WELCOME

Picton Master Servicing Plan for Water, Wastewater, and Stormwater Management

Public Consultation Centre

Thursday, August 3, 2023, 6:00 pm to 8:00 pm

Picton Town Hall, 2 Ross St., Picton

Key Instructions for this Meeting

Master Servicing Plan for Picton Water, Wastewater, and Stormwater Management

1

Please Sign in

Meeting is a “Open House” format.

2

Review Display Materials

Our representatives will be pleased to discuss the plan, or any questions or concerns that you may have.

3

Complete a Comment Sheet

Drop off your completed Comment Sheet in the Box tonight or return it to the people shown on the Comment Sheet by September 1, 2023

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Why are we here tonight?

Prince Edward County is undertaking **a Master Servicing Plan** to identify servicing strategies to address existing deficits that currently exist in the Town of Picton's water, wastewater, and stormwater management systems, and meet long term demands.

Objectives of this **Public Consultation Centre**:

- Introduce the project and its background
- Present the Problem and Opportunity Statement, projected growth, existing conditions, and water, wastewater, and stormwater system needs and preliminary alternatives
- Receive input from the public on the information presented to incorporate in the next steps of the study

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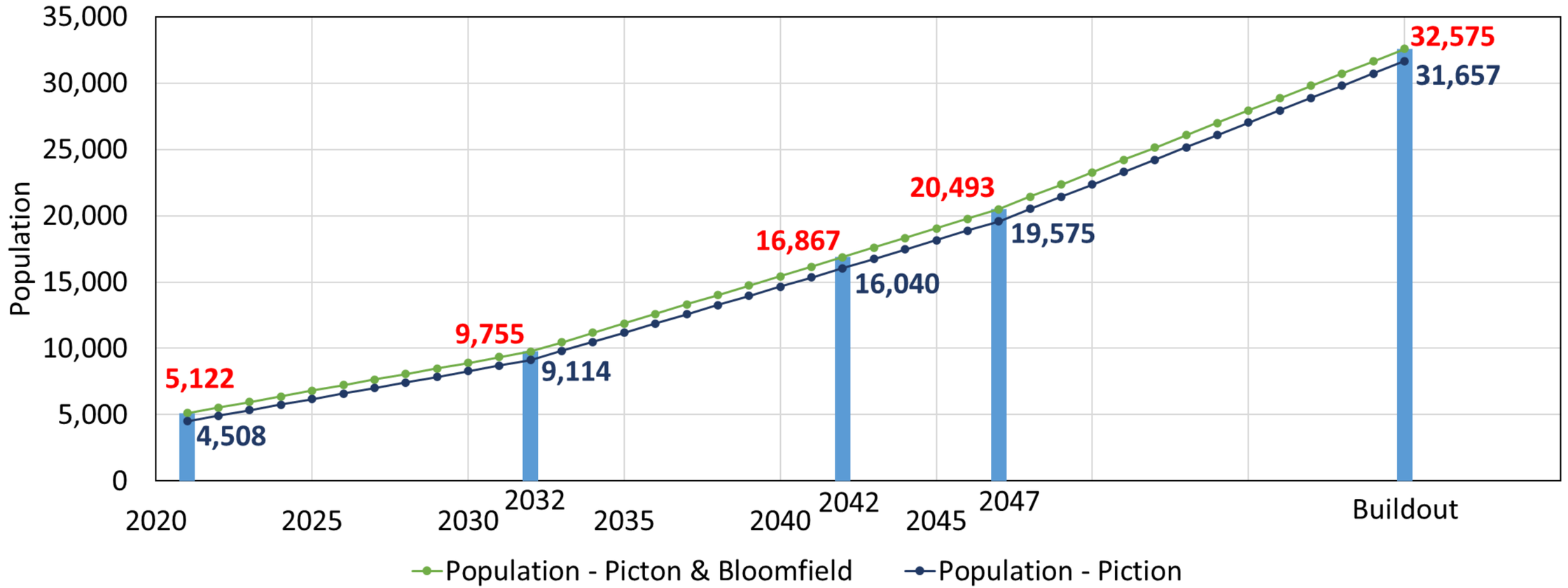
Picton is Growing!



Population projections up to 2047 are based on 2022 Watson and Associates Projections.

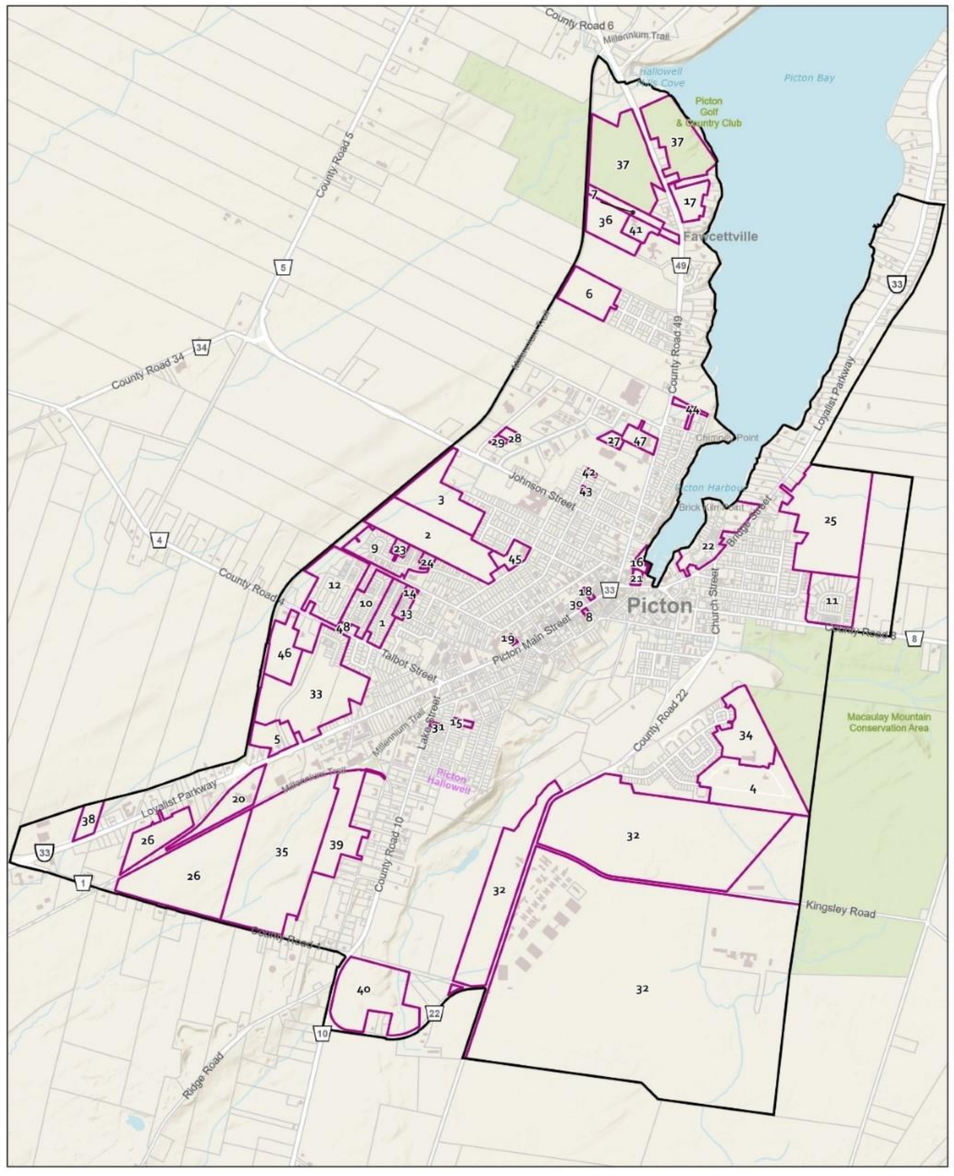
Population projections at the buildout of the Town are based on Picton's urban boundary, using a blended medium and high density rate.

Purpose of the Picton Master Servicing Plan

Over the next 25 years, Picton is expected to increase from a population of 4,508 residents to 19,575. The ultimate buildout population is anticipated to be approximately 31,657.

The current infrastructure in place within the Town of Picton may not have the necessary capacity required to handle the expected increase in flow demands; therefore, Prince Edward County initiated a Master Servicing Plan (MSP) for the Town.

The overall objective of the MSP is to identify the preferred servicing strategies for water, wastewater, and stormwater, to serve existing customers and to accommodate the projected growth in the Picton/Bloomfield service area.



BASE 31 Development

It has been assumed the The Base 31 Development will require the following average day capacities as part of the Picton MSP

Water: 3,840 m^3/d

Wastewater: 5,400 m^3/d

These assumptions are subject to change pending completion of the Base 31 Master Plan and an exceedance may require an addendum to the Picton MSP.

Master Servicing Plan Context

- Master Plans are long range plans which integrate infrastructure requirements for existing and future land use with environmental assessment (EA) planning principles. These plans examine an infrastructure system(s) or group of related projects in order to outline a framework for planning for subsequent projects and/or developments. At a minimum, Master Plans address Phases 1 and 2 of the Municipal Class EA process.

- The Picton Master Servicing Plan is using Approach 2 of the Master Planning Process. This means that a Master Plan document will be prepared at the conclusion of Phases 1 and 2 of the Municipal Class EA process where the level of investigation, consultation and documentation are sufficient to fulfil the requirements for Schedule B projects.

- In conjunction with the Picton Master Servicing Plan, a Regional Master Plan is being conducted for Prince Edward County. This Regional Master Plan will recommend overall strategies for Water Servicing and its recommendations will be integrated with those from the Picton Master Servicing Plan. A PCC is scheduled for August 17, 2023.

Overview of Activities under the EA Process

Phase 1 Getting Started

- Issue Notice of Commencement (January 18, 2023)
- Review available information/data
- Identify Problem / Opportunity Statement

Phase 2 Exploring the Options

- Consider ways to address servicing needs
- Identify potential impacts
- Evaluate options and select the recommended **Preferred Servicing Solutions**
- Confirm Preferred Servicing Solutions based on **public and review agency input**

WE ARE HERE

PUBLIC CONSULTATION CENTRE
August 3, 2023

Phase 3 Conceptualizing the Preferred Solution

- Develop design concepts to implement the Preferred Servicing Solutions from Phase 2
- Identify impacts and mitigation measures
- Evaluate options and select the recommended **Preliminary Preferred Design Concepts**

Phase 4 Documenting the Process

- **Prepare a Report** and satisfy the documentation requirements of the Class Environmental Assessment process
- Make report available for **public review**

Phase 5 Implementing the Recommendations

- Complete detailed design of the recommended solution
- Initiate construction

Phases 1 and 2 of the EA Process will be completed during the Master Servicing Plan.

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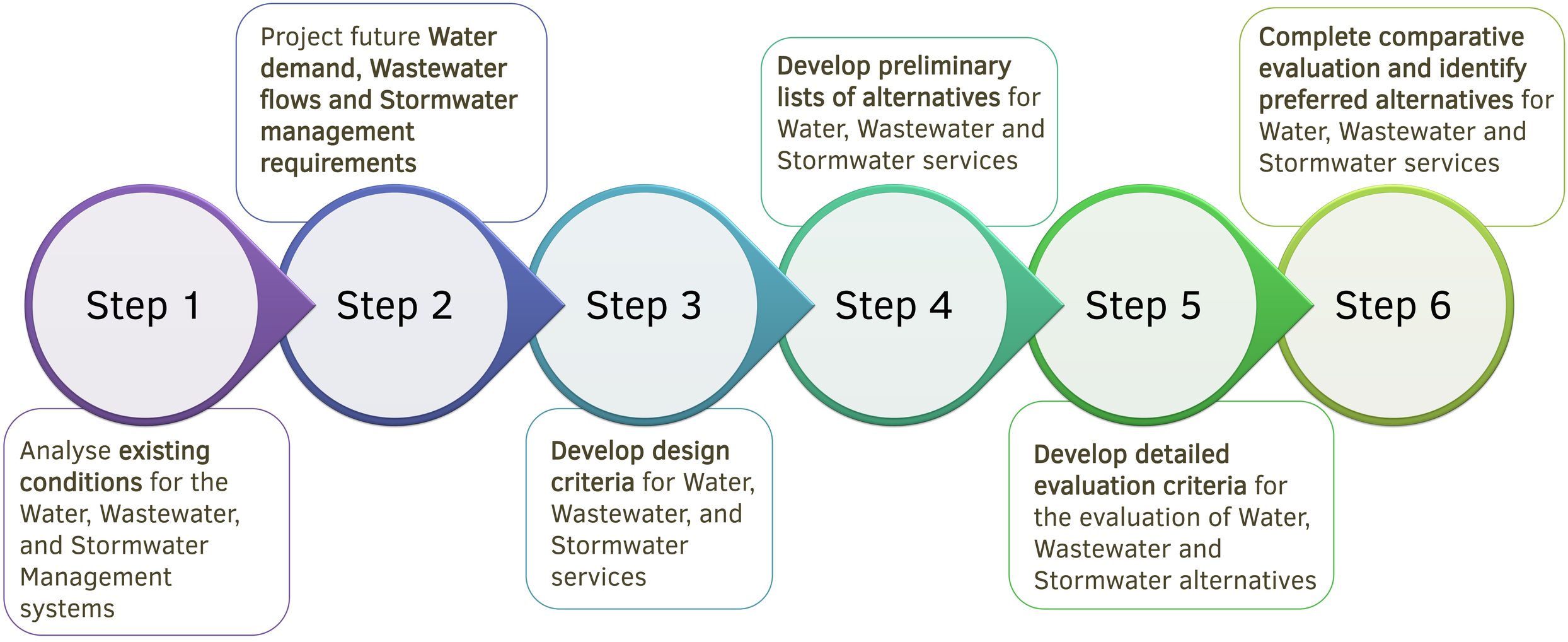
Selecting the Preferred Servicing Solutions – The Process



- Results from Steps 1 to 4 are presented in the next Panels.
- Panels have been separated for Water, Wastewater, and Stormwater.

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Problem and Opportunity Statement

The Picton Settlement Area infrastructure generally consists of:

- Picton Water Treatment Plant
- Picton Wastewater Treatment Plant
- Water/wastewater pumping stations and forcemains
- Water distribution network
- Wastewater and Stormwater collection sewers

The existing infrastructure will need upgrading to accommodate the immediate and long-term growth of the Picton Settlement Area.

The preferred solutions to address the capacity deficits will comply with applicable regulations, add required capacity to each system, ensure public safety, meet public needs, and be achieved in a sustainable manner to support the growth forecast.

Baseline Condition Studies

The following studies will be completed to confirm the baseline conditions of the study area and support the recommendations of the Master Plan Study:

- Archaeological Assessment
- Cultural Heritage Assessment
- Natural Environment Desktop Assessment

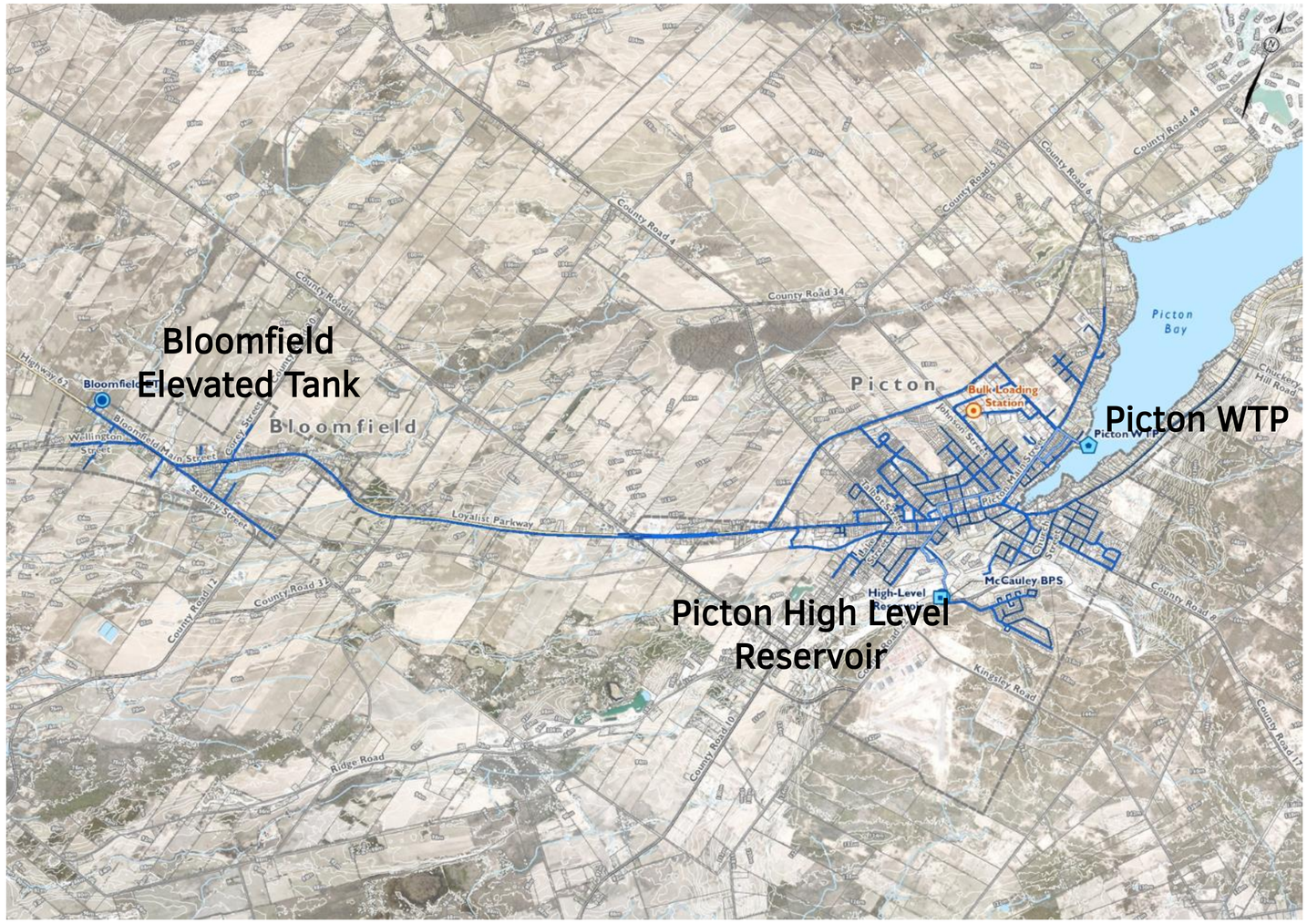
Picton/ Bloomfield Water System Display Panels

Existing Picton/Bloomfield Water System - Context

The Picton Water Treatment Plant (WTP) was originally constructed in 1928, and most recently upgraded in 2009. It serves Picton and Bloomfield.

There are approximately 63km of distribution watermains, with a 10km long watermain sending water to Bloomfield.

The Picton WTP has a rated capacity of 10,400 m^3/d. A stress test was conducted and identified a capacity of 6,000 m^3/d and based on operator experience, the effective sustainable plant capacity is 5,200 m^3/d.

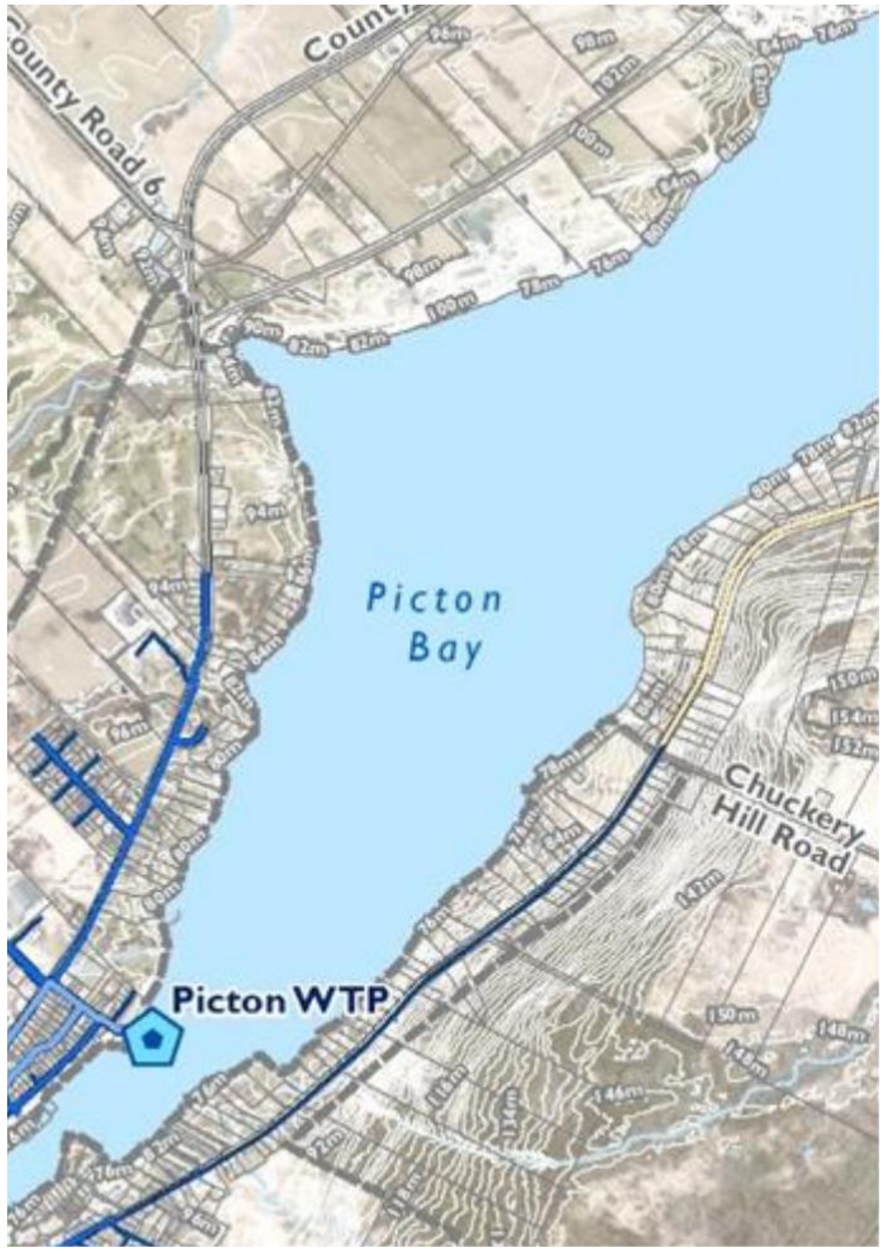


Water Quality in Picton Bay

Two intakes draw water from Picton Bay into the Picton WTP. The intakes are old (constructed in 1928 and 1958), shallow, and located in a traffic-prone waterway, making them subject to potential contamination.

In 2017, a sinking barge spilled fuel into the bay, forcing the closure of the Picton WTP for a week. This event highlights the risk posed to the existing Picton/Bloomfield Water System.

The risks associated with water quality in the Picton Bay are expected to increase as a result of future developments and climate change. This will increase the cost and complexity of treating water at the Picton WTP.



How is the water treated at the Picton WTP?

Raw Water Intake

Picton Bay provides the source water for the plant.

Low Lift Pumps

Low lift pumps draw water from the bay into the plant.

Coagulation and Flocculation

A coagulant is added to the water to assist in the removal of turbidity and particles in the water.
Flocculation is the slow mixing of the water that promotes agglomeration of small particles into larger ones.

Clarification / Filtration

Small particles and microorganisms are removed from the water by filter media.

Disinfection

Chlorine is used for the inactivation of human pathogens.

High Lift Pumps

Treated water pumped to the distribution system.

Picton/Bloomfield Treated Water Distribution System

Picton High Level Reservoir

Bloomfield Elevated Storage Tank

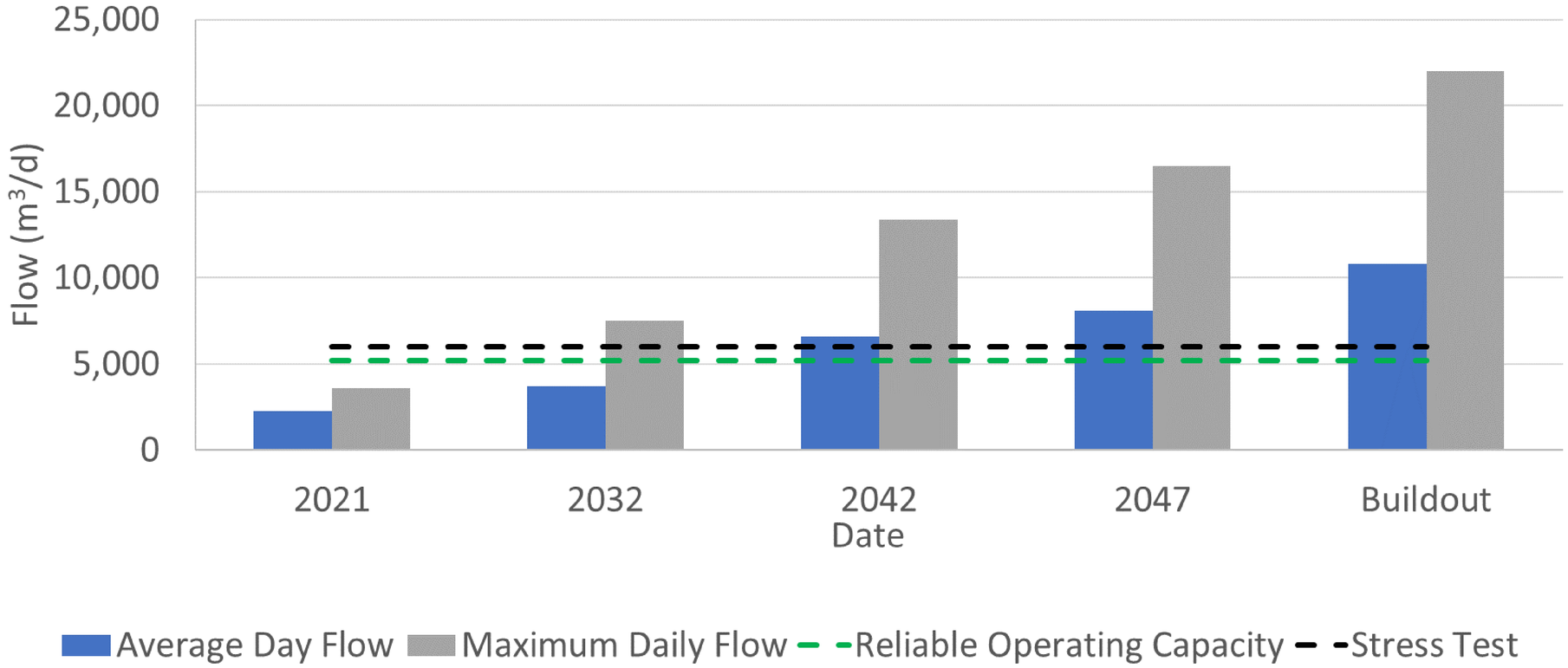
Solids Waste Holding Tank

Stores the solids and backwash water and decants solids generated during the treatment process.
Supernatant is returned to the head of the plant.

Residuals Disposal

Residuals are pumped to a sanitary sewer to be treated at the Picton WWTP.

Current and Projected Water Demands



The stress test identified a capacity of 6,000 m^3/d to achieve key performance indicators, however, the reliable capacity of 5,200 m^3/d represents the effective sustainable plant capacity based on operator experience.

The projected water demand of Picton/Bloomfield will be an average day flow of 8,100 m^3/day and a maximum daily flow of 10,800 m^3/day by 2047. This will require increased water treatment capacity to meet future development growth.

Water Servicing Needs / Design Criteria

	Existing Capacity	Capacity Required at Buildout	
Raw Water Intakes	11,450 m^3/day	24,000 to 30,000 m^3/day (depends on treatment technology selected)	Deficient
Treatment Capacity Picton WTP	5,200 m^3/day (sustainably)	22,000 m^3/day	Deficient
Water Storage - Picton	5,500 m^3	7,575 m^3	Deficient
Water Storage - Bloomfield	1,200 m^3	525 m^3	Sufficient

As part of the Master Servicing Plan, pumping station capacities, watermain capacities, and water pressures will be evaluated. Preferred alternatives to address all deficiencies will be developed.

Preliminary List of Water Supply Alternatives

Alternative Number	Alternative	Pre-Screening Assessment	Shortlisted for Evaluation?
1	Do Nothing	Does not meet the problem & opportunity statement and is not feasible due to ongoing planning applications, therefore will not be considered further.	**NO**
2	Limit Growth	Does not meet the problem & opportunity statement and is not feasible due to ongoing planning applications, therefore will not be considered further.	**NO**
3	Reduce Water Demands	Is not considered a viable stand-alone measure, and therefore will not be considered further.	**NO**
4	Provide a New Water System in Picton, including a new Picton WTP, to service all existing and future demand	Meets the preliminary criteria in the problem & opportunity statement, and therefore will be shortlisted.	**YES***
5	Retrofit the Existing Picton WTP and supplement the capacity deficit via a connection to new Regional WTP	Meets the preliminary criteria in the problem & opportunity statement, and therefore will be shortlisted.	**YES***
6	Obtain all required water via a connection to new Regional WTP and decommission the Existing Picton WTP	Meets the preliminary criteria in the problem & opportunity statement, and therefore will be shortlisted.	**YES***

* New Water System in Picton to be informed by ongoing Regional Water Supply Servicing Master Plan and short-list subject to change pending information from this study. A PCC is scheduled for August 17, 2023.

Picton Wastewater System Display Panels

Existing Picton Wastewater System - Context

There are 7 sewage pumping stations (SPS) located throughout the collection system.

There are approximately 37.5 km of sanitary collection sewers and 2.92 km of forcemains used for pumping.

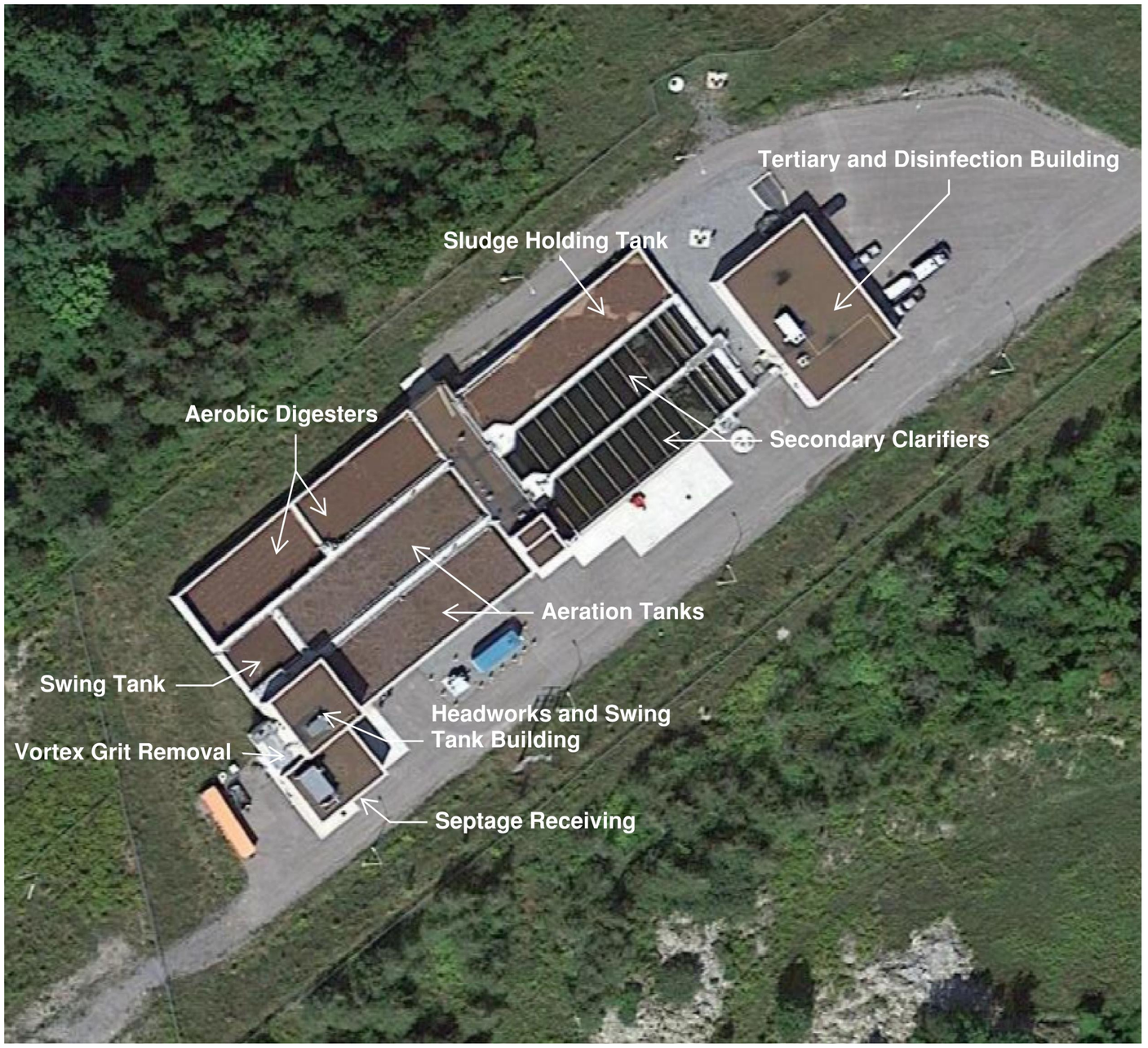
All wastewater is pumped to the Picton Wastewater Treatment Plant.

Existing Picton Wastewater Treatment Plant - Context

The existing Picton Wastewater Treatment Plant (WWTP) was originally constructed in 2012 and serves around 4,576 people in the Town.

The Picton WWTP has a rated capacity of 6,000 m^3/d. Based on operator experience, the effective sustainable plant capacity is 4,800 m^3/d.

Treated effluent from the Picton WWTP is discharged to Marsh Creek, from where it flows to Picton Bay.



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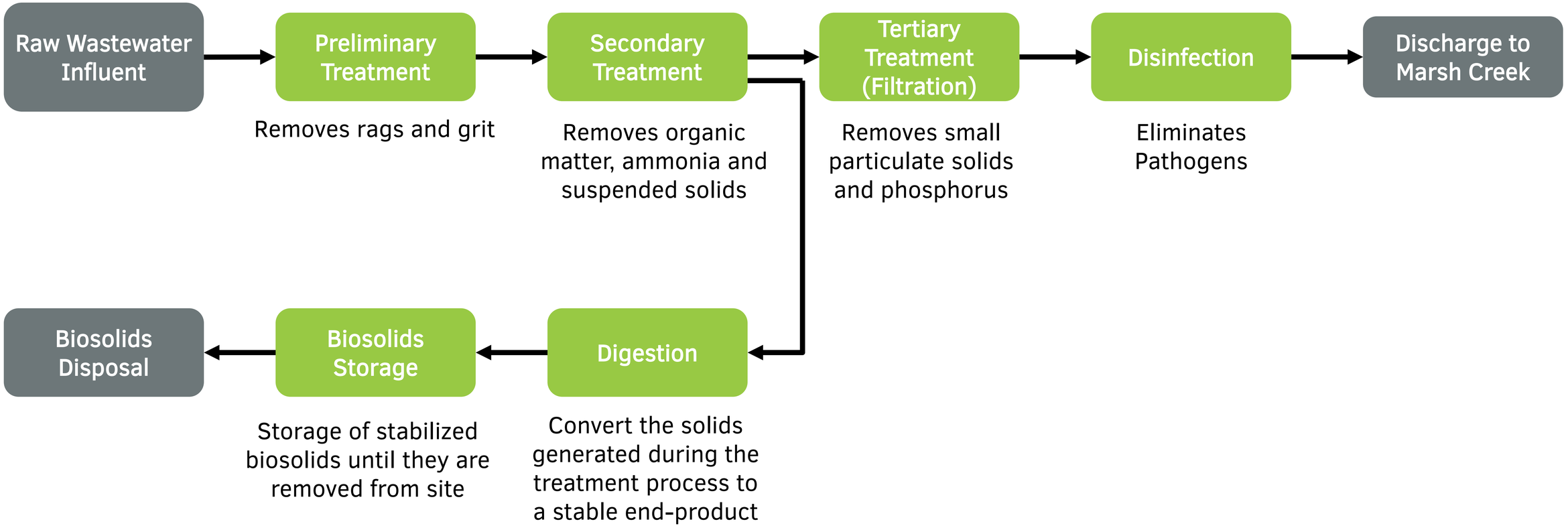
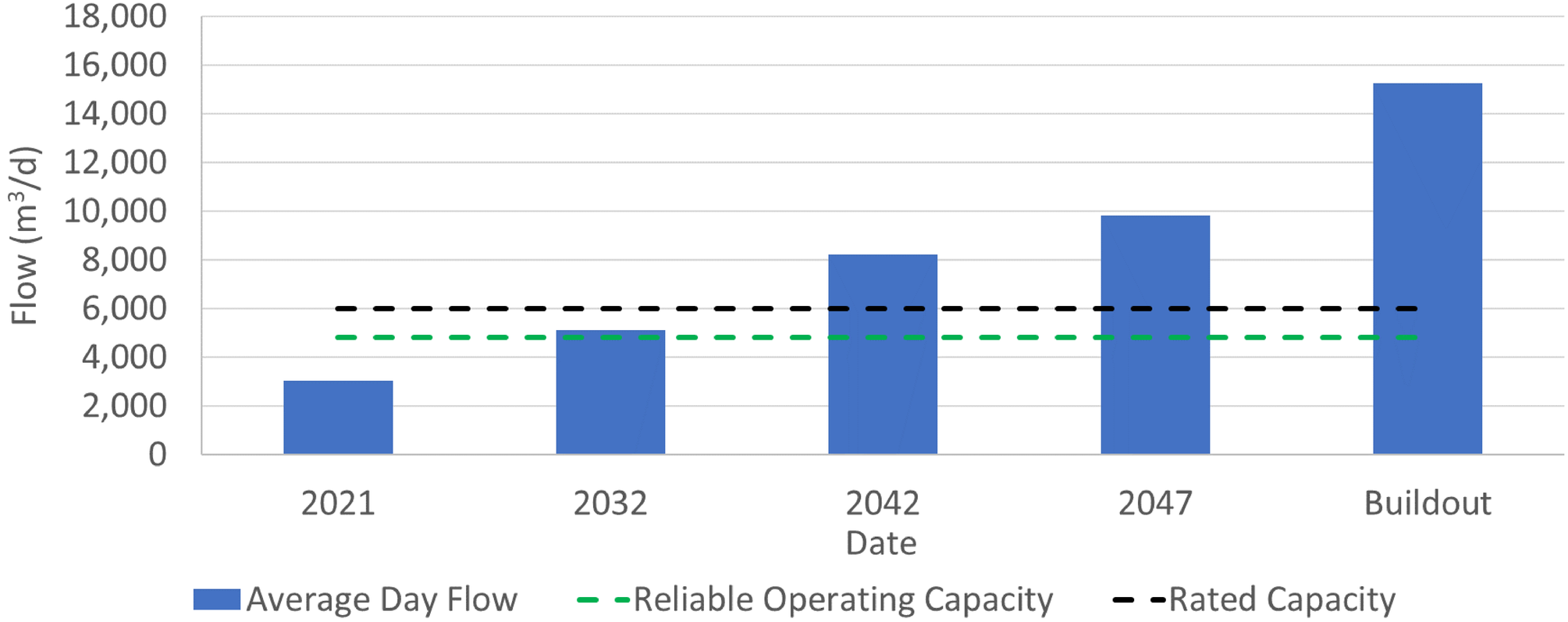
How is the wastewater treated at the Picton WWTP?



Current and Projected Wastewater Flows



The rated capacity of the Picton WWTP is 6,000 m^3/d, however, the reliable capacity of 4,800 m^3/d represents the effective sustainable plant capacity based on operator experience

The projected wastewater flows received at the Picton WWTP will be an average day flow (ADF) of 9,820 m^3/day in 2047 and 15,257 m^3/day at the buildout of the Town. An increase to the wastewater treatment capacity will be required to meet future development growth.

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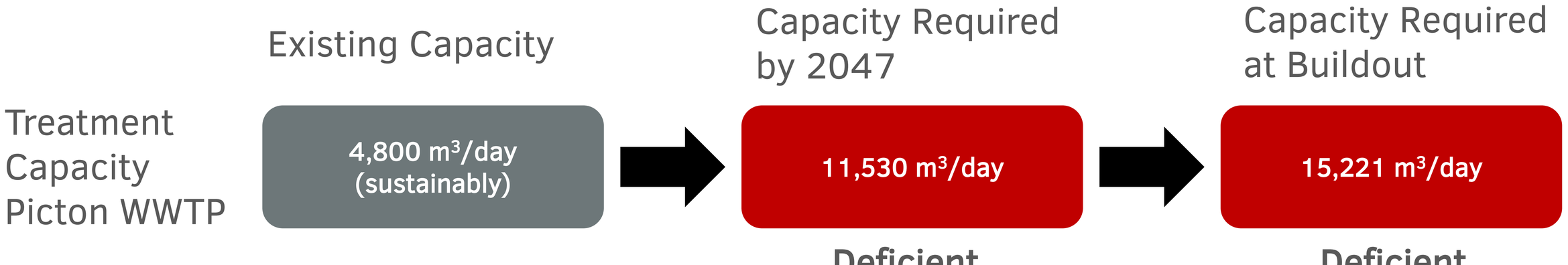
Wastewater Servicing Needs / Design Criteria



The treatment capacity of the Picton WWTP will be deficient to treat the flows expected by 2047 and at the buildout of the town.

As part of the Master Servicing Plan, the capacities of all sanitary sewers and pumping stations will be evaluated. Preferred alternatives to address all deficiencies will be developed.

Preliminary List of Wastewater Treatment Alternatives

Alternative Number	Alternative	Pre-Screening Assessment	Shortlisted for Evaluation?
1	Do Nothing	Does not meet the problem & opportunity statement and is not feasible due to ongoing planning applications, therefore will not be considered further.	**NO**
2	Limit Growth	Does not meet the problem & opportunity statement and is not feasible due to ongoing planning applications, therefore will not be considered further.	**NO**
3	Retrofit the Existing Picton WWTP	Meets the preliminary criteria in the problem & opportunity statement, and therefore will be shortlisted.	**YES**
4	Expand the Existing Picton WWTP	Meets the preliminary criteria in the problem & opportunity statement, and therefore will be shortlisted.	**YES**
5	Build a new Picton WWTP and decommission the Existing Picton WWTP	Meets the preliminary criteria in the problem & opportunity statement, and therefore will be shortlisted.	**YES**
6	Send wastewater to another treatment system	May be feasible and does meet the problem & opportunity statement, however, comes with significant financial costs, therefore will not be considered further.	**NO**
7	Decentralised wastewater systems for new developments	May be feasible and does meet the problem & opportunity statement, however, comes with significant financial costs, therefore will not be considered further.	**NO**

Picton Stormwater Management Display Panels

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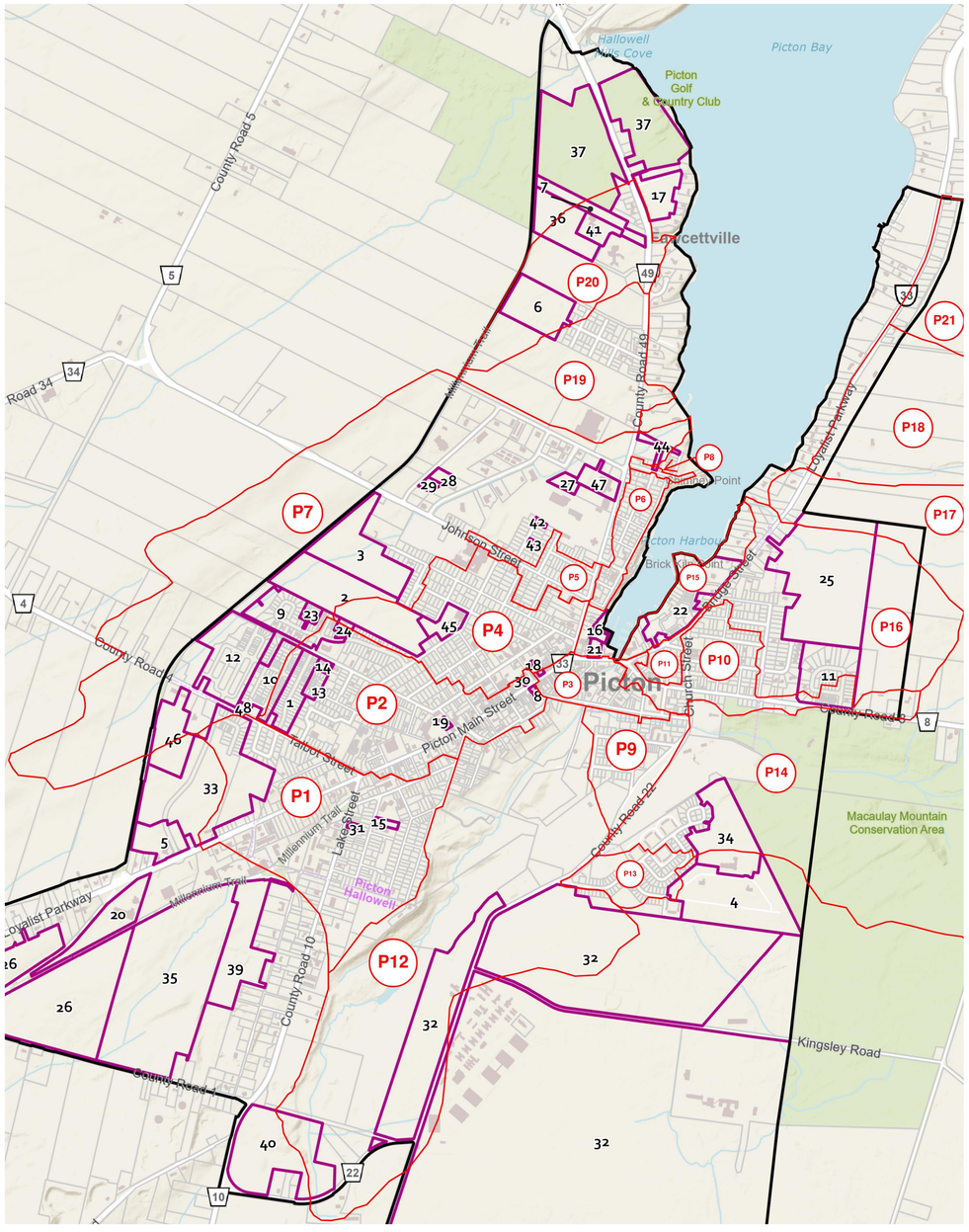
Existing Picton Stormwater Management System - Context

The existing stormwater infrastructure consists of storm ponds, above grade swales/ditches, entrance culverts and local storm sewer throughout Picton that predominantly discharges to Picton Harbour.

There are a total of 21 sub-catchments across the study area which discharge to the Picton Harbour. Proper management of stormwater is important to minimize risks of flooding, damage, and public inconvenience. This also protects the water quality in Picton Harbour (the current drinking water source of the Town)



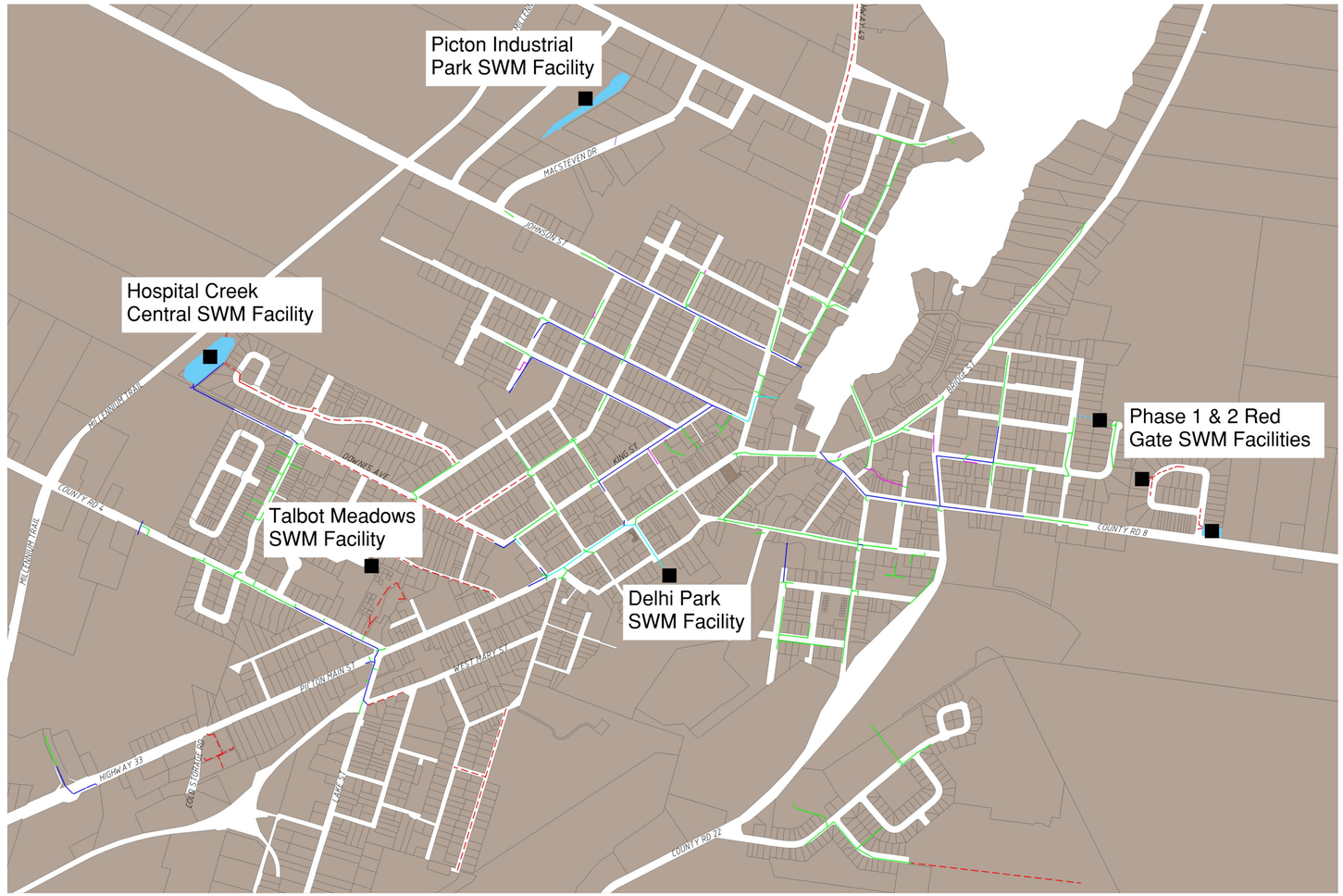
Existing Stormwater Management System Capacity

There are 5 stormwater management (SWM) facilities located throughout the Picton Harbour Watershed. A sixth SWM facility has recently been constructed and will soon be handed over to the County. These SWM facilities provide treatment to the stormwater prior to discharging.

Stormwater Management Facilities:

- Picton Industrial Park SWM Facility
- Talbot Meadows SWM Facility
- Delhi Park SWM Facility
- Hospital Creek Central SWM Facility
- Phase 1 & 2 Red Gate SWM Facilities
- West Meadows SWM Facility (not yet assumed by the County)

Most storm sewers in the study area are sufficiently sized to convey minor storm events (up to once in 5-year events). Recommendations to address deficiencies will be developed.



Stormwater Management Approach and Design Criteria

A stormwater management plan shall be prepared to address the servicing requirements of proposed immediate and future developments.

Condition	Design Criteria
Peak Flows	For new developments, peak flows from post-development shall not exceed pre-development peak flows for all once in 100-year storm events. For infill developments, peak flows shall generally coincide with the once in 5-year storm events under pre-development conditions.
Quantity Control	For new developments, the possibility for centralized SWM facilities will be reviewed. For infill developments, any storm events greater than the calculated 5-year allowable release rate, up to and including 100-year storm events, shall be detained on-site.
Quality Control	All new end-of-pipe stormwater management shall provide “enhanced” level of stormwater management (i.e. 80% total suspended solids removal).
Minor System Design (Storm Sewers)	Storm sewer systems shall be designed to convey the drainage flows generated from once in 5-year storm events, with no surface ponding accumulating on the public road.
Major System Design (Overland Flow)	The major system shall safely convey flow in excess of the minor system including the Regional Storm event without causing damage to private property and with minimum inconvenience to the public.
Climate Change	Consideration of the potential climate change impacts shall be considered in all servicing analyses.

Summary of Preliminary Recommendations

Water System

Further evaluate and select the preferred alternative from:

- Providing a new Water System to service all existing and future demand.
- Retrofitting the Existing Picton WTP and supplementing the capacity deficit via a connection to new Wellington WTP.
- Obtaining all required water via a connection to new Wellington WTP and decommissioning the Existing Picton WTP.

Wastewater System

Further evaluate and select the preferred alternative from:

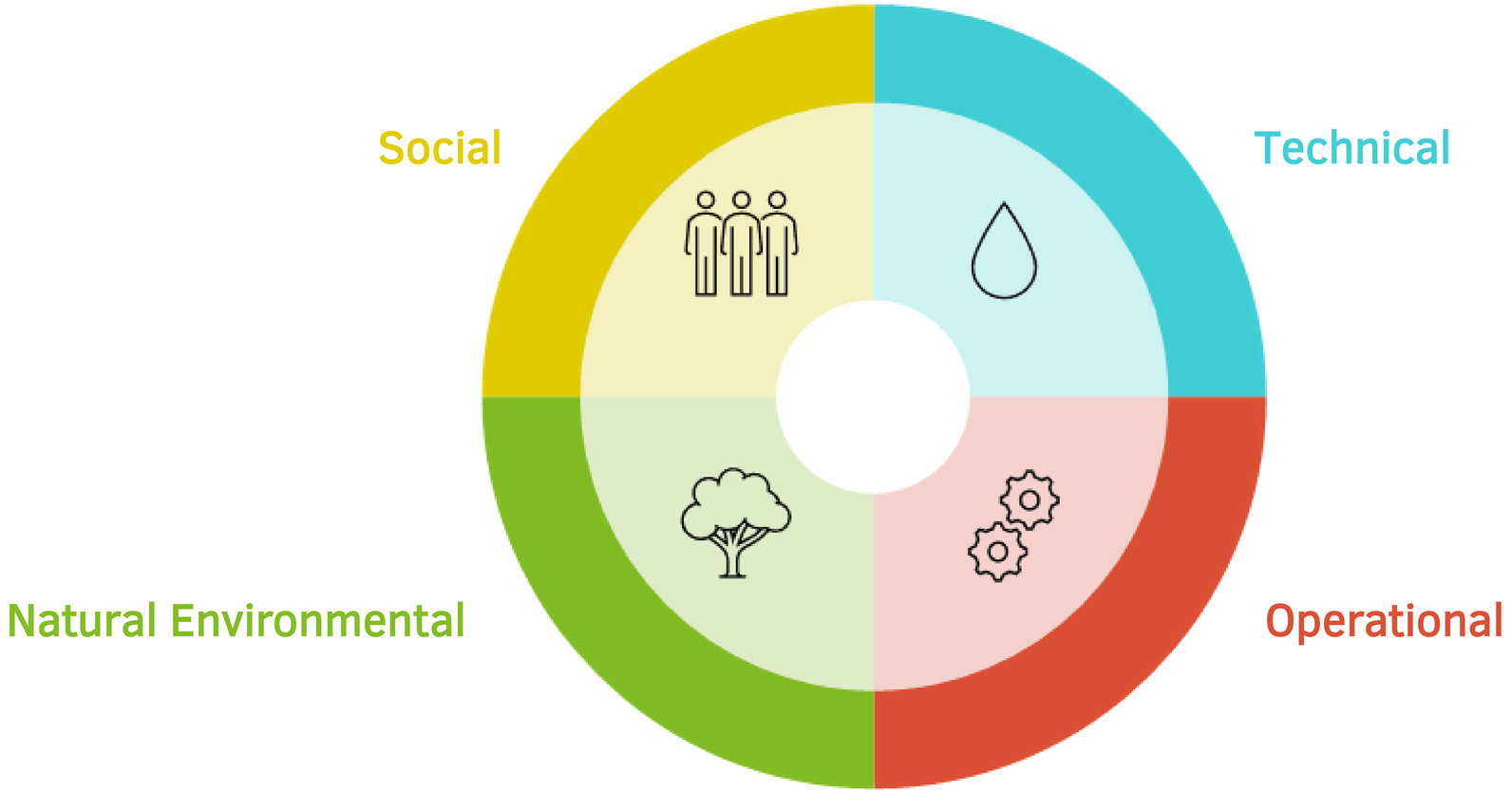
- Retrofitting the Existing Picton WWTP.
- Expanding the Existing Picton WWTP.
- Building a new Picton WWTP and decommissioning the Existing Picton WWTP.

Stormwater Management

Prepare a stormwater management plan to address servicing requirements of proposed immediate and future developments.

How will alternatives be evaluated?

The project team will develop evaluation criteria for the purposes of selecting preferred alternatives based on social, technical, natural environmental, and operational factors. The criteria details and weighting will be refined based on input received at this meeting.



What are the Next Steps?

After this Public Consultation Centre, the project team will:

- Review and consider input received during this meeting.
- Develop evaluation criteria for the shortlisted Picton Water, Wastewater and Stormwater Management alternatives and select preferred approaches.
- Evaluate water distribution, wastewater collection, and stormwater collection systems for capacity limitations and develop alternatives to address deficiencies.
- Submit individual reports describing the Water, Wastewater, and Stormwater Management evaluations and preferred alternatives.
- Host an additional Public Consultation Centre presenting the findings of those reports.

Early Fall 2023

Water, Wastewater, and Stormwater System Reports

Late Fall 2023

Public Consultation Centre No. 2

Winter 2023/2024

Final Report

2024

Completion of the Class EA process

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Next Steps & Comments

Questions or comments?

Should you have any questions about this presentation or the project, please fill out a comment sheet at the front or contact:

Jeff Shortt, C.E.T.

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