

HIGH SOLIDS ANAEROBIC DIGESTION FACILITY (HSADF)

RECOMMENDATION

That Utility Committee recommend to City Council:

That Option 4 of the Business Case for the High Solids Anaerobic Digestion Facility Digestate Screening and Mixing System project, as set out in Attachment 1 of the August 26, 2022, Integrated Infrastructure Services report IIS00708, be approved.

Requested Council Action		Decision required	
ConnectEdmonton's Guiding Principle		ConnectEdmonton Strategic Goals	
CONNECTED		Climate Resilience	
City Plan Values	PRESERVE		
City Plan Big City Move(s)	Greener as we grow	Relationship to Council's Strategic Priorities	Climate adaptation and energy transition
Corporate Business Plan	Managing the Corporation		
Council Policy, Program or Project Relationships	Environmental Policy C512		
Related Council Discussions	N/A		

Executive Summary

- The High Solids Anaerobic Digestion Facility (HSADF) at the Edmonton Waste Management Centre was designed to process up to 40,000 tonnes of a combination of source separated organics and the organic fraction of municipal solid waste.
- The recommended screening and mixing system consists of two screens and two mixers in the facility to remove non-organic foreign material (garbage) from the compost prior to outdoor windrowing at the Edmonton Waste Management Centre Cure Site. This system is

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the best successor to the old Finishing Circuit in the now demolished Edmonton Composting Facility and will help the City increase the quality of the compost created, manage the current litter problem at the cure site and in the neighbouring wetland, and allow for the reuse of woodchips back into the process, reducing usable material to landfill.

- The Business Case for this project is included in Attachment 1. As per Policy C591 - Capital Governance, the approval of Option 4 of the Business Case will authorize the capital expenditure of \$5.8 million for the delivery phase of the project, per the Project Development and Delivery Model (PDDM).
- This project aligns with ConnectEdmonton and the 25-Year Waste Strategy by ensuring that food waste is processed responsibly and the amount landfilled is minimized.

REPORT

Background

The High Solids Anaerobic Digestion Facility (HSADF) uses microorganisms to degrade the organic waste without oxygen and produces biogas and nutrient rich semi-solid digestate. The digestate is further processed in the facility's aeration boxes, producing compost.

The High Solids Anaerobic Digestion Facility relied on the Edmonton Composting Facility for important processing steps (specifically screening). With the decommissioning and demolition of the Edmonton Composting Facility, further investment into the overall process is required, such as the screening and mixing system project.

The goal of the facility's digestate screening and mixing system is to screen the digestate indoors, thereby reducing the amount of litter from dispersing on and off site. Screening will take place earlier in the process, which will reduce costs related to processing non-organic material (such as film plastic) further in the process. The mixers will efficiently mix woodchips with the digestate and allow for the reuse of two thirds of the woodchips into the process. As a result, a higher quality of compost will be produced if screened properly. If the compost is contaminated by not screening it properly, it has restricted use and costs money to dispose of. The screened compost will have unrestricted use which will allow the City to sell it for various applications and markets, such as agricultural lands, residential gardens, horticultural operations, the nursery industry and other businesses.

Work Completed and Current Status

Administration has completed the planning and design work. The project is nearing PDDM Checkpoint 3. The screening and mixing equipment selection needs to be finalized prior to moving into detailed design. The project is ready for authorization of capital expenditure to proceed with the detailed design and construction phase.

The Business Case for this project is included in Attachment 1.

Budget/Financial Implications

Section 6 of the HSADF Digestate Screening and Mixing System Business Case (see Attachment 1) contemplates five alternatives, two of which were considered viable: option 2 - EWMC Cure Site

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Netting with Trommel Screen and option 4 - Two Screeners and Two Mixers. As outlined in the Business Case, option 4 was found to have a lower total cost of \$6.7 million (in present value) versus option 2's cost of \$7.5 million (in present value) due to the high operating costs associated with option 2.

With option 4 being the recommended alternative, the current capital estimate for the completion of the project is \$5.8 million starting in 2022 with the majority of the costs being incurred in 2023 as outlined in Section 8.3 of the Business Case. The budget for this project was calculated in the 2022 Utility Rate Filing at \$5,000,000 with a similar cashflow to the current proposed business case. This project is eligible to be financed with self-liquidating debentures and without a significant rate impact resulting from approval of this project. If approved, this project will be transferred from capital profile Waste Services Project Delivery CM-81-2045 and presented as a standalone profile in future rate filings.

COMMUNITY INSIGHT

The project decisions are based on technical specification and best practices. The work will be done at the Edmonton Waste Management Centre. The only anticipated impact to those accessing the site (employees, contractors and customers) is the possibility of a small increase in equipment vehicle traffic to the site during construction activities.

GBA+

A GBA+ analysis was not performed as the digestate screening and mixing system will be within the High Solids Anaerobic Digestion Facility with no public access. The installation of the equipment will affect the workers within the facility. The equipment will take-up more floor space within the facility and will be operated and maintained by the existing operating and maintenance contractor. The operating and maintenance contractor will be responsible for training their workers and ensuring all safety protocols are followed.

ATTACHMENT

1. High Solids Anaerobic Digestion Facility (HSADF) Digestate Screening and Mixing System Business Case