

Materials Recovery Facility Renewal Business Case

Recommendation

That Utility Committee recommend to City Council:

That the Business Case for the Materials Recovery Facility Renewal project, as set out in Attachment 1 of the October 2, 2020, City Operations report CO00057, recommending Alternative 2, be approved.

Executive Summary

The Materials Recovery Facility (MRF), which receives and processes material collected in the blue bag recycling program, is overdue for renewal as a number of pieces of equipment are at or near the end of their life cycle. Some equipment is no longer effective with the current mix of recyclable materials collected. Additionally, the market for recyclable commodities has become more competitive over time. End markets expect cleaner products than they have in the past, which requires the MRF to have more advanced sorting technology.

Administration presented City Operations report CR_6866 to Utility Committee on March 22, 2019. The report outlined Administration's plan to execute a phased retrofit to the MRF, including 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 addressing the replacement of end-of-life-cycle equipment and facility issues. In addition, Administration recommends including the MRF fibre (paper/cardboard) line in the planning and design phase.

Approval of the full scope of work, with an expected completion date of 2022, will achieve operating efficiencies and contribute to the City's goal of a 90 percent waste diversion rate. Approval of the attached business case will authorize Capital Expenditures (Funding Approval) of \$15.7 million. Upon approval, project delivery will commence in 2021/2022.

Report

Commissioned in 1999, the Materials Recovery Facility (MRF) receives and processes material collected in the blue bag recycling program. The facility was originally constructed under a Public-Private Partnership (P3) agreement, which included a

15-year operating period and shared-cost capital renewals every five years. It has undergone two renewal projects in 2003 and 2008 to address recyclable packaging and collection program changes. It is overdue for another renewal as a number of pieces of equipment are near or at the end of their life cycle; some equipment is no longer effective with the current mix of recyclable materials collected through the blue bag program. Since 2014, a third-party contractor has operated and maintained the Materials Recovery Facility.

Following City Operations report CR_6866 presented in March 2019, Administration prepared and approved the Project Condensed Business Case on July 22, 2019 which outlined the preliminary planning and design work prior to the Delivery Budget Request and Approval at Checkpoint #3. Planning and design work (Concept Design and Development Design) has been completed and the project has appropriate information incorporated into the budget and schedule to support the City's investment decisions regarding the delivery of the project.

While the Business Case informs the high level direction for project implementation, a vendor, chosen through a competitive Request for Proposals process, will deliver the project through an Operating and Maintenance Contract for the Materials Recovery Facility.

Alternatives

The Business Case, included as Attachment 1, analyses several alternative approaches (i.e., options) for the renewal of the facility. The following is a summary of the two alternatives deemed most feasible, with additional details available in Attachment 1.

Alternative 1 - Status Quo

The status quo involves no capital investment with operations continuing as is with existing process equipment. The status quo will lead to increasing operating costs, no improvements in quality, increased downtime, and a loss of efficiency.

Alternative 2 (Recommended) - Full Scope (Fibre - Paper/Cardboard) Line Optimization and EOL) in 2021-22.

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

Alternative 3 - Phased Renewal Implementation.

Alternative 3 includes completion of the fibre (paper/cardboard) line optimization and end-of-life (EOL) equipment in a phased approach with the fibre line work completed in

2021-22 and EOL completed in 2024-25. Compared to Alternative 2, this splits the capital outlay to \$10.7 million by 2022 and \$5.4 million by 2025.

Comparison of Alternatives

The preliminary financial cost analysis (2020 to 2055) for two of the alternatives is outlined in the table below. The analysis was completed over the life of the assets, starting from 2020 with initiation of the planning, design and delivery of the facility. Calculations and assumptions are detailed in Section 6 of Attachment 1. The Net Present Value (NPV) calculations are as compared to the status quo.

Key Comparison Elements	Alternative 2	Alternative 3	Recommended Alternative	Difference
NPV	\$226,642,872	\$217,813,568	Alternative 2	\$8,829,304
Cost of Capital	\$15,732,246	\$16,235,156	Alternative 2	-\$502,910

It is recommended that this Business Case and Alternative 2 be approved and authorized for Capital Expenditure (Funding Approval) of \$15.7 million. Upon approval, Administration will send the project out for tender alongside the Operating and Maintenance contract, with project delivery expected to be completed by 2022.

Project Delivery Considerations

During the next phase of the project, Administration will complete the following:

- Vendor selection to carry out the remaining work as part of the Operating and Maintenance Contract. Vendor responsibilities will include:
 - detailed design, through to commissioning
 - pre-construction services (Checkpoint #3 to #4), construction, post-construction services, warranty and commission
 - ongoing operation and maintenance throughout the term of the agreement, and
 - ensuring the facility is maintained to meet asset management requirements

Once these steps are completed, Administration will return to Utility Committee with a report summarizing the findings, recommending further steps and, when appropriate, updated business cases and funding requests.

Strategic Alignment

This project supports the City’s Environmental Stewardship outcome of ensuring the City of Edmonton’s operations and service delivery sustains and conserves the

environment. This project contributes to achieving the City’s strategic objective of making transformational impacts in our community by impacting the goal of Climate Resilience outlined in ConnectEdmonton: Edmonton’s Strategic Plan 2019-2028 through ongoing innovation and partnerships.

Renewal of the Materials Recovery Facility also supports the 25-Year Waste Strategic Outlook and the target of diverting 90 per cent of waste from landfill. There is a significant gap between current system performance on diversion and the stated target of 90 per cent. Renewing the Materials Recovery Facility is an essential component of narrowing that gap, as it will enable greater recovery of recyclables, increase waste diverted from landfill, while working toward these long-term goals in a fiscally-responsible manner.

Public Engagement

Public Engagement was not undertaken for this report. The decisions within the project are based on technical specifications and best practices. The work will occur on the Edmonton Waste Management Centre site. It is expected that those accessing the site (employees, contractors and customers) may be impacted with a small increase in equipment vehicle traffic to the site prior to and after the construction activities.

Corporate Outcomes and Performance Management

Corporate Outcome(s): Edmonton is an environmentally sustainable and resilient city.			
Outcome(s)	Measure(s)	Result(s)	Target(s)
Edmonton is an environmentally sustainable and resilient city	Single Unit Residential Diversion Rate	2019 - 23%	2020 - 17% 2021 - 40% 2022 - 60% 2023 - 65%

Risk Assessment

Risk Element	Risk Description	Likelihood	Impact	Risk Score (with current mitigations)	Current Mitigations	Potential Future Mitigations
Economic	Changes in recyclables composition	3 - Possible	4 - Severe	12 - Medium	Ensure equipment selection aligns with market requirements.	Specify equipment that can be adjusted for materials. Schedule 5-year rehabilitation analyses post-project.

Information	Mass Balance estimates are low, resulting in demand for additional capacity at the MRF	3 - Possible	3 - Major	9 - Medium	Mass Balance numbers will be validated against actual quantities over time.	Throughput requirements will be revisited as required and changes will be incorporated in the design. Excess recyclables can be processed by the existing RDF, a third party, or sent to landfill.
Project Management	Cost estimates are low resulting in budget or rate increases that are higher than announced to the Utility Committee and the Public	2 - Unlikely	4 - Severe	8 - Medium	The project will include contingencies appropriate to each project stage in the project budget.	Design will be advanced to Checkpoint 3, including developing more accurate cost estimates, prior to proceeding to final design and construction.

For a complete list of risks associated with the business case please refer to page 27 in Attachment 1.

Attachments

1. Materials Recovery Facility Rehabilitation Business Case

Others Reviewing this Report

- M. Persson, Chief Financial Officer and Deputy City Manager, Financial and Corporate Services
- C. Owen, Deputy City Manager, Communications and Engagement
- J. Meliefste, Acting Deputy City Manager, Integrated Infrastructure Services
- B. Andriachuk, City Solicitor