

WELCOME

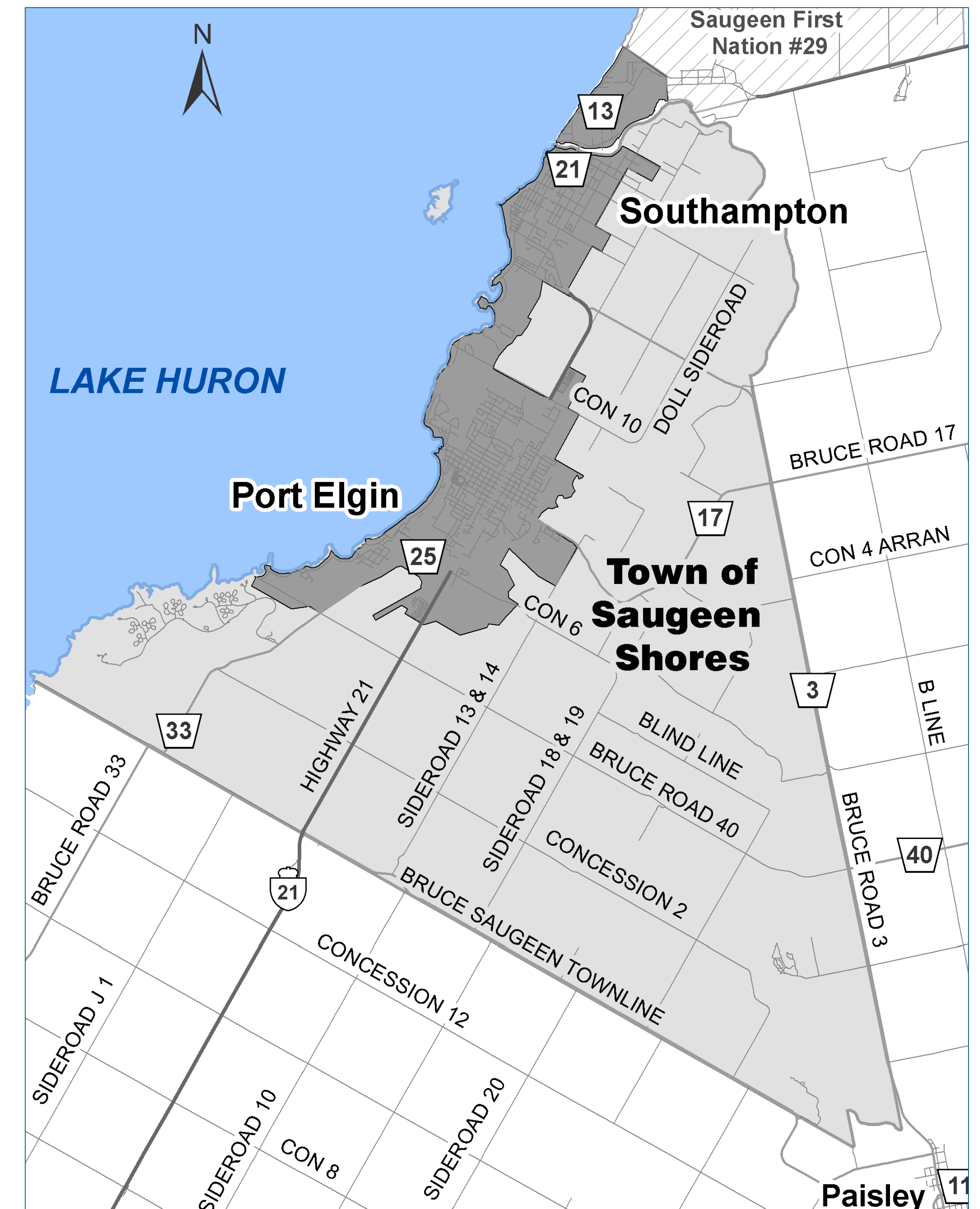
Town of Saugeen Shores

Water and Wastewater Master Servicing Plan Update

PUBLIC INFORMATION CENTRE

Thursday July 17, 2025
6 PM – 8 PM

Please sign in and take a comment sheet



What are Master Plans?

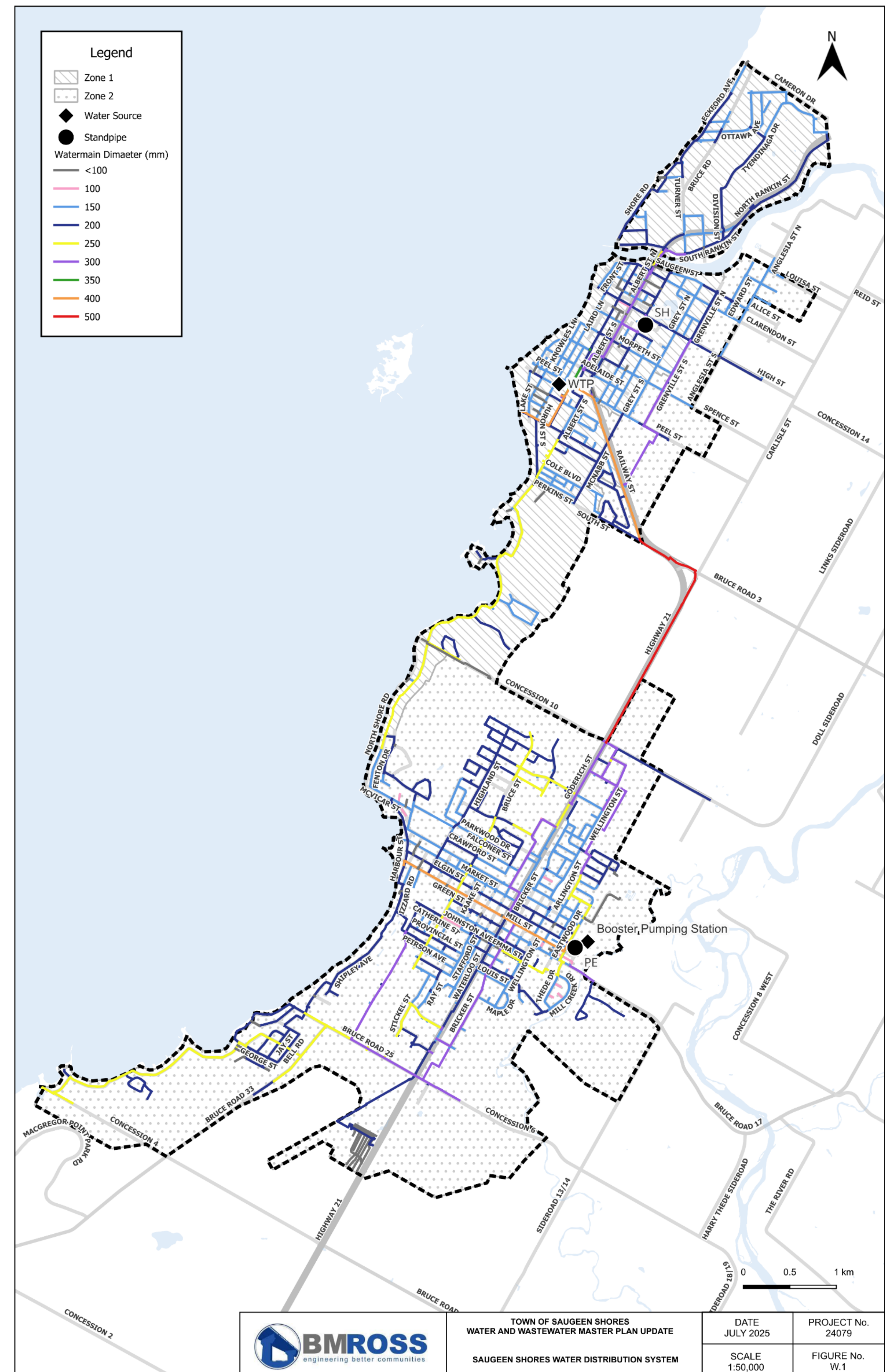
- ▶ Look at an entire system or integrated systems (like water and wastewater), rather than just one specific component or project.
- ▶ Examine existing and future infrastructure needs based on future land uses and environmental assessment planning principles.
- ▶ Identify infrastructure needs and projects and a strategy for implementing them (i.e. priorities over the short and long term).
- ▶ Serve as a reference for current and future staff and Councils for budgeting and planning infrastructure projects.
- ▶ Are customizable in terms of their scope. Master Plans can be completed at a broad scope and level of assessment or can be completed to a high level of detail.

2025 Water and Wastewater Servicing Master Plan

- ▶ Will be an update to the 2020 Master Plan
- ▶ Reassess growth and development impacts
- ▶ Determine the uncommitted capacity of major water and wastewater facilities
- ▶ Update the water distribution and wastewater collection system models
- ▶ Re-evaluate current and future infrastructure needs
- ▶ Identify priorities, EA requirements, and timing of projects

Saugeen Shores Drinking Water System

- ▶ Port Elgin, Southampton and Saugeen First Nation are serviced by the Saugeen Shores Drinking Water System
- ▶ System has two pressure zones. Zone 1 is located within Southampton and Zone 2 is all of Port Elgin and Southampton east of Grenville Street.
- ▶ The Water System consists of the following major components:
 - ▶ Lake Huron Intake and Low Lift Works
 - ▶ Water Treatment Plant (WTP)
 - ▶ Storage Facilities
 - ▶ Southampton Standpipe
 - ▶ Port Elgin Standpipe
 - ▶ Port Elgin Reservoir and Booster Pumping Station
 - ▶ Clear Well at the Water Treatment Plant
- ▶ Current number of customers is 6,563
- ▶ WTP rated for 18,000 m³/day but currently only equipped to supply 13,425 m³/day.
- ▶ Current effective storage volume is 7,921 m³

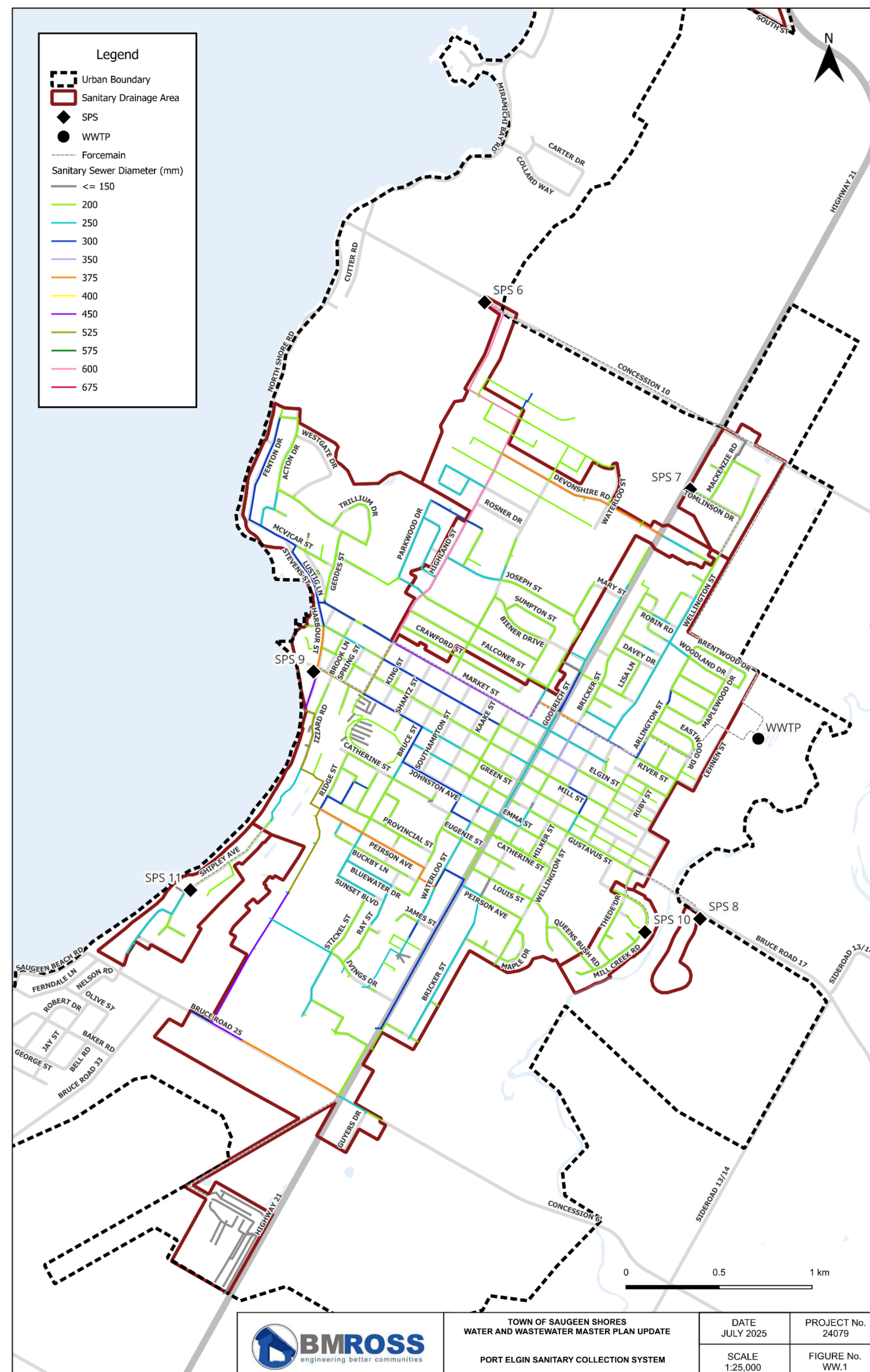


Existing Wastewater Systems

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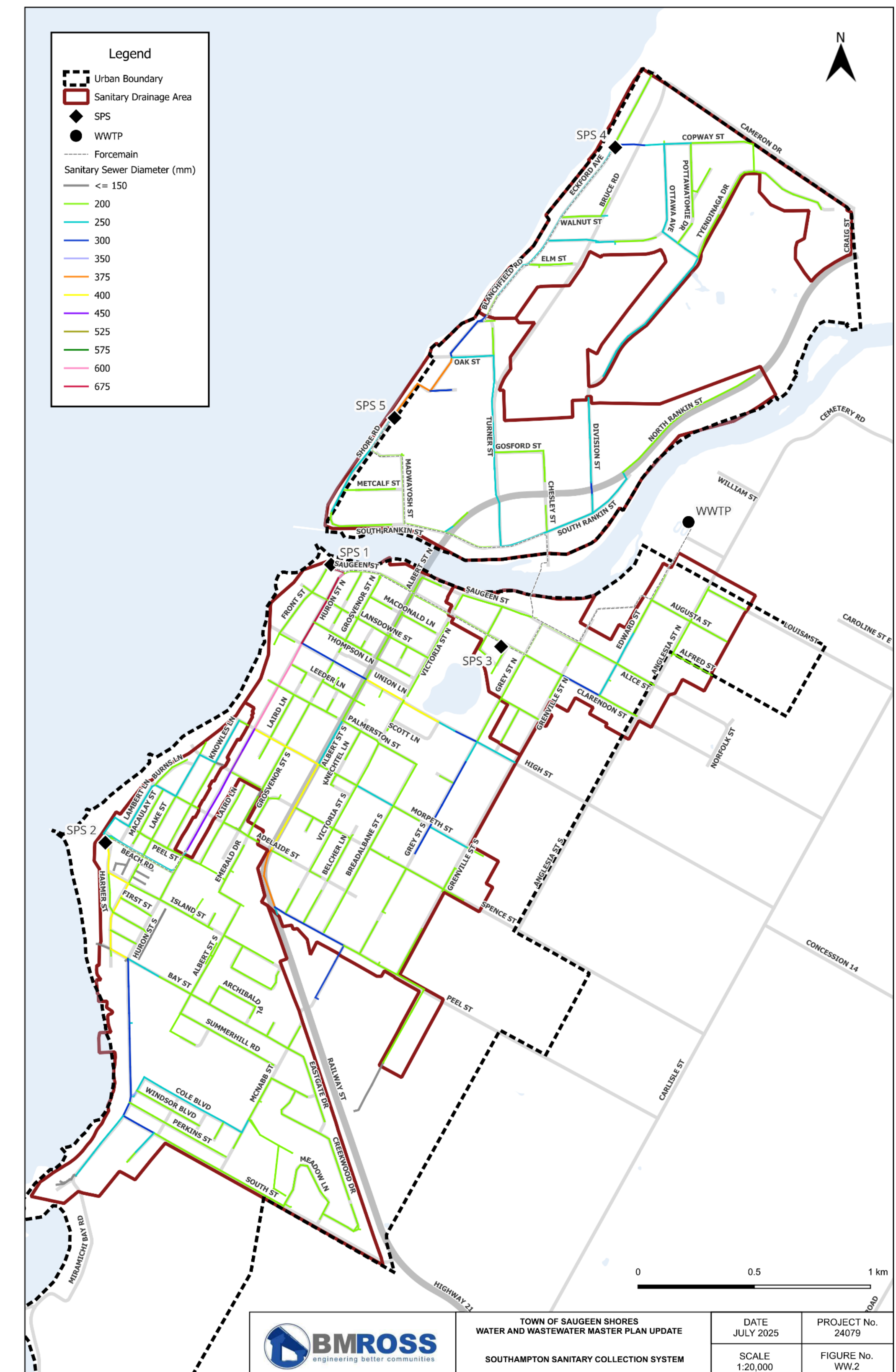
Port Elgin Wastewater System

- ▶ Approximately 65 km of gravity sewer and 8.5 km of forcemains
- ▶ 6 Sewage Pumping Stations (SPSs)
- ▶ Wastewater Treatment Plant (WWTP) located east of Lehen Street tha outlets to Mill Creek
- ▶ 3,898 customers



Southampton Wastewater System

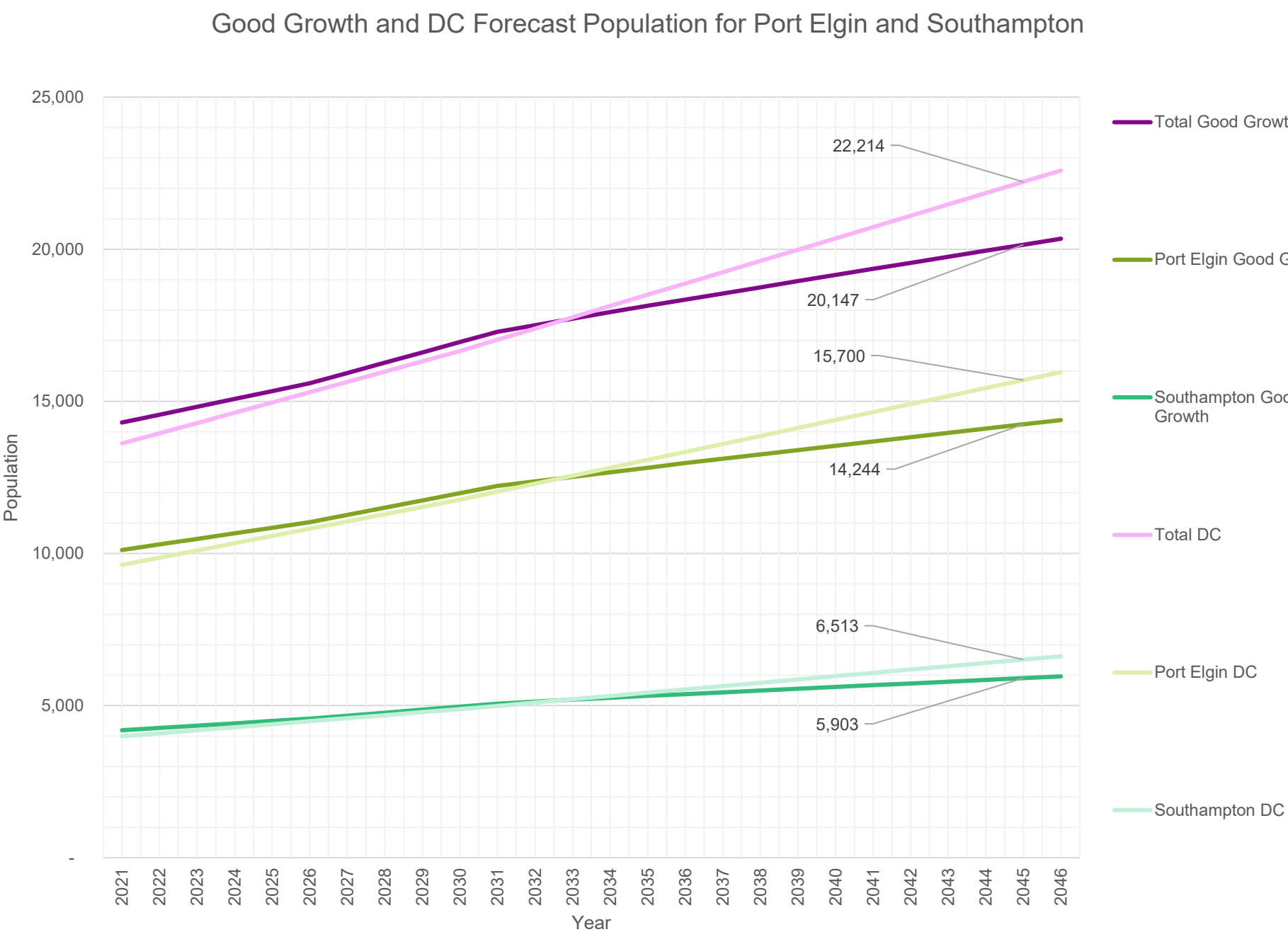
- ▶ Approximately 50 km of gravity sewer and 6 km of forcemains
- ▶ 5 SPSs
- ▶ WWTP located at west end of Caroline Street West and outlets to Saugeen River
- ▶ 2,660 customers



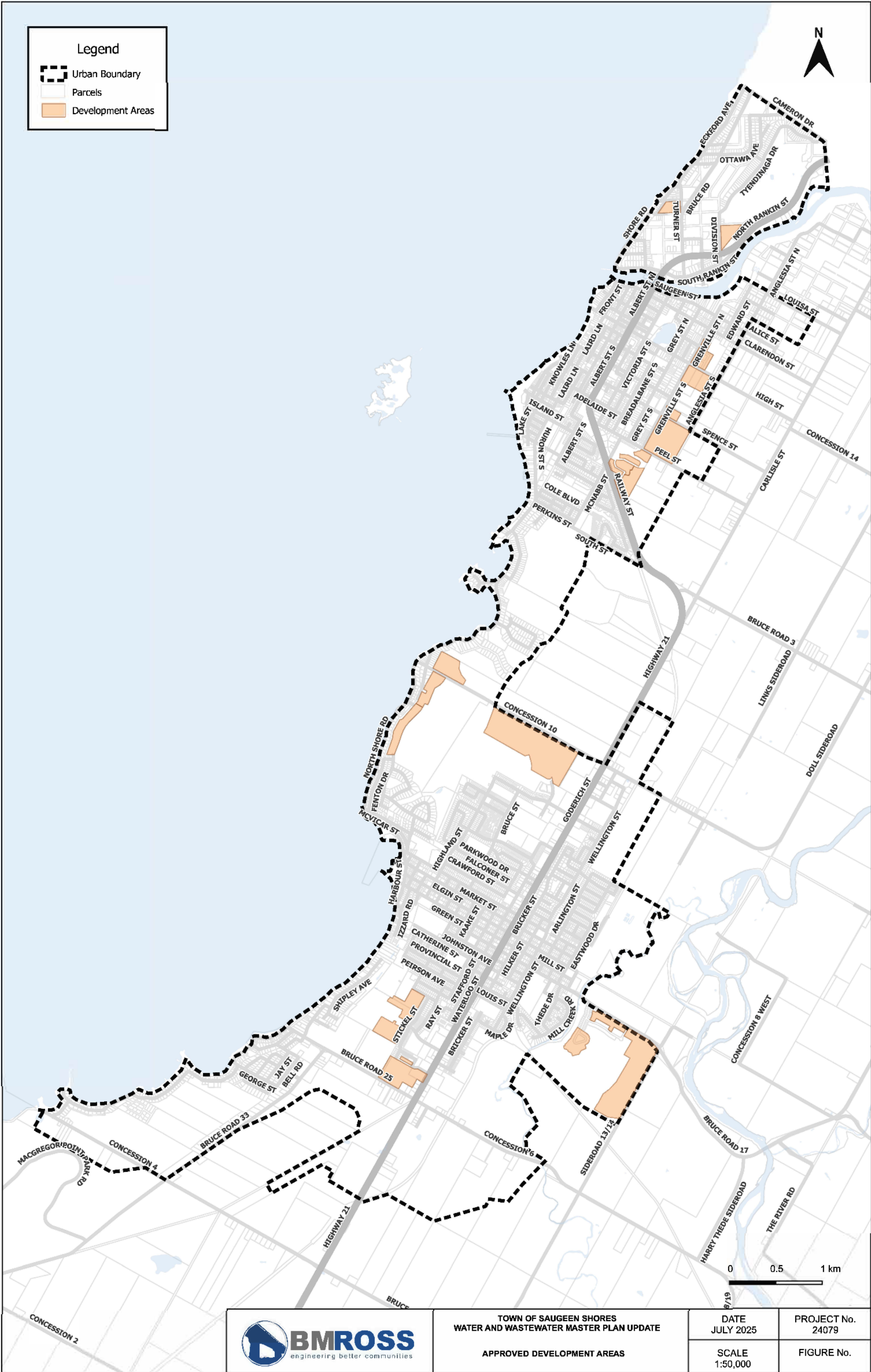
Growth & Development

- ▶ Scope of the Master Plan includes looking at impacts of growth and development on the capacity of the water and wastewater systems.
- ▶ Examined current development areas – including approved developments and development proposals.
 - ▶ For long-term planning purposes, analysis also included further growth within the existing settlement area boundary, beyond known approved and proposed developments.
- ▶ Growth and development is expressed in terms of Equivalent Residential Units (ERU).
 - ▶ 1 ERU = 1 single-detached home = 2.76 people per unit
 - ▶ 0.66 ERU = 1 multi-type unit = 1.81 people per unit
 - ▶ 0.54 ERU = 1 apartment = 1.50 people per unit

Developments	Port Elgin	Southampton
Approved Developments (No. of ERU)	1,549	213
Proposals (No. of ERU)	1,674	646
Total (No. of ERU)	3,223	859



The potential population from the approved development and proposals exceeds the forecasted population growth. If all the approved developments and proposals are fully built out, the population of Port Elgin and Southampton would increase to an estimated 26,500 people.



Note: Figure depicts approved developments. Analysis and calculations completed also included unapproved development proposals.

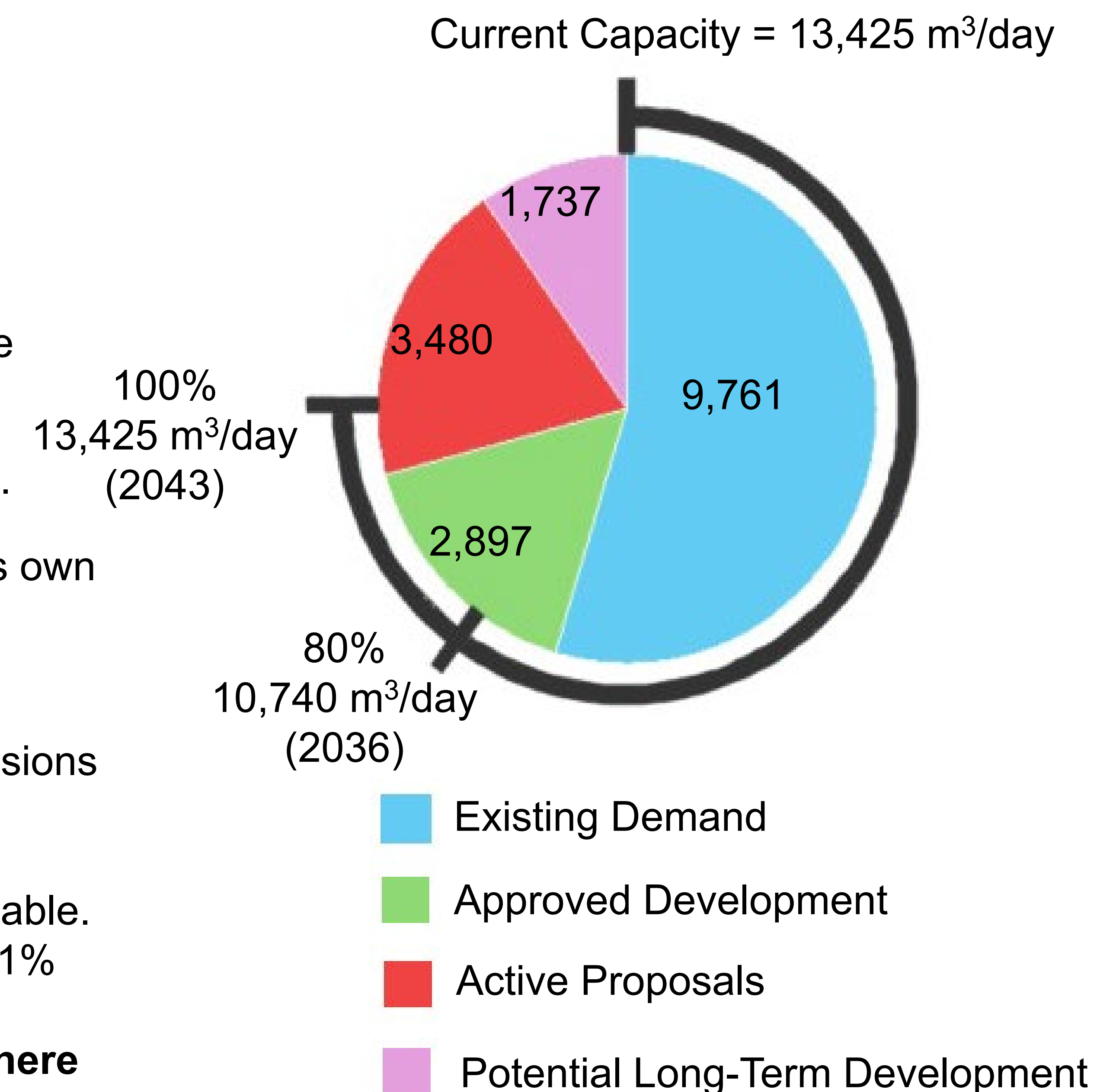
Water Treatment Reserve Capacity

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- ▶ Reserve capacity is what is available for future development, beyond approved developments.
 - ▶ Reserve capacity = Rated Capacity – Existing use
 - ▶ Uncommitted capacity = Reserve capacity – committed demand
- ▶ Reserve capacity calculations include additional capacity needs related to future infill (e.g. additional dwelling units) and assume commercial, industrial and institutional growth will be in proportion to residential growth.
- ▶ The calculations also looked at potential impacts of the development of vacant lands within the urban boundaries currently zoned residential or future development.
- ▶ Calculations assume all treatment components are at 100% efficiency. Actual efficiency varies.
- ▶ System provides water to Saugeen First Nation. The Saugeen First Nation system provides its own storage, booster pumping and distribution watermain.

Conclusions for Water Treatment Capacity

- ▶ Based on the growth forecasts, equipped capacity will be reached at 2043. Planning for expansions generally starts when utilized capacity reaches 80%.
- ▶ When all the current approved developments are built, utilized capacity will be at 94%.
- ▶ Adding unapproved development proposals would commit capacity beyond that currently available.
- ▶ To accommodate the approved developments, active proposals, and existing vacant lands a 31% capacity expansion would be required.
- ▶ **Operators report that when there are operational issues or high summertime demand, there are occasional challenges supplying the demand.**
- ▶ **Town is currently undertaking an Environmental Assessment to evaluate options to increase the capacity of the WTP.**



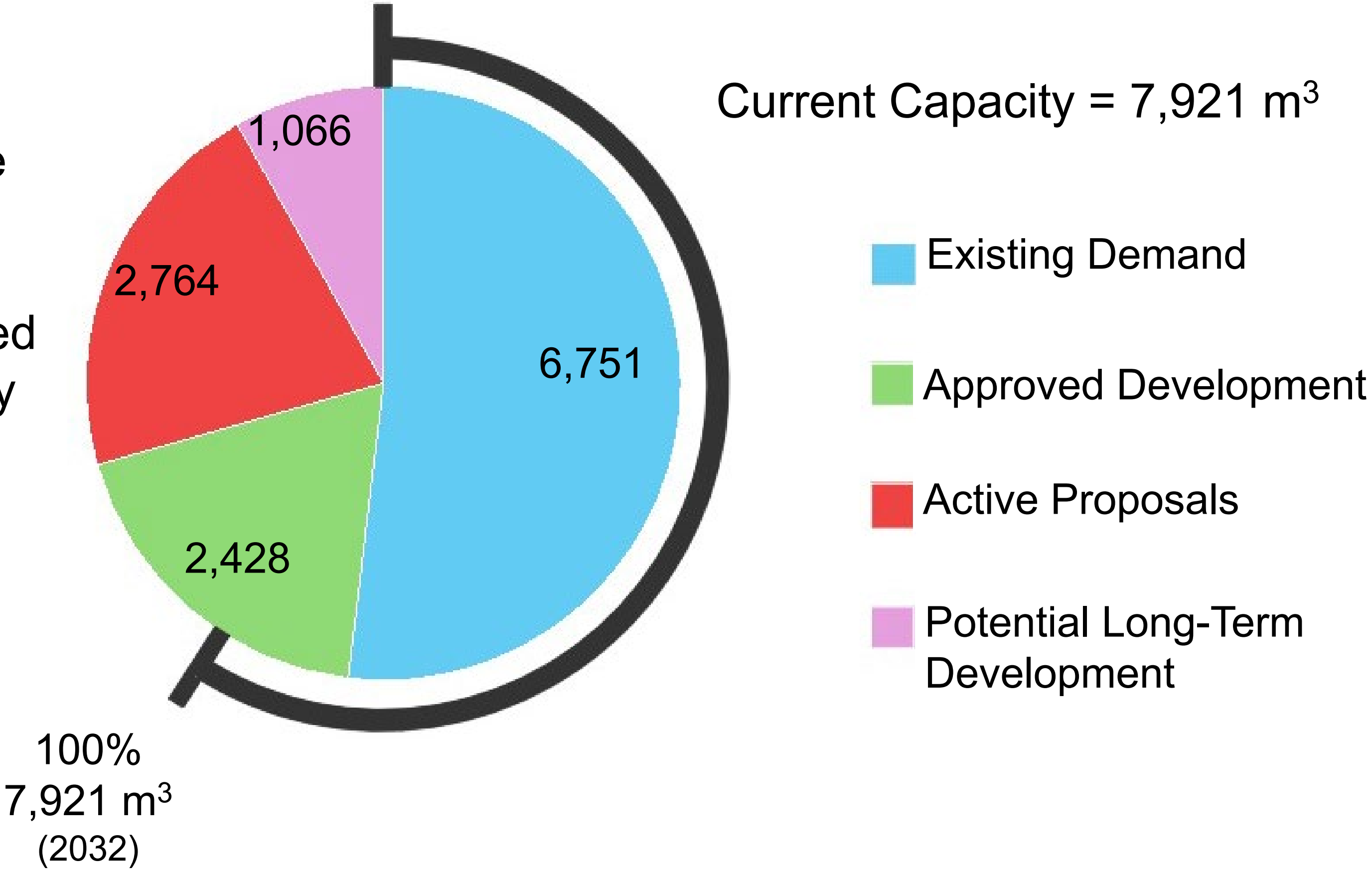
Water Storage Reserve Capacity

Current Treated Water Storage Facilities

Facility	Effective Volume (m³)	Total Volume (m³)	Operational Constraint
WTP Clear Well	1,514	1,600	Use is constrained by the high-lift pumps and the need to maintain adequate retention for chlorine
Southampton Standpipe	853	3,200	Bottom 2,300+ m³ is not operationally available
Port Elgin Standpipe	1,054	2,400	Bottom 1,300+ m³ is not operationally available
Port Elgin Reservoir	4,500	4,500	Use is constrained by the capacity of the booster pumps.
Total	7,921	11,700	

Scenario	Estimated Served Population	Storage Required (m³)	Storage Deficit (m³)
Existing	15,000	6,752	Nil
Existing + Approved Developments	20,330	9,179	1,258
Existing + Approved Developments + Proposals	26,733	11,943	4,022
2045 Forecast (Maximum)	22,214	10,174	2,253

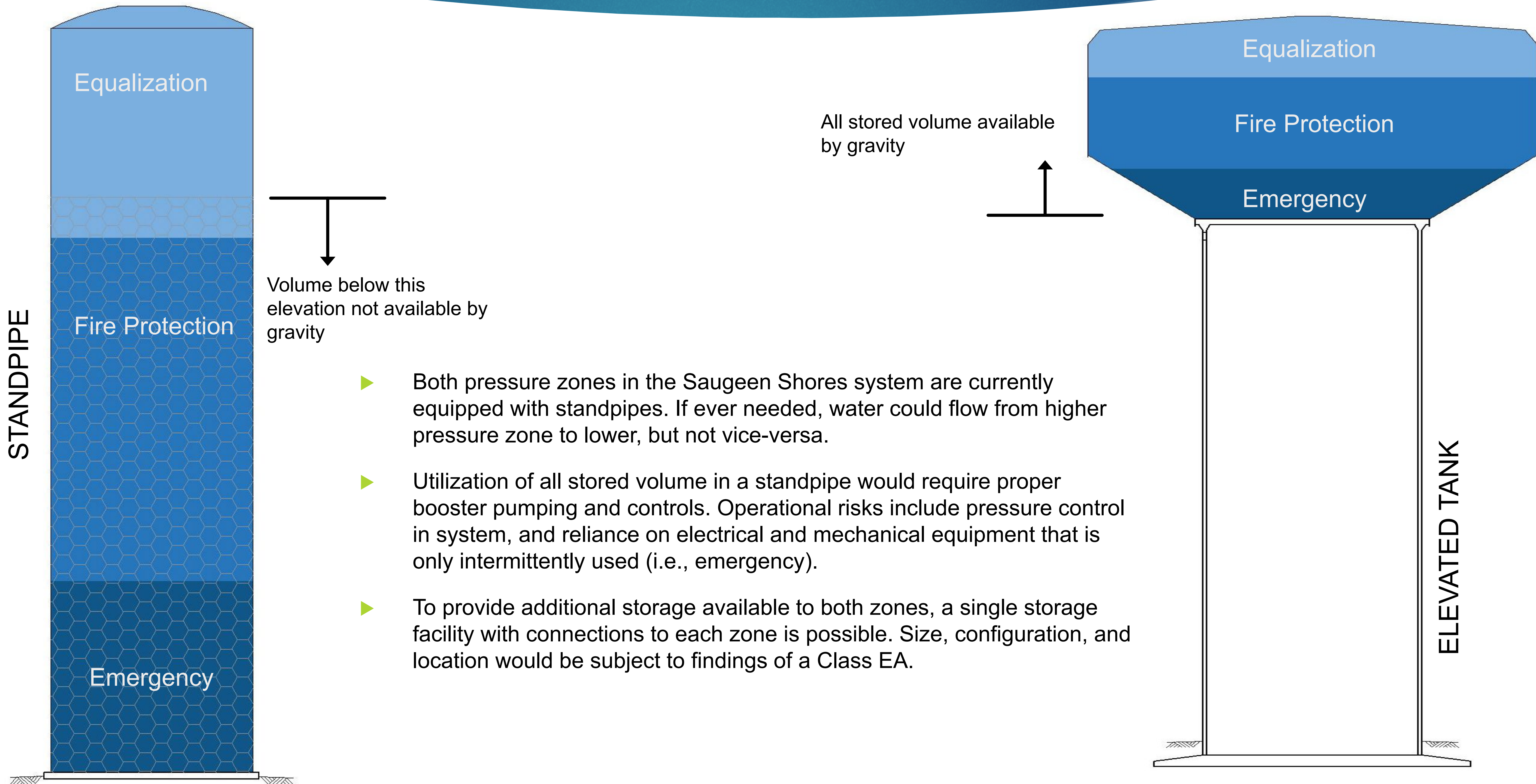
► Current effective storage is fully committed at a service population of 17,400, which is predicted to occur in approximately 2032.



► Water storage needs are based on formulas in the Ministry of Environment, Conservation and Parks Design Guidelines for Drinking Water Systems. These Guidelines recommend storage for peak flow equalization, fire flows and emergencies, based on the maximum day demand and population.

Future Storage Consideration

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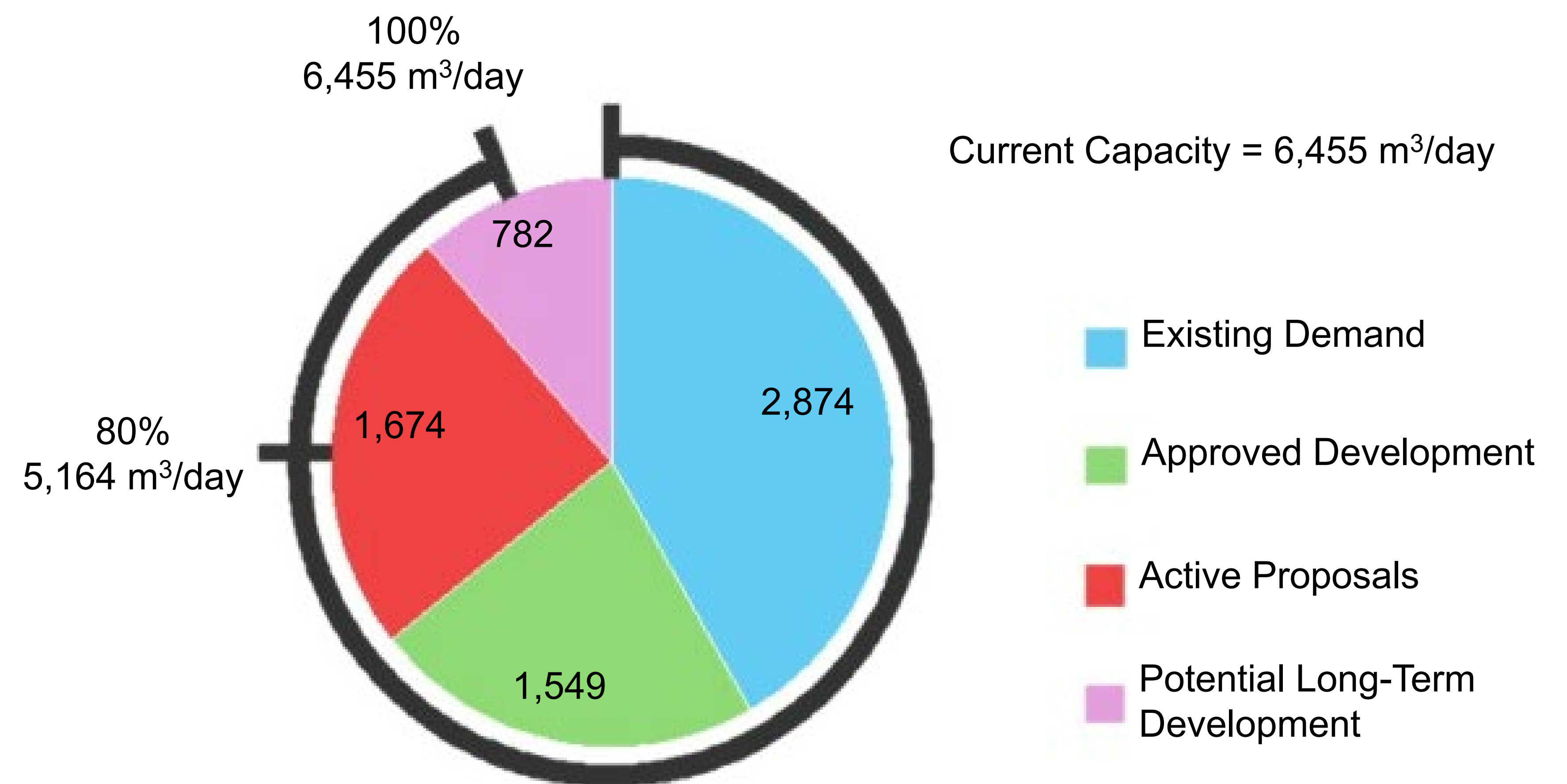
Port Elgin Wastewater Treatment Plant Reserve Capacity

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- ▶ Refer to Water Supply Reserve Capacity board for details regarding approach to reserve capacity calculations. The same general approach is used for wastewater treatment.

Conclusions for Port Elgin Wastewater Treatment Capacity

- ▶ Based on projected growth, rated capacity is adequate beyond 2045.
- ▶ The 80% capacity planning threshold would also occur after 2045.
- ▶ The Town is currently undertaking an Environmental Assessment for the Port Elgin WWTP as identified in the 2020 Master Plan to address capacity of the headworks, asset rehabilitation, operational issues and future capacity.



Southampton Wastewater Treatment Plant Reserve Capacity

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- ▶ Refer to Water Supply Reserve Capacity board for details regarding approach to reserve capacity calculations. The same general approach is used for wastewater treatment.

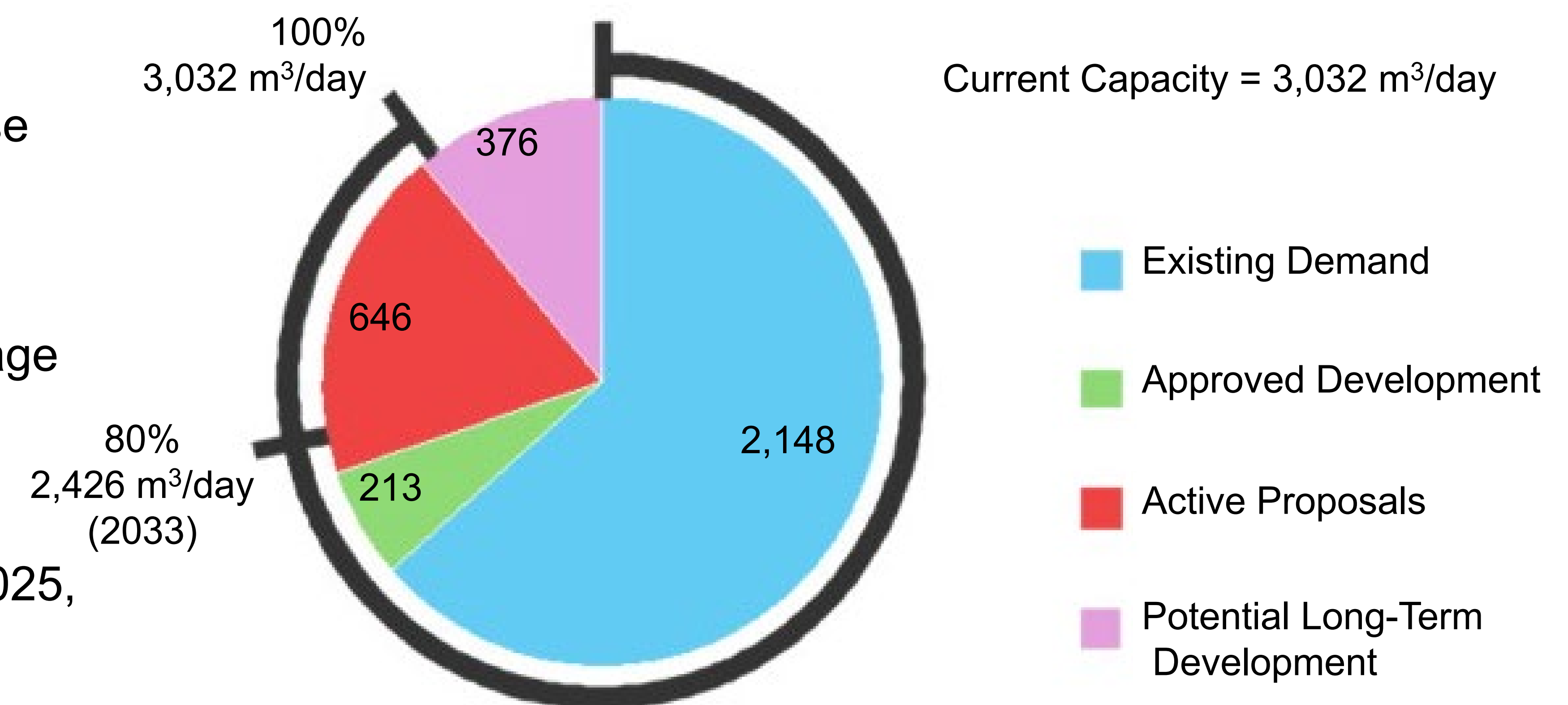
Conclusions for Southampton Wastewater Treatment Capacity

The Town recently completed an environmental assessment, as recommended in the 2020 Master Plan, to look at options to increase peak flow capacity and capacity to the year 2049.

The EA identifies the following future works for the WWTP:

- Provide expanded headworks, solids treatment and biosolid storage facilities.
- Rerate the WWTP ADF capacity to 3,626 m³/day.

A project to expand the headworks was tendered and awarded in 2025, representing part of the works identified in the EA.

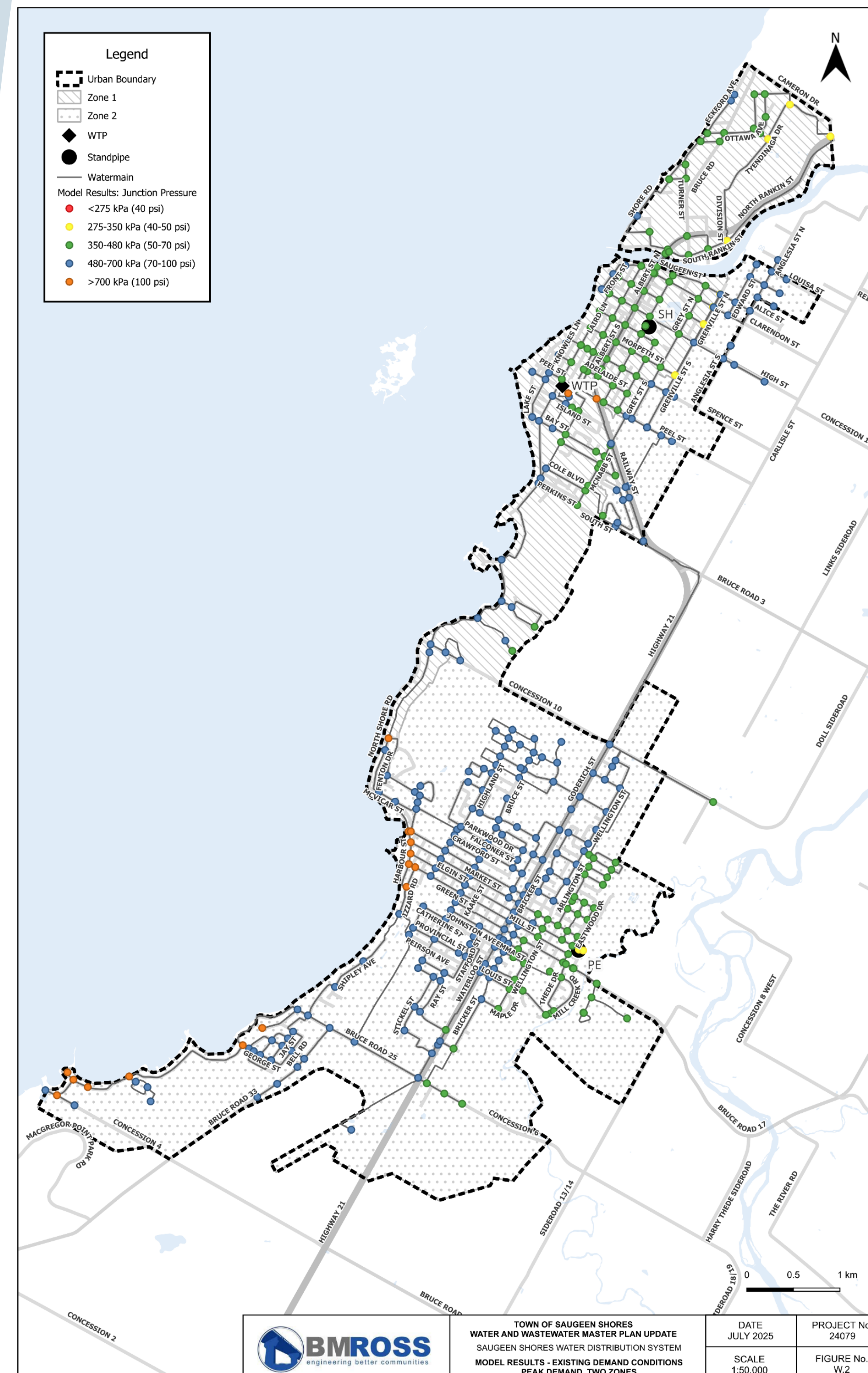


Drinking Water System – Modelling Results for Existing Demand

Results for Zone 1 (Southampton)

Peak Demand

- No junctions have pressure less than 275 kPa which is the lowest acceptable pressure per MECP Design Guidelines.
- Maximum Day Demand + Fire Flow
 - Majority of junctions have more than 63 L/s (1,000 USGPM) of available fire flow at 140 kPa (NFPA 291 Class A or Class AA).
 - No evaluated junctions have less than 31.5 L/s (500 USGPM) of available fire flow at 140 kPa (NFPA Class C).



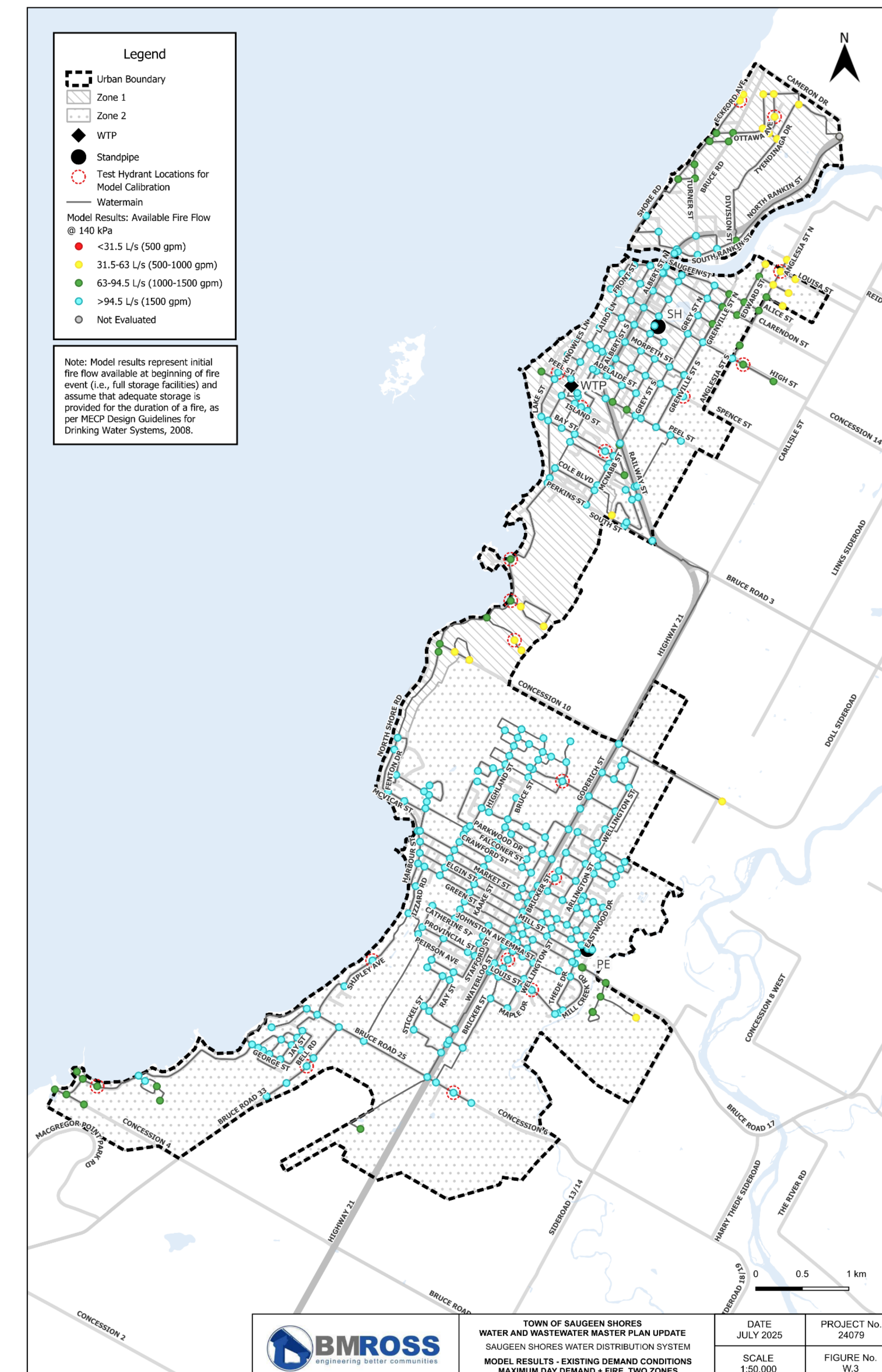
Results for Zone 2 (Port Elgin)

Peak Demand

- No junctions have pressure less than 275 kPa.

Maximum Day Demand + Fire Flow

- Majority of junctions have more than 63 L/s (1,000 USGPM) of available fire flow at 140 kPa.
- No junctions have less than 31.5 L/s (500 USGPM) of available fire flow at 140 kPa.



Conclusions

- No immediate upgrades to the distribution system are required.

Drinking Water System - Modelling Results for Potential Long-Term Development

Results for Zone 1 (Southampton)

Peak Demand

- Pressure near the Saugeen First Nation location may drop marginally below 275 kPa. Saugeen First Nation provides their own booster pumping.

Maximum Day Demand + Fire Flow

- Majority of junctions have more than 63 L/s (1,000 USGPM) of available fire flow at 140 kPa (NFPA 291 Class A or Class AA).
- No evaluated junctions have less than 31.5 L/s (500 USGPM) of available fire flow at 140 kPa (NFPA Class C).

Results for Zone 2 (Port Elgin)

Peak Demand

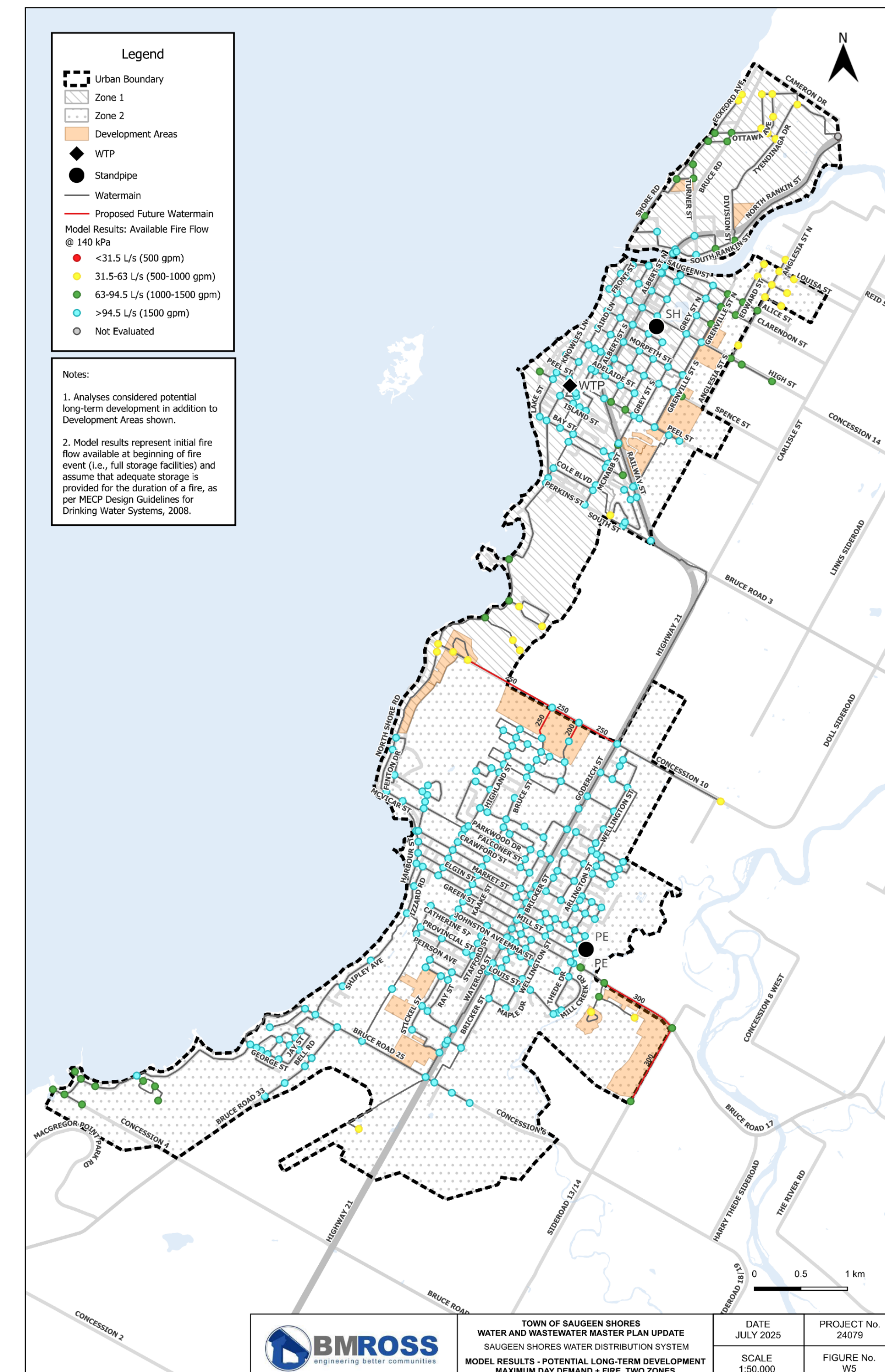
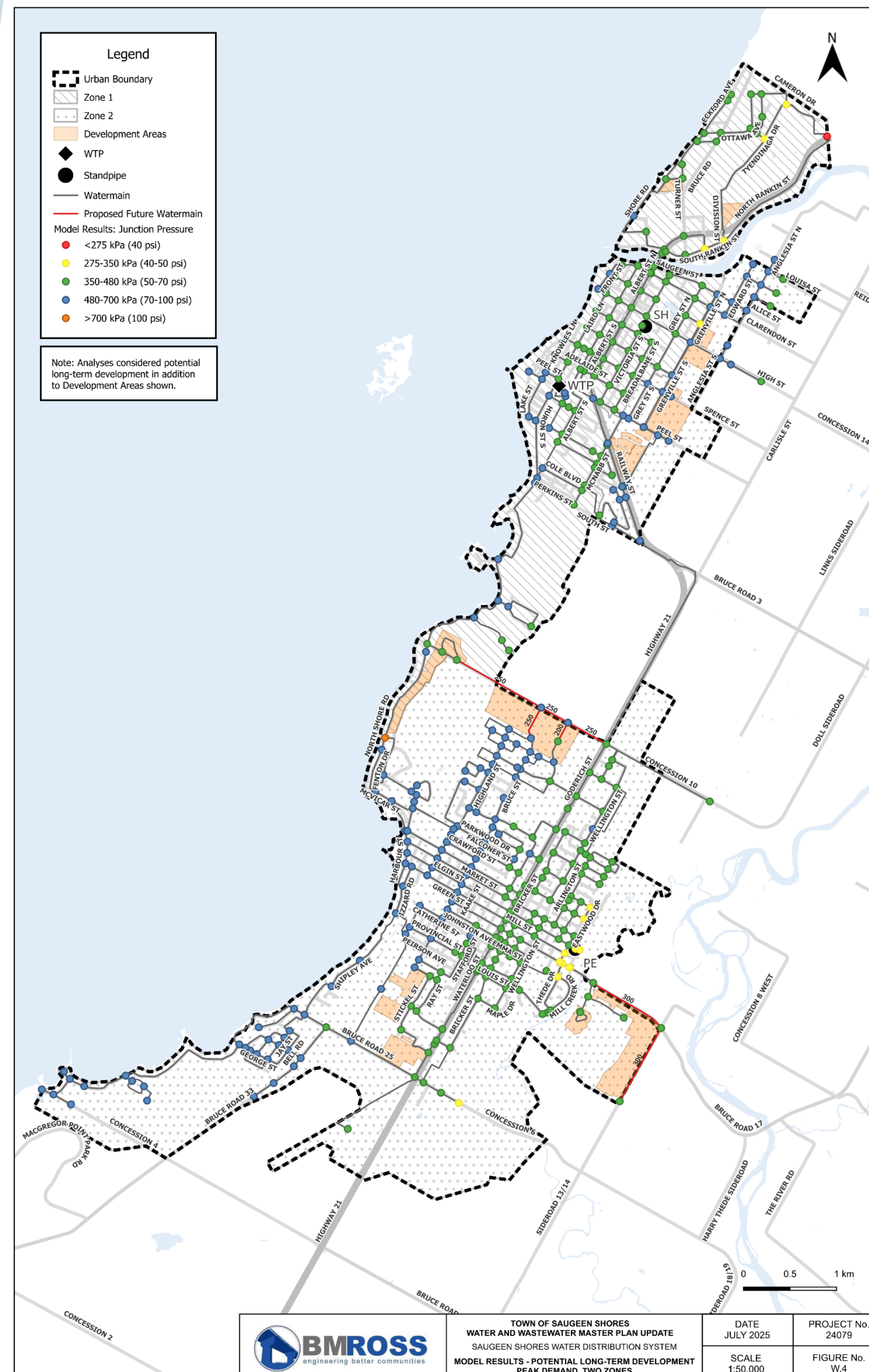
- No junctions have pressure less than 275 kPa.

Maximum Day Demand + Fire Flow

- Majority of junctions have more than 63 L/s (1,000 USGPM) of available fire flow at 140 kPa.
- No junctions have less than 31.5 L/s (500 USGPM) of available fire flow at 140 kPa.

Conclusions

- Locations for additional watermain have been proposed to service future development, as shown in Figure W.4 and W.5.
- Watermain internal to development areas should continue to be appropriately sized and looped.



Sanitary Collection Systems - Modelling Results for Existing Conditions

General Notes

- ▶ SPS 8 catchment area was not evaluated in analysis as it is a new station with a small catchment area.
- ▶ Modelling is conservative (e.g., peak flows in wet weather conditions, all SPSs operational simultaneously at full capacity). Will provide conservative analysis of collection sewers and potentially overestimate peak flows to SPSs.

Results for Southampton Wastewater Collection System

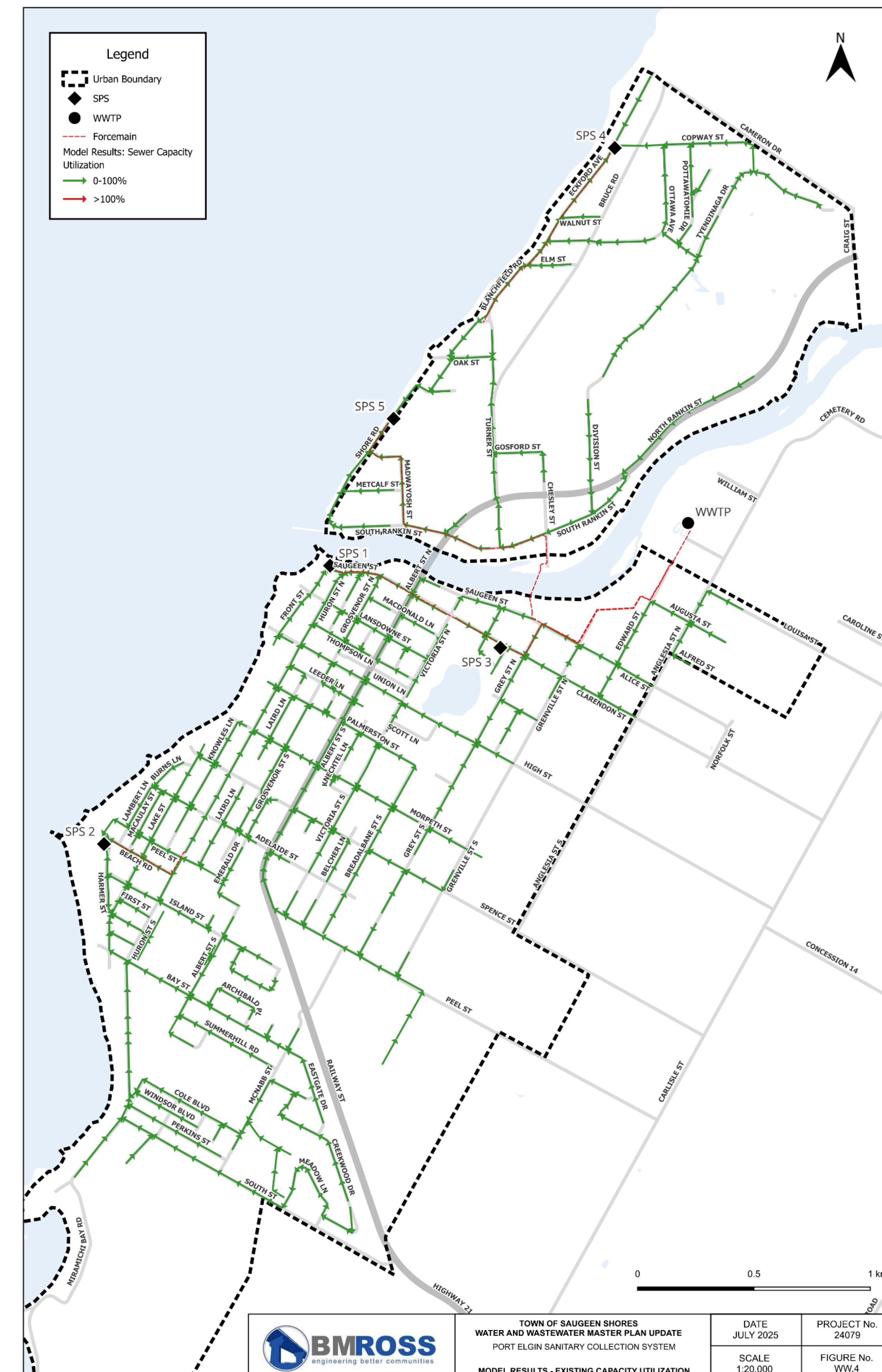
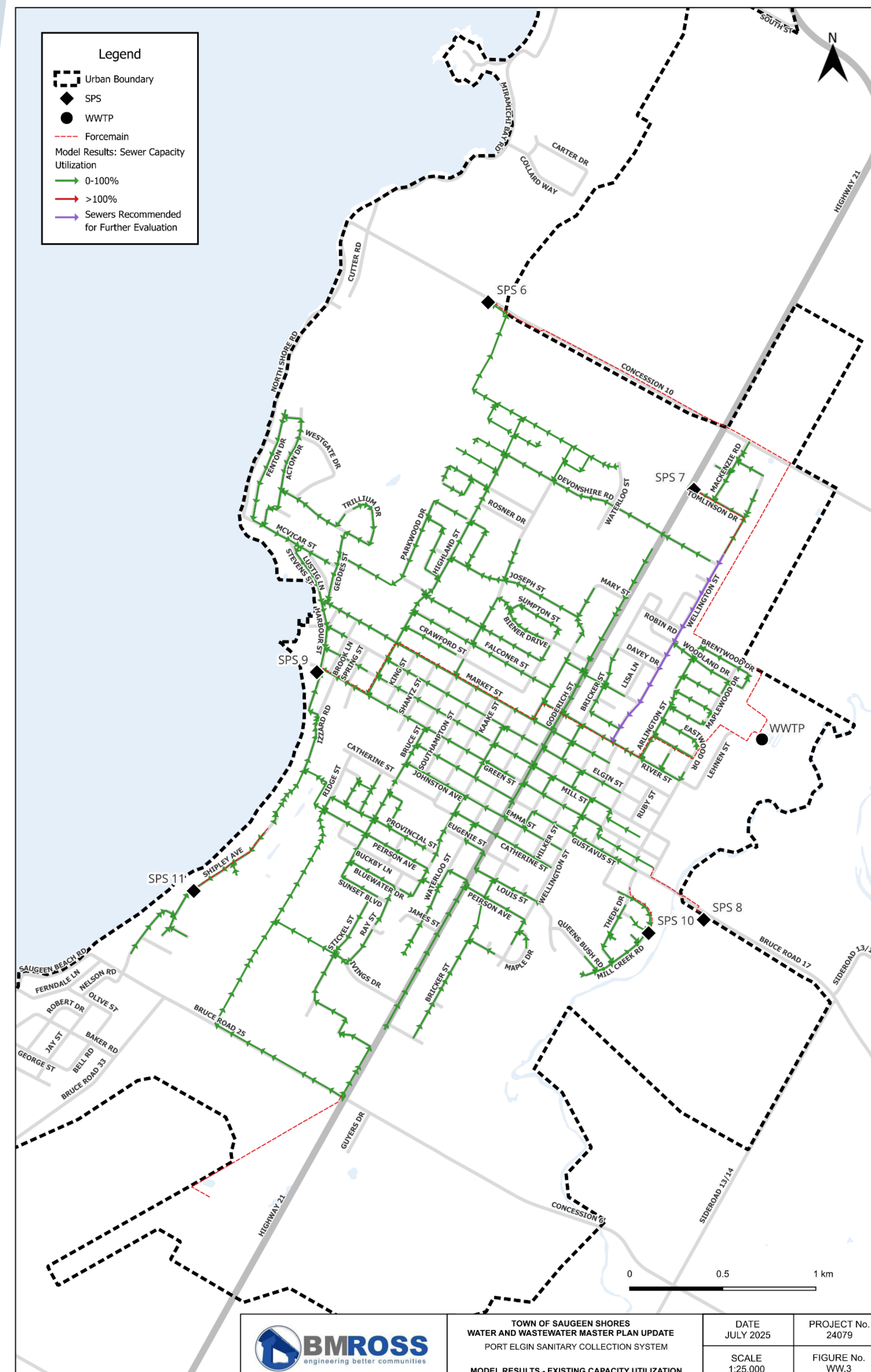
- ▶ All sanitary sewers have flows less than full capacity.

Results for Port Elgin Wastewater Collection System

- ▶ All sanitary sewers in SPS 6, 7, 10, and 11 catchment areas have flows less than full capacity.
- ▶ In SPS 9 catchment area, sewers on Wellington Street north of River Street should be further monitored and evaluated as discharge from SPS 7 may be at or over some sewer section capacities. However, there are no known issues of surcharging in the area, the sewers are unaffected by development, and therefore this is not considered a significant issue.

Conclusions

- ▶ No immediate upgrades to the collection system are required.
- ▶ Sewers on Wellington Street should be further monitored and evaluated.



Sanitary Collection Systems Modelling Results for Potential Long-Term Development

- Refer to Existing Conditions General Notes. The same apply here (Board 12)

Results for Southampton Wastewater Collection System

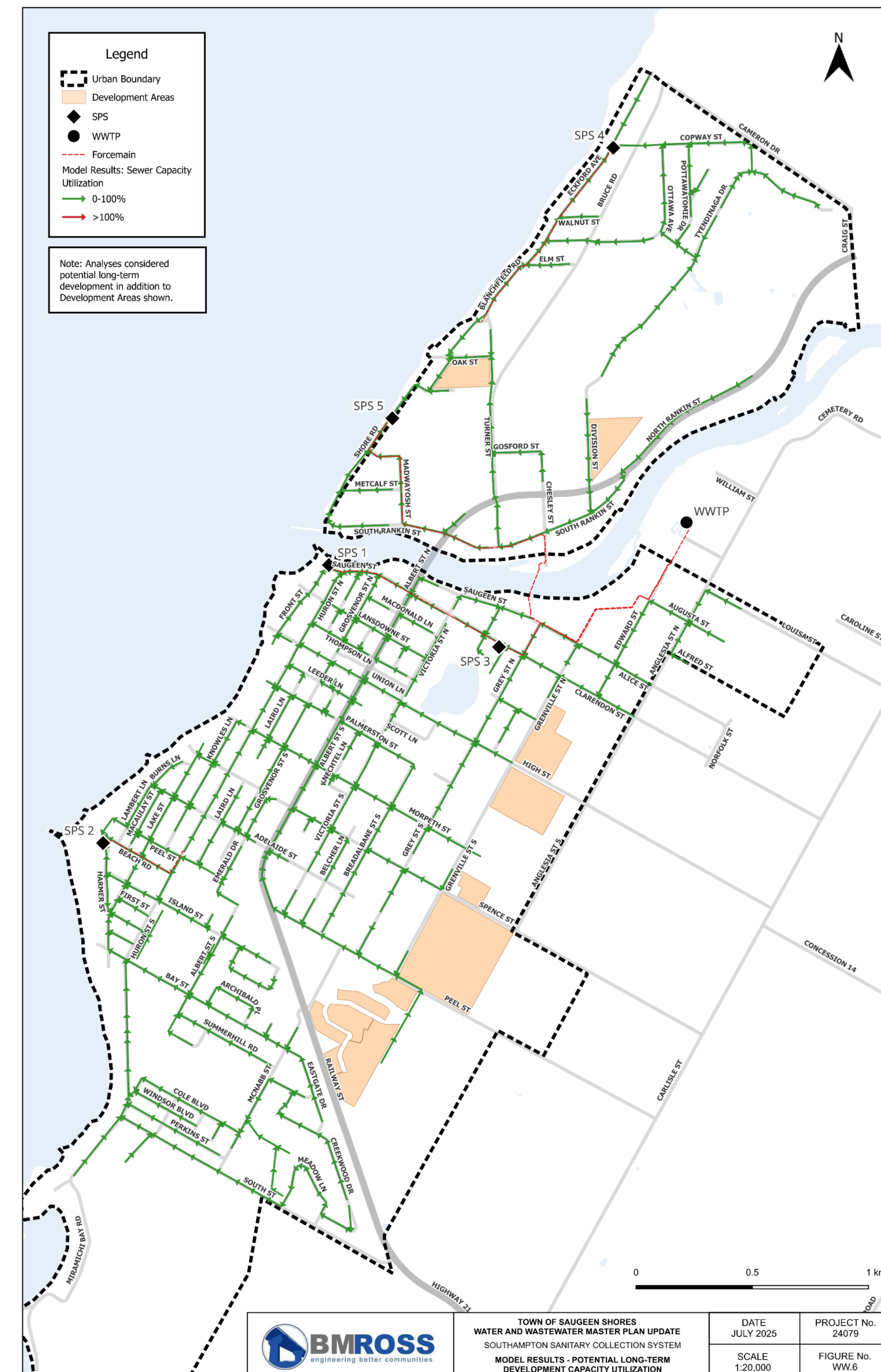
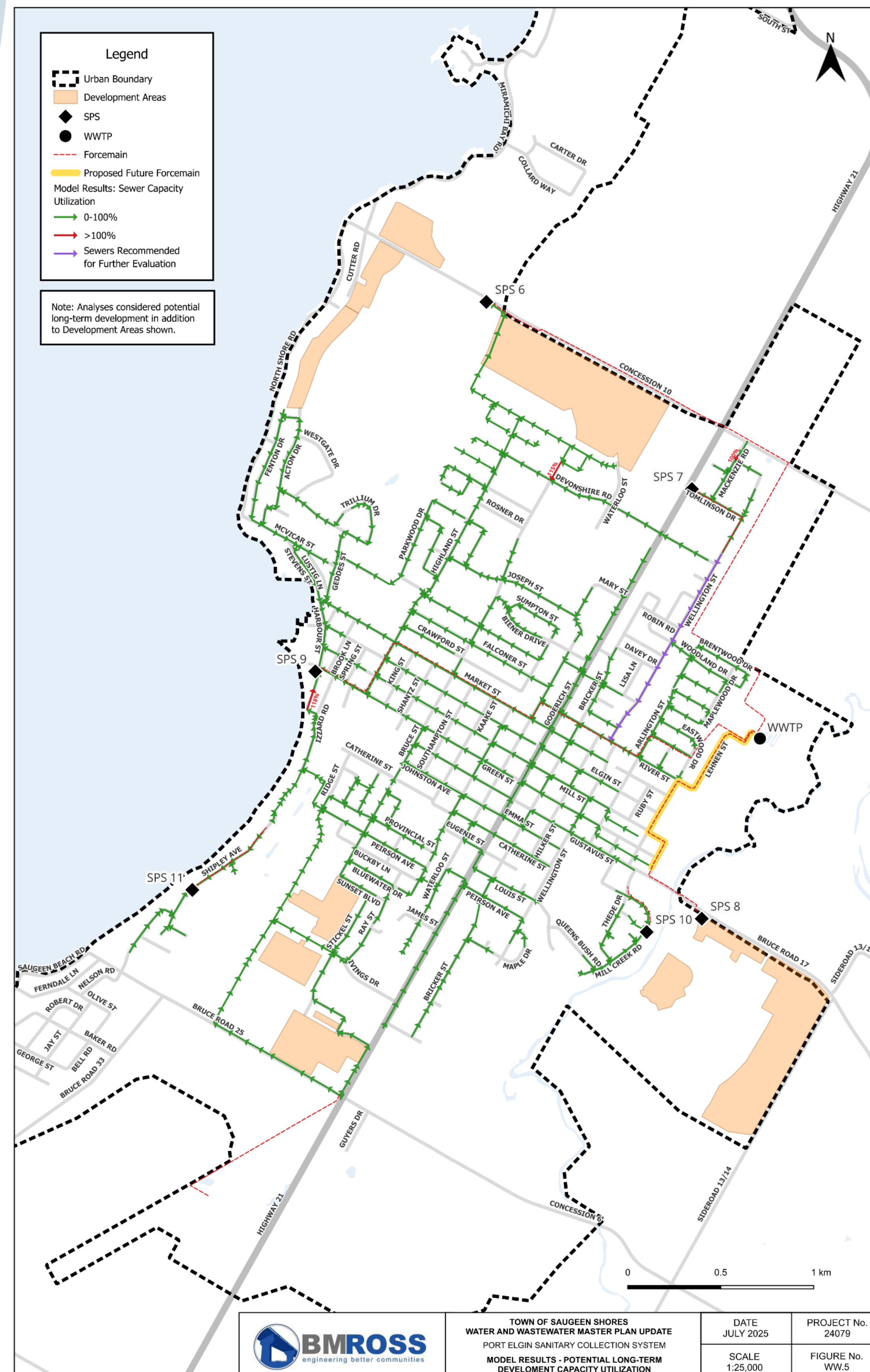
- All sanitary sewers have flows less than full capacity.

Results for Port Elgin Wastewater Collection System

- All sanitary sewers in SPS 10 and 11 catchment areas have flows less than full capacity. SPS 6 and 7 catchment areas each have one sewer nominally over capacity, but not significantly so.
- Within the SPS 9 catchment area, trunk sewer segments immediately south of the station on Harbour Street may be required to accommodate future flows.

Conclusions

- Additional flow to SPS 8 from future development will likely require the station to transition from the current interim capacity to a full buildout capacity, with flow discharging directly to the Port Elgin WWTP as per original design intent reported in the CLI ECA.
- Reversing flow on Highland Street could delay or potentially avoid upgrades to SPS 9 by redirecting a significant amount of flow to SPS 6.
- Based on future development, sewer upgrades may be required on Harbour Street between Green Street and Izzard Street



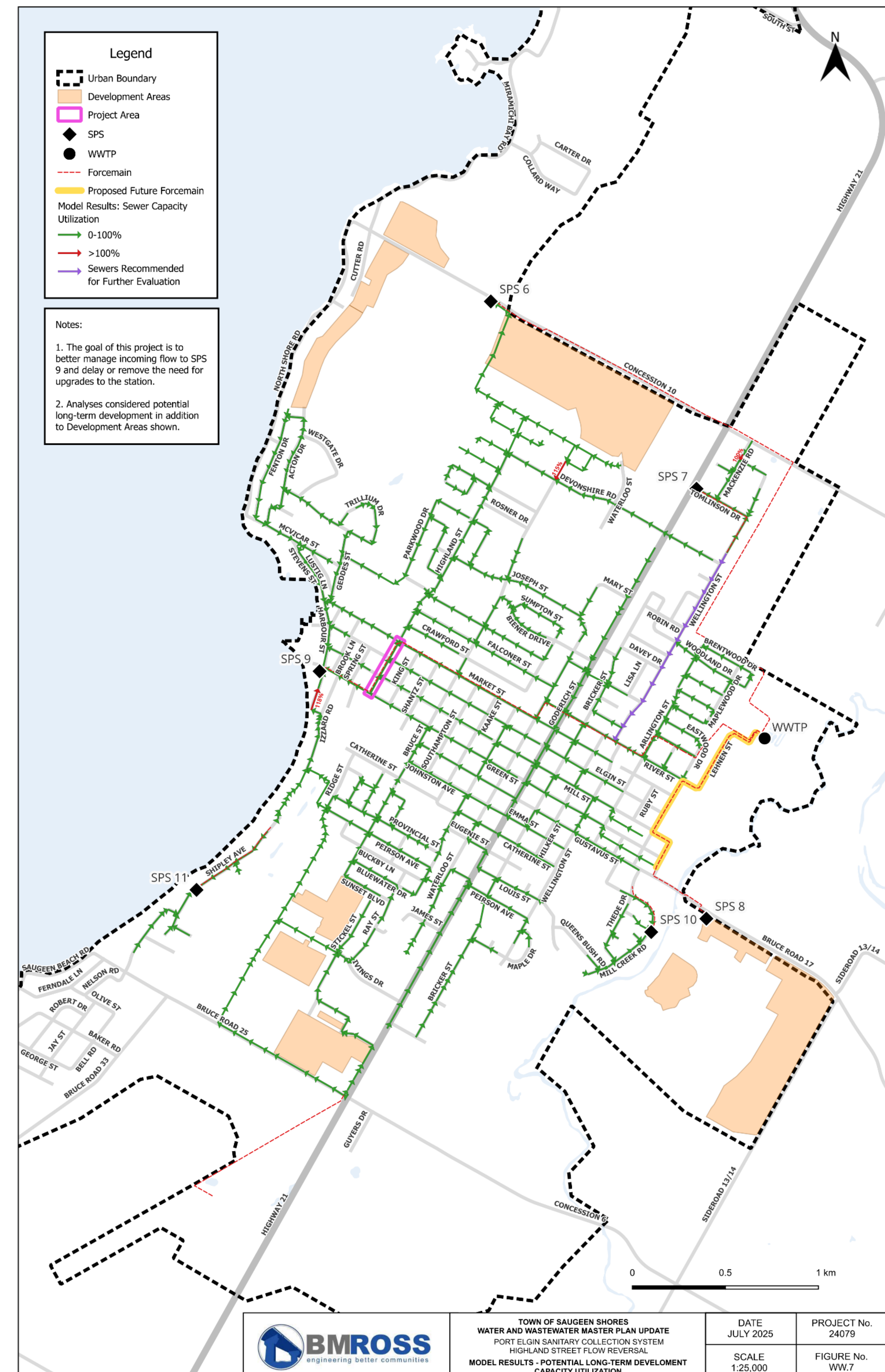
Port Elgin Sanitary Collection System – Highland Street Flow Reversal

Proposed Project

- ▶ Reversing flow on Highland Street from Green Street to Market Street, to delay or potentially avoid upgrades to SPS 9 by redirecting a significant amount of flow to SPS 6.
- ▶ Three blocks on Highland Street would be affected by construction.

Results

- ▶ SPS 9 projected capacity utilization decreases by approximately 33% and SPS 6 would increase by 50%, better aligning stations flows to their respective capacities.
- ▶ In SPS 6 catchment area, modelled sewer peak flows remain below 100% capacity.



Preliminary Recommended Projects

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Infrastructure Category	Description / Status / Recommendation	Priority
Water Treatment	Class EA is underway to address capacity requirements of the Saugeen Shores Water Treatment Plant. The project remains a high priority.	High
Water Storage	- Does not meet fire protection storage and emergency storage requirements for the planning period. - Capital funding to address this issue is currently included in the 10-year plan but should be increased in priority. - Class EA is recommended in 2026 to examine storage upgrade alternatives.	High
Wastewater Treatment	Southampton WWTP - Construction underway for Phase 1 of the planned upgrades. The project remains a high priority.	High
Wastewater Treatment	Port Elgin WWTP - Class EA is underway to address capacity of the headworks, asset rehabilitation upgrades, and operational improvements. Current overall plant rated capacity meets the growth needs in the planning period.	Medium
Wastewater Collection	Highland Street sanitary sewer flow reversal is recommended to better proportion flows between SPS 6 and 9 in accordance with each station capacity. Timing will depend on status of flows to each station.	Medium, but subject to development timing
Wastewater Collection	SPS 9 trunk sewers on Harbour Street should be reconstructed with greater capacity to accommodate future development needs.	Medium, but subject to development timing
Wastewater Collection	Sewers on Wellington Street should be further evaluated for capacity relative to the SPS 7 discharge rate. Sewers are unaffected by development and there are currently no known issues.	Low
Wastewater Collection	SPS 8 forcemain replacement directly to WWTP once flows to station have increased to the point of requiring additional capacity at the station. This future design consideration is captured in the CLI ECA for the collection system.	Low, but subject to development timing.
Water Distribution	Concession 10 loop and Bruce Road 17 extension are recommended in response to development needs.	Low, but subject to development timing

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