CONTINUOUS IMPROVEMENT FUND

Project Synopsis

CIF Project #944 - City of Toronto, Waste Composition Studies Trend Analysis

Background

The City of Toronto has been actively involved in recycling of PPP virtually since the inception of PPP recycling in the mid-1980s. Even before the current Blue Box Program Plan existed, the city had done waste audits to explore the components of the waste stream and these waste audits became the basis of the Stewardship Ontario waste audit process used, with only minor changes, until 2017. Changes in the incoming material stream and a new appreciation of the cost impact of lightweight plastics and laminated paper products on the collection and processing costs have led to some fine tuning of the audit philosophy, particularly in the last five years.

The original concept behind waste auditing was a "let's see what we've got" approach, resulting, in many instances, in waste stream samplings that did not retrospectively provide us with sufficient confidence in their statistical validity as estimators of long term evolving city-wide waste production patterns. This is frequently the case with well-intentioned monitoring plans of evolving systems. As a result, in 2017, investigators experience difficulty getting precisely the results that they require.

Summary of Results

Starting with this understanding of the collected data, City of Toronto staff asked the consultants to attempt to bring some order to the varied and, at times somewhat chaotic, sampling reports done over the years by numerous individuals at various disparate locations, often without sufficient regard to seasonality. To improve the analysis, the process also considered two other provincial datasets: the recovery and generation information reported by Stewardship Ontario as part of their steward fee setting model; and the datasets maintained by WDO (now RPRA).

Considered as a whole, and despite these challenges, the data did reveal some statistically defensible trends. Most evident was a clear picture of steadily increasing percentages of lightweight materials in the waste stream. Given the relative expense of managing that particular waste stream, these lightweight materials have been a significant driver increasing costs over the past 15 years.

In addition to cost pressures resulting from lightweight material increases, the consultants also found that Toronto, on a per capita basis, generated significantly less aluminum and newsprint and more light weight material. The loss of aluminum, a moneymaking material, decreased revenues; the loss of newsprint, a cheaply managed material, increased the overall

net cost of recycling as did the presence of increased amounts of expensive to manage light weight material. As a result, Toronto's prices have escalated at higher rates than similar municipalities. This can be seen in the figure below.

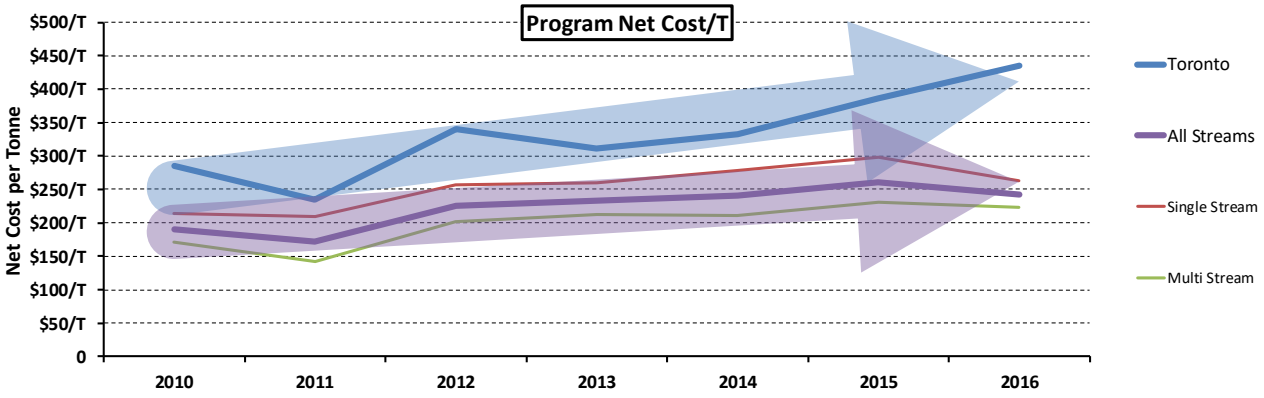

Figure 1: Net Cost per Tonne for Toronto and Similar Programs

Additional Work

In addition to the production of the analytical report, the project team developed a series of EXCEL workbooks that presented existing audit information in a standardized format. The workbooks used a matrix approach, sorting and categorizing audit information from various sources and presenting it in a tabular format similar to the standard Stewardship Ontario categories used in their annual steward fee report.

Learnings

The project team recommended redesigning audit programs to optimize their long term usefulness. Such a redesign would involve consulting with statistical professionals to ensure that collected data could be more readily analyzed in a meaningful way by standardizing sampling areas, procedures and reporting of data as much as possible. Additional information and records, including changing container densities, counts of containers processed and special marketing initiatives unique to Toronto and the GTA would have improved the commentary on the nature and causes of program cost and efficacy.