

Welcome

to the

Public Open House for the Orbit Stormwater Master Servicing Plan



December 4, 2024
4:30-6:30pm
Innisfil Town Hall Community Room

Project Overview

What is the Orbit Stormwater Master Servicing Plan?

The Stormwater Master Servicing Plan, also known as MSP, is a document that will identify the preferred approach to manage stormwater in the new Orbit development. The MSP will provide direction to the developers as they complete the detailed design of the Orbit development.

What is the Orbit?

The Orbit is a new development that will be built around a proposed GO Station at 6th Line and 20th Sideroad. It will be developed in three (3) phases, including:

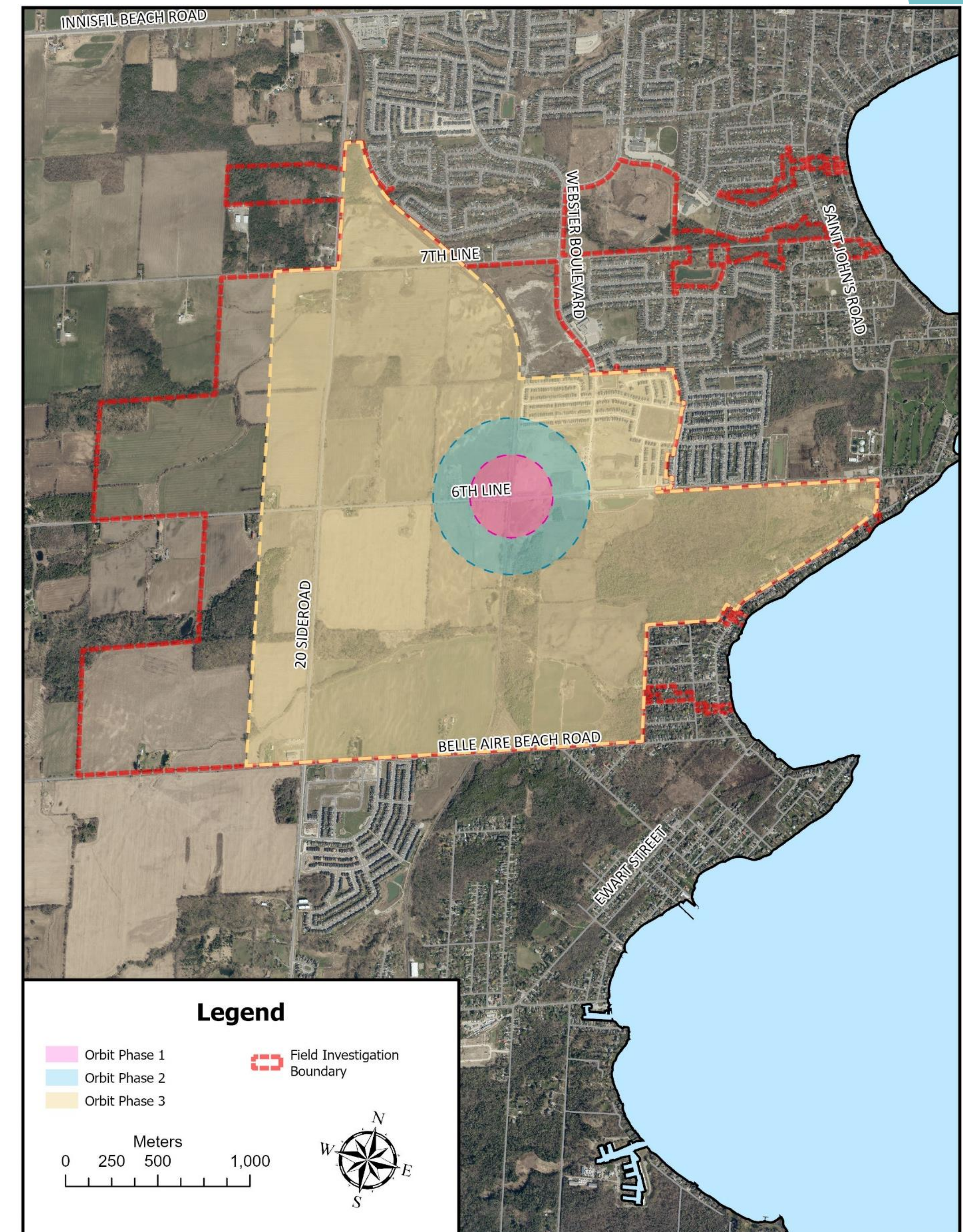
- Phase 1 - GO Station and development in a 225m radius around the station
- Phase 2 - development in a 425m radius around the station, not including Phase 1
- Phase 3 - development outside the 425m radius around the station

What will the Stormwater MSP include?

The MSP includes the following for Orbit Phases 1 and 2:

- Natural environment and wetland study
- Geomorphology and erosion study
- Updated computer modeling of water flows through the Orbit area and in Belle Aire Creek as well as Little Cedar Creek
- Updated flood risk mapping

The MSP will use these components to develop a comprehensive stormwater management strategy that considers the natural environment, erosion, and flood risks for Orbit Phases 1 and 2. Orbit Phase 3 is not included in this MSP right now.



Project Context

The Stormwater Master Servicing Plan is not the only study being completed in the Orbit area. The Stormwater MSP builds off previous studies. There are also other studies being completed at the same time as the MSP.



Study Process and Timeline

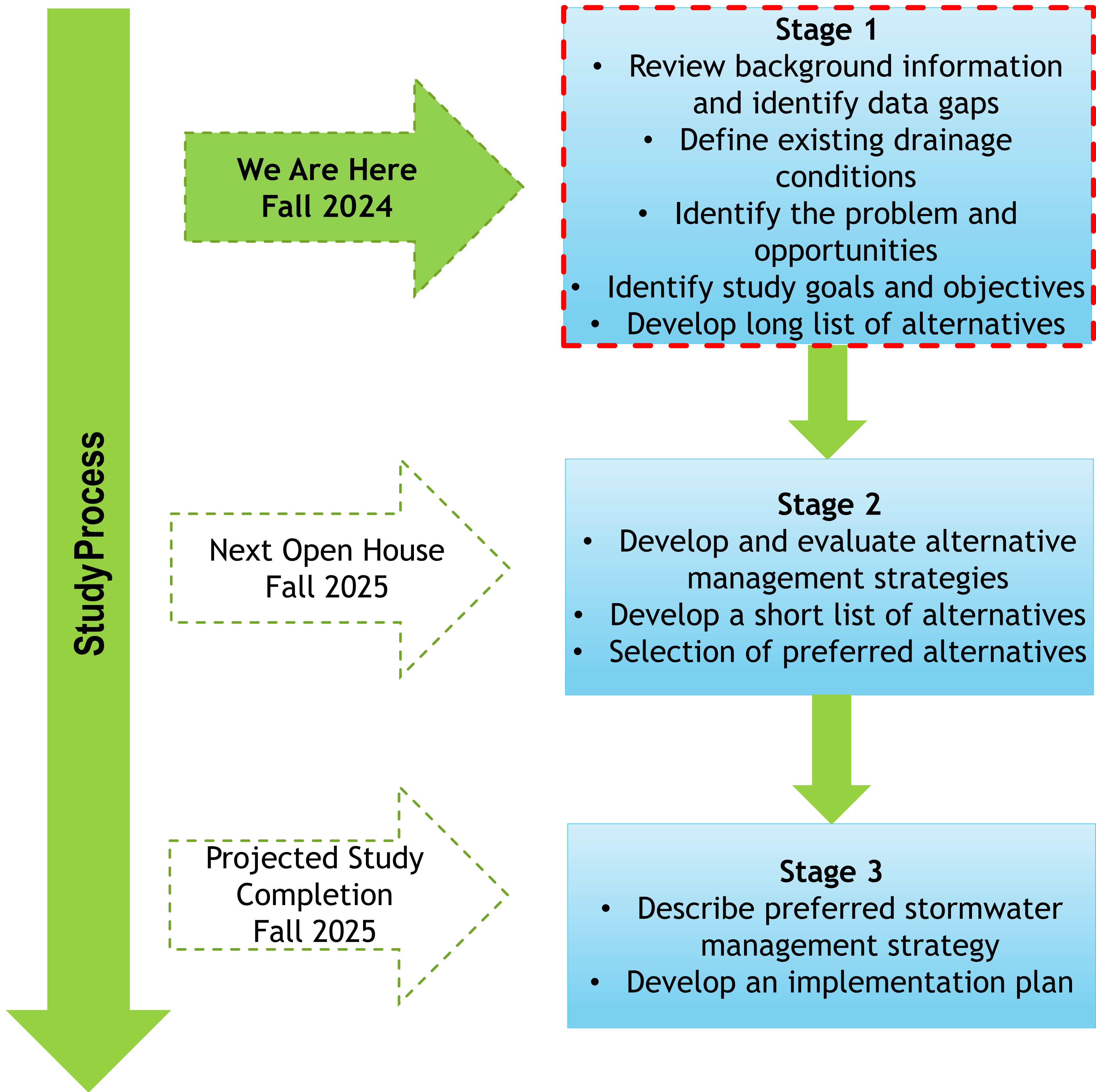
Where are we in the study process and when will you see us next?

What is the Municipal Class Environmental Assessment (MCEA)?

The MCEA helps plan municipal infrastructure while protecting the environment. It provides:

- an efficient way for the Town to provide municipal services which is economically and environmentally responsible;
- a process that is consistent and easily understood to help plan and complete infrastructure projects; and
- the flexibility to take into account local concerns, such as the environmental setting, public interests, and project needs.

This study follows the requirements for master plans under Approach #2. This approach fulfills all the MCEA requirements for Schedule B projects. It also identifies any Schedule C projects for future studies.



Project Overview - Key Facts About Stormwater Management

- The stormwater system includes storm drains (i.e. catch basins), pipes, ditches and treatment facilities.

- In Innisfil, the stormwater system is not connected to the sanitary system, and the water is not treated at wastewater treatment facilities.

- Types of treatment facilities include dry ponds, wet ponds, wetlands, hybrid ponds, subsurface storage, Low Impact Development (LID), and Oil and Grit Separators (OGS).

- These facilities work to reduce pollutants in the water and reduce flooding and erosion.

- Modern stormwater management practices require treatment before water is released to the creeks, rivers, tributaries, and lakes surrounding urban areas.



Stormwater management ponds collect and store stormwater to reduce flooding and erosion by limiting the release of water to nearby creeks and rivers.



Low Impact Development (LID) is a design practice that mimics natural water cycles by enabling water to infiltrate into the soil, where it can be filtered by soil and/or absorbed by plants.

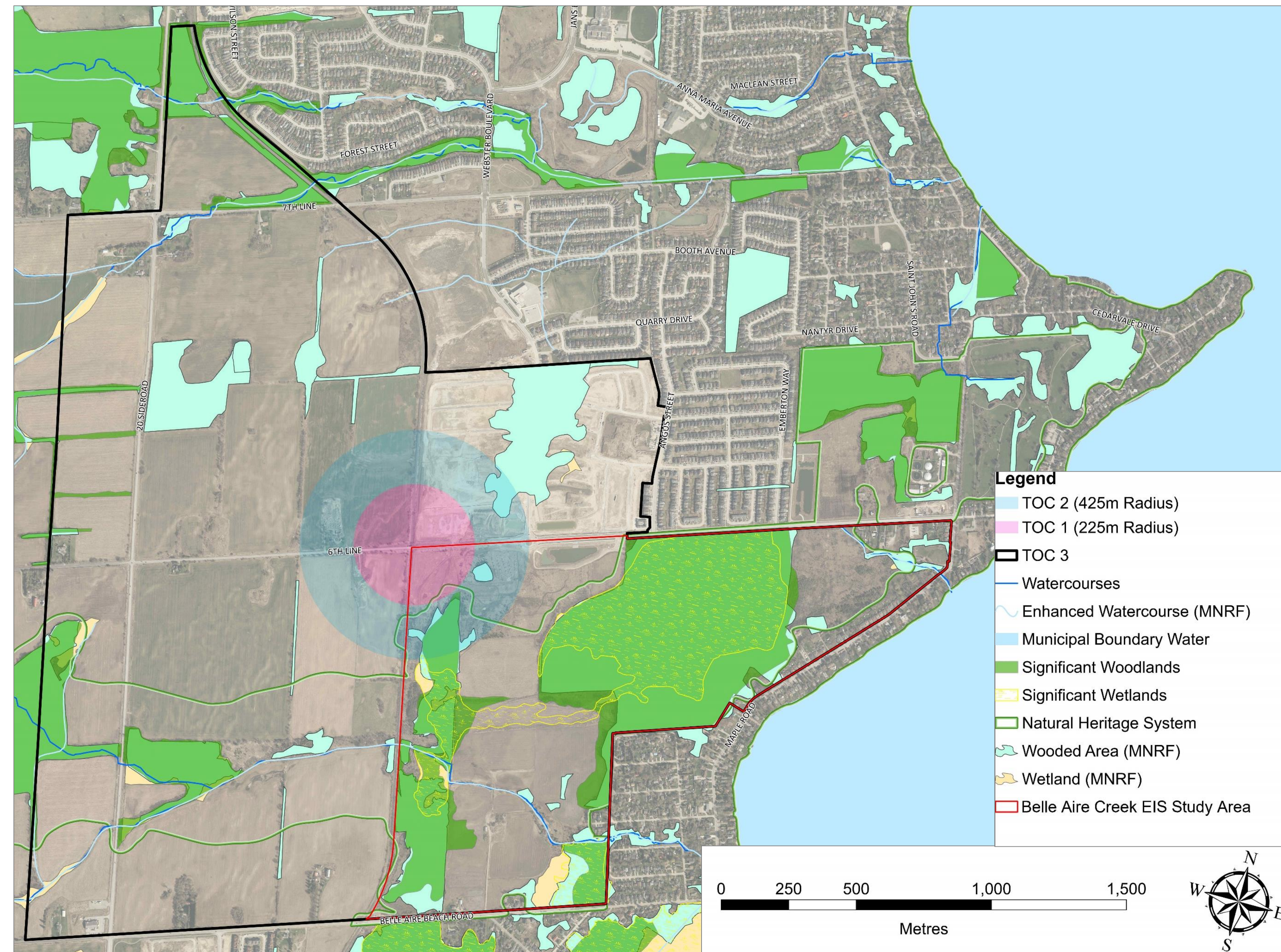


Oil and Grit Separators (OGS) are underground devices that are attached to storm sewer pipes. They remove sediment, screen debris, and separate floatables like oil and grease.

Existing Conditions - Natural Heritage

Scope of Work

- Master Plan study area evaluated via desktop analysis and aerial photograph interpretation
- Field investigations completed in the proposed Belle Aire Creek Diversion subset of study area:
 - Three-season botanical inventory and Ecological Land Classification
 - Breeding bird and amphibian surveys
 - Wetland review
 - Aquatic habitat assessment (Ontario Stream Assessment Protocol)
 - Incidental observations of other wildlife groups
 - Species at Risk and significant habitat screening
- Field investigations are complete, and results are being analyzed



Existing Conditions - Fluvial Geomorphology

What is Fluvial Geomorphology?

- Study of the processes associated with streams and rivers, including stream hydraulics and sediment movement.
- Understanding how such processes influence erosion, sedimentation, and flooding.

What does the Fluvial Geomorphic Investigation include?

1. Walking the creeks to confirm existing conditions
2. Tractive Force Analysis to determine Erosion Thresholds.
3. Identification of erosion sites and prioritization of those sites
4. Erosion hazard limits for watercourses
5. Monitoring program recommendations

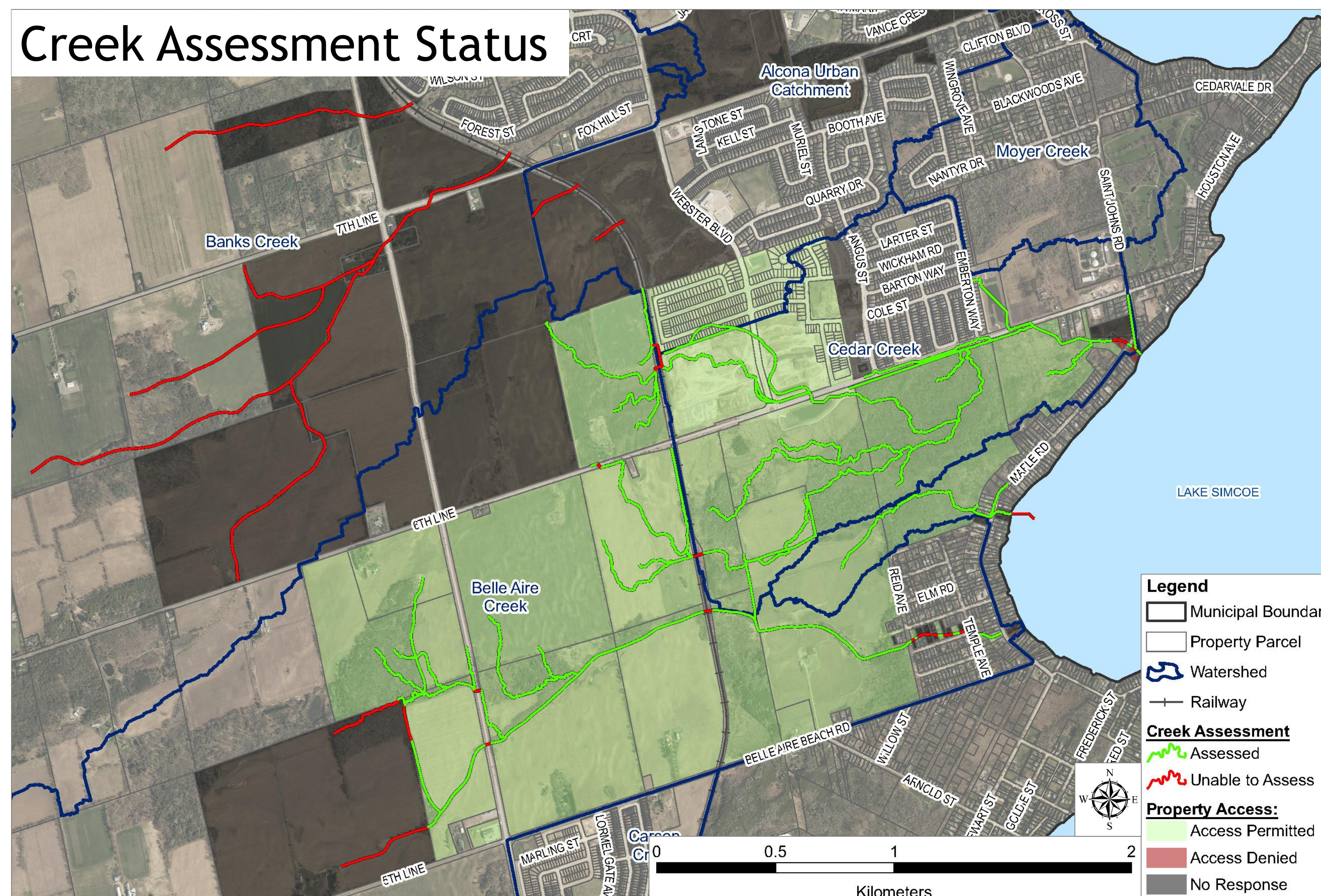
Creek walks concluded in November 2024. Tasks 2-5 are now underway.



Channel Example



Headwater Drainage Feature



Existing Conditions - Hydrology and Hydraulics

What is hydrology?

Hydrology is the study of rainfall and what happens to it after it falls. Some water soaks into the ground, and some runs off into creeks, rivers, and lakes.

What is hydraulics?

Hydraulics is the understanding of how water flows in a creek or river. This includes how fast and deep it flows, and whether it causes flooding.

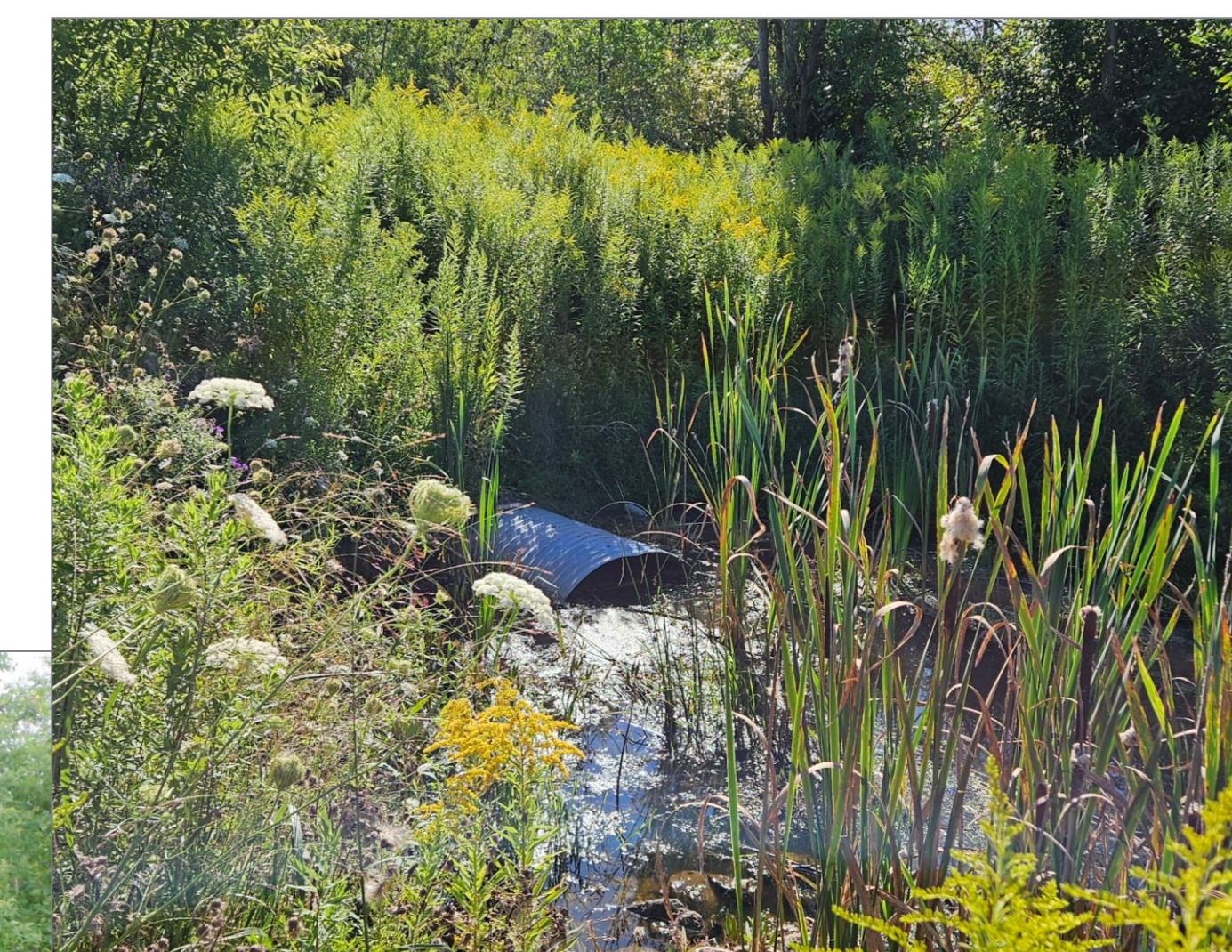
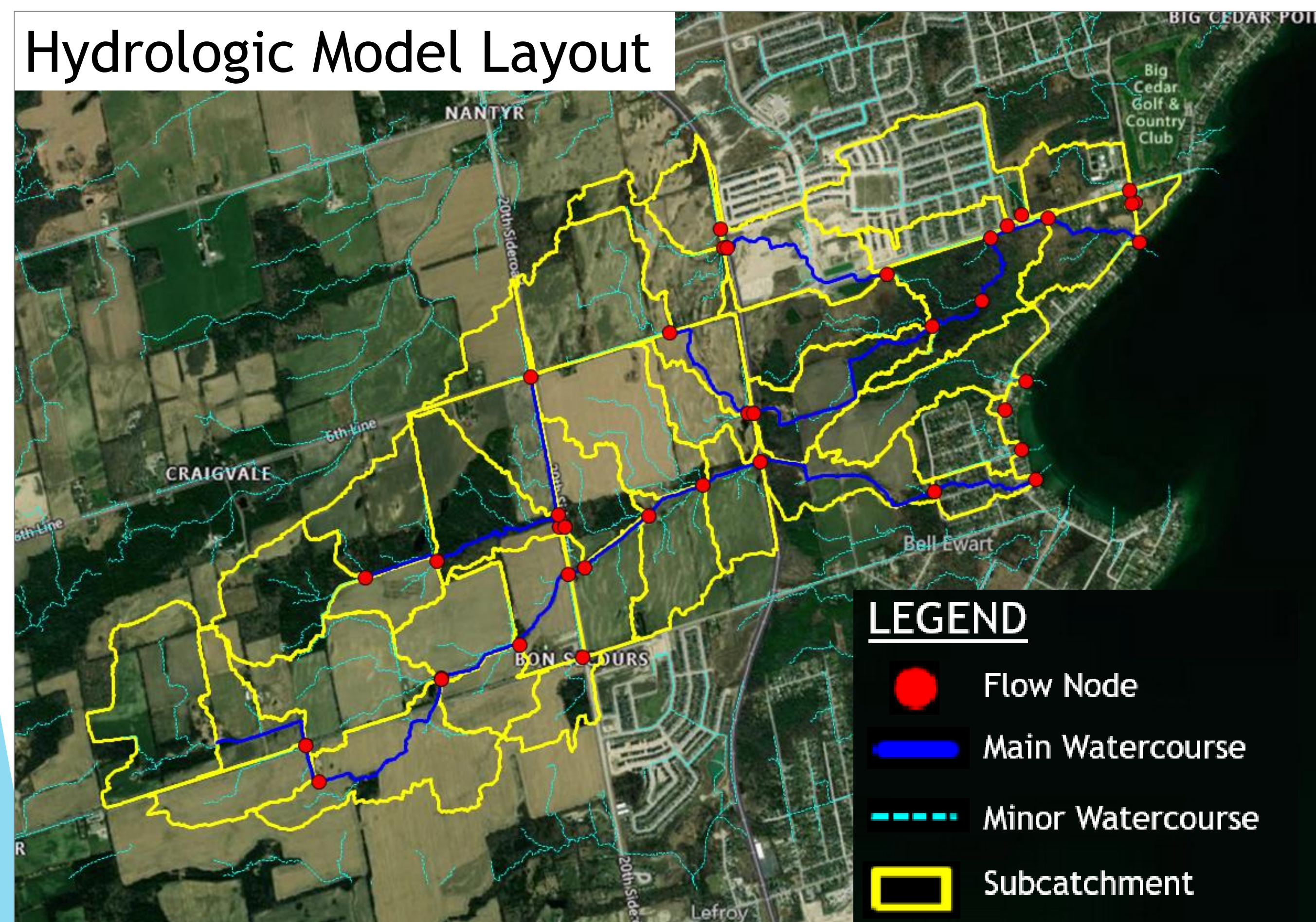
How is this study investigating hydrology and hydraulics?

We are creating two computer models. One model investigates the hydrology, and one investigates the hydraulics. We will be using the models to find out the following information for Belle Aire Creek and Little Cedar Creek:

- What the current flows are
- Where there is existing flooding
- Where current road crossings may not be big enough
- What the future flows will be once development is completed

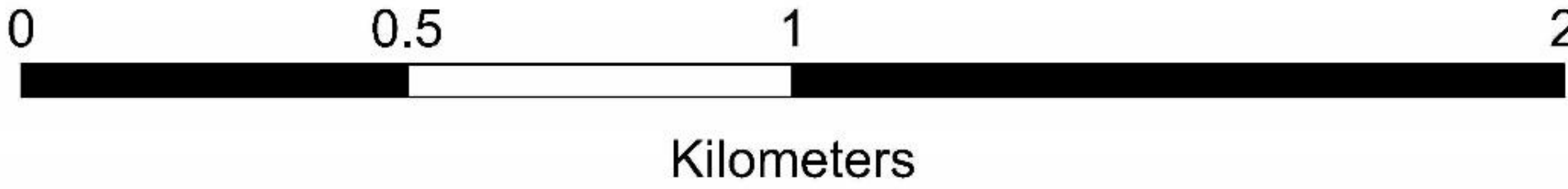
We will then suggest solutions to make sure that the future flows are less than or equal to current flows. It is important to make sure that the new development does not result in any new flooding.

Hydrologic Model Layout



Flood Mapping

Date: 2024-11-13
Projection: NAD83_UTM_Zone_17N
Data Source: Town of Innisfil, LIO, OMNRF
Created by: A.V.



Legend

Municipal Borders

TOC 1

TOC 2

TOC 3

Road Centerline

Railway

Watercourses

Flooding Issues Due to Lake Level

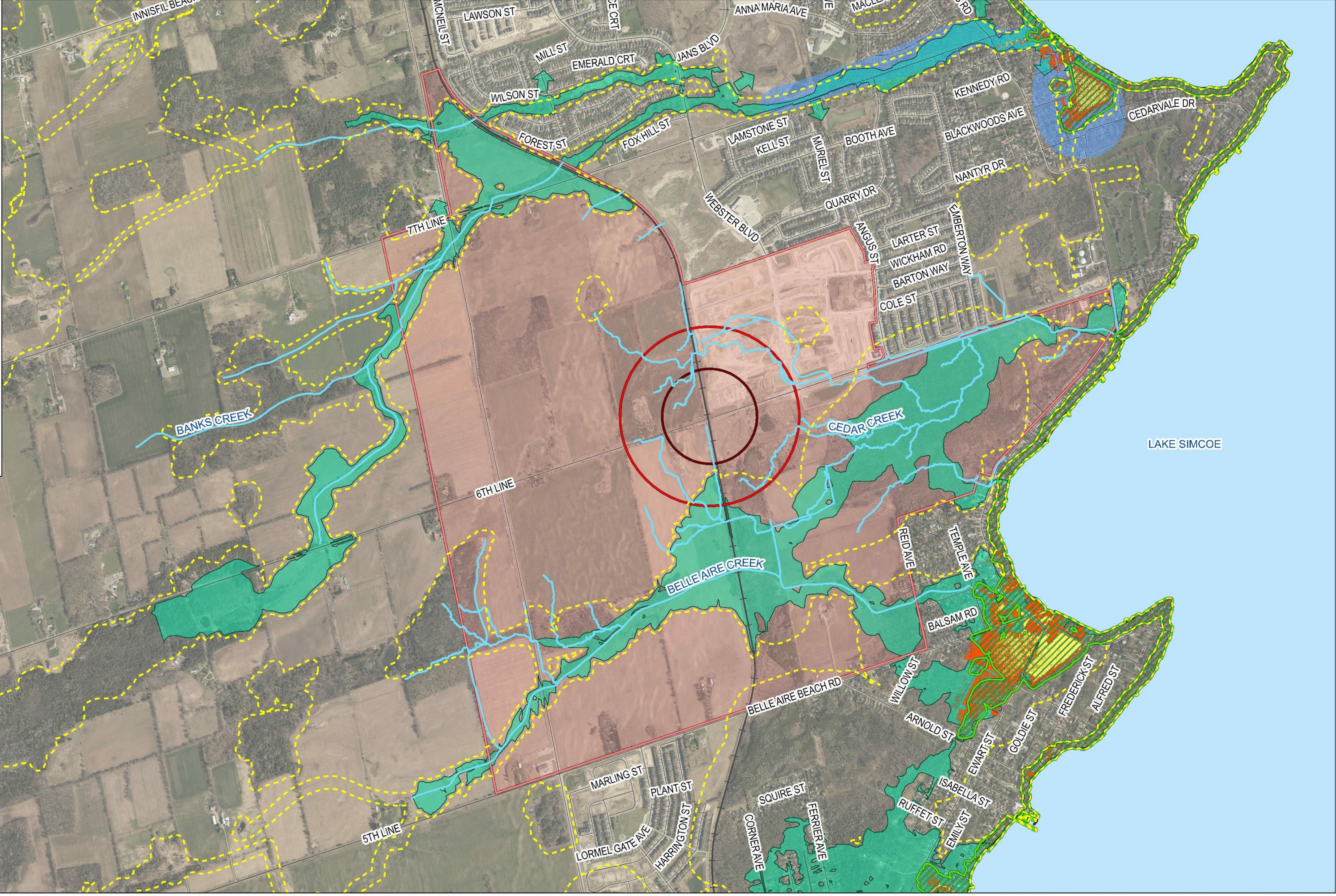
Area Under the Influence of Lake Simcoe

Normal Water Level (219.15m)

Regulatory Water Level (219.50m)

LSRCA Regulated Area

LSRCA Regulated Floodplain



Alternatives to be Considered in the MSP

Source Control Measures

Source controls help water soak into the ground. These can include techniques such as green roofs, permeable pavement, soakaway pits, rain gardens (bioretention), rainwater harvesting, and downspout disconnection.



Conveyance Control Measures

Conveyance controls are linear stormwater transport systems that are generally located adjacent to roadways. They also help water soak into the ground. They can include traditional curb and gutter systems and techniques such as bioswales, grassed channels, and subsurface perforated pipe systems.



End-of-Pipe Measures

These are conventional stormwater facilities at the end of the storm sewer system. These facilities are utilized for erosion, water quality and quantity control. They include wet ponds, dry ponds, wetlands, hybrid facilities, and subsurface storage tanks.



Evaluation Criteria

Next Steps

The long list of alternative stormwater management measures and practices will be evaluated using four primary criteria:

- | | |
|-------------------------------------|------------------------------|
| 1. Physical and Natural Environment | 3. Economic |
| 2. Social and Cultural | 4. Technical and Engineering |

The results of this evaluation will be presented to the public at the next public open house.

Physical and Natural Environment Criteria

- Water Quality
- Stream Geomorphology
- Aquatic Habitat
- Fisheries
- Wildlife
- Groundwater Resources



Economic Criteria

- Capital Costs
- Operations & Maintenance Costs
- Lifecycle Costs
- Ability to coordinate with other projects



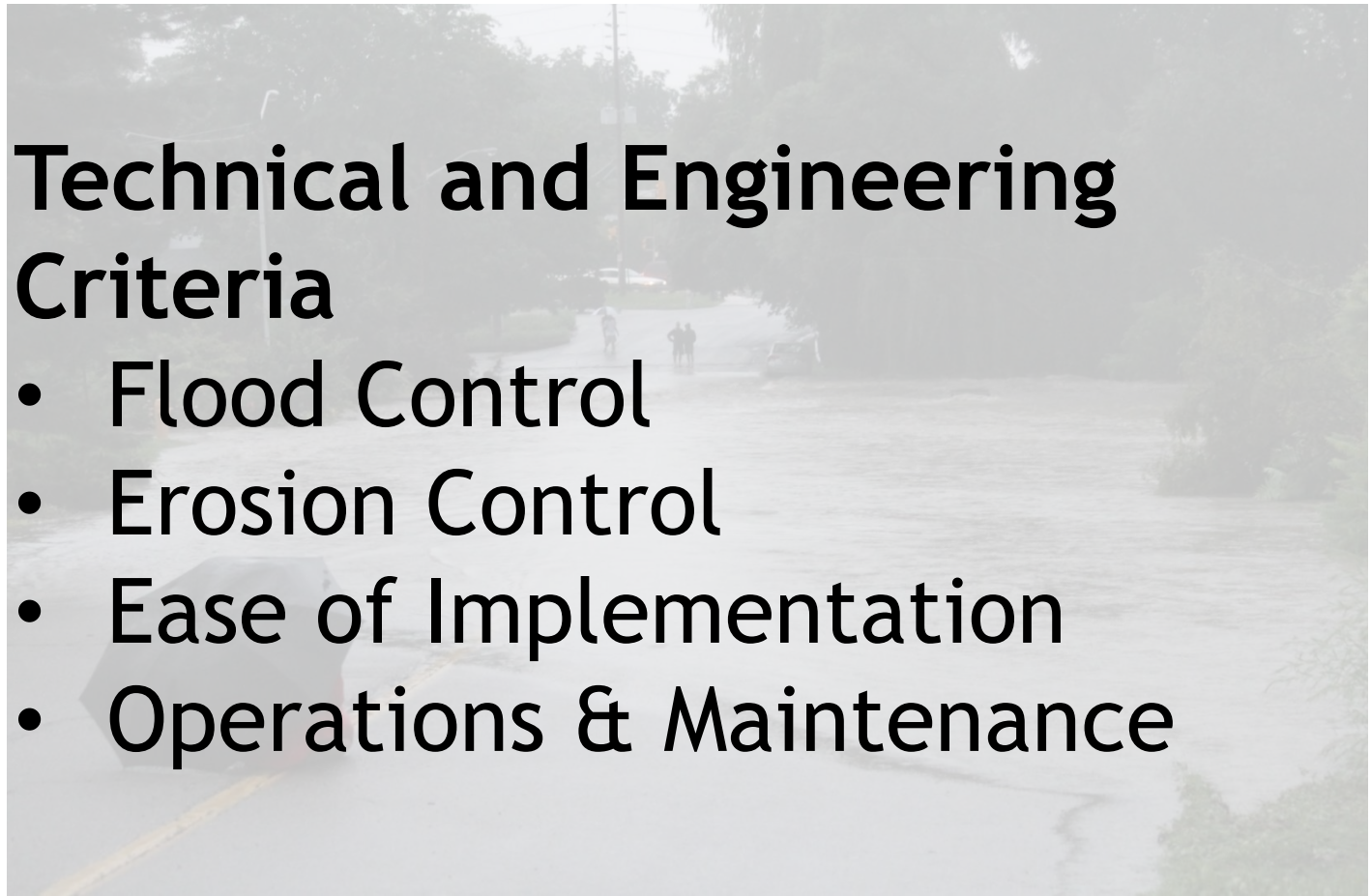
Social & Cultural Criteria

- Visual Aesthetics
- Recreational Opportunities
- Cultural / Heritage Resources
- Health & Safety



Technical and Engineering Criteria

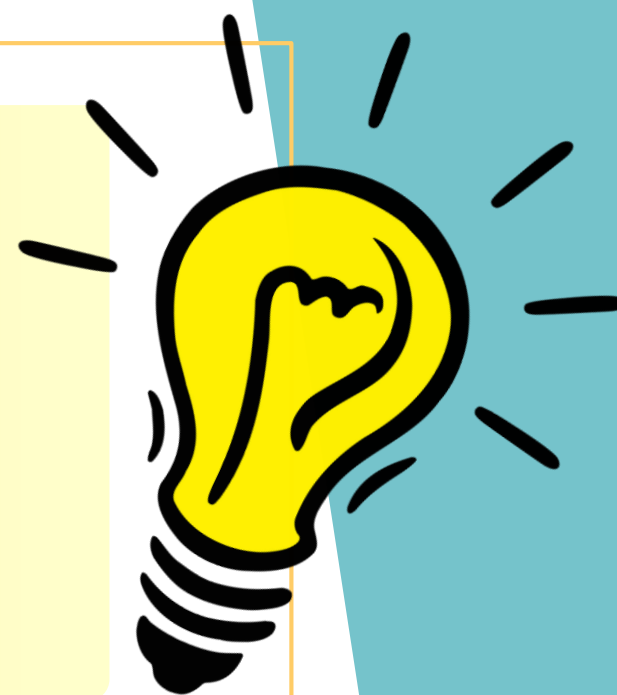
- Flood Control
- Erosion Control
- Ease of Implementation
- Operations & Maintenance



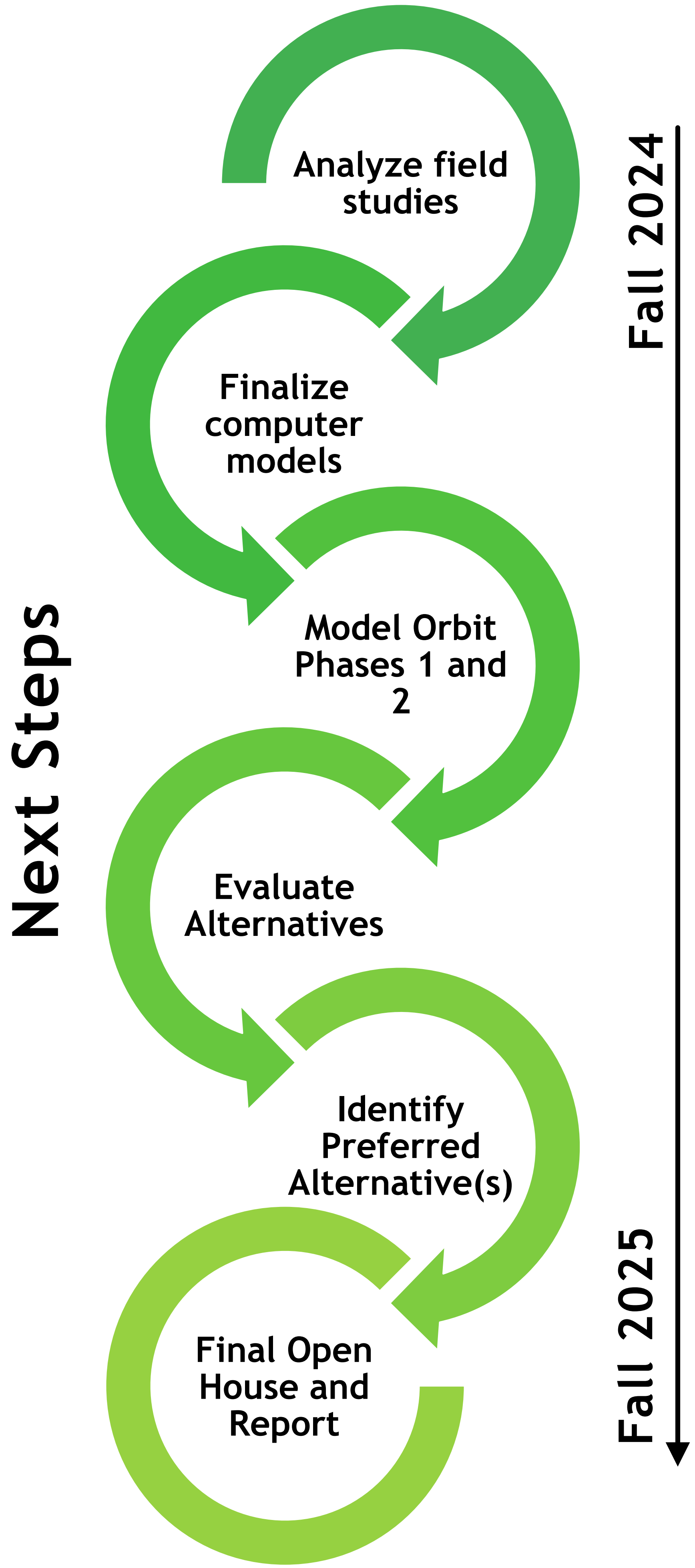
Which criteria do you think are most important to include?

Are there any criteria you would suggest to add?

Share your feedback with the Town!



Next Steps and Participation Opportunity



Have Your Say!

Share your feedback and experiences at
<https://innisfil.ca/en/building-and-development/the-orbit2.aspx#Orbit-Stormwater-Master-Servicing-Plan>



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