CAPITAL PROFILE REPORT

PROFILE NAME:	**GREENHOUSE GAS MITIGATION ENERGY TRANSITION PORTFOLIO**		**FUNDED**
PROFILE NUMBER:	**CM-81-2049**	PROFILE STAGE:	**Approved**
DEPARTMENT:	**Utilities**	PROFILE TYPE:	**Composite**
LEAD BRANCH:	**Waste Services**	LEAD MANAGER:	**Denis Jubinville**
PROGRAM NAME:		PARTNER MANAGER:	
PARTNER:		ESTIMATED START:	**January, 2025**
BUDGET CYCLE:	**2023-2026**	ESTIMATED COMPLETION:	**December, 2026**

Service Category: **Utilities** **Major Initiative:**

GROWTH	RENEWAL
100	

PREVIOUSLY APPROVED:	**2,689**
BUDGET REQUEST:	**-**
TOTAL PROFILE BUDGET:	**2,689**

PROFILE DESCRIPTION

The composite profile allocates funding for Waste Services' (WS) greenhouse gas mitigation projects, including building energy efficiency improvements and the development of electricity infrastructure for future electric vehicles. These projects will be carried out by the Business Integration and Technical Services of the Waste Services Branch, along with Integrated Infrastructure Services within the Infrastructure Delivery Branch, during the 2023-2026 capital budget cycle. The WS climate action team will oversee project execution, with guidance from a steering committee composed of WS and Corporate environmental stakeholders. The projects will adhere to the City's Project Development and Delivery Model (PDDM) as appropriate. The project manager will use the Plan-Do-Check-Approve process to assess readiness at each phase and ensure that GHG mitigation targets are met efficiently and cost-effectively.

This capital funding request provides concept-level budget information. Detailed information on specific projects, including budgets and schedules, will be provided once the projects reach PDDM checkpoints. A detailed business case has been developed for approval by the Utility Committee and Council.

The capital projection for this profile is approximately $2,688,986, with $761,541 allocated for 2025 and $1,927,445 for 2026. A provisional list of projects are below.

- Building Re-Commissioning ($349,668 in 2024 dollars): KEN115 - Kennedale Waste Operations building, KEN120 - Kennedale Waste Operations Building East, WAS107 - Waste Management Materials Recovery Facility (Site #600), WAS117/118 - Waste Management Integrated Processing & Transfer Facility (Site #480), WAS119 - Waste Management Advanced Energy Research Facility (Site #306), WAS122 - Waste Management Domes (Site #440).

- Demand Controlled Ventilation ($306,768 in 2024 dollars): AMB112 - Ambleside ECO Station, KEN120 - Kennedale Waste Operations Building East, WAS101 - Waste Management Control Centre/Admin (Site #100), WAS104 - Waste Management Leachate Treatment (Site #330), WAS107 - Waste Management Materials Recovery Facility (Site #600), WAS110 - Waste Management Co-Composter (Site #500), WAS119 - Waste Management Advanced Energy Research Facility (Site #306), WAS120 - Waste Management Equipment Storage & Maintenance Facility (Site #320), WAS122 - Waste Management Domes (Site #440), WAS130 - Waste Management Maintenance Tent (Site #350A).

- Heat Recovery ($331,680 in 2024 dollars): WAS107 - Waste Management Materials Recovery Facility (Site #600), WAS110 - Waste Management Co-Composter (Site #500), WAS122 - Waste Management Domes (Site #440).

- Fuel Switching ($147,388 in 2024 dollars): WAS107 - Waste Management Materials Recovery Facility (Site #600).

- ZEV and Solar PV Readiness, Electricity Infrastructure Assessment, and Decarbonization Implementation Plan ($1,455,000 in 2024 dollars): This category encompasses various miscellaneous activities for Waste Services Collection and Processing/Transfer Facilities, including Electricity Demand Analysis and Onsite Power Infrastructure Assessment, Electric Grid Enhancement and Charging Infrastructure Investment, Building Assessment for solar PV installation, GHG Methodology Development and Emission Reduction Audit, and Decarbonization Implementation Plan Development.

PROFILE BACKGROUND

Buildings and fleet vehicles represent two significant contributors to greenhouse gas (GHG) emissions in WS operations. These emissions stem from the consumption of electricity and fossil fuels such as natural gas, diesel, and gasoline. The WS climate action plan identified opportunities to mitigate or eliminate GHG emissions from these sources, and recommended initiatives focusing on enhancing energy efficiency, transitioning heating systems to electric power, generating renewable energy, and adopting zero (or low) emission vehicles. This composite capital profile underscores the necessity for capital funding to execute the proposed actions. The composite profile aligns with the City's Council Climate Resilience Policy (No. C627) and the Greenhouse Gas Management Plan 2019-2030 for Civic Operations.

PROFILE JUSTIFICATION

The proposed climate action projects align with the City Council's Climate Resilience Policy (No. C627) and the Greenhouse Gas Management Plan 2019-2030 for Civic Operations (the Plan). The Plan outlines several GHG mitigation strategies, including energy-efficient building upgrades and transitioning from fossil fuel vehicles to electric ones. WS intends to start implementing selected climate actions in 2025 and 2026, focusing on retrofitting buildings for energy efficiency and developing infrastructure to support the transition to low-emission vehicles, as mentioned in the profile description. The anticipated outcomes of these proposed measures include a shift to renewable energy, improved energy efficiency, and reduced electricity consumption from the Alberta Electrical Grid. The estimated GHG reduction from the identified projects, once fully implemented by 2030, is about 6,683 tCO2e per year. WS's climate project is classified as a medium-impact action under the City's carbon budget.

STRATEGIC ALIGNMENT

The WS climate actions are in line with City Policy C627 - Climate Resilience and the City Operations GHG Management Plan. The measures proposed in this business case represent the initial steps towards achieving the City's GHG reduction goals.

ALTERNATIVES CONSIDERED

In addition to the measures proposed in this funding request—retrofitting buildings for energy efficiency and transitioning to low-emission vehicles—other alternatives, such as Building Envelope Upgrades and Fast Acting Doors, were also considered. However, due to their low GHG reduction potential (less than 25 tCO2e per year for each measure), these options have not been selected for the current budget cycle.

COST BENEFITS

The WS Climate Action Plan shows building commissioning and ventilation control upgrades have net abatement costs of -$941/tCO2e and -$306/tCO2e, with lifecycle savings. Fuel switching, heat recovery, and low-emission vehicles cost $802/tCO2e, $77/tCO2e, and $1,038/tCO2e. These measures cut GHGs, lower EV operating costs compared to internal combustion, support Edmonton's shift to sustainable energy, and improve air quality.

KEY RISKS & MITIGATING STRATEGY

The identified risks and mitigation strategies are as follows:
- Technical challenges with EVs: Stay current with EV technology developments and consider leasing EVs to avoid risks of rapid obsolescence.
- High upfront and operational costs for electrification: Use a phased approach to manage cash flow and seek government incentives to reduce initial expenses.
- Global supply chain issues for specialized equipment: Use locally sourced materials when possible and allow for sufficient lead time for procurement.
- Cost overruns: Continuously monitor risks, implement a strong change control process, and set clear deliverables, milestones, and payment terms to control costs.

RESOURCES

WS Climate Action Plan, WS 2025 - 2026 Greenhouse Gas Mitigation Energy Transition Portfolio Capital Funding Request, and Greenhouse Gas Management Plan 2019-2030 for Civic Operations

CONCLUSIONS AND RECOMMENDATIONS

It is recommended that this capital funding request be approved to support WS in meeting its commitment to mitigate GHG emissions at its operations.

CAPITAL PROFILE REPORT

PROFILE NAME: **Greenhouse Gas Mitigation Energy Transition Portfolio** **FUNDED**

PROFILE NUMBER: **CM-81-2049** PROFILE TYPE: **Composite**

BRANCH: **Waste Services**

CAPITAL BUDGET AND FUNDING SOURCES (000's)

		Prior Years	2024	2025	2026	2027	2028	2029	2030	2031	2032	Beyond 2032	Total
APPROVED BUDGET	Approved Budget												
	Original Budget Approved	-	-	-	-	-	-	-	-	-	-	-	-
	2024 Cap Council	-	-	762	1,927	-	-	-	-	-	-	-	2,689
	Current Approved Budget	-	-	762	1,927	-	-	-	-	-	-	-	2,689
	Approved Funding Sources												
	Self-Liquidating Debentures	-	-	762	1,927	-	-	-	-	-	-	-	2,689
	Current Approved Funding Sources	-	-	762	1,927	-	-	-	-	-	-	-	2,689
BUDGET REQUEST	Budget Request	-	-	-	-	-	-	-	-	-	-	-	-
REVISED BUDGET (IF APPROVED)	Revised Budget (if Approved)	-	-	762	1,927	-	-	-	-	-	-	-	2,689
	Requested Funding Source												
	Self-Liquidating Debentures	-	-	762	1,927	-	-	-	-	-	-	-	2,689
	Requested Funding Source	-	-	762	1,927	-	-	-	-	-	-	-	2,689

CAPITAL BUDGET BY ACTIVITY TYPE (000's)

REVISED BUDGET (IF APPROVED)	Activity Type	Prior Years	2024	2025	2026	2027	2028	2029	2030	2031	2032	Beyond 2032	Total
	Other Costs	-	-	762	1,927	-	-	-	-	-	-	-	2,689
	Total	-	-	762	1,927	-	-	-	-	-	-	-	2,689

OPERATING IMPACT OF CAPITAL

Type of Impact:

Branch:	Rev	Exp	Net	FTE	Rev	Exp	Net	FTE	Rev	Exp	Net	FTE	Rev	Exp	Net	FTE
Total Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-