

**CAPITAL PROFILE REPORT**

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PROFILE NAME:	<b>MATERIALS RECOVERY FACILITY (MRF) RENEWAL</b>	<b>RECOMMENDED</b>
PROFILE NUMBER:	<b>20-81-2020</b>	<b>PROFILE STAGE:</b> L1 - Update Profile
DEPARTMENT:	<b>Utilities</b>	<b>PROFILE TYPE:</b> Standalone
LEAD BRANCH:	<b>Waste Management Services</b>	LEAD MANAGER: <b>Michael Labrecque</b>
PROGRAM NAME:		PARTNER MANAGER: <b>Pascale Ladouceur</b>
PARTNER:	<b>Infrastructure Planning &amp; Design</b>	ESTIMATED START: <b>November, 2020</b>
BUDGET CYCLE:	<b>2019-2022</b>	ESTIMATED COMPLETION: <b>December, 2022</b>

<b>Service Category:</b> Utilities	<b>Major Initiative:</b>
<b>GROWTH</b>	<b>RENEWAL</b>
	<b>100</b>
<b>PREVIOUSLY APPROVED:</b>	<b>-</b>
<b>BUDGET REQUEST:</b>	<b>15,741</b>
<b>TOTAL PROFILE BUDGET:</b>	<b>15,741</b>

**PROFILE DESCRIPTION**

This initiative replaces various process equipment and building components, including upgrades to the paper/cardboard line, that will extend the life, improve efficiencies, and increase the capacity of system processes at the Materials Recovery Facility (MRF). This supports the provision of an effective recycling program for the City of Edmonton and reaching the strategic goal of a diversion rate of 90% residential waste from landfills.

**PROFILE BACKGROUND**

In March 2019, City Operations report CR\_6866 was submitted along with the February 26, 2019 strategic business case to the Utility Committee which recommended to execute a phased retrofit to the MRF. The phased retrofit proposes that the City complete a partial upgrade to address the most critical equipment and facility issues by 2021 followed by a complete retrofit in 2027. The MRF Renewal project focuses on the first phase of the MRF retrofit, which is the replacement of end-of-life-cycle equipment and facility issues. In addition to this recommendation, Waste Services requested that the fibre (paper/cardboard) line in the MRF also be included in the planning and design phase. The addition of the paper/cardboard line is meant to address limitations with the existing process which results in the system being above maximum capacity and a landfill diversion rate ranging from 21% to 36% in recent years. Approval of the full scope of work, to be completed in 2021/2022, will achieve operating efficiencies and in turn, a landfill diversion rate greater than 90%.

**PROFILE JUSTIFICATION**

This initiative will reduce equipment downtime and unplanned maintenance while improving commodity quality, plant capacity and overall system efficiency.

**STRATEGIC ALIGNMENT**

This project aligns with the City's Vision 2050 strategic plan in that by ensuring that recyclable waste is collected, processed responsibly, and the amount landfilled is minimized, Edmonton will be a healthy city, urban places will be clean, regional prosperity is increased by building a circular economy, and a low carbon future is assured.

**ALTERNATIVES CONSIDERED**

Alternative 1: Status-quo

This involves no capital investment with operations continuing as is with existing process equipment.

Alternative 2: Full Scope ( Paper/Cardboard (Fibre) Line Optimization and EOL) in 2021/2022

Alternative 2 includes the completion of the fibre (paper/cardboard) line optimization and end-of-life (EOL) equipment replacement in 2021 and 2022 requiring a capital investment of \$15.7 million.

Alternative 3: Phased Renewal Implementation

Alternative 3 has a similar scope of work but with a phased approach in which the fibre line work is completed in 2021/2022 and EOL is completed in 2024/2025.

Alternative 4: Reduced Scope - EOL Only

Alternative 4 only includes end-of-life (EOL) equipment replacement to be completed in 2021/2022 with a capital investment of \$9.5 million.

Alternative 5: Refuse derived fuel (RDF) production

Alternative 5 investigates the option of shifting to RDF processing of the majority of recycling material collected.

**COST BENEFITS**

The operating costs for the new assets are mainly associated with electrical power to operate the new equipment and building, and ongoing maintenance costs for the new assets. The new equipment results in a reduction in sort labour and maintenance. The expected increase in diversion of material will also result in a decreased landfill cost.

## KEY RISKS & MITIGATING STRATEGY

A comprehensive risk register was developed for this initiative, in both the Concept stage and the Planning and Design stage. A comprehensive list of risks (prior to the mitigation strategies) and their mitigation strategies can be found in the business case. Some key risks are highlighted below:

- Changes in recyclables composition
- Mass Balance estimates are low, resulting in demand for additional capacity at the MRF
- Site utility connection/disconnect may result in change/delay of schedule as timelines for utility companies' services are unpredictable.
- Cost estimates are low resulting in budget or rate increases that are higher than announced to the Utility Committee and the Public
- Existing equipment available doesn't meet the market's quality standards.

## RESOURCES

WS will manage the process equipment replacement and upgrades portion of the project and provide a lead project manager. The work will be executed by the successful Operations & Maintenance contractor for the MRF based on open competition. Contract management will be led by Waste Services staff.

## CONCLUSIONS AND RECOMMENDATIONS

Accomplishing the Project Goal supports goals outlined in Vision 2050, such as an increased waste diversion rate, and the vision and commitments outlined in The City of Edmonton Waste Services Business Plan 2019-2022.

To deliver this project for the replacement of the end-of-life equipment and building scope of work as well as the paper/cardboard line upgrades, a capital investment of \$15.7M is required. It is recommended by the Project Team that this Business Case is approved and authorized following Alternative 2 for Capital Expenditure (Funding Approval) of \$15.7 million at Checkpoint #3 of the Corporate PDDM within the 2019-2022 budget. The approval of this Business Case will enter the project to the Delivery Phase in 2021/2022.

## CONTINGENCY OF APPROVAL

This Business Case is drafted by the Lead Project Manager in Facility Planning and Design Section with input from Waste Services project representatives (Engineering economic analysis, Business Integration team, Finance team etc.).

This Business Case will be:  
Reviewed by key project team members  
Circulated for Directors review and approval  
Submitted for Waste Services Branch Manager review and approval

A City Council Report will be:  
Presented to Utility Committee for recommendation to the City Council for approval

# CAPITAL PROFILE REPORT

PROFILE NAME: **Materials Recovery Facility (MRF) Renewal**  
 PROFILE NUMBER: **20-81-2020**  
 BRANCH: **Waste Management Services**

**RECOMMENDED**  
 PROFILE TYPE: **Standalone**

### CAPITAL BUDGET AND FUNDING SOURCES (000's)

APPROVED BUDGET		Prior Years	2020	2021	2022	2023	2024	2025	2026	2027	2028	Beyond 2028	Total
	Approved Budget	Original Budget Approved	-	-	-	-	-	-	-	-	-	-	-
	Current Approved Budget	-	-	-	-	-	-	-	-	-	-	-	-

BUDGET REQUEST	Budget Request	-	490	8,688	6,563	-	-	-	-	-	-	-	15,741
	Revised Funding Sources (if approved)												
	Self-Liquidating Debentures	-	490	5,000	3,792	-	-	-	-	-	-	-	9,282
	Waste Mgt Retained Earnings	-	-	3,688	2,771	-	-	-	-	-	-	-	6,459
	Requested Funding Source	-	490	8,688	6,563	-	-	-	-	-	-	-	15,741

REVISED BUDGET (IF APPROVED)	Revised Budget (if Approved)	-	490	8,688	6,563	-	-	-	-	-	-	-	15,741
	Requested Funding Source												
	Self-Liquidating Debentures	-	490	5,000	3,792	-	-	-	-	-	-	-	9,282
	Waste Mgt Retained Earnings	-	-	3,688	2,771	-	-	-	-	-	-	-	6,459
	Requested Funding Source	-	490	8,688	6,563	-	-	-	-	-	-	-	15,741

### CAPITAL BUDGET BY ACTIVITY TYPE (000's)

REVISED BUDGET (IF APPROVED)	Activity Type	Prior Years	2020	2021	2022	2023	2024	2025	2026	2027	2028	Beyond 2028	Total
		Construction	-	490	8,688	6,563	-	-	-	-	-	-	-
	Total	-	490	8,688	6,563	-	-	-	-	-	-	-	15,741

### OPERATING IMPACT OF CAPITAL

Type of Impact:

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