

Welcome

to the

Public Open House for the Village of Innerkip Stormwater Management Master Plan



October 23rd, 2024
6:00-8:00 pm
Innerkip Community
Centre
695566 17th Line



Project overview

What is stormwater?

Stormwater is water that originates from precipitation (storm events), including heavy rain and meltwater from hail and snow.



How does stormwater impact our community?

Stormwater collects dirt and debris from driveways and roads. Along with debris, pollutants like oil, salt, and fertilizers get carried along with the stormwater to our rivers and lakes. This pollution negatively impacts our environment. Uncontrolled stormwater can lead to flooding.



What do we need to improve?

Many parts of Innerkip were developed before modern stormwater regulations were in place. As a result, stormwater in these areas is not treated before it is released to the Thames River. These uncontrolled flows can cause flooding and erosion, and negatively impact aquatic habitat.



Key facts about stormwater management



Stormwater
Management
Pond

Low Impact
Development
(LID)



Oil and Grit
Separator
(OGS)

- Water enters the stormwater management system through catch basins (road drains). Stormwater is transported through storm sewers (pipes). Sometimes stormwater goes through a treatment facility before entering the river.
- In Innerkip, the stormwater system is separate to the sanitary (sewage) system.
- Stormwater treatment facilities include dry ponds, wet ponds, constructed wetlands, subsurface storage, Low Impact Development (LID), and Oil and Grit Separators (OGS).
- These facilities collect and store some pollutants, reducing the amount that goes to the river.
- Treatment facilities are now required by modern stormwater regulations.

Study process and timeline

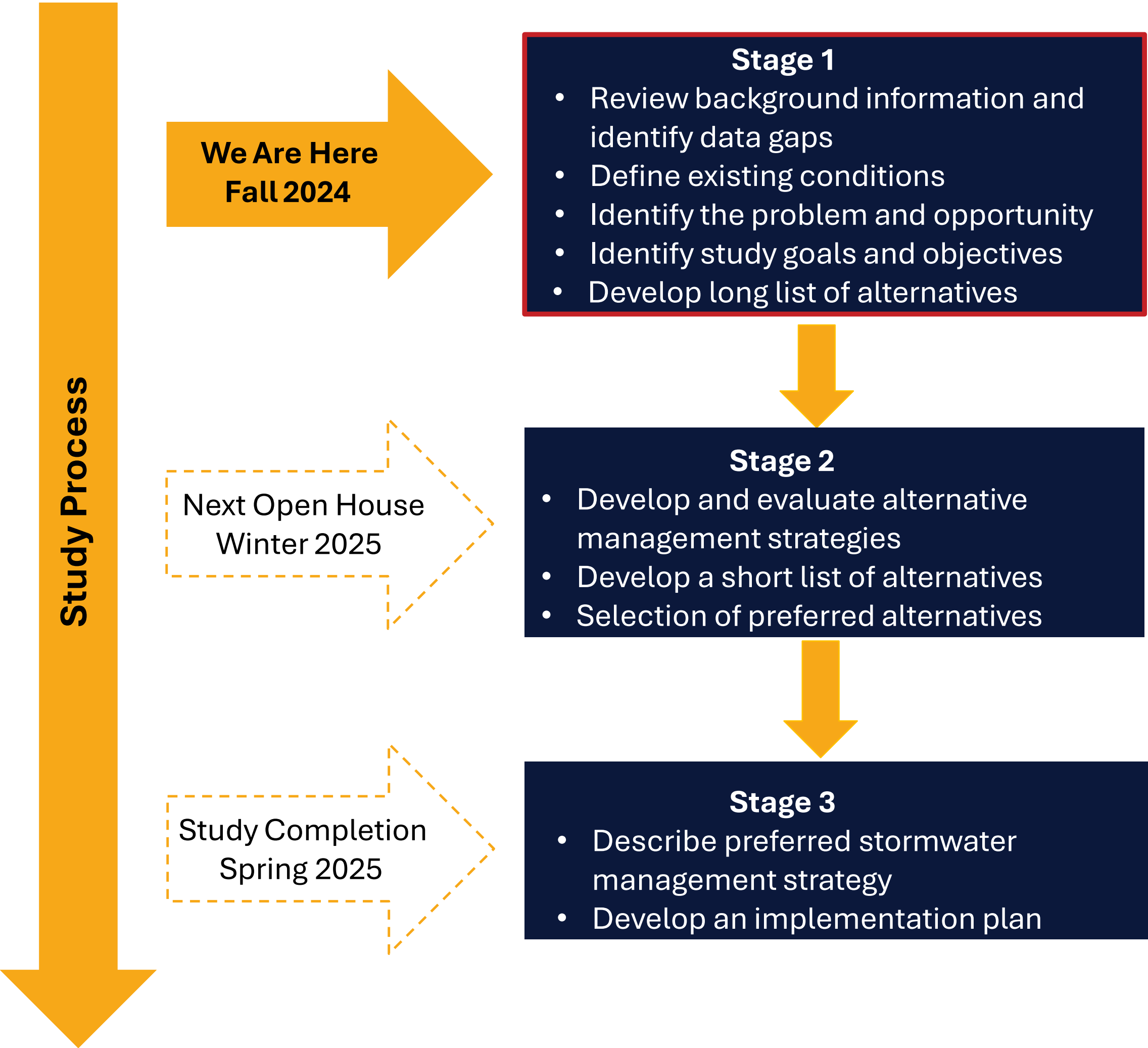
Where are we in the study process and when will you see us next?

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 Township 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.



What is the goal of this study?

Why are we doing this?

It's time to look to the future! Existing infrastructure is aging, our population is growing, our climate is changing, and we have experienced flooding in the past. In other words, the strain on our stormwater system is increasing. We need a plan to address these issues and build resiliency into our stormwater system.

Overall Goal

The purpose of this study is to develop a short and long-term plan for the safe and effective management of stormwater runoff, while maintaining and improving the ecosystem health and sustainability of water resources within the Township. The SWM-MP will integrate flood control, erosion control, groundwater and surface water quality and quantity, natural environment, and thermal mitigation.

What does the study aim to address:

1. Decrease the likelihood of flooding that would result in property damage or safety issues;
2. Minimize the impacts of erosion on aquatic and terrestrial habitats and property;
3. Build resiliency against and adapt to the impacts of climate change;
4. Mitigate historic problem drainage areas;
5. Seek opportunities to improve stormwater management planning practices; and,
6. Seek opportunities to improve water quality.



Why do we need a stormwater management master plan (SWM-MP)?

1. New Policies:

The Province has increased the regulatory requirements for municipal stormwater systems. The new requirements focus on volume and quality control. The overall goal of the new provincial policies is to reduce flooding and improve water quality.

3. Historic Flooding Issues:

Some areas in Innerkip have experienced flooding in the past. A plan must be developed to manage our water resources to minimize these issues in the future.

2. Population Growth:

Our community is growing! As we welcome more people to call Innerkip home, we must manage our resources effectively.

4. Proactively Manage Infrastructure:

We need to plan for the future. Current infrastructure will need to be replaced in the future, understanding our future needs will help us proactively plan our financial future.



Existing conditions

Existing Conditions

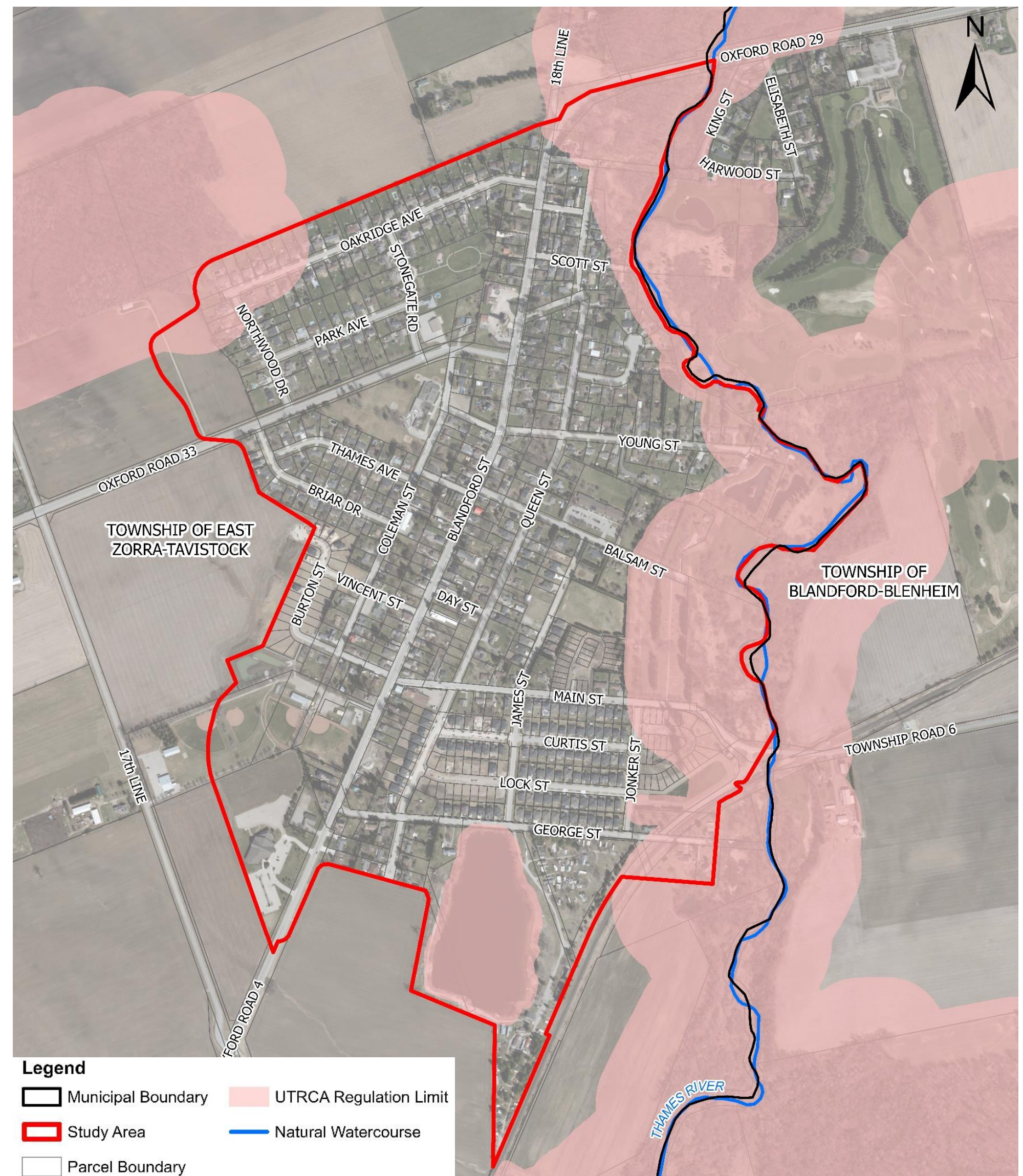
The Village is completely encompassed by the North Woodstock subwatershed, which is part of the Upper Thames watershed. Innerkip is part of the Upper Thames River Conservation Authority (UTRCA)

Development in the Regulated Area

The Village is surrounded by regulated area as identified by the UTRCA. The UTRCA has the responsibility of protecting people and property, as well as supporting safe development in and around the regulated area. In cooperation with municipalities within the watershed, the UTRCA can divide the regulated area into two zones in urban growth areas that meet specific criteria. These two zones are:

- Floodway (where most of the flow is conveyed)
- Flood Fringes (can exist on both sides of the floodway)

Areas in the regulated area can be developed safely if they are identified as flood fringe. Any approved development in the flood fringe requires flood proofing and safe, dry access to uphold public safety.



Land use

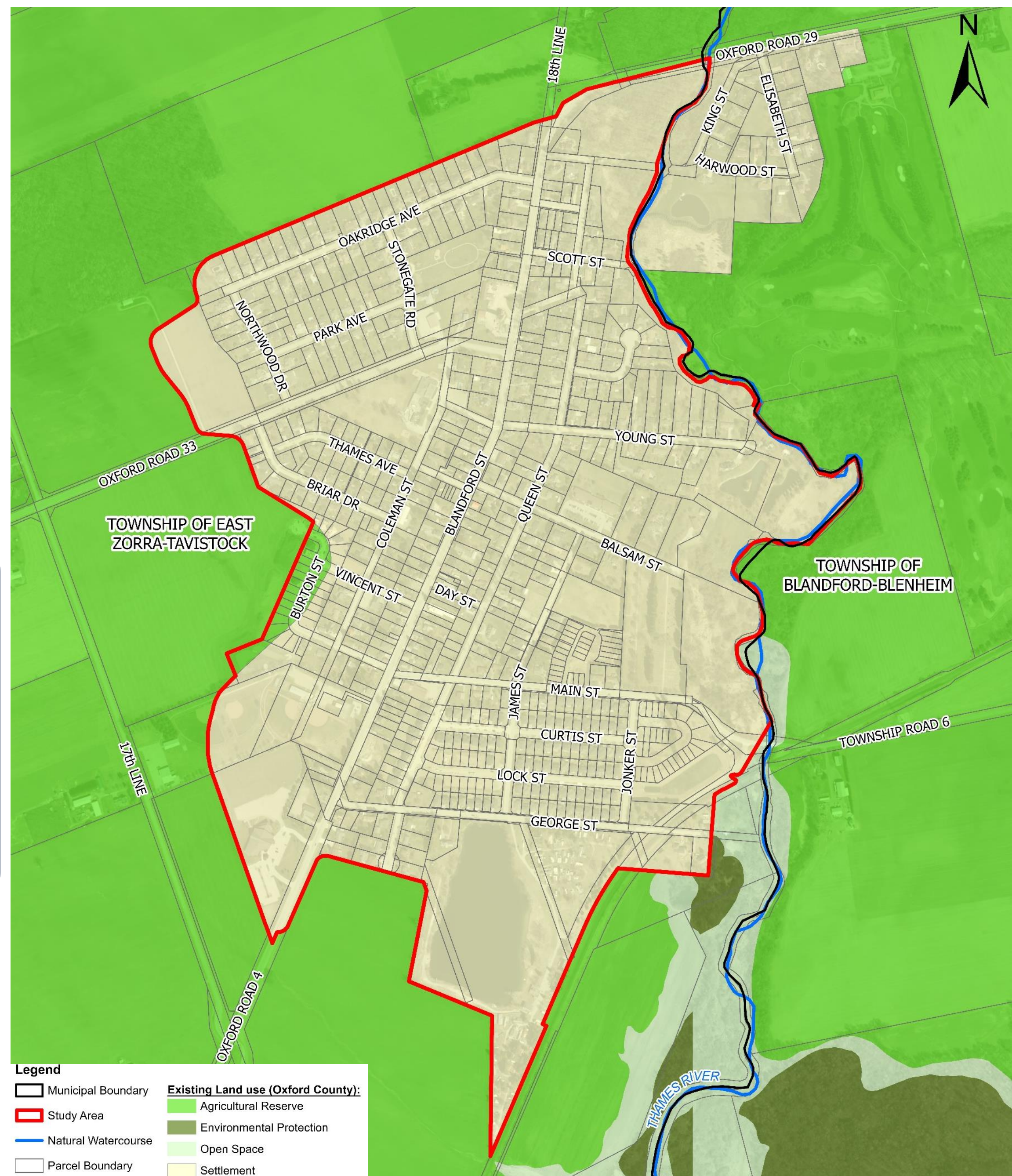
Existing Land Use

The map shows land use from Oxford County. The primary land use within Innerkip is Settlement, and it is surrounded by agricultural land uses.

Intensification Areas

Innerkip has been identified as an area where additional population growth is anticipated.

Increased development often pairs with increased impervious surfaces (surfaces that do not drain well, like concrete). This can increase the amount of stormwater being managed. We must properly plan for and manage this increase of stormwater.



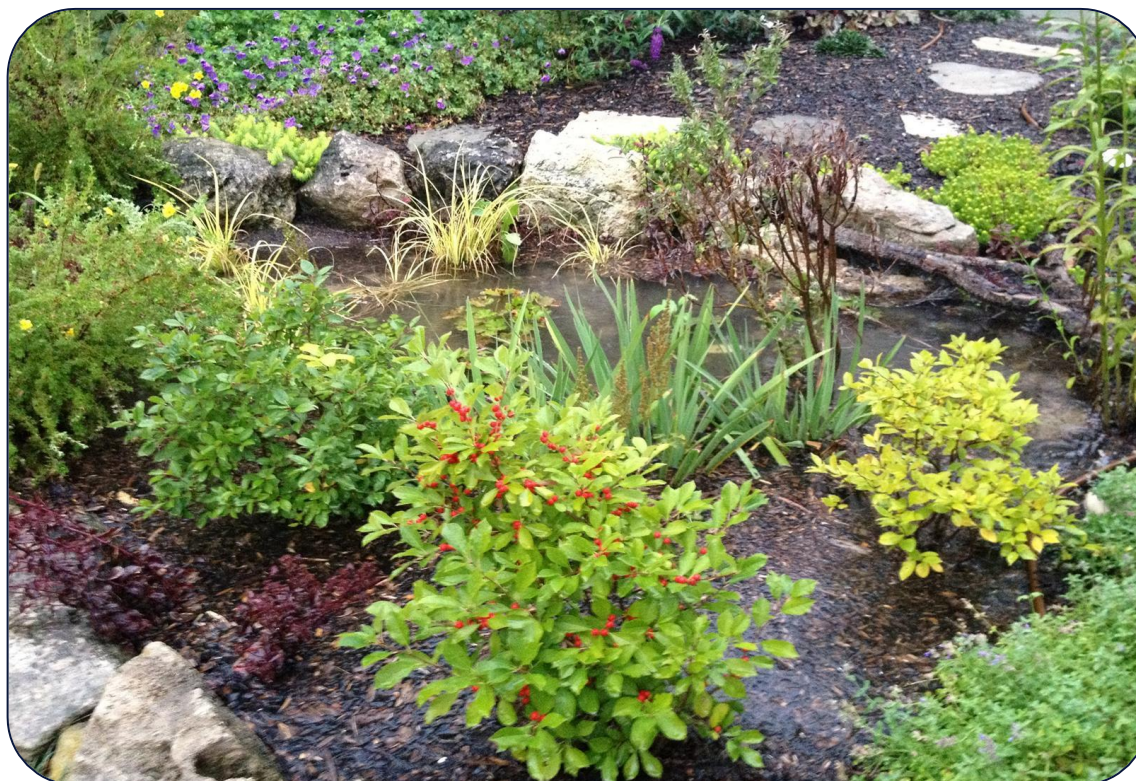
Water quality and quantity

How does stormwater impact water quality?

Stormwater runoff can carry oils, pesticides, fertilizers, and other chemicals off roads, lawns, and buildings that go directly into our natural areas, such as creeks, lakes, and wetlands. Without stormwater management, there would be significant negative impacts to water quality conditions in our natural areas.

Urban Flooding

When new development happens, the amount of “permeable” or “porous” areas are reduced and replaced by hard surfaces that do not absorb stormwater. With less “porous” areas available, the risks of flooding may increase as a result of more stormwater runoff. Runoff is rainfall which flows across the land surface before entering storm sewers or creeks.



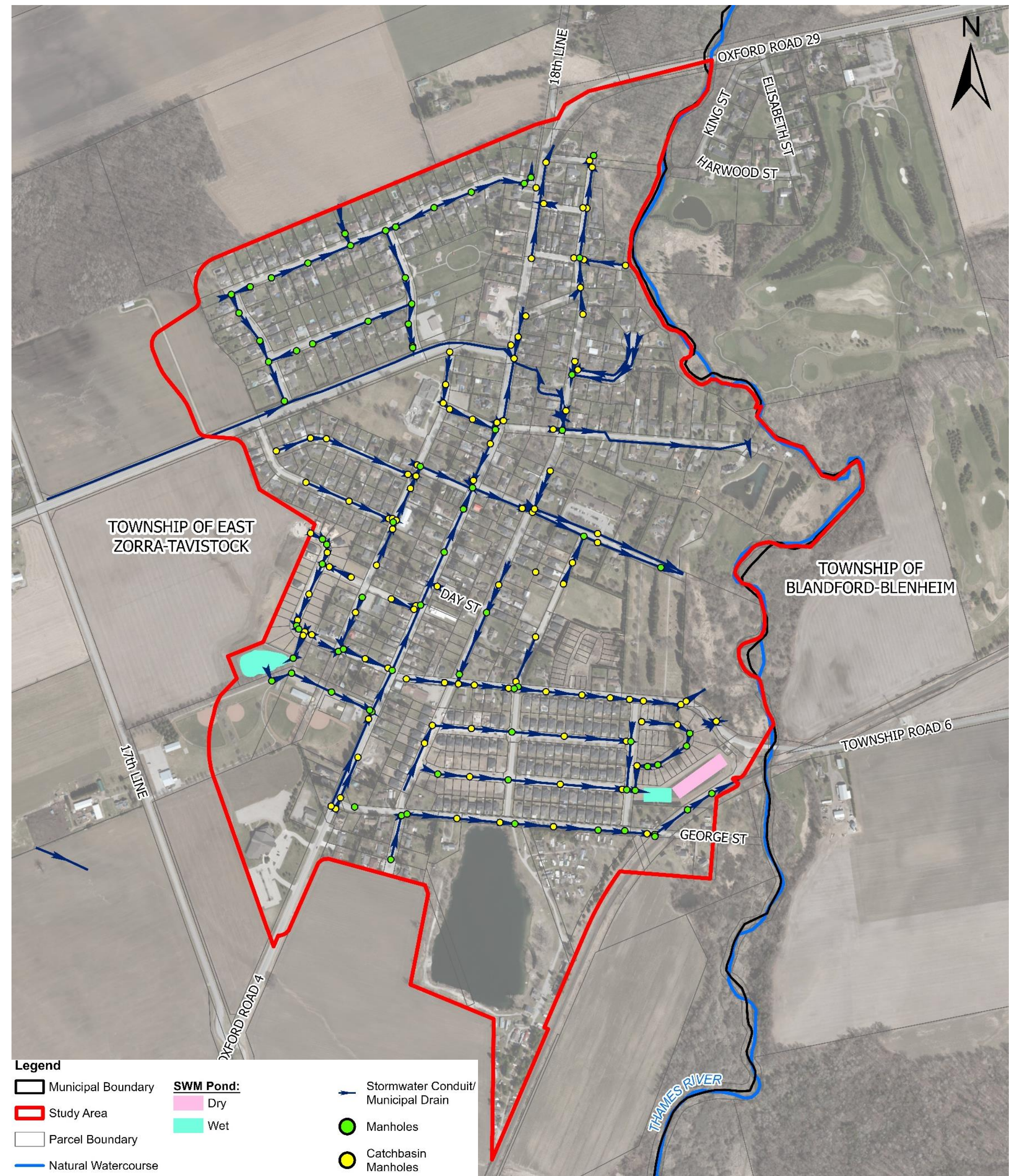
Existing stormwater management infrastructure

Stormwater Management Infrastructure

Municipal Stormwater Management (SWM) infrastructure includes all SWM facilities (dry ponds, wet ponds, wetlands, and hybrid facilities), storm pipe networks (manholes, catch basins & leads), and outfalls responsible for the capture, conveyance, and control of stormwater runoff.

Innerkip's existing SWM infrastructure includes:

- 2 active SWM facilities
- 11.3 km of storm sewers and municipal drains
- 78 maintenance holes
- 369 catch basins



What new solutions are being considered?

How can we help water soak into the ground, and which method is best for Innerkip?

Techniques include green roofs, permeable pavement, soakaway pits, rain gardens (bioretention), rainwater harvesting, and downspout disconnection.



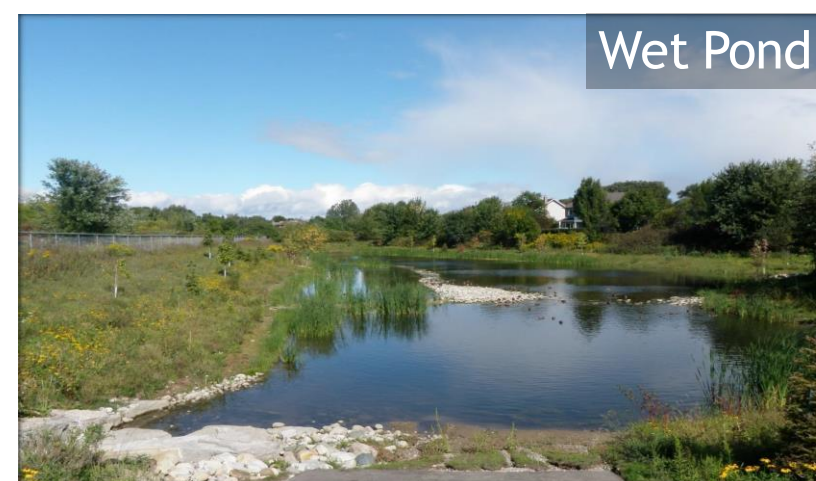
Is there a better way to transport stormwater to the natural environment?

Traditionally we transport stormwater using gutters, and pipes. Alternative methods help water soak into the ground during transportation. These can include techniques such as bioswales, grassed channels, and subsurface perforated pipe systems.



Can we treat the water before it re-enters the natural environment?

End-of-pipe measures are conventional stormwater facilities, they are 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.



What new solutions are being considered?

Pollution Prevention Measures

These improve operation and maintenance of privately and publicly owned land, buildings, and infrastructure that will reduce pollution generation. Certain municipal programs such as road salt management, street sweeping, and parks maintenance activities (use of herbicides and pesticides) improve water quality.



Operation and Maintenance

This includes infrastructure optimization (storm sewer flushing and catch basin cleaning), street cleaning, leaf clearing and removal, erosion and sediment controls for construction, and public/business education and awareness.



What alternatives would you like to see in your community?

Share your feedback with us!



What is considered when finding solutions?

Evaluation Criteria:

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

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

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 us!



What is next?

Stage Two

1. Develop and finalize the alternative stormwater measures and practices;
2. Undertake an environmental evaluation and screening process to determine feasible alternatives and priority;
3. Develop a shortlist of stormwater measures and practices;
4. Develop and assess alternative strategies;
5. Recommend stormwater management strategy measures;
6. Present preferred approach at public open house #2.

Stage Three

1. Develop an implementation plan;
2. Finalize Stormwater Management Master Plan.



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**Stay up to date on project
information!**



<https://www.ezt.ca/en/business-and-development/innerkip-master-drainage-plan.aspx>