City of London Biosolids Management Master Plan

Virtual Public Information Center #2

Welcome to virtual Public Information Center #2

The Master Plan will look at how the City is currently managing wastewater solids at its five wastewater treatment plants and guide how we will continue to meet the demands of our growing community over the next 30 years.

1. Please sign in
2. Review the project information
3. Complete the questionnaire to provide input
4. Reach out to the project team with questions and comments

This is the second of two Public Information Centers where you will have the chance to help shape the Master Plan.

Community engagement plan

The City of London wants to provide an opportunity for community members, First Nations, and agencies to offer suggestions, comments and ideas for the Master Planning process.

There will be two (2) Public Information Centers (PIC) during the Master Plan process.

- **PIC #1** (Completed in Fall 2021): Presented the study overview, problem and opportunities statement, decision-making process, and evaluation criteria.
- **PIC #2** (we are here): Will present information on the long list of strategies, end-uses, and technologies, rationale for short-listed alternatives, preferred alternative solutions, and implementation strategy.

For the most up-to-date information related to the Master Plan, please refer to the study webpage: https://getinvolved.london.ca/biosolids

Class Environmental Assessment (EA) process

The Master Plan will complete **Phases 1 & 2** of the Class EA Process.

We are here

Phase 1

- Identify the problem or opportunity; Notice of Commencement
- Consultation (**PIC#1**)

Phase 2

- Identify and Assess Alternative solutions
- Recommend a preferred solution based on evaluation criteria and identify proposed timing for implementation
- Consultation (**PIC#2**)

Project File Report

- Prepare Project File Report documenting Phases 1-2 for 30-day review period

Implementation

- Conceptual design of preferred solution
- Consultation
- Implement the preferred solution

Consultation

- Public
- Agencies
- First Nations
- Stakeholders
- Other community representatives

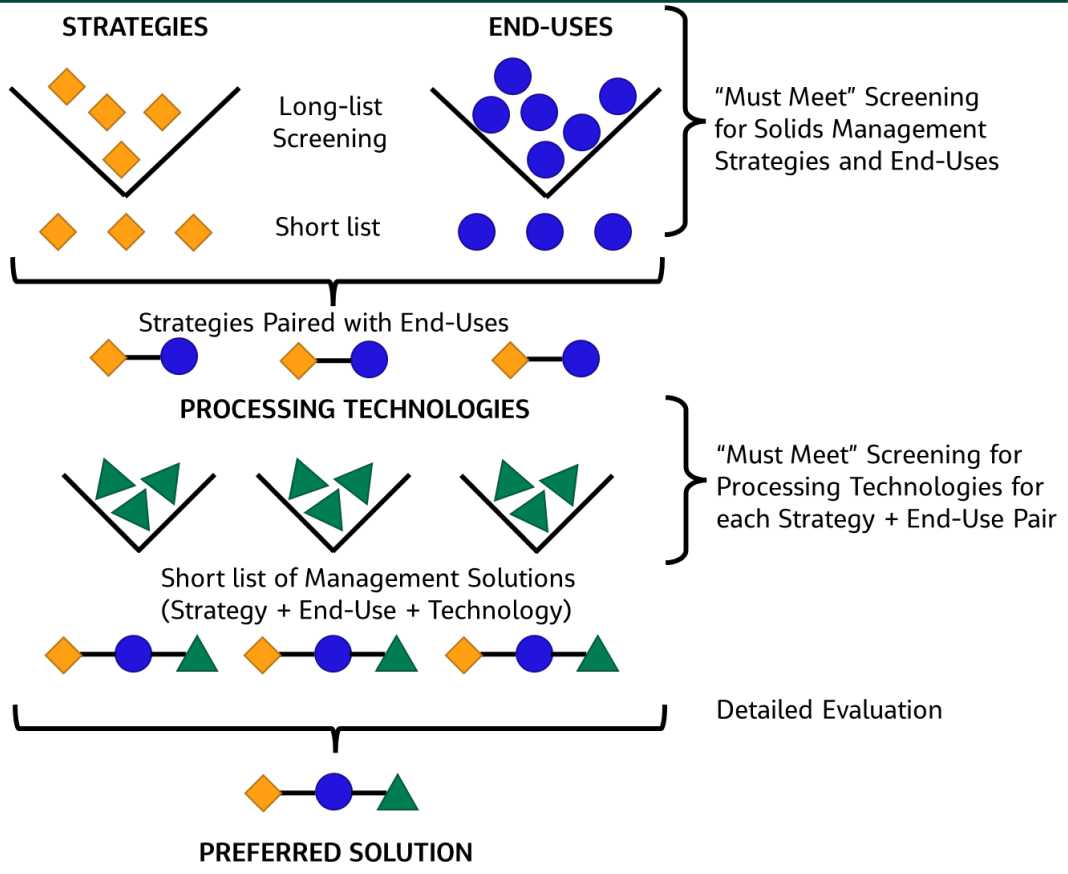
Decision-making process

A long-list of solids management strategies (“**Where will the solids be processed?”**) and end-uses (“**Where will the solids go?**”) were developed and screened against a set of “must meet” criteria to create a short list. Compatible short-listed strategies and end-uses were paired.

A long list of compatible processing technologies (“**How do we need to treat/process the solids?**”) were developed for each short-listed strategy and end-use pair. These technologies were screened against another set of “must-meet” criteria.

The short-list of solids management solutions, consisting of a strategy, associated end-uses and processing technologies, were assessed in the detailed evaluation phase.

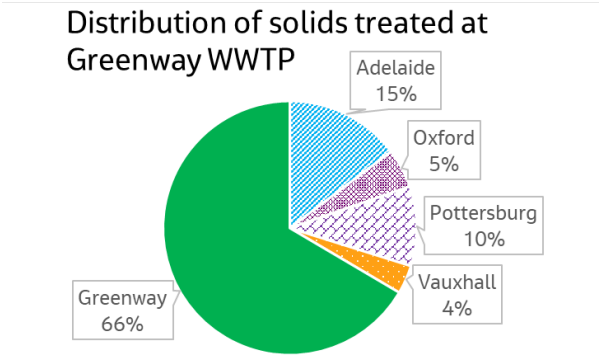
The outcome of the detailed evaluation phase is a single preferred recommended solution.



Existing solids generation

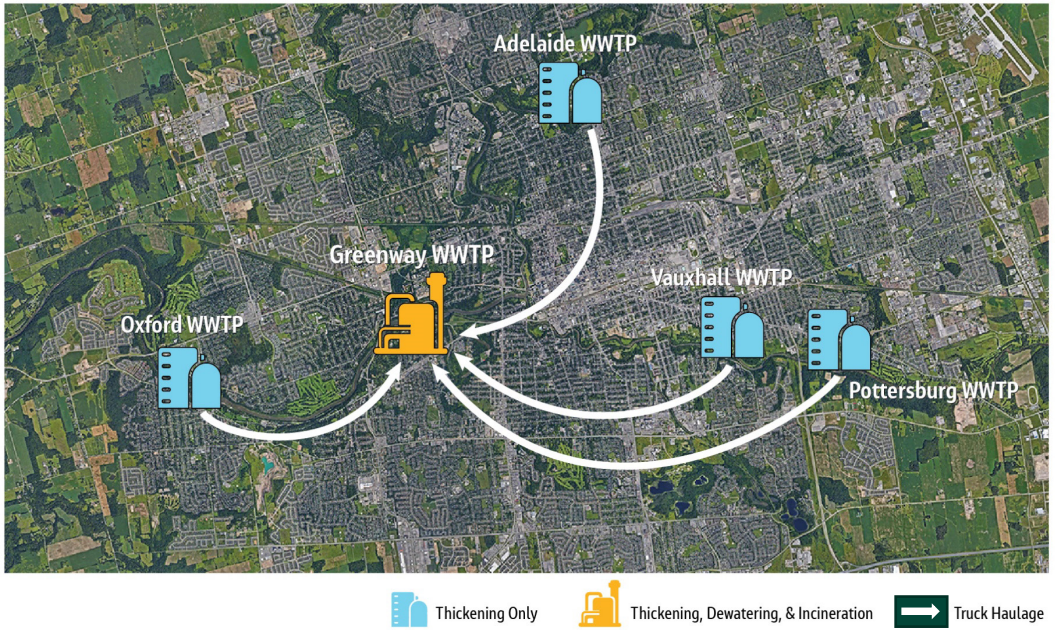
Greenway is the largest wastewater treatment plant (WWTP). Solids from the other four plants are transported to Greenway daily for dewatering and incineration.

The four smaller plants (Adelaide, Oxford, Vauxhall, and Pottersburg) are referred to as the **satellite facilities**.



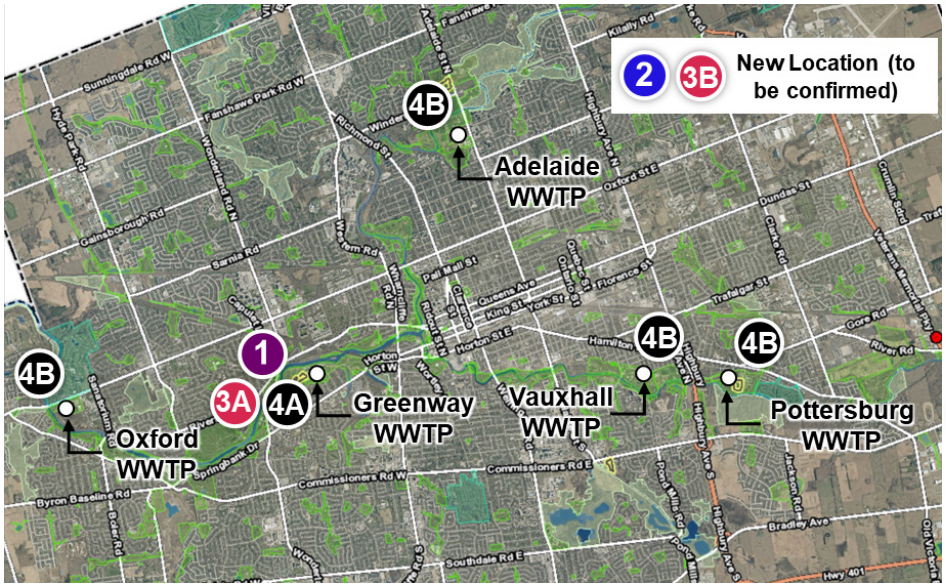
Data generated based on average from 2015 to 2019

Solids Trucking to Greenway WWTP



Solids management strategies screening

The long-list of solids management strategies (**"Where will the solids be processed?"**) consisted of centralized management options at a single facility and de-centralized management options at separate facilities. Screening was based on feasibility and compatibility with existing treatment plants and processes.

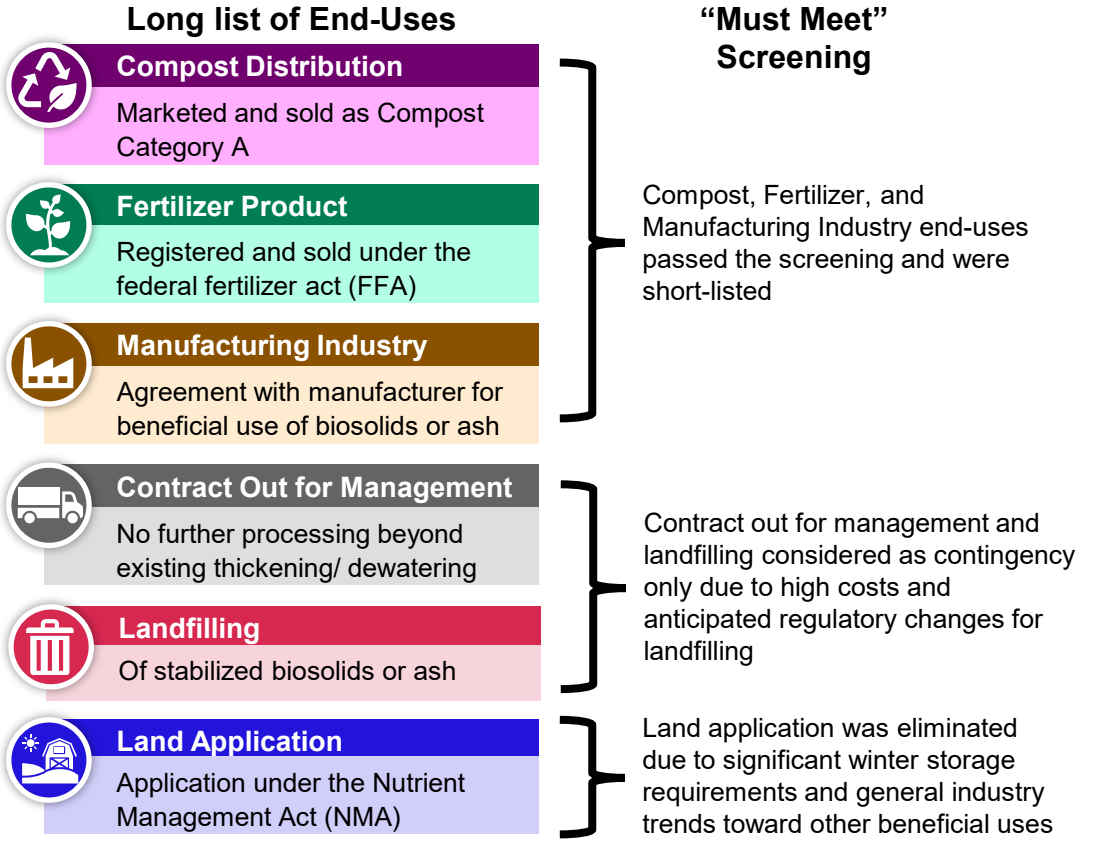


Long list of Strategies	"Must Meet" Screening
1 **Strategy 1:** Centralized Management at Greenway WWTP	Strategy 1 was eliminated due to footprint restrictions at Greenway WWTP
2 **Strategy 2:** Centralized Management at a New Location	Strategies 2, 3, and 4 passed the screening and were short-listed
3 **Strategy 3:** A. On-site Management for Greenway WWTP B. Centralized Management for Satellite Facilities	
4 **Strategy 4:** A. On-site Management for Greenway WWTP B. Decentralized Management for Satellite Facilities	

Solids management end-uses screening

The long-list of solids management end-uses (“**Where will the solids go?**”) were screened against a set of “must meet” criteria:

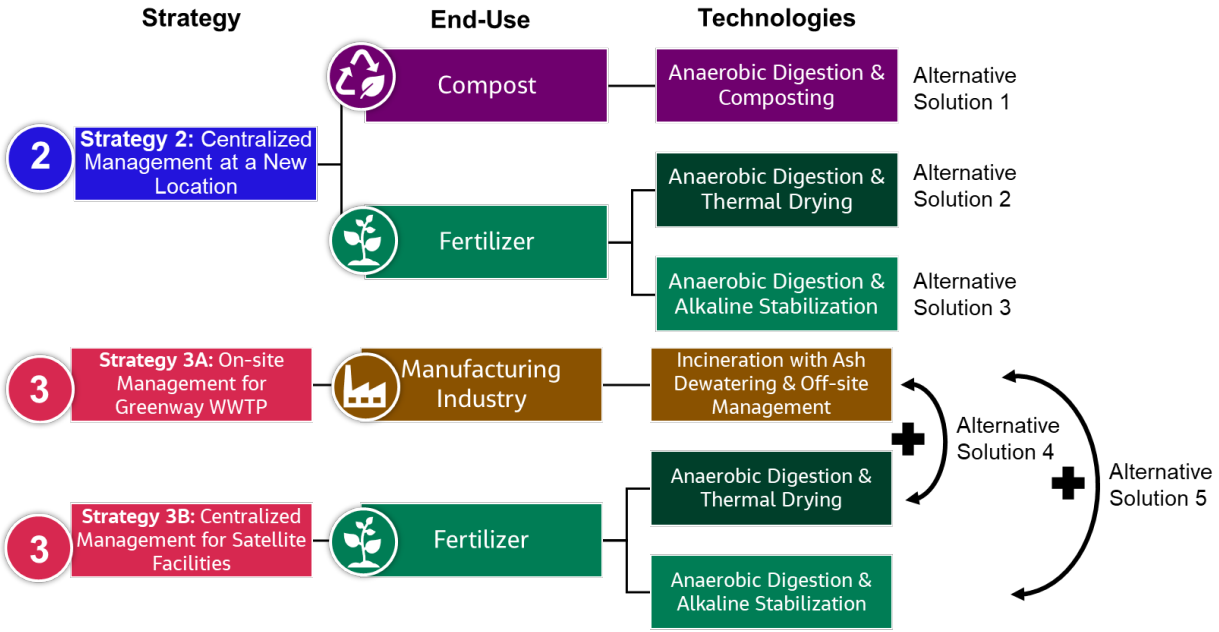
- Meets Ontario regulations
- Proven use in North America
- Provides opportunity for beneficial re-use



Solids processing technologies screening

A long list of compatible processing technologies (“**How do we need to treat/process the solids?**”) were developed for each short-listed strategy and end-use pair. These technologies were screened against a set of “must-meet” criteria:

- Proven technology
- Compatible with existing wastewater treatment processes
- Provides potential for energy or resource recovery



Strategy 4: Decentralized Management was only paired with Contracting Out for Management as a possible end-use. Contracting out is only considered as a contingency, therefore Strategy 4 was eliminated.

Solids processing technologies screening

Strategy 2: Centralized Management at a New Location

End-Use	Long List of Technologies	Rationale
Compost	• Anaerobic Digestion & **Composting**	This is the only feasible technology.
Fertilizer	• Anaerobic Digestion & **Thermal Drying** • Anaerobic Digestion & **Alkaline Stabilization** • Anaerobic Digestion with Sludge Hydrolysis (eliminated) • Thermophilic Digestion (eliminated)	There is an established market in Ontario for the final product for thermal drying and alkaline stabilization. The other technologies are newer and less established.

Strategy 3A/4A: On-site Management for Greenway WWTP

End-Use	Long List of Technologies	Rationale
Manufacturing Industry	• Incineration with **Ash Dewatering & Off-site Management** • Incineration with Resource Recovery from Ash (eliminated)	Resource recovery from ash is a newer technology with limited experience. Off-site ash management in manufacturing is a demonstrated approach with many full-scale installations

Strategy 3B: Centralized Management for Satellite Facilities

End-Use	Long List of Technologies	Rationale
Fertilizer	• Anaerobic Digestion & **Thermal Drying** • Anaerobic Digestion & **Alkaline Stabilization** • Anaerobic Digestion with Sludge Hydrolysis (eliminated) • Thermophilic Digestion (eliminated)	There is an established market in Ontario for the final product for thermal drying and alkaline stabilization. The other technologies are newer and less established.

Strategy 4B: Decentralized Management for Satellite Facilities

End-Use	Long List of Technologies	Rationale
Contract out for Management	No technologies involved	Contracting out is included as **contingency** only due to the high expected operating costs.

Evaluation of management strategies

Strategy 3 was selected as the preferred alternative, consisting of a combination of two facilities:

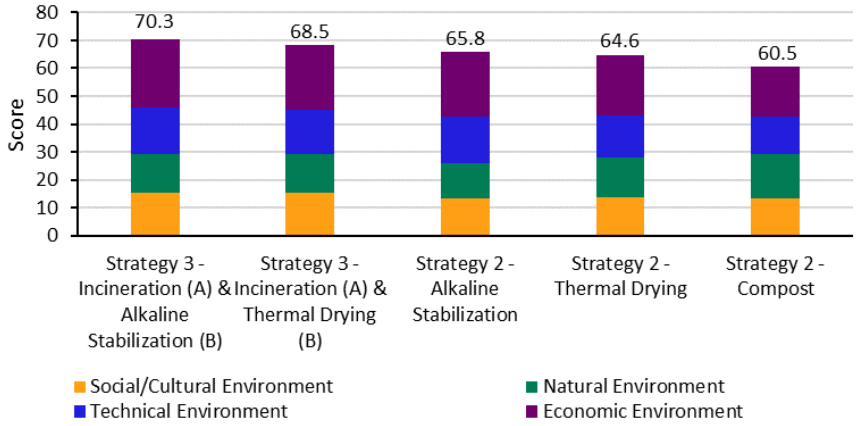
a. Fertilizer production by Anaerobic Digestion and Alkaline Stabilization at a **New Centralized Facility**

b. Incineration with Ash Dewatering and Off-site Management at the **Greenway WWTP**

The preferred alternative was selected due to the following benefits:

- Lowest lifecycle costs
- Provides flexibility and resiliency by not relying on a single process
- City staff familiarity with incineration and continued use of energy recovery system investment
- Reduced truck haulage compared to Strategy 2

Rank	Strategy	End-Use	Technologies
1	3A	Manufacturing Industry	Incineration with Ash Dewatering & Off-site Management
1	3B	Fertilizer	Anaerobic Digestion & Alkaline Stabilization
2	3B	Fertilizer	Anaerobic Digestion & Thermal Drying
3	2	Fertilizer	Anaerobic Digestion & Alkaline Stabilization
4	2	Fertilizer	Anaerobic Digestion & Thermal Drying
5	2	Compost	Anaerobic Digestion & Composting



Detailed evaluation framework

Alternatives were assigned scores in various criteria organized into four categories.
Detailed evaluation criteria categories and examples:

Natural Environment

- Water, soil, and air quality
- Greenhouse gas emissions

Social/ Cultural Environment

- Noise
- Odour
- Traffic
- Health and safety

Technical Environment

- Meets capacity requirements
- Constructability
- Resiliency and reliability

Economic Environment

- Capital cost
- Operations and maintenance cost

Preferred management strategy

The preferred alternative consists of a combination of two facilities:

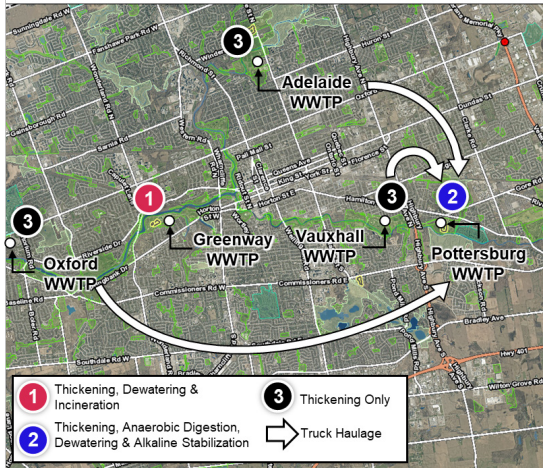
a. Fertilizer production via Anaerobic Digestion and Alkaline Stabilization at a **New Centralized Facility**

b. Incineration with Ash Dewatering and Off-site Management at the **Greenway WWTP**

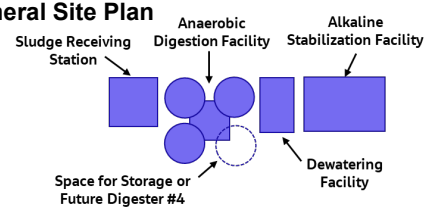
New Centralized Facility

- Sludge from Greenway WWTP to be managed at the on-site incineration facility under normal operation
- New facility to include **anaerobic digestion, dewatering, and alkaline stabilization**. Sized for future sludge generation at the satellite plants which include: Adelaide, Oxford, Pottersburg, Vauxhall WWTPs.
- Thickened sludge from the satellite plants to be hauled by truck to the new facility. Pottersburg sludge will continue to be thickened on-site if the Pottersburg WWTP is selected as the location for the new centralized facility.
- Alkaline stabilized fertilizer product to be sold under the **Federal Fertilizers Act**
- Final location has not been confirmed. Potential locations under consideration include:
  - **Pottersburg WWTP** at 1141 Hamilton Road
  - Lands owned by the City **south of the 401**

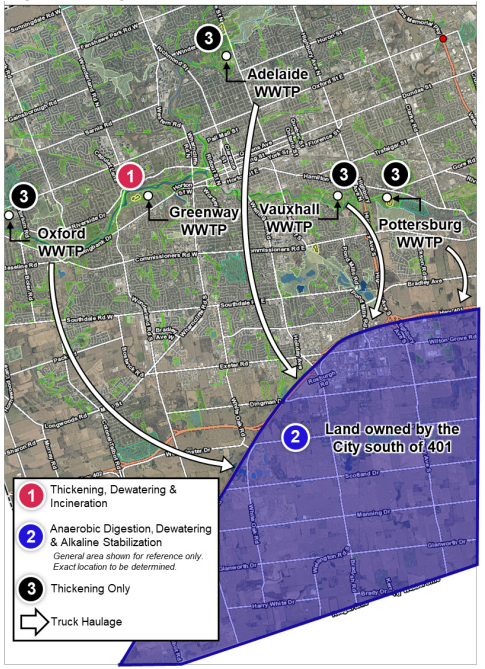
Centralized Management at Pottersburg WWTP



General Site Plan



Centralized Management at lands owned by the City south of the 401



Preferred management strategy

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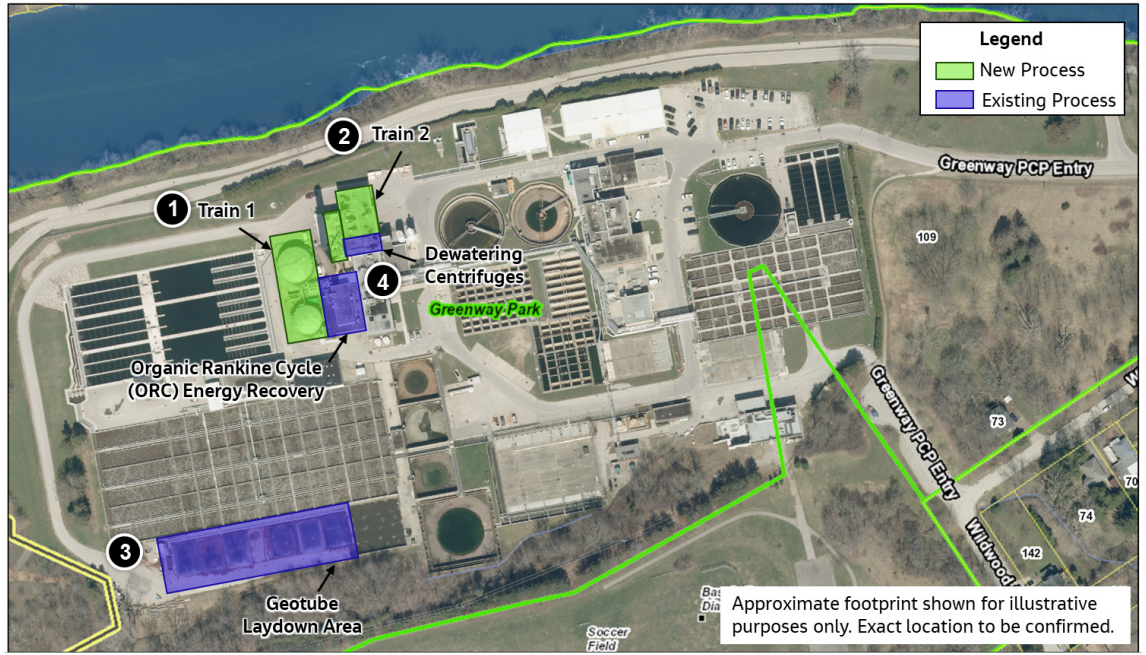
a. Fertilizer production via Anaerobic Digestion and Alkaline Stabilization at a **New Centralized Facility**

b. Incineration with Ash Dewatering and Off-site Management at the **Greenway WWTP**

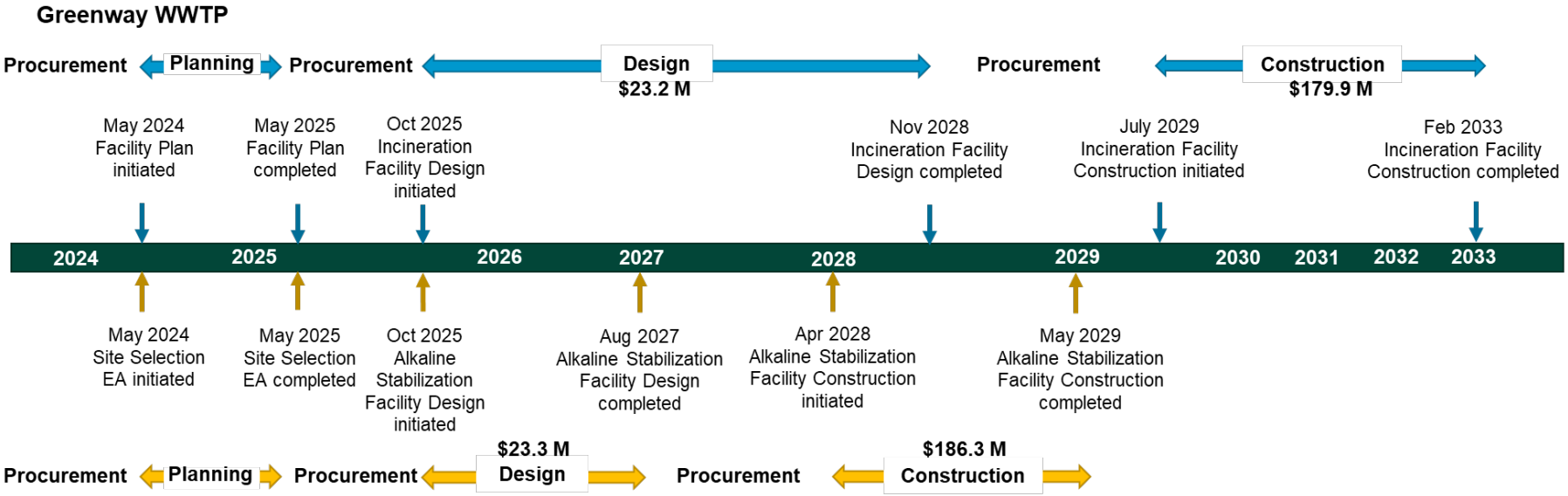
Greenway WWTP

1. Construct new incineration train sized for future sludge generation at the Greenway WWTP. **Train 1** will be built in the footprint of the existing sludge holding tanks.
2. Construct a redundant incineration train for contingency. The existing incineration train will be decommissioned, and **Train 2** will be built in this area.
3. Geotube bags for ash dewatering
   - Ash use in manufacturing or landfilled as contingency
4. Existing dewatering and organic rankine cycle (ORC) equipment will be maintained
   - Potential for satellite plant sludge to also be managed at Greenway WWTP as a contingency



Implementation plan

Capital Expenditure	New Centralized Facility	Greenway WWTP
Design	$23.3 M from Oct 2025 to Aug 2027	$23.2 M from Oct 2025 to Nov 2028
Construction	$186.3 M from Apr 2028 to May 2029	$179.9 M from July 2029 to Feb 2033



Next steps

Thank you for your interest in the City's Biosolids Management Master Plan.

Your feedback is an important part of the Master Plan process and will be considered in completing the Project File Report.

- Join the project mailing list to receive project updates. Please provide your contact information (name and email) to the contacts below. You can also provide feedback through the Get Involved site at https://getinvolved.london.ca/biosolids.
- Following City Council endorsement, the Project File Report will be available for 30-day public review in Winter 2023.

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