



Stewardship Ontario

Activity Based Cost Allocation Study

A key principle of the fee setting process is that fees paid by stewards should fairly reflect the costs of managing the materials. Since the establishment of the Blue Box program in 2004, activity-based cost allocation studies have been considered to be an objective method to identify the cost centres and drivers within the municipal recycling system and to allocate such costs to individual materials.

Activity-based cost allocation studies are used to determine the costs incurred to collect, sort and bale each product for sale to re-processors based on activities performed and the resources used throughout the entire process. This is more precise than simply allocating the cost based on weight or volume metrics.

Activity-based cost studies are based on field measurements in municipal recycling programs. Past studies were conducted in 2004 and 2008. The approved cost of the municipal recycling system each year has been allocated to each material based on the resulting data. In 2012, Stewardship Ontario initiated a new activity-based cost allocation study in conjunction with the Continuous Improvement Fund (CIF) to determine the current material management costs of each Blue Box material category for the purpose of fee-setting for 2013.

Methodology

The methodology for the activity-based cost allocation study has been developed over many years with stakeholders including municipalities, material and packaging suppliers and stewards. The methodology was reviewed by a third party, KPMG, in 2007 in conjunction with EEQ and MMSM.

Principles have been defined for allocating the capital, labour and operating cost of collection (11 principles), transfer and processing operations (54 principles), based on direct expenses for a material or drivers such as time expended on each activity, building space allocated to each activity, and the relative volume and weight of materials on which each activity is performed.

Field studies are undertaken in representative programs according to program size, collection and sorting technology and materials handled. Field observations are combined with data provided from the WDO Datacall to generate an estimated cost per tonne to manage each Blue Box material. Stewardship Ontario has engaged third parties to undertake the field measurements and initial analysis, according to specifications provided by Stewardship Ontario. Stewardship Ontario supervises and reviews the analysis.

The material-specific costs are then combined with previous material-specific cost data and used within the pay-in model (PIM) to calculate fees.

2012 Activity Based Cost Allocation Study

In the summer of 2012, Stewardship Ontario engaged a team of waste management experts to conduct this study at six different municipalities across the province with the purpose of updating the material management costs from the past study.

Cost allocation studies are typically conducted every three or four years. Municipalities selected in 2012 were similar, where possible, in their size, make-up and tonnage collected to municipalities that participated in previous studies, providing for accurate tracking over time.

The chart below outlines the municipalities that participated in the 2012 and 2008 ABC studies:

Audited Municipalities (2008 and 2012 ABC studies)

| Current ABCs' (2012) | | | Past ABCs' (2008) | | |
|-----------------------------------|------------------|---------------------|-----------------------------------|------------------|---------------------|
| Municipality | Tonnes | % Part of All Munis | Municipality | Tonnes | % Part of All Munis |
| TOTAL (ALL Munis) | 904,850.3 | 100.0% | TOTAL (ALL Munis) | 929,528.6 | 100.0% |
| BLUEWATER RECYCLING ASSOCIATION | 12,199.5 | 1.3% | HALDIMAND, COUNTY OF | 2,942.4 | 0.3% |
| HAMILTON, CITY OF | 39,840.7 | 4.4% | HAMILTON, CITY OF | 40,831.8 | 4.4% |
| LONDON, CITY OF | 26,247.0 | 2.9% | PEEL, REGIONAL MUNICIPALITY OF | 93,801.3 | 10.1% |
| NIAGARA, REGIONAL MUNICIPALITY OF | 40,429.3 | 4.5% | NORFOLK, COUNTY OF | 3,904.9 | 0.4% |
| NORTHUMBERLAND, COUNTY OF | 5,719.2 | 0.6% | NIAGARA, REGIONAL MUNICIPALITY OF | 38,106.4 | 4.1% |
| YORK, REGIONAL MUNICIPALITY OF | 76,073.0 | 8.4% | QUINTE WASTE SOLUTIONS | 11,288.7 | 1.2% |
| SUBTOTAL (Audited Munis) | 200,508.7 | 22.2% | SUBTOTAL (Audited Munis) | 190,875.4 | 20.5% |

Cost drivers

In general, the amount of resources and activities required to collect, transfer, sort and process a material from its origin at curbside to the final material bale will determine the costs allocated to it. As defined by the cost allocation principles, some of the specific drivers include:

- the weight and volume (density (m³)) of the material
- the amount of labour it consumed
- the amount of time it consumed for all activities
- the amount of floor space and capital equipment it used
- the number of compartments in the truck and/ or the area (equipment, bunker, etc.) it occupied
- the number of loads of material moved
- the number of bales produced

Key Findings

Some general changes were noted overall in terms of cost trends:

- Increase in overall cost as reported in WDO Datacall
- Increased quantities recovered in general as recycling matures
- Increase in quantities of lighter, harder to handle materials generated due to new product formats and targeted by recycling programs
- Decrease in some materials, e.g. newspapers, directories, glass, etc.
- Shift to single-stream MRFs
- Sorting by recycling operators according to fluctuating commodity markets to maximize revenue

Cost trends

The results show that the most expensive materials to collect and process included polystyrene, plastic film, polycoat containers, and 'other plastics', e.g., plastic tubs, pouches, tubes, trays etc.

These materials represent less than ten per cent of the total tonnes collected in the Blue Box, although the allocated costs for these specific materials represent one third of total Blue Box operating costs. This is predominantly because the need for sorting labour is significant for these categories to achieve the best revenue. In addition, polystyrene, plastic film, and other plastics occupy significant amounts of space in the collection trucks when compared to their actual tonnes collected given their light-weight and low density characteristics.

The lowest cost materials to manage included glass, newsprint, and OONP #8, which together with mixed fibres and cardboard represent over 70 per cent of the total tonnes.

These materials are dense and heavy so are easily transported in bulk volumes. They are also established recycling stalwarts, with solid processing and end markets in place, and require minimal manual labour to move and sort in the MRFs.