

## ORGANICS PROCESSING PROGRAM PATH FORWARD

### Recommendation

1. That a single-source procurement agreement between The City of Edmonton and Claystone Waste Ltd., or an affiliate or affiliates of Claystone Waste Ltd., as outlined in Attachment 3 of the September 3, 2024, City Operations report CO02411, be approved, and that the agreement be in form and content acceptable to the City Manager.
2. That Attachment 3 of the September 3, 2024, City Operations report CO02411 remain private pursuant to sections 16 (disclosure harmful to business interests of a third party) and 25 (disclosure harmful to economic and other interests of a public body) of the *Freedom of Information and Protection of Privacy Act*.

<b>Requested Action</b>	Committee decision required		
<b>ConnectEdmonton's Guiding Principle</b>	<b>ConnectEdmonton Strategic Goals</b>		
<b>CONNECTED</b> This unifies our work to achieve our strategic goals.	<b>Climate Resilience</b>		
<b>City Plan Values</b>	PRESERVE		
<b>City Plan Big City Move(s)</b>	Greener as we grow	<b>Relationship to Council's Strategic Priorities</b>	Climate adaptation and energy transition  Conditions for service success
<b>Corporate Business Plan</b>	Transforming for the future		
<b>Council Policy, Program or Project Relationships</b>	<ul style="list-style-type: none"> <li>• 25-year Waste Strategy</li> <li>• City Policy C558C - Waste Services Fiscal Policy</li> <li>• The City Plan</li> <li>• Waste Reduction Roadmap</li> <li>• Zero Waste Framework</li> </ul>		
<b>Related Council Discussions</b>	<ul style="list-style-type: none"> <li>• CR_6669, Organics Management, Utility Committee, February 1, 2019</li> <li>• IIS00708, High Solids Anaerobic Digestion Facility (HSADF), Utility Committee, August 26, 2022</li> <li>• CO02064, Organics Processing Program Update, Utility Committee, March 4, 2024</li> </ul>		

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### Executive Summary

- In 2019, Waste Services introduced the 25-year Waste Strategy. Among other waste reduction and diversion initiatives, the Waste Strategy set a direction to introduce three-stream (food scraps, garbage, recycling) waste sorting and collection at all residential properties by 2027.
- Organic waste collected by the Waste Services utility must be processed to avoid harmful greenhouse gas (GHG) emissions and create valuable products like compost.
- Approximately 121,000 tonnes of organic waste will require processing yearly by 2027, due to the three-stream apartment and condominium collection rollout, and Edmonton's population growth.
- Multiple variations of an updated organics processing program were developed and assessed by Administration before being independently verified by an external consultant. Two options were shortlisted: building a new outdoor composting site at the Edmonton Waste Management Centre (EWMC) or contracting out the majority of the City's organic processing.
- Internal and external analysis has determined that the High Solids Anaerobic Digestion Facility (HSADF) should not be used for the organics processing program, due to significant operational costs and complexity over other methods. Administration would explore opportunities to lease or transition the facility to more cost-effective and beneficial use.
- Building a new outdoor composting site at the EWMC and procuring additional third-party processing contracts provides the best balance of environmental and financial impacts to the City and ratepayers over a 20-year lifecycle, while still aligning with the 25-year Waste Strategy and furthering the City's climate change and GHG neutral goals.

### REPORT

The City's Waste Services utility includes an organic waste collection and processing program. This program has been evolving to align with the 25-year Waste Strategy and the introduction of three-stream waste sorting (food scraps, recycling and garbage) to Edmontonians with curbside collection in 2021. As covered in the March 4, 2024, City Operations report CO02064, Organics Processing Program Update, Administration is forecasting an increase in the City's organic waste requiring processing to 121,000 tonnes per year by 2027. This change reflects the growth in Edmonton's population and the expansion of three-stream waste sorting and collection to all apartments and condos in Edmonton.

Since CO02064, additional third-party organics processing capacity in northern Alberta has either begun construction or is in the approval stage with the provincial regulator. While organics processing capacity in northern Alberta should increase before 2027, long-term planning and strategic actions are needed for a sustainable organics processing program. Changes to the organics processing program – with a priority of increasing capacity – would reduce the risk of organic waste being sent to landfill, preserve the continued alignment of Waste Services with the City's climate goals and keep utility rates stable for ratepayers.

### Organics Processing Program Options

Waste Services assessed a variety of possible program options that would accommodate 121,000 tonnes of organic waste, comparing them against the status quo organics processing program

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modified with supplementary third-party contracted volume. Three proposed categories of preliminary program options were described in City Operations report CO02064; building a new outdoor composting site, contracting out a majority of the City's organic processing to third-party processors and investing in the HSADF to improve its operational efficiency.

Administration reviewed multiple possibilities in each category – for example, the number and location of new outdoor composting facilities was assessed to determine the greatest program and financial benefits. Administration then hired a third-party consultant to review that work and further inform possible program options for final analysis. Attachment 1 includes the methodology and final scoring of both options, and Attachment 2 is a public-facing version of the consultant's report with private City and contractor information removed.

### High Solids Anaerobic Digestion Facility

Based on both internal and third-party analysis, the high operating costs and complexity associated with the HSADF prevent it from being a viable long-term component of an organics processing program. The HSADF was commissioned, designed and built before the adoption of the current 25-year Waste Strategy, which established new standards for waste reduction and at-home waste sorting, reducing the need for specialized processing facilities. Some assumptions made in the original HSADF business case, including revenue generation through the sale of clean electricity back to the grid and selling capacity to the private sector, are no longer economical under updated provincial regulations<sup>1</sup>.

Waste Services is exploring a variety of options to utilize the HSADF to ensure the facility continues to achieve beneficial use in the waste processing program. While the environmental benefits of electricity generation through anaerobic digestion could be maintained with considerable capital investment, the significantly higher operational costs and complexity of running the HSADF does not bring ongoing value to the long-term financial sustainability and corporate impact of the organics processing program.

After the internal and consultant review, the two options advanced for final consideration are:

1. Building a new composting site at the EWMC and entering into medium-term third-party processing contracts to process organic waste during their design and construction.
2. Entering into long-term processing contracts with third-party processors.

These two options have been assessed on a 20-year lifecycle, which is a standard lifecycle for similar organics processing facilities, and judged based on program outcomes and a financial analysis. For context, the scoring of a modified status quo program is compared against the two options selected for consideration. Continuing with the current organics processing program (including the HSADF) is not financially or operationally viable long-term.

### Program Outcomes Subtotal

The main goal of an updated organics processing program is to meet the projected 121,000 tonnes of incoming organic waste by 2027 and prevent organic waste from being sent to landfill. Both options meet this main goal. However, additional operational and environmental impacts

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<sup>1</sup> [Micro-generation Regulation, Electric Utilities Act.](#)

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must be considered beyond standard waste diversion metrics. Results of these considerations are scored from one to five, with five representing the greatest compatibility with desired program outcomes.

Category	Weight	Impact/risk	Modified Status Quo	Option 1	Option 2
<b>Accommodation</b>	<b>10%</b>	City/contractor processing balance	3	5	3
		Increase in number and type of facilities	4	4	5
<b>Implementation Risk</b>	<b>15%</b>	Construction risk	5	3	5
		Regulatory risk	2	4	5
<b>Environment</b>	<b>20%</b>	Air quality and odour impact	4	3	4
		Carbon budgeting impact	1	4	1
<b>Weighted Subtotal</b>	<b>45%</b>		27.5	33.5	33

### Financial Impact Subtotal

The City is committed to balancing the demands of waste collection and processing while maintaining stable waste utility rates for Edmontonians. Financial considerations include staff costs, facility maintenance, capital investments, transportation and potential revenue among others. These financial considerations were then collated using a Net Present Value (NPV) calculation over 20 years.

Category	Weight	Modified Status Quo	Option 1	Option 2
<b>Net Present Value (cost over 20 years)</b>	<b>n/a</b>	-\$261.91 million	-\$185.59 million	-\$190.47 million
<b>Net Present Value (score)</b>	<b>55%</b>	39	55	53.6

Proceeding with a modified status quo program over 20 years would have a value of -\$261.91 million to Waste Services. Both program options being considered reduce the cost of an updated organics processing program by over \$70 million of NPV across 20 years, with Option 1 scoring higher.

### Final Analysis Total

Category	Weight	Modified Status Quo	Option 1	Option 2
<b>Program Outcomes</b>	<b>45%</b>	27.5	33.5	33
<b>Financial Impact</b>	<b>55%</b>	39	55	53.6
<b>Total</b>	<b>100%</b>	66.5	88.5	86.6

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### Summary

Option 1, constructing a new composting site at the EWMC with interim third-party processing, scores the highest when planning a successful organics processing program. Option 1:

- Preserves a balance between City and contractor-owned processing facilities to mitigate operational and financial risk.
- Constructs relatively simple, regulatory-compliant outdoor composting facilities aligned with standard composting programs across Canada.
- Reduces transportation carbon emissions by concentrating organics processing at the EWMC.

Option 1 also scores the highest in a financial analysis. It:

- Transitions to lower-cost composting facilities, supported by changes in sorting behaviour by Edmontonians.
- Builds new composting facilities on existing City-owned land.
- Reduces costs to transport organic waste to third-party facilities and tip fees paid to third-party processors.
- Collects revenue from the sale of compost.

The interim third-party processing contracts are also anticipated to spur private investment in organics processing facilities in the Edmonton region, creating new facilities that could process organic Industrial, Commercial and Institutional (ICI) waste produced by Edmonton and regional businesses. While outside of the City's jurisdiction, additional organics processing capacity could further help divert organic waste from landfills, promoting environmental benefits across the region.

### Apartment and Condo Collection Single-Source Agreement

The increase in projected organic waste volumes in 2027 is driven by the rollout of three-stream sorting and collection to apartment and condo buildings. While at this time contamination is higher in apartment and condo collection organic waste than curbside collection organic waste, sorting food scraps at-home leads to less contaminated waste that is more cost-effective to process. As more residents adapt to sorting their waste, the quality of food scraps waste improves and third-party interest in processing this waste increases. However, not all third-party processors have facilities equipped to process organic waste with higher contamination. Contamination removed from organic waste streams must be transported to landfill, which is an extra cost on all organic waste processors and significantly impacts bids.

Waste Services has identified a potential third-party processor for the apartment and condo collection organic waste (that has a higher contamination than is typically accepted by regional processors) and recommends a single-source agreement to process this waste, the details of which are set out in Attachment 3.

### Next Steps

Building a new composting site at the EWMC is the most viable path to an environmentally friendly, cost-effective organics processing program. However, the necessary designs, approvals

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and construction timelines mean these facilities cannot be built before 2027. This timing risks sending properly-sorted food scraps to landfill, which would harm the environment, undermine the goals of the 25-year Waste Strategy, decrease resident confidence in sorting waste and lower overall ratepayer satisfaction. Three major steps would help remove this risk and advance the refreshed organics processing program:

- Utility Committee approval of a single-source, third-party organics transportation and processing agreement for organic waste from apartment and condo collection.
- Administration would return to Utility Committee with a business case for the design and construction of a new composting site at the EWMC.
- Administration would issue a competitive procurement for offsite organic waste processing to accommodate organic waste volumes from curbside collection.

The recommended organics processing program path forward option best aligns with both the 25-year Waste Strategy and the commitment to provide value to ratepayers; sorting organic waste at home and keeping it separate from other waste streams at each stage of its processing offers long-term financial savings, while supporting the City's corporate environmental goals. Administration would continue to explore extending the life of the HSADF asset through waste processing or pre-processing activities, leasing the HSADF to external operators, or other value-added opportunities.

### **Budget/Financial Implications**

City Policy C558C - Waste Services Utility Fiscal Policy requires that Waste Services operates in a financially sustainable, operationally responsible manner. As per City Policy C558C, Waste Services is obligated to provide the best possible service to ratepayers at the lowest cost. Changes to the organics processing program would be incorporated into future utility rate filings. Once fully implemented, the updated organics processing program would reduce the operating costs of waste processing beyond the status quo.

### **Legal Implications**

As per the City Administration Bylaw 16620, procurement agreements over \$1 million that do not arise from a competitive procurement process must be approved by the appropriate Council Committee. The City is subject to trade agreements that require an open competitive process for procurements of this value, unless a trade agreement exemption applies. For the current contract, there is an exemption in each applicable trade agreement, which is procurements from public/government bodies (Claystone Waste Ltd. is wholly owned by municipalities).

### **Community Insight**

The 25-year Waste Strategy was developed through extensive consultation with residents, businesses, non-governmental organizations and other collaborators. The rollout of three-stream apartment and condo collection is being supported through a team of waste outreach canvassers talking to residents at their homes and collecting data on how they experience the new program. This data will be used to refine how the rollout is communicated and implemented in future

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years, improving the quality of source-separated organic waste in residential collection, which will contribute to simpler and more cost-effective organic waste processing.

### GBA+

The 25-year Waste Strategy calls for achieving equity for curbside and apartment and condo residential collection services, enabling three-stream (food scraps, garbage and recycling) waste sorting and collection for all Edmontonians regardless of housing type. The City also runs a Home Composting Program and a Master Composter Recycler Program, educating Edmontonians of all ages and abilities on how to compost their organic waste at-home. The costs of providing and operating an organics processing program long-term will be fairly distributed into a customer's monthly waste utility rate in accordance with City Policy C558C.

### Environment and Climate Review

The 25-year Waste Strategy and Zero Waste Framework aim to bolster landfill diversion rates and promote the reuse of waste materials. These targets closely align with ConnectEdmonton's goal of Climate Resilience and The City Plan's vision for a low carbon future for Edmontonians.

The rollout of three-stream waste sorting and collection is projected to reach all apartment and condo buildings in Edmonton by 2027 to improve waste diversion and reduce greenhouse gas (GHG) emissions, but projections anticipate a significant shortfall in current processing capacity. To address these constraints, options included in the final analysis included transitioning the organics processing options at the EWMC through the construction of a new open-air facility or increasing the City's reliance on third-party organic waste processing.

The preferred option chosen as part of this report has implications for environment and climate in the following key areas:

1. GHG emissions: With relation to GHG emissions, Option 2 would result in a notable increase in transportation-related GHG emissions, where third-party facilities further from the City would be required to meet processing volumes in the immediate term. The transition away from anaerobic digestion at the HSADF in Options 1 and 2 would prevent the City from reducing GHG emissions through the production and use of renewable energy for use in the City's carbon budget. Third-party processors that utilize renewable natural gas and/or GHG credits as part of their operations could be preferred to help offset any increases in transportation-related emissions.
2. Environmental releases: Open air composting presented in Option 1 could significantly increase odours experienced by adjacent stakeholders during the breakdown of organic materials when compared to the enclosed HSADF. Although there is an odour monitoring program in place at current organics processing facilities, there is an opportunity to enhance facility design and implementation by incorporating additional odour monitoring and mitigation measures where required. Shifting direct responsibility for the management of odours, air quality and other potential environmental releases to a third-party in Option 2 could still present contract-related ESG risks to the City as a supplier of waste.

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3. Future waste diversion expansion opportunities: Compost produced in each option reduces the volume of waste being sent to landfill, reducing land degradation and contamination concerns over the long-term. While the compost bunkers in Option 1 can accept and process food and yard waste, the design is currently limited as to which organic wastes it can process. Future investment and expansion opportunities at the HSADF could have included the potential to process additional sources of organic wastes to support a growing population and maximize resource recovery. Additionally, the awarding of long-term organics processing contracts to third-party customers could spur new technological innovation and economic development in the Edmonton region's ICI sector.

The complete environment and climate expanded review is included as Attachment 4.

### **Attachments**

1. Options Analysis
2. Consultant Report
3. Key Terms of Agreement (PRIVATE)
4. Environment and Climate Review