Waterfront Toronto and the City of Toronto have continued to refine the plans since the public and stakeholder consultation in Fall 2015
- Stakeholder update will follow in early 2017

**Questions?**