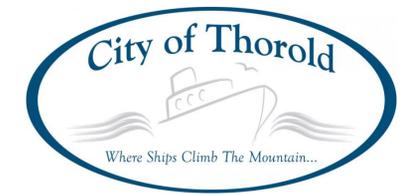


# Welcome!



# City of Thorold

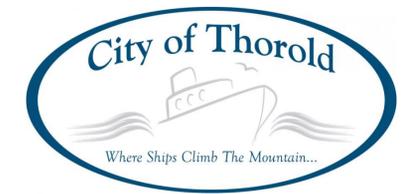
## Water and Wastewater Master Plan

## Stormwater Management Master Plan

Combined Public Information Centre #1

Tuesday, July 16, 2024 – 5:30 PM to 7:30 PM  
Thorold City Hall, Council Chambers, 3540 Schmon Parkway

# Why Are We Here?



## Public Information Centre

- Public consultation and feedback is an important component of this project
- Throughout these projects, you will have the opportunity to discuss the plans' strategic approach, which includes:
  - Water, wastewater, and stormwater level of service objectives
  - Existing and future water, wastewater, and stormwater system needs
  - Preferred upgrade strategies and capital programs
  - Operations and maintenance improvements

## Expanding on Previous Studies

- The 2021 Niagara Region Water and Wastewater Master Servicing Plan Update outlined recommendations for:
  - Long term treatment, supply, and delivery of water to Thorold's existing system and to support future growth
  - Long term treatment and conveyance of wastewater from Thorold's existing system and to support future growth
- The City updated its Pollution Control Plan in 2013 and the City Wide Water Service Master Plan in 2019
- The current Water and Wastewater Master Plan will build on the previous Region and City studies to develop a prioritized water and wastewater capital program of City-owned infrastructure to meet existing and future needs
- The City does not currently have a Stormwater Management Master Plan so this plan will help the City develop a strategy that will provide stormwater services to support citizens and business while protecting the environment

Establish a master plan to achieve a cost-effective water, wastewater, and stormwater system that:



Meets the needs of existing users, regulatory, and legislative requirements



Supports growth



Maintains or improves service levels

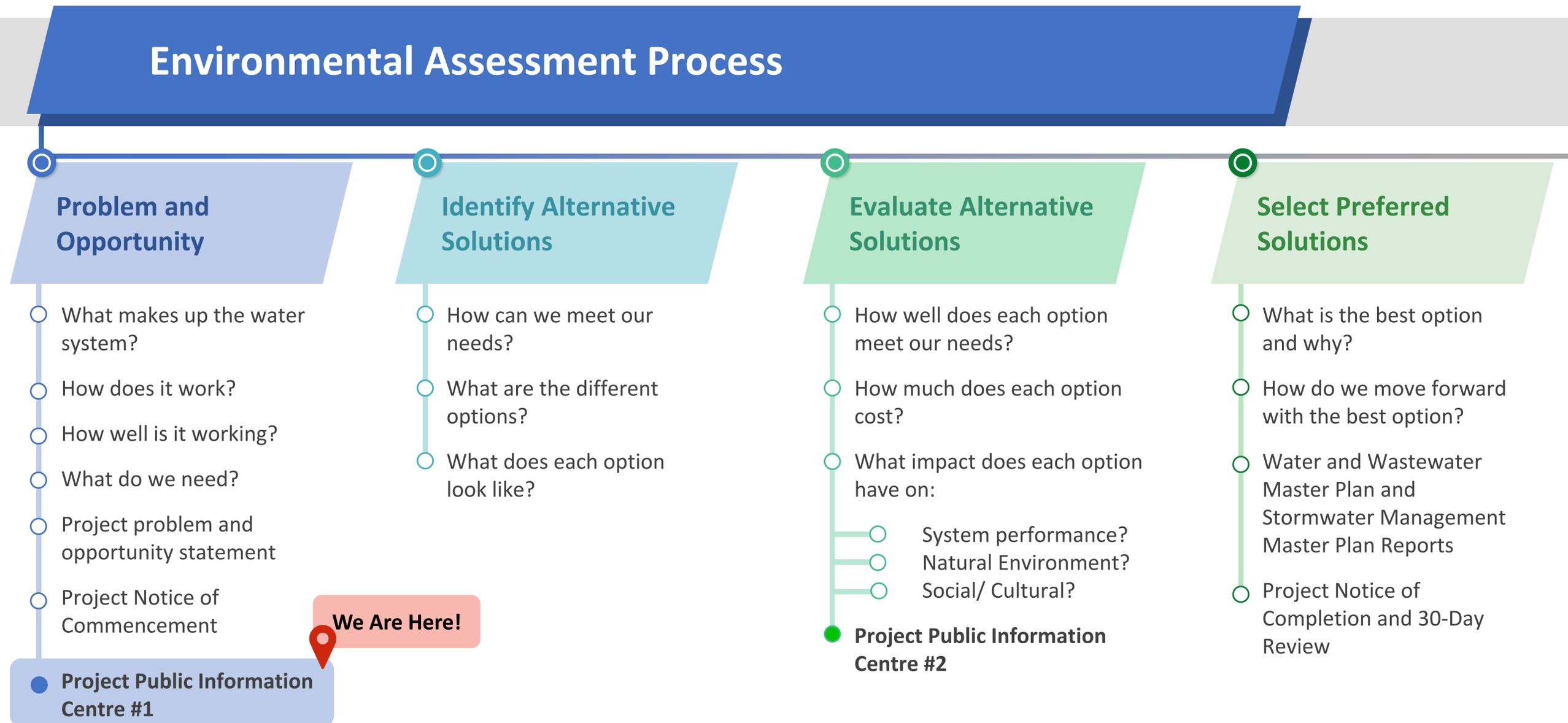


Improves system resiliency and operational flexibility



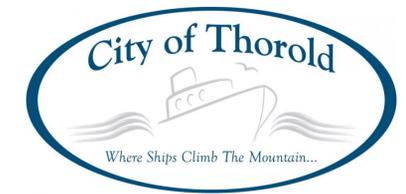
Considers the long-term financial viability of the systems

The Water and Wastewater Master Plan and the Stormwater Management Master Plan involve the completion of Phases 1 and 2 of the Municipal Engineers Association (MEA) Class Environmental Assessment (EA) process.



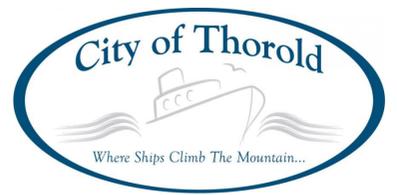
The study follows the Master Plan process as outlined in Section A.2.7 of the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (Oct 2000, as amended in 2007, 2011 and 2015).

# Municipal Servicing Context

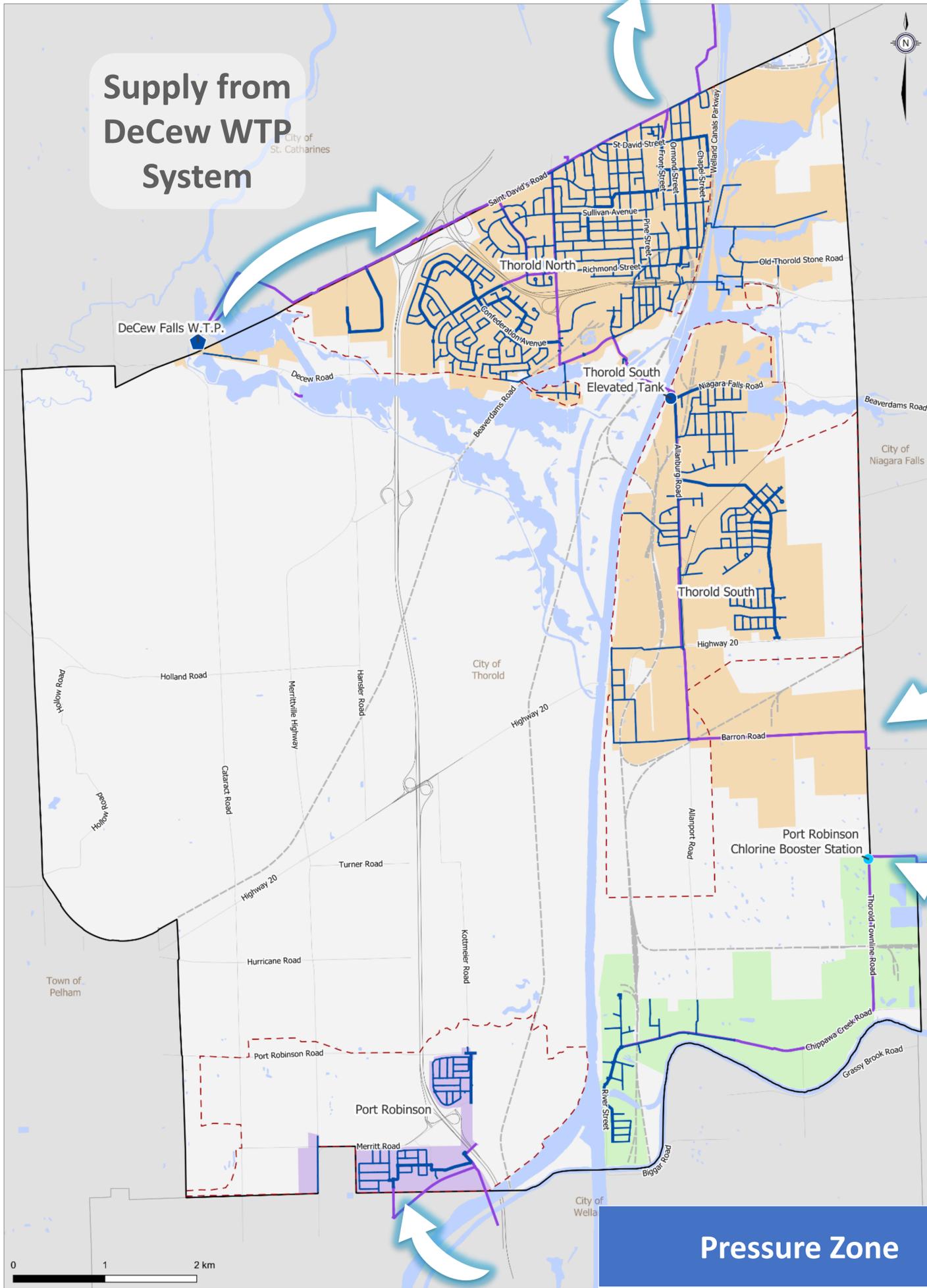


System	Service Objective	City Assets	Regional Assets
<b>Water Infrastructure</b>	To provide an efficient, sustainable, and a safe water system that meets regulatory requirements, minimizes service disruptions, and is capable of accommodating growth.	<b>Distribution</b> <ul style="list-style-type: none"> <li>Local watermains</li> <li>Fire hydrants</li> <li>Service connections</li> </ul>	<b>Treatment</b> <ul style="list-style-type: none"> <li>Water treatment plant</li> </ul> <b>Transmission</b> <ul style="list-style-type: none"> <li>Trunk watermains</li> <li>Pumping stations</li> <li>Storage facilities (water towers and reservoirs)</li> </ul>
<b>Sewer Infrastructure</b>	To provide an efficient, sustainable, and reliable wastewater system that minimizes environmental impacts and is capable of accommodating growth.	<b>Collections</b> <ul style="list-style-type: none"> <li>Local sewers</li> <li>Local sewage pumping station &amp; forcemain</li> </ul>	<b>Treatment</b> <ul style="list-style-type: none"> <li>Wastewater treatment plant</li> </ul> <b>Transmission</b> <ul style="list-style-type: none"> <li>Trunk sewers</li> <li>Sewage pumping stations &amp; Forcemains</li> </ul>
<b>Stormwater Infrastructure</b>	To provide an efficient, sustainable, and reliable stormwater management system that minimizes environmental impacts and protects public health and property.	<ul style="list-style-type: none"> <li>Storm sewers</li> <li>Roadside ditches</li> <li>Channels and watercourses</li> <li>Culverts</li> <li>Catch basins</li> <li>Stormwater management ponds</li> <li>Water quality treatment facilities</li> <li>Any other low impact development (LIDs)</li> </ul>	<ul style="list-style-type: none"> <li>Infrastructure on Regional Roads</li> </ul>

# Existing Thorold Water System



## Flows to St. Catharines and Niagara-on-the-Lake



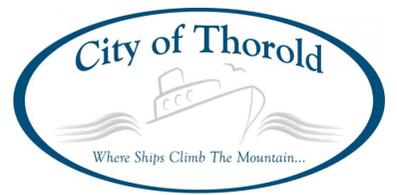
Supply from Niagara Falls WTP System

Supply from Welland WTP System

Existing Water Infrastructure		Other	
<span style="color: blue;">●</span> Chlorine Facility	<span style="color: blue;">●</span> Elevated Tank	<span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Thorold Boundary	<span style="border: 1px dashed red; display: inline-block; width: 15px; height: 10px;"></span> Urban Area Boundary
<span style="color: blue;">■</span> Water Treatment Plant	<span style="color: blue;">—</span> Regional Watermain	<span style="background-color: lightblue; display: inline-block; width: 15px; height: 10px;"></span> Waterbodies	
<span style="color: blue;">—</span> Local Mains (>= 300 mm)	<span style="color: blue;">—</span> Local Mains (<300 mm)	Water Pressure Zones	
		<span style="background-color: orange; display: inline-block; width: 15px; height: 10px;"></span> 227 m HGL	<span style="background-color: lightgreen; display: inline-block; width: 15px; height: 10px;"></span> 250 m HGL
		<span style="background-color: purple; display: inline-block; width: 15px; height: 10px;"></span> 220 m HGL	

Pressure Zone	Total Average Demand (L/s)*
Zone 227 (North and South Thorold)	53.5
Zone 250 (Port Robinson East)	1.7
Zone 220 (Port Robinson West)	5.7
<b>Total</b>	<b>60.9</b>

# Opportunities and Constraints – Existing Water System



Localized areas with reduced fire flow, mostly due to older cast iron watermains.

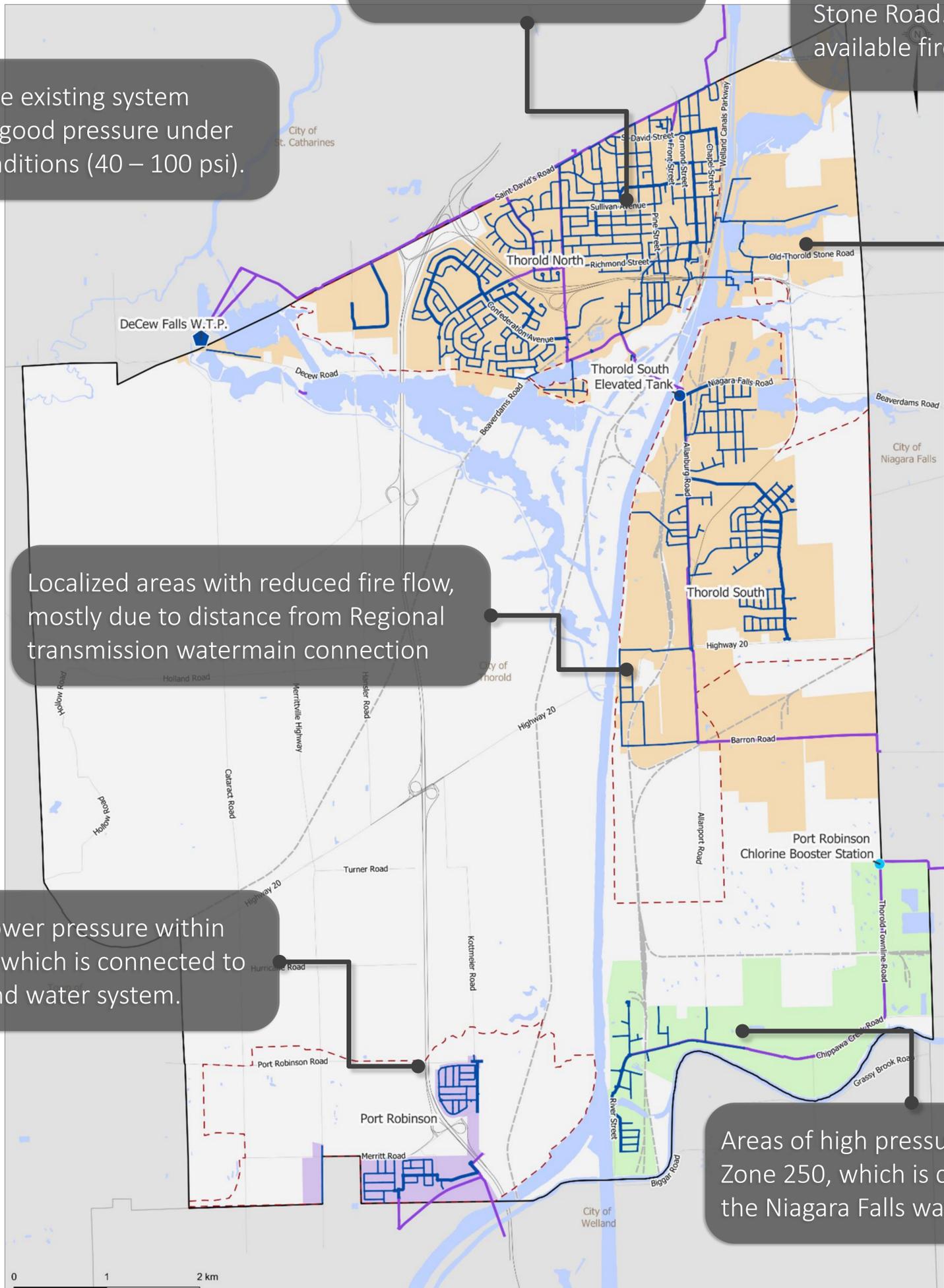
Opportunity to improve servicing to the industrial area on the east side of the canal around Old Thorold Stone Road. Existing available fire flow is low.

Most of the existing system maintains good pressure under typical conditions (40 – 100 psi).

Localized areas with reduced fire flow, mostly due to distance from Regional transmission watermain connection

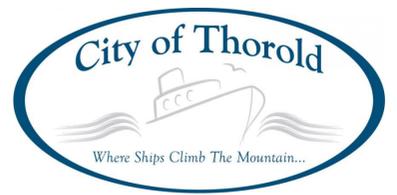
Areas of lower pressure within Zone 220, which is connected to the Welland water system.

Areas of high pressure within Zone 250, which is connected to the Niagara Falls water system.



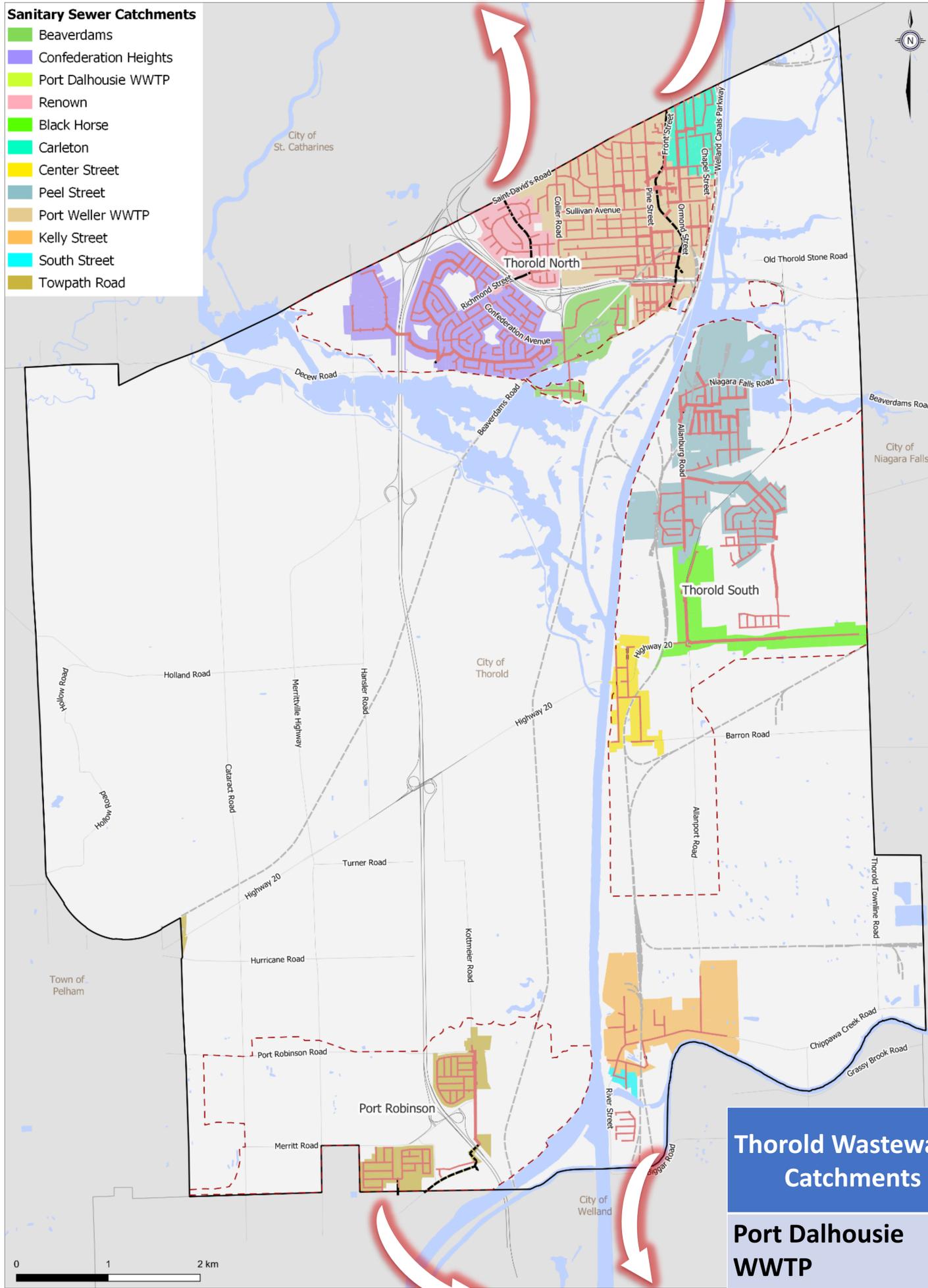
Existing Water Infrastructure		Other	
<span style="color: cyan;">●</span>	Chlorine Facility	<span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span>	Thorold Boundary
<span style="color: blue;">●</span>	Elevated Tank	<span style="border: 1px dashed red; display: inline-block; width: 15px; height: 10px;"></span>	Urban Area Boundary
<span style="color: blue;">■</span>	Water Treatment Plant	<span style="background-color: lightblue; display: inline-block; width: 15px; height: 10px;"></span>	Waterbodies
<span style="color: purple;">—</span>	Regional Watermain	<b>Water Pressure Zones</b>	
<span style="color: blue;">—</span>	Local Mains ( $\geq 300$ mm)	<span style="background-color: orange; display: inline-block; width: 15px; height: 10px;"></span>	227 m HGL
<span style="color: blue;">—</span>	Local Mains ( $< 300$ mm)	<span style="background-color: lightgreen; display: inline-block; width: 15px; height: 10px;"></span>	250 m HGL
		<span style="background-color: purple; display: inline-block; width: 15px; height: 10px;"></span>	220 m HGL

# Existing Thorold Wastewater System



To Port Dalhousie  
WWTP

To Port Weller  
WWTP



Thorold Wastewater Catchments	Average Dry Weather Flow (L/s)	Wet Weather Peak Flow (L/s/ha)
Port Dalhousie WWTP Tupper Drive Flume	30.3	0.3 - 0.4
To Port Weller WWTP Thorold Townline Flume	36.4	0.1 - 7.0
Welland WWTP Kelly St SPS	2.4	0.3 - 1.4

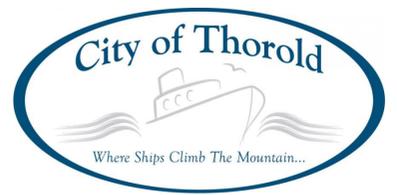
**Existing Wastewater Infrastructure**

- ▲ Sewage Pumping Station (Region Owned)
- Force Main
- Local Sewers**
- >= 300 mm
- < 300 mm

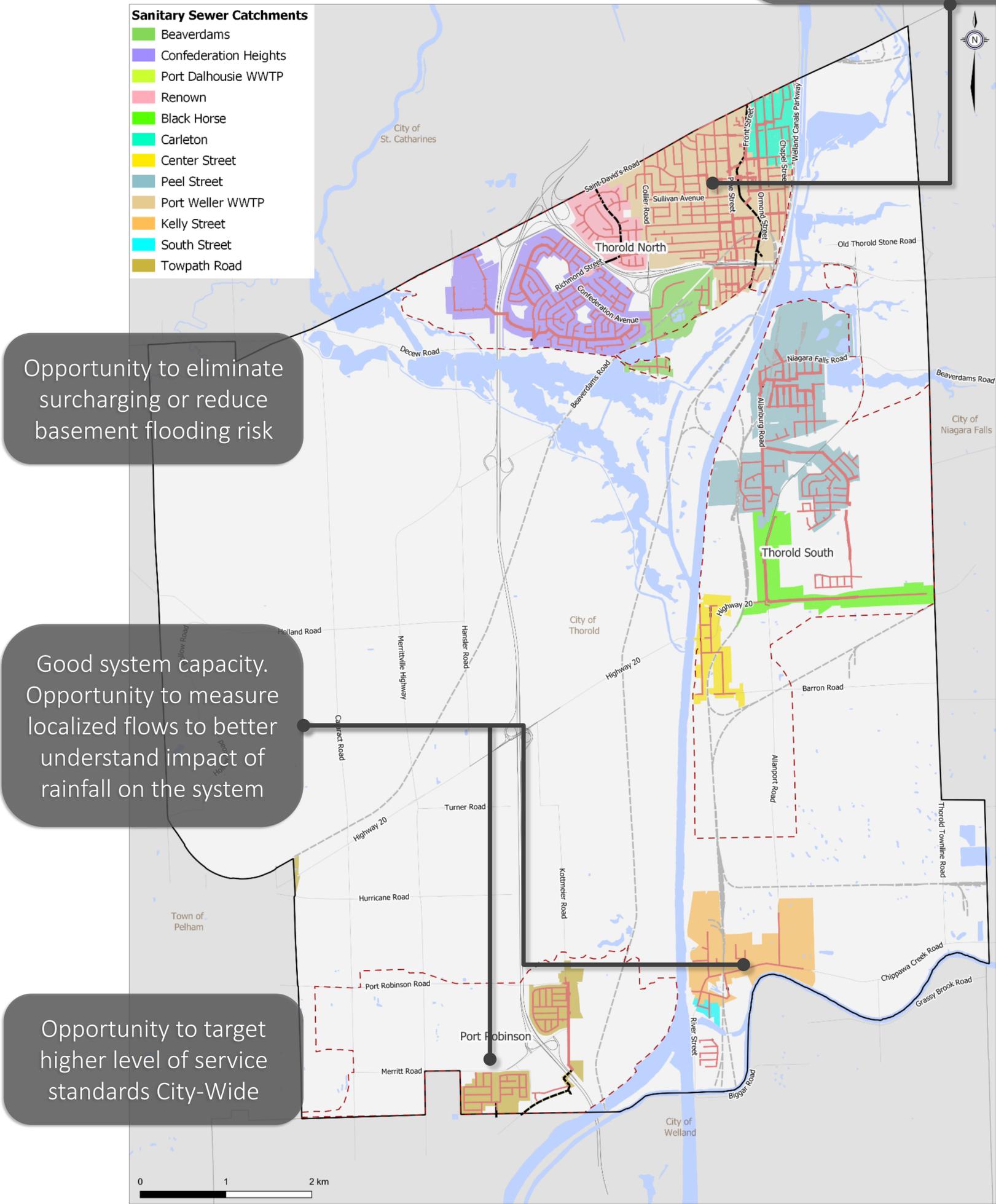
**Other**

- Thorold Boundary
- - - Urban Area Boundary
- Waterbodies

# Opportunities and Constraints – Existing Wastewater System

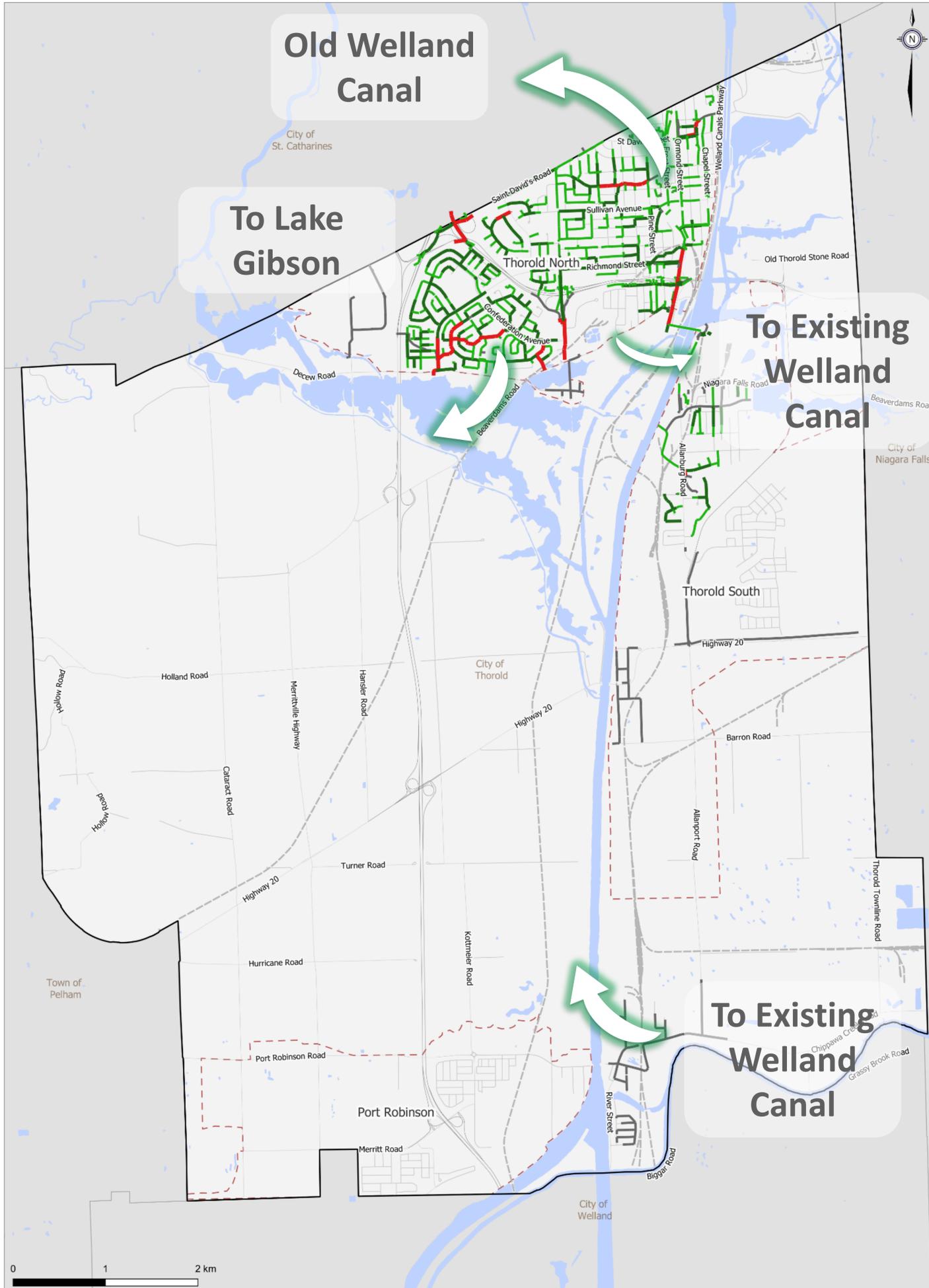
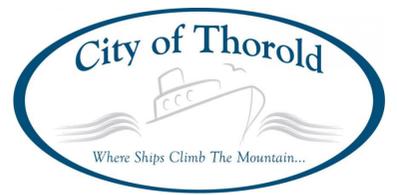


Ongoing flow monitoring will provide the opportunity to better understand the impact of rainfall on the wastewater system



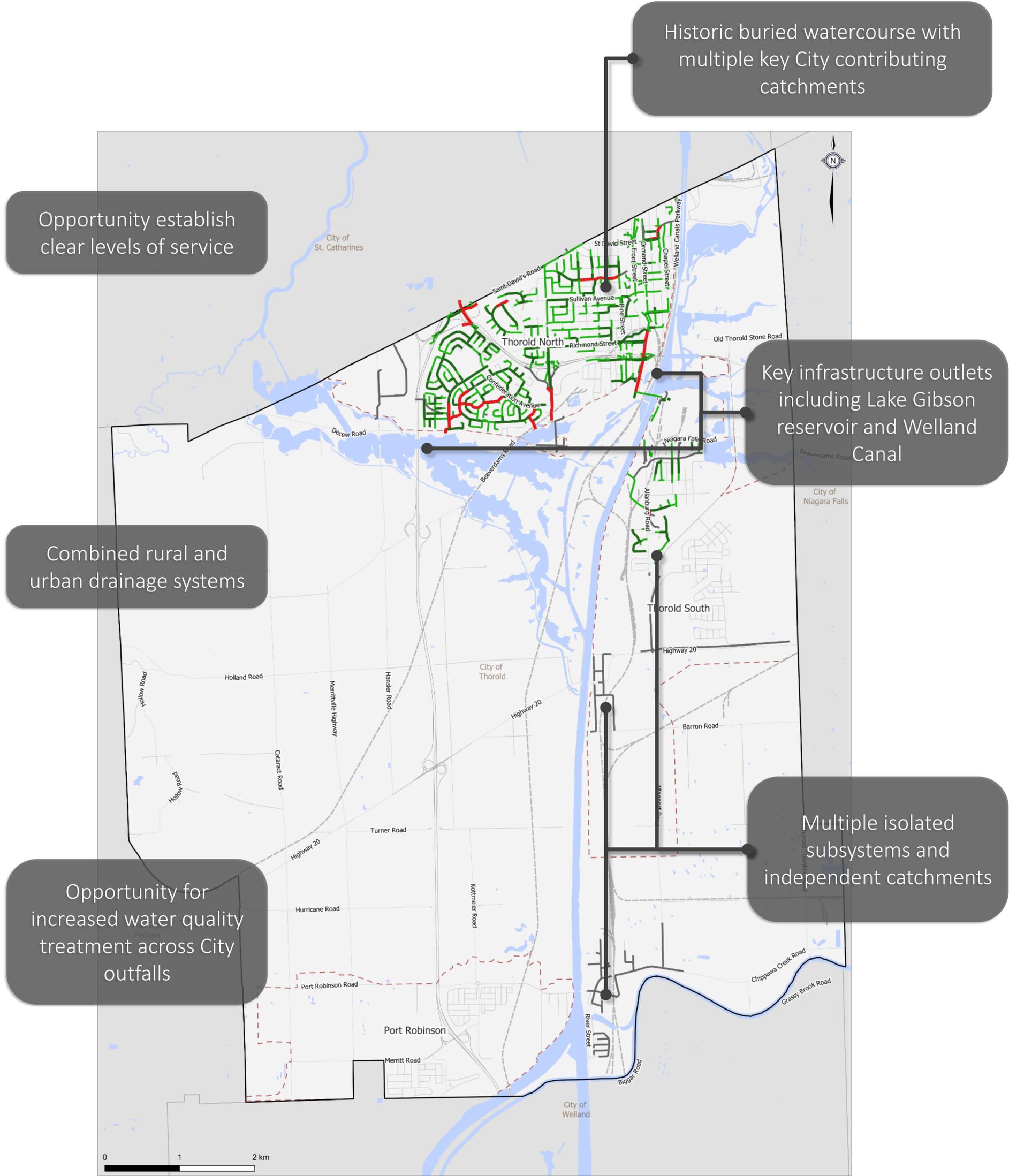
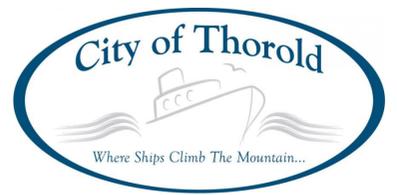
Existing Wastewater Infrastructure		Other	
▲	Sewage Pumping Station (Region Owned)	□	Thorold Boundary
----	Force Main	- - - -	Urban Area Boundary
<b>Local Sewers</b>		■	Waterbodies
—	≥ 300 mm		
—	< 300 mm		

# Existing Thorold Stormwater System



Existing Stormwater Infrastructure		Other	
—	Unknown Diameter	□	Thorold Boundary
—	< 525 mm	□	Urban Area Boundary
—	525 mm - 1225 mm	■	Waterbodies
—	>= 1225 mm	—	Roads
		—	Highway
		—	Arterial
		—	Access Road, Local, Private

# Opportunities and Constraints – Existing Stormwater System



Existing Stormwater Infrastructure	Other
— Unknown Diameter	▭ Thorold Boundary
— < 525 mm	- - - Urban Area Boundary
— 525 mm - 1225 mm	■ Waterbodies
— >= 1225 mm	<b>Roads</b>
	— Highway
	— Arterial
	— Access Road, Local, Private

## Comments and Questions

- Review and incorporate responses from PIC No. 1

## Planning for Growth

- Develop future growth scenario for the water and wastewater system analysis

## Technical Analysis

- Incorporate flow monitoring program data into the wastewater system analysis
- Investigate alternative water, wastewater, stormwater servicing strategies and concepts

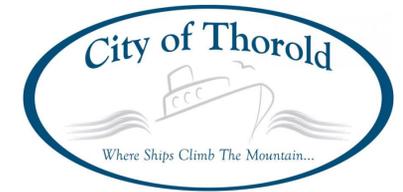
## Further Engagement

- Engagement with Indigenous Rights Holders
- PIC No. 2 – present growth scenario, alternative servicing strategies, and preliminary preferred capital programs

## Final Master Plan Project Files

- Opportunity for public review of project files before filing the notice of completion

# Thank you for your participation!



**We want to hear from you!**

**Please let us know your thoughts by filling out a comment form.**

**If you have any questions or input, please speak with one of the project team members here, and/or you may contact the City of Thorold Project Manager:**

**Abu Rashed, M.Eng., P.Eng., PMP**

Project Manager

City of Thorold

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Please note that information related to this study will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. All comments received will become part of the public record and may be included in the study documentation prepared for public review.