

Final Report

York Region Full Cost Accounting Study – CIF project #975

Prepared for: Resource Recovery and Productivity Authority

Continuous Improvement Fund

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York Region, Sustainable Waste Management

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Table of Contents

Introduction 3

Study Background..... 3

Study Approach and Scope 3

Data Collection Methodology 4

Waste Activity and Contract Costs 5

Overhead costs..... 5

 York Region Cost Allocation 5

 Local Municipality Cost Allocation..... 5

 Single Family/Non-Single Family Allocation 5

KPIs 6

Lessons Learned 7

Next Steps 7

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Introduction

The Regional Municipality of York is located in the heart of the Greater Toronto Area in Southern Ontario. York Region is approximately 1,776 square kilometres (686 square miles), stretching from the City of Toronto in the south to Lake Simcoe and the Holland Marsh in the north, and bounded by Peel Region in the west and Durham Region in the east. The Region is comprised of nine local municipalities, the Cities of Markham and Vaughan Towns of Richmond Hill, Aurora, Newmarket, Georgina, East Gwillimbury and Whitchurch-Stouffville and King Township.

Study Background

In 2013, the Regional Municipality of York and its local municipal partners developed an integrated waste management master plan, known as the SM4RT Living Plan to address operating challenges the Region's solid waste management services may face over the next 25 to 40 years. In response to the challenges identified, the SM4RT Living Plan called for an initiative to explore alternative financing strategies that could be implemented to fund solid waste management operations.

In 2016, the Province of Ontario passed the *Waste-Free Ontario Act*, creating a new legislative framework for waste management in Ontario to transition existing diversion programs (i.e. Blue Box, Municipal Hazardous and Special Waste, Waste Electrical and Electronic Equipment and Tires) towards an Extended Producer Responsibility (EPR) regime that holds producers accountable for all end-of-life waste management costs for designated materials. An understanding of the current costs of the programs and operations is critical to support future discussions and policies as the Regional Municipality of York transitions to the new EPR regime.

To address the recommendations of the SM4RT Living Plan and prepare for anticipated changes from the *Waste-Free Ontario Act (2016)*, the Region identified the need for a full cost accounting study to identify all costs and revenues associated with solid waste management in the Region, including at the local municipal level. PricewaterhouseCoopers LLP (PwC) was engaged by York Region in February 2016 to conduct the work. The results of the data collection exercise are to be used by the Region for decision support and provide a basis to develop future research for solid waste management services in the Region.

Study Approach and Scope

York Region's waste management system is jointly operated by the Region and its local municipal partners. The Region is responsible for transfer, processing, disposal and marketing of end products; it also operates drop-off depots and provides promotion and education services. The local municipalities manage collection services for their respective communities; they also provide promotion and education and customer service, including curbside enforcement. Some local municipalities also offer collection events for special waste items and one municipality operates recycling depots.

To gain a full picture of the costs and revenues associated with York Region's integrated system, it was necessary to develop a method for collecting and amalgamating data from the Region and all nine local municipalities on both direct and indirect waste-related expenses. Table 1 lays out the types of costs/revenues considered in the study.

Table 1: Cost and revenue categories captured in the study

Cost type	Definition
Waste activity and contract costs	Costs directly attributable to a specific waste stream (eg. collection, processing costs, depot operation costs)
Waste management overhead costs	Overhead costs within the waste management department (eg. waste staff time & municipal waste collection calendar)
Municipal overhead costs	Overhead costs (eg. IT, legal, HR, finance, etc). Portion allocated to waste department for services provided
Depreciation	Annual allocation for use of capital assets associated with waste management services (eg. materials recovery facility and depots)
Revenue	Includes steward funding (eg. 50% blue box, MHSW, WEEE and Tires), marketing of recyclables, garbage tag sales, depot fees, blue box and green bin sales

PwC worked with the Region to develop an initial data collection template in Microsoft Excel format (see Appendix 1). The template was split into qualitative and quantitative sections, with separate worksheets for costs, revenues, tonnages and non-financial metrics. It was designed to contain a subset of fields and categories drawn from the general ledger that the Region maintains for its waste management activities.

The qualitative questions within the data collection template capture information from the local municipalities on services provided to better understand drivers for differences in costs provided by each local municipality. These responses were used, together with the quantitative information, to gain a better understanding of solid waste management services costs and revenues at each municipality.

Data Collection Methodology

Historical data including costs, revenues, tonnages and other qualitative information was obtained from the Region and the nine local municipalities through a series of meetings to review and complete the data collection template. Both finance and waste staff were included in the meetings to support more detailed data collection.

The template was piloted with two local municipalities to gather feedback. PwC then incorporated changes to the template for subsequent meetings including reducing the number of qualitative questions and adding drop down menus and prompts to the template to simplify data entry.

Conference calls were held to clarify questions arising from the completed templates. PwC provided each municipality with a list of questions prior to each conference call.

Waste Activity and Contract Costs

York Region and its local municipal partners use external service providers for much of the day to day operational work for collection, transfer, processing and disposal. Direct activity costs were drawn from contract invoices and existing internal tracking systems. These were the easiest costs to capture and reconcile to relevant streams.

Overhead costs

Consistent allocation of overhead costs was one of the biggest challenges associated with the study due to the differing approaches to tracking overhead used by each municipality and the availability of data to inform allocation.

York Region Cost Allocation

Administrative overhead and salaries for York Region staff and contracted staff at depots have been allocated to each waste stream based on an estimate of the labour hours spent on each, as provided by staff.

Depot overhead costs such as utilities and site maintenance have been allocated based on the square footage of each depot. The overhead cost calculated for each depot was then further assigned to each waste stream based on their square footage occupied within the depot facility. This approach yields a breakdown of indirect overhead costs that works well for the curbside and larger depot streams, where direct costs for processing account for the bulk of costs and considerable staff time is involved in operating and managing the program. For smaller depot-based programs such as tires and waste electronics where tonnages and direct costs are quite small, even the small allocation (3% for tires) of indirect cost such as administration, training, supplies and other overhead exceeds the direct cost of the program (space usage, labour costs for onsite staff). This made the fully burdened cost of the program much higher than might be expected.

Local Municipality Cost Allocation

In the data collection exercise, the local municipalities were asked to identify salaries and benefits costs for staff involved in waste management and allocate salaries and benefits costs to each waste stream based on the labour hours spent on each stream. However not all were able to provide this information. Thus a weighted tonnage allocation methodology was applied by PwC, to the municipalities that had not allocated overhead costs.

Single Family/Non-Single Family Allocation

Once allocated to each waste stream, overhead costs have been further allocated to single family vs. non-single family households based on the respective percentages of Waste Activity and Contract costs. This additional allocation is required to calculate the cost/household KPI described in Table 2 below.

Table 2: Cost/Household KPIs

KPI	Formula
Single Family Cost per Tonne	(SFH waste activity and contract cost + SFH overhead cost) / (SFH tonnes)
Multi-residential Cost per Tonne	(Non-SFH waste activity and contract cost + Non-SFH overhead) / (Non-SFH tonnes)
Total Cost per Household (Single Family - Curbside)	(SFH waste activity and contract cost + SFH overhead cost) / (SFH units)
Total Cost per Household (Multi-residential/ ICI/ Town - Container)	(Non-SFH activity and contract cost + Non-SFH overhead cost) / (Non-SFH units)

KPIs

Table 3 lists all the KPIs identified through the study. Baseline data was compiled during the study and will be used to inform future decisions. KPIs were calculated for each curbside stream as well as the overall system.

Table 3: KPI list

KPI	
Total Costs	Overhead cost/ household
Net Costs	Advertising cost/household
Revenues from Steward Funding and other sources	Advertising cost/tonne
Total tonnages processed by the Region	Customer service/tonne
Cost/tonne	\$/ Waste event
Net cost/tonne	\$/ Waste depot tonne
Collection cost/per single family household	\$/Capita (population)
Collection cost/per non-single family household	
Single family household collection cost/tonne	
Non-single family household collection cost/tonne	

Lessons Learned

A number of challenges caused delays and uncertainty during the study. The following list summarizes lessons learned about the process of conducting a full cost accounting study. Many of the challenges encountered were a result of York Region's two tier delivery model and may not be relevant to smaller or single tier systems.

- Maintaining anonymity of data complicates process. York Region's waste system is jointly operated by nine local municipalities and the Region. As a condition of participation, individual municipal data was kept anonymous, seen only by the consultant. Data in the study final report is aggregated or anonymized. This extra step slowed down the data collection process and limited the Region's ability to verify numbers for whole system.
- Documentation of data sources and assumptions should be completed throughout process. Where and how data was gathered by each participating municipality must be documented to ensure consistency in the event of staff turnover.
- Decisions about assumptions, allocation methods and scope should be made collaboratively at the outset. This was a difficult task due to the variability in size and resources available between municipalities that make up York Region. Considerable time was spent refining the template and confirming reported data to ensure consistency. The municipal overhead costs were the most challenging to identify and allocate however, in most cases they represent less than 10 per cent of the total system cost for each municipality and therefore have limited impact on KPIs.
- Finance and waste staff must be involved in the study. Collaboration between waste and finance staff is essential for making decisions about allocation of costs between streams, quantifying relevant overhead costs, documenting the process and interpreting outcomes. If using an outside consultant, expertise in both accounting and waste is beneficial in this type of study. The study must also have buy-in from senior management to support investment of staff resources to set up the study for success.

Next Steps

York Region has shared the high level outcomes of the study with Regional council and senior management. The KPIs were valuable in showcasing the value for money offered by our waste management services. York Region will be working with its local municipal partners to explore a simplified annual reporting process to update some of the key metrics identified through this study. Information and trends developed through the process will continue to inform decisions about transition as well as planning and budgeting for future programs and services.

Baseline data gathered through this study will help estimate impacts of potential changes in producer-funded waste diversion programs as the *Waste-Free Ontario Act (2016)* is implemented. For example,

the exercise of allocating depot staffing and overhead costs by stream provides a benchmark to evaluate producer-funding proposals for depot-based programs such as MHSW, WEEE and tires. Breakdowns of curbside program costs by stream and cost type (i.e. contract costs, staffing, promotion, customer service, administration etc.) provides a clearer picture of the full cost to manage each stream. The Region and local municipalities can use this data to estimate impacts from different scenarios for transition to inform advocacy and decision-making.

The baseline data study is also the first step in exploring alternative financing options for the Region's integrated waste management system. As part of the five-year review and update of the SM4RT Living Waste Management Plan currently underway, the data will be used to estimate cost and evaluate return on investment for new and existing programs. The recommendations from the update will determine whether additional work on alternative funding models is pursued.