COUNCIL REPORT

EDMONTON WASTE MANAGEMENT CENTRE WATER DISTRIBUTION SYSTEM UPGRADE PROJECT

Recommendation

That Utility Committee recommend to City Council:

1. That the business case for the Edmonton Waste Management Centre Water Distribution System Upgrade Project, as set out in Attachment 1 of the October 11, 2024, City Operations report CO02388, be approved.
2. That Attachment 1 of the October 11, 2024, City Operations report CO02388 remain private pursuant to sections 24 (advice from officials) and 25 (disclosure harmful to economic and other interests of a public body) of the *Freedom of Information and Protection of Privacy Act*.

Requested Action		Committee decision required	
ConnectEdmonton's Guiding Principle		**ConnectEdmonton Strategic Goals**	
CONNECTED This unifies our work to achieve our strategic goals.		**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	• City Policy C558C - Waste Services Utility Fiscal Policy • City Policy C598 - Infrastructure Asset Management Policy • City Policy C627A - Climate Resilience Policy		
Related Council Discussions	N/A		

EDMONTON WASTE MANAGEMENT CENTRE WATER DISTRIBUTION SYSTEM UPGRADE PROJECT

Executive Summary

- The Edmonton Waste Management Centre (EWMC) receives, processes and transfers a variety of waste from residential and non-residential sources in Edmonton. Waste Services leases land and facilities at the EWMC to private businesses.
- Water is distributed throughout the EWMC using underground pipes of various diameters, water mains and fire hydrants. To operate its facilities and protect services in the event of fire, the EWMC requires adequate water supply and fire flows.
- A third-party consultant report has recommended upgrades to the EWMC's water distribution system to maintain environmental compliance, increase water flows required to control fire at specific facilities (fire flows), and accommodate current and future needs of the facilities and processes on-site.
- The recommended Scenario 2 to improve the EWMC's water distribution system has an estimated cost of $17.25 million and construction would begin in 2025, with projected completion in Q4 2026. This project was originally approved in the 2023-2026 Waste Services Utility Budget and would not result in a new financial impact to ratepayers.

REPORT

The Edmonton Waste Management Centre (EWMC) is a unique collection of waste processing facilities in northeast Edmonton. The 232 hectare complex accepts and processes a variety of waste streams, including garbage, recycling, food scraps, yard waste, electronic waste, and construction and demolition waste. The EWMC also houses facilities that generate beneficial byproducts from waste, which include the Refuse Derived Fuel Facility and the Compost Cure Site. Other facilities help meet necessary environmental compliance as mandated by the *Environmental Protection and Enhancement Act*.

Access to consistent and suitable flows of water at the EWMC is essential for operations at many facilities. The original water supply infrastructure at the EWMC was first constructed in the 1990s and has received partial upgrades to the system, like increased flows to specific facilities or installing more pipe loops for added contingency. Water supply to the EWMC is currently provided by Strathcona County, due to the EWMC's proximity to their water distribution services. One main 400 mm wide supply line enters the site from Aurum Road on the south side of the EWMC, and two 200 mm and 250 mm wide supply lines are used to supply individual facilities and fire hydrants to the north and south areas of the EWMC, respectively. Administration initiated this review to determine whether new and upgraded infrastructure at the EWMC would have their long-term water needs met.

Certain waste streams also have elevated risks of fire, like electronic waste, which is increasingly common in waste processing facilities. Improperly sorted lithium-ion batteries or electronic devices with non-removable batteries can lead to fires at multiple points during waste collection and processing. Administration monitors risk to facilities and has thorough training and operational procedures to respond to fires, yet this analysis has exposed potential risk to City facilities that will be addressed through this water distribution system upgrade.

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Analysis

As part of ongoing asset management protocols, a third-party assessment requested in May 2022 recommended upgrades to the water distribution system at the EWMC to meet updated EPCOR design standards[1]. The rate of water flows needed to control fire at specific structures or groups of structures is referred to as fire flow, and 300 litres per second fire flow standards cannot be met within the existing water distribution system. A supply line interruption analysis was completed for both main supply lines, identifying that in the event of a supply line failure, the remaining supply line does not have the pressure required to adequately service remaining facilities. These requirements are needed for continued compliance with environment and fire protection regulations in an ecologically sensitive area.

The recommended upgrades to the EWMC's water distribution system are as follows:

- Increase the diameter of water mains in the northeast area of the EWMC.
- Extend or increase the diameter of existing water supply lines to current and proposed facilities to provide additional fire protection contingency.
- Install a new water main to service a proposed truck fill station.
- Install 20 new fire hydrants across the EWMC.

To meet the recommended upgrades, two scenarios for improving the water distribution system are included for consideration, differing in the parameters of a new water supply line to be installed in the southeast corner of the EWMC from Aurum Road. Over 3.2 kilometres of water mains at the EWMC would be installed or upsized in this project, reflecting the thorough improvements that would be made across the EWMC site.

	New water supply line	Cost estimate[2]	Notes
Scenario 1	250 mm diameter	$16.78 million	• Meets all EPCOR design standards
Scenario 2	300 mm diameter	$17.25 million	• Meets all EPCOR design standards • Adds future contingency to system with increased water supply • Reduces future construction risks if water demands increase

Next Steps

Scenario 2 is recommended by Administration, as it would improve the EWMC's water distribution system to meet both current and future demands. If approved, pre-construction on this project is scheduled to begin in Q4 2024. Construction is projected to start in 2025 and complete in 2026. Upgrades to the EWMC's water distribution were previously budgeted for and included in the 2023-2026 Waste Services Capital Budget.

[1] EPCOR. City of Edmonton Design and Construction Standards, Volume 4, Water. April 2021.
[2] Based on a Class 3 estimate, with accuracy of -20 per cent to +30 per cent

If the recommendation is not approved, the EWMC's water distribution system may not be able to accommodate increased volumes of waste, the greater complexity of waste processing facilities and the impacts of a changing climate on City infrastructure. These improvements to the EWMC's water distribution system would reduce the impact of fires, but not their frequency. By upgrading the City's infrastructure and communicating the need to properly sort waste in a changing climate, the City can mitigate the long-term impacts of fire to its asset inventory.

Budget/Financial Implications

The estimated cost of this project is $17.25 million. If approved, a standalone capital profile would be created in the Spring 2025 Supplemental Capital Budget Adjustment, funded through two composite profiles: CM-81-0005 Waste Services IIS Planning & Design ($810,000) and CM-81-2045 Waste Services IIS Infrastructure Delivery ($16.44 million). There would be no new financial impacts from this adjustment, as the water distribution system upgrade project was planned for in the 2023-2026 Waste Services Capital Budget. Funding would be transferred from the existing approved budget in these two composite profiles.

Community Insight

While some facilities at the EWMC are visible and accessible to the public, including the Residential Transfer Station, public engagement is not applicable for this report. The recommended upgrades to the EWMC have no public-facing impact and are necessary to maintain environmental compliance. Operational disruptions during construction may occur, but would be managed by Administration where possible.

GBA+

GBA+ was not used in developing this report, as the upgrades needed to the EWMC's water distribution system do not include or exclude equity-deserving groups. The City is actively managing and planning for climate change impacts relevant to this report, including the effects of extreme heat and fire mitigation on vulnerable populations while preserving Edmonton's environment for future generations.

Environment and Climate Review

Improvements to the EWMC's water distribution system indirectly support waste diversion goals, as they would make waste diversion facilities more resilient to fire and climate change impacts. The construction on the EWMC water distribution system upgrade would include the following environment and climate impacts:

- Construction machinery can produce noise pollution during the entirety of the project.
- Fossil fueled construction machinery contributes to greenhouse gas (GHG) emissions.
- Service at EWMC facilities may be interrupted during construction, requiring alternative waste transfer or disposal methods.

Risk Assessment

Risk Category	Risk Description	Likelihood	Impact	Risk Score (with current mitigations)	Current Mitigations	Potential Future Mitigations
If recommendation is not approved						
Infrastructure & Assets	Inadequate fire flows add risk to assets in the event of fire(s)	4 - likely	4 - severe	16 - high	Regular education to staff on fire hazards and prevention Secure access to external sources of water (trucks) Development of public education campaigns to help remove flammable materials from waste streams	Reassess or restructure business case

Attachment

1. PRIVATE - Business Case