

Single Unit Waste Set-out Business Case

Recommendation

That Utility Committee recommend to City Council:

That the Single Unit Set-out Business Case, as set out in Attachment 1 of the August 29, 2019, City Operations report CR_7173, be approved.

Executive Summary

Waste Services is committed to environmental responsibility by minimizing the amount of residential waste sent to landfill. The goal is to divert 90 percent of single unit residential waste as established in the Waste Management Policy C527. This also supports ConnectEdmonton's strategic goal of Climate Resilience by contributing to transformational change in how Edmonton's waste will be managed and how services will be delivered.

The current residential waste collection program requires significant changes to support the City's 90 percent single unit residential diversion goal. Waste Services' current two-stream residential collection program allows for unlimited comingled waste (organic and garbage) and recycling at curbside. The materials are processed at the Edmonton Waste Management Centre where a portion is diverted from landfill.

A large component of Edmonton's residential waste stream is organic waste which includes both food and yard waste. As this material accounts for up to 58 percent of total residential waste, having diversion programs in place to manage this material is necessary. Waste Services is proposing transformational changes to the current waste collection programs. These changes include source separation of organic waste and an improved residential curbside set-out by adopting a cart-based system.

The attached business case (Attachment 1) provides detailed analysis on various set-out configurations considered. Based on the analysis, Administration recommends that a four-stream residential set-out be approved. Separating organic waste at curbside will improve diversion efforts and bring the City closer to its single unit residential diversion goal.

Report

In the last few years, the single unit residential waste diversion rate has decreased from 52 percent in 2016 to 36 percent in 2018. The reduction is linked to processing challenges at the Edmonton Waste Management Centre including the previous

seasonal operation of the Edmonton Composting Facility and the delay of the full operation of the Waste to Biofuels Facility. Waste Services initiated the process of shutting down and decommissioning the Edmonton Composting Facility effective May 29, 2019, due to ongoing structural issues. Organics processing will be transitioned to the new Anaerobic Digestion Facility over time as the facility continues through its commissioning phase, however this may still have an impact on the diversion rate based on facility capacity.

Through an internal review completed in June 2017, Administration recognized that in addition to the existing waste processing facility challenges, the 90 percent diversion target cannot be achieved with the existing waste management programs. New waste diversion programs would need to be developed and implemented in order to achieve this goal. In March 2018, Administration presented its Waste Management Strategy Update to City Council, and was given direction to investigate and plan for an updated waste diversion program, targeted to single unit residential units, including a source separated organics program.

Administration continued this investigation and has developed the attached business case. This business case evaluates the transition of the current curbside residential waste set-out to the proposed four stream set-out as described below:

- **Source Separated Organics:** Residential kitchen organics will be separately collected at the curb in a green cart. Residents will also be permitted to fill up their green cart with compostable yard waste, including leaves and grass clippings. Green cart collection will occur weekly in the spring, summer and fall, and biweekly in the winter. Biweekly collection in the winter months is possible as colder temperatures reduce odours generated by the organic material and the volume is significantly reduced due to no leaf and yard waste.
- **Seasonal Leaf and Yard Waste:** A separate, seasonal collection of residential yard waste, including items like garden waste, leaves and grass clippings, on predetermined days. Leaf and yard waste will be collected two times in the spring and two times in the fall in kraft paper bags.
- **Recycling:** Recyclables will continue to be collected in blue bags at curbside on a weekly basis. Residents may set out unlimited blue bags for recycling.
- **Garbage:** Remaining garbage will be collected in black carts on a biweekly basis. Residents will have the choice of a 120 litre or 240 litre black cart.

Each stream was evaluated in detail with variations on cart composition, size and collection schedules. High-level cost estimates for potential alternatives were prepared and analyzed through a detailed financial model considering both operating and capital costs and Net Present Value (NPV). The alternatives were also evaluated

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based on long-term and short-term overall risks as well as social and environmental impacts (impact on single unit residential waste diversion rate). The most favorable alternatives from each stream with the highest recommendation score were bundled together as the recommended curbside collection set-out (see Figure 1 below).



Figure 1: Recommended Curbside Collection Set-out for Single Unit Residences

Based on the business case analysis, Administration recommends transitioning to the new waste set-out in Figure 1. This set-out will serve the needs of residents based on what was heard in the public engagement and is also expected to increase the single unit residential waste diversion rate by approximately seven to 11 percent. This anticipated increase in waste diversion is in addition to other waste diversion initiatives, such as the implementation of waste reduction programs, commissioning of the Anaerobic Digestion Facility, and the production of refuse derived fuel, to name a few.

While the proposed waste set-out will positively impact the diversion rate and is supported through public engagement and operational/financial analysis, Administration recognizes that the transition from the current system to the new program will be a challenge for some residents and as such is proposing to implement the following programs to aid in the transition.

Excess Waste Program

Waste Services will also implement an Excess Waste Program for residual waste. This program will allow residents the ability to purchase special branded clear bags for

disposal of residual waste only. To support the City's goal of 90 percent diversion from landfill, use of these bags for recyclables and organic materials would not be permitted.

The Excess Waste Program is meant to provide options that give some flexibility to households that may need occasional access to additional residual waste set-out capacity (ordinary household trash) and yet provide a direct economic incentive to generate less waste and to increase recycling and source separation of organics.

The program will be based on a full cost-recovery model and the initial price per bag for the program will be included as part of the 2020 Rate Filing.

Rate Variability

The recommended set-out allows for residents to choose their black cart size. Options will be developed as part of the implementation plan to create opportunities for residents to choose and to have the chance to swap carts periodically or in special circumstances. In an effort to complete a smooth transition from the current waste set-out to a cart based system, all residents will receive a 240L black cart in the phase 1 rollout. Once residents have had an opportunity to utilize this cart size (approximately 6 months), they will be given an opportunity to exchange their 240L black cart for a smaller, 120L black cart, based on their requirement. This approach will allow the City to provide consistent services while allowing residents to experience the 240L black cart before committing to a particular size.

The rate model associated with offering multiple black cart sizes is to have specific rates associated with each cart size. Through recent public engagement, residents were asked about whether rates should be impacted by the cart size that residents choose.

- 54 percent of respondents agreed that a change in the utility rate would be reasonable if different cart sizes were used.
- 40 percent agreed that residents should all pay the same amount regardless of cart size.

When asked to consider a hypothetical pricing change, respondents provided feedback on the scope of price incentive that should be provided, at the following levels:

Price difference suggested (per month)	Percentage of respondents who agreed
At least \$1	58%

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Between \$2 to \$5	20%
Between \$6 to \$10	18.4%
Between \$11 to \$20	10%

To help assess the option of rate variability, Administration commissioned a third-party to conduct a Rate Design Study assessing the financial impact to rates of introducing alternative collection options for single unit residential customers. The study built a rate design model in which the allocation of operating and capital expenditures could be selected based on the two potential input assumptions (based on large versus small cart allocations). The optimal model would consider the black cart size as the only point of variability, with all other service utilization considered equal. The model assumed a range of choice distributions to potentially forecast the optional rate impact of providing a choice.

This modelling makes some assumptions as follows:

- The rate spread needs to be significant enough to motivate behaviour change.
- For those residences that do not register an up-front choice on cart size, a default value of a 240L cart will be assigned. Therefore, notwithstanding public engagement data, a 25/75 percent split would be likely, with a potential spread between \$5 and \$6.
- The possibility of excess waste programming is also contemplated so any rate spreads need to be sensitive to the impacts of this program in light of that option.

By leading the rollout of this new waste set-out program with a standard 240L black cart, offering rate variability depending on the size of the black cart chosen and supplementing with an Excess Waste Program, Waste Services will be well positioned to deliver efficient waste services, increase waste diversion rates, minimize rate impacts and maintain strong customer satisfaction scores from residents.

If Council wishes to advance rate variability with the new programming, the rates would be available as early as 2021.

Strategic Alignment

Waste Services is aligned to the Corporate Business Plan and supports the City in advancing the plan's objectives and strategic goal of Climate Resilience. The proposed set-out will allow Waste Services to contribute to the delivery of excellent services through more efficient and effective waste collection and support the corporation through better processing of that waste. This will help ensure

Edmontonians receive maximum economic and environmental benefits while minimizing the cost of managing solid waste. The City's Environmental Protection and Stewardship programs are also supported by reducing Edmonton's carbon footprint and protecting the natural environment through diversion of waste from landfill.

Budget/Financial

Waste Services requests funding for the residential waste collection program under capital profile 20-81-2041, as set out in Attachment 1 of the August 29, 2019, City Operations report CR_7174. The recommendation will require capital expenditures of \$51.5 million between 2020 and 2022 for the purchase of carts, fleet vehicles and other related expenditures. Over the complete 30 year life-cycle of the program, a total of \$145 million in capital funding is required. In addition to the capital costs, one-time and ongoing operating costs of \$15 million over the next three years are required and are accounted for within existing appropriations.

The cost of add-on services, such as excess waste program, assisted waste collection, additional leaf and yard waste collection, and additional Big Bin Events, have also been included in the business case for Council review and consideration.

Public Engagement

A comprehensive citywide public engagement initiative was launched in October 2018 to support the development of the 25-year Waste Strategy, with a second phase of public engagement in spring 2019. The public engagement was designed to seek input from residents, multi-unit stakeholders, non-residential stakeholders and City employees on proposed waste management program and service changes.

The engagement process covered the set-out options extensively. Full details of both qualitative and quantitative inputs are available in the What We Heard report (CR_5829 Attachment 3) and the detailed survey attachments which are available at edmonton.ca/futureofwaste. Some highlights from the engagement results on program direction included:

- Across all surveys (data equally weighted across 13,564 responses), 68 percent of people prefer a migration to a cart-based system, compared to 23 percent who prefer bags (Phase 1 engagement).
- 62 percent of respondents (data equally weighted) strongly agreed that they "will gladly take the necessary steps to adopt these changes." (Phase 1 engagement)
- 75 percent of respondents (data equally weighted) strongly agreed with the statement that it is "important to keep as much waste out of landfills as possible." (Phase 1 engagement)

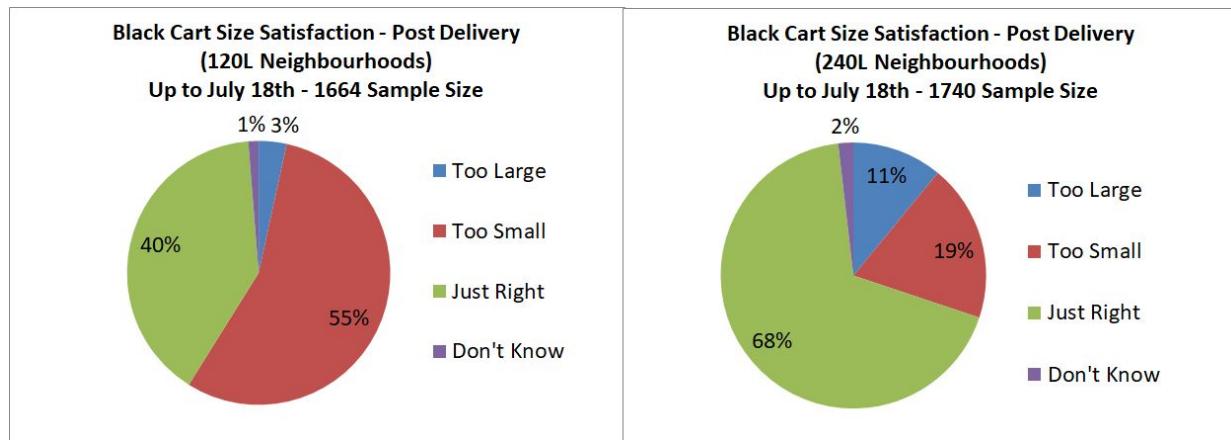
- People are concerned about odours and mess associated with the green carts. The issue has also been prominent in the initial cart rollout to 8,000 homes. In response, the City has adopted guidelines to allow for paper bags and compostable bags certified by the Biodegradable Products Institute for the citywide implementation.
- People want to see more location options for disposing of large items and increased scope of what can be collected. (Phase 1 and Phase 2 engagement)
- In Phase 1 engagement, respondents asked for more than two (one in spring and one in the fall) collections for a grass, leaf and yard waste program, and for the ability to top up their green carts with grass and yard waste. Fifty-two percent of Phase 2 respondents indicated they were satisfied with two spring and two fall seasonal pickups and the top up option.
- Staff expressed enthusiasm and support for the program direction while cautioning that education and enforcement will be necessary for program success.

In addition, the engagement process brought forward requests for some degree of optionality. For example, respondents were asked to choose between a 120 litre and 240 litre black cart. There was no clear preference, even in the initial cart rollout where people are adapting to the system and ongoing preference is stated for access to each cart size. Some residents feel a smaller cart suits their needs in terms of space, maneuverability and the needs of smaller households, while others prefer the larger cart.

In the final Phase 2 survey when respondents were asked about cart size, 48 percent preferred a 240 litre black cart, and 42 percent indicated they would prefer a 120 litre cart (all survey responses equally weighted).

Finally, follow-up canvassing in the initial cart rollout areas continues to show a diversity of views:

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Corporate Outcomes and Performance Management

Corporate Outcome(s): Edmonton is an environmentally sustainable and resilient city.

Outcome(s)	Measure(s)	2018 Result	Target(s)			
			2019	2020	2021	2022
Edmonton is an environmentally sustainable and resilient city.	Single Unit Residential Waste Diversion Rate	36%	41%*	50%	64%	66%

*Due to the closure of the Edmonton Composting Facility, this target is not anticipated to be met.

Risk Assessment

Risk Element	Risk Description	Likelihood (after current mitigations)	Impact (after current mitigations)	Risk Score (with current mitigations)	Current Mitigations	Potential Future Mitigations
Project Management	Difficult to determine how many residents will choose the 120 L black cart vs the 240 L black cart resulting in inventory excess or shortfall	3 - possible	2 - moderate	6 - low	Use Public Engagement results to estimate; Offer only 240L black carts for initial roll out; offer Excess Waste Program to mitigate excess waste needs	Have a contingency plan for both finance and project implementation

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Technology / Equipment	External cure site not in operation in fall 2020 leading to decreased processing of leaf and yard waste collected and increased tonnage of material landfilled	4 - likely	2 - moderate	8 - medium	Find an alternate solution to process the leaf and yard waste volume for fall 2020, when the program rolls out to approximately half of the City	Have a contingency plan in place for future processing capacity options
Technology / Equipment	Addition of grass to ADF will reduce the methane yield and revenue generation from ADF	4 - likely	2 - moderate	8 - medium	Analyze the SSO from the demonstration phase and evaluate methane generation	Include in the new ADF scope that the facility must be able to handle the materials including food waste and yard waste

*For a complete list of risks associated with the business case please refer to page 44 in Attachment 1.

Attachment

1. Single Unit Waste Set-out Business Case

Others Reviewing this Report

- A. Laughlin, Acting Deputy City Manager, Financial and Corporate Services
- C. Owen, Deputy City Manager, Communications and Engagement
- B. Andriachuk, City Solicitor