Organics Program Recommendation

Evaluation Process

After significant research and public consultation, Administration utilized an objective decision making process to compare program options and determine the most appropriate design for an organics program in Saskatoon. Choosing by Advantages (CBA) is a systematic method for evaluating the value proposition and importance of the advantages each alternative provides to an overall program.

Recommended Program

Administration recommends the collection of both food and yard waste year-round in a commingled medium to large green cart provided to all residents. The determination of whether the material is placed in the cart loose or in compostable bags can be made once the organics processing method is selected. Administration anticipates that a seasonal depot option will remain available for large quantities or oversized yard waste. Decisions regarding cart size, materials, rates, service locations and processing will be considered in future reports.

Service Considerations

Key considerations of the recommended service (listed in order of relative value proposition) include the following:

Waste Diversion Potential

As much as 32% of Saskatoon's total landfilled waste is organics (food and yard waste). Additionally, 58% of the material collected in black carts at the curbside in Saskatoon is organic, presenting an excellent diversion opportunity. The commingled food and yard waste option has the highest potential for diversion. Based on similar programs in other municipalities, it is estimated that over 26,000 tonnes of organics could be diverted each year from the landfill.

Resident Experience

Commingled collection of organics (food and yard waste) has been evaluated to be an intuitive method for residents. Loose or bagged organic materials can be placed in one green bin with no additional steps (such as sorting materials into specialized bags for separation by a waste handler at a processing plant). It is anticipated that capture rates for organic materials will be higher with this option due to reduced complexity and ease of use.

Additionally, curbside year-round collection increases convenience compared to self-hauling to a seasonal depot (it is reasonable to expect 80-90% participation in a collection program versus 10-15% utilization of depots). Composting at home remains a

viable option for those choosing to do so and can still be encouraged as a preferred practise.

75% of curbside customers have large yards greater than 40 feet frontage, meaning the larger cart size has the ability to serve the majority of the population. A large commingled cart has few restrictions on the size and quantity of yard waste materials.

A medium to large fully loaded cart may be challenging to some residents (having an implication for accessibility). To mitigate for this, separate smaller carts for food and yard waste were considered but did not provide significant advantage. Other mitigating strategies for ensuring accessibility will be required (as is the case for garbage and recycling).

A large commingled cart accepting loose material may have some cleaning implications for the cart. This may be mitigated through compostable bag options.

Affordability

There are cost implications associated with a new waste program that will affect the overall cost of civic waste services, potentially impacting lower-income residents' ability to pay. However, this option was compared against national benchmarks for organics programs and fell within the range. It is also an improvement compared to the current subscription program, making it more accessible to a broader range of demographics.

This option provides the ability to bill separately for organics, compatible with the waste utility pay as you throw models (PAYT), which provide residents with greater control over their waste costs.

Implementation

This option fits with current waste management resources (i.e. ability to procure what is needed, ability to utilize existing resources, timing considerations, etc.), and can be accommodated without impacting current black and blue cart services. If delivered by the City, there would be a requirement for additional trucks and carts. An optimization exercise will be required to accommodate the addition of the new fleet and collection schedule. Further consideration of the advantages associated with City or contractor-provided services will be discussed in a future report.

This option provides value in terms of ease-of-management from both an operations and public education perspective.

Climate Change Implications

Organic waste generates greenhouse gas (GHG) emissions. A city-wide curbside organics service will contribute positively to climate change mitigation and aligns with the City's Performance Target for greenhouse gas reduction. Composting associated

with the new program will reduce greenhouse gas emissions by 6,000 to 9,000 tonnes of carbon dioxide equivalents by reducing the methane generated by organics when landfilled. By reducing passenger vehicle trips to depots, there will be an additional impact to emissions reduction (which will be calculated at a later date). Due to having the highest potential for diverting organics, this service design has the largest potential for GHG reductions.

Evaluation of Costs in Decision Making

Costs were considered in the evaluation of each option, during evaluation, the focus was on cost differences between the options. However, in order to ensure that the total cost of the recommended option was reasonable, the costs of similar programs in other communities in North American were also looked at to identify a range of acceptable costs. The cost of the recommended option fell within this range.

To further understand the cost comparisons used in the organics decision making model, it is important to understand that $/tonne was considered for processing. The options that achieve higher diversion rates, will have higher tonnes being processed, and therefore, will have higher overall costs than options that achieve lower diversion rates. The organics costs did not include savings in landfill airspace.

The recommendation was within the acceptable range set by other North American communities, even when considering the higher processing costs associated with additional tonnes achieved through the greater diversion.

How Program Responds to Value Statements

The recommended option aligns with the values adopted by the City for making changes to Waste Management.

- Environmental – GHG emissions: Greenhouse gas emissions will be significantly reduced by the introduction of a city-wide program. The design that captures the greatest amount of organic material contributes most positively to climate change mitigation.
- Environmental – Impact on landfill life: By removing 26,000 tonnes of material from the landfill each year, an organics program constitutes a critical step in approaching our waste diversion targets and extending the life of the landfill. The specific impact on landfill life will be reported in future reporting.
- Environmental – Projected impact on groundwater: As organics processing is considered, this will be discussed.
- Environmental – Waste diversion rate and waste generation per capita: The current 2017 waste diversion rate is 22.8%. The waste diversion rate for organics constitutes 11.5% (50% of this number). By increasing organics diversion to 26,000 tonnes, the waste diversion rate is expected to rise to 32.5%.

- Financial – Cost per user and cost per tonne: Detailed financial information will be forthcoming in future reports, once organics processing options have been further evaluated.
- Financial – Capital cost to implement, operating cost to implement: Implementation of a new organics program will have significant up-front costs and resource plans will need to be developed. Capital and replacement costs of assets such as carts, trucks and other equipment, as well as a facility, need to be considered and weighed against other alternatives such as partnerships with commercial industry when making decisions.
- Financial – Susceptibility to inflation and price shocks (market vulnerability): These considerations, along with opportunities for mitigation, will be outlined in future reports where rates are considered.
- Social – Alignment with environmental regulations: Facilities must meet Ministry of Environment standards for regulatory and environmental compliance. As organics processing is considered, this will be discussed.
- Social – Public image/perception: An organics program has a positive public image with the majority of residents in favour of a mandatory organics program, as demonstrated in the results of community surveying (random and statistically representative) and engagement (voluntary).
- Social – Risk to employee and public safety: Increased risk of slips/trips and collisions were evaluated based on adding collection vehicles on the road and deploying carts in the field. The implementation plan will ensure all safety risks are identified and minimized/mitigated.
- Social – Regionalization potential: Further decision making on organics processing options will consider this potential.
- Social – Responsiveness to affordability challenges (ability to pay): This model is a norm among other municipalities, and compatible with pay as you throw options. A separate report will address ability to pay considerations in more detail.
- Social – Time, travel, complexity (measures of convenience): The proposed curbside year-round collection increases convenience, compared to self-hauling to a seasonal depot.

How Program Responds to Themes Identified through Community Engagement

Co-Mingled or Separated

- A large majority of respondents who commented on this topic, prefer a co-mingled approach, largely for reasons of convenience – no need to separate, and ease of a one bin system.
- Of those who preferred a separated approach, the main reasons were due to being a home composter, having a small yard, concern about smell, concern about compost product quality, and desire for additional food/yard pickup on top of existing green bin service. The design of the service can address most (though not all) of these concerns.

Cart Size

- While some respondents directly expressed a preference for the small green cart (because of home composting, minimal waste, size, smaller footprint, and ease of cleaning), more were interested in a larger cart capacity. This was primarily due to the interest in co-mingling food and yard waste, and the high volumes of yard waste generated by residents today (leaves, grass, branches, garden refuse). An evaluation of properties to be served by the new program confirms that 75% of properties are large, generating significant yard waste.
- Several respondents requested the ability to choose variable sized organics carts. This option can be considered in a future phase of the waste utility.

Bags

- While use of yard waste bags was specifically named as a key concern by only a small number of commenters, the prevalence of comments in support of a co-mingled one-cart approach could also indicate an implicit dislike of bagging.
- Through engagement, a scenario where residents would use coloured bags for garbage and organics that are separated at a waste handling facility was presented. While a significant number of respondents liked the convenience of one less cart/collection, more respondents disliked having to use bags. The most cited reasons were difficulty, pre-sorting, rips/tears and mess, and risk of contaminating waste streams.
- The largest volume of other concerns about this scenario were related to being too complicated, being penalized for having yard waste and compost (because charged as Pay as You Throw with garbage), and the use of plastic bags (bad for environment, wasteful).

Overview of Research

Organics programs exist in most cities across Canada. Saskatoon is one of only two cities greater than 150,000 with no mandatory curbside collection program for yard waste, and one of only five without food waste collection. Organics programs in other Canadian cities were presented in the Standing Policy Committee on Environment, Utilities and Corporate Services meeting on August 15, 2017 in the Organics Opportunities report (Attachment 2).

Canadian cities with year-round commingled food waste and yard waste collections include the following:

City	**Province**	**Population**[1]
Vancouver	British Columbia	631,486
Calgary	Alberta	1,239,220
Ottawa	Ontario	934,243
Surrey	British Columbia	517,887
Halifax	Nova Scotia	403,131

Burnaby	British Columbia	232,755
Richmond	British Columbia	198,309
Guelph	Ontario	131,794

1. Source: Statistics Canada 2016. Census Profile 2016 Census.

Options to the Recommendation

1. Mandatory food-waste collection and optional seasonal yard-waste program. Two carts are required, one for each collection program.

Administration is not recommending the following because:

- Waste diversion and capacity for yard waste – only 11% of people subscribe to an optional green cart now, while 75% of Saskatoon households have large yards meaning that a voluntary program is not likely to meet diversion targets.
- This option requires the addition of another cart (one food waste and a second seasonal yard waste) which results in increased costs and operational complexity associated with inventory, deployment, and collections.
- Additional operational complexity is also anticipated due to the seasonality (work flow, route optimization, fleet requirements).

2. Use of colour-coded bags for garbage and organic waste (co-mingled) in current black carts. Bags will then be sorted (i.e. optical sorting technology) at a waste handling facility. An optional seasonal yard waste collection could also be offered.

This option had some benefits over the recommended option as no additional carts or collections would be required. This would result in cost savings, as well as reduce operational complexities associated with cart inventory and deployment, routing changes, and fleet requirements. However, Administration is not recommending the optical sorting option for some of the following reasons:

- From research from municipalities where this technology is used, this approach has lower diversion potential due to collections complexity.
- Some compliance and convenience issues arise with a bagged system, and residences indicated a preference for not having to bag organics. This is especially prevalent with the requirement for bagging yard waste, as the bag capacity is considerably smaller than what is typically expected for yard waste.
- This option has no ability to bill separately for garbage and organics, and is therefore, not as compatible with the waste utility/PAYT.
- With this option, an additional sorting facility will need to be built, having significant cost implications as well as potential implementation delays.
- Garbage and organics must flow through the same optical sorting facility. This results in needing to manage two streams of waste at the same location, creating more complex operating relationships and forcing the City to (at some scale) manage a material recovery facility.