



# Standing Committee Report Committee of the Whole

**To:** Committee of the Whole  
**From:** Associate Director of Engineering Services  
**Date:** April 11, 2024

**Subject:** Recycling Contamination Reduction - Pilot Results

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**Objective:** To provide the Board with results from the A.I. curbside monitoring program pilot.

## **Discussion:**

The Regional District of Central Okanagan and its member municipalities have been participating in Recycle BC's province-wide residential Printed Paper and Packaging (PPP) recycling program since May 2014. As a collector of PPP, the RDCO and member municipalities must adhere to contamination levels (less than 3%) outlined in standardized agreements with Recycle BC. As recycling markets have been tightening over the years, Recycle BC has been requiring collectors who are over contamination targets to develop Contamination Remediation Plans. The RDCO has developed these formal plans, which include specific targets as set by Recycle BC, for the past three years. In 2022 the region faced \$55,000 in penalties for having audits over targets set out in Contamination Remediation Plans. So far in 2024, \$10,000 in penalties have been issued for two audits in February over the contamination target.

Although Recycle BC will be taking over curbside recycling in the region in 2026 and provide direct recycling service to residents in the Central Okanagan, the RDCO and member municipalities are still obligated to continue to reduce contamination until Direct Service comes into effect. In October 2023, the RDCO began a pilot program that automates identification of contamination in recycling carts using smart cameras and artificial intelligence. A postcard with education information would then be generated and mailed directly to the resident. The pilot was completed March 29, 2024.

The results of the pilot program showed a 23% reduction in the number of contaminants going into curbside carts. Additionally, the program showed that almost half of all residents did not require any education as they were already recycling correctly on a continuous basis. Over a third of residents changed behaviour after just one post card and 6.7% of households that are considered 'repeat offenders' are responsible for a third of the contamination across the Central Okanagan.

## **Background:**

The RDCO and its member municipalities have agreements with Recycle BC to collect curbside residential paper and packaging on their behalf until May 2026 when Recycle BC will provide direct service to Central Okanagan Residents. As part of the current agreements, RDCO and member municipalities are required to ensure contamination (things that are not accepted in the program) remain at 3% or less in curbside recycling carts to avoid financial penalties. In 2022 our member municipalities faced financial penalties totally \$55,000.

Current contamination rates of unacceptable material in the regions recycling carts range from 4.85% to 9.51%; and Recycle BC continues to require annual Contamination Remediation Plans. Contamination Remediation Plans include education and outreach, monitoring, tracking and enforcement. Monitoring curbside waste and recycling carts has historically been undertaken within the region using truck mounted cameras, cart radio frequency identification tags (RFID), and driver-initiated logs. Additionally, Waste Ambassadors physically checked curbside carts and provide education as required.

In November 2023, the Waste Reduction Office, in partnership with member municipalities, Prairie Robotics, Recycle BC and Environmental 360 Solutions, began a pilot program to automate monitoring recycling carts using smart technology. Prairie Robotics computer hardware and smart cameras were installed on four recycling collection trucks. As a recycling cart is tipped the camera reviews contents and identifies material that does not belong such as bagged recycling, garbage bags, flexible plastics, Styrofoam, or yard waste. Once material is identified, a photo is taken, and the contaminants are highlighted, and all other material is blurred out. The photo is then added to a postcard and using the trucks GPS system adds the address for mailing. During the pilot, postcards are reviewed by RDCO staff to ensure information is clear and accurate before mailing. Phase 1 of the pilot gathered baseline data for 4 weeks. Phase 2, the education phase where post cards were sent, ran from Nov 27- Feb 29 and then phase 3 ran until March 29 where contamination levels were remeasured.

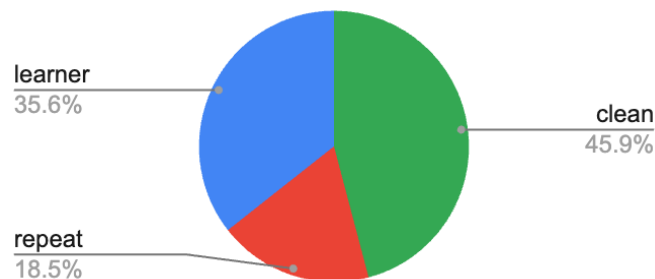
Two post card templates were used for the pilot to test effectiveness of two different types of education messaging. One template instructs the resident on what should stay out of the cart (keep out message), the other instructs the resident on what can go into recycling carts (keep in message). The pilot not only measures whether there is a drop in contamination, but also which type of messaging works best to achieve that goal.

### Overall Result

There was an 23% reduction in contamination within curbside recycling carts during the pilot program.

- 45.9% of residents did not have contaminants in their carts and did not require further education during the pilot.
- 35.6% were considered learners where they received a post card and then changed their behaviour in subsequent collections.
- 18.5% of residents in the pilot were considered repeat offenders and have not changed their behaviour after receiving 2 or more post cards during the education phase.

Graph 1: Household Breakdown during education phase



Of important note in the pilot finding is that 6.7% of the households accounted for 32.6% of recycling contamination.

The top 3 items found that don't belong in curbside recycling carts are flexible plastics (which belong at a depot), garbage and Styrofoam (depot only item). Both the 'Keep In' and the 'Keep Out' messaging were similarly effective in changing behaviour.

**Next Steps:**

- The pilot provides detailed information on which areas and specific residences are contributing to recycling contamination. Using the data provided by the pilot the RDCO Waste Ambassadors will target high contamination areas with physical cart checking and face-to-face education.
- All efforts to reduce recycling contamination will lead with education, and if required, the RDCO will work with local bylaw officers to enforce waste management bylaws.
- Staff will continue to assess this system or similar systems as another tool for reducing overall contamination in the region.

**Recommendation(s):**

**THAT** the Committee of the Whole receives the Recycling Contamination Reduction Pilot Report from the Associate Director of Engineering Services, dated April 11, 2024 for information.

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*Respectfully submitted by: Cynthia Coates, Supervisor, Solid Waste Services*

Report Approved by:

Approved for Agenda:

Travis Kendel, Associate Director of Engineering Services    Sally Ginter, Chief Administrative Officer

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Attachment(s):    1. PowerPoint Presentation

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