

Windsor Stormwater Study



Climate Crisis & WHRM Infrastructure



Increased frequency, intensity and duration of storms



Infrastructure was historically designed as a combined system, with sewage and stormwater flowing through the same pipes



During heavy rainfall events system capacity can be exceeded, resulting in combined sewer overflows and overland flooding



Particularly an issue in downtown Windsor between Stannus Street and Gray Street (Cunnabel Creek Stormwater Shed)

July 2021

- 48.5 mm in 1.5 hr
- Rain intensity was equal to 1:100-year storm



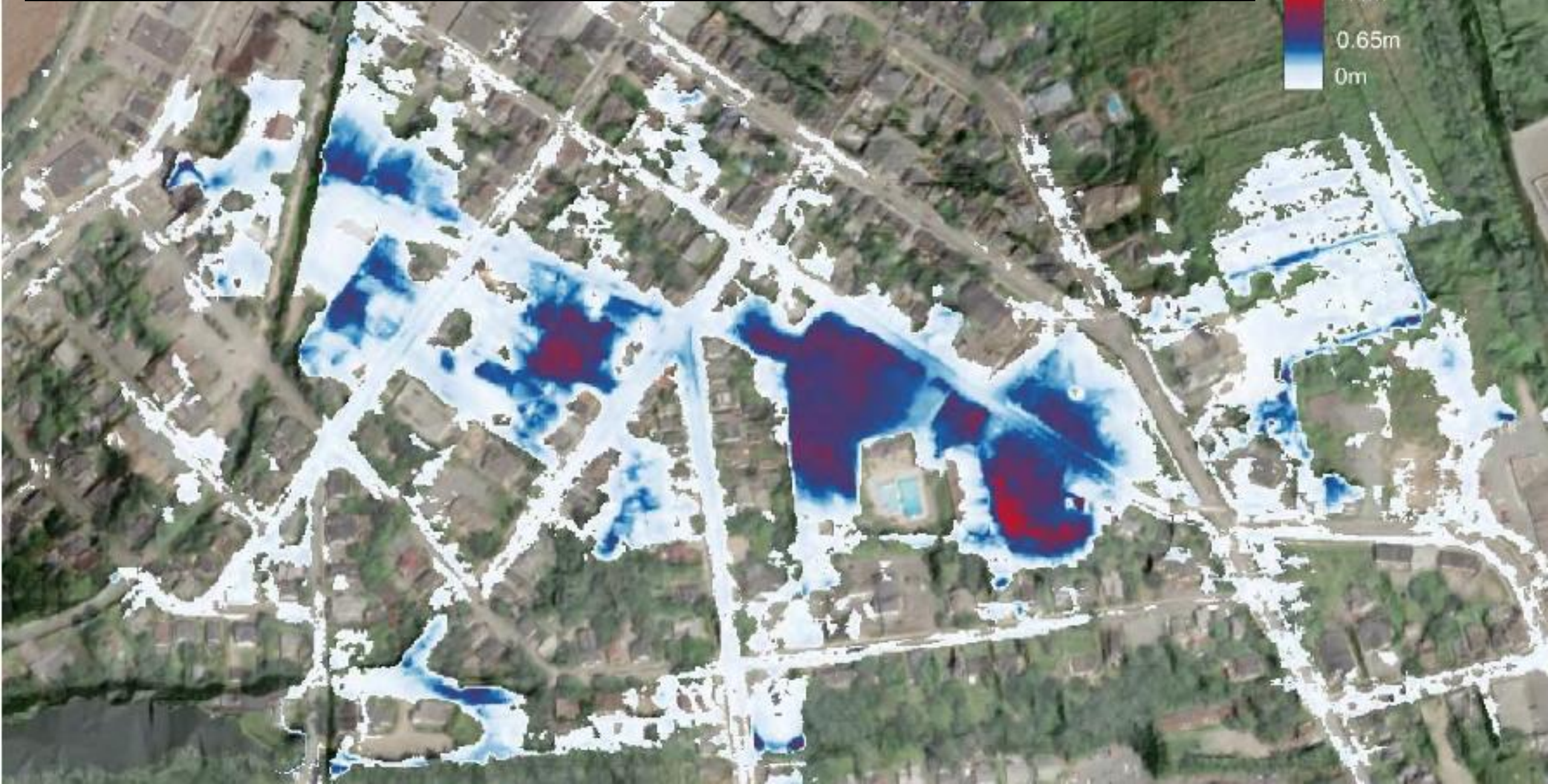
Victoria Park and Stannus Street

July 2023

- 250-300 mm of rain over a 24hr period
- Classified as 1:100-year storm

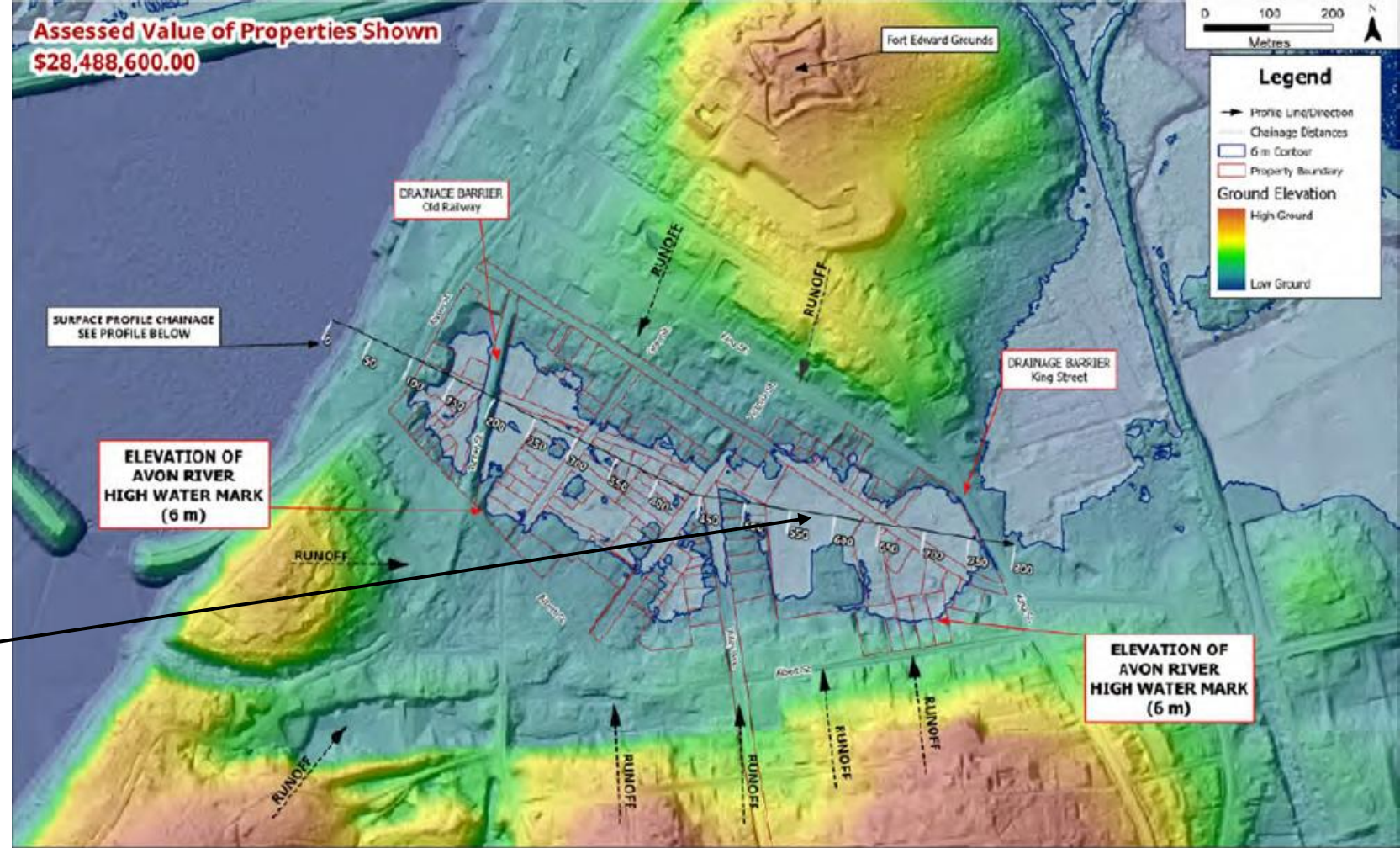


Existing Conditions: 1 in 100-year Storm with Climate Change

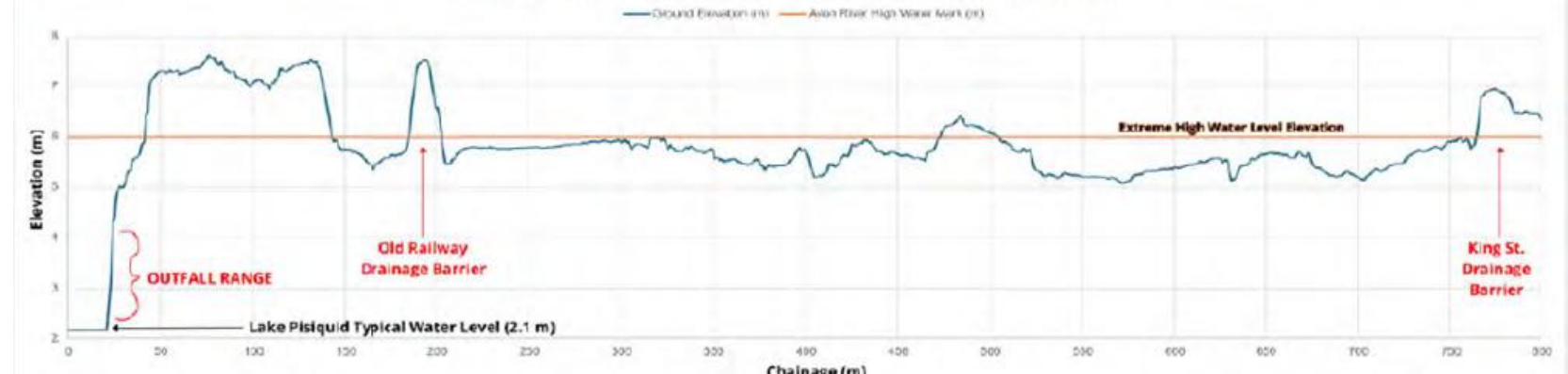


Existing Conditions

- Bowl shaped topography
- Stannus Street cannot drain by gravity



Ground Elevation along Profile and Comparison with Avon River's High Water Elevation



Windsor Stormwater Study



Successful in PCAP (\$85k) and FRIIP (\$135k) funding applications

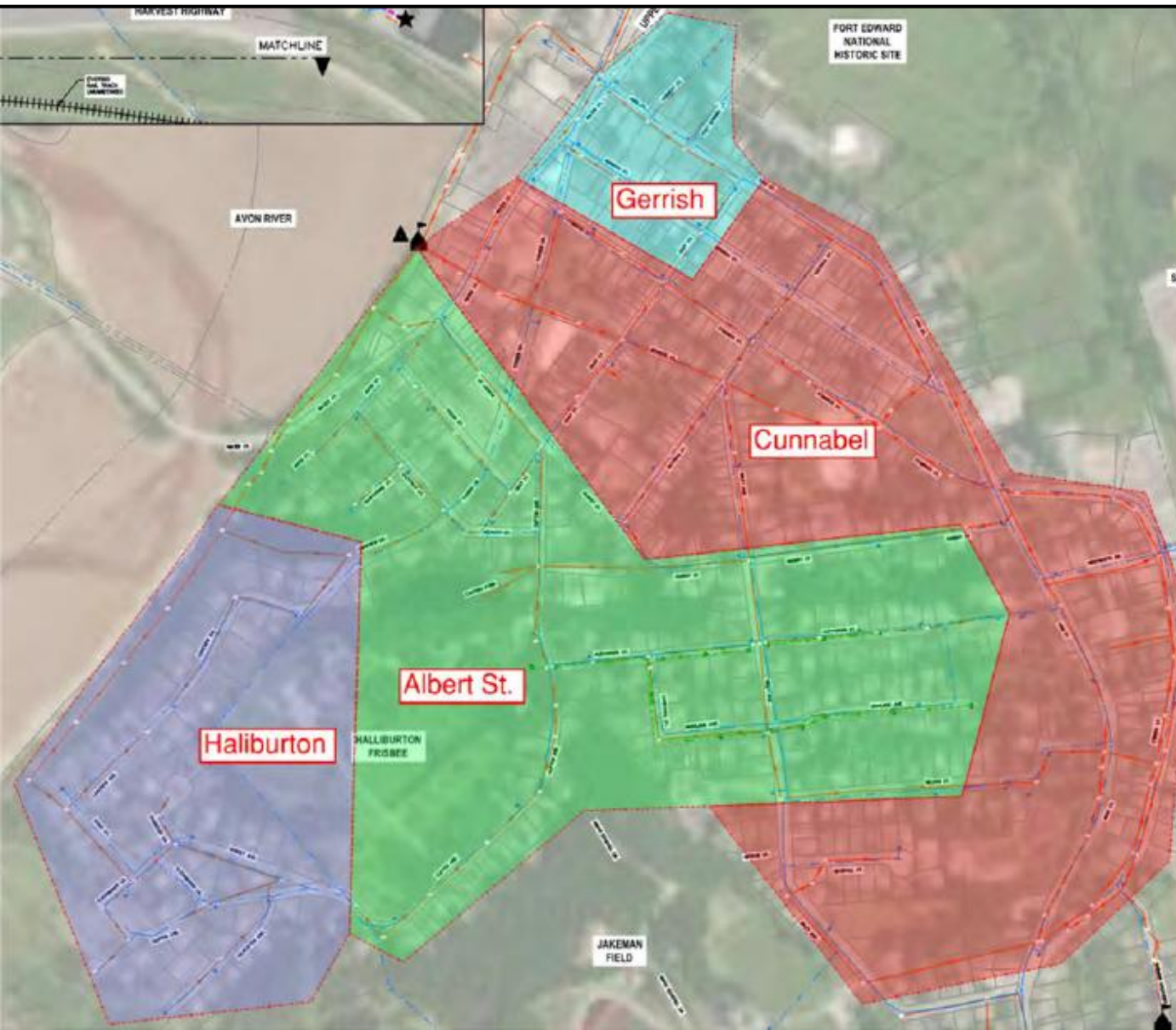


CBCL Ltd. retained by WHRM to complete comprehensive stormwater study

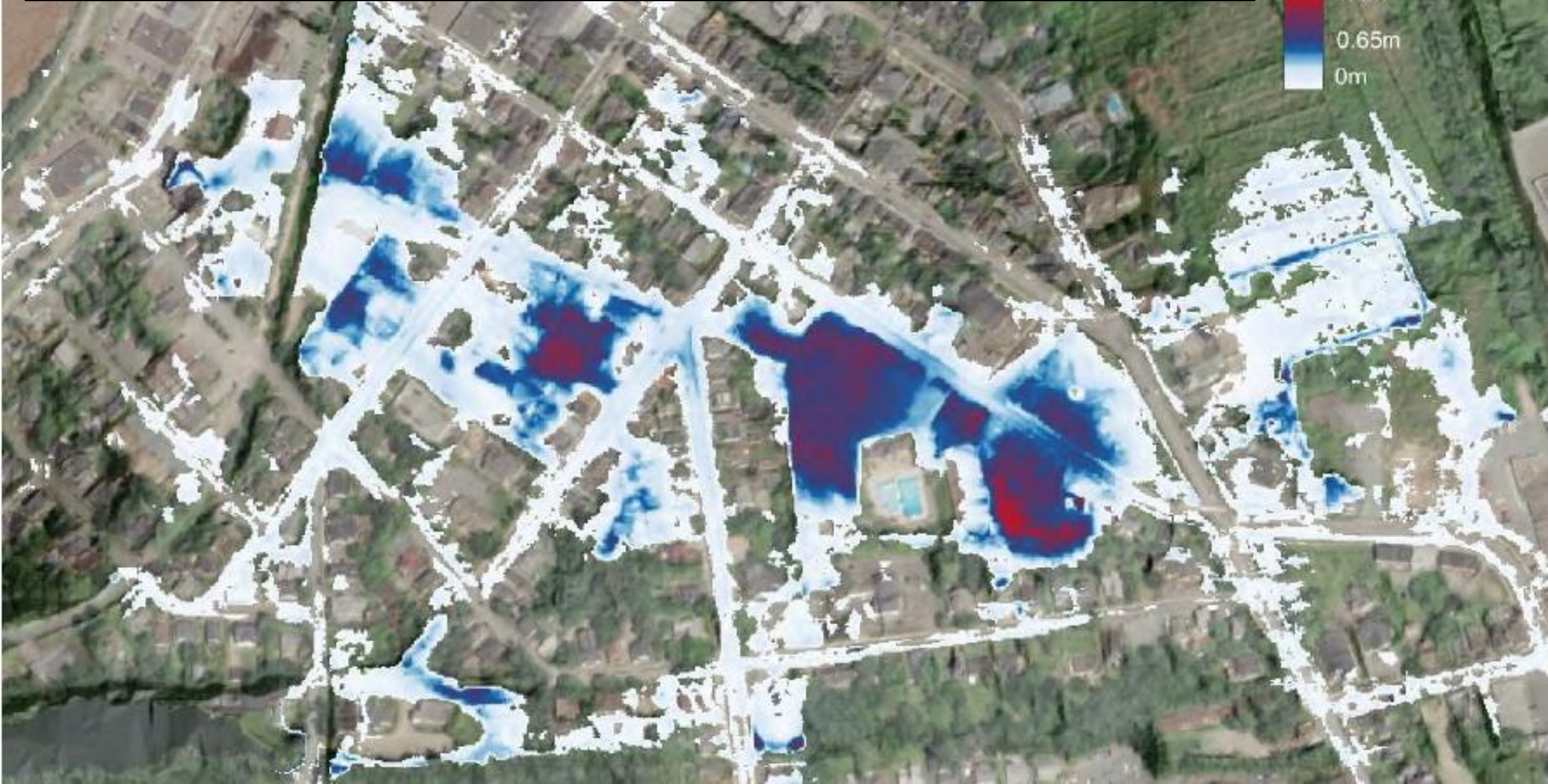
Study Stages:

- Data Collection & Flow Monitoring
- Option Development
- Integrated Options
- Construction Phasing
- Cost Estimates

Windsor Stormwater Study — Option Development



Existing Conditions: 1 in 100-year Storm with Climate Change



Model Conditions: 1 in 100-year Storm with Climate Change



- 1:100-year event HGL
- 1:10-year event HGL
- 1:5-year event HGL

King Street

Stannus Street

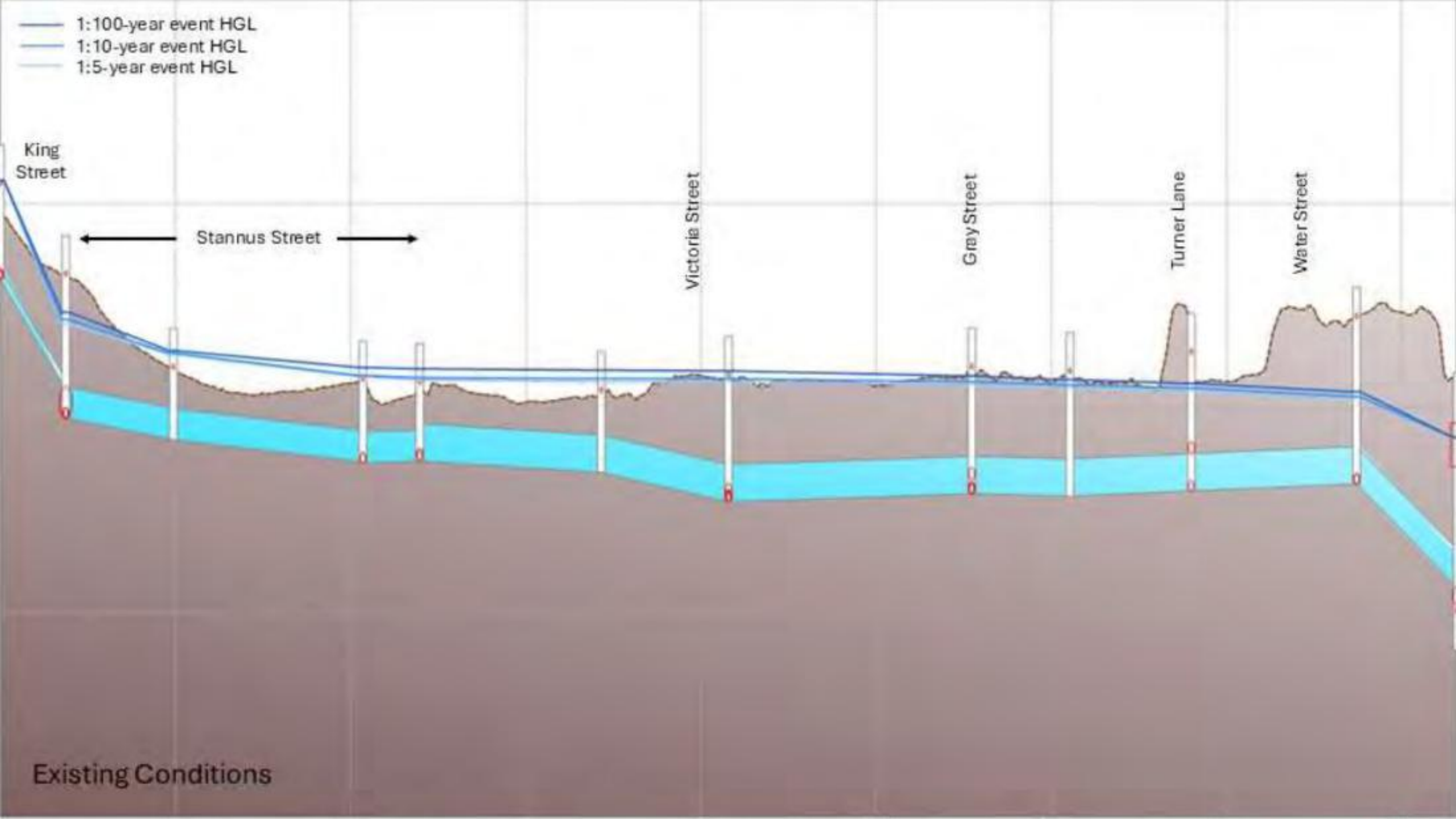
Victoria Street

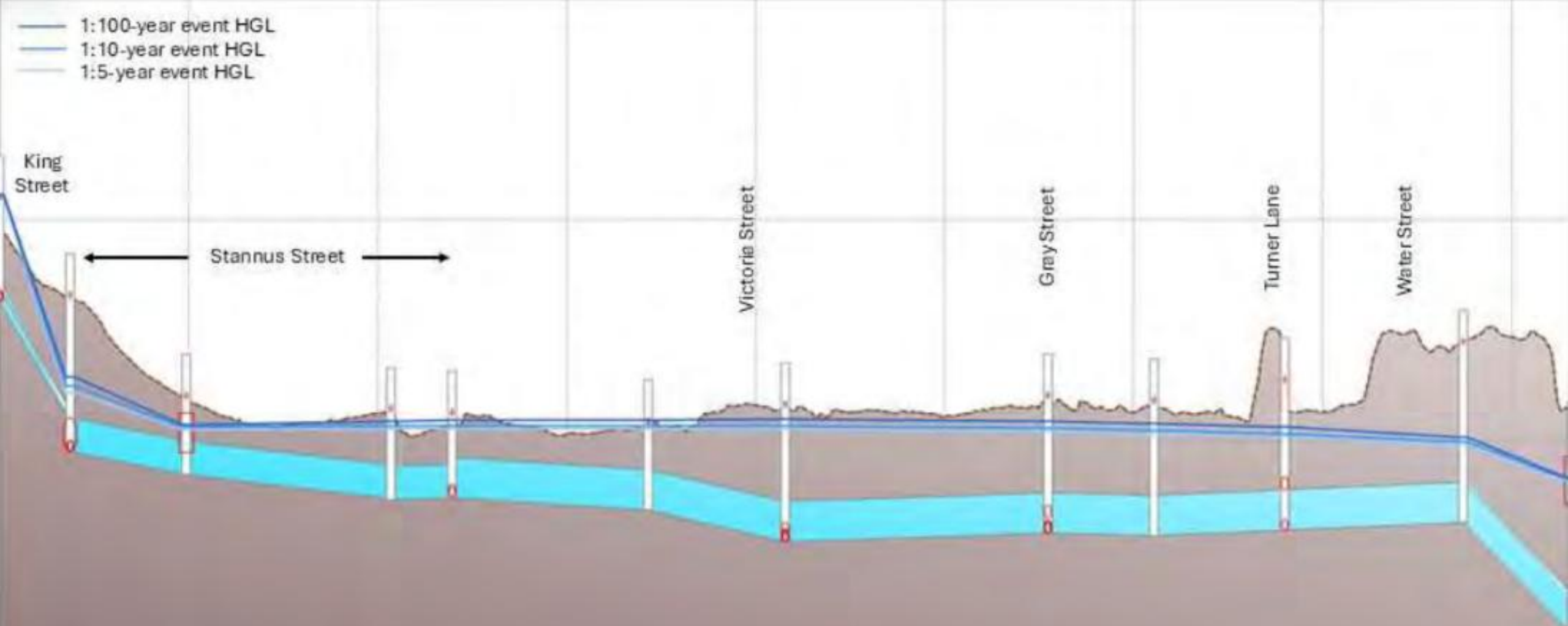
Gray Street

Turner Lane

Water Street

Existing Conditions





Integrated Option 2 – Albert Street Diversion with Option 5 - Stannus St Stormwater Connection to Tregothic Marsh

OPINION of PROBABLE CONSTRUCTION COSTS
Stormwater Management Plan Town of Windsor

Date:	01/08/25
Project No.	221101.00
Prepared & Reviewed by:	EJ / AT / AB
Budget Class	Class C



(Based on CBCL Stormwater Report Plan - dated 05-06-2025)

SUMMARY

No.	AREA	AREA TOTALS
1	AREA 01A - Stannus Street	\$ 18,200,000
2	AREA 01B - Victoria Street	\$ 5,000,000
3	AREA 01C - Gray Street	\$ -
4	AREA 2A - Albert Street to Outfall	\$ 5,200,000
5	AREA 2B - Wiley Ave. to Albert Street	\$ 8,700,000
6	AREA 2C - Optional Albert Street	\$ 1,500,000
7	AREA 3 - Clifton Ave	\$ 5,900,000
8	AREA 4 - Cedar, Avon, and Chestnut Street	\$ 7,800,000
9	AREA 5 - Lakeview Drive	\$ 2,300,000
10	AREA 6 - Sunset Ave to River Street	\$ 6,700,000
11	AREA 7 - Wiley Avenue	\$ 3,900,000
12	AREA 8 - O'Brien and King Street	\$ 14,500,000
13	AREA 9 - Gerrish Street	\$ 8,200,000
14	AREA 10 - Water Street and King Street	\$ 6,400,000
15	AREA 11 - Aboiteau Pump Station	\$ 21,640,000
16	Cunnabel Creek - Upgrades	\$ 10,241,000
17	DESIGN DEVELOPMENT CONTINGENCY ALLOWANCE - Note 1	Included
18	CONSTRUCTION CONTINGENCY - Note 2	Included
19	LOCATION FACTOR - Note 3	Included
20	ESCALATION (Based on 2025 Dollars) - Note 4	Not Included
21	TOTAL - OPINION of PROBABLE CONSTRUCTION COSTS Less HST	\$ 126,000,000
22	Engineering & Design	\$ 16,400,000
	TOTAL - ENGINEERING & DESIGN and CONSTRUCTION COSTS Less HST	\$ 142,400,000

Windsor Stormwater Study — Cost Estimates

Current Project Stage

Windsor Stormwater
Study completed

August 2025

December 2025

CBCL awarded 30% Design for
Stannus Street Stormwater
Management

Planning Impacts

Integrating stormwater management considerations into planning documents, by-laws, and policies:



Municipal
Planning
Strategy



Land Use
By-Law



Zoning &
Overlay Maps



Municipal
Specifications
Manual



Sewer
By-Law

Political Ramifications

Taxpayer Perception & Equity Concerns

Financial/Ratepayer Impact and Need for Significant External Funding

Competing Infrastructure Needs (water, sewer, roads, facilities, etc.)

Environmental Impacts & Public Health

Regulatory & Legal Pressure (including media attention)

Climate Resilience

Precedent Risk



Lessons Learned

- Jurisdiction
- Funding
- Preservation
- Separation
- Climate crisis