

## **Considerations on Illegal Dumping and Contamination**

### **Illegal Dumping**

Illegal dumping is defined as discarding of waste in an improper or illegal manner at a location where it does not belong rather than disposing of waste through the proper channels.

Concern over illegal dumping is often cited as the major barrier to acceptance of Pay As You Throw (PAYT) programs. Many communities charging a variable rate for garbage services point out, however, that they have not observed significant increases in these activities. A 2010 study by SERA showed that surveys before and after the introduction of a PAYT program did not show an increase in reported illegal dumping following implementation of a program<sup>1</sup>.

Research shows that ensuring adequate cart capacity will play a central role in the design of a PAYT program. The incentive structure for waste diversion must be balanced with providing a reasonable service level cost.

Offering a bulky item collection program has also been shown to reduce illegal dumping. The Administration will be reporting in 2019 on options and costs for a bulky item collection program.

### **Contamination**

Contamination occurs when the wrong material is placed in the wrong waste stream. In curbside collections, this occurs when a resident puts materials in the wrong cart. While contamination may be done intentionally due to lack of space or other reasons, it is often caused by a lack of knowledge of what is acceptable due to a lack of education.

Research from several municipalities showed that the introduction of PAYT increased the incidence of contamination in recycling and organics programs. However, there are several other factors that may also lead to the observed increase in contamination:

- Automation (i.e. switching from manually collected bags/boxes to automatically collected carts) has led to higher contamination for those municipalities that previously offered clear bags or smaller boxes for recycling<sup>2</sup>.
- The introduction of single-stream recycling has improved participation rates in recycling but has also increased contamination. Recent increases in contamination rates have been noted from programs across North America. This may be due to the fact that education and resident engagement levels are highest at the launch of a program but usually subside over time.
- “Wish-cycling” occurs when residents know that certain materials do not belong in the landfill and instead place them in recycling or compost in the hopes that it

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<sup>1</sup> [http://www.paytnow.org/PAYT\\_FactSheet\\_IllegalDumping.pdf](http://www.paytnow.org/PAYT_FactSheet_IllegalDumping.pdf)

<sup>2</sup> Lakhan, Dr. Calvin. “Thinking “Beyond the Box” – an examination of collection mediums for printed paper and packaging waste”. University of York (2018)

is better than sending it to the landfill; this behaviour is common in Saskatoon's recycling programs where items that are recyclable through other programs but not through the curbside recycling program, such as batteries, electronics, and pressurized containers, are discovered in the blue bins.

Controlling contamination has become more important as recycling markets are demanding a higher quality of material with recent global changes led by the Chinese government's efforts to clamp down on the quality of recovered material imports into the country (the National Sword program). Contamination rates higher than 5% make it very difficult to make a marketable product that meets acceptable market demand.

Contamination also affects organics programs as compost must meet quality standards in order to be marketable. Plastic is often cited as the main source of contamination going in to green carts. In general, dealing with contamination in the organics material stream during processing is much more difficult than in recycling as there is less opportunity to remove during sorting. Screening of material can remove large items but is not effective at removing smaller items, such as small pieces of plastic.

Contamination is costly in both streams but recycling Material Recovery Facilities (MRFs) remove more contamination during line-sorting; new technologies also continue to contribute to the cleaning up of recyclables. Recyclable materials are also dry and easier to process through sorting. The move to a city-wide organics program will likely result in a higher contamination rate than is experienced in a voluntary subscription program.

### Education and Enforcement

For the majority of cities and towns across North America, education and enforcement are effective ways to prevent contamination and illegal dumping. As illegal dumping and contamination are existing concerns for Saskatoon, implementation of a PAYT program and a city-wide organics program provides an opportunity for improving education and enforcement strategies to reduce contamination. Regardless of whether or not the introduction of PAYT causes an increase in contamination or illegal dumping, education and enforcement will play a critical role in the success of the PAYT and curbside organics programs.

### Community Based Social Marketing

Community-based Social Marketing (CBSM) is an approach that emphasizes direct personal contact among community members in order to foster positive behavioural change among the group. CBSM identifies the need for a behavioural change, addresses the roadblocks that lead to the behaviour, develops a pilot program to overcome these roadblocks, and evaluates the effectiveness of the strategy thereafter (McKenzie-Mohr, 2011). CBSM campaigns often cost more per interaction but, compared to other marketing strategies, result in higher impact interaction that foster sustainable behaviour change.

The City of Saskatoon and Loraas Recycle implemented a tagging program in 2015. It uses CBSM as a way to educate curbside residents on what is acceptable in their bin with a goal of reducing contamination. The program provides direct feedback to

residents using visual inspections of blue bins during collection days in specific neighbourhoods. Each blue bin either received an orange tag or a green tag based on whether or not items in the bin were accepted program materials. Orange tags were given to contaminated bins and received case-specific hand-written messages to address the contaminants observed. Green tags were given to non-contaminated bins to encourage proper recycling behaviour. In 2017, the program targeted 5 neighbourhoods and showed a combined improvement of 8% in terms of the contamination rate.

A similar approach can be used for a city-wide curbside organics program to inspect the contents of green carts and notify residents of acceptable and non-acceptable materials.

#### Cart Placement Education (Neighbourhood Blitz) Program

City Environmental Protection Officers (EPOs) have been conducting the cart placement education program in neighbourhoods with back lane collection since 2014. This program was designed to help educate residents on their responsibilities specific to waste and recycling cart placement under the Waste Bylaw. The program uses an education first approach that includes back lane inspections, followed by education and warning letters to residents who have left their carts out after collection day. If subsequent inspections show that the carts have still not been returned to private property, fines are then issued for those in non-compliance. There are numerous benefits with returning carts to private property such as decreased potential for theft, scavenging, mis-use, contamination, and congestion in the back lanes. In general, compliance is largely achieved through the cart placement education program however the number of locations that can be inspected in any given year is limited due to existing EPO workload.

A city-wide organics and PAYT program could benefit from increased EPO resources to provide education and enforcement. For example, the City of Toronto has a Field Inspection Team of six inspectors dedicated to ensuring the correct carts are assigned to the correct household. With a PAYT program it is important to ensure that the resident cart size aligns with what they are billed for. Having employees that are in the field and working closely with customer service staff has been a critical part of delivering a reliable service to residents.

#### Other Approaches

Other current and potential future approaches to addressing illegal dumping and mis-use of carts include but are not limited to the following:

- Increasing signage, cameras and/or fines to deter illegal dumping.
- Offering robust education and reporting tools for the public.
- Conducting proactive inspections at locations subject to illegal dumping.
- Increasing cart audits and inspections.
- Offering a bulky items collection program.

The Administration will be undertaking an internal service level review for addressing illegal dumping concerns and will report back to Council in 2019. In addition, the Administration will continue to explore new options to address illegal dumping concerns and will include additional information in a detailed implementation plan for an organics program and/or PAYT waste utility program in 2019.