



## MEMORANDUM

**DATE:** September 11, 2023

**TO:** Mayor and City Council

**FROM:** Eric Holmes, City Manager

**RE:** **Vancouver Wastewater Solids Renewal Program Planning Workshop**

**CC:** Lon Pluckhahn, Acting Public Works Director  
Frank Dick, Senior Civil Engineer, Public Works Sewer Treatment Engineering

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### **Objective**

Provide overview of Wastewater Solids Renewal Program and receive Council's input on priorities when evaluating Program options.

### **Introduction**

A core service the City provides is collecting and treating wastewater from its sewerage service area. Wastewater contains both liquids and solids from domestic and business sources. The City processes about one ton of wastewater solids *per hour*, or the equivalent in weight of a Volkswagen Beetle. Currently these wastewater solids are separated from liquids and incinerated, and the resulting ash is sent to a landfill. However, there are other options for treating wastewater solids that result in beneficial uses, like fertilizing and soil-building products, commonly referred to as "biosolids" and renewable energy in the form of "biogas."

The Wastewater Solids Renewal Program (Program) is evaluating options for how the City can best move forward with treating and handling wastewater solids. The Program provides a unique opportunity to invest in Vancouver's wastewater system and develop a renewable resource program to benefit future generations of our community. During the City Council Workshop on September 11, 2023, we will present an overview of the Program and seek Council input and alignment on priorities in evaluating Program options.

### **Why is the Program needed now?**

Major components of Vancouver's current wastewater solids management system are nearing the end of their useful life, requiring significant renewal or replacement projects. In addition, regulations for managing wastewater solids continue to evolve. Current federal emissions regulations are more stringent for new incinerators and for existing incinerators that undergo an expansion. Newly established City greenhouse gas emissions goals also contribute to the need to assess how the City manages wastewater solids. New and emerging markets in resource recovery have the potential to benefit local business, further City climate goals, and better meet community expectations.

The Wastewater Solids Renewal Program seeks a more sustainable and beneficial direction for wastewater solids management that advances the City's Climate Action Framework, while providing for safe, clean, and environmentally-sound facilities.

## Wastewater Solids Renewal Program Vision

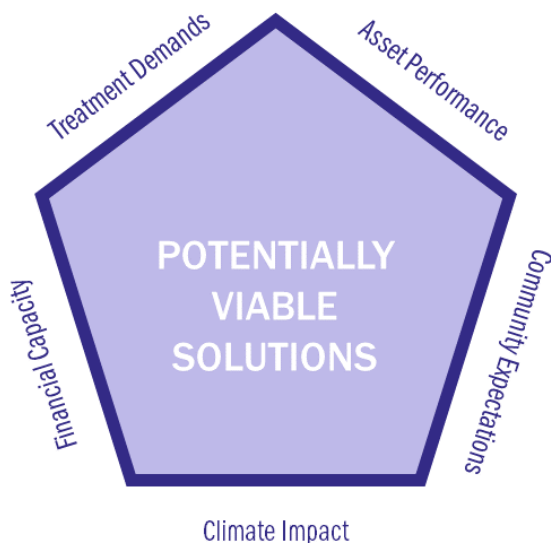
A sustainable solids solution that advances the City's Climate Action Framework and the City's commitments to equity, stewardship, resilience, and community safety, that recovers and reuses resources for the benefit of the community and the environment.

### **What is the Program status?**

The Program is currently in the Planning phase, which started in August 2022. The City is taking a three-phased approach to planning. These phases will culminate in developing an Implementation Plan aligned with the City's priorities to address changing conditions including regional growth, climate, regulatory compliance, as well as renew aging infrastructure to support residents and businesses. The three phases are:

1. Identify Program Boundaries and Establish Decision Framework (completed July 2023)
2. Develop and Evaluate Program Alternatives (Initiated in August 2023)
3. Develop Implementation Plan (Planned for mid-2024)

The first phase of Program Planning identified Program Boundaries, or current conditions and constraints, to determine potentially viable solutions and established a decision framework to evaluate Program options. The Program Boundaries are shown in Figure 1.



In the current Phase of planning, the City and consulting team are evaluating Program options. Fundamentally, the City will decide whether to continue incinerating wastewater solids or whether to shift to a different wastewater solids management approach that could include production of beneficial end products such as soil amendments and renewable natural gas. The Program extends through the next decade and is the largest wastewater CIP investment over the next 15 years. Costs for Program options will be further developed during the planning phase. An overview of the Program timeline is shown in Figure 2.

Figure 1. Program Boundaries

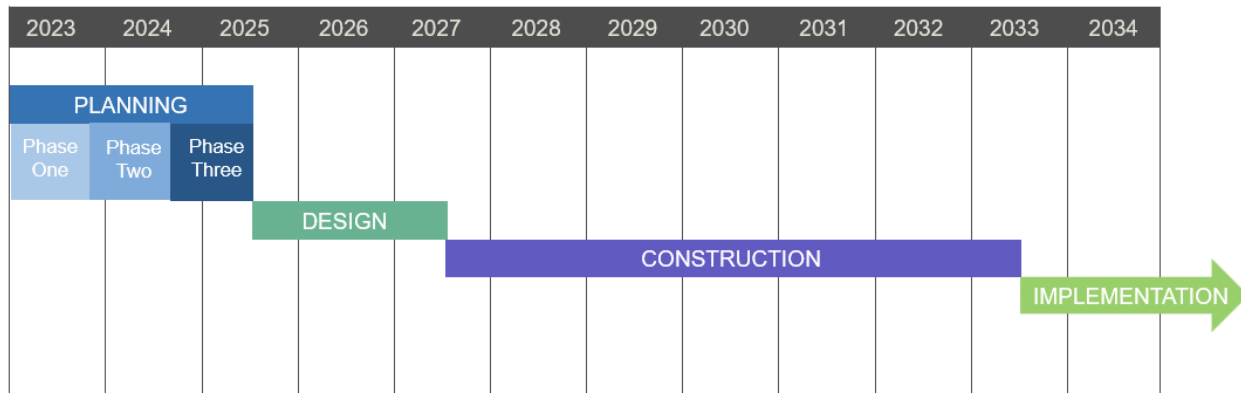


Figure 2. Solids Renewal Program Timeline

### **How is it aligned with other City Planning efforts?**

Work on this Program fulfills one of the community’s early action priorities from the City’s Climate Action Framework (Action SW-2.6: Develop a solids management and resource recovery plan for wastewater facilities to generate renewable energy and beneficial materials). The Program also aligns with other City planning efforts, including the Strategic Plan, and Water Resiliency Strategy.

The Climate Action Framework includes Strategy SW-2, which established a goal to zero out wastewater emissions. As an initial step, the Climate Action Framework identifies the need to explore the potential for beneficially reusing wastewater solids through the Program planning efforts. The Strategic Plan echoes the Climate Action Framework through goal CN.PM.6, which also calls for wastewater solids management planning. The Program is also incorporated into the Water Resiliency Strategy as a priority project to support the City’s resiliency and livability goals. In addition to its inclusion in these adopted City planning efforts, the Program is coordinated with the City’s ongoing Comprehensive Planning effort.

The Program is a unique opportunity to invest in Vancouver’s wastewater system and develop renewable resources for future generations

### **How will Program options be identified, evaluated, and selected?**

Currently, a team of technical experts is identifying and detailing different wastewater solids management options. Options to be evaluated will include rehabilitating the existing wastewater solids management system to continue incineration with landfilling of residual ash, and development of new wastewater solids management processes that would incorporate resource recovery. The resource recovery options will include combinations of process that would recover nutrients and energy. This will include options to process the wastewater solids to meet stringent state and federal requirements for use as a soil amendment or fertilizer locally or on agricultural lands. Wastewater solids processed to these standards are called biosolids. Depending on how they are processed, there are different allowable uses for biosolids that include land application for commercial agriculture to products that consumers can use directly on their home gardens.

Options will also include processes that recover renewable energy from the wastewater solids. When wastewater solids are put through a process called anaerobic digestion, biogas that can be used for energy is produced. The team will also evaluate synergies including diverting organic matter from the City’s solid waste collection to resource recovery.

Selecting a solids management option will be driven by City values and priorities. The City’s Core Planning team identified values that will be the basis for evaluating Program options and developing recommendations to City Council. The Program values were identified during the first phase of planning through a collaborative approach with the City’s multi-departmental Core Team and the City’s consultant that included reviewing City goals, values, initiatives, and plans. The City documents that informed these values included the Climate Action Framework, Water Resiliency Framework, and the Strategic Plan (2016 – 2021). In June 2023, City Council approved Vancouver’s 2023-2029 Strategic Plan. The team reviewed this most recent Strategic Plan to confirm the Program values and direction were in alignment.

<b>Values</b>	<b>Description</b>
Equity	Provide equitable service that minimizes negative externalities and aligns with community values.
Climate Impact	Invest in infrastructure that minimizes impact to a changing climate.
Environmental Health	Protect environmental health and restoration.
Economic Prosperity	Provide affordable services that support a growing community.
Human Health	Use best available science to provide safe infrastructure that protects human health.
Service Delivery	Be a leader in maintaining and delivering reliable and resilient integrated utility services.
Regulatory Compliance	Meet current and future regulations under routine operating conditions.

Using these values as guiding principles, the City and consulting team will evaluate Program options. The team will use a decision support tool that will enable the City to understand and evaluate tradeoffs between the options and select an option that provides the best value to the City. The options, tradeoffs, and staff recommendations will be presented to the Council at a future meeting.

**How will City Council and the community be engaged in the Program?**

This Program is specifically following direction given by the community and Council. Work on this Program fulfills one of the community’s early action priorities. City Council and the community will continue to be engaged in the planning process. A community engagement strategy will be established in this phase of planning and coordinated with other City outreach efforts. As part of this ongoing engagement, today we are seeking Council input on priorities in evaluating program alternatives. Understanding Council’s priorities and direction will provide perspective on the alternatives’ tradeoffs.

## Workshop Activity

### We are seeking Council input on prioritizing Program values:

- Equity
- Climate Impact
- Environmental Health
- Economic Prosperity
- Human Health
- Service Delivery
- Regulatory Compliance

In addition to receiving Council feedback through discussion during the workshop, we will be conducting an anonymous live-polling of Council members to provide input on the relative priority of the guiding principles that will inform selection of Program options. Every Program option considered will meet minimum requirements for each of these Program values. We are not asking Council members to choose among them, but rather to share their perspective on relative importance or weighting. For example, if there were two options of similar cost and one had better performance in terms of climate impact, while the other had greater regulatory certainty – which would be preferred?

In the activity, Council members will be asked to go to Mentimeter and respond to a question asking them to give each of these values an importance score from 1 to 10.

## Additional Information

This three-minute video produced by the City of Tacoma provides a virtual tour of a wastewater solids resource recovery facility as an example of many different and diverse programs across the Pacific Northwest and the U.S. [\(16\) A Virtual Tour: The Story of TAGRO Mix - YouTube](#)

## Glossary

Terminology	Definition
Biogas	Renewable natural gas that can be produced from anaerobic digestion of wastewater solids and other organic matter such as food waste
Biosolids	Nutrient rich fertilizer produced from the treated organic matter in wastewater solids or.. Organic matter recovered from wastewater solids treatment and used as fertilizer
Program Boundaries	Current conditions and constraints for the program that form the bounds of potential solutions. These fall into the categories of: asset performance, treatment demands (includes regulatory requirements), climate impact, financial capacity, and community expectations.
Resource Recovery	Approach to wastewater management that shifts from waste disposal to beneficially recovering resources such as clean water, nutrients, and energy
Solids Renewal Program	A series of projects to renew the City's wastewater solids treatment facilities.