

## Multi-Unit Strategy

### Recommendation

That Utility Committee recommend to City Council:

1. That the Business Case for Residential Communal Collection as set out in Attachment 1 of the June 25, 2021, City Operations report CO00581, be approved.
2. That the Communal Collection Diversion Rate Calculation Methodology as set out in Attachment 5 of the June 25, 2021, City Operations report CO00581, be approved.

### Executive Summary

Edmonton's 25-year Comprehensive Waste Management Strategy (the Waste Strategy) established a target of 90 percent waste diversion across all sectors. This report and the attached business case addresses the development of a mandatory three stream source separation program for multi-unit residential properties that receive communal collection, a service that will be provided through the use of a variety of shared containers, such as bins and/or carts.

Administration undertook comprehensive research to identify and evaluate potential program elements that are able to meet the City's current and future needs. Over 160 sources from local, regional and national government agencies, along with private sources, were included from within Canada and around the world. The goal was to learn from both successful approaches and mistakes made elsewhere, and develop an understanding of best practices.

Two phases of engagement sought different input from a variety of sector participants. Phase One ran from October 2020 to November 2020 and Phase Two ran in February 2021. The results of both phases of engagement are detailed in the attached What We Heard Reports. Taken together, the two phases of engagement provide a clear picture of how to make the program successful for both residents and managers.

Administration is recommending that the City proceed with a mandatory three stream source separation program for the multi-unit sector. The proposed changes to the communal collection program are critical to the City's ability to achieve the goals and commitments of the Waste Strategy, City Plan, ConnectEdmonton, the Corporate Business Plan and the Revised Community Energy Transition Strategy.

### Report

#### Introduction

The Waste Strategy was approved by City Council in September 2019 and established a target of 90 percent waste diversion across all sectors as well as the implementation of a Source Separated Organics Program for the multi-unit residential sector. In line with the Waste Strategy, Administration is recommending a mandatory three stream source separation program for properties receiving communal collection.

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, 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 the Edmonton Cart Rollout, this report, and the business case it presents (Attachment 1), addresses the development of a mandatory three stream source separation program for residential properties that receive communal collection. Communal collection refers to the service that is provided through the use of shared containers located in an indoor waste room or outdoor location, typically seen in apartments and condos. Containers for communal collection are allocated at a building level rather than on an individual basis.

#### Opportunity

The commitment to achieve 90 percent waste diversion across all sectors provides an opportunity to align the communal collection program with best practices for sustainable waste management. Administration 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 results of this research and engagement informed the attached business case.

A Summary of Research Findings is provided as Attachment 2. This research provided the foundation for both analysis and public engagement.

Currently, properties that receive communal collection can have waste collected in two streams: garbage and recycling. This program has resulted in an approximate nine percent waste diversion 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 Edmonton Composting Facility aeration hall, it is representative of a gap that must be addressed to progress toward the target defined by the Waste Strategy.

Additional waste diversion can be achieved through implementation of best practices in waste set out and collection. The analysis shows that up to 72 percent of the material that is currently collected as garbage is divertable from landfill. Best practice indicates that the best way to access this divertable material is through a mandatory three stream source separation program.

Considerations for more flexible servicing due to space constraints, the anonymity of users, and the impacts of resident turnover must be taken into account when creating a program for properties receiving communal collection. The low diversion rate and high contamination rate at these properties presents an opportunity to design and implement changes to the communal collection program.

### Options Analysis

An options analysis was conducted over three stages. In the first stage, program components were screened on the basis of scalability, alignment with City policies and plans, precedence and alignment with regulations from other orders of government. Options that passed the first stage of screening were subject to a more robust evaluation that considered organizational, financial, operational and environmental impact, and the degree of support from both research and engagement. Once all options were evaluated, the components with the strongest scores were packaged into complete options, which are the alternatives presented in the business case.

The common elements between the four alternatives are:

- **Container types** - All alternatives allow for the use of front load bins for garbage, food scraps and recycling, the use of carts for garbage and food scraps, and the limited application of roll-off compactors for garbage and recycling, and manual collection for recycling. An appropriate level of service for each property can be provided by varying container type, size and collection frequency.
- **Education/support** - Annual marketing and communications campaigns, virtual and in-person outreach, and the provision of in-unit containers for residents and materials for property managers all scored favourably and are represented in the alternatives based on their forecast impact on overall program success.
- **Volume limits** - Using waste composition data from communal collection sites in Edmonton, curbside program data, as well as data from other municipalities, volume allocations per unit were developed for each stream. Similar to the curbside program, these allocations, or volume limits, will be used to set a baseline level of service. Volume limits provide motivation to residents and property managers to participate in the source separated waste program and work towards reducing waste.

- **Enforceable developer standards** - Developer standards set criteria for the design of waste storage areas, the use of chutes, and access criteria for collection vehicles. Developer standards are applied during building design and development phases, and are most effective when they are enforceable, rather than being offered as guidelines.

The differentiating elements between the four alternatives are:

- **Colocation** - Equal access and convenience to all waste streams has shown to increase participation and decrease contamination. Equal access means placing containers for each waste stream close together, or that properties with chutes require a mechanism to allow for the disposal of the other streams near the chute location on every floor. Colocation will require more containers overall. The requirement for colocation was evaluated in the final set of alternatives.
- **Chute closure** - Chutes allow for convenient waste disposal as chute access is located on each floor, but most chutes are for garbage only. Residents who wish to dispose of recyclables (and in the future, food scraps) need to take those waste streams to the appropriate containers, typically located on the main floor, in an underground parkade, or in the parking lot. The location of these containers is a barrier to participation. Closing chutes enhances collector safety, reduces contamination and may increase participation, however, it is expensive and difficult to enforce. Therefore, both mandatory and voluntary chute closures were evaluated in the final set of alternatives.

The four alternatives were evaluated based on:

- **Cost** - Estimates of operating and capital costs were developed and the net present value was calculated for each alternative.
- **Risks** - Risks unique to each alternative were identified and scored based on likelihood and impact.
- **Social impacts and public preference** - Feedback from residents and managers who participated in public engagement was considered independently and scored.
- **Environmental impact** - The increase in the diversion rate that each alternative was expected to achieve was estimated.

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 Waste Strategy.

The recommended alternative will be the most effective if combined with a targeted and extensive education program. The education program must target both property

managers and residents, with content and delivery mechanisms designed specifically for the communal collection sector to support both program adoption and ongoing participation and compliance. In addition to the education program, Administration will continue working on a variable rate program and an excess waste program that aim to maintain equitable service and billing, enhance resident satisfaction, and provide an incentive to reduce waste and sort properly.

### **Strategic Alignment**

The proposed changes to the communal collection program are critical to the City's ability to achieve goals and commitments of the Waste Strategy, and contribute to the goals of The City Plan, ConnectEdmonton, the Corporate Business Plan and the Revised Community Energy Transition Strategy.

Without mandatory three stream separation, it is expected that the communal program diversion rate will plateau and be limited by the efficiency of processing methods, which do not deliver the same environmental benefits as activities like recycling and composting. The collection program change described in the business case will create an equitable program for all residential sectors and support the corporation through better processing of waste.

In addition to satisfying the goals and intent of the Waste Strategy, the proposed program is fully aligned with the directions of the City Plan Outcome 1.4 and Direction 1.41.4. Collection of source separated streams provides an opportunity to maximize using waste as a resource. Furthermore, the business case is based on the growth projected in the multi-unit sector in The City Plan and supports the realization of a low carbon future.

The goals in the Waste Strategy and the use of waste as a resource are also aligned with City Council's Strategic Goal of Climate Resilience set out in ConnectEdmonton, as further expanded on in the Updated Energy Transition Strategy, and with the Environmental Protection aspect of the Corporate Business Plan.

This business case is also strategically aligned with the anticipated introduction of an Extended Producer Responsibility Framework by the Government of Alberta. Administration will continue to monitor the development of the provincial framework, which is expected to be introduced in legislation in late 2021.

Finally, there is a strong alignment between the preferred alternative presented in the business case and a number of related initiatives are currently under development as part of the Waste Strategy such as the implementation of Edmonton's Waste Reduction Roadmap (City Operations report CO00390, presented at the April 30, 2021 Utility Committee meeting), the Edmonton Cart Rollout, Corporate Facilities Transformation, and the introduction of regulations for mandatory source separation in

the Institutional, Commercial and Industrial sector (City Operations Report CO00231 presented at the February 5, 2021 Utility Committee meeting).

**Public Engagement**

Engagement took place over two phases, which sought different input and reflected different roles for engagement participants. Engaged stakeholders included property managers, developers, haulers, processors, condo board members and residents. The Phase One What We Heard Report is included as Attachment 3. The Phase Two What We Heard Report is included as Attachment 4.

The public engagement included and encouraged participation reflective of Edmonton’s diverse population by engaging property managers and relevant associations to promote the engagement opportunities with their membership; using boosted social media posts to target resident participation; and extending personal invitations to managers, developers, haulers and condo board members.

Participation in the engagement is illustrated in the table below.

Phase	Method of Engagement	Number of Participants
One (Oct - Nov 2020)	Engaged Edmonton for property managers, developers, condo board members, haulers and waste processors	767 total visits
	Online workshops	67
	Online focus groups for residents	52
	One-on-one conversations (residents and managers)	11
Two (Feb 2021)	Engaged Edmonton for property managers, developers, condo board members, haulers and processors	271 total visits
	Survey for property managers, developers, condo board members	239
	Survey for residents	2,895

In addition to using the results of engagement for the alternative analysis, the results will also be used to develop the implementation plan and education program to address some specific issues that were raised by participants.

The engagement provides a clear picture of how to make the program successful for both residents and managers. Residents voiced concerns about space, odour, lack of convenience, and the potential for contamination. They noted that while convenient, waste chutes create a temptation to avoid sorting. Residents asked for education material and campaigns, food scraps pails, greater clarity regarding the roles of the City and their property managers, more information on how to sort their waste, and to be informed of their progress and the impact of their efforts.

Managers (including property managers, condo board members, developers, haulers and waste processors) had similar concerns to residents, particularly about space, accessibility and odour. Managers also had concerns about illegal dumping. Managers requested a phased rollout, ample time for preparation, and the City's assistance in ensuring resident awareness and preparation through education.

### **Diversion Rate Impact**

The attached business case forecasts the communal collection program diversion rate as a result of mandating three stream source separation. The diversion rate shown assumes sufficient processing capacity is available to process all the source separated materials, without showing the impact of the Waste Reduction Roadmap and the Refuse Derived Fuel facility. Administration forecasts and monitors incoming waste streams and overall system capacity on an ongoing basis to ensure that the system is operating optimally, in alignment with the objectives of the Waste Strategy.

The diversion impact of refuse derived fuel was not included in the calculations to clearly show the impact of source separation of waste for the communal collection program. As recycling and composting are higher than recovery (including refuse derived fuel) on the internationally accepted solid waste management hierarchy, the City's waste system emphasizes diversion anchored in source separation before relying on recovery solutions.

The recommended program changes are projected to increase the communal program diversion rate from the projected 41 percent (without source separation) by 16 percent to 57 percent. However, assuming the Refuse Derived Fuel Facility is fully operational and running at full processing capacity, the forecasted communal program diversion rate upon program maturity is expected to increase from the projected 76 percent to 84 percent if the recommended alternative is implemented.

Program maturity refers to the time when resident behaviour change has adjusted to the level where contamination rates drop to low levels, volume limits are enforced, and source separation is adhered to. Program maturity for the curbside and communal programs will be reached at different times and will require sustained education, targeted outreach, consistent enforcement, and nurturing of good behaviour for the duration of the Waste Strategy and beyond.

### **Budget/Financial**

Administration requests funding for the residential waste collection program under capital profile 22-81-2054. The recommendation will require capital expenditures of \$10.6 million between 2022 and 2025 for the purchase of containers, fleet vehicles and other related expenditures. Over the complete 24-year life cycle of the program, a total of \$29.2 million in capital funding and \$91 million in operating and maintenance costs are required. These costs are to implement the program changes recommended in the business case. The June 25, 2021 City Operations report CO00650 details the capital funding adjustment.

The inclusion of the communal collection service in the regulated utility allows the City to provide this enhanced service without significant rate impacts. The service can be provided while maintaining low and stable rate increases (i.e. indicative rate forecast of zero percent rate increase in 2022). Although the current waste system can sustain such a program change, the progress and maturation of the program may drive a need to invest in additional processing capacity that is not reflected in this business case. Achieving 90 percent waste diversion for the residential sector will require additional investment or significant reduction in waste generated by residents. The maturity of the program is dependent on the waste sorting behaviour of residents.

The rate impact of a new program will be presented in the 2022 Utility Rate Filing pending a program decision by City Council. Any operating impact is expected to be mitigated or entirely addressed within the utility rate increases previously forecast in the 2021 Utility Rate Filing. A summary of the net staffing impact, reflecting an effort to realign existing resources based on an assessment of the systems impact of an approved program change, would be presented at the same time.

### **Summary of Recommendations**

The recommended alternative has the most support from stakeholders, the highest expected diversion rate and the least risk. These advantages come from pairing mandatory colocation with voluntary chute closure.

The business case also recommends the adoption of enforceable developer standards by referencing them in the Zoning and Waste Services bylaws, which will ensure future building stock does not impede waste diversion. Administration will work with both internal and external stakeholders in developing these standards if the recommendation is approved. Legal implications will be considered in this process. The effectiveness of the developer standards and its role in making the three stream source separation program successful will be realized if the City works with designers, developers and property managers to create mutually beneficial solutions to support a well-designed City as well as a successful source separation program.



Administration will work with internal and external stakeholders to better understand and assess the impact on usable space in new developments and ensure improved responsiveness to the needs and constraints of complex developments, including mixed-use sites, where innovative design approaches and flexibility are required to achieve serviceability and program outcomes while also achieving city building outcomes.

Regular program review, based on waste characterization studies, is recommended to ensure that volume allocations and container types remain appropriate, and to confirm the ongoing effectiveness of the regulatory and enforcement measures. Finally, the business case recommends that City Council advocate for landfill disposal bans for food scraps and recyclable materials to be implemented at a provincial level, in alignment with the work currently being undertaken by the Edmonton Metropolitan Regional Board and its Solid Waste Collaborative.

**Communal Collection Diversion Rate Calculation Methodology**

Administration has developed a Communal Collection Diversion Rate Calculation (Attachment 5) which is based on the previously approved methodology for the curbside program (City Operations report CR\_5824). The curbside methodology is based on the Residential GAP - Manual on Generally Accepted Principles for Calculating Municipal Solid Waste System Flow (2003). Administration will use this calculation to report the communal collection diversion rate beginning in 2022.

**Next Steps**

Should City Council approve the recommendations, Administration will begin working on an update to the Waste Services Bylaw to reflect mandatory separation for communal collection customers in the multi-unit sector, to be presented to Council for approval in the first quarter of 2022. Developer standards will be created to ensure all future developments are able to adequately incorporate the new mandatory three stream separation programs that ensures the ability to achieve the outcomes of the 25-year Waste Strategy. Lastly, a project team will be formed to begin the implementation planning for the new program, beginning in the fourth quarter of 2021 to ensure a successful rollout starting in the second quarter of 2023.

**Corporate Outcomes and Performance Management**

<b>Corporate Outcome(s): Edmonton is an environmentally sustainable and resilient city.</b>			
<b>Outcome(s)</b>	<b>Measure(s)</b>	<b>Result(s)</b>	<b>Target(s)</b>
Edmonton is an environmentally sustainable and resilient city	Waste sectors with source separated organics (SSO) programs in place	0/3 (2020)	Edmonton Cart Rollout: 1/3 (2021) SSO expansion to multi-unit and ICI Sectors: 3/3 (2023 target to commence staged implementation)

	Communal collection program diversion rate	2019 - 14% 2020 - 9%	Program maturity with recommended alternative - 8% above the projected status quo diversion rate for the communal collection program
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**Risk Assessment**

Risks if the recommendation is not approved (i.e. a mandatory three stream source separation program is not approved for implementation).

Risk Element	Risk Description	Likelihood	Impact	Risk Score (with current mitigations)	Current Mitigations	Potential Future Mitigations
Environmental	The diversion rate for the communal program fails to progress toward the targets defined by the Waste Strategy.	4 - likely	3 - major	12 - medium	Leverage existing system processing capacity to maximize the recovery of unsorted waste from the communal sector.	Rely on waste recovery and residuals management practices that are lower on the waste hierarchy (e.g. waste to energy technologies) to divert as much waste as possible from the communal collection program.  Update the diversion rate target established by the Waste Strategy to reflect what is realistically achievable without source separation.  Set clear expectations around program maturity.
Public Perception	Different standards across the residential sector compromise the momentum and public confidence in the Waste Strategy.	5 - almost certain	2 - moderate	10 - medium	Share clear information regarding the proposed path to achieve consistent standards across all sectors.	Explore other options for the communal collection program.

Risks if the recommendation is approved (i.e. a mandatory three stream source separation program is approved for implementation).

Risk Element	Risk Description	Likelihood	Impact	Risk Score (with current mitigations)	Current Mitigations	Potential Future Mitigations
Customers/ Citizens	Properties that have actual or perceived challenges with space for containers criticize and resist approved program changes.	4 - likely	2 - moderate	8 - medium	Work with properties on a case by case basis to determine all possible solutions within the existing space.	Provide different types and sizes of containers to accommodate different scenarios.
Technology/ Equipment	Increased participation in source separation programming results in a requirement for additional processing capacity for organics and recycling.	5 - almost certain	3 - major	15 - high	Monitor incoming waste streams and use existing system capacity to process incoming waste.  Continuously update the models projecting changes to incoming waste streams to assess when additional capacity may be required.	Plan for, fund and secure additional system processing capacity through future business cases, business plans and rate filings, as required.
Project Management	Diversion rate does not increase by the percentages forecast in the business case due to residents not meeting the behavioural expectations.	3 - possible	3 - major	9 - medium	Ensure all program aspects that are required to achieve the high diversion targets are recommended and appropriately funded (enforceable developer standards, education, enforcement, volume limits, etc.).	Review the program regularly and update the related program aspects as required to achieve the projected rates. Ensure sufficient funding is allocated to education and enforcement.

**Attachments**

1. Business Case for Residential Communal Collection - Mandatory Source Separation
2. Summary of Findings - Multi-unit Mandatory Waste Sorting Program
3. What We Heard Report: Multi-unit Mandatory Waste Sorting Program - Phase One
4. What We Heard Report: Multi-unit Mandatory Waste Sorting Program - Phase Two
5. Communal Collection Diversion Rate Calculation Methodology

### **Others Reviewing this Report**

- M. Persson, Deputy City Manager and Chief Financial Officer, Financial and Corporate Services
- C. Owen, Deputy City Manager, Communications and Engagement
- S. McCabe, Deputy City Manager, Urban Planning and Economy
- K. Fallis-Howell, Acting City Solicitor