

WASTE & RECYCLING SERVICES





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1. Introduction and Background

On 2018 June 13, Waste & Recycling Services (WRS) presented report UCS2018-0656 “Pay-As-You-Throw Program for Residential Black Cart Collection” to the Standing Policy Committee on Utilities and Corporate Services (SPC on UCS). A Pay-As-You-Throw (PAYT) program that includes three black cart sizes and a tag-a-bag program was recommended.

SPC on UCS directed Administration to return with a financial model for the recommended PAYT program, including an option for tag-a-bag only.

This document details our financial analysis of the following scenarios:

1. Tag-a-bag for excess garbage outside the black cart.
2. Three black cart sizes and tag-a-bag.

2. Financial Objectives

WRS’ financial model objectives, presented in UCS2016-0136 ‘Waste & Recycling Services Financial Model Review Summary’ were taken into consideration in building the financial model and recommending a PAYT approach for Calgary.

Financially and Operationally Sustainable

A sustainable model has reliable and adequate funding for all operating, capital and long-term liability requirements. Stable funding is required to continue to provide a reliable black cart program.

Supports Waste Diversion

A financial model that supports waste diversion is able to adjust to accommodate new programs and changes to existing programs. WRS will continue to develop strategies to increase waste diversion, particularly from the black cart.

Transparent

A transparent model allows for easy communication between WRS, their stakeholders and customers. It creates a shared understanding of the services that WRS provides, their value and how they are funded. A transparent financial model establishes rates and fees that are justifiable, fair, and stable for the end customer. PAYT is considered to be a fair and transparent way to charge for waste.

Equitable

Ensuring the model is equitable, produces rates that have no unintentional cross-customer subsidizations. This supports cost of service principles, such that recipients of a service pay the full cost for that service.

3. Financial Assumptions

The following assumptions were built into the financial model.

3.1 Tag-a-Bag For Excess Garbage Outside the Black Cart

- Approximately four per cent of households will likely set out excess. This estimate is based on average excess being set out by residents and results from capacity audits conducted in 2018.
- There will be a reduction in excess garbage over time as a result of tag-a-bag.
- It is likely that contamination rates in the blue and green carts will increase. Households, in an attempt to recycle more or to avoid having excess, may put items in their blue and green carts that belong in the black cart. Higher contamination in the blue carts will increase processing costs at the Materials Recovery Facility.
- Tag-a-bag will be full cost recovery.
- Tag sales will be through established City of Calgary distribution outlets.
- A one per cent commission will be paid to tag sale outlets (aligned with Calgary Transit).

3.2 Three Black Cart Sizes and Tag-a-Bag

- Estimated distribution of carts to households¹:
 - 20 to 25 percent will likely switch to a smaller cart size.
 - 60 to 70 per cent will likely stay with standard cart size.
 - 10 to 15 per cent will likely switch to a larger cart size.
- Estimated change in tonnage in each program²:
 - Five per cent reduction in black carts.
 - Four per cent increase in blue carts.
 - Three per cent increase in green carts.
- It is estimated that approximately 100,000 standard carts would be returned. These carts would ideally be reused, but many are likely to reach the end of their useful life while deteriorating in storage and will be recycled.
- Changes will need to be made to the current billing system to accommodate the requirements of having different cart sizes.
- Monthly contamination rates will be higher with this option compared to tag-a-bag only. In addition to attempting to recycle more or avoid having excess, households may also choose a cart size that is too small for their needs and seek other ways to dispose of extra garbage.
- Additional resources will be required to manage the program and customer requests for cart exchanges, inquiries and billing management. Changing cart sizes will require the intake and processing of the customer's request and will require changes to their customer billing information to ensure accurate reflection of their cart size.

¹ Results from the August 2018 'Green Cart Wave 2 Survey' indicates that 20 per cent of households would prefer a smaller cart, while 20 per cent of households would prefer a larger cart. This was based on customer preference and did not include cost as a factor. Our estimated distribution is based on an assumption that the pricing incentive will influence the number of households that select a smaller or larger cart.

² According to Skumatz Economic Research Associates, it is estimated that recycling will increase by 5-6%, yard waste diversion will increase by 4-5% and source reduction will be by six per cent. Estimate for Calgary is a bit lower due to current level of maturity of Calgary's black cart program.

- Increased calls to 311 regarding cart changes.
- Education and public communication will be required to ensure the public is well informed on issues, including choosing the right cart size and the impact of contamination.

4. Findings

WRS reviewed several options for PAYT programs, and assessed two options with a detailed financial model: a tag-a-bag program; and a program with three black cart sizes and tag-a-bag. The findings from this analysis are included below.

4.1 Tag-a-Bag for Excess Garbage Outside the Black cart

It is estimated that a tag-a-bag program would cost \$300,000 in the first year and \$200,000 annually in subsequent years. Program costs include printing tags or stickers, establishing a distribution network, commission for retail outlets, and education and communication associated with rolling out the new program.

Based on the expected average annual costs for the program, the recommended price per garbage bag tag would be \$3.00 each.

An external scan of other municipalities' bag tag charges indicates that \$3.00 per tag is in line with what other municipalities charge. Table 1 shows a summary of tag prices in select municipalities.

Municipality	Cost Per Tag	Notes
City of Airdrie	\$3.00	
Town of Cochrane	\$3.00	
City of Toronto	\$5.11	Sold as 5 tags per sheet for \$25.55
City of Vancouver	\$2.00	Sold in strip of 5 for \$10 at City Hall and Community Centres. Sold per tag at Safeway.
Region of Peel	\$1.00	Sold as 5 tags per sheet for \$5
City of Portland	\$5.00	

Table 1: Tag-a-Bag Price for Other Municipalities

Approximately four per cent of households currently set out excess garbage and the cost of this service is being paid for by all households. If a tag-a-bag program is implemented, it is estimated that there will be approximately \$500,000 collection and disposal costs avoided to the Black Cart Program, through excess garbage being paid for through tag sales. If tag-a-bag is introduced, household black cart charges can be reduced by \$0.10 per month.

The tag-a-bag program has some benefits and risks:

Benefits

- Black cart program charge can be reduced by \$0.10 per month.
- More equitable, as costs for excess garbage are fully borne by customers who put out excess.
- Provides an outlet for households that have excess garbage outside their carts.
- May influence customer behaviour towards generating less waste and diverting waste.
- Relatively easy to implement.
- Potentially improves collection efficiencies and safety of collection staff by reducing the amount of excess garbage.
- Self-funded. It does not create any upward pressure on the black cart program charge for future years.
- This program would be compatible with a Radio Frequency Identification (RFID) based PAYT program (see Attachment 2).

Risks

- Increased contamination in blue and green carts, thereby increasing costs of those programs.
- Increased costs for households that generate excess waste.

4.2 Three Black Cart Sizes and Tag-a-Bag

The initial cost of implementing this program is estimated to range between \$11 million and \$13.5 million for operating and capital combined. About \$10 million of this cost is for cart purchase, delivery and retrieval of carts from customers who request a cart switch at roll out.

Offering a choice of additional cart sizes will require the management of Calgary's existing inventory of carts, as it is anticipated that over 100,000 of these carts would be returned. These carts would ideally be re-used, but most of these carts will likely have reached the end of their useful life and will be recycled. This further increases cart management and inventory costs.

Other significant costs associated with this option include:

- Increased penalties and reduced recycling revenue as a result of increased contamination in the blue cart.
- Education and communication costs associated with the rollout.
- 311 related costs resulting from increased calls and requests by customers and billing change requirements.

Funds required in subsequent years to run this program on an annual basis are estimated between \$1.5 million and \$2.5 million. This includes \$200,000 for the tag-a-bag portion of the program. Major cost items that will be incurred after the first year will include ongoing customer requests for cart exchanges, billing changes and costs resulting from increased blue cart contamination as a result of this program.

The following were taken into consideration when estimating charges for this option:

- **Financial sustainment** - Tag-a-bag will be self-funded, while the black cart program charges will cover the costs of the three cart size program. Capital costs will have to be recovered over a timeframe of more than one business cycle to maintain relative rate stability.
- **Balancing fairness with waste diversion** - a price differential will be established between the standard and large cart size to discourage producing excessive amounts of waste, it will be low enough to make the large cart a more affordable option than paying for excess bags outside of carts.
- **Rate Stability**- additional financial burden of implementing this program will not be placed on customers who remain with the standard cart size. Also, the full rollout costs for the program will not be recovered within this business cycle, to avoid a significant increase in customers' monthly bills.
- **Managing the risks associated with right-sizing** – one of the risks associated with offering a smaller cart size at the initial rollout of PAYT is that a lot of customers may move to a smaller cart purely to save cost, which may result in garbage being placed in the blue and green carts. To manage this risk, little financial incentive will be offered for the smaller cart at the start of the program so that customers request a smaller cart only if it suits their needs. While initial cart switches will be offered for free, a fee may be charged for subsequent cart exchanges. Rules for cart exchanges will be developed as part of implementation, if WRS receives direction to implement a three cart size program.
- **Program cost components** - about 75 per cent of black cart costs are fixed. These costs will be incurred regardless of cart size or amount of garbage the customer sets out for collection. The remaining 25 per cent of costs are variable. The variable costs are directly linked to the amount of garbage collected and landfilled. Pricing adjustments can only be made within the variable portion.

Charges for 2020 are estimated in Table 2 for a three black cart size and tag-a-bag program.

Small	Standard	Large	Tag-a-Bag
\$6.00 - \$6.85	\$6.85*	\$10.00 - \$13.00	\$3.00 per bag

Table 2: 2020 Estimated Monthly Household Charges for Three Cart Size and Tag-a-Bag

**The current Council approved charge for Black Cart Program in 2020 is \$6.95. If tag-a-bag is introduced, monthly household black cart charges can be reduced from \$6.95 to \$6.85.*

The three black cart sizes and tag-a-bag scenario has some benefits and risks.

Benefits

- Provides the most flexibility to households, as they are able to select a cart size that suits their needs.
- Customers who generate excess on a periodic basis still have an outlet for excess waste.

- Over time, pricing may be used as an incentive to encourage customers to generate less waste and also divert more.
- More equitable, as customers who generate less waste pay less, while those who generate more waste pay more.
- More affordable than tag-a-bag for households that generate more waste.
- Potentially improves collection efficiencies and safety of collection staff if customers with excess waste can place it in a larger bin instead of tag-a-bag.

Risks

- Challenges associated with right-sizing, as customers may select a cart that is either too small or too big for their needs. This may result in cart switches, which could be costly both for The City and the customer.
- Increased contamination in blue and green carts, thereby increasing costs of those programs.
- The capital cost to purchase additional cart sizes is a significant portion of this program's costs and makes this an expensive option for Calgary, as a standard, automated cart collection system already exists. These high capital costs may result in upward pressure on rates to recover the capital costs.
- Potential issues from frequent changes to customer billing, due to cart exchange requests.

5. Recommendation

The recommendation is to implement a tag-a-bag program to manage excess garbage outside of carts. Use of a tag-a-bag program limits overall program costs and complexity for customers and:

- Allows for a reduction on the monthly Black Cart Program charge for households.
- Improves fairness, as customers who produce excess waste pay to manage that waste.
- May improve collection efficiency.
- May influence customers to reduce and divert waste.