

Clarington

Robinson Creek and Tooley Creek Subwatershed Study – Public Information Centre #2



Land Acknowledgement

The Municipality of Clarington is situated within the traditional and treaty territory of the Mississaugas and Chippewas of the Anishinabeg known today as the Williams Treaties First Nations.

Our work on these lands acknowledges their resilience and their longstanding contributions to the area now known as the Municipality of Clarington.



Our Team

Clarington Staff



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Welcome and Agenda Review



Agenda Review

Welcome, Agenda Review and Introductions

Overview of Project

Summary of Key Findings -Phase 2 and 3 Report

Next Steps

Questions of Clarification / Facilitated Discussion



Purpose of PIC

Introduce the study area

Review the Subwatershed Study purpose

Review the Subwatershed Study process

Provide an overview of the Phase 2 and 3 Purpose and Report key findings

Invite the public to provide input and ask questions about the study



Overview of Project



What is Watershed Planning?

“Watershed planning is an opportunity for municipalities and other planning authorities to work collaboratively towards watershed objectives by creating a framework for the management of human activities, land, water, aquatic life and resources within a watershed, and for the assessment of cumulative, cross-jurisdictional and cross-watershed impacts.”

- Ministry of Environment, Conservation and Parks, 2018



How will this subwatershed plan impact our community?

Create an environmental vision, with a set of goals, objectives and targets

Identify areas to be protected, enhanced and rehabilitated as development occurs through the Secondary Planning Process

Provide a stormwater management plan that respects natural hydrologic processes

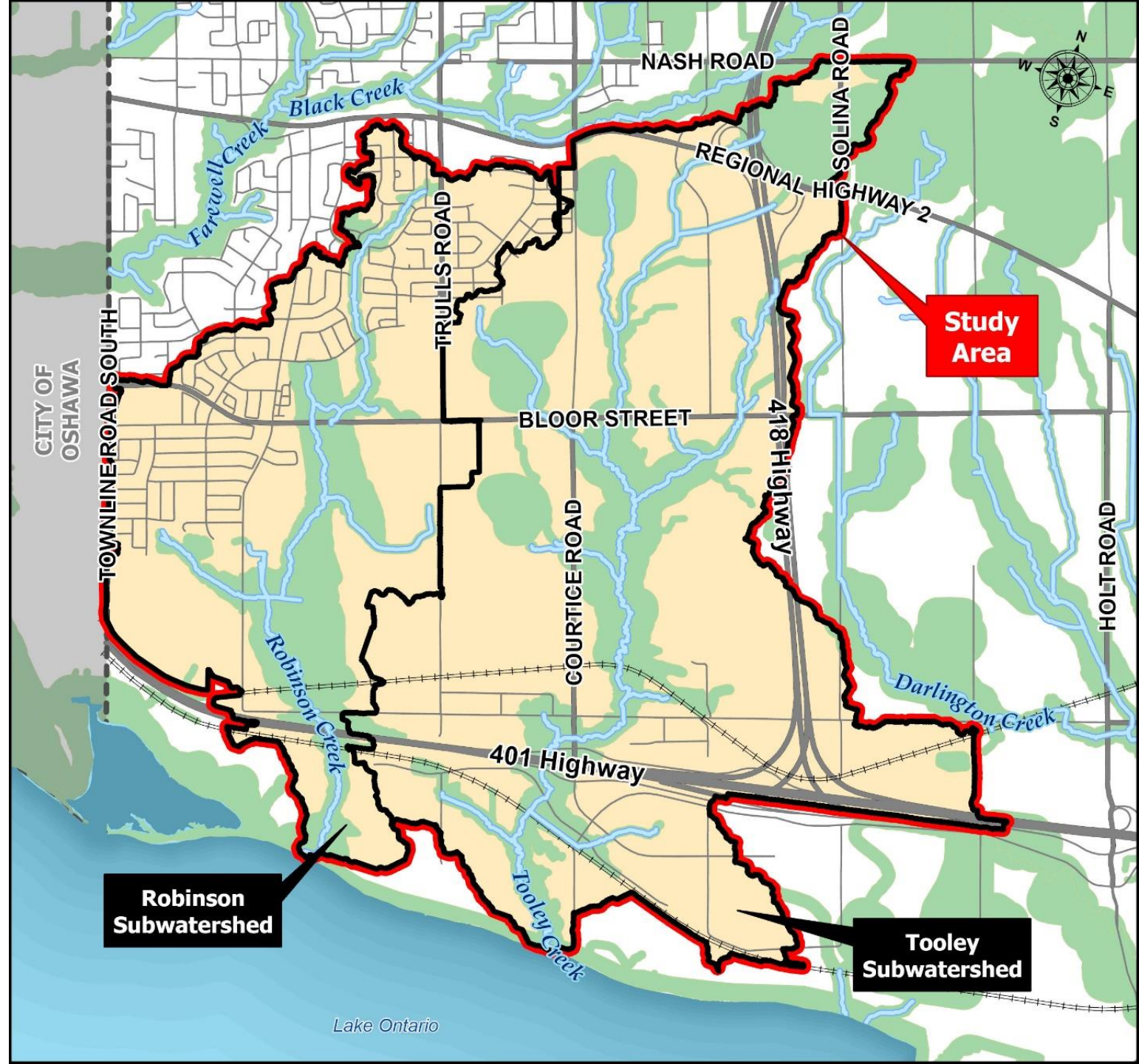
Detail the requirements for ongoing monitoring and verification for environmental protection



Study Area

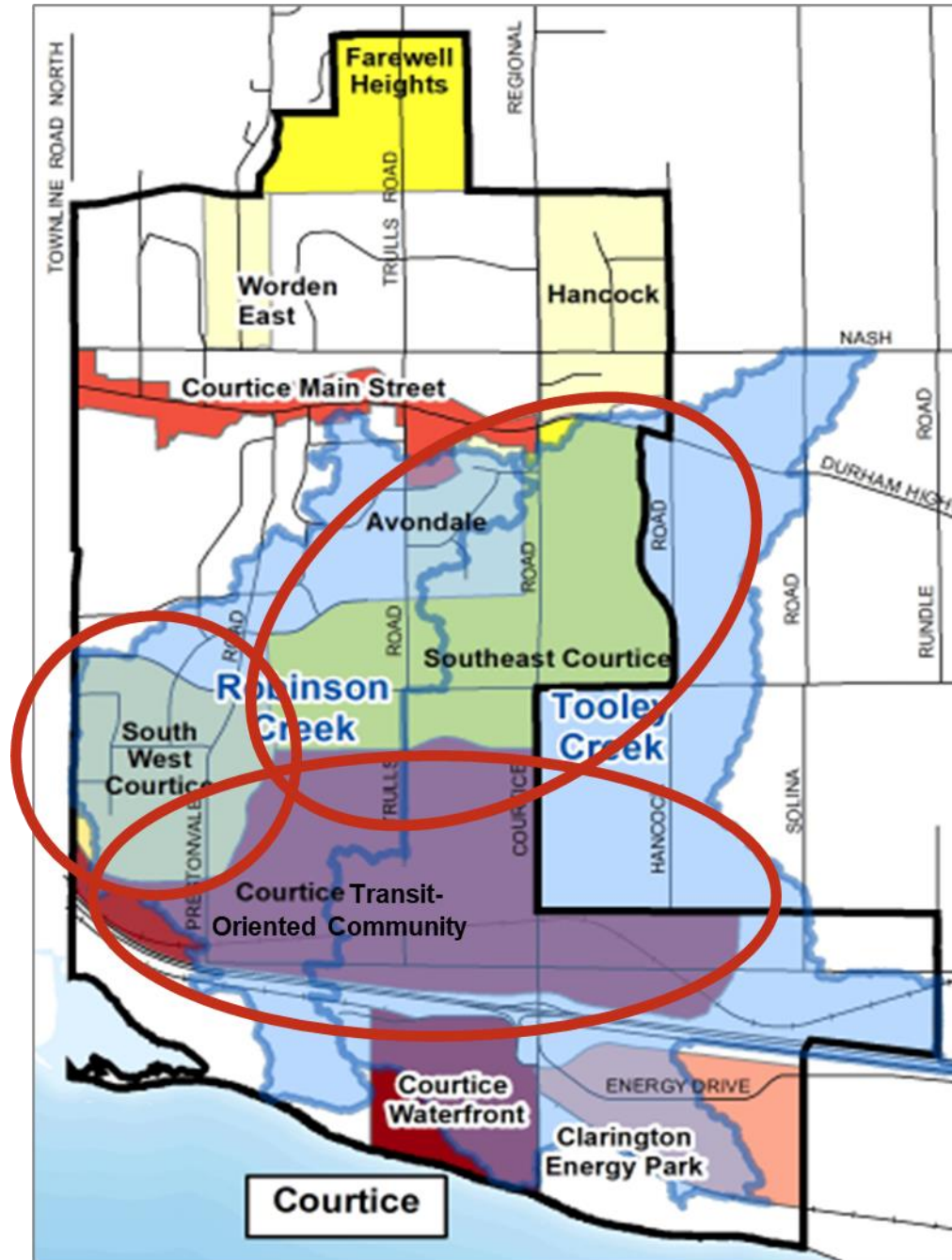
Includes two subwatersheds:

Robinson Creek
Tooley Creek



Secondary Plans

1. Southwest Courtice
2. Courtice Transit-Oriented Community Secondary Plan
3. Southeast Courtice



Study Purpose

For the Subwatershed Study to:

Support future growth, development applications, and Secondary Plans for Courtice

Develop a plan that allows sustainable development while ensuring maximum benefits to the natural and human environments on a watershed basis



Subwatershed Study Process

Study is being conducted in the spirit of a Master Plan Environmental Assessment Process

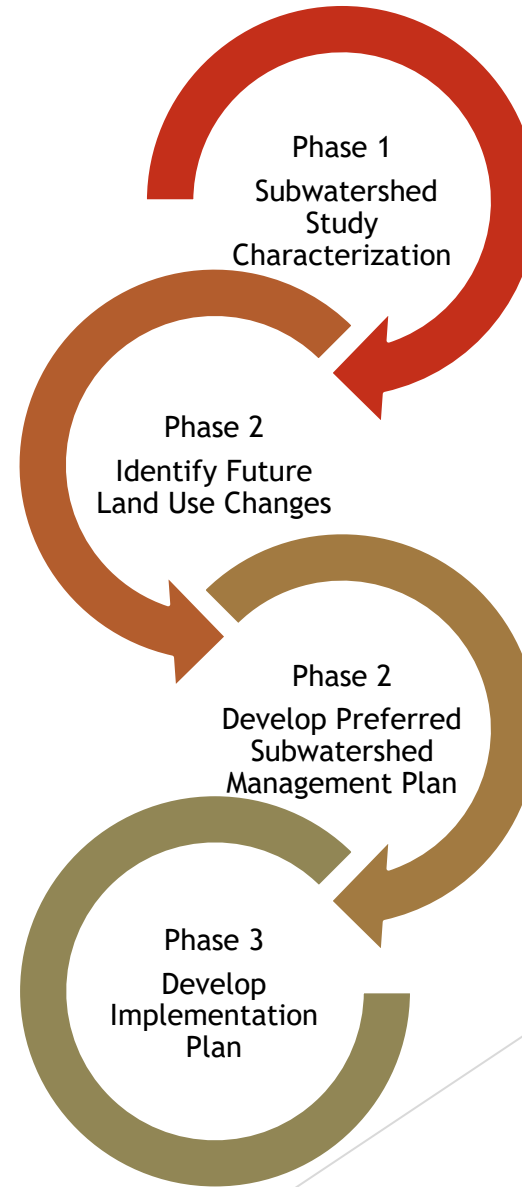
The process includes:

- Problem/opportunity identification
- Evaluation of alternative solutions
- Selection of a preferred solution

Stakeholder consultation is an important component of the study

PIC #1 held Nov. 13, 2019

PIC #2 occurring now



Subwatershed Study Process

Consultation with Stakeholders, the Public and Agencies

Inventory existing environmental conditions



Identification of environmental constraints & opportunities



Impact analysis for future land use changes



Problem/opportunity identification



Develop alternative subwatershed management strategies



Evaluate alternative subwatershed management strategies



Select preferred subwatershed management strategy



Develop implementation plans



Environmental monitoring recommendations

Subwatershed Study Phase 1

Subwatershed Study Phase 2/3

We are here!

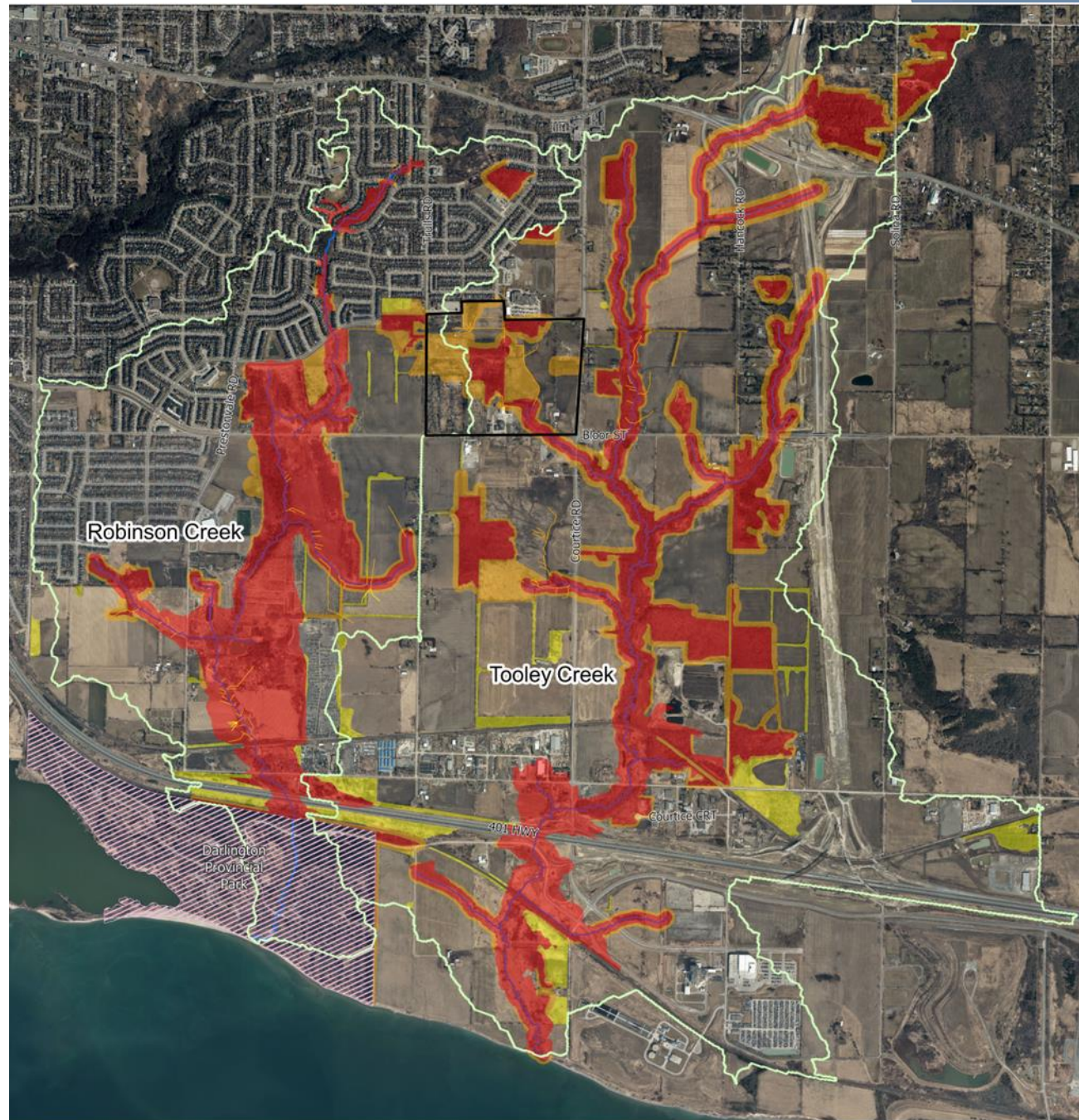


Phase 1 Development Constraints

Natural heritage, natural hazards, and headwater drainage features

Special Study Area for environmental investigations identified due to complex features and functions present

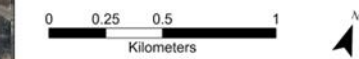
Mapping is subject to refinement following site-specific studies and consultation with the Municipality of Clarington and CLOCA



Clarington

- Watercourse
- Darlington Provincial Park
- Special Study Area
- Subwatershed Boundary
- Tier Constraints to Development
 - High
 - Moderate
 - Low
- High Constraint Headwater Drainage Feature
- Moderate Constraint Headwater Drainage Feature
- Low Constraint Headwater Drainage Feature

Figure:
Constraints To Development



Date: November, 2019
Datum: NAD_83
Projection: UTM_Zone_17N
Source: Municipality of Clarington



Summary of Key Findings - Phase 2 and 3 Report



Overview of Phase 2 and 3

Phase 2/3 Objectives:

Identify potential land use impacts to natural features and functions

Identify, evaluate, and select alternative management strategies to protect, enhance or restore environmental features and functions

Develop an Implementation Plan to ensure the long-term integrity of the Recommended Plan, including the identification of issues and areas where further detailed studies may be required at the draft plan of subdivision stage of the planning process



Overview of Phase 2 and 3

Study Tasks

Identify future land use changes and potential impacts

Hydrologic and hydraulic modeling of future conditions

Evaluation of subwatershed management strategies

Selection of preferred subwatershed management strategy

Development of a Implementation Plan



Impacts of Land Use Changes

Overall hydrological cycle or water balance

More impervious surfaces reduces infiltration and increases runoff

Water quality

Urban runoff may have higher levels of contaminants

Stream erosion

Higher flows increase erosion rates

Flooding

Higher flows can create more flooding

Ecological

Increased temperature of runoff

Loss of features or functions from vegetation removal and watercourse changes

Isolation of natural areas due to the creation of barriers (e.g., roads)



Preferred Approach - Traditional Stormwater Management and Low Impact Development (LID)

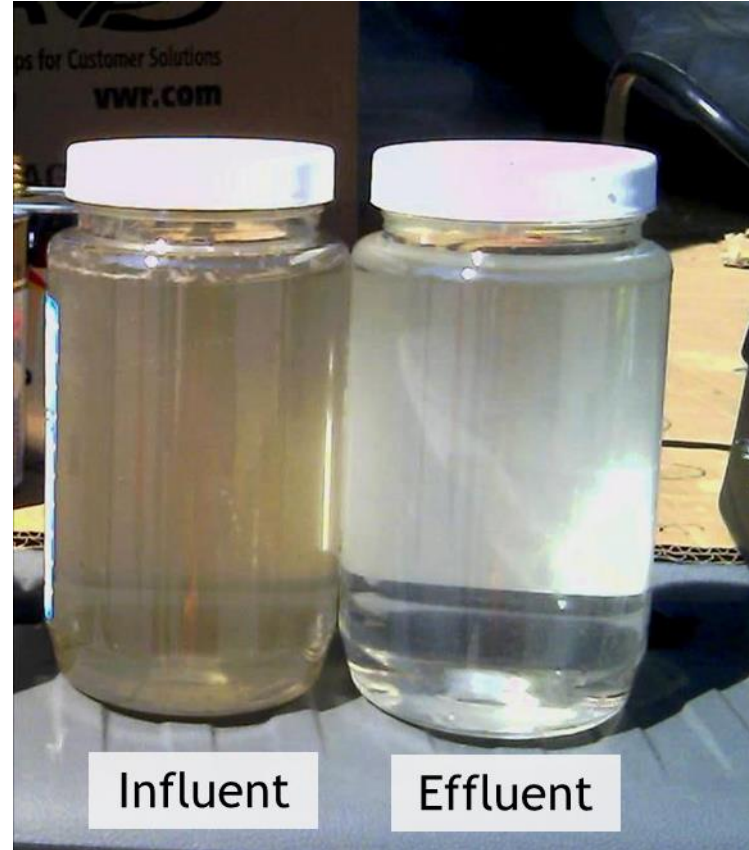
Flooding - provided by dry stormwater facilities

Water quality - provided by LID features

Stream erosion - provided by LID features

Water balance - provided by LID features

Ecological - provided by LID features and dry stormwater facilities



Recommended Plan - Flood Control

Peak flow rates from the 1:2-year to 1:100-year events to be controlled to pre-development level using end-of-pipe dry detention ponds

Post-development peak flow rates from the Regulatory storm must be below Existing Regulatory peak flow rates

Other flood mitigation measures may be approved through future study



Recommended Plan - Water Quality

Use of infiltration-based LID practices to control 27 mm rainfall event using Runoff Control Hierarchy

Install on municipal property and limited potential on private development sites (not individual residential lots), only where appropriate



Recommended Plan - Erosion Control

Runoff from a 27 mm rainfall event must be retained on site through infiltration, evapotranspiration, reuse, bio-retention, etc. to the maximum extent practical

A minimum of 5 mm must be retained through Priority 1 measures

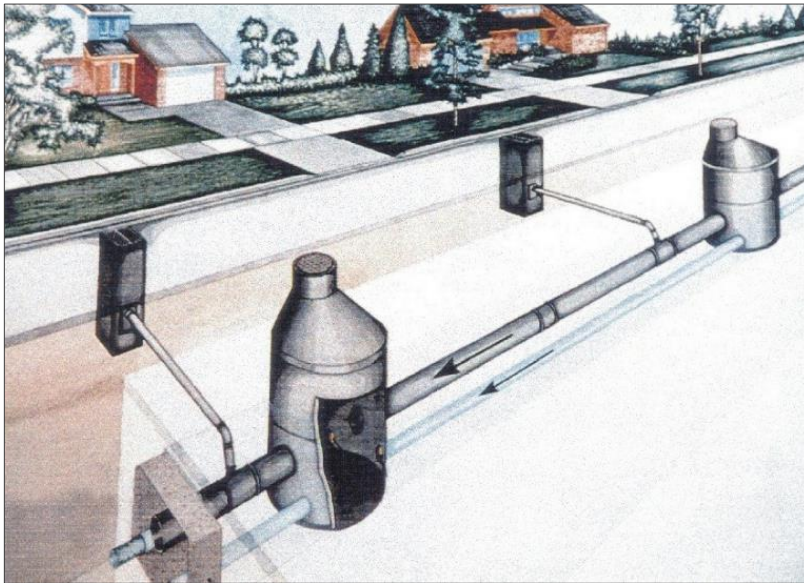
Where site-level LIDs cannot meet the 27 mm retention target, any remaining runoff volume from the 27 mm event must be detained on site for 24 to 48 hours



Recommended Plan - Water Balance

Match pre-development annual infiltration volume in all stormwater catchments
This will likely be achieved through the Runoff Control Hierarchy

A site-specific water budget will need to be completed as part of the stormwater management submission for sites within a High Volume Recharge Area or Ecologically Sensitive Groundwater Recharge Area



Recommended Plan - Thermal Mitigation

LID practices can cool runoff temperatures

Dry stormwater ponds do not hold water long enough to significantly increase temperatures



Recommended LID Applications

Land Use		Single Family Residential	Multi-Family (Medium Density)	Multi-Family (High Density)	Industrial, Commercial & Institutional
Soil Amendments		✓	✓	✓	✓
Perforated Pipe (PP)	PP as Storm Sewer	✓	✓	✓	✓
	Parallel PP ("3 rd Pipe")	✓	✓	✓	✓
	Grassed Swale PP System	✓	✓	✓	✓
Permeable Pavements			✓	✓	✓
Bioretention, Bioswales and Enhanced Swales			✓	✓	✓
Rainwater Harvesting				✓	✓



Next Steps

To be completed by Municipality:

Flood Control Study - To evaluate different alternatives in order to identify the preferred approach to provide Regional flood protection along Tooley Creek

Site-specific studies needed to:

Refine or expand upon the current findings (e.g., by field-staking and surveying feature boundaries)

Address features which require additional assessment (such as those included in the Moderate constraint category, or those present on properties for which site access permission was not granted for this SWS)

Ensure that up-to-date information is available to assist approving agencies in their decision-making



Next Steps

Site-specific studies to be completed by development community during development applications:

Stormwater and Groundwater Investigations:

New road crossing evaluations (hydraulics, fish passage, wildlife passage, etc.)

Master Environmental Servicing Plan / Master Drainage Plan

Functional Servicing Report

Stormwater Management Report

Hydrogeological Assessments

Environmental Impact Studies - to determine the potential for development to adversely impact environmentally significant and sensitive areas, and natural heritage features

Headwater Drainage Feature Assessment - where landowner access not permitted during

Subwatershed Study



Discussion & Questions



Have your say!

Provide comments to the study team at
RTSubwatershed@clarington.net

Visit www.clarington.net/RTSubwatershed

Comments will be accepted until February 17, 2023



Thank You

Clarington

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