



# WELCOME

## Class Environmental Assessment for the Craigleith Sewage Treatment Plant Expansion

### PUBLIC INFORMATION CENTRE

**Please Complete the Sign-in Sheet and review the display materials.**

**The Project Team is available to answer your questions and address any concerns.**

**Your input is valued!**

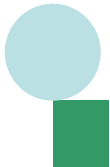
**Please fill out a comment sheet.**





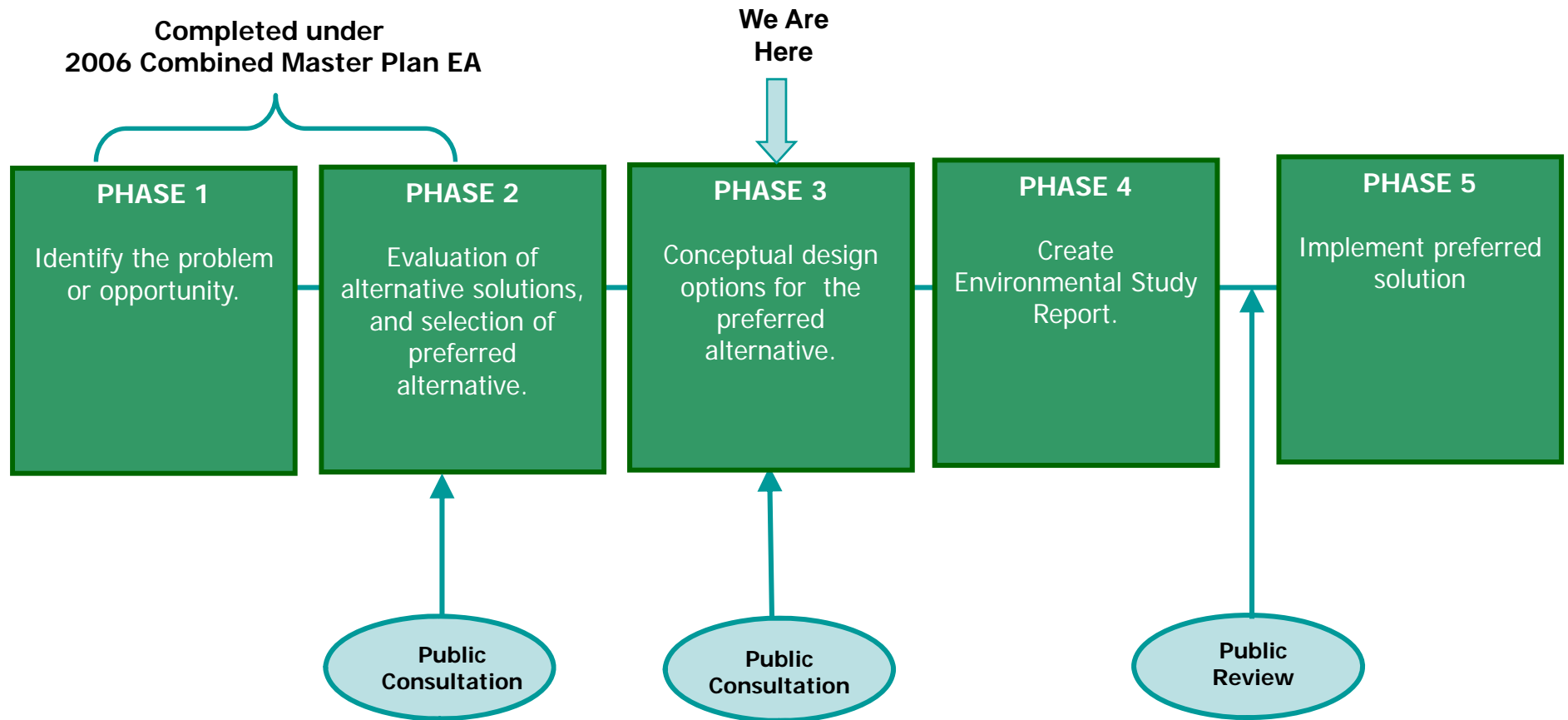
# Introduction to the Class Environmental Assessment

- A Class Environmental Assessment (EA) is a study that examines alternatives and impacts for proposed projects and confirms the best alternative solution.
- Public consultation is a requirement of the Municipal Class EA process. Public input is valuable for confirming the best alternative solution.
- The Class EA process consists of 5 phases. The project is currently in Phase 3. Phases 1 and 2 were completed in 2006 under the Combined Master Plan EA.





# Overview of the Class Environmental Assessment Process

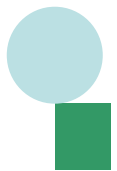
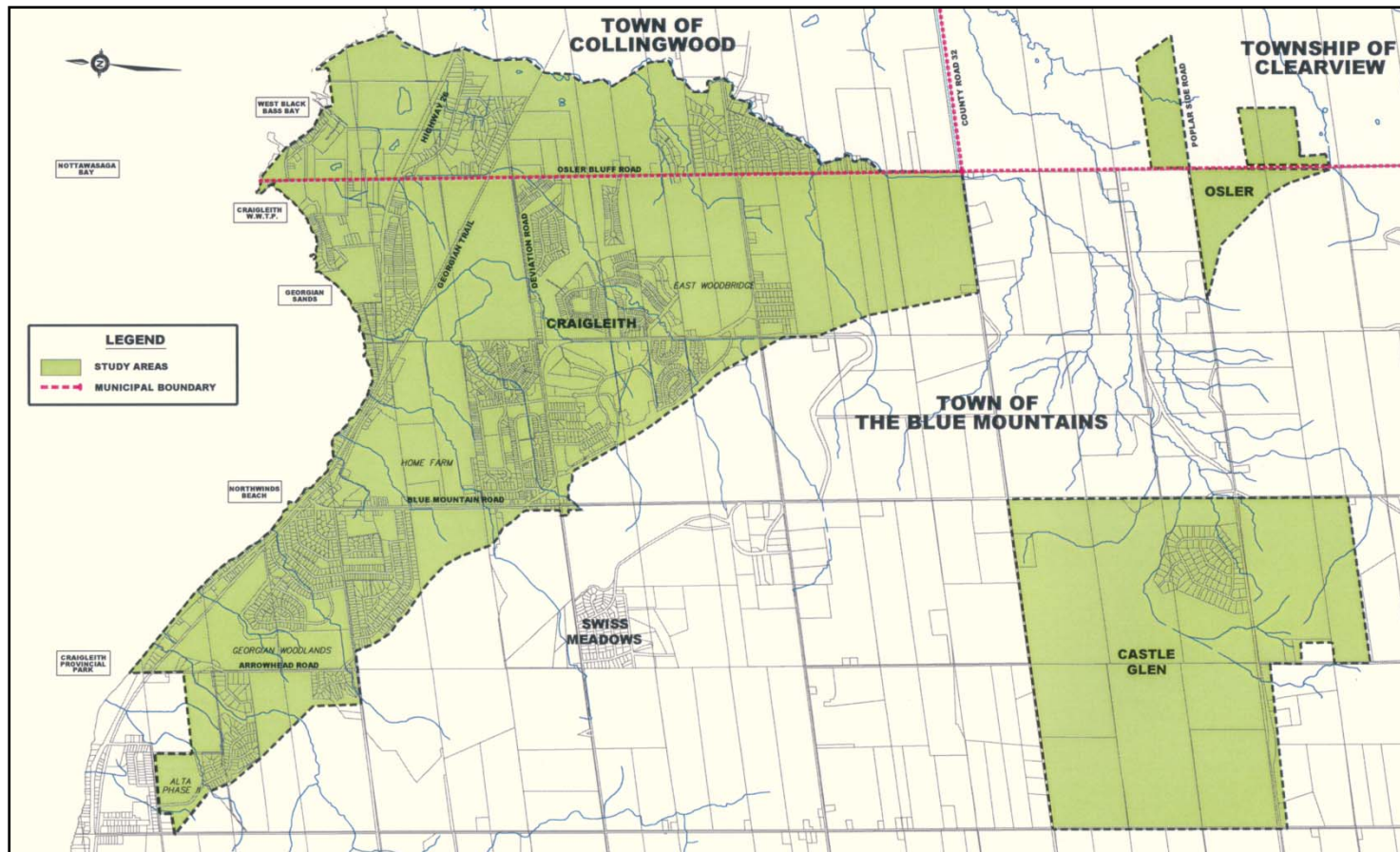




# Phase 1: Problem Statement

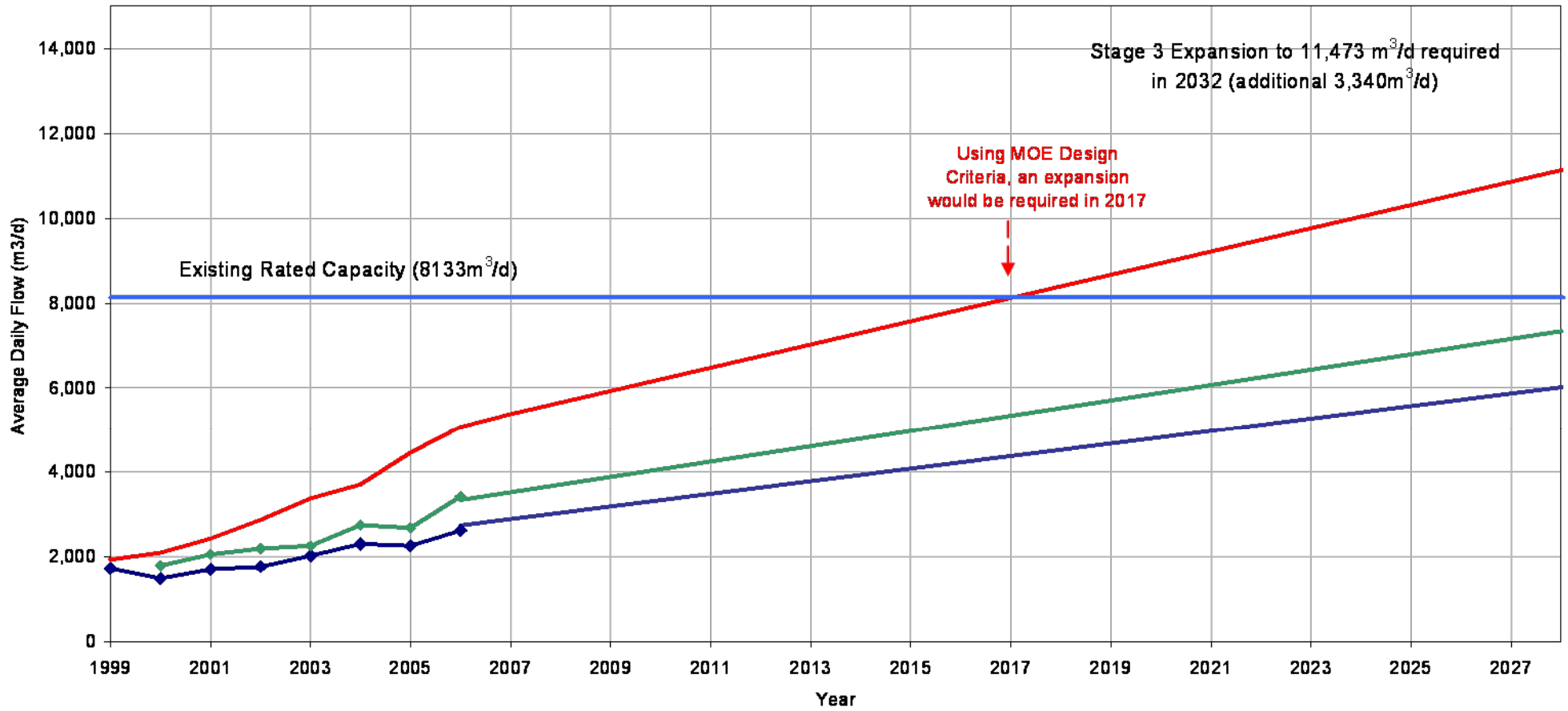
The existing Craigleith Sewage Treatment Plant (STP) does not have sufficient capacity to service the projected amount of wastewater for the Service Area, which includes Craigleith and the developing areas of Osler, Castle Glen, and parts of Collingwood and Clearview.

## Proposed Craigleith STP Service Area





# Sewage Treatment Flow Projection



- ◆ Historical Yearly ADF
- ◆ Historical Peak Season ADF (Jan to Mar)
- Projected Flow based on Historical Peak Season (Jan to Mar)
- Projected Flow based on MOE Guideline
- Projected Flow based on Historical Yearly Average



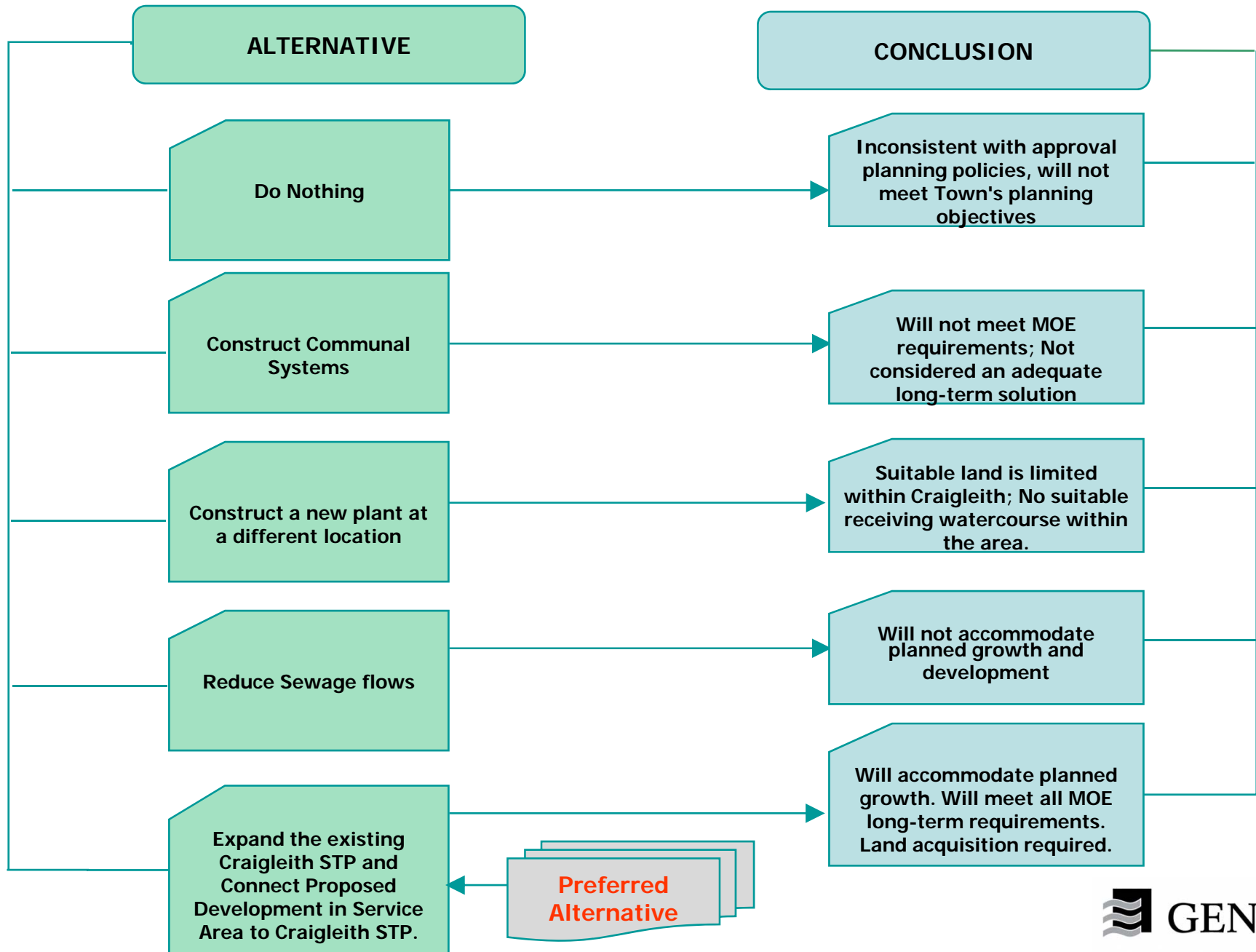
## Project Information: The Existing System

- Existing facility has a total average day flow capacity of 8,133 m<sup>3</sup>/day and total peak day flow capacity of 19,640 m<sup>3</sup>/day.
- Raw sewage is pumped to the STP from Craigeith Main Pumping Station
- The treatment facility is comprised of comminution, aerated grit removal, extended aeration, phosphorus removal by alum addition, secondary clarification, filtration, disinfection by ultra violet irradiation and 2 stage aerobic sludge digestion.
- Treated effluent is discharged into Nottawasaga Bay via a 3km outfall.





# Phase 2: Evaluation of Alternative Solutions and Selection of the Preferred Alternative

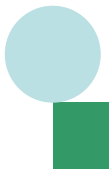




## Phase 3: Identification of Design Options for the Preferred Alternative

The secondary treatment design options for the preferred alternative are as follows:

- Rotating Biological Contractors
- Trickling Filters / Solids Contact
- Integrated Fixed Film Activated Sludge
- Membrane Bioreactors
- Biological Aerated Filters
- Sequencing Batch Reactors
- Conventional Activated Sludge
- Extended Aeration





## Phase 3: Evaluation Criteria

The secondary treatment design options for the preferred alternative are evaluated based on the following criteria:

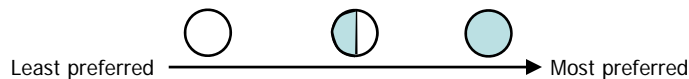
- Minimize Impact on Natural Environment: Capability to consistently meet the plant effluent criteria
- Minimize Impact on Social Environment: Process footprint and availability of sufficient space on site for implementation of the process technology
- Maximize Technical Suitability:
  - System Track Record: In Southern Ontario (in similar climates and size)
  - Level of Experience: Experience of Town staff with treatment technology
  - Compatibility: Compatibility with existing processes
- Minimize Cost: Capital Cost





# Phase 3: Evaluation of Design Options for the Preferred Solution

Evaluation Criteria	Identified Alternatives							
	Rotating Biological Contactors	Trickling Filters / Solids Contact	Integrated Fixed Film Activated Sludge	Membrane Bioreactors	Biological Aerated Filters	Sequencing Batch Reactors	Conventional Activated Sludge (CAS)	Extended Aeration
Minimize Impact on Natural Environment	○	○	○	○	○	○	○	○
Minimize Impact on Social Environment	○ Sufficient land on site.	○ Sufficient land on site.	○ Sufficient land on site.	○ Sufficient land on site.	○ Sufficient land on site.	○ Sufficient land on site.	◐ Land acquisition required	◐ Land acquisition required
Maximize Technical Suitability: System Track Record	◐ Limited	○	◐ Pilot testing	◐ Smaller facilities. Pilot testing for larger facilities.	◐ Currently under construction.	○ Smaller facilities.	○	○
Maximize Technical Suitability: Level of Experience	○	◐	○	○	○	○	○	○
Maximize Technical Suitability: Compatibility	○ Not compatible	○ Not compatible	○ Not compatible	○ Not compatible	○ Not compatible	○ Not compatible	○ Not compatible	○ Compatible
Minimize Cost	◐ High	◐ High	○ Very High	○ Very High	○ Very High	◐ Low	◐ Low	○ Lowest
<b>Preferred Alternative</b>	○	○	○	○	○	○	○	○

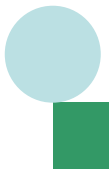




## Phase 3: Preferred Alternative Design

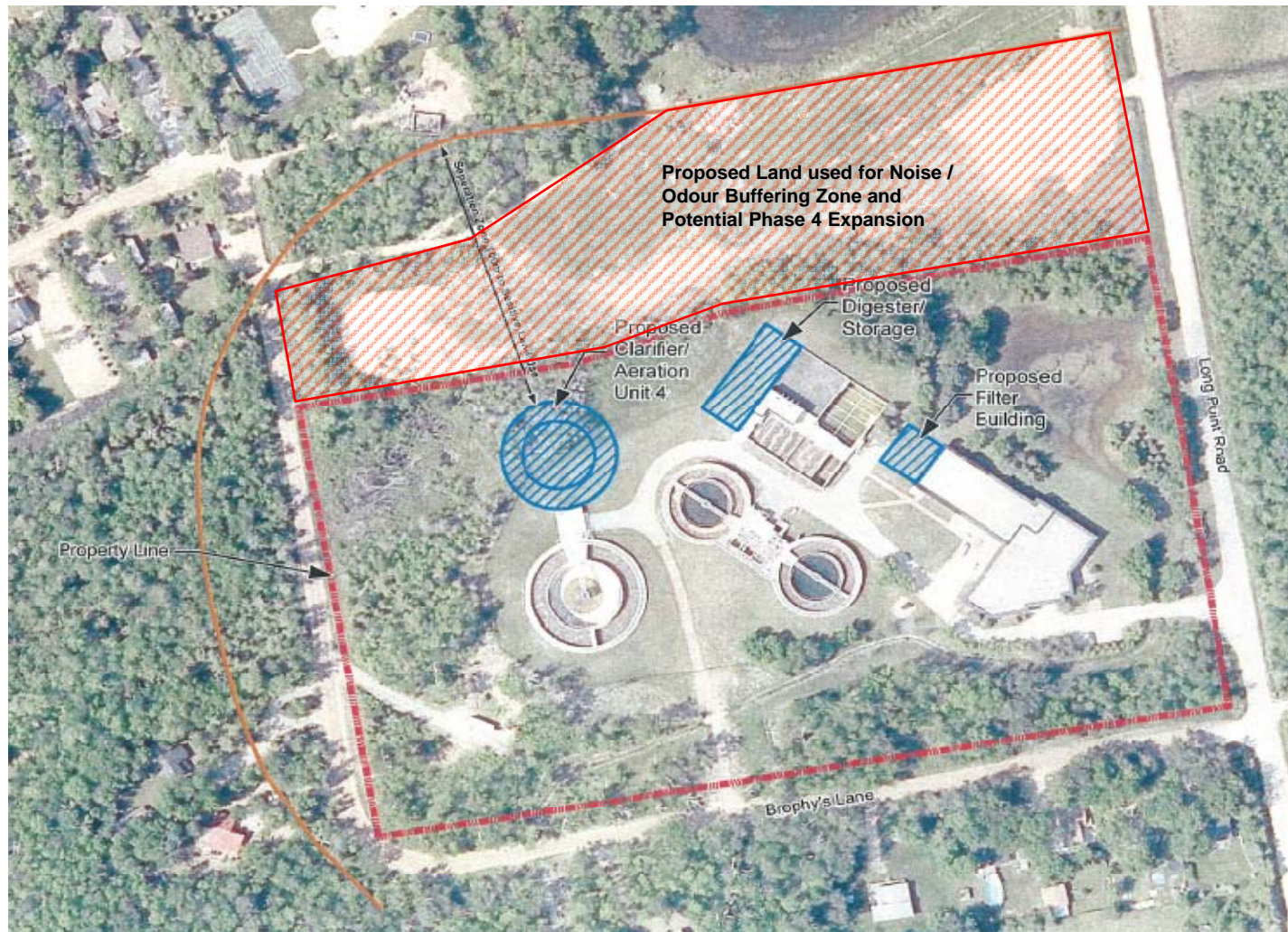
The preferred alternative design also includes the following processes:

- **Grit Chamber:** A third aerated grit tank already exists at the site and will be put in service with the installation of related equipment.
- **Disinfection Technology:** Expansion of the existing Ultra-violet (UV) disinfection process is recommended.
- **Tertiary Treatment:** Expansion of the existing filter is recommended.





# Recommended Stage 3 Expansion Layout





# Overview of Potential Impacts and Mitigation Measures

Controls will be implemented to lessen the severity of environmental effects due to construction work.

## ■ **Sedimentation and Erosion Control:**

- Comprehensive sedimentation and erosion control strategy
- Stabilization and sedimentation ponds if required

## ■ **Operational Issues and Concerns:**

- Automation for additional operational activities

## ■ **Traffic and Access to Property:**

- Traffic management plan (e.g. Detour Plan)
- Access for local traffic and emergency vehicles
- Access to private property maintained at all times
- Individual notification in advance to affected property owners on construction schedule/duration

## ■ **Removal of Vegetation and Temporary Impacts (e.g. noise, vibration) to Adjacent Properties:**

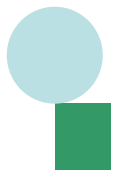
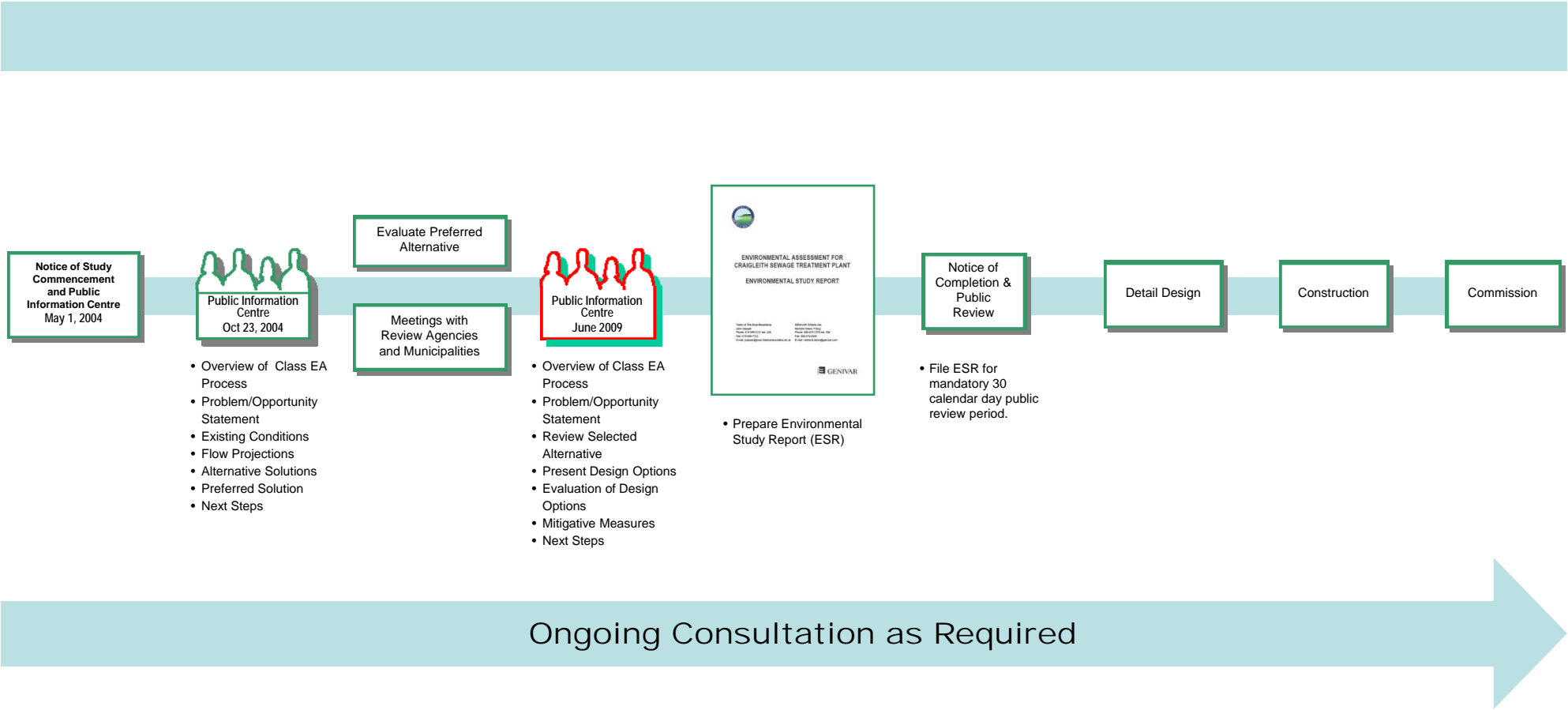
- Preferred design concept avoids removal
- All construction practices having regard to area land uses will be outlined in the detailed design
- Construction operations restricted to the day shift (wherever possible) and adherence to local noise by-laws by contractor
- Dust control by spraying water/street sweeping





# Next Steps....

Note: This slide will only be displayed once (It is also included in the PIC slides for the long term water supply)





## How to Get Involved?

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**We Would Like to Hear From You**





# WELCOME

## Class Environmental Assessment Long Term Water Supply for the Town of The Blue Mountains

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- Public consultation is a requirement of the Municipal Class EA process. Public input is valuable for confirming the best alternative solution.
- The Class EA process consists of 5 phases. The project is currently in Phase 3.
- In 2002, a Phase 2 EA Report for the Comprehensive EA for Water and Wastewater Servicing for the Lora Bay, Clarksburg, Thornbury, and Camperdown Service Areas was completed.
- In 2006, a Combined EA Master Plan for the Craigleith, Castle Glen, and Osler Service Areas was completed.

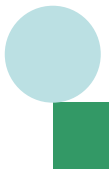
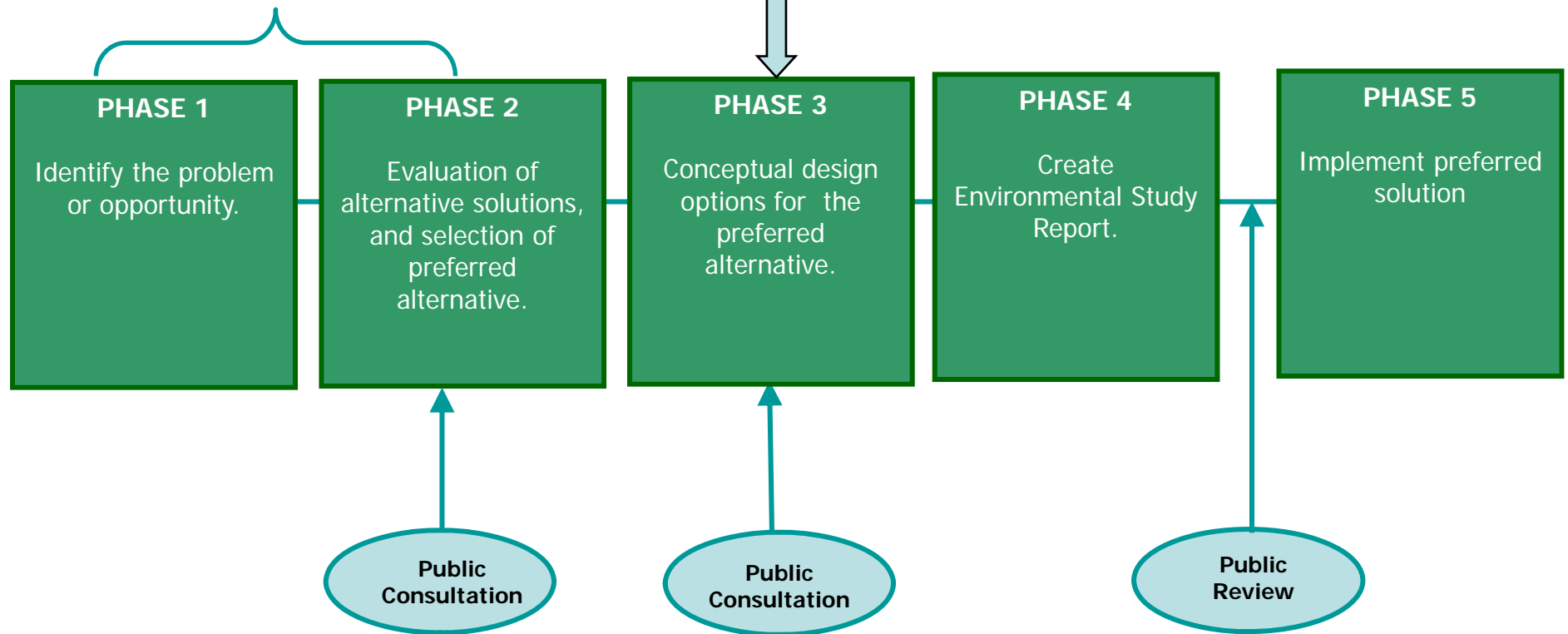




# Overview of the Class Environmental Assessment Process

Completed under the  
2002 Comprehensive EA and the  
2006 Combined Master Plan EA

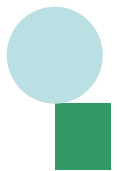
We Are  
Here





# Phase 1: Service Area

- 1 Craigleith
- 2 Camperdown
- 3 Castle Glen
- 4 Swiss Meadows
- 5 Lora Bay
- 6 Clarksburg
- 7 Osler
- 8 Thornbury East
- 9 Thornbury West
- 10 Rural





# Phase 1: The Existing System

## ■ Thornbury Water Filtration Plant

- Existing facility has a rated capacity of 13,536 m<sup>3</sup>/day.
- Plant is treated by a Pall Membrane Ultrafiltration System and disinfected using ultraviolet irradiation and chlorine.
- Water is supplied to the filtration plant from Georgian Bay by an intake pipe and low lift pumps.





# Phase 1: The Existing System

## ■ Supply from Collingwood

- The Blue Mountains has a take or pay agreement with the Town of Collingwood for a staged supply as follows:
  - ◆ 1000 m<sup>3</sup>/d in the first 2 years
  - ◆ 2500 m<sup>3</sup>/d in the 3<sup>rd</sup> and 4<sup>th</sup> years of the agreement
  - ◆ 4000 m<sup>3</sup>/d in the 5<sup>th</sup> and 6<sup>th</sup> years beginning January 5<sup>th</sup>, 2009
  - ◆ 8000m<sup>3</sup>/d in the 7<sup>th</sup> year until the end of the 20-year term beginning January 11<sup>th</sup>, 2009
- The Blue Mountains began to take water (based on the agreement) in January 2005. Therefore, the agreement will have to be renegotiated in 2025.
- The current booster pumping station is equipped with variable speed pumps with capacity of 4,000 m<sup>3</sup>/day, but without standby power.

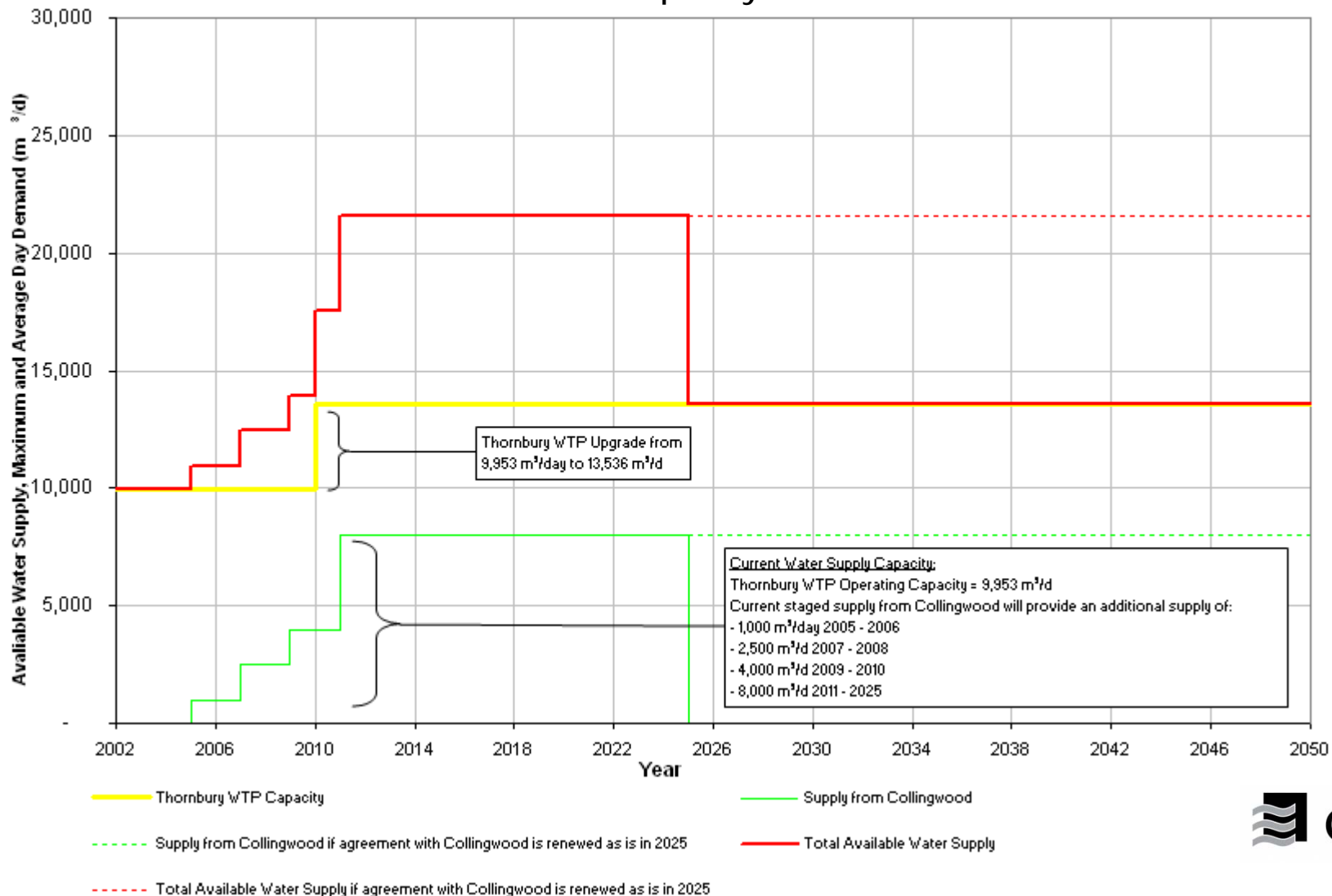




# Phase 1: Problem Statement

The existing water supply system for the Town of The Blue Mountains does not have sufficient capacity for long term water supply to the Service Area.

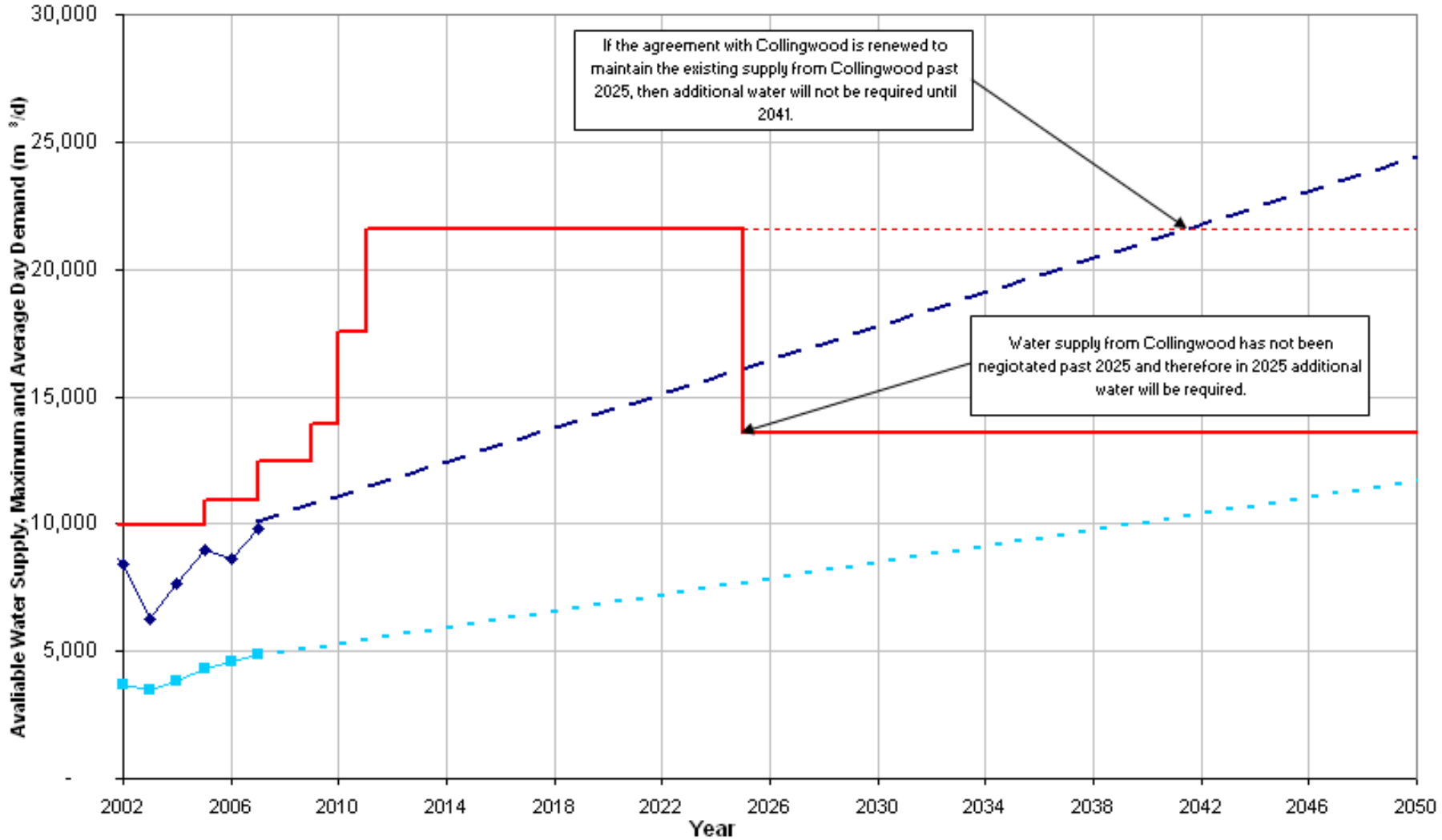
### Water Treatment Capacity





# Phase 1: Problem Statement

## Water Demand Projections and Treatment Capacity Requirements



If the agreement with Collingwood is renewed to maintain the existing supply from Collingwood past 2025, then additional water will not be required until 2041.

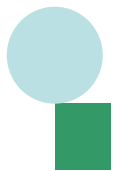
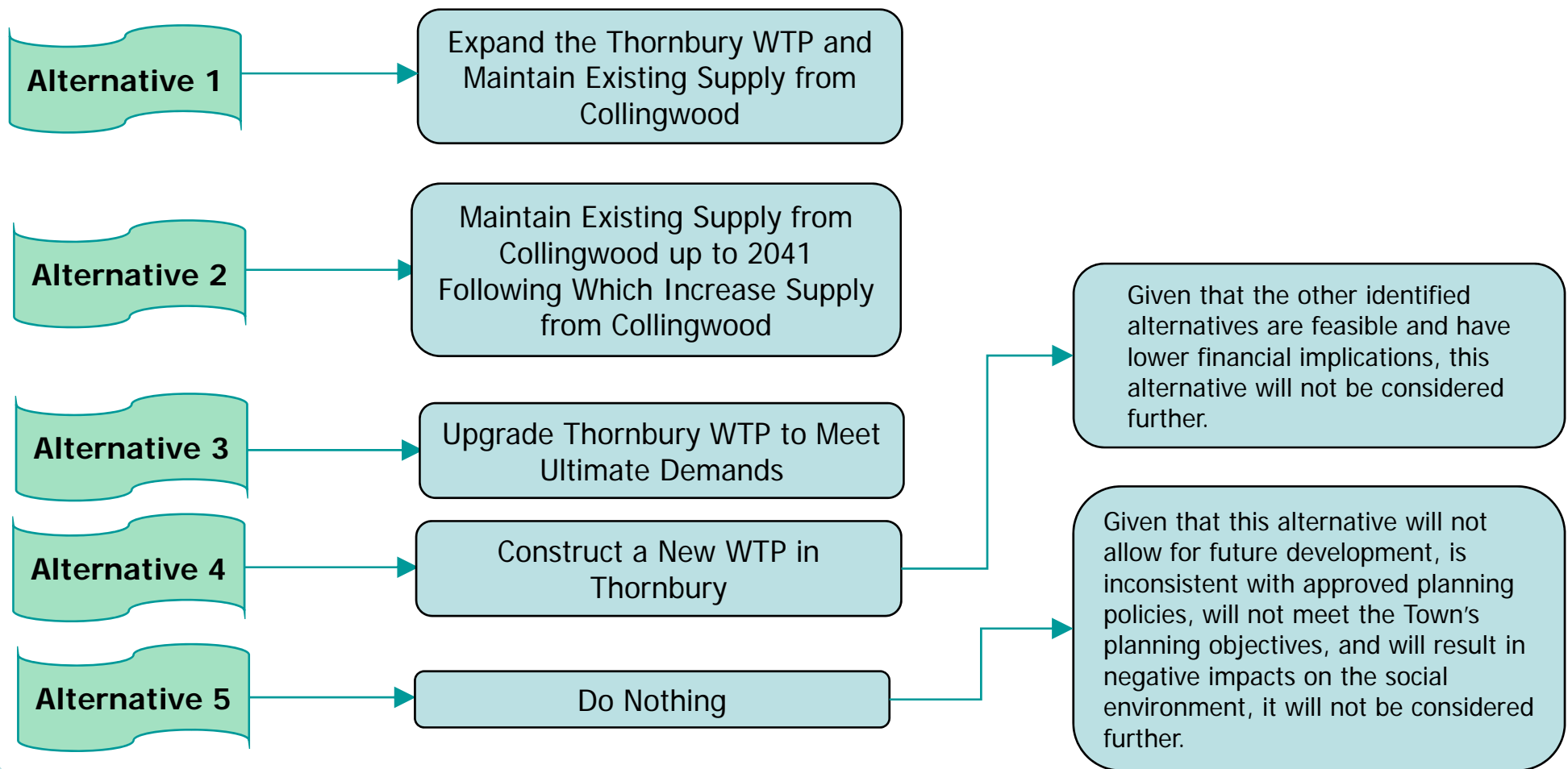
Water supply from Collingwood has not been negotiated past 2025 and therefore in 2025 additional water will be required.

- Historical Max Day Demand
- Projected MDD based on Historical Maximum MDD
- Historical Average Day Demand
- Projected ADD Based on Historic Records
- Total Available Water Supply
- Total Available Water Supply if agreement with Collingwood is renewed as is in 2025



## Phase 2: Identification of Alternatives

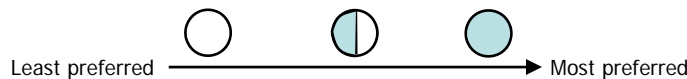
A reassessment of the preferred alternatives selected in the 2002 Comprehensive EA and the 2006 Combined EA based on updated projected demands and combination of service areas identified the following alternatives:





# Phase 3: Evaluation of Design Options for the Preferred Solution

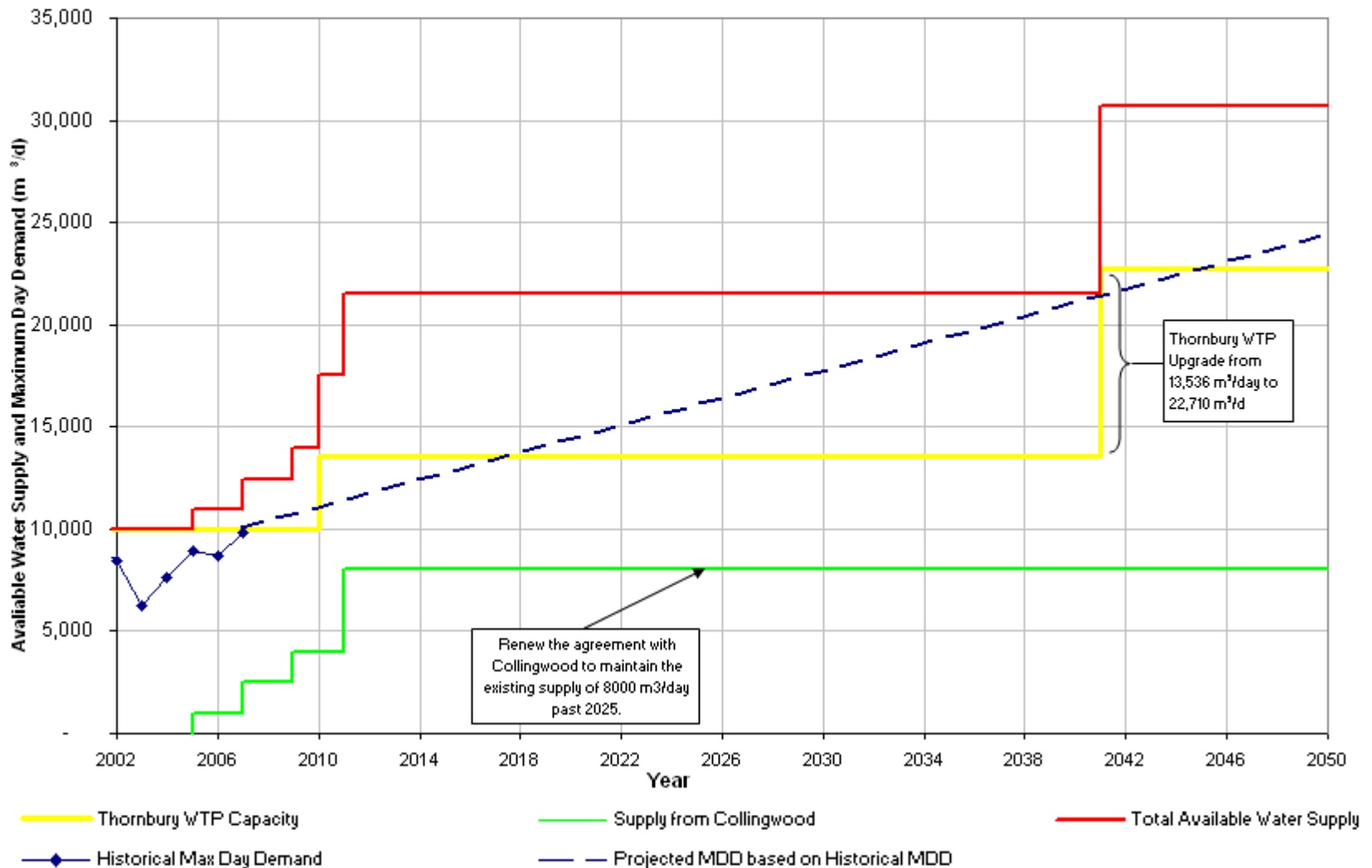
Evaluation Criteria	Identified Alternatives		
	Alternative 1	Alternative 2	Alternative 3
	Expand the Thornbury WTP and Maintain Existing Supply from Collingwood	Maintain Existing Supply from Collingwood up to 2041 Following Which Increase Supply from Collingwood	Upgrade Thornbury Water Treatment Plant to Meet Ultimate Demands
<b>Minimize Impact on Natural Environment:</b> considering potential impact on natural landscape, vegetation, aquatic habitat, wildlife, valley lands and watercourses and receiving water quality	 Upgrades done within the existing footprint of the building	 Expansion of Collingwood's WTP will be required	 Upgrades done within the existing footprint of the building
<b>Minimize Impact on Social Environment:</b> considering planned land use at the site, compatibility with surrounding land use, construction impacts (noise, dust, traffic, etc.)	 Upgrades done within the existing footprint of the building	 Timing of plant/infrastructure expansion in Collingwood will have to be considered since additional supply will be required in 2029	 Upgrades done within the existing footprint of the building
<b>Maximize Technical Suitability:</b> considering ability for staged construction, operation and maintenance requirements, ease of construction, impact on existing utilities	 Feasible	 Feasibility of expanding the plant in Collingwood needs to be evaluated.	 Feasible
<b>Maximize Security of Supply</b>	 Added Flexibility / Security of Supply	 A second transmission main from Collingwood may be required to ensure security of supply	 Existing system needs to be evaluated to ensure sufficient security of supply
<b>Minimize Cost:</b> Considering capital and operating costs, and 20 years Life Cycle Present Value	 Estimated Capital Cost is \$6.5 M Estimated 20 years life cycle present value is \$11.5 M	 Significant Capital / Infrastructure Costs on the part of Collingwood may be transferred to the Town of The Blue Mountains	 Estimated Capital Cost is \$9 M Greater control over O&M costs Estimated 20 years life cycle present value is \$13 M
<b>Preferred Alternative</b>			





# Phase 3: Preferred Alternative

Water Demand Projection and Treatment Capacity based on the Preferred Alternative i.e. Alternative 1 – Expand the Thornbury WTP and Maintain existing supply from Collingwood.





## Phase 3: Conceptual Design for the Preferred Alternative

The preferred alternative involves expansion of the Thornbury WTP to meet the ultimate design capacity of 30,280 m<sup>3</sup>/d and continuing the supply agreement with Collingwood.

The ultimate expansion capacity is based on the installation of 2 additional membrane filtration trains for a total of 5 trains.

To achieve the ultimate design capacity, upgrades are required as follows:

### Intake

- Connect the low lift pumps directly to the intake, or
- Seal the two raw water bypass channels and place new low lift pumps to draw water from the bypass channels.

### Clearwell

- Modify the clearwell to serve as a chlorine contact tank for secondary disinfection and to provide treated water for filter backwash purposes.

### Disinfection System

- Replace the existing UV disinfection unit or supplement with higher capacity units
- Upgrade of the existing gas chlorination system

### High Lift Pumps

- Replace the existing three high lift pumps with three new vertical turbine pumps





# Overview of Potential Impacts and Mitigation Measures

Potential impacts and the corresponding mitigation measures are summarized below:

## ▪ **Traffic and Access to Property:**

- Traffic management plan
- Notification of construction and scheduling to all adjacent property owners and businesses
- Temporary access or alternative parking if usual access is interrupted

## ▪ **Noise, Dust, and Vibrations:**

- Construction activities will comply with Town noise by-laws
- A dust control agent will be applied as necessary
- Excavated soil and rock materials should be used on-site as much as possible to minimize truck
- Truck traffic and excavation equipment operation should be limited to daylight hours
- Dry exposed soil will be sprayed with water and covered if left for extended periods of time
- Pre-construction and post-construction building surveys to clearly identify construction impacts

## ▪ **Natural Environmental Impacts such as Vegetation Removal and Dewatering:**

- Restoration plans as part of detailed design if vegetation removal is required
- Geotechnical investigation followed by a dewatering plan if required

## ▪ **Public Notification of Construction Related Activities:**

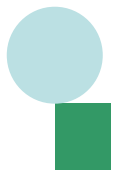
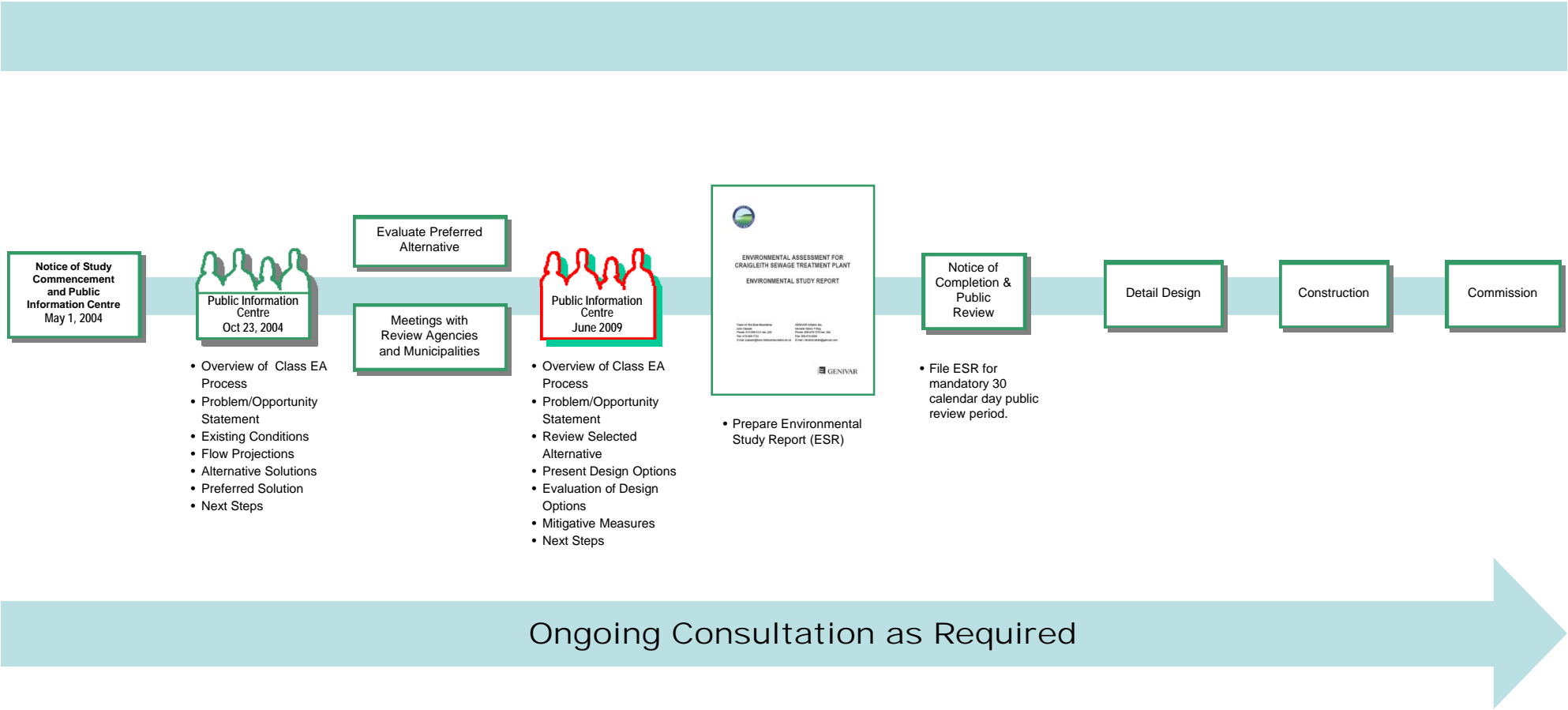
- Notices (newspaper ads, flyers, and signs) will include traffic restrictions, lane closures, detour routes, description or status of work, and contact information for the site supervisor





# Next Steps....

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## Future Class EA Work

- The Comprehensive Environmental Study Report for the Lora Bay, Clarksburg, Thornbury and Camperdown Areas, Phase 2 Report of November 2002 identified the need for a reservoir in the Lora Bay Service Area.
- A separate Class EA is required and will be undertaken for the reservoir work in Lora Bay.
- The location and type of reservoir will be determined as part of the Class EA process for the reservoir.





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