

Small Municipality Full Cost Accounting Toolkit

A collaboration between CIF and the Municipality of Huron Shores



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Huron Shores: Cost Allocation Field Test
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Contents

- Background 1
- What does cost modelling do for your community 1
 - Ensures costs are appropriately tracked, allocated and aggregated for funding 1
 - Supports decision making under new regulatory frameworks 2
- Assumptions used in developing the Toolkit 2
 - Bucket #1 – Costs specific to Blue Box / PPP programming 3
 - Bucket #2 – Shared waste management costs 3
 - Bucket #3 – Landfill estimates 3
 - Bucket #4 – Department transfer costs 4
 - Bucket #5 – General administrative costs 4
- Results from the exercise 5
 - Collection, post collection, and administrative costs 5
 - Overlooked costs eligible under datacall 5
- Implications of programmatic changes to Blue Box services: 5
 - Bag tag and/or clear bag programs 5
 - Required Recycling Bylaws 6
 - Expanding the list of solicited materials 6
- Limitations to the FCA Toolkit 7
 - Landfill costs have been fully amortized 7
 - Waste composition study data 7
- Conclusions 7
- Appendix – References 8

Background

The CIF partnered with the Municipality of Huron Shores (the Municipality) in an effort to estimate the full costs of providing collection services for Printed Paper and Packaging (PPP) products at local depot waste sites. The results of this project provide key decision making criteria for the municipality in preparing for eventual Full Producer Responsibility (FPR) under the Waste Free Ontario Act.

This report details the development of the Full Cost Allocation (FCA) toolkit under funding provided through CIF project 1034. The report also provides insight to the implications of changes to municipal recycling collection programming.



Figure 1: Location of the Municipality of Huron Shores

What does cost modelling do for your community

Ensures costs are appropriately tracked, allocated and aggregated for funding

The existing Extended Producer Responsibility (EPR) Blue Box Program Plan (BBPP), establishes a framework for municipalities and industry stewards to share responsibility for funding the PPP recycling program. Municipalities submit their program costs through the Resource Productivity and Recovery Authority's (RPRA) annual datacall process. Program costs are then reimbursed to the municipalities from industry stewards.

Under the BBPP, the costs to collect materials from residents and manage these products through to their marketing, are eligible for funding. Reviewing a municipality's internal and external reporting framework provides the opportunity to revisit the accounting policies in place to ensure all eligible costs are being captured and properly allocated against the Blue Box program. Overlooked costs not included in a datacall submission means a municipality may be missing out on important revenues for their program and may result in underestimating the costs to provide Blue Box program services to Ontario municipalities as a whole.

Supports decision making under new regulatory frameworks

Understanding, and preparing for, the potential outcomes of legislative and/or regulatory changes to the existing BBPP is an area of interest for municipalities providing waste collection and diversion services. While the details of what the FPR framework will entail are not yet determined, municipalities are undertaking exercises to understand the potential implications.

Ontario will not be the first province to implement an FPR scheme for managing recyclable products. British Columbia (BC) approved a 100% Extended Producer Responsibility system in 2013, effectively transitioning responsibility for recycling services from municipalities and their rate payers to industry and their consumers. In operating the program today, BC Stewards offer what is known as a market clearing price (MCP) to municipalities that have opted to remain in the recycling system as collection agents. In this circumstance, the MCP may not cover the full costs for municipalities to administer, manage, and complete the obligations of the contract. Should a similar system be implemented in Ontario, it will be important for municipalities here to be able to answer the following questions:

- What are the full costs to act as collection agents?
- Does an offered MCP cover the full cost of providing service? If not, how many cents on the dollar will be received?
- What are the financial implications of recyclables left off of the list of solicited materials in terms of landfilling?
- What are the financial implications of recyclable diversion targets being less than 100% in terms of landfilling?

Although all stakeholders are committed to ensuring there is no disruption to services when Blue Box programs transition to new, yet to be, enacted regulation and/or policies, it is prudent to understand the implications of such a disruption. In this, worse case set of circumstances, the landfilling of PPP materials will have a financial cost and impact the lifespan of municipal landfills.

Assumptions used in developing the Toolkit

The CIF has partnered with municipalities in the development of many FCA and activity based costing (ABC) toolkits in recent years; please see the CIF website for the [catalog of these tools](#). A criticism of these toolkits has been the level of effort required to initially set up the model to work with an individual municipality's information and to update the model in future periods.

To support the usage, functionality, and flexibility of the toolkit developed under this project, a focus was placed on incorporating aspects of the existing reporting frameworks that are transferable from one municipality to another. As such, this toolkit builds upon the municipal chart of accounts and financial information that can be easily copied and pasted from year end trial balances. These values are then allocated using a simplified 'bucketing' approach to aggregate the debits and credits attributable to solid waste management and more specifically PPP materials.

The use of the trial balances as the first step in the analysis process allows for easy updating of the model year after year. To complete this process, the user only needs to ensure they copy and paste the information and account for any additional accounts added to the municipal ledger during the interim.

Bucket #1 – Costs specific to Blue Box / PPP programming

In many cases, municipalities will have contracts with existing service providers that are solely dedicated to the management of PPP materials currently accepted in their Blue Box program. For depot program operators, the costs of hauling, processing, and marketing their collected materials are often included under a single contract with a service provider. In this situation, allocating 100% of these costs to the management of PPP materials is appropriate. For example, the Municipality of Huron Shores has a contract with a local company for the provision of front end loading bins for recyclables storage, collection of these bins on a regular schedule, and sortation and marketing of PPP materials.

Other municipalities may have costs specific to Blue Box/ PPP programming if dedicated equipment, staffing and/or tangible capital assets (TCA) exist and are utilized in operating their respective programs.

Bucket #2 – Shared waste management costs

Costs are often accrued at the overall solid waste management level of programming. In this situation, the financial impact attributable to providing specific programs to residents underneath the umbrella of solid waste management requires a calculation to appropriately allocate costs. Existing Generally Accepting Accounting Principles (GAAP) allows municipalities the opportunity to select accounting policies which appropriately match cost allocations to the underlying factors that affect cost. In practice, tonnage, volumes, time in motion and other indicators have been used as the basis for which to allocate shared costs between programs.

The toolkit has been developed to facilitate the use of a single cost base for which to allocate shared service costs against specific programs. In testing the toolkit, the Municipality used waste site attendants reports to identify the types of material brought to the depot location, per resident, in generating the allocation for recycling costs.

Bucket #3 – Landfill estimates

While the costs to landfill PPP materials are not included as eligible funding costs under the existing BBPP framework, municipalities do absorb the costs of landfilling any un-diverted recyclables. CIF has developed a landfill costing toolkit to assist municipalities in estimating the value of these assets. Historically, weighted measures have been used to allocate the capacity use of solid waste materials entering landfill. The toolkit developed by CIF, uses densified volumes to differentiate common PPP materials from that of solid waste. The solid waste is reportedly more dense per cubic volume than that of PPP materials and as such requires less landfill capacity to store a given weight of material than PPP. This in turn means the cost to store a given weight of PPP material is higher than that of solid waste.

The United States Environmental Protection Agency (US EPA) provides standards to use in estimating the volume required to store common waste materials in municipal landfills¹. The standards for small landfills were adopted in this study for municipal solid waste. In addition, an adjusted baled density for recyclables was used in estimating the in-situ density of PPP. An adjustment density factor recommended by the study consultant was applied to reflect the limited compaction equipment available at small municipal landfill operations.

Bucket #4 – Department transfer costs

Commonly, small municipalities will utilize staff and assets across departments in performing services. The use of equipment from a roads department to clear snow, or maintain depot collection sites is a regular sight should these services not be contracted out externally. In this situation, vehicle use reports and employee timesheets are often utilized to transfer costs between departments on a percentage of total basis.

In the event the reporting framework does not include sufficient controls to facilitate this transaction, calculations may be made using estimated hours of an activity multiplied by a surrogate cost factor. For example, the Ontario provincial government publishes the *Schedule of Rental Rates For Construction Equipment Including Model and Specification Reference*² which provides hourly rates for various pieces of equipment used in typical municipal operations.

Bucket #5 – General administrative costs

The US EPA has created and made available a useful guide in completing FCA for solid waste management, including suggested GAAP to be applied in allocating general administrative costs across departments within a municipal government. General administration costs include the staffing, TCA, and equipment overhead required to run the municipality.

Under the existing RPRA datacall, the cost of administration to allocate against the Blue Box program is prescribed at a fixed percentage of program costs. Nonetheless, it is imperative to understand the actual cost required to administer the Municipality's recycling program in evaluating the options available under a future FPR environment.



Results from the exercise

Collection, post collection, and administrative costs

The model is used to compute costing key performance indicators (i.e., cost per tonne, household and capita) to provide the user with the ability to evaluate the impact of changes in funding levels. Should a similar MCP type pricing be offered in Ontario to municipalities opting to act as collection agenda, the Municipality is now in a position to evaluate these offers relative to the actual costs to provide service.

Further, the model builds in the flexibility to evaluate the impact on solid waste management should the municipality opt to act as a service agent, expand the list of accepted materials in the recycling stream, or improve the diversion rate of recyclables.

Overlooked costs eligible under datacall

An unexpected, but rewarding outcome in completing the test of the FCA toolkit, was the identification of significant overlooked programming costs. The municipality was able to identify more than \$11,000 in eligible costs for submission through the datacall, representing thousands of dollars in additional revenues for operating the local Blue Box program.

Implications of programmatic changes to Blue Box services:

Bag tag and/or clear bag programs

The municipality currently does not have a bag tag nor a clear bag program in place. While both programs are held as effective best practices in promoting diversion of materials from the waste stream, there are differences in the level of effort to implement, enforce, and manage each.

- Bag tag programs require more administration and municipal cost.
 - Municipalities distribute an established number of tags to households annually, requiring procurements, distribution, and availability of additional tags at municipal locations. It also requires the collection operator to refuse garbage waste set-out curbside, or brought to depot locations, that is untagged.
 - Clear bags require no administration, but instead download an additional cost to ratepayers as clear bags have typically been modestly more expensive than black bags. The collection operator is required to refuse garbage wastes set-out curbside, or brought to depot locations, if the waste is not contained within an appropriate bag.
- Residents may object to a lack of privacy with clear bags.
 - Historically municipalities have addressed this concern by allowing a small opaque bag to be included within the clear garbage bag for items such as feminine products.
- Clear bags are a safer option.
 - Increased worker safety by enabling the waste collector to see the contents of the bag and avoid hazardous items (sharp glass, needles, tin, etc.).
 - Removal of hazardous waste items (batteries, paint, pharma, oil, etc.) from the waste stream means only the right materials end up in landfill.

For more information on clear bags, the CIF has developed and made available a [Clear Bags Implementation Toolkit](#) for municipalities. CIF funded several, like Municipality of Kearney under [CIF project #902](#). The inclusion of either policy within the municipality will increase diversion, potentially costing the municipality more money under the BBPP, while saving landfill space, but may represent an opportunity for additional revenues under an FPR system.

Required Recycling Bylaws

The municipality does not currently have a by-law in place to require residents' source separate solicited materials into the recycling program. Meaning, residents are of their own free will to dispose of recyclable materials into landfill if they so choose. Many municipalities in the province, have by-laws in place which require residents to separate their recyclables from materials sent to landfill in an effort to prolong the lifespan of existing landfills and achieve greater diversion levels in meeting solid waste planning objectives.

The implementation, and enforcement, of such by-laws logically increases the diversion of recyclables from landfill. The Township of McMurrich-Monteith is an example of a municipality to implement a [bylaw](#) requiring clear bags are used in their Blue Box program and that residents deposit recyclables into the appropriate bin for transfer to the processing and marketing centre. As previously reported, [CIF project #536.10](#), the use of clear bags provided site attendants with the ability to observe whether recyclables were contained in the garbage waste and to intervene when necessary.

Similar to a clear bag or bag tag policy, mandating the source separation of recyclables will increase diversion and may represent an opportunity for additional revenues under an FPR system.

Expanding the list of solicited materials

Typically municipalities do not collect and divert the full list of PPP materials available in the waste stream. The waste composition studies completed within the Municipality identify the size of this potential opportunity to divert more waste from households. Consistent with the notes in previous sections, diversion of more PPP materials may cost a municipality under the BBPP, while providing savings in landfill activities, but may also provide an opportunity for revenues under an FPR system.

A likely outcome of transition to an FPR system is a standard list of PPP materials to be accepted in Blue Box programs across the province. As such, a municipality acting as an agent under an FPR system may likely have to be in compliance with the standard list or be at risk of having any additional materials collected outside the list qualify as contamination. In this situation, there is a risk of exceeding contamination thresholds established in an agency contract, which may prove costly to the municipality.

Limitations to the FCA Toolkit

Landfill costs have been fully amortized

As is the case in many municipality, the Municipality is carrying no TCA balance for the landfill itself as these costs have been fully amortized. This also reflects the nominal costs associated with establishing a landfill, or perhaps more appropriately termed as a dump, in the mid nineteenth century. In contrast, to establish a landfill under today's regulatory and social environment it would require a much greater and significant investment in terms of both time and money. It is not unlikely that such a process could take ten or more years before shovels hit the ground.

Waste composition study data

The Municipality is fortunate to have received funding through the [residential waste composition study program](#) operated by the CIF and Stewardship Ontario. This program provides a gold standard in the determination of waste and recycling generation and composition statistics for Ontario programs.

For municipalities who do not have access to the resources to complete their own waste composition study, the CIF and SO publish the results of the aforementioned studies annually. Proxy information can thereby be acquired through these publications for incorporation in costing activities.

Conclusions

This project was completed in collaboration between the CIF and Municipality of Huron Shores in an effort to test a suite of cost allocation tools in development by the CIF. The test was a resounding success and has led to the results aforementioned in this report. Additionally, the test was used to ground truth the small municipality FCA toolkit which combines the learnings from the previous tools and will now be made available to other municipalities looking to better understand the financial implications of transitioning to future FPR frameworks.

Appendix – References

¹ United States Environmental Protection Agency. Full Cost Accounting for Municipal Solid Waste Management: A Handbook.

<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=10000X2T.TXT>

²Ontario Public Standard Specification: Schedule of Rental Rates For Construction Equipment Including Model and Specification Reference.

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³United States Environmental Protection Agency. Volume-to-Weight Conversion Factors.

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