



ECS Lunch and Learn

Supporting internal knowledge transfer within TRCA

August 4, 2021

BROADVIEW AND EASTERN FLOOD PROTECTION

Municipal Class Environmental Assessment Project

TRCA Lunch and Learn August 4 2021



STUDY AREA



PROJECT BACKGROUND – RELATIONSHIP TO DMNP

- ~290 ha of urban land east and south of the Don River are subject to flood risk.
- The Don Mouth Naturalization and Port Land Flood Protection EA's preferred alternative will eliminate flood risk to ~240ha
- The remaining 50 ha of land are within the Keating Channel, lower Don River Channel, new river valleys, and a 8 ha area north of the Rail Line



Existing flood risk in the Port Lands and South Riverdale areas

*DMNP Preferred
Alternative Applied*



BROADVIEW-EASTERN FLOOD PROTECTION EA


Study Area – Land Ownership



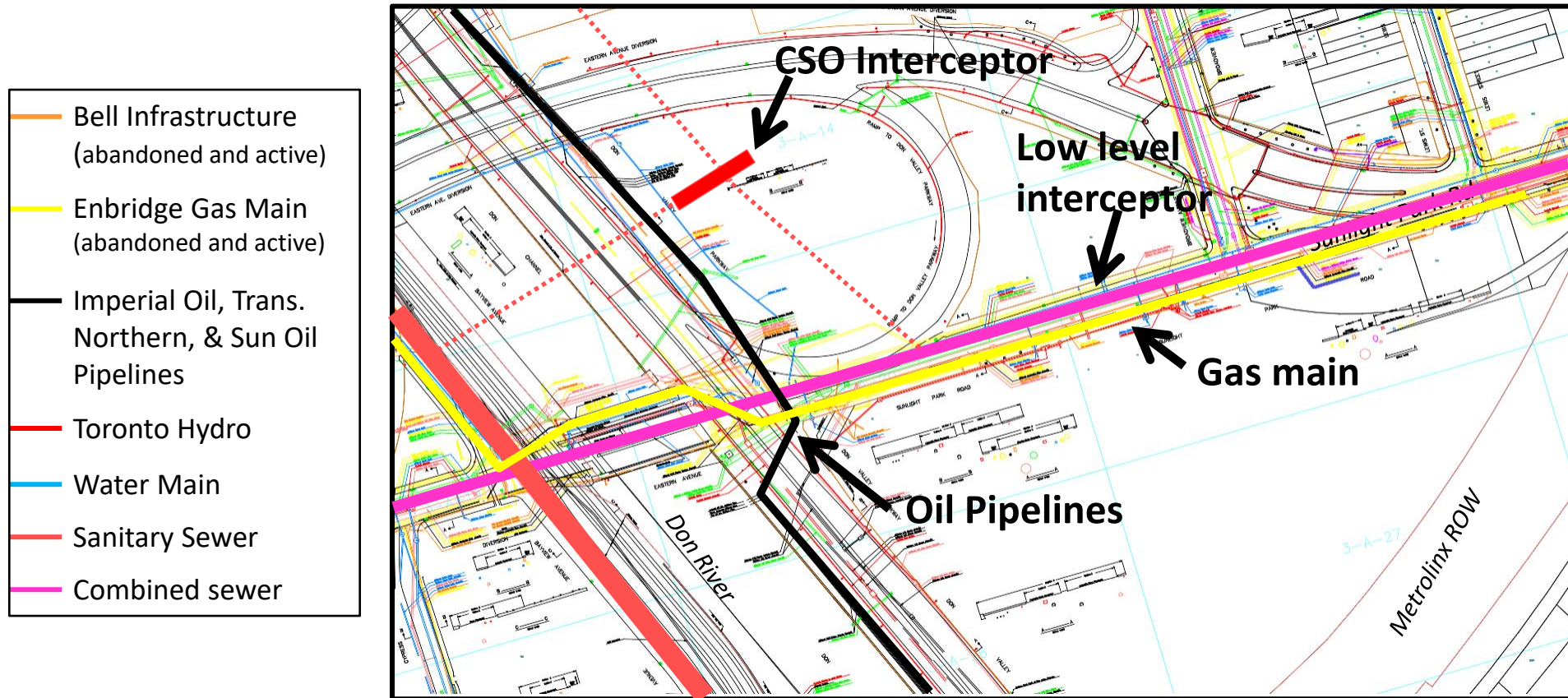
Land Ownership

 Project Area

Ownership

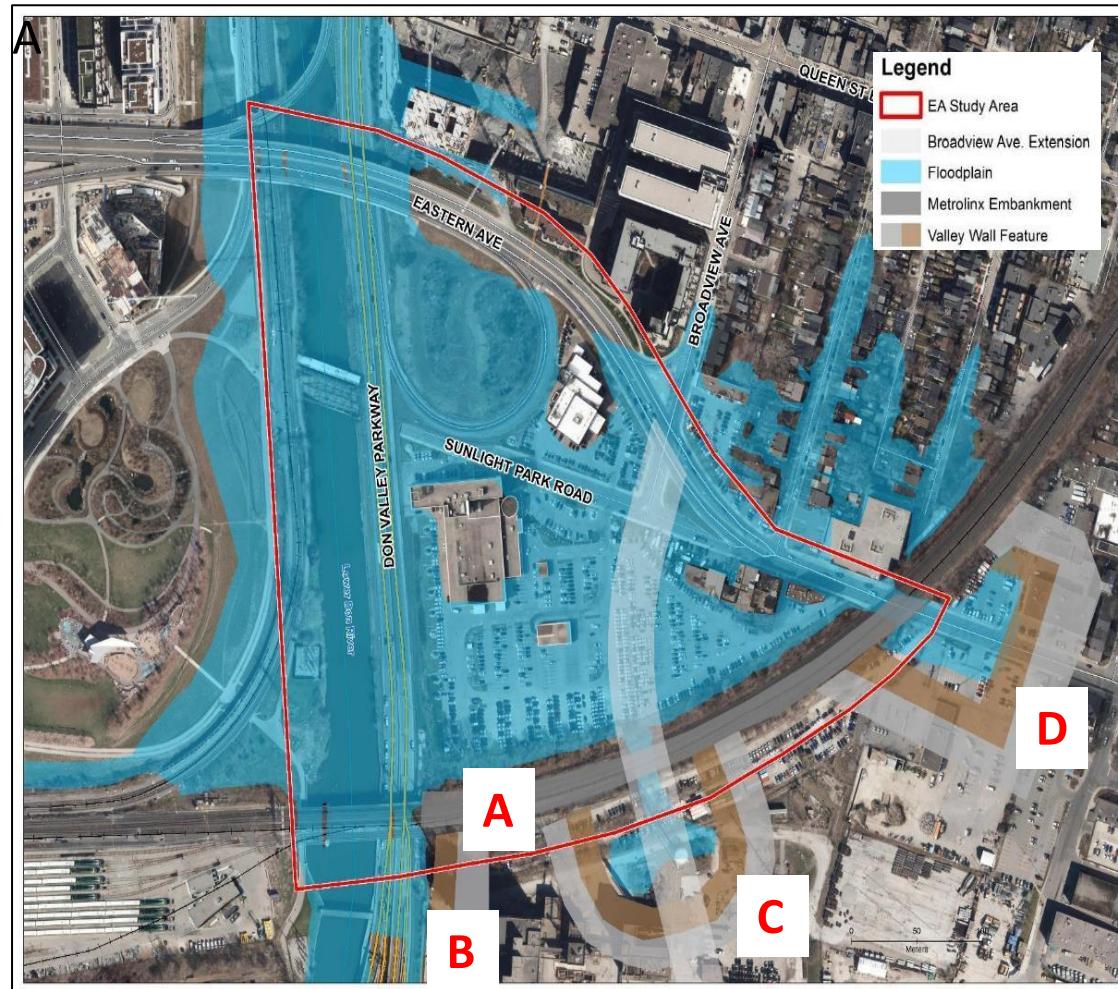
-  City
-  Metrolinx
-  Private

UNDERGROUND INFRASTRUCTURE

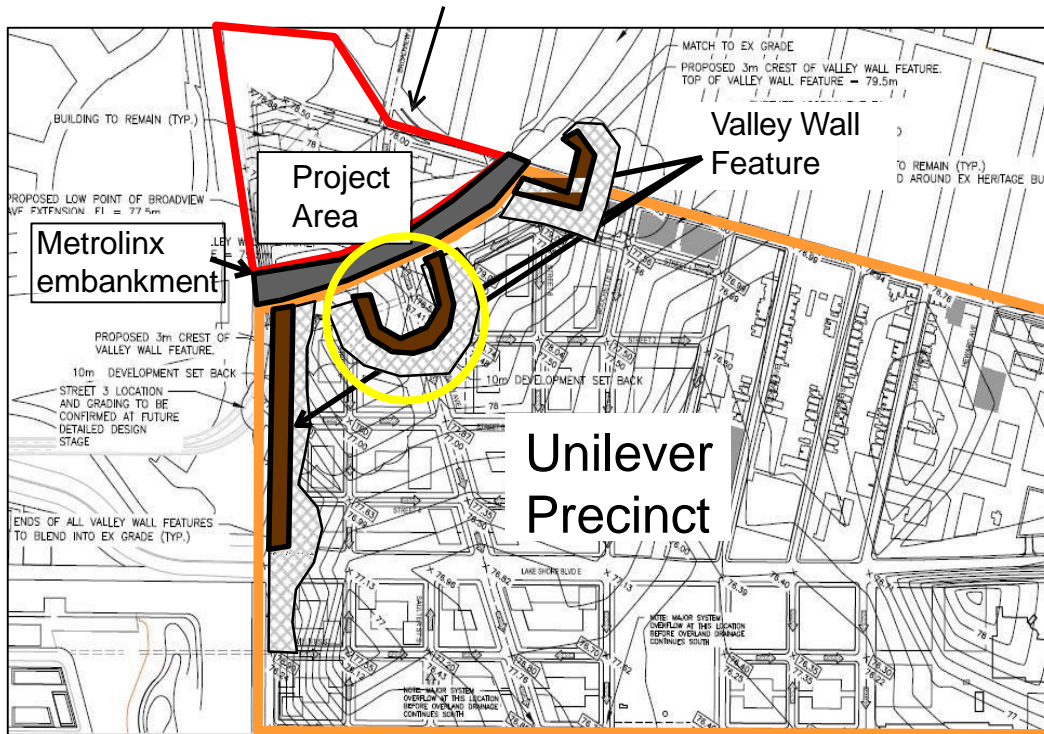


FLOOD PROTECTION AS PER EXISTING POLICY (2017)

- PLFP / DMNP EA and Port Lands and South of Eastern TSMP (2017)
- Please see:
 - A. Mx rail berm/embankment
 - B. East Harbour FPL (part of Port Lands Flood Protection)
 - C. Future Broadview Extension flood protection
 - D. Eastern Avenue grading solution



PORT LANDS TSMP DEVELOPMENT VISION (2017)



Port Lands TSMP
Development Vision

EAST HARBOUR DEVELOPMENT VISION (2018)

- Benefits of closer connection between transit station and development:
 - Success of transit strategy
 - Real estate value
 - Urban design
 - Assumes Mx railway berm/embankment

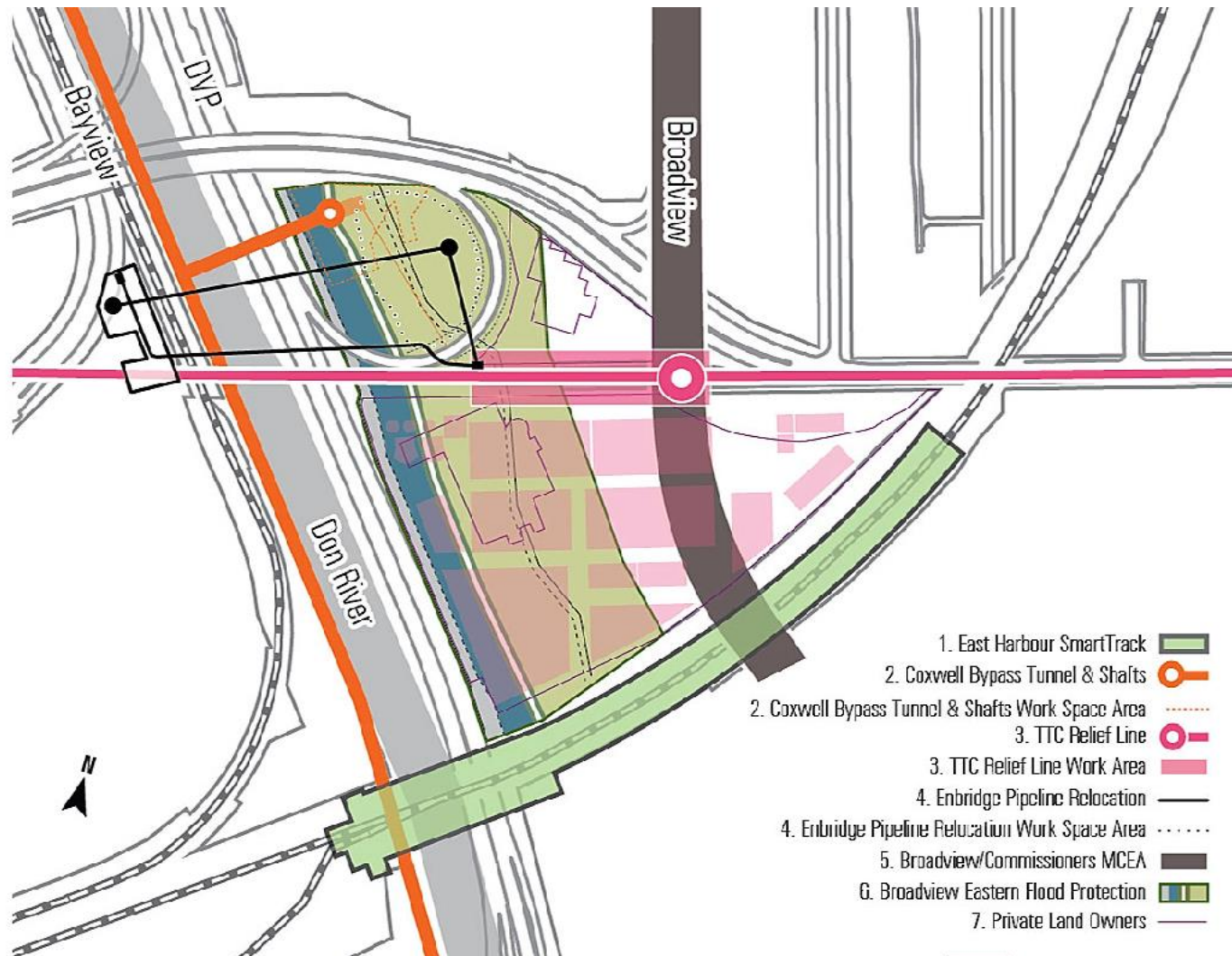


Port Lands TSMP



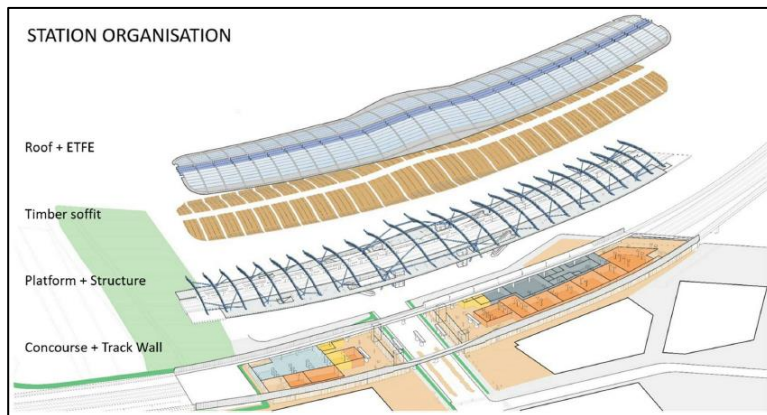
East Harbour Master Plan (First Gulf)

2018- Q1 2019 BROADVIEW EASTERN VISION



2020 VISION: EAST HARBOUR TRANSIT HUB, CURRENT DESIGN

- Original Smart Track station was perched on rail berm
- Proposed current transit hub design removes the berm and replaces it with an architecturally built station, making it porous but creating public amenity
- Thus, current transit hub design assumes and requires flood protection north of rail
- Assumes transit ridership based on development build-out enabled by flood protection



Source: CF - EAST HARBOUR TRANSIT HUB 10%, Design Submission, July 2020

EA PREFERRED SOLUTION OPTIMIZED FLOOD PROTECTION LANDFORM FOOTPRINT



Legend

- EA Study Area
- Crest
- Eastern Ave On-Ramp
- Wet Side
- Dry Side 3.5% Slope
- Broadview Ave. Extension
- Floodplain BEFP

Disclaimer

The data used to create this map was compiled from a variety of sources & dates. The TRCA does not accept responsibility for errors or omissions in the data and retains the right to make changes & corrections at any time without notice. For further information about the data on this map, please contact the TRCA GIS Department (416) 681-6100.

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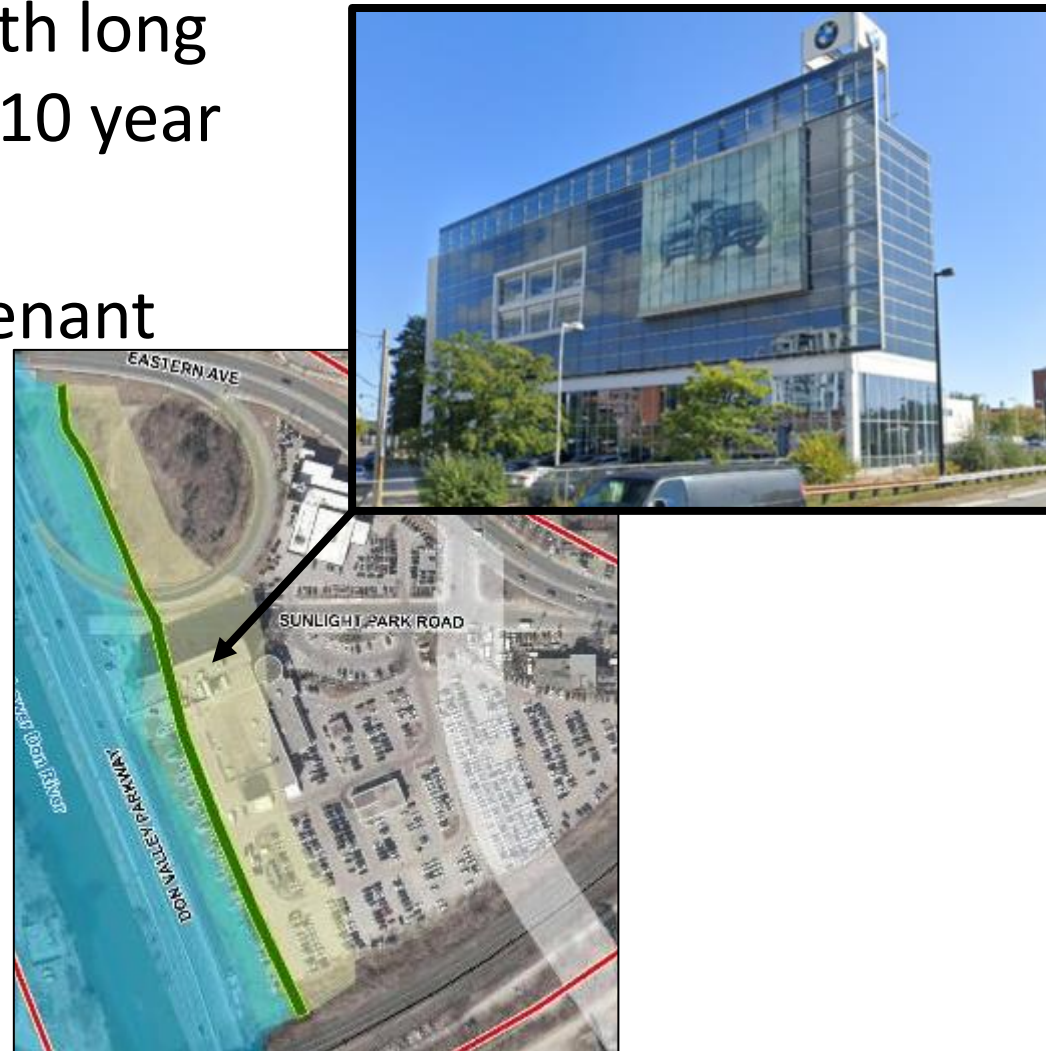
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0 60 120 Meters

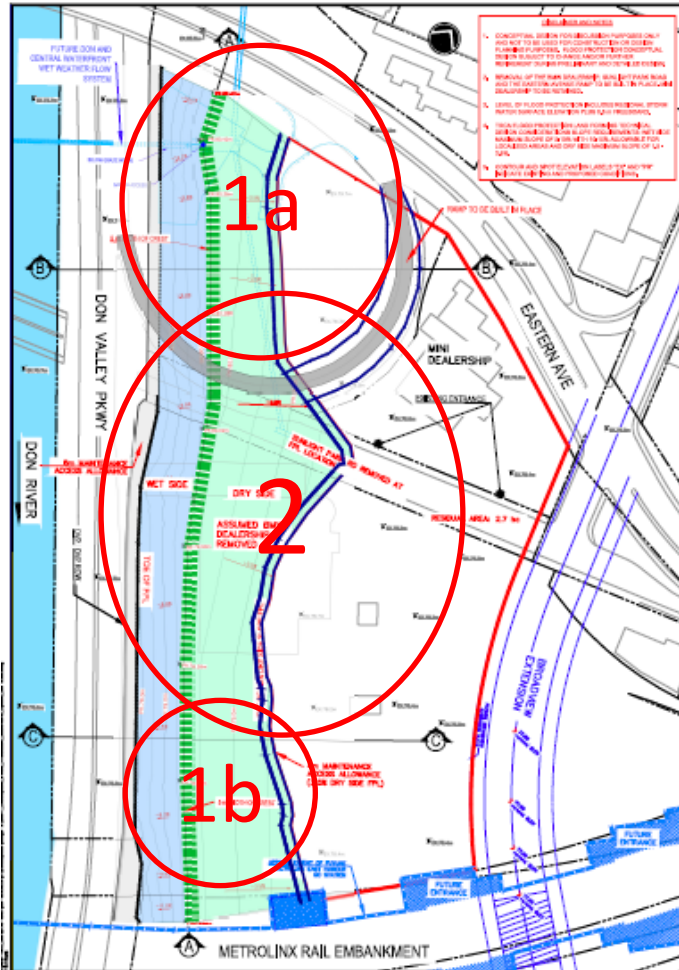
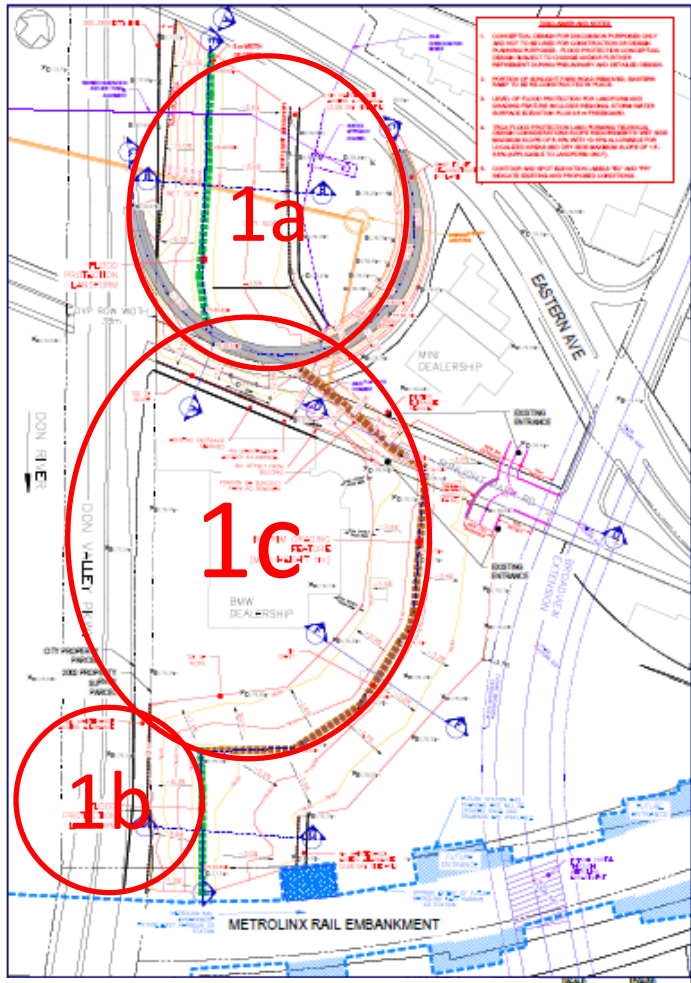


FPL IMPLEMENTATION CHALLENGES – LAND ACQUISITION

- Flagship Car Dealership with long term lease (2033) and two 10 year renewal options
- Land owner, tenant, sub-tenant
- Cost of:
 - Land
 - Building
 - Lost Rent
 - Business Loss



PHASED IMPLEMENTATION APPROACH



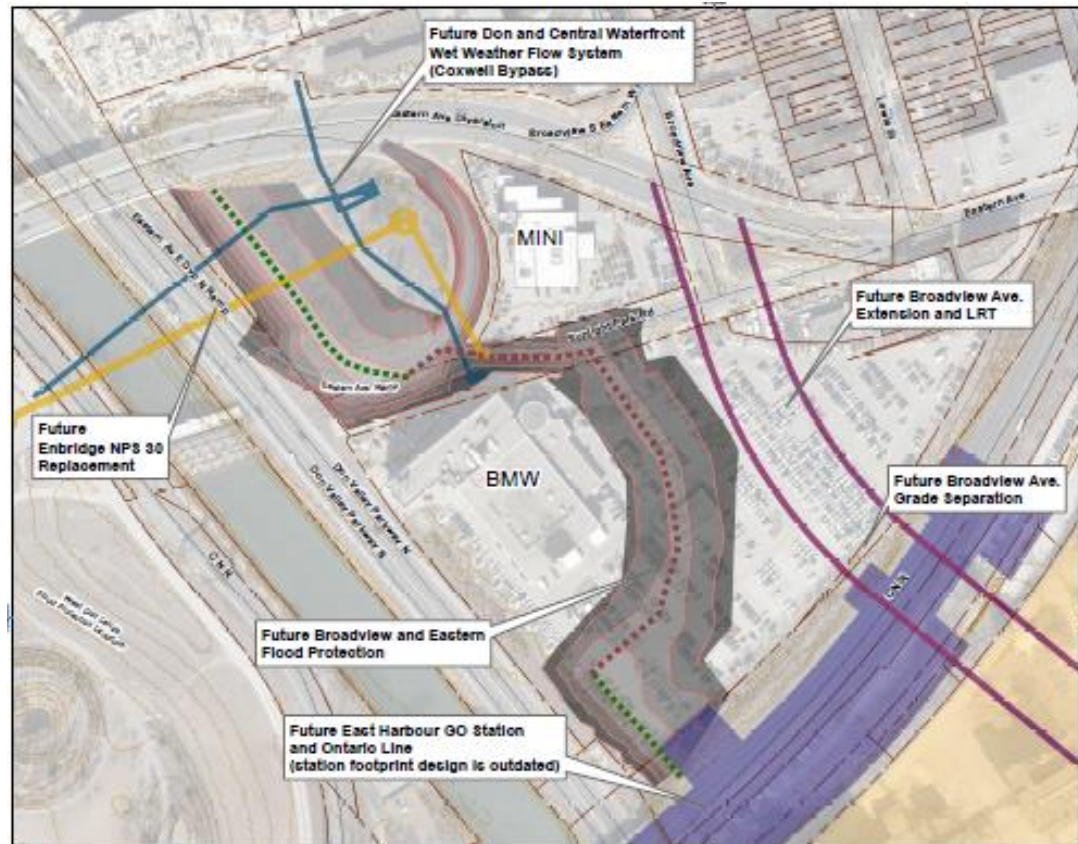
1. Build north portion of FPL, primarily on public land
- 1b. Build south portion of FPL on private land
- 1c. Re-grade private land to manage residual spill
2. Landowner/developer completes full FPL (timing TBD)

Phase One, Including Grading Plan

Full FPL – Timing TBD

PHASED IMPLEMENTATION OF FLOOD PROTECTION

- Removes land east of grading from flood plain
- Allows removal of SPA, apart from west portion of BMW
- Dealership can continue to operate
- Full FPL completion implemented on private land by private landowner/ developer to support future development when appropriate

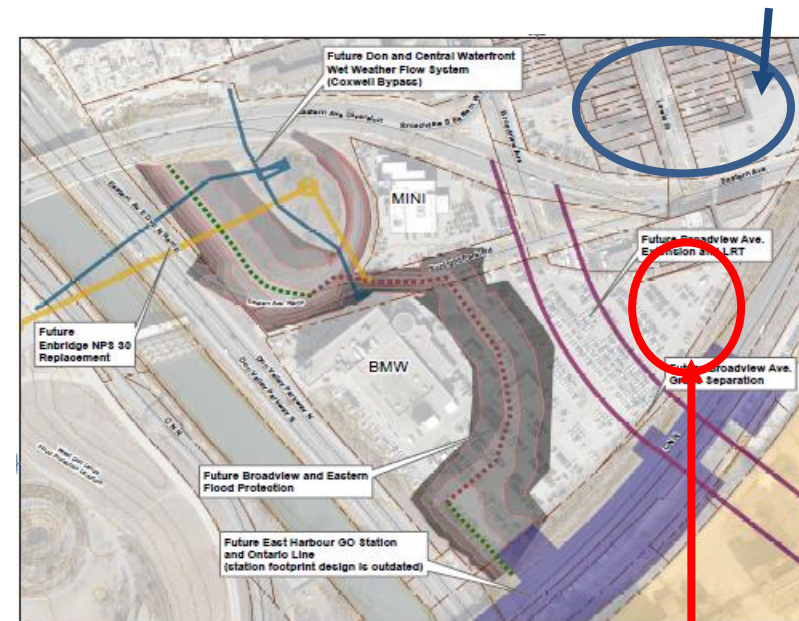


BENEFITS OF PHASE ONE PACKAGE: ENABLING FUTURE DEVELOPMENT

Incremental
development north of
Eastern



East Harbour: 10 Million SF GFA
2019 Land Sale: ~\$600-million



Talisker Lands
(portion)

NEXT STEPS

- Continue to work with all stakeholders to ensure integrated design and construction staging
- City has committed funding to begin design on southern end of FPL in order to integrate with Metrolinx station design

Port Lands Flood Protection Enabling Infrastructure Project 2018-2023

Presented by:
Maryam Iler
Manager, PMO

2021 August 04

Presentation Outline

- What is the PLFPEI and where is it?
- Why is TRCA involved?
- Who is part of this project at TRCA?
- When will the project be complete?

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Background

Amalgamation of two approved EAs

Lower Don Lands Class EA

*Waterfront Toronto,
City of Toronto, TTC*

DMNP EA as baseline to determine footprint for naturalization and developable lands. Identified location and type of roads, bridges, servicing and transit infrastructure required in LDL area.

2015

Don Mouth Naturalization and Port Lands Flood Protection EA

TRCA, Waterfront Toronto, City of Toronto

DMNP EA Objective:
“Establish and sustain the form, features, and functions of a natural river mouth within the context of a revitalized City environment while providing flood protection up to the Regulatory Flood.”

2016

Due Diligence Study

PLFPEI Due Diligence Study

TRCA, Waterfront Toronto, City of Toronto

Merged results of two EAs into a single project, confirmed costs, constructability considerations, schedule

Cherry Street Lake filling received tri-government funding Oct 2016

Tri-government funding for remainder of the project announced June 2017

2017

PLFPEI

Port Lands Flood Protection Enabling Infrastructure Project

Waterfront Toronto, City of Toronto, TRCA

- Comprised of 23 sub-projects
- Design
- Permitting
- Construction
- Linked to *Broadview and Eastern Flood Protection EA*

2018-2023

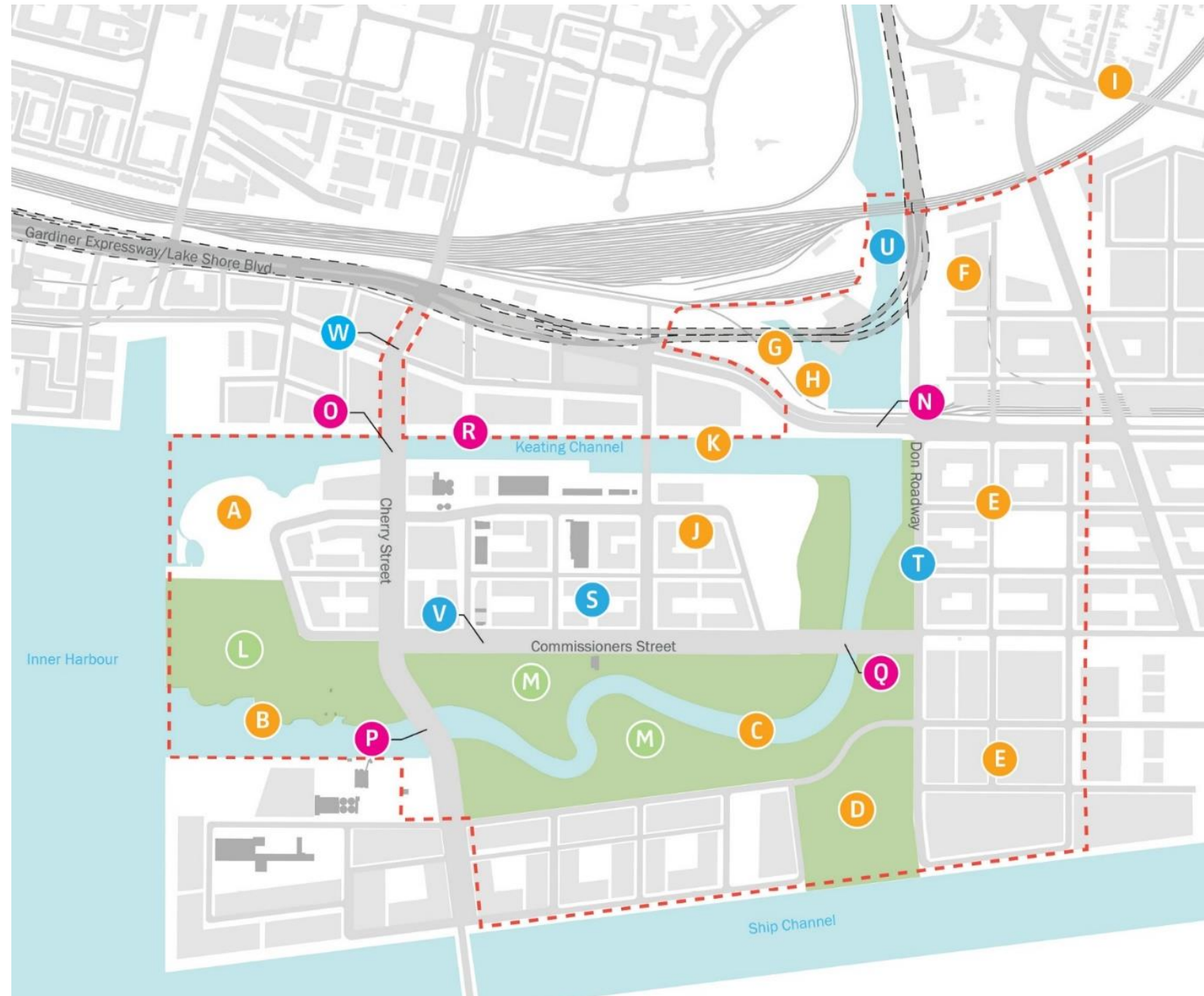
Designated Waterfront Area



What are we building?

- A** Cherry Street Stormwater and Lakefilling
- B** Polson Slip Naturalization
- C** Flood Protection - River Valley
- D** Don Greenway (Spillway & Wetland)
- E** Don Roadway Valley Wall Feature
- F** East Harbour Flood Protection Land Form
- G** Sediment and Debris Management Area
- H** Flow Control Weirs
- I** Eastern Avenue Flood Protection
- J** Villiers Island Grading
- K** Keating Channel Modifications
- L** Promontory Park South
- M** River Park
- N** Lake Shore Road and Rail Bridge Modifications
- O** Cherry Street Bridge North
- P** Cherry Street Bridge South
- Q** Commissioners Street Bridge
- R** Old Cherry Street Bridge Demolition
- S** Site Wide Municipal Infrastructure
- T** Don Roadway
- U** Hydro One Integration
- V** Commissioners Street
- W** Cherry Street Re-alignment

-  Port Lands Flood Protection and Enabling Infrastructure Boundary
-  Earthworks/Flood Protection
-  Parks
-  Bridges & Structures
-  Roads and Municipal Infrastructure



Looking east during construction of Keating Channel in 1914





Industrial uses like
the oil storage
tanks seen in this
photo left a legacy
of contamination

Regulatory Flood – Current Conditions



Regulatory Flood – Future Conditions



Full Vision Plan



Flood Protection Design







TRCA's Port Lands Project Team

- Ali Shirazi
- Alistair Jolly
- Angela Wallace
- Brad Stephens
- Christina Bright
- Craig Mitchell

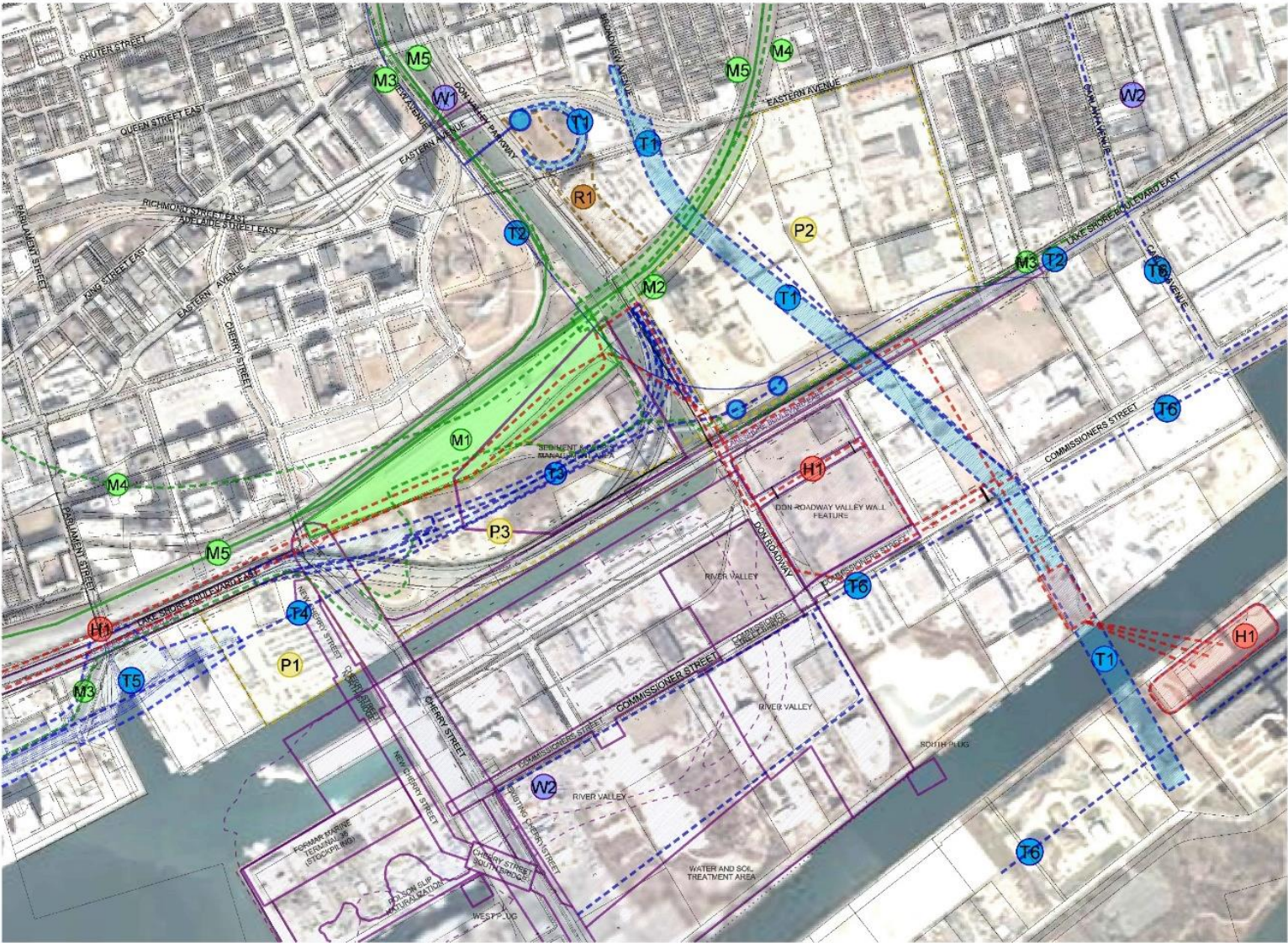
- Don Ford
- Karen McDonald
- Nancy Gaffney
- Rick Portiss
- Robert Chan
- Sharon Lingertat
- Trina Seguin

- Cathy Eden
- Don Little for AHT
- Kathryn Brown
- Lauren MacNeil
- Steve Heuchert
- Sue Hayes
- Svitlana Zinina

*Plus...
a big thanks
to the many
field staff!*

TRCA Role

- **Project Management:** Delivery Agreement of \$8 million for TRCA services, for 2018 – 2023, overall PLFPEI budget is \$1.25 Billion
- **Governance + Reporting:** WT Executive Steering Committee, TRCA Board of Directors / Executive Committee
- **Planning and Permits:** design input, permit review (TRCA Executive Committee delegated approval)
 - River Valley: ecology and ecological restoration advisor, promote innovative design, habitat compensation implementation, terrestrial surveys for tree removal, SAR, etc
 - Flood conveyance: Hydraulic modelling (MIKE model); EFDC model
 - Hydrogeology: Risk Management Measures, horizontal barrier
 - Geotechnical: Levees, horizontal barrier, secant pile walls
 - Flood protection: overall flood infrastructure planning and design review; current dredging for interim flood conveyance in Keating Channel; flood model peer review (MNR requirement)
 - TWAHRS / Aquatic Habitat Toronto
- **Real Estate/Property:** Property ownership agreements, Operations / delivery agreements, Property/asset management plan
- **Related Development Projects coordination:** BEFP EA, COT Lower Don Coordination with various departments and Metrolinx
- **Long-term Operations, Maintenance, Surveillance (OMS)** planning to ensure value for long-term after handover to TRCA/COT operations
- **EA Amendments and EA Compliance Monitoring to 2039**
- **Archaeology & Indigenous engagement:** on-site monitoring and assessments as required; liaison with Mississauga of the New Credit's Indigenous Field Liaison Representatives
- **COT Coordination:** Real Estate Subcommittee; Operations and Budget Impact Committee (OBIC) to report to Council in 2021; Keating Channel Working Group; various other working groups with COT staff



| SYMBOLGY | | | PROJECT | CONSTRUCTION DATE |
|----------|---------|----------|---|---------------------|
| PLANNED | ONGOING | COMPLETE | | |
| | | | CITY OF TORONTO | |
| | | | BROADVIEW AVENUE EXPANSION | 2022-2023 (Phase 1) |
| | | | COXWELL BYPASS TUNNEL | ONGOING - AUG 2023 |
| | | | GARDINER STRATEGIC REHAB - REALIGNMENT | Q1 2026 - Q4 2030 |
| | | | INNER HARBOUR WEST TUNNEL | 2029 + |
| | | | WATERFRONT LRT + QUEENS QUAY REALIGNMENT | 2026 - 2029 |
| | | | WATERFRONT SANITARY SERVICING MASTER PLAN + PUMPING STATION | - |
| | | | METROLINX | |
| | | | DON YARD / WILSON YARD | ONGOING - DEC 2024 |
| | | | EAST HARBOUR TRANSIT HUB | AUG 2022 - AUG 2026 |
| | | | LOWER DON TRAIL | ONGOING - JUN 2022 |
| | | | ONTARIO LINE | ONGOING - Q2 2027 |
| | | | UNION STATION RAIL CORRIDOR - ELECTRIFICATION | ONGOING - FEB 2024 |
| | | | WATERFRONT TORONTO | |
| | | | OLD EASTERN BRIDGE DEMOLITION | - |
| | | | WATERFRONT TORONTO / PORT LANDS FLOOD PROTECTION | ONGOING - Q1 2024 |
| | | | PROPERTY DEVELOPMENT | |
| | | | 3C DEVELOPMENT | - |
| | | | EAST HARBOUR DEVELOPMENT | 2025+ |
| | | | KEATING PRECINCT | - |
| | | | TRCA | |
| | | | BROADVIEW EASTERN FLOOD PROTECTION LANDFORM | MAR 2022 - MAR 2026 |
| | | | ENBRIDGE | |
| | | | ENBRIDGE INFRASTRUCTURE IMPROVEMENTS | - |
| | | | HYDRO | |
| | | | HYDRO INFRASTRUCTURE IMPROVEMENTS | - |

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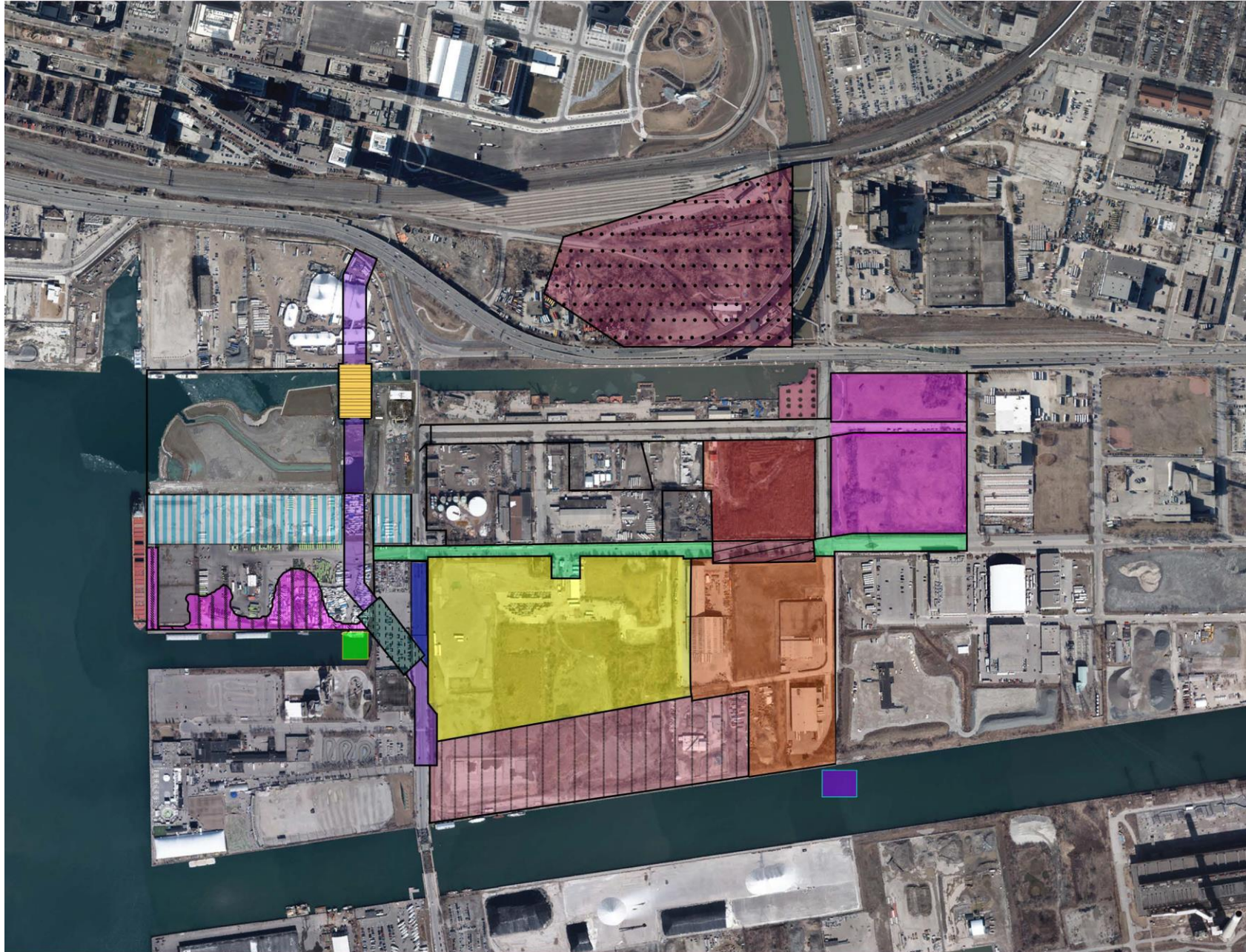


LOWER DON LANDS COORDINATION PROJECT OVERVIEW MAP PRESENT WORKS

NOT TO SCALE

APRIL 8, 2021

Construction



April - June 2021

River Valley
 • Dewatering
 • Install River Finishes

River Valley
 • Dewatering
 • Install liner

River Valley
 • Dewatering
 • Excavation
 • Install liner

New Cherry Street
 • Pre-loading

Existing Cherry Street

Commissioners Street
 • Relocate Utilities
 • Surcharging

Cherry Street North Bridge

Cherry Street South Bridge
 • Foundation and substructure installation

Commissioners Street Bridge
 • Bridge Installation

Water and Soil Treatment Area
 • Water treatment facility
 • Soil treatment area

Don Roadway Valley Wall Feature
 • Stockpiling and soil treatment

Sediment & Debris Management Area
 • Site preparation

West Plug

South Plug

Polson Slip Naturalization
 • Marine works - naturalized shoreline
 • Reinforce dockwall
 • Rehabilitation of the Atlas Crane

Former site of Marine Terminal 35
 • Stockpiling

September 2020

Week: 182

DATA DATE: 30SEP2020



WATERFRONTToronto



| 2018 | | | | 2019 | | | | 2020 | | | | 2021 | | | | 2022 | | | | 2023 | | | |
|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|
| Jan | Apr | Jul | Oct | Jan | Apr | Jul | Oct | Jan | Apr | Jul | Oct | Jan | Apr | Jul | Oct | Jan | Apr | Jul | Oct | Jan | Apr | Jul | Oct |
| | | | | | | | | | | | | | | | | | | | | | | | |

PORTLAND FLOOD PROTECTION & ENABLING INFRASTRUCTURE Conservation Authority



On the ground construction

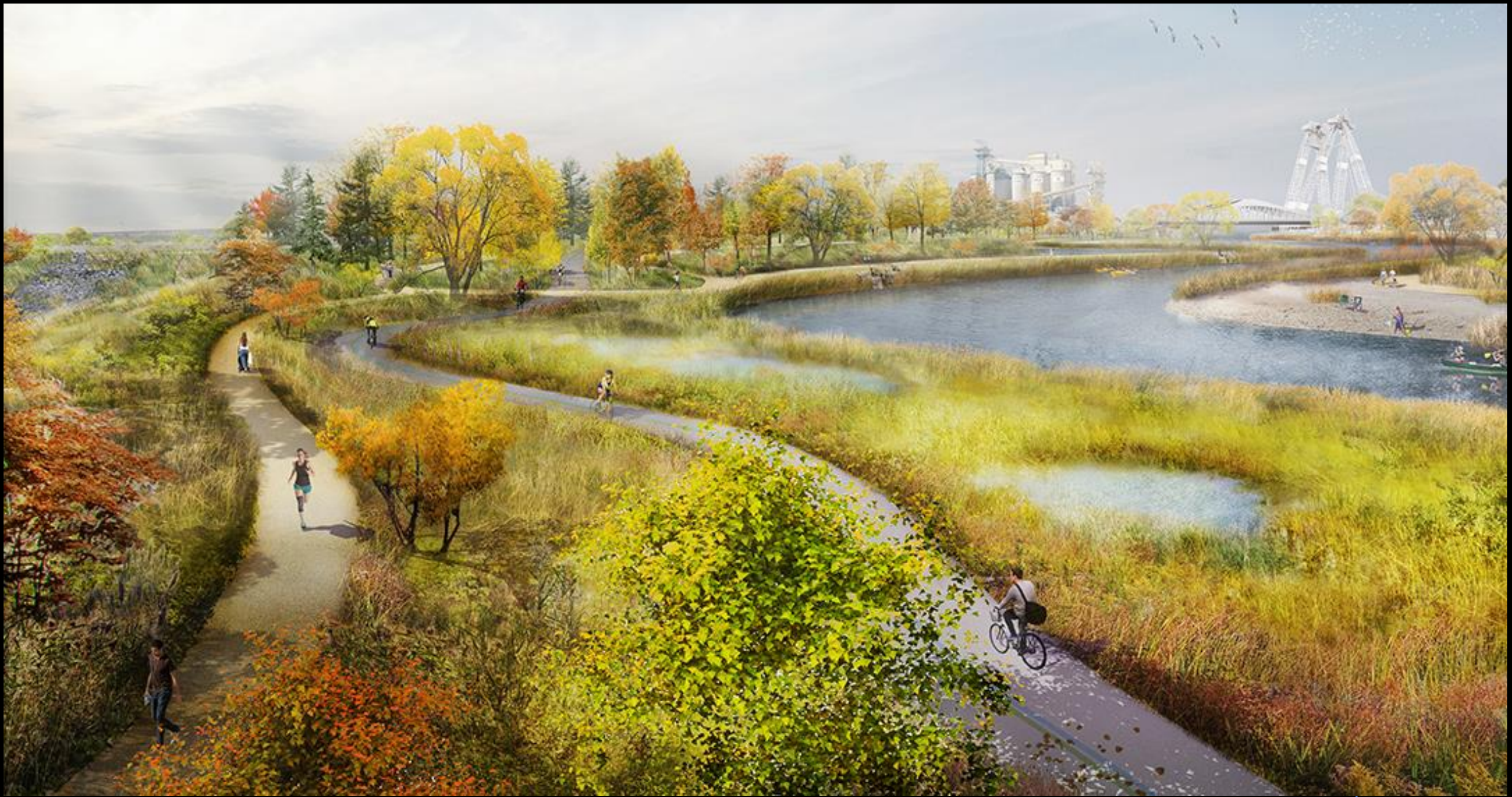


Photos courtesy of Christina Bright



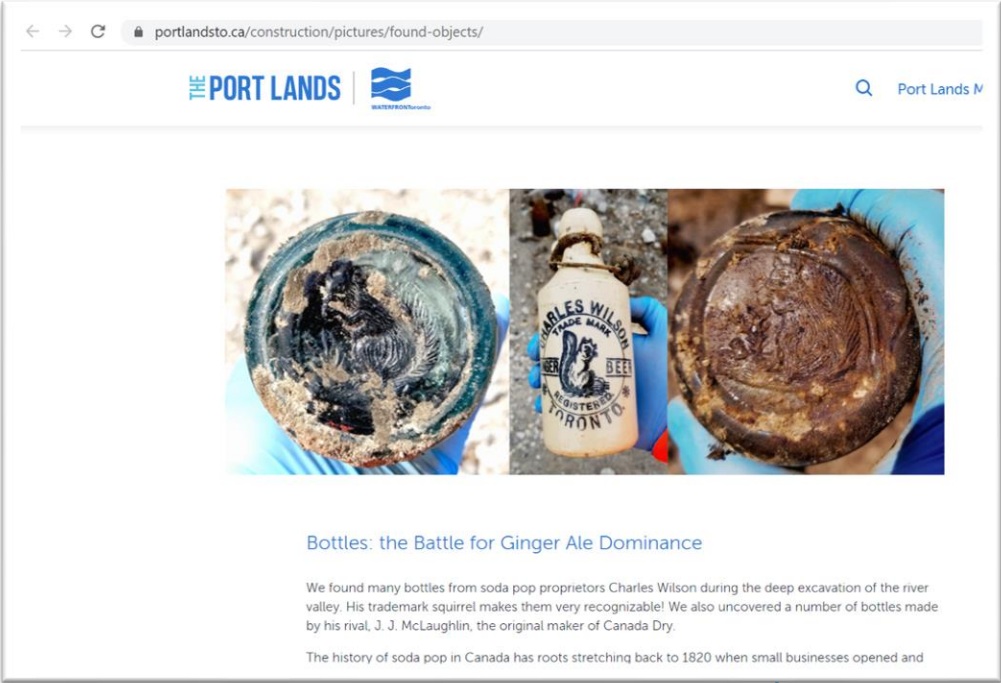
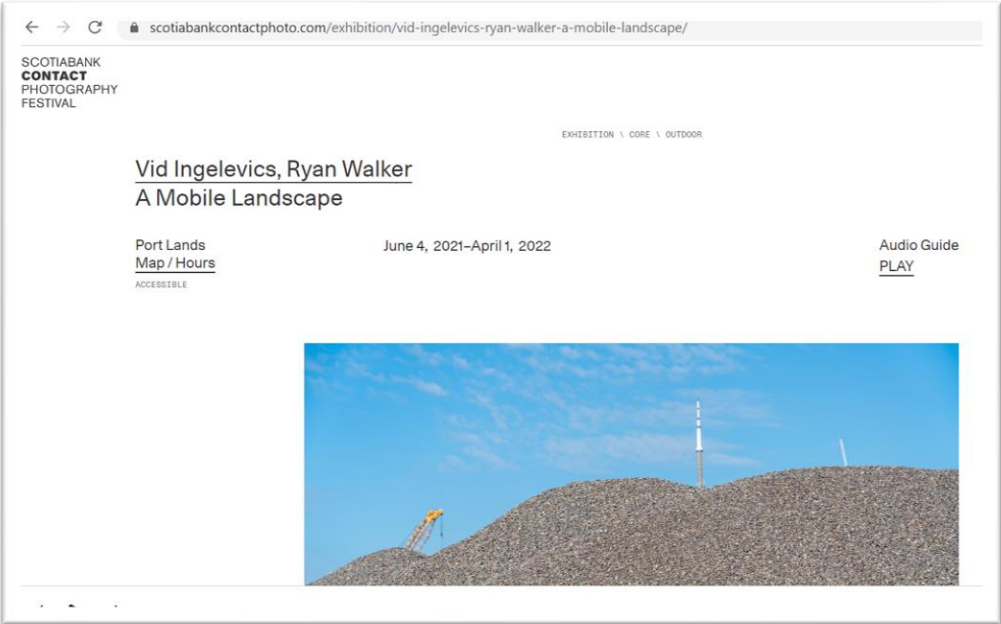
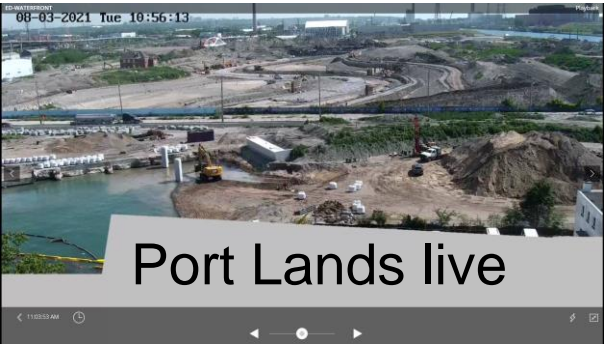
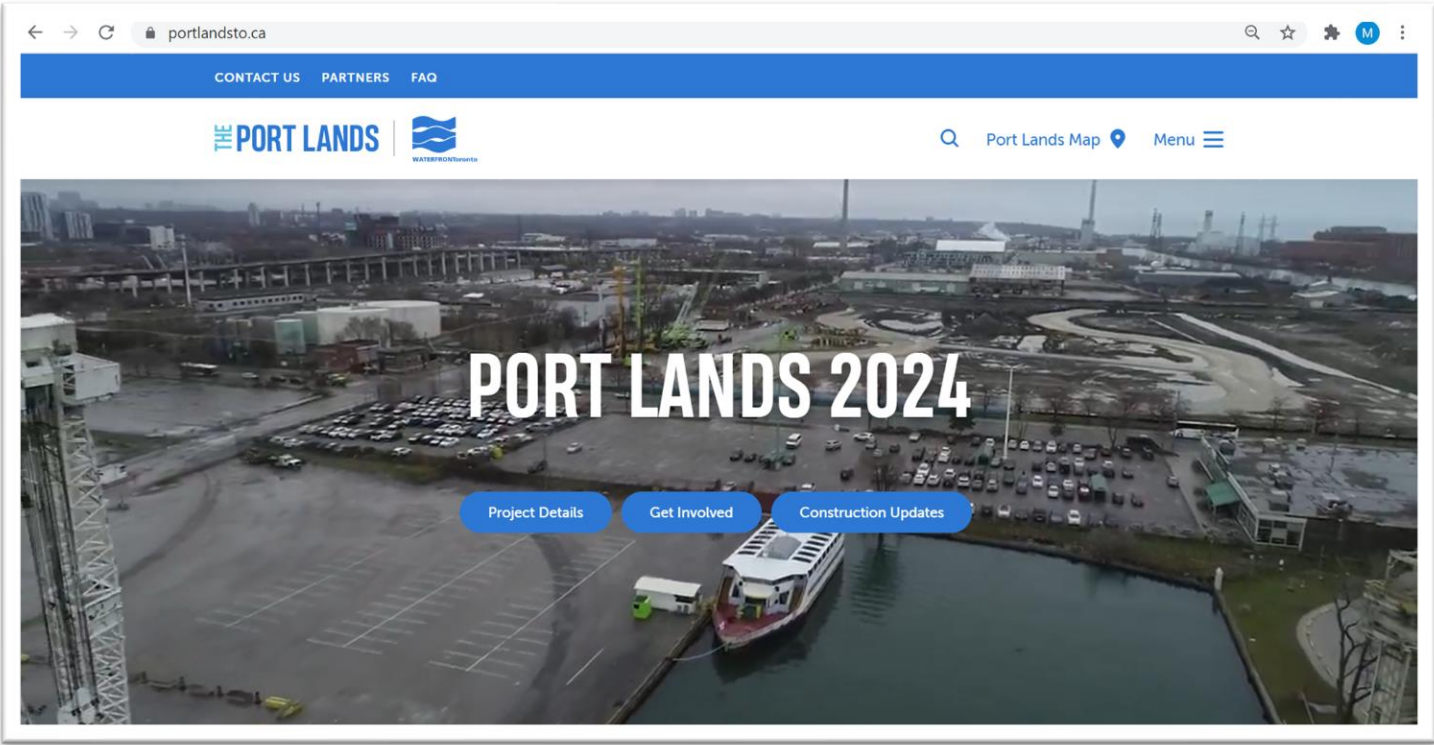








Want to know more?



Thank you!

Questions?

www.trca.ca

Upcoming ECS Lunch and Learns!

Tuesday, September 14
11:00am-12:00pm

TRCA's Road Ecology Program

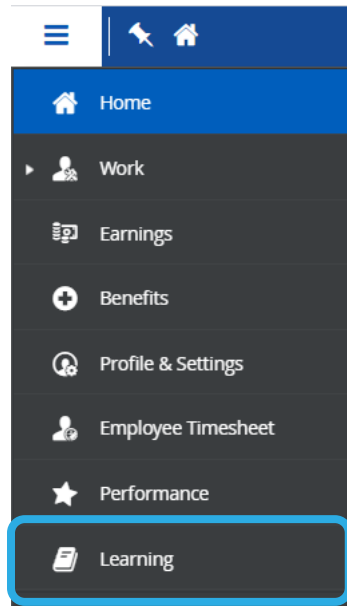
By Lyndsay Cartwright,
Andrew Chin, and
David Lawrie


Tuesday, October 26
11:00am-12:00pm

Carruthers Creek Watershed Plan

By Tony Morris

Learning Management System



 Course Catalog

CATEGORIES


FILTERS

Lunch and Learn

X

Q

4 items




New

Lunch and Learn: Teams, OneDrive and SharePoint

EN

Webinar




New

Lunch and Learn: Hobbies for Mental and Physical Health (Please read...

EN

ILT (Instructor-Led Training)




New

Lunch and Learn: Thermal Imaging for Restoration and Conservation

ENROLLED
EN

Webinar



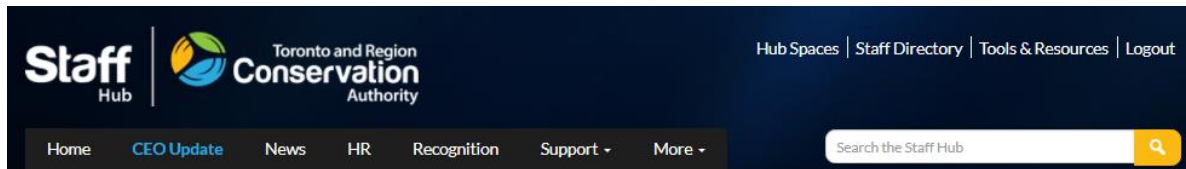
New

Lunch and Learn: Natural Heritage System Update

ENROLLED
EN

Webinar

Scientific Knowledge Sharing Hub



[Home](#) > [Scientific Knowledge Sharing](#)

Scientific Knowledge Sharing

Evidence-based decision making is at the core of what TRCA does. Several of our Business Units engage in generating new scientific knowledge to support watershed management actions and decisions.

It is critical that the knowledge generated is effectively shared.

The Scientific Knowledge Sharing platform is dedicated to sharing the latest scientific knowledge generated by TRCA and our partners. It is a place where staff can learn about and engage in the scientific work TRCA is undertaking.

PLEASE NOTE: There are several TRCA teams engaged in generating new scientific knowledge. Currently the content on the platform is specific to the Watershed Planning and Ecosystem Science business unit. Additional content from other TRCA teams will be added as the platform develops.



Knowledge Sharing: Learn More

- [Watershed and Ecosystems Reporting Hub](#)
- [Environmental Monitoring](#)
- [Research and Science Working Group](#)
- [TRCA Research Agenda](#)
- [Development and Engineering Services Hub Space](#)

[SUBMIT A RESOURCE](#)

[GET E-MAIL UPDATES](#)

....

Knowledge Sharing: Latest Updates

[Knowledge Sharing - Climate Change Analysis at the Local Scale](#)

April 19, 2021 by Hub Admin [Featured](#)

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[Presentations to Partners](#) +

[Reports and Technical Papers](#) +

[Scientific Papers](#) +

[Technical Protocols & Best Practices](#) +

[Videos](#) +

[Webinars and Lunch & Learns](#) +

Past Recordings

Watersheds and Ecosystems Reporting

Draft Web Application

Laura Del Giudice, Senior Manager, Watershed Planning & Reporting
Kristina Dokoska, Project Coordinator, Ontario Climate Consortium

September 21, 2020

Introduction to the LID Treatment Train Tool

Presented by – Steve Auger, Sahila Abbasi and Yvan David

November 5, 2020

TRCA's Recent Floodplain Mapping Updates

Wilfred Ho*, Christina Bright*, Mike Todd**

* Flood Risk Management, Development & Engineering Services
** Information Technology & Records Management

November 10, 2020

Working with Indigenous Communities

Lunch and Learn

November 17, 2020

Green Infrastructure in Asset Management Planning

Presented by: Michelle Sawka, Senior Research Scientist
Tracy Timmins, Research Analyst
Ecosystem and Climate Science

December 8, 2020

Explore TRCA's Biodiversity

How to get the most from our enormous natural heritage data set.

Presented by: Gavin Miller, Flora Biologist, Paul Prior, Fauna Biologist, and Parth Sheth, GIS Technician.

December 17, 2020

Evaluating the effectiveness of fish habitat restoration across the Toronto waterfront

Kaylin Barnes¹, Lyndsay Cartwright¹, Rick Portiss¹, Jon Midwood¹, Christine Boston², Monica Granados¹, Thomas Sciscione¹, Colleen Gibson¹, Olusola Obembe¹

ECS Lunch and Learn
January 14, 2021

¹ Toronto and Region Conservation Authority
² Fisheries and Oceans Canada
³ PIREview.org

Erosion Risk Management Program

Lunch and Learn Presentation

Presented by: Matt Johnston, Associate Director
Ashour Rehana, Manager
David Gingerich, Analyst

January 27, 2021

The Meadoway

Research Overview

The Meadoway
COMMUNITY POWERED GREEN SPACES

Presented by: TRCA

TRCA's Natural Heritage System Update

Presented by: Namrata Shrivastha, Senior Research Scientist
Andrew Cline, Research Analyst
Ecosystem and Climate Science
Watershed Planning and Ecosystem Science | Development and Engineering Services

24 Mar 2021

Thermal imaging for ecosystem conservation and restoration

Jonas Hamberg
Visiting Postdoctoral Fellow
TRCA (ECS) & University of Toronto
Advisors: Jonathan Ruppert & Patrick James (UofT)

Credit: NASA/JPL

Lake Ontario Fish and Aquatic Ecosystem Health

- Eat Safe Fish:** A Collaborative Engagement with the Mississaugas of the Credit First Nation – by Valerie Francoella
- Don River Mouth Naturalization Project:** Restoration of Fish Habitat in Toronto - The First Piece in a Very Large Puzzle – by Angela Wallace
- From Rivers Downstream to Lake Ontario:** 20 years of aquatic sampling through The Regional Watershed Monitoring and Toronto Waterfront Monitoring Programs – by Jan Moryk and Angela Wallace

Lake Ontario Restoration Initiatives

- Determining Practical Key Performance Measures for Wetland Restoration Practitioners:** Challenges and considerations – by John Stille
- RAP Delisting and the Adoption of the Integrated Restoration Prioritization Tool:** Compiling TRCA data on waterfront and inland restoration planning and projects within the Toronto Area of Concern – by Andrew Ramesbottom and Colleen Gibson
- Winning the War One Battle at a Time:** Managing phragmites and DSV at a Toronto waterfront park – by Jennifer Smith

Precision Biomonitoring Webinar Series:

PRECISION BIOMONITORING
—Intelligent DNA Solutions—

eDNA: Applications, Advantages and Implications!

May 12, 2021

Lunch and Learn

Wetlands, Warehouses or Both? – The Story of Project Lonerast and the Lower Duffins Wetland Complex.

Presented by: Steve Heuchert, Development Planning and Permits
Shauna Fernandes Chagani, Planning Ecology

May 12, 2021

Long-Term Monitoring of Lake Ontario Coastal Wetlands Reveals Distinct Water Quality Profiles Associated with Hydrogeomorphic Type

Kathryn Thomas¹, Krista Chomicki², Andrea Kirkwood¹

¹ Ontario Tech University
² Toronto and Region Conservation Authority

Watershed and Ecosystems Reporting Hub

Introduction and Demo of TRCA's New Reporting Hub

Presented by: Shari Dahmer
Project Manager, Watershed Planning & Reporting

June 23, 2021

TRCA Water Resource System

Methods and analysis for delineating Key Hydrologic Features & Areas

Presented by: Jonathan Ruppert, Research Scientist, Ecosystem & Climate Science, WPES, DES

July 14, 2021

The background of the slide is a photograph of a river, likely the Don River in Toronto, with a bridge spanning it. The river is surrounded by lush green trees, and the bridge's reflection is visible in the water. The text is overlaid on this image.

Thank you

For questions about the ECS Lunch and Learn Series, please contact:

Sharon Lam
sharon.lam@trca.ca