

## **Plan for Piloting Variable Set-Out for the Black Cart Program**

### **EXECUTIVE SUMMARY**

This report presents a plan for piloting the use of Radio Frequency Identification (RFID) technology for a pay-as-you-throw (PAYT) program for residential waste collection customers. PAYT is a solid waste management approach that charges customers based on the amount of garbage they produce. Variable set-out is a type of PAYT program that charges customers based on how often their cart is set out for collection.

Having a portion of a customer's bill reflect how often their cart is set out for collection is common in Europe and is primarily based on RFID technology. While this practice is rare in North America, municipalities like Calgary are beginning to evaluate variable set-out for PAYT. Variable set-out would continue to progress Calgary residential waste services towards a user-pay system, improve fairness, and incentivize customers to divert and reduce waste.

Cart capacity audits conducted by Waste & Recycling Services (WRS) in 2018 and 2019 found that approximately 40 per cent of black carts checked appeared to be, at most, half-full on collection day. This indicates that there is an opportunity for these households to reduce a portion of their garbage costs if they reduce how often they put their carts out for collection.

Variable set-out requires updated technology in WRS' collection fleet, building a system to capture data during collection, and updating the billing system with ENMAX. WRS is currently evaluating new technology for the collection fleet to improve collection efficiency and customer service. The new technology for WRS' collection fleet, anticipated to be in place by mid-2021, presents an opportunity to pilot variable set-out starting in 2021.

To prepare for the pilot, WRS will use a combination of surveys and in-person customer interactions to understand customer behaviour and motivations for setting out carts on collection day. This will allow WRS to evaluate potential cost savings from this program, and inform details of the proposed variable set-out pilot to make it work best for Calgarians.

Exploring and evaluating customer behaviour in 2020 to inform future pilot design will cost approximately \$140,000 and will be funded by the existing operating budget. The customer database and billing system, which will be required for variable set-out, is estimated to cost \$800,000 to \$1.1million. Other costs related to the pilot will depend on the length and scale of the pilot. A report to Council in Q2 2021 will provide additional details for the variable set-out pilot, including feedback from customers, proposed pilot communities, rates that will be piloted, a detailed cost estimate, and a plan for funding the pilot.

## Variable Set-Out Pilot Plan

### ADMINISTRATION RECOMMENDATIONS:

That the Standing Policy Committee on Utilities and Corporate Services recommend that Council direct Administration to:

1. Explore customer behaviour in 2020 to develop a detailed plan for piloting variable set-out; and
2. Report back to the SPC on UCS no later than Q2 2021 with results from the review of customer behaviour and a detailed pilot plan including proposed pilot communities, rates that will be piloted, a detailed cost estimate, and a plan for funding the pilot.

### PREVIOUS COUNCIL DIRECTION / POLICY

On 2019 April 08, Council approved the recommendations in the Financial Model: Pay-As-You-Throw for the Residential Black Cart Program report (UCS2019-0364). The report recommended introducing a tag-a-bag program for residential garbage collected outside of the black cart starting no later than Q2 2020 and developing a plan for piloting RFID technology for PAYT and reporting back to SPC on UCS no later than Q4 2019.

### BACKGROUND

WRS has explored several options for introducing pay-as-you-throw (PAYT) to the residential black cart program. PAYT programs are a form of user-pay system that improve fairness and incentivize customers to divert and reduce waste. Variable set-out PAYT programs bill customers based on how often they put their cart out for collection.

Variable set-out programs are common in Europe and are starting to emerge in North America. Billing based on cart set-out is primarily managed through the use of RFID technology. With this technology, each cart is fitted with an RFID chip linked to an address and a customer, and the chip information is read by a reader on the truck when the cart is emptied. Customers are billed using information collected through the reader.

WRS' black carts already have RFID chips, but for this system to work, the following also need to be in place:

- A system that captures data during collection.
- A database that stores collection data and links it to billing addresses.
- A billing system that facilitates customer billing based on collection data.

A system to capture collection data using RFID readers on trucks is part of a current project to equip collection vehicles with technology to improve collection efficiency and customer support. This technology is anticipated to be in place by mid-2021. The database and billing system are required specifically to implement variable set-out and would be developed as part of the pilot project.

Cart capacity audits conducted by WRS in 2018 and 2019 found that while there are households that continue to set out full carts and excess waste, approximately 40 per cent of black carts checked were, at most, half full on collection day. This indicates that there is an opportunity for

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these households to reduce a portion of their garbage costs if they reduce how often they put their carts out for collection. Fixed costs such as truck leases and customer support costs will still be built into the monthly rates. However, reducing the number of times the carts are set out will result in lower variable costs and allow customers to save on how much they pay for garbage.

### **INVESTIGATION: ALTERNATIVES AND ANALYSIS**

The proposed plan to pilot the use of RFID for PAYT is designed to:

- Build on lessons learned from other municipalities.
- Align with technologies WRS has in place and plans for new technology in the collection trucks.
- Gather additional information on customer behaviour before investing more widely in the pilot program.

**Understanding and Evaluating Customer Behaviour:** This will involve customer surveys and in-person customer interactions to gain insight into current customer set-out behaviours, preferences and views on variable set-out. This will allow WRS to design a pilot for customers, estimate how much behaviour change may be achieved through a pilot, and provide a mechanism for customer feedback in pilot communities. Exploring and evaluating customer behaviour in 2020 to inform future pilot design will cost approximately \$140,000 and will be funded by the existing operating budget.

**Variable Set-Out Pilot:** This will include building the systems required to collect customer specific data for billing and testing it in pilot communities. Customer bills will reflect how often their cart is collected. WRS will monitor the impact of variable set-out on factors such as:

- customer experience
- waste diversion and reduction
- efficiency and safety
- cost of service and potential savings

The pilot will be timed to align with the upgraded collection fleet technology project currently underway in WRS and will start as early as Q3 2021. The systems required for collecting customer specific data and billing will cost an estimated \$800,000 to \$1.1million. Detailed pilot costs will depend on the length and scale of the pilot. A report to Council in Q2 2021 will include a detailed cost estimate and a plan for funding the pilot. Potential savings will also be estimated once initial information has been gathered on customer behaviour in 2020.

### **Stakeholder Research, Engagement and Communication**

WRS will conduct surveys and hold in-person interactions with residential households that receive cart-based services to understand:

- current cart set-out behaviours
- thoughts about variable set-out
- factors that may influence set-out behaviour

Results from these activities will inform details of the proposed pilot program.

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### Strategic Alignment

Implementing a variable set-out program can provide customers with a financial incentive to divert waste and reduce how often carts are set out for collection. This is accomplished by aligning the charges residents pay with the amount of waste they put out for collection. This contributes to a Healthy and Green City and a Well-Run City.

### Social, Environmental, Economic (External)

#### *Social*

A variable set-out program may be viewed as a fairer system, as residents are only paying for the garbage they set-out. It would require a behaviour change by residents to only set-out their carts when they need to.

#### *Environmental*

Variable set-out encourages customers to divert and reduce waste. Diverting waste reduces greenhouse gas emissions, redirects natural resources back into the economy, reduces environmental liability, and increases the life of landfills.

#### *Economic (External)*

A variable set-out program would improve the transparency and fairness of the residential cart programs by aligning the charges a resident pays with how often they put their cart out for collection.

### Financial Capacity

#### **Current and Future Operating Budget:**

Exploring and evaluating customer behaviour in 2020 to inform future pilot design will cost approximately \$140,000. This will be accommodated within WRS' current operating budget. The pilot beginning in 2021 will have additional operating costs, and the report in 2021 will provide a plan for funding the pilot.

#### **Current and Future Capital Budget:**

There are no capital costs for the customer understanding work in 2020. The pilot beginning in 2021 will have capital costs, and the report in 2021 will provide a plan for funding the pilot.

### Risk Assessment

Risks associated with approving this recommendation include:

- The pre-pilot work may lead to a recommendation not to proceed with the full pilot, and Administration will have allocated staff time to this exploration.

Risks associated with not approving this recommendation include:

- Potential efficiencies as a result of a variable set-out program will not be realized.
- The black cart billing system may continue to be perceived as unfair by customers who generate less waste, but pay the same as customers who generate more.

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### **REASONS FOR RECOMMENDATIONS:**

A variable set-out pilot is proposed to explore whether this type of pay-as-you-throw program is beneficial for Calgary. If successful, variable set-out will enable customers who generate less waste to pay less on their monthly bills.

### **ATTACHMENTS**

1. Attach 1 - Variable Set-Out Pilot Plan
2. Attach 2 - Presentation