

## **Stormwater Management Master Plan for Township of Centre Wellington (Fergus and Elora)**

### **Public Information Centre #1**

October 19, 2023

The Township is undertaking its first Stormwater Management Master Plan. We invite you to inform the development of this Master Plan by providing your feedback.

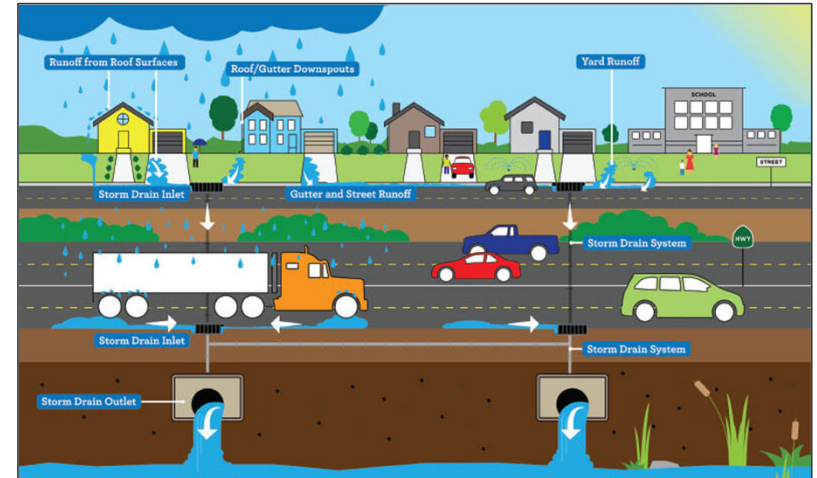


## What is Stormwater?

- Stormwater refers to rain and snowmelt that either seeps into the ground or runs off the land (lawns, streets and other surfaces) into storm sewers, streams, and lakes

## Why Manage Stormwater?

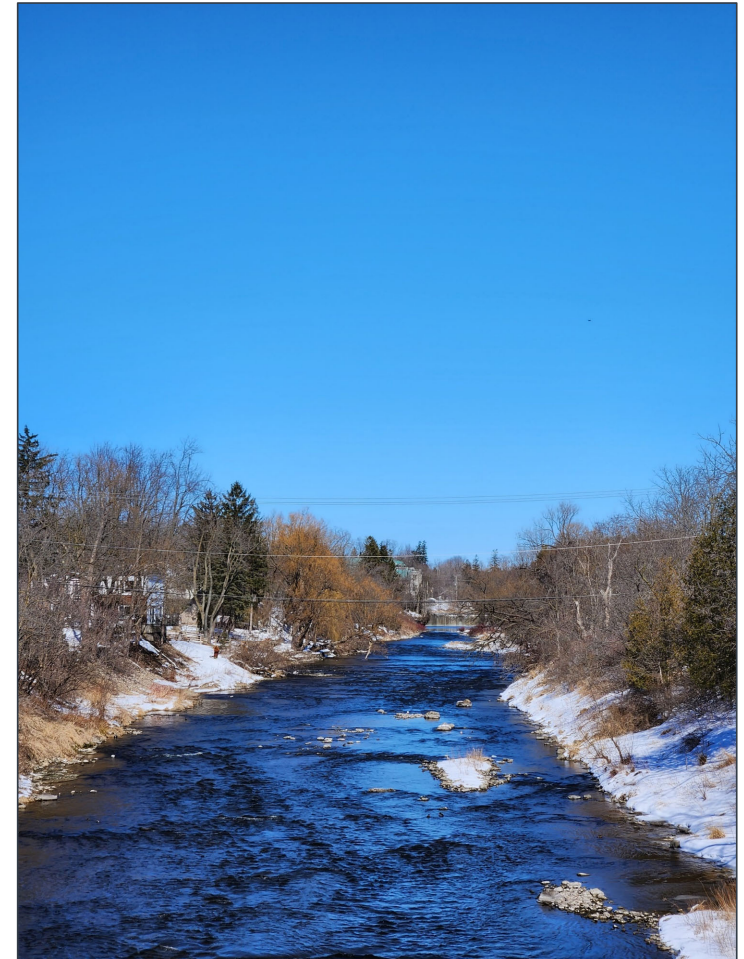
- Pollutants may enter waterways through stormwater running over impervious surfaces and other types of land
- Stormwater runoff is directed to creeks and rivers, which are also frequently drinking water sources and recreational areas
- Stormwater may contribute to flooding conditions putting homes, roads and businesses at risk
- Stormwater can erode creeks and add silt impacting slope stability and fish habitat





## Key issues Related to Stormwater

- Climate change typically increases the intensity and frequency of storm events
- Growing communities (infill, intensification and expansion) may put additional stresses on the stormwater system
- Aging infrastructure may pose additional operational and maintenance requirements
- Flood safety and mitigation (both in local drainage systems and receiving watercourses)
- Low Impact Development (LID) and Green Infrastructure (GI) increasingly being required for new stormwater management
- Water quality protection of receiving watercourses
- Stormwater temperature impacts (warmer water) to receiving watercourses
- Winter conditions may cause operational issues



## Stormwater Management Practices to Consider

- **Storm Sewer Upgrades** - improve conveyance capacity in areas with identified deficiencies
- **Source control (LID) measures** –green roofs, permeable pavement, cisterns and rain barrels
- **Conveyance control (LID) measures** – bioswales, enhanced grassed swales, infiltration trenches
- **End-of-pipe measures** – wet ponds, dry ponds, wetlands, underground storage tanks
- **Downspout and foundation drain disconnection** – reduce connections to storm sewers where feasible
- **Pollution prevention** – road salt management, street sweeping, pesticide reduction
- **Operation and maintenance** – stormwater pond cleanouts, storm sewer and catchbasin flushing

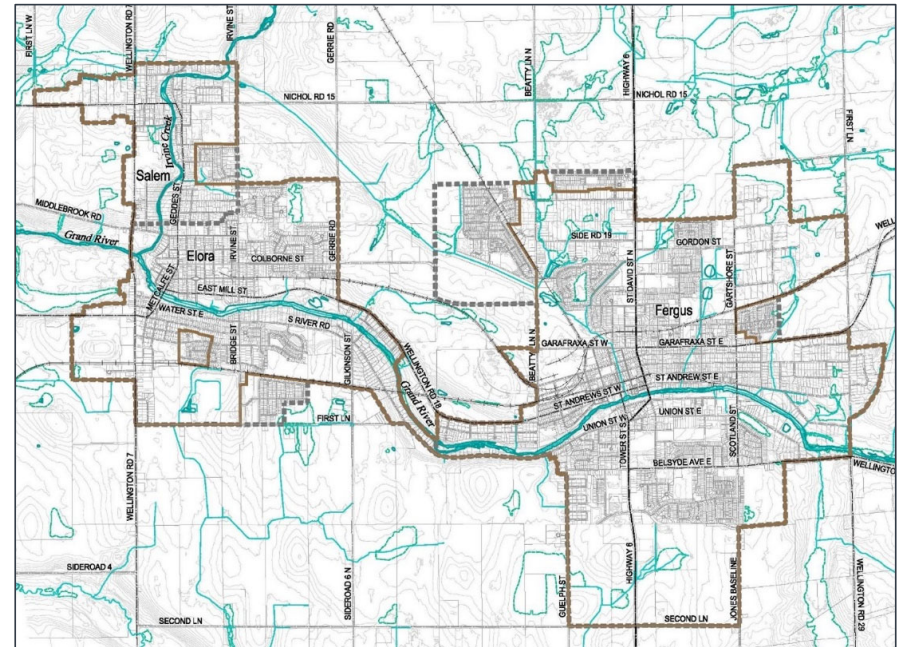


## Objectives of the Master Plan Study

The main objective of this study is to develop a long-term plan for the safe and effective management of stormwater runoff while maintaining, and where possible improving, the ecosystem health and ecological sustainability of the Township's water resources. The Stormwater Management Plan will:

- Assess the effectiveness of existing stormwater drainage systems
- Identify and predict the potential impacts of existing and future development on stormwater quality and quantity
- Identify and evaluate alternative solutions for these areas to improve levels of service.

Innovative approaches such as Low Impact Development (LID) and green infrastructure will also be explored within the Township right-of-way with emphasis on water quality.

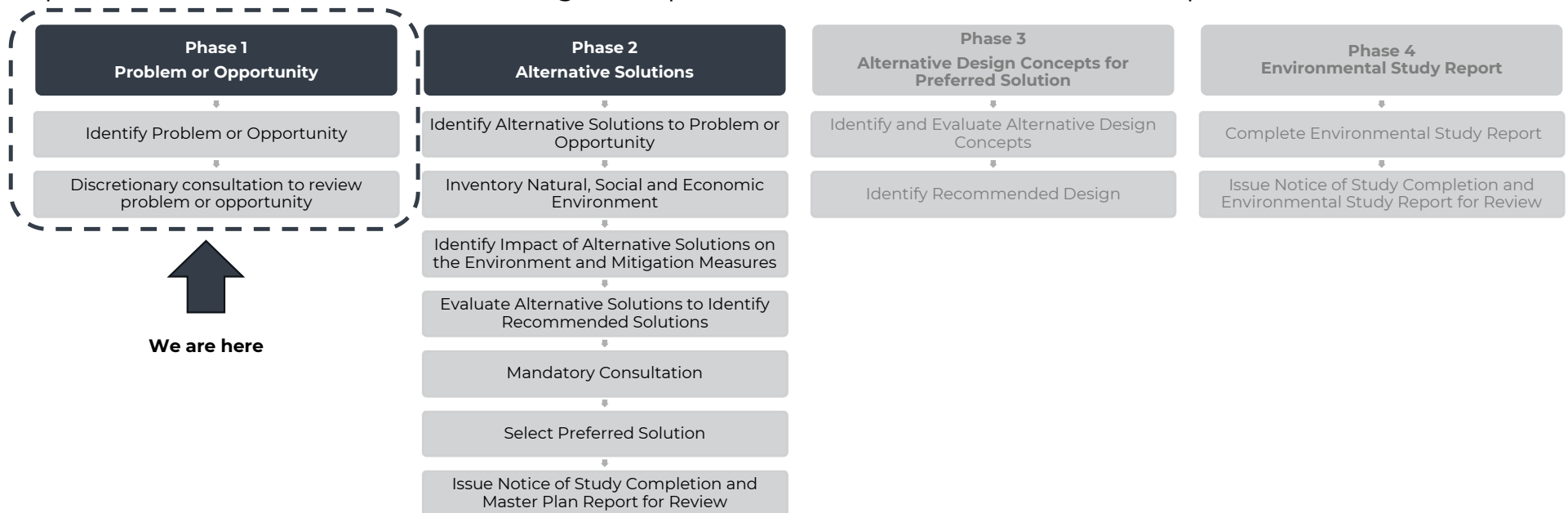


The study area generally encompasses communities of Fergus and Elora with the exception of ongoing \ planned development areas.



# Master Plan Study Process

This Master Plan study is following the requirements of Phases 1 & 2 of the Municipal Class Environmental Assessment (MCEA) process in accordance with Approach #2 of the Master Plan Process. This study will recommend a group stormwater management improvement projects. This study will address the environmental assessment requirements for small scale projects, such as, storm sewer upgrades, operations and maintenance works, etc. If more significant projects are identified via this study, they may require additional future studies through completion of Phases 3 & 4 of the MCEA process.



## Consultation Program

Consultation is a key aspect of this study. Following graphic summarizes key planned consultation activities.



**Public:** Two Public Information Centres are planned to seek feedback from the public and interested stakeholders. This is first of the two events.



**Indigenous Nations:** Project notices are sent to the Indigenous Nations to initiate consultation and identify any interests / concerns about the project.



**Government Agencies:** Meetings will be held with the Technical Advisory Committees comprised of staff from Township and other government agencies.

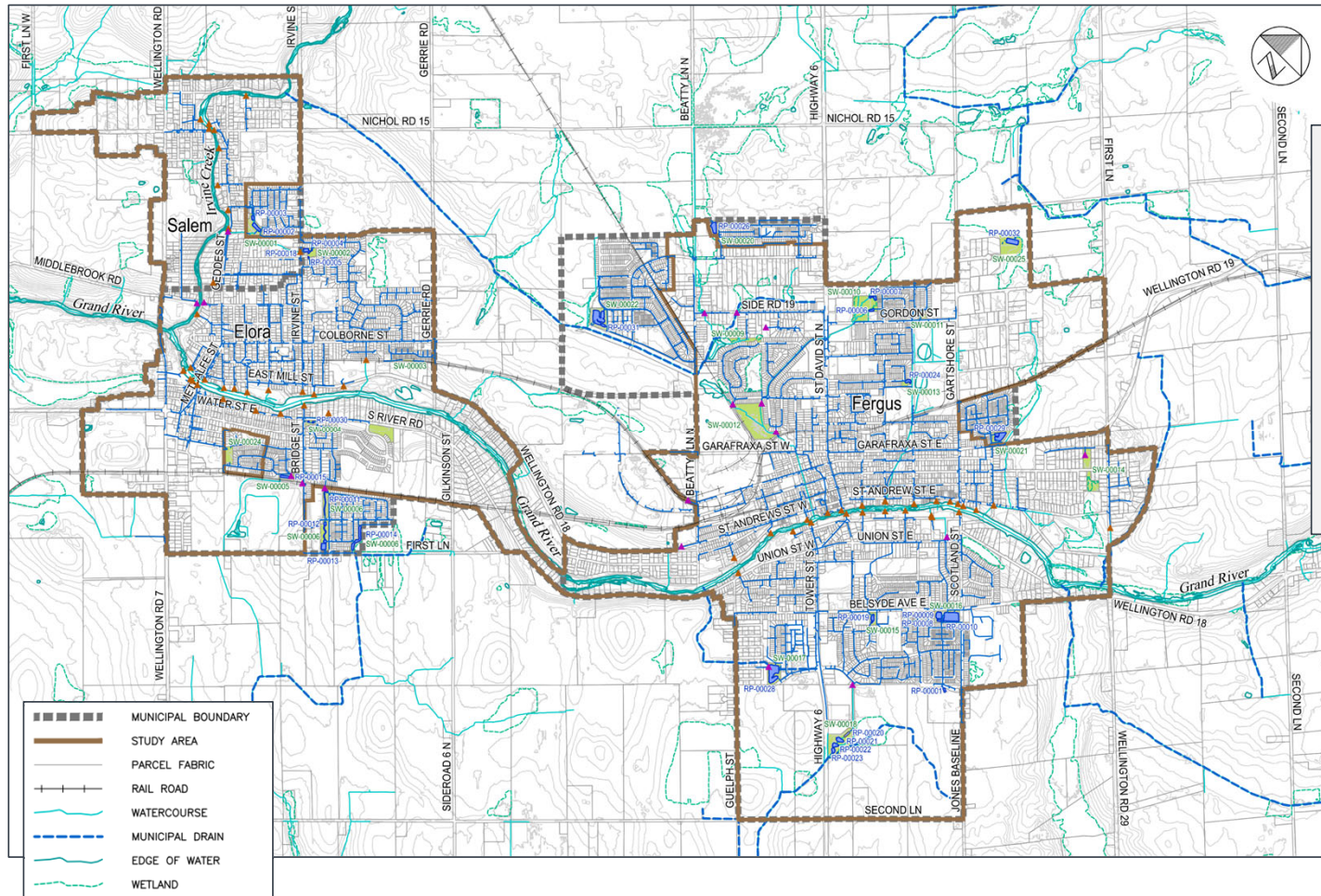


All project reports will be made available for review by the public, interested stakeholders, Indigenous Nations, and Government Agencies.



**Project Website:** <https://www.connectcw.ca/swm-master-plan>

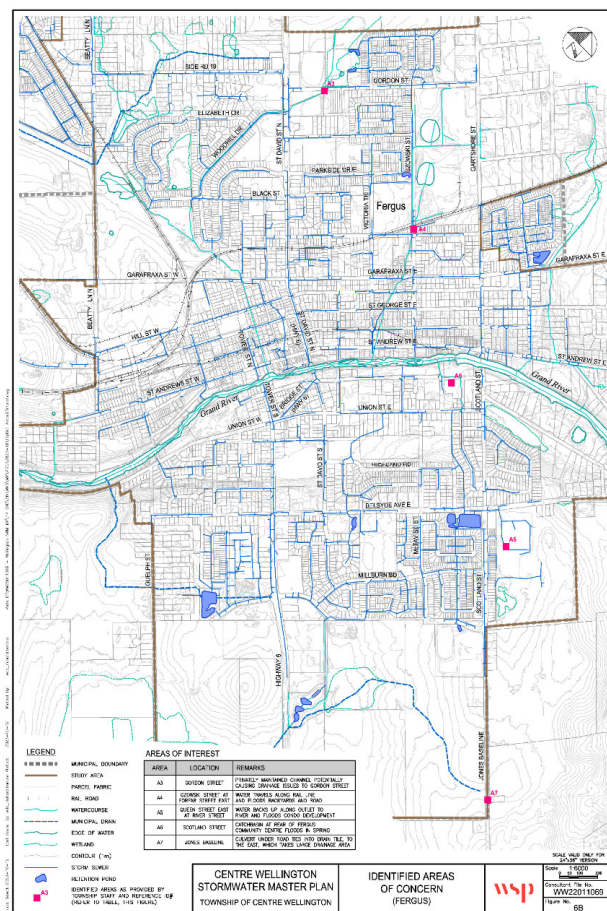
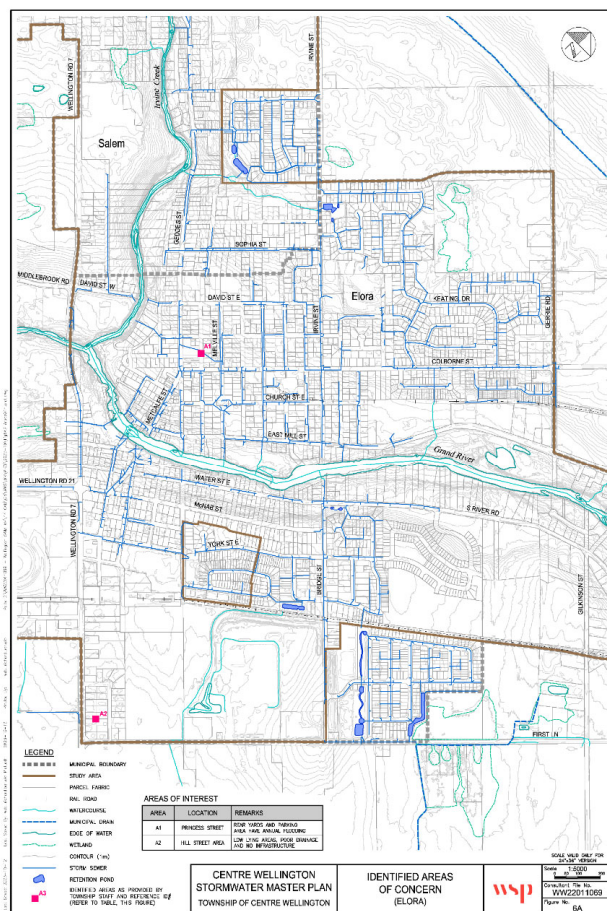
# Existing Stormwater System



- 15 Stormwater Management Facilities
- 4 Oil and Grit Separators
- 106 km long network of Storm Sewers
- 534 Maintenance Holes
- 3,351 Catchbasins and Catchbasin Maintenance Holes



## Existing Stormwater System Areas of Concern



The following locations reflect areas of identified storm drainage issues in Elora:

1. Princess Street Area
2. Hill Street Area

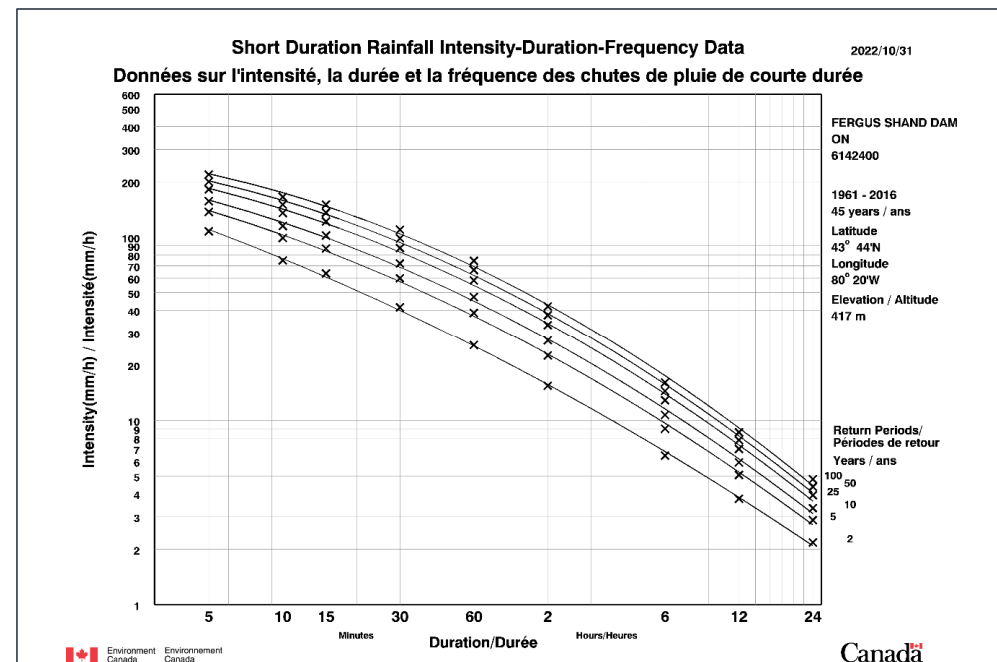
Areas identified in Fergus include:

1. Gordon Street area
2. Gzowski Street at Forfar Street
3. Queen Street at River Street
4. Scotland Street area
5. Jones Baseline area

***We invite you to identify any other known areas of drainage / flooding concern in your neighbourhood.***

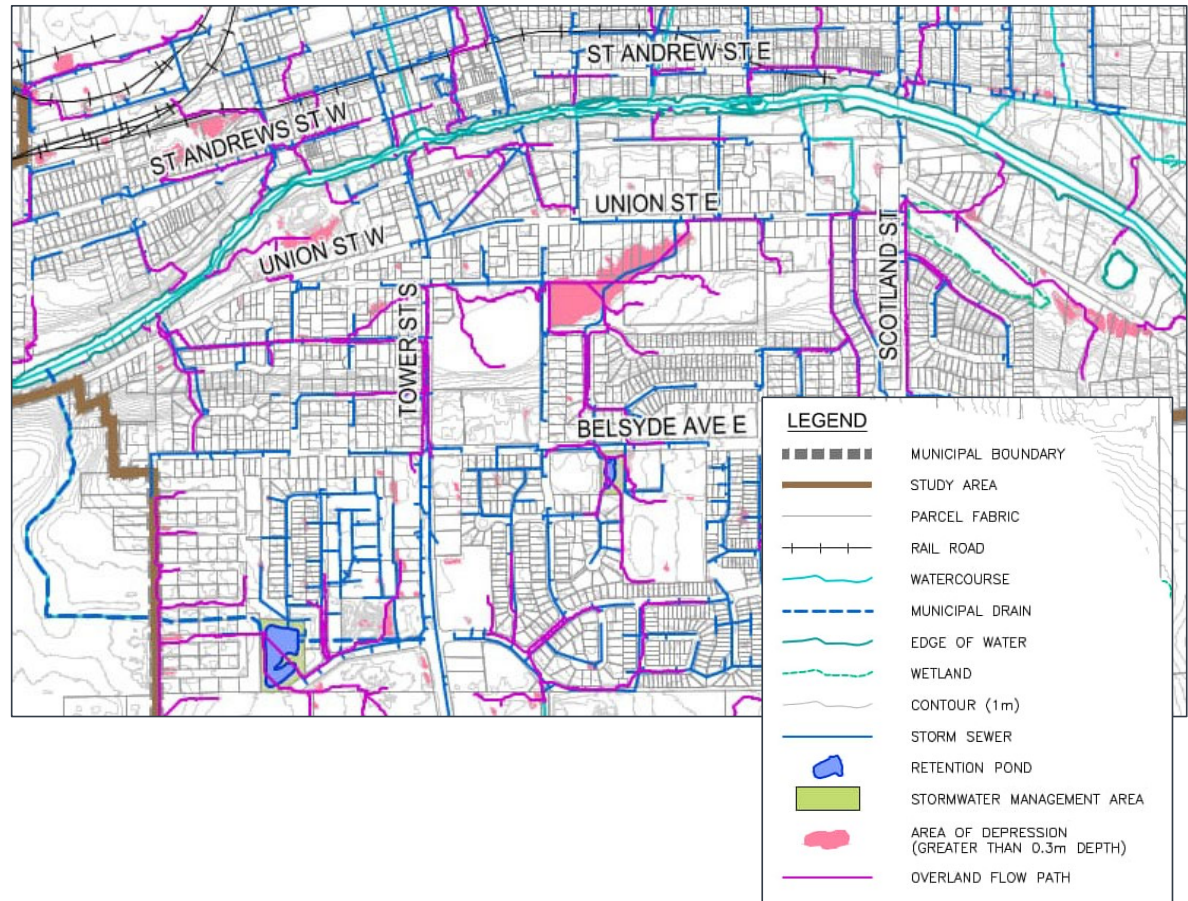
## Brief Summary of Findings – Climate Change and Rainfall

- Intensity-Duration-Frequency (IDF) data is a statistical analysis of historic rainfall data to confirm the frequency of rainfall amounts (how often do we get storms of different magnitudes)
- Township's currently approved IDF data is more conservative than most recent update from Environment Canada (data from 1961 to 2016; 51 years)
- Notwithstanding, a review of Climate Change prediction tools was undertaken to confirm how this may change in the future
- Climate Change models indicate variable predictions; 24-hour rainfalls are between -7 and +15% different
- The final approach to management of IDF for Centre Wellington is still to be confirmed



## Brief Summary of Findings – Data Analysis

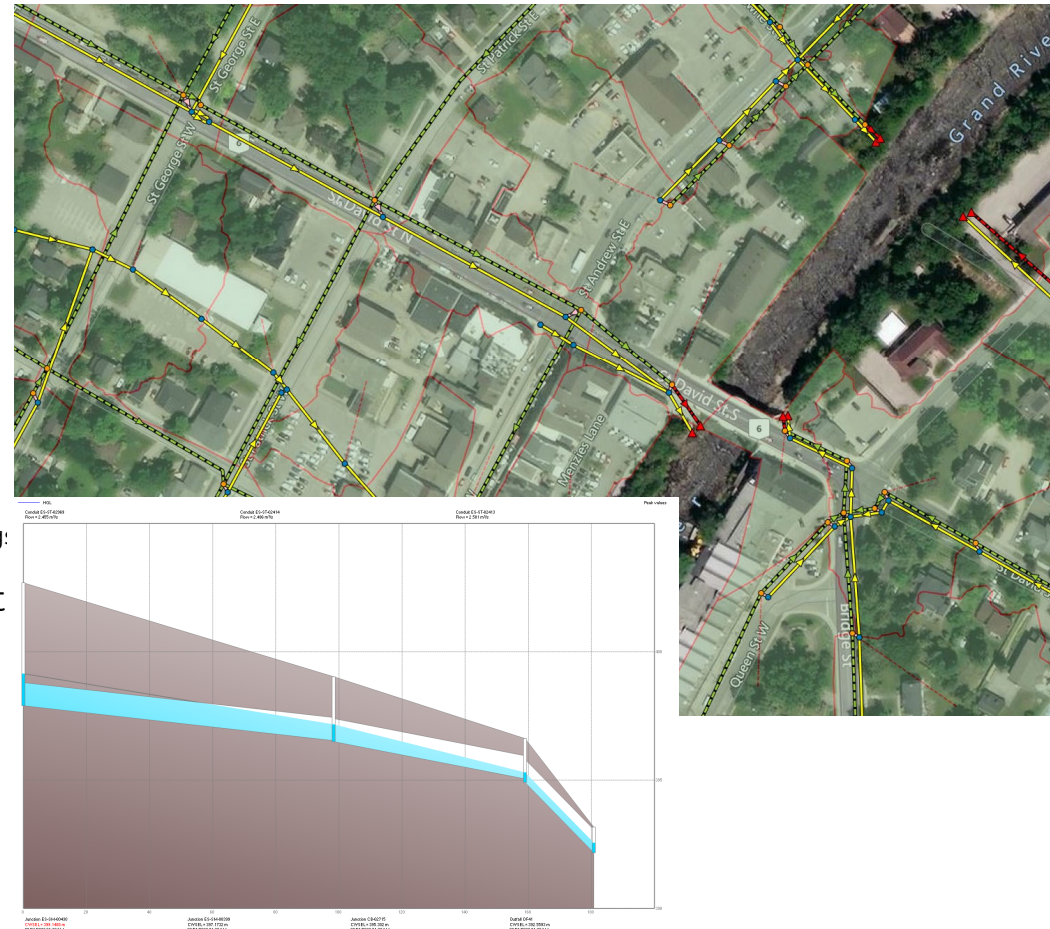
- High-resolution topographic mapping data (LiDAR) is available for Centre Wellington
- This data was analyzed to understand if there are any issues with potential overland drainage concerns
  - Depression storage areas (areas without an overland outlet)
  - Areas with larger accumulations of overland flow
- Overall, the results indicate most areas are well graded and sloped towards watercourses
- Some overland flow pathways through private property which may require further review





## Next Steps - Modelling

- A combined hydrologic\hydraulic model has been developed to assess
  - The expected flows to the urban drainage systems under different types of storms (1 in 5-year and 1 in 100-year storm events)
  - The performance of storm sewers and roadways during these events
- The model is currently being “validated” to confirm that it is generated reasonable results
  - Comparison to field monitoring program results from 2022
  - Comparison to recent design studies for Centre Wellington
  - Hydrologic parameters may be adjusted depending on findings
- Following completion of the model validation effort performance of the drainage system will be assessed
- This will help inform the preferred solution, including priority locations for drainage system improvements



## Next Steps

The Study Team will

- Review the comments received and incorporate key feedback into the study
- Assess the effectiveness of existing stormwater drainage systems
- Identify and evaluate alternative solutions for these areas to improve levels of service
- Identify a recommended stormwater management strategy for the Township

## Schedule

### **February 2024**

Evaluation of Alternatives and  
Development of a Preferred  
SWM Strategy

### **March 2024**

PIC #2 to present the Preferred  
Solution

### **July 2024**

Study Completion

## Thank You for Participation!

We encourage you to complete the comment form available on project webpage. Your feedback is requested by November 2, 2023

*Tell us about any known drainage and flooding related concerns / issues in your community*

## Project Contacts

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