

# **Geraldton Water Pollution Control Plant Upgrades Class Environmental Assessment Public Consultation Centre #2**

## **Welcome!**

Please sign in.

Staff from the Municipality and Project Team are available to answer your questions and receive your feedback.

Public consultation will inform this assessment. Please fill out a comment sheet provided.



# Problem/Opportunity Statement

The Municipality of Greenstone (the Municipality) is planning to expand its existing sewage collection system to accommodate the approved Greenstone Gold Hardrock Mine project temporary construction camp. The existing WPCP is nearing its Certificate of Approval (CofA)-rated capacity, and improvements will be needed to accept additional flows from the temporary construction camp as well as from planned growth areas within the Municipality.



# Existing Conditions

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The existing Geraldton WPCP was constructed in the early 1980s, with an expansion occurring in 2011 increasing the rated capacity to 2,500 m<sup>3</sup>/day. It currently treats 2,270 m<sup>3</sup>/day, approximately 91% of its CofA-rated capacity. The WPCP experiences high instantaneous flows during wet weather, indicating a high level of inflow.

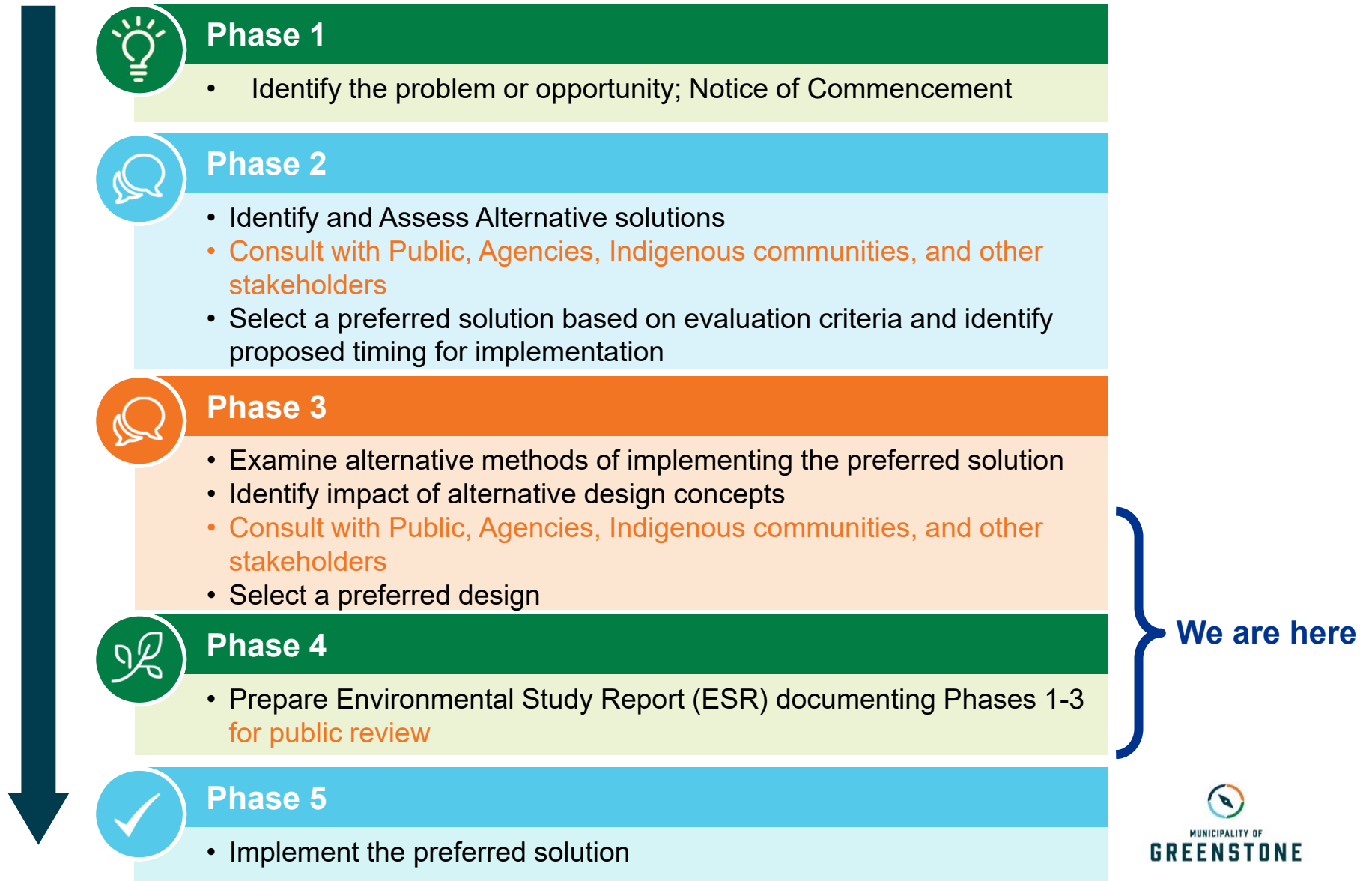
There are also some areas at the Geraldton WPCP where known improvements will occur, such as legacy process equipment and plant configuration from the previous expansion, and outfall pipe flow restrictions to Hardrock Creek.

The temporary construction camp is estimated to add approximately 275 m<sup>3</sup>/day over a three-year period. Once the camp is decommissioned, this capacity would be relinquished back to the Municipality.

Planned development in Geraldton over the next 20 years will also result in additional wastewater needing treatment.

In total, an estimated increase of 410 m<sup>3</sup>/day is required.

# Geraldton WPCP EA Process





# Geraldton WPCP Service Area



# Alternative Solutions

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## Alternative No. 1 – Do-Nothing

- Represents maintaining the status quo; presents a null hypothesis for comparison.

## Alternative No. 2 – Construct a New Facility

- Construct a new facility and infrastructure to handle flows from the camp and future development, leaving the existing Geraldton WPCP as-is.

## Alternative No. 3 – Upgrade the Current Facility

- Implement upgrades to the existing WPCP, and construct new infrastructure to provide the required treatment capacity.

## Alternative No. 4 – Treat Future Flows at a Neighbouring Facility

- Transport effluent flows from the camp and future development to a neighbouring facility with adequate capacity.


# Evaluation Criteria

Each Alternative was evaluated using the following criteria:



## Natural Environment

- ✓ Overall Project Footprint
- ✓ Groundwater
- ✓ Water Quality
- ✓ Aquatic Systems
- ✓ Terrestrial Systems
- ✓ Air Quality



## Social/Cultural Environment

- ✓ Impacts to Surrounding Land Use
- ✓ Impacts to Community Services
- ✓ Odour Impacts
- ✓ Noise
- ✓ Public Acceptability
- ✓ Cultural/Heritage Resource Impacts



## Technical Environment

- ✓ Performance
- ✓ Public Health and Safety
- ✓ Operational Health and Safety
- ✓ Integration into Current Processes
- ✓ Sustainability



## Economic Environment

- ✓ Capital Costs
- ✓ Operation and Maintenance
- ✓ Lifecycle Costs
- ✓ Increase to Local Business

# Preferred Alternative Solution

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- The study team identified **Alternative No. 3: Upgrading the Current Facility** as the preferred solution.
- Alternative No. 3 is considered to:
  - ✓ Be cost effective
  - ✓ Provide flexibility for future development
  - ✓ Produce minimal impact to the community
  - ✓ Maximize use of existing infrastructure



# Preferred Alternative Solution

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This alternative involves implementing upgrades to the existing WPCP to provide the required treatment capacity for the wastewater flows projected over the planning period, and to address the issues raised in recent MECP inspection reports, which includes:

- ✓ Effluent total phosphorous control to meet agreed upon limits, depending on limit cost will be:
  - \$90,000 for chemical treatment; or
  - \$3.2 million for chemical treatment plus filtration
- ✓ Expansion of the existing outfall
- ✓ Provision of a chlorine scrubber
- ✓ Update operating manuals and minor operational changes



Note: these cost estimates are not included in the Alternative Design estimates to-date

# Common Design Elements

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- The following elements are common between designs:
  - Installation of a new Sewage Pumping Station south of the Barton Bay Bridge, with new forcemain to transport the sewage to the Geraldton WPCP (\$1.1 million)
  - Upgrades to the Edith Street Sewage Pumping Station to accommodate additional capacity (\$440,000)

Note: these cost estimates are not included in the Alternative Design estimates to-date

# Alternative Designs - Description

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**Design Alternative 1 – Peak Flow Management:** An equalization tank can be installed to reduce peak flows, providing relief for the plant during high flow events. Initial sizing based on bypass records; opportunities may exist to decrease tank size and cost based on flow records at the plant.

Capital Cost Estimate: \$3.7 million for 4,200 m<sup>3</sup> tank

**Design Alternative 2 – Process Intensification:** Existing space would be used to install a more efficient secondary treatment process, increasing plant capacity. Aerobic granular sludge was considered for this study.

Capital Cost Estimate: \$7.2 million

**Design Alternative 3 – Expand Clarification Capacity:** Clarification is the capacity-limiting process at the Geraldton WPCP at peak flows, so installing a third clarifier would alleviate the stress at this stage and increase plant capacity.

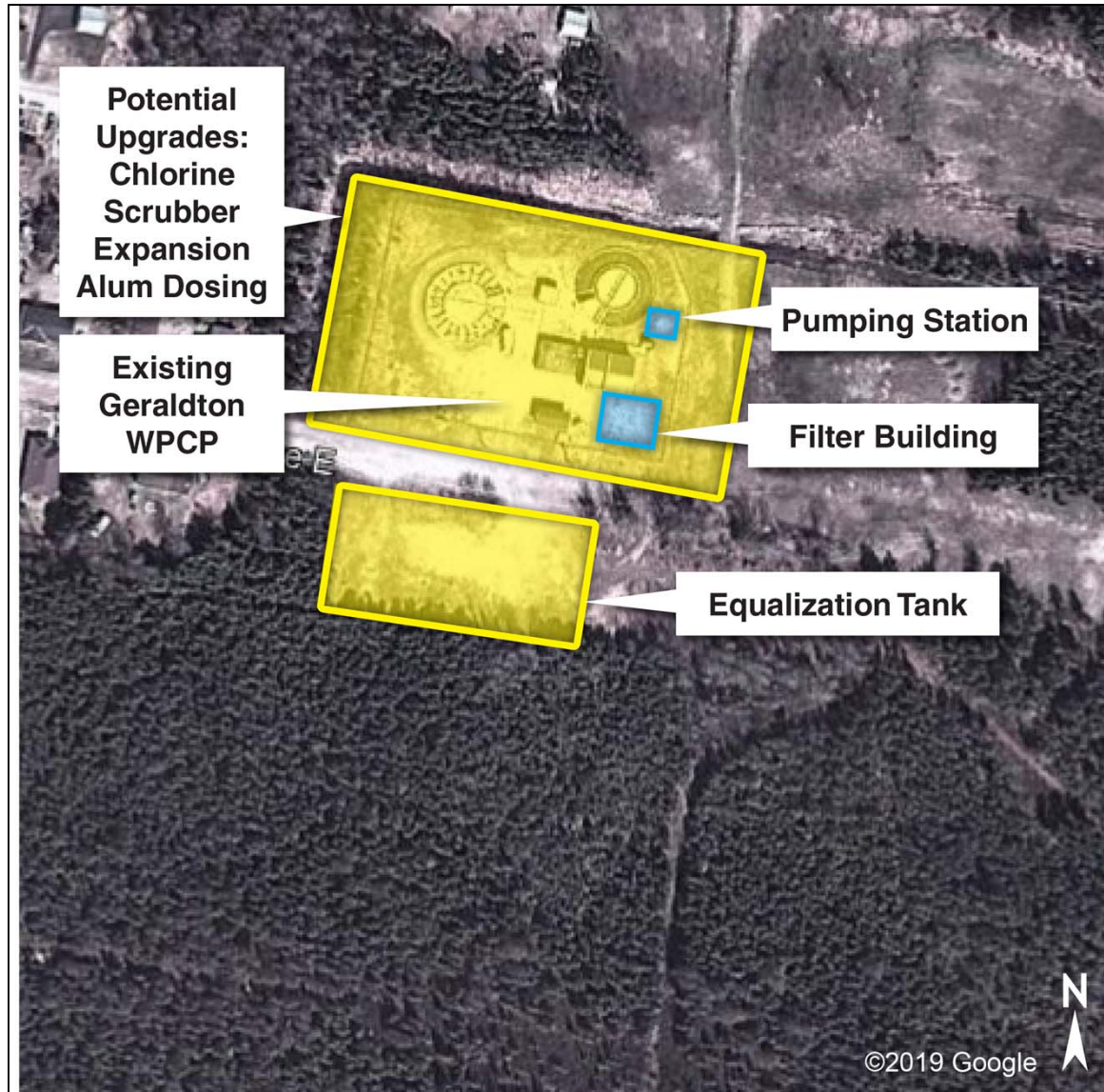
Capital Cost Estimate: \$2.1 million

# Preferred Alternative Design

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- Design alternatives were evaluated using the same natural, social/cultural, technical and economic criteria as the potential alternative solutions.
- The study team determined that **Peak Flow Management** was identified as the preferred design solution. This design will:
  - ✓ Minimal new infrastructure
  - ✓ Low complexity
  - ✓ Ease of integration
  - ✓ Addresses capacity needs
  - ✓ Low annual operating and maintenance cost
- Construction is expected to begin in 2020.

# Preferred Solution – Conceptual Figure





# Project Timeline

**Notice of Commencement**  
(March 20, 2019)

**Development of Alternative Design Concepts**

**Finalize Preferred Design Concept**

**Development of Alternative Solutions**

**PCC #1**  
(June 19, 2019)

**Develop Draft Screening and Evaluation Criteria**

**Environmental Impacts and Mitigation**

**Complete Environmental Study Report**

**MECP Meeting #1**  
(March 21, 2019)

**Identify Preferred Solution**

**PCC #2**  
**October 8, 2019**  
**We are here**



# Next Steps

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- Receive comments on the information presented today from the public, stakeholders, and agencies
- Document the decision-making process
- Finalize the preferred alternative design
- Finalize the Environmental Study Report and post for 30-day public review

**Thank you for your interest in the Geraldton WPCP Environmental Assessment!**

Public and agency consultation is a key component of the Class EA process, and we value your input.

Please fill out the comment sheet provided.

For further information, please contact:

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