

Four Mile Creek Integrated Watershed Management Plan

OPEN HOUSE

Niagara-on-the-Lake Community Centre

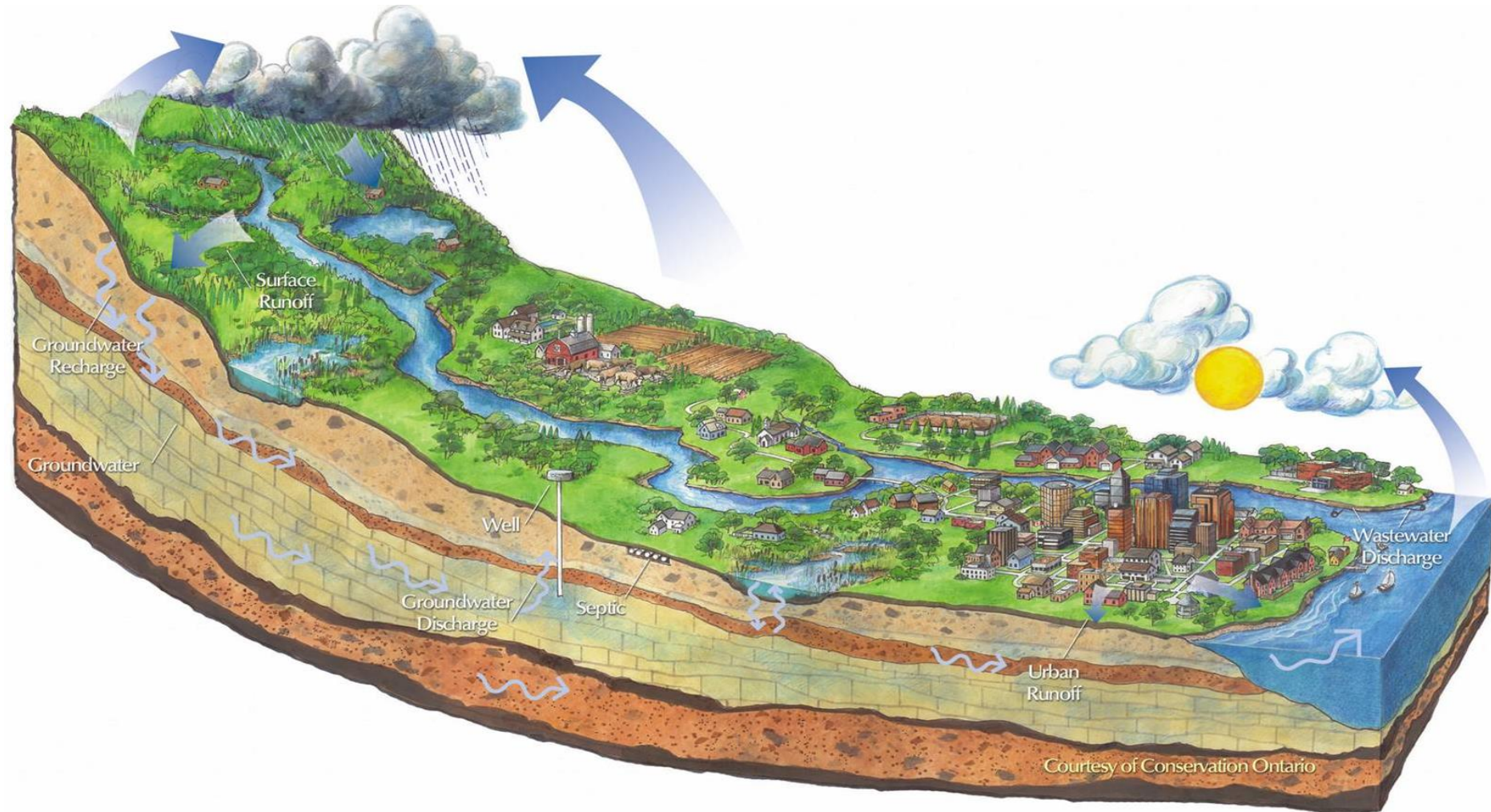
JUNE 17, 2026



AGENDA

- Opening Remarks & Housekeeping
- Presentations
- Breakout Group Discussion
- General Q&A
- Closing Remarks
- Informal Discussion /Networking

WHAT IS A WATERSHED?

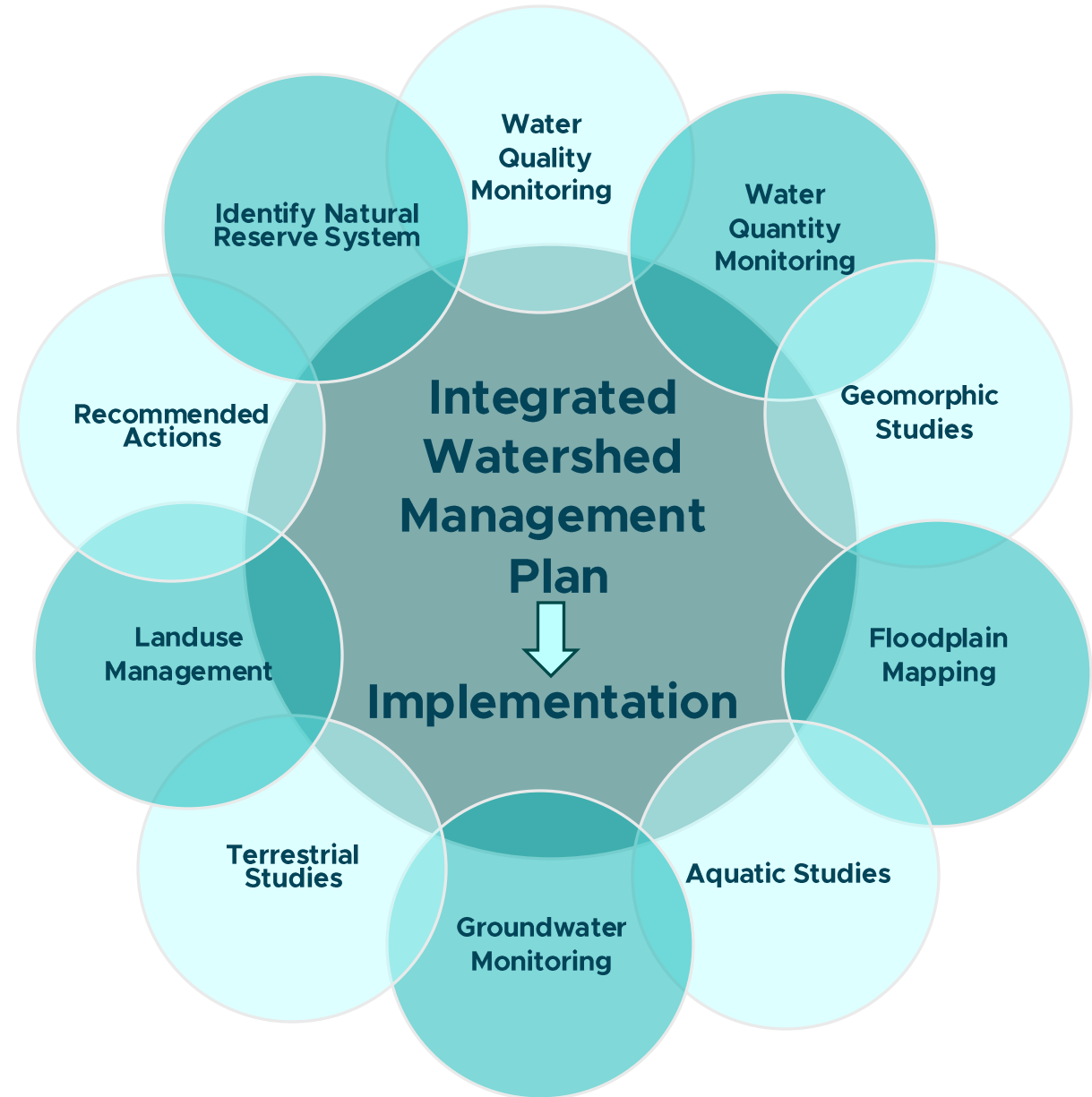


FOUR MILE CREEK INTEGRATED WATERSHED MANAGEMENT PLAN STUDY AREA



WHAT IS INTEGRATED WATERSHED MANAGEMENT PLANNING?

- *An approach that aims to manage human activities and natural resources together within a specific watershed*



CONCEPTUAL OVERVIEW OF IWM PLANNING PROCESS



Project Kickoff & Planning



- Kick off meeting
- Engagement Plan
- Funding Applications
- Work Planning

2025



Watershed Characterization

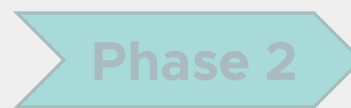


- Background Characterization
- Enhanced Surface Water Quality Monitoring Program
- Stream Assessments
- Floodplain Mapping

2025-2027



Technical Studies



- Technical Studies-fill data gaps
- Floodplain Mapping Rollout
- Development review

2027-2029



IWM Plan Development



- Draft report
- Work planning
- Recommendations and Prioritization

2028-2029

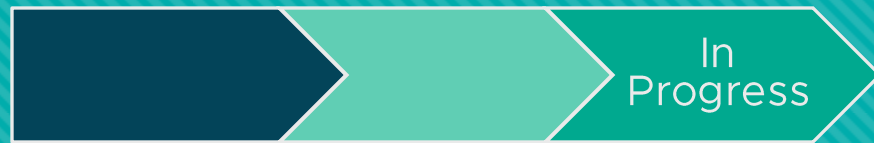


IWM Plan Implementation



- Risk & Return on Investment Pilot
- Restoration/Aquatic & Terrestrial
- Any Recommended Actions

TBD



Background Characterization

OBJECTIVES

a. Integrated Characterization: Current Conditions

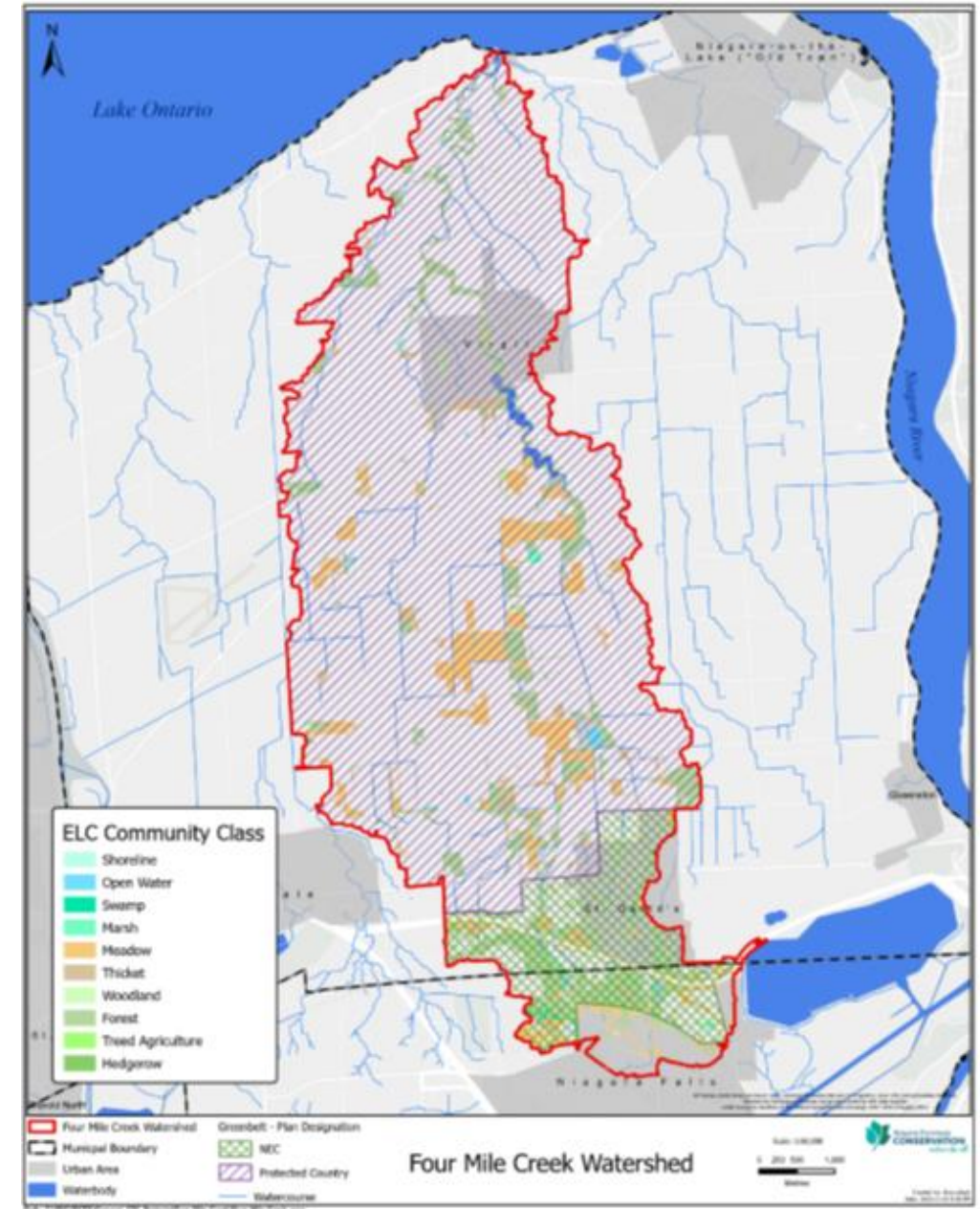
b. Gap Analysis: Knowledge and Data Gap Identification

c. Future Proofing: Climate Change Lens

*** ‘...ensure that the subsequent stages of the IWMP are built on accurate, defensible, and high-quality data that reflects the current realities of the Four Mile Creek community and its ecosystems’. GeoProcess 2026*

CHARACTARIZATION COMPONENTS

- **Physical Description:**
 - Topography
 - Geology,
 - Physiography
 - Soils
- **Water Resource Framework:**
 - Surface Water Inventory
 - Municipal Drain and Irrigation System
 - Drainage Pattern and Hierarchy
 - Stream Morphology
 - Water Quality Monitoring Network
 - Groundwater Resources
 - Water Quantity Network
 - Fish and Aquatic Habitat
- **Natural Heritage Framework:**
 - Ecological Land Classification Breakdown
 - Identify Significant Areas
- **Current and Proposed Land Use Characterized**
- **Climate and Climate Change Projections**
- **Issues Identification and Prioritization**
- **Data Gaps / Recommendations**



CHARACTARIZATION TIMELINE

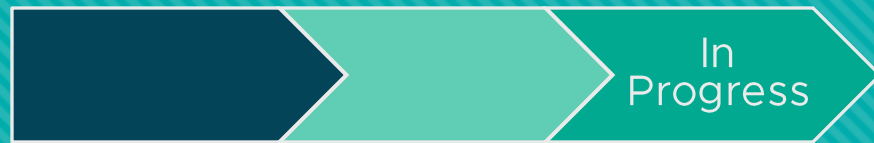
KEY MILESTONES

**April
Kickoff**

**June
PIC #1
Introduction/
Issues
Identification**

**September
Pic#2
Project
Overview/
Next Steps**

**October Draft
Report**



Surface Water Quality Monitoring

ENHANCED SURFACE WATER QUALITY MONITORING PROGRAM

- 5-year surface water chemistry program
- Nine monitoring locations throughout watershed
- General chemistry, metals, nutrients and bacteria
- Quarterly sample frequency (seasonal and wet weather) for proposed sites and Virgil Reservoir
- Each station will be bio-assessed using stream benthic macroinvertebrates
- Sampling results will identify any potential water quality issues or parameter specific hot spots





Stream Assessments

STUDY AREAS

**Lower Four Mile Creek
(minus Virgil Reservoir);
completed 2025**

**Upper Four Mile Creek;
completed 2022**



RAPID GEOMORPHIC ASSESSMENT (RGA) VS RAPID STREAM ASSESSMENT TECHNIQUE (RSAT)

RGA: Measures stream stability by looking at processes like sediment buildup (aggradation), erosion (degradation), channel widening, and changes in channel shape.

RSAT: Gives an overall view of stream health by looking at its ecological functions. RSAT scores rate the stream as poor, fair, good, or excellent.



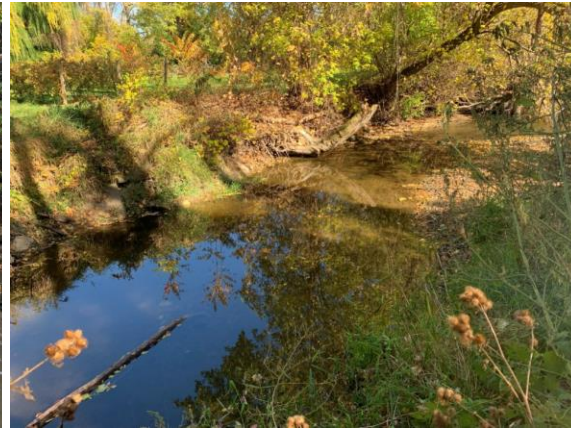
STREAM ASSESSMENT

- Photographs of:
 - Areas of erosion
 - Hazards to people or property
 - Restoration opportunities
- Priority areas identified
- Mitigation options
- All fallen trees and obstructions identified



HOW WILL THIS BE USED?

- The data will inform future technical studies
- Inform prioritization for remediation
- Inform work planning and budgeting needs



Not Started

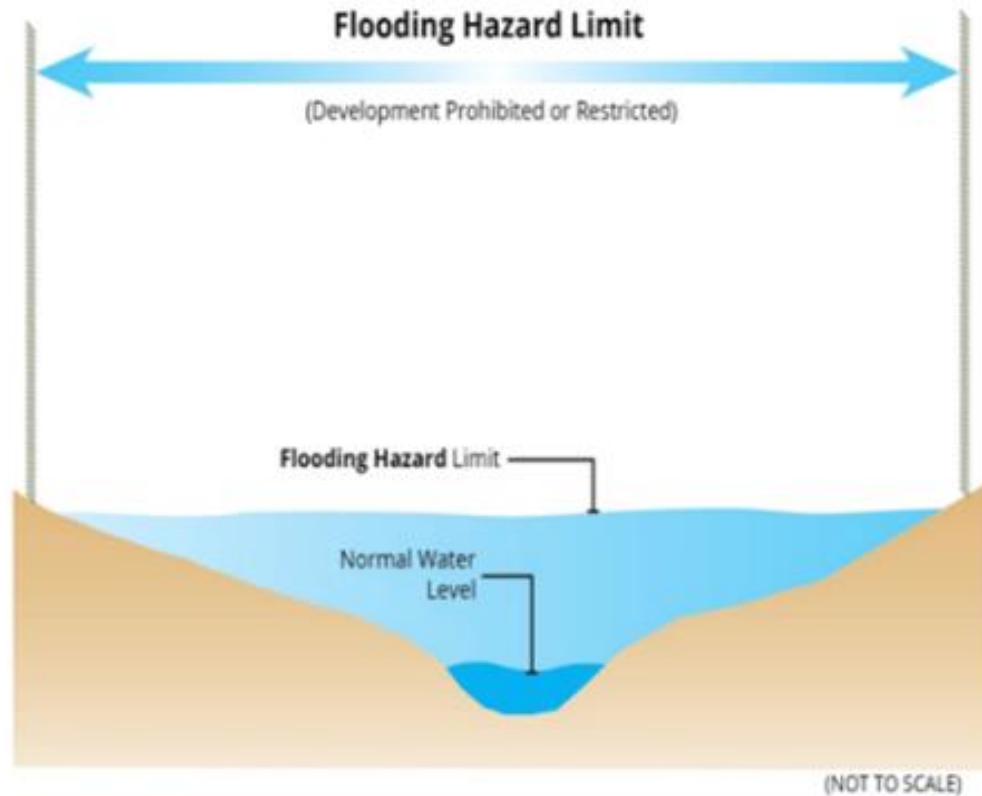
Floodplain Mapping

REDUCING RISK

- NPCA is mandated to **protect people** and **property** from natural hazards including flooding and erosion
- **Regulate** development within hazardous areas like **floodplains**



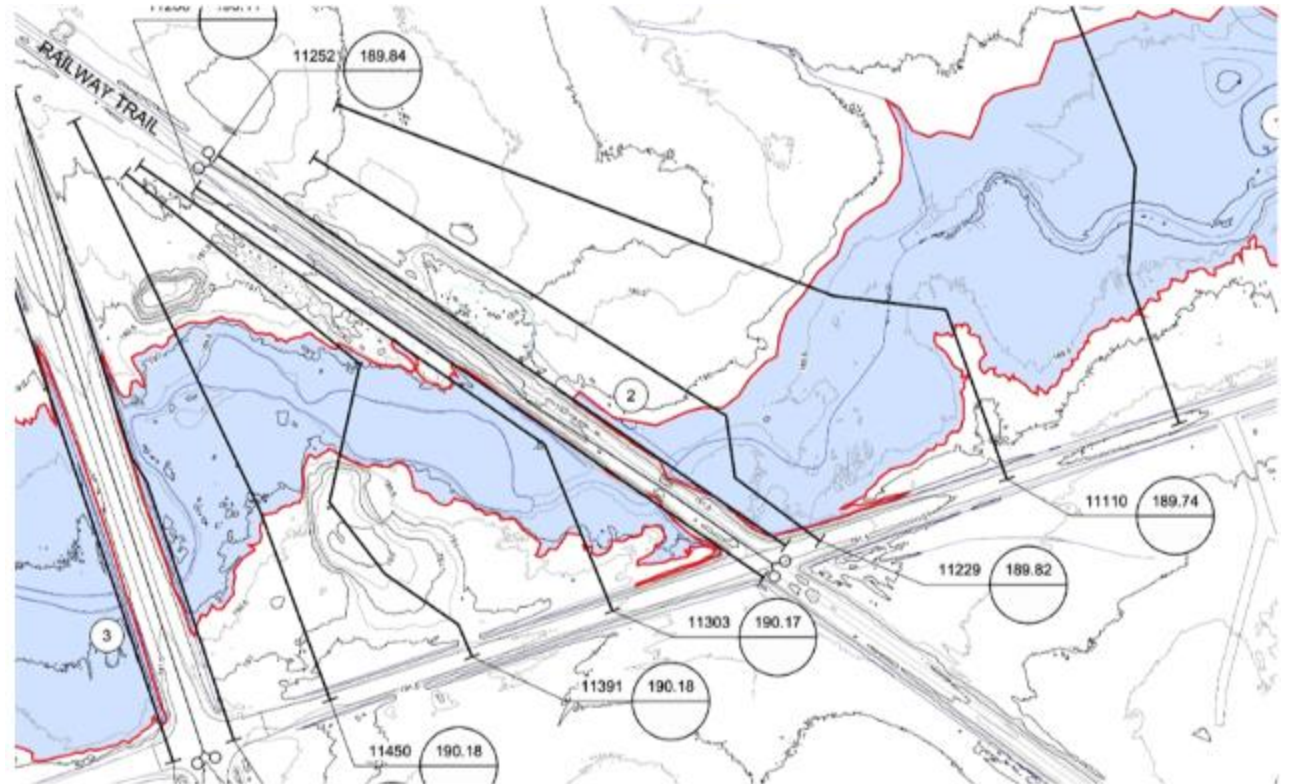
WHAT IS A FLOODPLAIN?



- Floodplains are areas near a watercourse that have been or may be **subject to flooding**.
- The **regulatory** floodplain on Four Mile Creek is delineated using the **100-year flood**
 - **1% chance** of occurring every year

FLOODPLAIN MAPPING

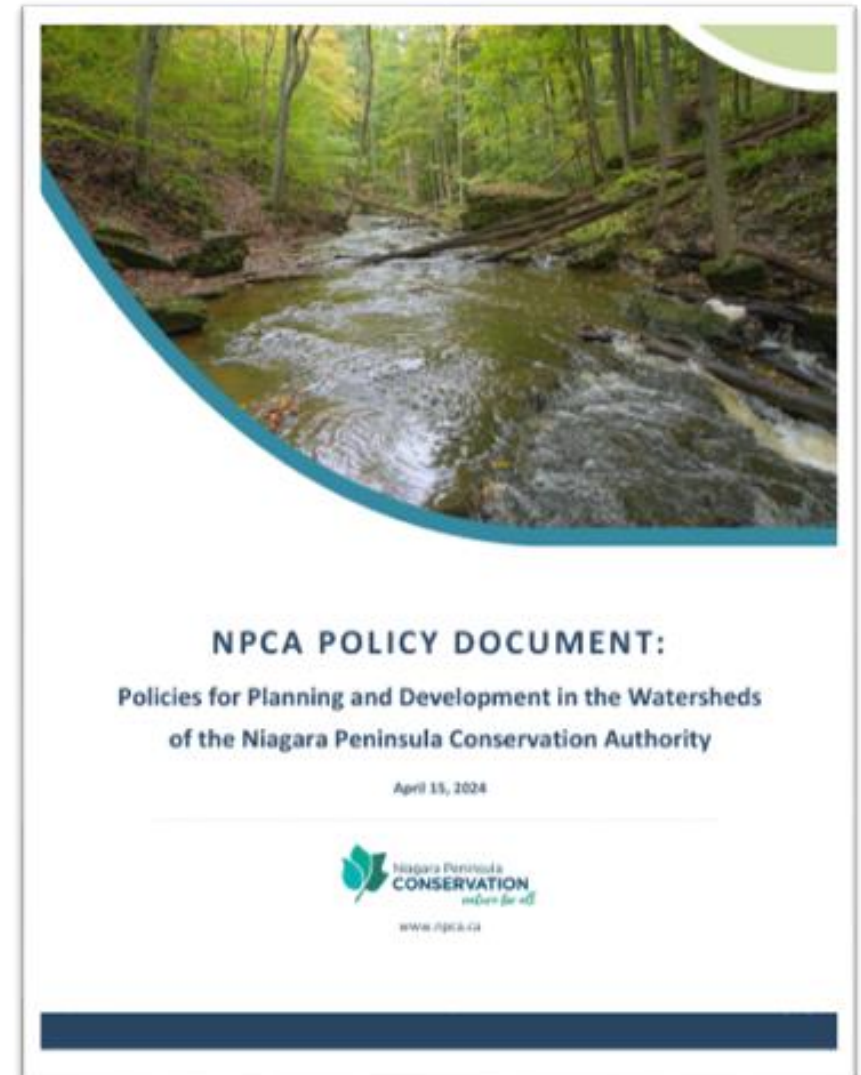
- Identifies the regulatory floodplain
- Development in a floodplain
 - prohibited or severely restricted
 - requires a permit from NPCA
- NPCA will assess risk to help keep people and property safe



NPCA'S FLOODPLAIN POLICIES

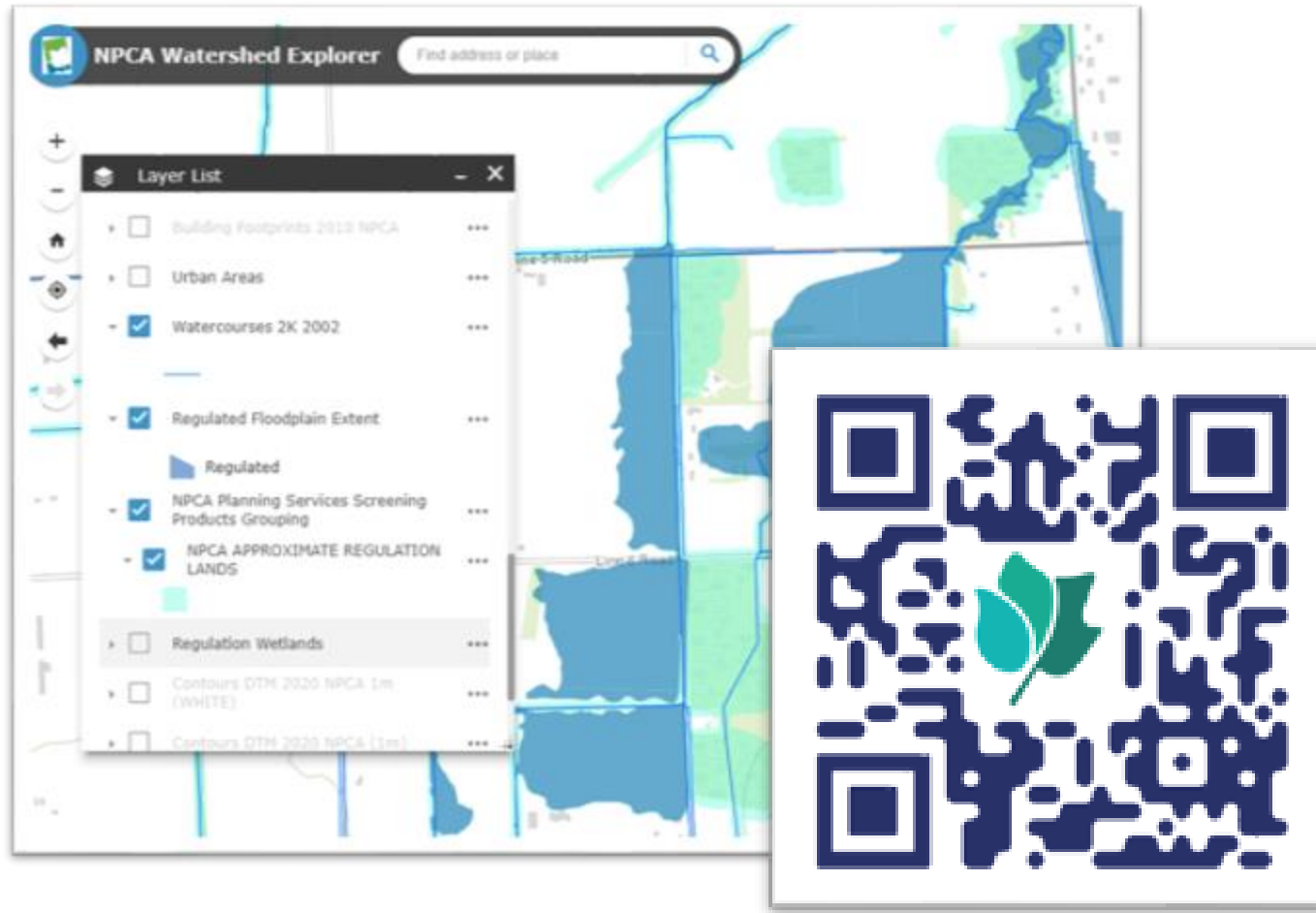
- NPCA's [Policy Document](#) includes policies for development proposed in floodplains
- Examples of [permitted](#) uses in floodplains include:
 - Replacing or minor expansion to [existing](#) buildings*
 - [Agricultural uses](#), and agricultural buildings and structures*
 - Some infrastructure
- [Contact NPCA](#) early if you're planning work

* Provided the uses are unlikely to sustain damage from flooding, are unlikely to make flooding worse, or put people at more risk



AM I IN A FLOODPLAIN?

Check NPCA's [Watershed Explorer](#)



Please note:

- Mapping is for screening purposes only
- Some areas have unmapped floodplain
- Where mapping exists, field verification may be required
- When in doubt, [call the NPCA](#)

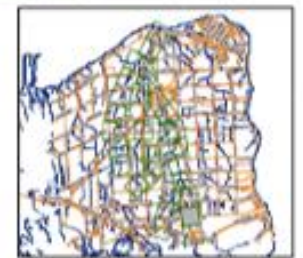
MAPPING UPDATES

- Four Mile Creek was mapped in 2008
- Since then:
 - Land use changes
 - Infrastructure improvements
 - More flow data
 - Better topography (lidar data)
 - Model improvements



FOUR MILE CREEK 100 YEAR REGULATORY FLOODPLAIN MAPPING

Sheet No.
4MC-12



AUGUST 2007

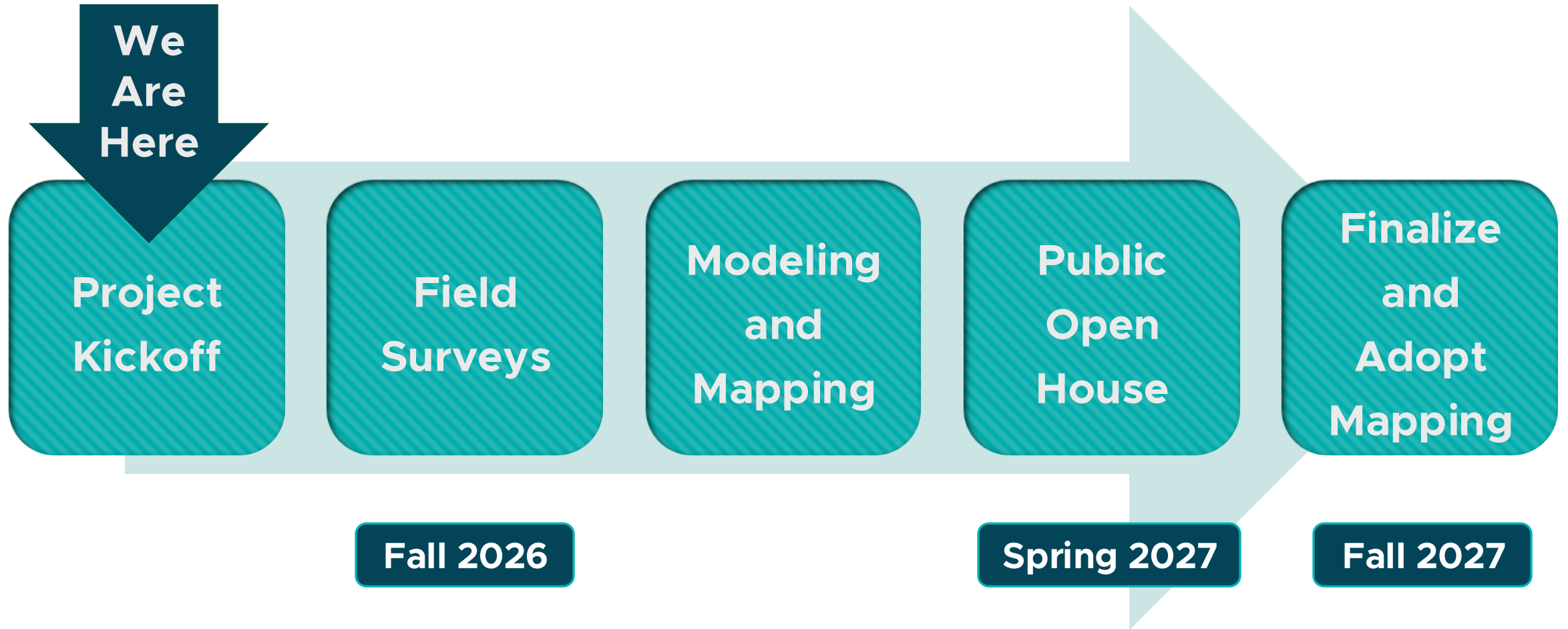


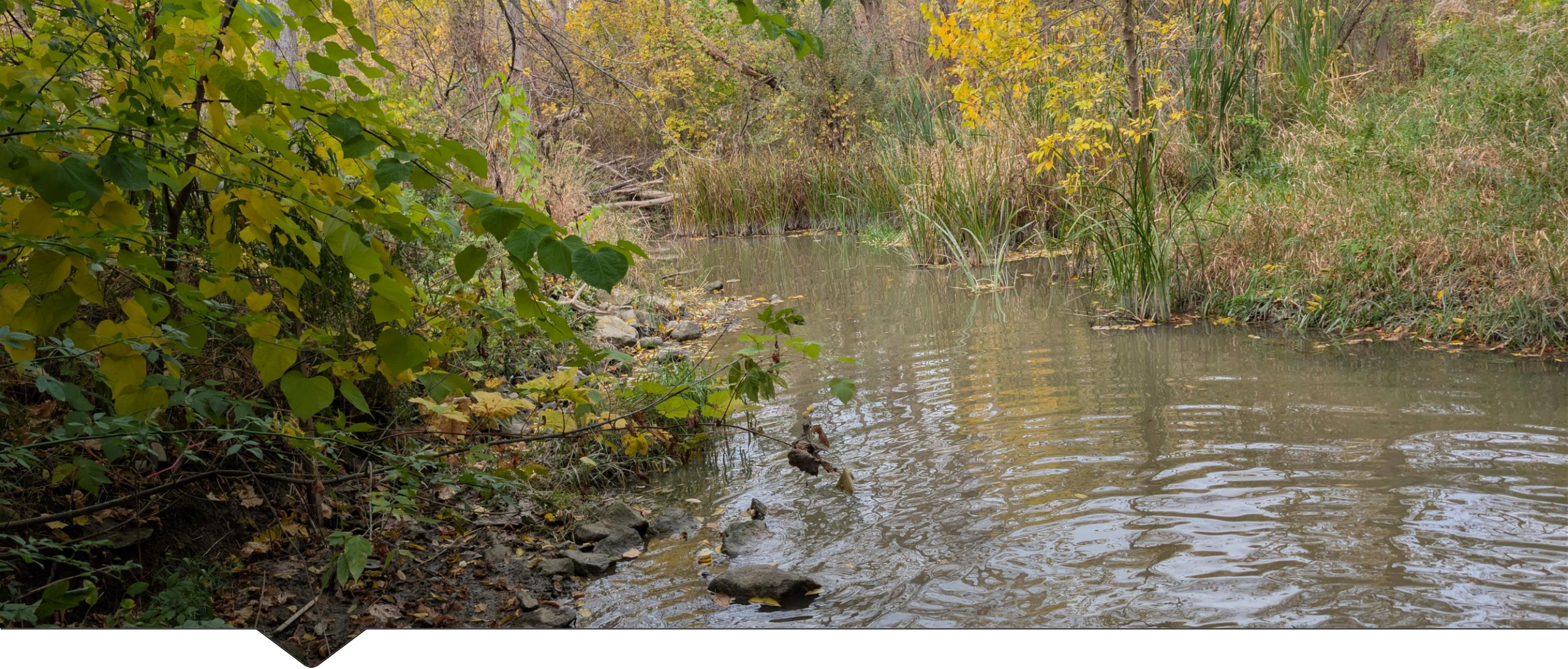
Notes

- 1) Prepared by Aquator Beecroft in order for NPCA
- 2) Input: Vector Shape and Contour provided by NPCA (June 2007)
- 3) Input: Station Elevation (March 2007)
- 4) Contour Interval: 1m (provided by NPCA)
- 5) Date: 17 October 2007 (4MC-12)



FLOODPLAIN MAPPING TIMELINE





QUESTIONS?

ASK AN EXPERT EXERCISE

Why We're Doing Breakout Groups

Your input tonight directly shapes this study - it feeds into the background characterization work and the priorities for implementation.

At each station, we're listening for two things: challenges you've noticed, and opportunities you see. Both matter equally. Everything you share will be documented and summarized in a What We Heard report.

ASK AN EXPERT EXERCISE

Tonight's Stations

Flooding - share what you've experienced or noticed about flooding in the watershed. The parcels on this map are to help provide feedback on potential remediation opportunities as well.

Natural Heritage and Restoration Opportunities - talk about valued natural areas and places that could be restored or enhanced

Erosion - discuss erosion-prone areas and locations where trees may be a concern, using maps built from our background studies

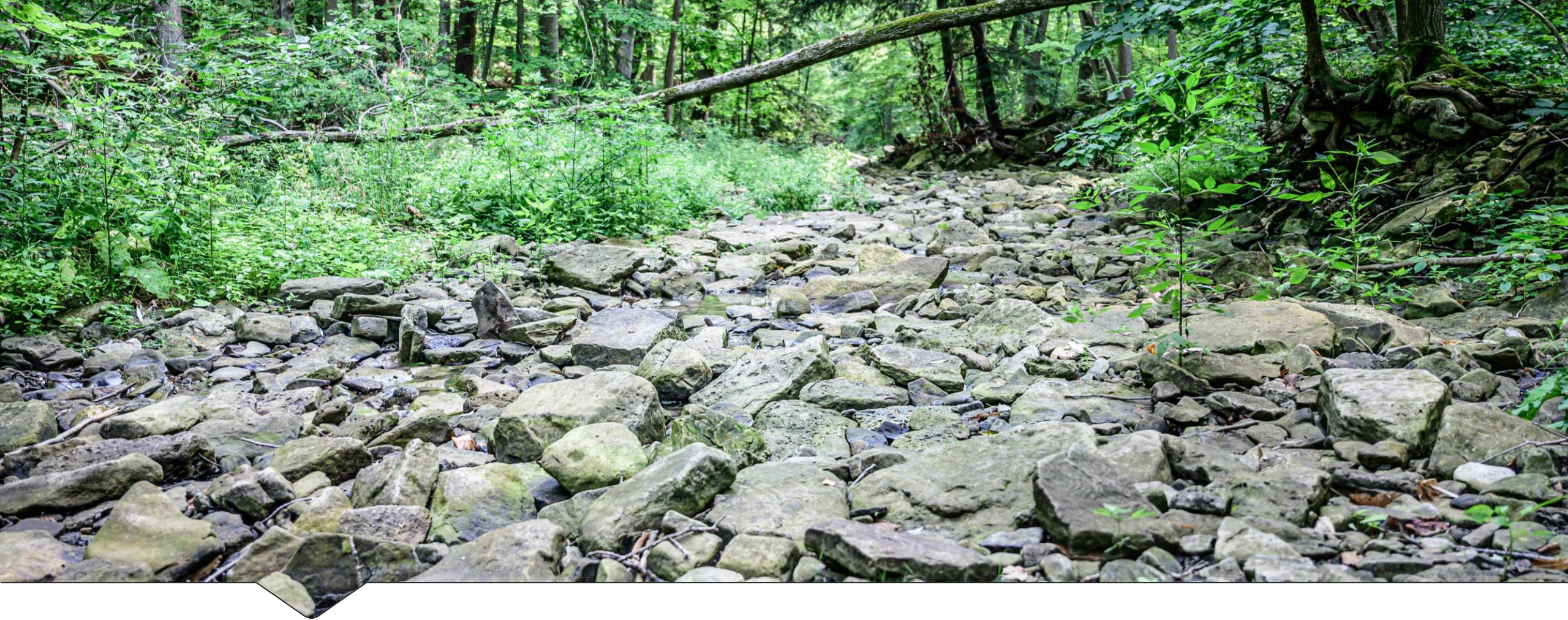
ASK AN EXPERT EXERCISE

How the Stations Work

Each station is built around a theme, with a large map where you can mark locations and ideas directly, sticky notes for jotting down thoughts, and a facilitator on hand to guide discussion and answer questions.

Each group will have approximately 10 minutes at each station

Groups stay where they are; facilitator will rotate.



WHAT WE HEARD!

GET INVOLVED & HAVE YOUR SAY

- What have you experienced on Four Mile Creek?
 - Send us [photos](#) or [videos](#) of historical flood events
- Visit our [portal](#) for project updates or to ask questions
- [Review](#) draft floodplain maps (spring 2027)



NPCA Get Involved Portal:

<https://getinvolved.npca.ca/four-mile-creek-watershed-plan>