

## WASTE SERVICES CLIMATE ACTION PLAN

### Recommendation

That Utility Committee recommend to City Council - Budget:

1. That the business case for the Waste Services Climate Action Plan, as set out in Attachment 1 of the November 8, 2024, City Operations report CO02507, be approved.
2. That Attachment 1 of the November 8, 2024, City Operations report CO02507 remain private pursuant to sections 16 (disclosure harmful to business interests of a third party), 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*.

<b>Requested Action</b>	Council 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
<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 C627 - Climate Resilience Policy</li> <li>• Climate Resilience Edmonton: Adaptation Strategy and Action Plan</li> <li>• Community Energy Transition Strategy</li> <li>• Greenhouse Gas Management Plan for Civic Operations 2019-2030</li> <li>• The City Plan</li> </ul>		
<b>Related Council Discussions</b>	<ul style="list-style-type: none"> <li>• CR_5175, Corporate Greenhouse Gas Management Plan, Urban Planning Committee, May 22, 2018</li> <li>• CO01380, Proposed 2023-2026 Waste Services Utility Budget, Utility Committee, November 25, 2022</li> </ul>		

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### Executive Summary

- The City of Edmonton is committed to climate change action. The Greenhouse Gas Management Plan 2019-2030 for Civic Operations supports the reduction of greenhouse gas (GHG) emissions from corporate City operations.
- Waste Services has multiple strategic and operational initiatives underway to reduce GHG emissions, contributing to corporate climate change goals. This business case focuses on projects to reduce operational GHG emissions from the Waste Services branch.
- Proposed projects include retrofitting facilities to improve their efficiency, generating and incorporating more renewable energy from buildings, and investing in lower or zero-emission vehicles and infrastructure.
- To implement Waste Services Climate Action Plan initiatives in 2025 and 2026, \$2.69 million in funding would be required. Funding would be transferred from existing capital profiles and this adjustment is possible with no additional impact to ratepayers. A supplemental capital budget adjustment worth \$2.69 million is required to fund this project, and is included in the November 8, 2024, City Operations report CO02415, Waste Services 2025 Rate Filing.

### REPORT

Climate change is one of the most significant and serious threats of our time, and cities face some of the most significant impacts of rising GHG emissions and bear much of the costs for adaptation and mitigation<sup>1</sup>. The City has led by example on this important issue through the introduction of a carbon budget; GHG reduction targets in The City Plan<sup>2</sup>; and corporate climate action plans dedicated to achieving measurable, attainable and effective climate resilience changes for Edmontonians. As a corporation, the City has developed plans to reduce the operational GHG impacts of its day-to-day work<sup>3</sup>.

Waste Services previously identified an Energy Transition and Climate Resilience project in the November 25, 2022, City Operations report CO01380, Proposed 2023-2026 Waste Services Utility Budget. After consultation and development with internal partners, Administration identified areas where Waste Services could reduce GHG in its operations, including but not limited to:

- Retrofitting buildings for energy efficiency
- Switching to lower-emission fuel sources to heat and power facilities
- Building infrastructure to support low-emission vehicles
- Generating renewable energy at City facilities

Buildings and fleet vehicles are two of the main GHG-producing assets owned and operated by the City, and Waste Services manages many of these assets. The business case for the Waste Services Climate Action Plan, included in Attachment 1, addresses GHG emissions from these assets. While City-managed landfills are the largest contributors to GHG emissions from Waste Services, managing these emissions falls outside the scope of this project. An upgrade to the landfill gas collection system at the Clover Bar Landfill is already under construction. Other

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<sup>1</sup> City of Edmonton. [Edmonton Declaration](#). 2018.

<sup>2</sup> City of Edmonton. [The City Plan](#). Page 19.

<sup>3</sup> City of Edmonton. [Greenhouse Gas Management Plan for Civic Operations 2019-2030](#).

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upcoming projects, like the waste-to-energy partnership with Varme, will reduce the community GHG impacts of transporting and processing waste.

### **Budget, Timeline, Equipment**

The approved 2023-2026 Waste Services Utility Budget includes projects that help the City reduce its GHG emissions. This Waste Services Climate Action Plan includes additional initiatives above previously approved projects. Major categories of initiatives in the Waste Services Climate Action Plan include:

#### Building Assets

Waste Services manages a portfolio of buildings in Edmonton of varying ages, conditions and LEED-certifications. Many buildings are currently heated using natural gas, but switching to more environmentally-friendly renewable electricity sources can significantly reduce GHG emissions. Nineteen Waste Services buildings have been identified in a recommissioning review to make low- or no-cost energy efficiency improvements and improve operational performance.

#### Heat Conservation

Standard operations in facilities can generate excess heat, resulting in wasted heat escaping from City infrastructure. Heat recovery design works to improve and upgrade systems to reduce waste heat from leaving facilities and reduce the energy consumption needed to heat buildings. This can include adjusting ventilation needs based on building occupancy.

#### Low or Zero-Emission Vehicles

Waste Services uses smaller trucks to supervise collectors in the field and on-site at the Edmonton Waste Management Centre, and considering low- or zero-emission vehicles for fleet renewal at end of life is included in the business case. A separate capital profile exists for renewing the City's fleet of waste collection vehicles and is out of scope. Opportunities to build, upgrade or expand charging infrastructure at Waste Services facilities would be investigated, alongside review of existing electrical infrastructure to continue meeting operational needs.

#### Renewable Energy Generation

Producing renewable energy at City facilities, most typically through solar photovoltaic arrays, is to be assessed. Solar photovoltaic systems produce about 0.043 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) per MWh<sup>4</sup>, lower than Alberta's grid at 0.47 tCO<sub>2</sub>e per MWh<sup>5</sup>, offering both environmental and economic benefits. The renewable energy generation potential of Waste Services buildings would be reviewed for future climate adaptation projects.

This business case only includes initiatives starting within the current 2023-2026 Waste Services Utility Budget. While their execution may extend past 2026, projects commissioned in 2027 or after will require a separate business case to be included in the 2027-2030 four-year budget cycle.

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<sup>4</sup> National Renewable Energy Laboratory (NREL). [Life Cycle Greenhouse Gas Emissions from Solar Photovoltaics](#). November 2012.

<sup>5</sup> Environment and Climate Change Canada. [National Inventory Report 1990 –2022: Greenhouse Gas Sources And Sinks In Canada](#). 2024.

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If the suggested improvements for 2025-2030 in Attachment 1 are approved, approximately 6,683 tCO<sub>2</sub>e (tonnes of carbon dioxide equivalent) would be removed, representing an approximate 28 per cent decrease in building and fleet GHG emissions in Waste Services from 2022 levels.

### Budget/Financial Implications

The Energy Transition and Climate Resilience capital project was approved in the 2023-2026 Waste Services Utility Budget. However, the detailed initiatives within the capital project required additional analysis and costs before full approval. A supplemental capital budget adjustment worth \$2.69 million is required to fund this project, and is included in the November 8, 2024, City Operations report CO02415, Waste Services 2025 Rate Filing. There is no additional ratepayer impact to this adjustment, which is being proposed through a reduction in overall capital costs. Additional costs for climate projects were identified in 2027 and 2028, but those costs will be included for approval in the next four-year Waste Services budget.

### Community Insight

Edmontonians have supported the need to mitigate climate change impacts to the City and the environment. Encouraging the City to take action in reducing GHG emissions is a consistent theme in multiple corporate plans and initiatives, including The City Plan<sup>6</sup> and the 25-year Waste Strategy<sup>7</sup>. Pre-budget surveys<sup>8</sup> also reflect interest in considering climate goals in financial decisions. The Waste Services Climate Action Plan also incorporated best practices and findings from other municipalities with similar corporate GHG emissions reduction plans.

### GBA+

The suggested improvements to Waste Services assets would not have a direct impact on equity-deserving Edmontonians, but the impacts of climate change affect specific groups differently. This Waste Services Climate Action Plan complements ongoing efforts from the City to mitigate and adapt to climate change, promoting equity. Older and younger Edmontonians are less able to tolerate the effects of extreme heat, which is likely to become more frequent in coming years and decades. GHG emissions also contribute to poor air quality, leading to worse health outcomes for vulnerable populations.

### Environment and Climate Review

The Waste Services Climate Action Plan includes multiple initiatives addressing the impacts of climate change through upgrading and modernizing existing facilities. Investing in green building infrastructure will generally increase efficiency and reduce GHG emissions. Additional GHG reductions can be achieved by improving insulation, ventilation and incorporating more renewable energy options into operations. However, GHG will be produced in the retrofitting and construction of assets, including the use of fossil-fueled machinery and new materials.

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<sup>6</sup> City of Edmonton. [Intentions And Directions For Our Future City](#). January 2020.

<sup>7</sup> City of Edmonton. [The Future Of Waste: Edmonton 25-Year Comprehensive Waste Management Strategy](#). August 2019.

<sup>8</sup> October 31, 2022, Communications and Engagement report CE01489 Budget 2023-2026 Community Insights, City Council.

## WASTE SERVICES CLIMATE ACTION PLAN

### Attachment

1. 2023-2026 Waste Services Climate Action Plan Business Case (PRIVATE)