

CAPITAL PROFILE REPORT

PROFILE NAME: **COMMUNAL COLLECTION PROGRAM**
 PROFILE NUMBER: **22-81-2054**
 DEPARTMENT: **Utilities**
 LEAD BRANCH: **Waste Management Services**
 PROGRAM NAME:
 PARTNER:
 BUDGET CYCLE: **2019-2022**

RECOMMENDED
PROFILE STAGE: Council Review
PROFILE TYPE: Standalone
 LEAD MANAGER: **Michael Labrecque**
 PARTNER MANAGER:
 ESTIMATED START: **January, 2022**
 ESTIMATED COMPLETION: **December, 2043**

Service Category: Utilities **Major Initiative:**

GROWTH	RENEWAL	PREVIOUSLY APPROVED:	-
100		BUDGET REQUEST:	29,198
		TOTAL PROFILE BUDGET:	29,198

PROFILE DESCRIPTION

This business case recommends changes to the current waste collection program offered to residences receiving communal collection. Currently, residences on communal collection (typically condos and apartment buildings) receive garbage and recycle collection via large communal bins, with recycling being voluntary (i.e. not all properties have recycling collection). The changes recommended include mandatory three stream separation of waste for all residences receiving communal collection. The three streams are: garbage, recycling, and organics. The associated capital funds include funding for containers, vehicles and associated accessories. To accommodate the unique needs and challenges of different properties, the implementation phase is expected to take four years and will include working with every property in Edmonton to ensure challenges such as space restrictions and resident education are taken into consideration when rolling out the program. Edmonton's 25-year Comprehensive Waste Management Strategy (the Waste Strategy) was approved by City Council in September 2019. The Waste Strategy established a target of 90 percent waste diversion across all sectors, and calls for the implementation of mandatory three-stream source separation of waste as a critical component of making progress towards the target.

Research shows that source separation is most effective at increasing waste diversion when municipalities set clear and consistent rules across all sectors. Consistent expectations for sorting food scraps and recyclable materials at home (regardless of dwelling type), work, school and in the community help to reinforce concepts communicated through educational programs and encourage the formation of responsible waste habits.

Following the implementation of mandatory three-stream separation for residential properties that receive curbside collection (by way of the Edmonton Cart Rollout), this business case addresses the development of a mandatory three-stream source separation service for residential properties that receive communal collection.

In Scope:

- Work with all properties receiving communal collection to transition to mandatory three stream source separation.
- Introduce carts as a collection container in the communal program (currently only bins serviced with front load vehicles are used).
- Introduce volume limits and developer standards for new developments.
- Adjust frequency of collection as required.
- Updates to the Waste Services bylaw.
- Change in processing requirements related to the Edmonton Waste Management Centre.
- Capital and operating budgets to support the program changes.
- Net Present Value (NPV) analysis.
- Revenue Requirement (RR) analysis.
- Development and delivery of education and outreach programs and materials.

Out of Scope:

- All residences include in the Cart Rollout program.
- Non-residential waste programs.
- Waste Management Policy update.
- Securing any additional processing capacity needed to process the source separated waste.

PROFILE BACKGROUND

The current approach, which requires processing large amounts of unsorted waste, has limited the effectiveness of processing facilities. As outlined in the 25-year Comprehensive Waste Management Strategy, and in alignment with the internationally accepted solid waste management hierarchy, systems should prioritize waste reduction, reuse, recycling and composting above materials recovery. Diversion rate for the sector dropped from 14% (2019) to 9% (2020), largely due to impacts resulting from the closure of the ECF and the COVID-19 pandemic. Without consideration for the additional diversion that can be achieved from the production of RDF, or the additional diversion that is expected to be achieved through the options contemplated in this business case, waste diversion from the sector is expected to increase over the coming years to a projected total of 41 percent but to then stagnate without changes to the collection program. Continuing the status quo service will not achieve the City's strategic goals, particularly the goal of 90% diversion across all sectors. Program changes are required to align the communal collection program in support of this goal.

PROFILE JUSTIFICATION

The commitment to achieve 90 percent waste diversion across sectors provides an opportunity to align the communal collection program with best practices for sustainable waste management. Waste Services researched services provided in jurisdictions across North America, Europe and Australia, and engaged local stakeholders to gain insight on how best practices could be applied in Edmonton. The result is the attached business case, which recommends a mandatory three stream source separation program. The three streams are recycling, food scraps and garbage.

Currently, properties that receive communal collection can have waste collected in two streams: garbage and recycling. Containers collected via front load vehicles (referred to as front load bins) are used for both streams in the majority of cases.

It is estimated that approximately nine percent of communal collection waste was diverted from landfill in 2020. Although this reflects a single-year decrease in diversion that is largely owing to negative impacts resulting from the COVID-19 pandemic and the closure of the ECF aeration hall, it is representative of a gap that must be addressed to progress toward the target defined by the Waste Strategy.

Based on recent analysis of multiple municipalities, an additional 72 percent of the material that is currently collected as garbage could be diverted through a source separation program (reflecting estimates that 40 percent of garbage is food scraps, and 32 percent is recyclable). Furthermore, Edmonton's current communal collection recycling stream has a contamination rate of about 22 percent.

Communal waste collection differs from curbside waste collection in many ways including a need for more flexible servicing due to space constraints and anonymity of the users. Compared with properties receiving curbside collection, resident turnover in properties with communal collection has a higher impact to service participation and compliance, as there is a steeper learning curve for adhering to service guidelines when moving between communal collection sites than when moving between homes that receive curbside collection.

The low diversion rate and high contamination rate present an opportunity to design and implement changes to the communal collection program.

STRATEGIC ALIGNMENT

The transition of the communal collection program to mandatory three stream separation is rooted in the Waste Strategy, which was approved by City Council in September 2019. The goals in the Waste Strategy are aligned with City Council's Strategic Goal of Climate Resilience set out in ConnectEdmonton.

ALTERNATIVES CONSIDERED

The following options were combined to form the business case alternatives:

1. Status quo
2. Three stream source separation collection with various options for: collection methods, volume and container sizes, resident and property manager supports, regulatory tools and mechanisms and financial mechanisms.

A three step process was used to narrow down potential options for the business case. The process ensured that the analysis was done in a consultative and structured environment. Notes and results were recorded transparently and in detail to allow the project team to provide critical feedback and make adjustments as necessary. Please refer to the "Viable Alternatives" section of the attached business case for details.

COST BENEFITS

Capital costs of \$29.2M in this profile include fleet, containers, contingency and inflation. Benefits of the program include increases to the projected diversion rates, higher quality end products for market, reduction of GHG, equity for residents between services, and alignment with best practices found in other jurisdictions. Please refer to the "Summary of Cost and Benefits" and appendices section of the business case and for analysis.

KEY RISKS & MITIGATING STRATEGY

Some key risks for the recommended alternative include:

1. Improvements to waste sorting and set out behaviours are less than anticipated.
2. Internal accounting platform causes delays in the tendering process.
3. Inadequate capacity to process separated waste streams.
4. Delays in administrative processes or difficulty in meeting needs of internal stakeholders.
5. Difficulty in enforcing the new developer standards in new properties.

Mitigation strategies include: Monitoring resident behaviour & review the program regularly, implementing diverse & targeted educational tactics, securing third party capacity for processing, communicating early & often with City Council.

Please refer to the "Key Risks and Mitigation Strategies" section of the attached business case for details.

RESOURCES

The recommended alternative requires 30 Permanent and Seasonal FTE's and 14 Temporary FTE's for the program implementation. Please refer to the "Staff and Fleet Impacts" section of the attached business case.

CONCLUSIONS AND RECOMMENDATIONS

The business case demonstrates how the Waste Strategy goal of source separated waste in the communal program can be achieved and what its benefits are. The recommended alternative is for mandatory colocation with voluntary chute closure. This combination will meet the needs of residents and property managers, and will meet the objectives of the Strategy by increasing diversion by an additional 16 percent above the projected status quo.

CAPITAL PROFILE REPORT

PROFILE NAME: **Communal Collection Program**
 PROFILE NUMBER: **22-81-2054**
 BRANCH: **Waste Management Services**

RECOMMENDED
 PROFILE TYPE: **Standalone**

CAPITAL BUDGET AND FUNDING SOURCES (000's)

APPROVED BUDGET		Prior Years	2021	2022	2023	2024	2025	2026	2027	2028	2029	Beyond 2029	Total
	Approved Budget	Original Budget Approved	-	-	-	-	-	-	-	-	-	-	-
	Current Approved Budget	-	-	-	-	-	-	-	-	-	-	-	-

BUDGET REQUEST	Budget Request	-	-	5,918	1,523	1,547	1,568	-	-	102	-	18,540	29,198
	Revised Funding Sources (if approved)												
	Self-Liquidating Debentures	-	-	650	235	875	900	-	-	102	-	9,270	12,032
	Waste Mgt Retained Earnings	-	-	5,268	1,288	672	668	-	-	-	-	9,270	17,166
	Requested Funding Source	-	-	5,918	1,523	1,547	1,568	-	-	102	-	18,540	29,198

REVISED BUDGET (IF APPROVED)	Revised Budget (if Approved)	-	-	5,918	1,523	1,547	1,568	-	-	102	-	18,540	29,198
	Requested Funding Source												
	Self-Liquidating Debentures	-	-	650	235	875	900	-	-	102	-	9,270	12,032
	Waste Mgt Retained Earnings	-	-	5,268	1,288	672	668	-	-	-	-	9,270	17,166
	Requested Funding Source	-	-	5,918	1,523	1,547	1,568	-	-	102	-	18,540	29,198

CAPITAL BUDGET BY ACTIVITY TYPE (000's)

REVISED BUDGET (IF APPROVED)	Activity Type	Prior Years	2021	2022	2023	2024	2025	2026	2027	2028	2029	Beyond 2029	Total
		Other Costs	-	-	5,918	1,523	1,547	1,568	-	-	102	-	18,540
	Total	-	-	5,918	1,523	1,547	1,568	-	-	102	-	18,540	29,198

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CAPITAL PROFILE REPORT

PROFILE NAME: HIGH SOLIDS ANAEROBIC DIGESTION FACILITY	FUNDED
PROFILE NUMBER: 13-33-2023	PROFILE STAGE: Approved
DEPARTMENT: Integrated Infrastructure Services	PROFILE TYPE: Standalone
LEAD BRANCH: Infrastructure Delivery	LEAD MANAGER: Brian Latte
PROGRAM NAME:	PARTNER MANAGER: Michael Labrecque
PARTNER: Waste Management Services	ESTIMATED START: January, 2013
BUDGET CYCLE: 2012-2014	ESTIMATED COMPLETION: December, 2015

Service Category: Utilities	Major Initiative:
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GROWTH	RENEWAL	PREVIOUSLY APPROVED:	41,707
100		BUDGET REQUEST:	530
		TOTAL PROFILE BUDGET:	42,237

PROFILE DESCRIPTION

The amount of residential organic waste material generated and collected in the City of Edmonton has increased to the degree that the capacity of the Edmonton Composting Facility is not sufficient to handle current demand during high waste generation periods. Additional processing capacity at the Edmonton Waste Management Centre is needed to avoid landfilling of recyclable organic material and to meet anticipated growth for the next eight to ten years. The construction and operation of a High Solids Anaerobic Digestion Facility will process 40,000 tonnes of organic waste per year. The Facility will be fully integrated with existing facilities and operations at the Edmonton Waste Management Centre.

PROFILE BACKGROUND

Edmonton's residential waste is brought to the Edmonton Waste Management Centre where the organics are processed at the Integrated Process and Transfer Facility and composted in the Edmonton Composting Facility. The capacity of the Edmonton Composting Facility is 125,000 tonnes of waste plus 10,000 dry tonnes (equals 40,000 wet tonnes) of biosolids. Due to the high volumes of residential waste generated during peak spring and fall seasons, the Waste Management Utility diverts the peak waste volumes to landfill as the composting facility processing capacity is exceeded, causing the residential waste diversion to not achieve the goal of 60%. As the amount of residential waste generated in Edmonton increases, more organic waste will be transported to the Ryley landfill located 80 km southeast of the City, increasing hauling and disposal costs, decreasing diversion from landfill rates and increasing GHG emissions from City operations.

PROFILE JUSTIFICATION

The existing maximum capacity at the Edmonton Composting Facility is 125,000 tonnes of municipal solid waste plus 40,000 wet tonnes of biosolids. The facility is operating at full capacity and organic waste recycling is especially challenged during peak grass growing months. Waste Management Utility's need to deal with increasing organic waste generation over the next 8 to 10 years has led to a successful grant submission to provide \$10,000,000 towards the construction of a new High Solids Anaerobic Digestion Facility which can process an additional 40,000 tonnes per year of organic waste and create revenue to the Utility through renewable energy generation, sale of Greenhouse Gas credits, tip fees for commercial wastes, and for the avoidance of hauling and landfilling activities.

STRATEGIC ALIGNMENT

The project aligns with City Council's vision outlined in The Way Ahead by encouraging activities that support The Way We Green, The Way We Live, and The Way We Finance.

ALTERNATIVES CONSIDERED

- The following alternatives were considered during the development of this project:
- Expansion of composting operation: Added processing capacity cannot be effectively and efficiently provided by expansion of the existing Edmonton Composting Facility. The plan for the provision of new organic processing capacity reflects this reality as well as the opportunity for grant funding if an alternate technology such as the proposed High Solids Anaerobic Digestion Facility is used.
 - Landfilling of the organics: A return to landfilling of the organics waste stream would have a significant impact on the Utility's current and future goal to divert 60% and 90% of residential waste from landfill.

COST BENEFITS

In 2016, the expected revenue of \$1.8 million and the avoided costs of \$1.9 million (\$3.7 million total) offset the operating costs of \$1.8 million and the financial costs of \$1.6 million (\$3.4 million total), producing a favorable net position in 2016 of \$300,000. The net positions for the following four years range from \$400,000 to \$600,000 positive. The project will therefore require no funding from the monthly user fees.

KEY RISKS & MITIGATING STRATEGY

- Financial Risks: low
- Operational Risks: low
- Environmental Risks: medium

RESOURCES

- 1.0 FTE: Plant operator
- 1.0 FTE Laboratory technician
- 0.5 FTE Millwright
- 0.5 FTE Instrument technician
- 0.5 FTE Administrative assistant

CONCLUSIONS AND RECOMMENDATIONS

That the project be recommended to City Council for approval at a project cost of \$30,828,000, with financing of \$20,047,000 through Self Liquidating Debt, \$10,000,000 through a grant from CCEMC and \$781,000 from the U of A.

CHANGES TO APPROVED PROFILE

An increase is required in the budget for the High Solids Anaerobic Digestion Facility. The required increase is \$6,166,000 in total, to be comprised of an additional \$6,104,000 in debenture borrowing supported by the Utility's rates financing, and \$62,000 in Partner Funding (University of Alberta). The total project funding requirement thus increases from \$30,828,000 to \$36,994,000. The initial tender for the High Solids Anaerobic Digestion Facility was cancelled in April 2014 as bids came in significantly over budget. With the goal of lowering the overall project costs, the Utility restructured the procurement process to tender several different elements of the project separately. With one of the two major contracts now awarded and with responses received to the second one, administration has updated projected costs and determined that the final project will still exceed the approved budget. However, a review of the business case based on the chosen technology provider for the facility also identified the following improved business considerations:

- processing capacity of the facility will increase from 40,000 to 48,000 tonnes per year on the same footprint,
- the facility has reduced material and maintenance requirements, and
- its operation will benefit from higher value of greenhouse gas credits and distributed power usage.

It is projected that improvements to operational efficiency and revenues resulting from the chosen technology will offset the increased borrowing costs over the life of the project.

#17-4 Admin (CM): During the detailed design phase, additional cost impacts were discovered which were not initially identified by the Contractor. As a result, the total project estimate has increased to \$38,977K and the capital budget requirement has increased by \$1,983K, in order to maintain the current project schedule to complete the project.

CAPITAL PROFILE REPORT

PROFILE NAME: **High Solids Anaerobic Digestion Facility**
 PROFILE NUMBER: **13-33-2023**
 BRANCH: **Infrastructure Delivery**

FUNDED
 PROFILE TYPE: **Standalone**

CAPITAL BUDGET AND FUNDING SOURCES (000's)

	Prior Years	2021	2022	2023	2024	2025	2026	2027	2028	2029	Beyond 2029	Total	
APPROVED BUDGET	Approved Budget												
	Original Budget Approved	-	-	-	-	-	-	-	-	-	-	-	
	2013 Cap Carry Forward	-	-	-	-	-	-	-	-	-	-	-	
	2013 CBS Budget Adjustment	30,828	-	-	-	-	-	-	-	-	-	30,828	
	2014 Cap Carry Forward	-	-	-	-	-	-	-	-	-	-	-	
	2015 Cap Capital Budget Adj (one-off)	6,166	-	-	-	-	-	-	-	-	-	6,166	
	2015 Cap Carry Forward	-	-	-	-	-	-	-	-	-	-	-	
	2016 Cap Capital Budget Adj (one-off)	-	-	-	-	-	-	-	-	-	-	-	
	2016 Cap Carry Forward	-	-	-	-	-	-	-	-	-	-	-	
	2017 Cap Capital Budget Adj (one-off)	1,983	-	-	-	-	-	-	-	-	-	1,983	
	2017 Cap Carry Forward	-	-	-	-	-	-	-	-	-	-	-	
	2018 Cap Council	2,730	-	-	-	-	-	-	-	-	-	2,730	
	2018 Cap Capital Budget Adj (one-off)	-	-	-	-	-	-	-	-	-	-	-	
	2018 Cap Carry Forward	-	-	-	-	-	-	-	-	-	-	-	
	2019 Cap Carry Forward	-	-	-	-	-	-	-	-	-	-	-	
	2020 Cap Carry Forward	-49	49	-	-	-	-	-	-	-	-	-	
	Current Approved Budget	41,658	49	-	-	-	-	-	-	-	-	-	41,707
	Approved Funding Sources												
	Partnership Funding	9,098	1,745	-	-	-	-	-	-	-	-	-	10,843
	Self-Liquidating Debentures	30,864	-	-	-	-	-	-	-	-	-	-	30,864
Waste Mgt Retained Earnings	1,696	-1,696	-	-	-	-	-	-	-	-	-	-	
Current Approved Funding Sources	41,658	49	-	-	-	-	-	-	-	-	-	41,707	

BUDGET REQUEST	Budget Request	-	530	-	-	-	-	-	-	-	-	-	530
	Revised Funding Sources (if approved)												
	Self-Liquidating Debentures	-	530	-	-	-	-	-	-	-	-	-	530
	Requested Funding Source	-	530	-	-	-	-	-	-	-	-	-	530

REVISED BUDGET (IF APPROVED)	Revised Budget (if Approved)	41,658	579	-	-	-	-	-	-	-	-	-	42,237
	Requested Funding Source												
	Partnership Funding	9,098	1,745	-	-	-	-	-	-	-	-	-	10,843
	Self-Liquidating Debentures	30,864	530	-	-	-	-	-	-	-	-	-	31,394
	Waste Mgt Retained Earnings	1,696	-1,696	-	-	-	-	-	-	-	-	-	-
Requested Funding Source	41,658	579	-	-	-	-	-	-	-	-	-	42,237	

CAPITAL BUDGET BY ACTIVITY TYPE (000's)

	Activity Type	Prior Years	2021	2022	2023	2024	2025	2026	2027	2028	2029	Beyond 2029	Total
REVISED BUDGET (IF APPROVED)	Construction	-49	579	-	-	-	-	-	-	-	-	-	530
	Other Costs	41,707	-	-	-	-	-	-	-	-	-	-	41,707
	Total	41,658	579	-	-	-	-	-	-	-	-	-	42,237

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-