



The Continuous Improvement Fund

Community Recycling Centre
Cost Allocation Project
in the Region of Peel

CIF Project # 1133
Final Report

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1. Project Purpose and Goals

Measuring municipal program costs and effectiveness is fundamental for making informed decisions related to program changes, investments, and transition planning.

The Region of Peel (the Region) operates six Community Recycling Centres (CRCs) as a way of providing an efficient and convenient way for the public to properly manage specific waste and recyclable materials. The Continuous Improvement Fund (CIF) and the Region sought to undertake a detailed analysis of the current activities and costs of the CRCs' programs and operations to support future discussions and policies as the Region prepares to transition its Blue Box program under the impending provincial Extended Producer Responsibility regulation. Funding for this project was provided by the CIF, with the learnings from this project to be shared with other municipalities.

The purpose of this project was to conduct a financial analysis of three of the Region's CRCs, using cost data supplied by Peel and on-site observations and measurements.

Each CRC site includes a Reuse Centre, which is operated by a third party and whose operation is kept completely separate from the rest of the CRC. As such, the Reuse Centres were excluded from the CRC cost allocation.

This project consisted of three main components:

1. Determining the cost allocation principles, which provide the foundation of the analysis;
2. Quantifying and allocating specific costs for managing the materials received at the CRCs; and
3. Development of an excel-based model to be used for estimating the operating costs to manage specific material types.

The model is a tool that will provide a more accurate allocation of the Region's costs as they relate to specific materials managed at the CRCs. The model can also be used to show how the Region's costs would be impacted if they were to add materials, remove them, or modify how they are managed.

2. Process Overview

The project focused on three of Peel's six CRCs, including:

- Fewster CRC - 1126 Fewster Drive, Mississauga;
- Brampton CRC - 395 Chrysler Drive, Brampton; and
- Bolton CRC - 109 Industrial Road, Bolton.

This project was undertaken over three phases. They included:

- Phase 1: Identification of Allocation Principles and Procedures;
- Phase 2: Development of Excel-based Cost Allocation Model; and
- Phase 3: Analysis of CRC Cost Allocations.

Phase 1 included the following key tasks:

- **Review of background information and data for the CRCs** - This included site visits, a detailed review of the cost ledgers, and consultation with Peel Region staff on what ledger categories meant and how they were applied. In many cases, the ledger items could be broken down into further categories, which allowed for more detailed cost information to be directly allocated to materials, or for the exclusion of some materials from the costing.
- **Development of Allocation Principles** - Based on the background review and cost data, a set of allocation principles were developed on how the various costs should be allocated. These are discussed in Section 3.
- **Time and Motion Study** - A time and motion study was prepared for platform staff at the three CRCs involved in this study and for Household Hazardous Waste (HHW) staff. EXP developed the methodology and Peel Region staff carried out the fieldwork for the study. The time and motion studies took place over three hours on two occasions at each CRC.

Phase 2 included development of the MS Excel-based cost allocation model. The model is comprised of a series of input worksheets, tabulation worksheets, and output summary worksheets. The input worksheets allow for users to enter the data required to generate the detailed cost summaries, including:

- Ledger line items and their costs;
- Annual tonnage and number of shipments of materials;
- Calculated area allocated for each material; and
- Calculated proportion of time that labour was spent on each material stream.

Output summary worksheets were prepared for platform wastes and for HHW. The output summary worksheet for platform waste includes cost summaries for the waste material categories as well as individual wastes. The HHW output worksheet provides the cost information for the individual HHW materials. Once the draft model was prepared, the data for the Fewster CRC was entered as were the allocation principles determined in Phase 1.

Phase 3 included the incorporation of the Brampton and Bolton CRC data into the model and the project reporting. This project report presents the results of the process, including:

- A review of the allocation principles and how they are applied;
- A review of the three CRCs included in this project; and
- A review of the model outputs, including a presentation of the costs allocated to each material and how that compares to the traditional approach of an average cost per tonne.

In addition, instructions were prepared to facilitate use of the model in other communities. Instructions are included in Appendix D.

A future Phase 4 is anticipated for this project, which would use the model to estimate the costs of managing potential future materials.

3. Allocation Principles

3.1. Overview

A central component of this process was developing the cost allocation principles, which provide the foundation of the analysis used in this project.

Development of the allocation principles sought to answer a key question that many facility operators have when attempting to assign facility costs to specific waste materials: “how do we allocate them?” Tonnage is the traditional method for allocating individual and aggregated costs, but it may not be the most accurate. For instance, some materials may have unique cost components; in the traditional by-tonne cost distribution approach, that specific cost would be distributed across other material streams where they may not be relevant. Additionally, materials that are heavy and dense may unduly take on a greater proportion of the cost than a material that is light with low density, but thereby takes up more space.

As part of this process, allocation principles were applied to the Peel Region’s CRC costs on a ledger line-by-line basis.

There are three main principles that have been used to guide the allocation of costs to specific materials and/or material groupings:

1. Cost line items that can be directly attributed to individual waste materials are directly allocated to those materials. This may include, for example, disposal costs for garbage, or processing costs for diverted materials.
2. Cost line items that support more than one waste material are allocated based on one or a combination of one or more of the following allocation types:
 - a. Tonnage of Material Handled - Proportion of the cost that is to be allocated based on the tonnes of material handled at the facility. For example, of the four principles, tonnage was used for transfer and haulage costs as those costs are often a function of the weight of material being moved.
 - b. Area Used to Manage Material - Proportion of the cost that is to be allocated based on the proportion of working area that is used to receive, store, or manage specific materials. For example, area was used for line items such as building maintenance costs and stormwater requirements, as such costs are generally a function of the size of the facility.
 - c. Labour Used to Manage Material - Proportion of the cost that is to be allocated based on the amount of labour used to manage specific materials. For example, labour was used for all costs related to salaries and wages, as well as clothing and staff training.
 - d. Number of Material Transfers - Refers to the number of bin shipments. This would be used when the costs are directly related to the number of transfers or bin shipments that are made, such as travel expenses (e.g., highway tolls) and repairs to equipment and maintenance.
3. General or overhead-type line costs, or costs that cannot otherwise be allocated by any of the methods above will be prorated based on the allocated costs.

The rationale for each of the allocation types identified in Principle #2 include:

- **Tonnage** - Tonnage is a common metric used when breaking total costs down to a per unit cost. Use of tonnes to allocate costs is particularly reasonable when the costs are driven in whole or in part by the material's weight or density.
- **Area** - Using the proportion of area on site used to receive/manage/store the material is particularly reasonable when costs are driven by the amount of area used or required of the site.
- **Labour** - Using the proportion of labour used to manage specific materials is particularly reasonable when the cost is driven by labour or staff time.
- **Number of Material Transfers** - Basing the distribution of a cost on the number of material transfers (i.e., loads or shipments) is reasonable when the cost is being driven by the number of times a material is shipped or moved around. (For example, when a contractor's service is priced per bin removal from the site.)

Table 1 provides examples of various allocations.

An allocation table is provided in Appendix A that identifies the ledger line items assessed in this study, the allocation for each line item, and the rationale for the allocation. It is understood that these allocations are not static and may change depending on location or over time. As such, the model has been developed such that the allocation principles can be adjusted according to the needs of the user.

The methods for calculating the various allocations in the model are discussed in Section 3.2 to 3.5.

Table 1: Examples of Cost Allocations

Cost Item	Description & Rationale
Recycling Processors <ul style="list-style-type: none"> • Cost of recycling & disposal of materials collected at Platform area • Cost for materials recycled or disposed tracked via outbound weigh tickets (GeoWare) • Excludes materials managed in bunkers / off-platform. 	Direct Allocation <ul style="list-style-type: none"> • Materials tracked via outbound weigh tickets • Actual costs are known and can be directly allocated to material • Requires detailed breakdown of costs from aggregated ledger item.
Gas & Diesel Fuel <ul style="list-style-type: none"> • Cost of fuel for loaders and vehicles used within CRC • Mainly for moving materials by loaders, trucks, tractor 	Tonnage <ul style="list-style-type: none"> • Cost cannot be directly allocated by material • Assumption: cost of fuel used to move and handle material is a function of the material volume and weight. • Material volume and weight represented by tonnage.

Cost Item	Description & Rationale
Repair and Maintenance – Property & Grounds <ul style="list-style-type: none"> The cost of repairing and maintaining the CRC outside property & grounds 	50% Tonnage; 50% Area <ul style="list-style-type: none"> Difficult to disaggregate repair and maintenance costs Cost depends on property wear and tear by the waste material and the vehicles used to manage them. Cost drivers & assumptions: <ul style="list-style-type: none"> More wear and tear on grounds by materials with greater volumes and weight – therefore represented by tonnage. Maintenance costs also driven by amount of space required to receive and store the material – therefore represented by area (proportional). Cost allocated between tonnage and area.
Wages, WSIB & Benefits <ul style="list-style-type: none"> Salaries of supervisory staff Labour wages WSIB, benefits, etc. 	Labour <ul style="list-style-type: none"> Costs extrapolated based on observed actions from the Time & Motion study.

3.2. Tonnage Allocation

Perhaps the easiest method of allocation is based on the tonnes of material managed. For these cases, tonnages were based on Peel Region's CRC outbound tonnages for 2019. The exceptions to this include the following:

- Residential compost - this is compost that the Region purchases and provides to residents.
- Blue Box materials - Blue box materials collected at the CRCs are collected as commingled single-stream recyclables. Staff report that the bulk of the materials are fibre based. The tonnage of individual blue box materials (e.g., blue box fibres, plastics, metals, and glass) are based on the aggregated waste audit data undertaken by Peel Region at the Brampton, Bolton and Fewster CRCs in 2016 and 2018. The waste audit data confirms the staff observation, as approximately 93% of the commingled recyclable material was found to consist of blue box fibres (old newspaper, old corrugated cardboard, and old boxboard and mixed fibres).

This information is entered into the "General - Allocation Inputs" worksheet of the Allocation Model.

3.3. Area Allocation

Area allocation is based on the proportion of area used by a waste material on a site. Allocation of areas that are considered general in nature are allocated to materials on a pro-rated basis. For example, if 50% of a site is actively used to manage, receive, or store materials, and half of that is dedicated to a specific material, then 25% of the costs allocated by area are allocated to that material.

This information is entered into the "Area Allocation Inputs" worksheet of the Allocation Model.

3.4. Labour Allocation

A time-and-motion study was undertaken by Peel Region staff to aid in the labour allocation for platform materials and for Household Hazardous Waste (HHW) materials. The methodology was developed by the study team that consisted of documenting the time platform staff spent managing the various materials received at the platform. The focus of the time-and-motion study was on platform related activities, and as such did not follow staff that performed duties off-platform. For the purpose of this assignment, the profile of time allocation for labour staff (the primary staff observed on the platform) was applied to the other staff members. Table 2 identifies some of the challenges experienced with the time-and-motion study and suggests potential solutions. A summary of the Platform Time and Motion Studies results are provided in Appendix B.

Labour allocations are entered into the “Labour Allocation Input” worksheet of the Allocation Model.

Table 2: Time and Motion Study Recommendations for Improvement

Challenge	Potential Solutions
The time-and-motion study was carried out on two separate days at each site, for approximately 3 hours each day. This provided a small snapshot in time that did not capture many of the activities associated with the handling of received materials, such as swapping full roll-off bins or compactors, or other compaction activities.	Undertake observations over a greater time period, both in terms of observation periods (e.g., a full workday), number of days of observations, and seasonality to consider material variation stemming from time of year. Have staff report their estimated time spent managing each material in regular intervals, such as at the end of each shift.
Having the time-and-motion study focus on platform activities resulted in off-platform activities related to managing materials being unobserved. For example, labourers would not always perform their tasks on the platform, and haulage operators may perform tasks such as relocating bins that may not be easily observed from the platform.	Assign observers in such a way as to ensure off-platform activities are documented. This may include having an observer shadow a staff member or placing observers in other locations where management activities take place. As above, have staff report their estimated time spent managing each material in regular intervals, such as at the end of each shift.

3.5. Material Transfer Allocation

The number of material transfers (or loads) can be used to allocate costs when the bulk of the cost is a function of how many shipments it requires. For example, the equipment repairs and maintenance cost items are all allocated based on the number of loads, as an increasing number of loads will result in increased fuel usage, wear and tear on equipment, and travelling expenses.

The number of material shipments were calculated using the Region’s outbound tonnage data. This information is entered into the “General - Allocation Inputs” worksheet of the Allocation Model.

4. Description of Peel Region Community Recycling Centres

Three CRCs were included in this project and are described below. These included:

- Fewster CRC: located at 1126 Fewster Drive in Mississauga on a 28,675 m² site. In 2019, the Fewster CRC managed 9,422 tonnes of material and serviced 65,005 vehicles.
- Brampton CRC: located at 395 Chrysler Drive in Brampton on a 21,256 m² site. In 2019, the Brampton CRC managed 15,597 tonnes of material and serviced 103,439 vehicles.
- Bolton CRC: located at 109 Industrial Road in Bolton on a 10,972 m² site. In 2019, the Bolton CRC managed 4,031 tonnes of material and serviced 37,545 vehicles.

Each site includes a reuse centre, a Household Hazardous Waste (HHW) depot, and a platform for receiving various material streams including garbage and divertable waste. Compost is also distributed to the public. Aerials of the sites and the locations of the various waste bins and bunkers are provided in Appendix C.

At each CRC, customers are directed either to the HHW lane or to the platform, depending on the type of materials they are bringing to the depot. Platform inbound and outbound weights are measured at the scale house. Customers are greeted at the platform by an attendant, who directs them to the appropriate drop-off locations.

Materials are compacted at the site, either using compactors or (in the case of materials collected in roll-offs) use of a back-hoe bucket. Materials collected are then transported for disposal or diversion.

5. Cost Allocation Results

The Region's CRC data was entered into the models to generate a cost estimate to manage each material based on the application of guiding principles. The proportion of the CRCs overall cost to manage Blue Box materials differed according to site, as follows:

- Fewster CRC: 9.9%;
- Brampton CRC: 8.6%; and
- Bolton CRC: 11.0%.

Traditionally, facility costs are allocated on an average per-tonne basis, i.e., where the total cost for managing a facility is divided by the total tonnes to obtain a cost per tonne value that is applied equally to all materials managed at the facility. When comparing the traditionally allocated costs versus those allocated by the model, it was found that blue box costs were under-allocated in the traditional approach. This is illustrated in Figure 1.

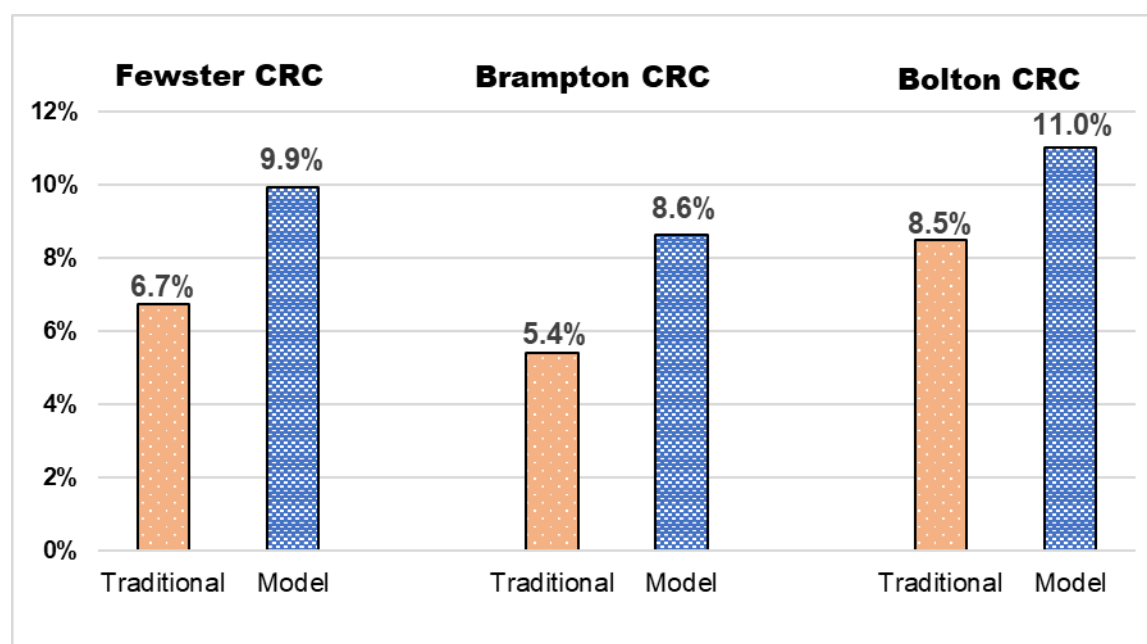


Figure 1: Proportion of CRC Costs Allocated to Blue Box Materials (Traditional vs Model)

6. Conclusion and Application for Other Communities

This study demonstrates that the traditional method of allocating operating costs solely on a per tonne basis does not present a full accounting of the true cost of managing certain materials. The analysis demonstrates that using the traditional per tonne method under-appreciates the true cost of managing blue box materials at the CRCs, while costs related to other materials may be over-stated.

However, the allocation of costs to these materials in this exercise is based on a series of allocation principles, and the principles may be applied in different ways depending on circumstances. The excel-based models developed in this project will provide municipalities the flexibility to revisit and adjust the application of allocation principles based on their own internal discussions and the operational details of the sites being analyzed.

This project is well-timed to support communities preparing for transition to Extended Producer Responsibility (EPR) with waste management depots that accept a variety of material streams for disposal and diversion. Specifically, municipalities and First Nation communities that exclusively use depots for recycling and waste disposal and are considering ‘opting in’ to continued service delivery at Transition, need to be able to allocate costs specific to the Blue Box materials with confidence. These are the costs that will be funded 100% by Producer Responsibility Organizations (PROs) under the new EPR regulation.

Communities who utilize this costing model will be able to get a more accurate and detailed estimate of their real costs to manage blue box materials. Armed with this information communities will be well positioned to assess offers from PROs, and to determine whether they are being offered fair compensation for continued management of blue box materials at multi-material depots. While additional factors such as maintaining control of services to residents are likely to factor into local decision-making, this tool will support municipalities’ need to address financial issues as a primary consideration during transition to EPR.

Appendix A: Input Allocation Rationale

Table A-1: Input Allocation Rationale

General Ledger (GL) Number	GL Account Code Description	Material Specific	Percent Allocation			Number of Loads	Allocation Rationale
			Tonnage	Area	Labour		
HAULING AND PROCESSING							
GL #	Waste Disposal-Hazardous Waste	100					Costs are specifically allocated to the single material category of HHW.
GL #	Recycling Processors	100					Cost category is for material collected at platforms and sent for diversion from landfill. Peel Region has cost data for the specific materials.
GL #	Transfer -Depots		100				Transfer costs are primarily a function of tonnage.
GL #	Haulage -Depots		100				Haulage costs are primarily a function of tonnage.
GL #	Disposal -Depots	100					Cost is for the disposal of garbage, including bulky waste.
SALARIES AND WAGES							
All	All				100		All “Salaries and Wage” line items have been applied to labour, as salary costs are a function of labour time applied per salary grade.
EQUIPMENT REPAIRS AND MAINTENANCE							
All	All					100	All “Equipment Repairs and Maintenance” line items have been applied to “Loads,” as the amount of repair required of equipment, fuel used to move and handle material and other items in this category relate in large part to the number of loads that must be transferred or shipped.

General Ledger (GL) Number	GL Account Code Description	Percent Allocation				Allocation Rationale	
		Material Specific	Tonnage	Area	Labour		
		Number of Loads					
BUILDING REPAIRS AND MAINTENANCE							
GL #	Repair & Maintenance – Property Grounds		50	50			<p>The cost of repairing and maintaining the property grounds may depend on the wear and tear on the property by the fleet vehicles used to manage the material as well as the material itself. This may be driven by the amount of material handled and its weight, which can be represented by tonnage.</p> <p>Additionally, the cost of repairing and maintaining the property grounds may also depend somewhat on the amount of space required to receive and store the material. This can be represented by the proportional area used by the material.</p> <p>As such, the cost for this item is allocated evenly between the tonnage and proportional area required for each material.</p>
GL #	Repair & Maintenance - Buildings			100			Allocated based on area used to receive, manage, and store materials, as the increase in the amount of space will increase the amount of area requiring maintenance.
GL #	Security System Maintenance			100			The cost of the security system is driven by the size of the area to be secured. As such, the cost for this item is allocated based on the proportional area required for each material.
GL #	Stormwater Management			100			The cost of managing stormwater for the site is driven by the size of the property and area of hard surfaces to be managed. This in turn is driven in large part by the size - or footprint - of the space needed to manage the materials. As such, the cost for this item is allocated based on the proportional area required for each material.



General Ledger (GL) Number	GL Account Code Description	Percent Allocation					Allocation Rationale
		Material Specific	Tonnage	Area	Labour	Number of Loads	
GL #	Municipal Taxes			100			The cost of municipal taxes is based on the size of the property and the structures on the property. This in turn is driven in large part by the size - or footprint - of the space needed to manage the materials. As such, the cost for this item is allocated based on the proportional area required for each material.
GL #	Janitorial Services			100			Based on area of building, as such allocated to Area.
GL #	Alarm System Rental			100			The cost of the alarm system is driven largely by the size of the area to be monitored. As such, the cost for this item is allocated based on the proportional area required for each material.
GL #	Office/Space Rental		100				No key allocation principle was observed for this item. As such, it was allocated to tonnage, based on traditional practices.
GL #	Contribution to Waste Buildings		100				No key allocation principle was observed for this item. As such, it was allocated to tonnage, based on traditional practices.

General Ledger (GL) Number	GL Account Code Description	Percent Allocation				Allocation Rationale	
		Material Specific	Tonnage	Area	Labour		
		Number of Loads					
INTERNAL CHARGES							
GL #	Workforce (centralized and shared costs)				100		As workforce relates to labour, this cost item is allocated based on “Labour”.
GL #	Radio Service (centralized and shared costs)		100				No key allocation principle was observed for this item. As such, it was allocated to tonnage, based on traditional practices.
GL #	Insurance			100			Based on area of building, as such allocated to Area.
GL #	Facilities Leasing			100			Based on area of building, as such allocated to Area.
GL #	Public Works Utility / Depot Site Servicing			100			Based on area of building, as such allocated to Area.
GL #	Depot & HHW Administration		100				No key allocation principle was observed for this item. As such, it was allocated to tonnage, based on traditional practices.
UTILITIES							
All	All			100			As the cost items in this category relate to operation of the building and site, they were allocated based on area.
OTHER OPERATIONAL NEEDS							
All	All			100			As the cost items in this category relate to operation of the building and site, they were allocated based on area.
CLOTHING AND STAFF TRAINING							
All	All				100		The cost of clothing and training will depend on the number of staff required. As such, cost items in this section are allocated by labour.

Appendix B: Time and Motion Study Results

Table B-1: Platform Time and Motion Summary Results

Fewster CRC					Brampton CRC				Bolton CRC			
General Labour (seconds)					General Labour (seconds)				General Labour (seconds)			
Material	June 14, 2021	June 18, 2021	Total	Percent Distribution of Labour	July 12, 2021	July 16, 2021	Total	Percent Distribution of Labour	July 6, 2021	July 7, 2021	Total	Percent Distribution of Labour
Appliances	120	360	480	1.8%	n/a	n/a	n/a	n/a	71	-	71	1.1%
Clean Fill	-	406	406	1.5%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Bricks/Dirt	n/a	n/a	n/a	n/a	317	127	444	1.5%	n/a	n/a	n/a	n/a
Concrete	1,045	0	1,045	3.8%	445	1028	1473	5.0%	n/a	n/a	n/a	n/a
Drywall	196	591	787	2.9%	574	972	1546	5.3%	90	13	103	1.5%
Electronics	839	493	1,332	4.9%	141	509	650	2.2%	278	67	345	5.1%
Garbage	4,027	971	4,998	18.3%	2700	3969	6669	22.8%	2,346	1,199	3,545	52.7%
Hard Plastic	360	86	446	1.6%	56	208	264	0.9%	352	173	525	7.8%
Oversized Garbage	1,637	2,447	4,084	14.9%	1,060	2,433	3,493	12.0%	n/a	n/a	n/a	n/a
Recycle	1,516	2,727	4,243	15.5%	3,103	3,131	6,234	21.3%	500	491	991	14.7%
Rubble	60	-	60	0.2%	n/a	n/a	n/a	n/a	10	15	25	0.4%
Scrap Metal	758	928	1,686	6.2%	1022	921	1943	6.7%	213	72	285	4.2%
Shingles	180	0	180	0.7%	46	-	46	0.2%	n/a	n/a	n/a	n/a
Wood	3,224	3,670	6,894	25.2%	2772	3169	5941	20.3%	396	291	687	10.2%
Yard Waste	583	115	698	2.6%	281	223	504	1.7%	40	107	147	2.2%
Total	14,545	12,794	27,339	100%	12,517	16,690	29,207	100%	4,296	2,428	6,724	100%

Table B-2: Disaggregation of Blue Box Material Labour Allocation based on Waste Composition

Material	Percent Composition	Fewster Percent Distribution	Brampton Percent Distribution	Bolton Percent Distribution
Blue Box Fibres/OCC	92.7%	14.4%	19.8%	13.7%
Blue Box Plastics	5.1%	0.8%	1.1%	0.8%
Blue Box Metal	0.5%	0.1%	0.1%	0.1%
Blue Box Glass	1.7%	0.3%	0.4%	0.3%
Total	100.0%	15.5%	21.3%	14.7%



Table B-3: Labour Allocations with Notes

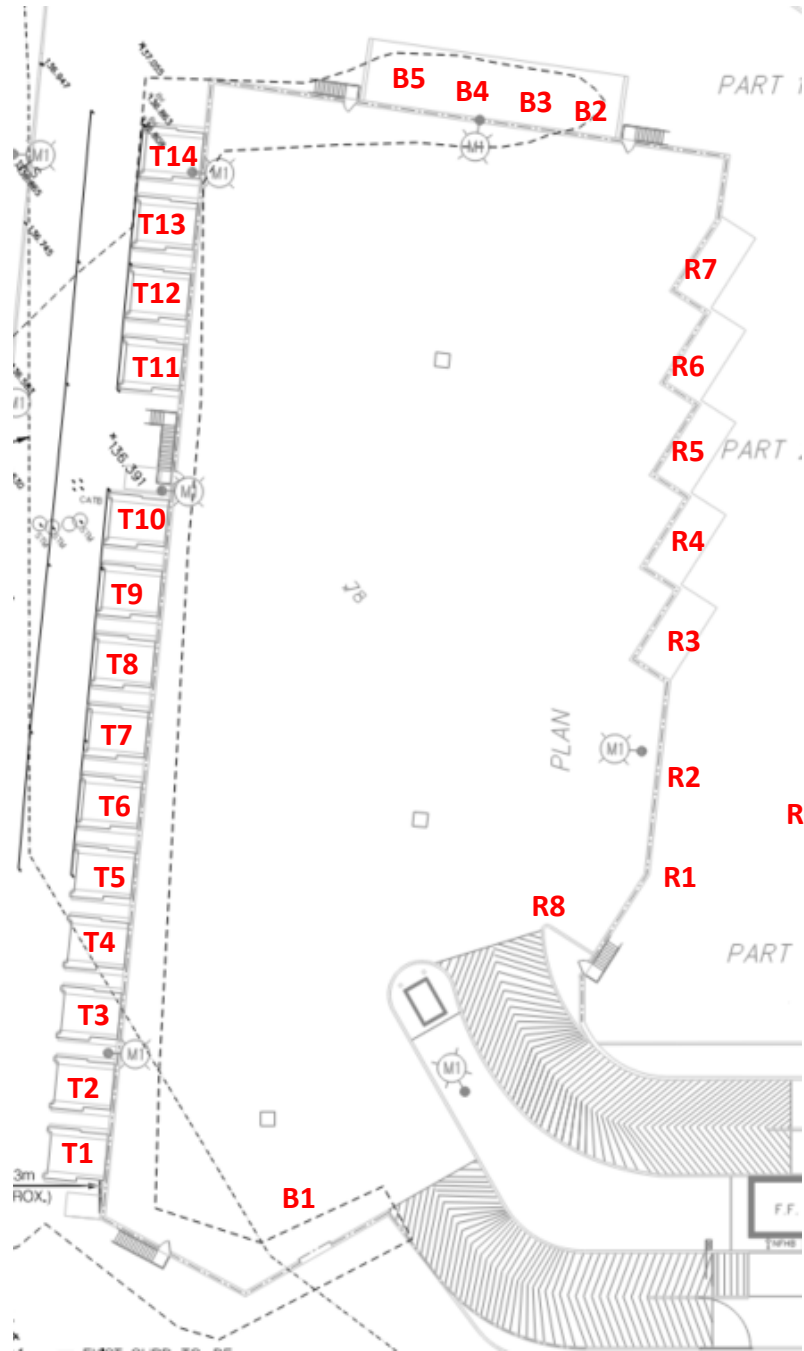
Accepted Materials	Material Category	Fewster Labour Distribution	Brampton Labour Distribution	Bolton Labour Distribution
Blue Box Fibres/OCC ^a	Blue Box Recycling	14.38%	19.8%	13.7%
Blue Box Plastics ^a	Blue Box Recycling	0.79%	1.1%	0.8%
Bulky Plastics	Blue Box Recycling	1.63%	0.9%	7.8%
Drywall	Drywall	2.88%	5.3%	1.5%
Electronics	Waste Electronics	4.87%	2.2%	5.1%
Garbage ^b	Garbage	33.22%	34.8%	52.7%
Blue Box Metal ^a	Blue Box Recycling	0.08%	0.1%	0.1%
Yard Waste	Yard Waste	2.55%	1.7%	2.2%
Rubble ^c	Rubble	5.53%	6.6%	0.4%
Scrap Metal ^d	Scrap Metal & White Goods	6.17%	6.3%	4.2%
Shingles	Shingles	0.66%	0.2%	
Tires	Tires	0.00%		0.0%
Wood	Wood	25.22%	20.3%	10.2%
Blue Box Glass ^a	Blue Box Recycling	0.27%	0.4%	0.3%
Residential Compost	Compost	0.00%		0.0%
White Goods ^d	Scrap Metal & White Goods	1.76%	0.3%	1.1%

Notes:

- a. Distributed from “Blue Box Recycling” based on waste composition data.
- b. Based on garbage plus oversized garbage.
- c. Rubble includes rubble as well as clean fill, bricks/dirt, and concrete.
- d. Where necessary, disaggregated based on tonnage.

Appendix C: Site Aerials and Material Locations

Fewster



Fewster Bin ID

Transtor	Material Type
T1	Recycling
T2	Recycling
T3	Recycling
T4	Recycling
T5	Hard Plastic
T6	Hard Plastic
T7	Garbage
T8	Garbage
T9	Garbage
T10	Garbage
T11	Yard Waste
T12	Yard Waste
T13	Yard Waste
T14	Yard Waste

Roll-off	Material Type
R1	Electronics
R2	Wood
R3	Wood
R4	Drywall
R5	Scrap Metal
R6	Bulky/Oversized Garbage
R7	Bulky/Oversized Garbage
R8	Televisions
R9	Tires

Bunker	Material Type
B1	Compost
B2	Rubble
B3	Shingles
B4	Concrete
B5	Appliances

Brampton

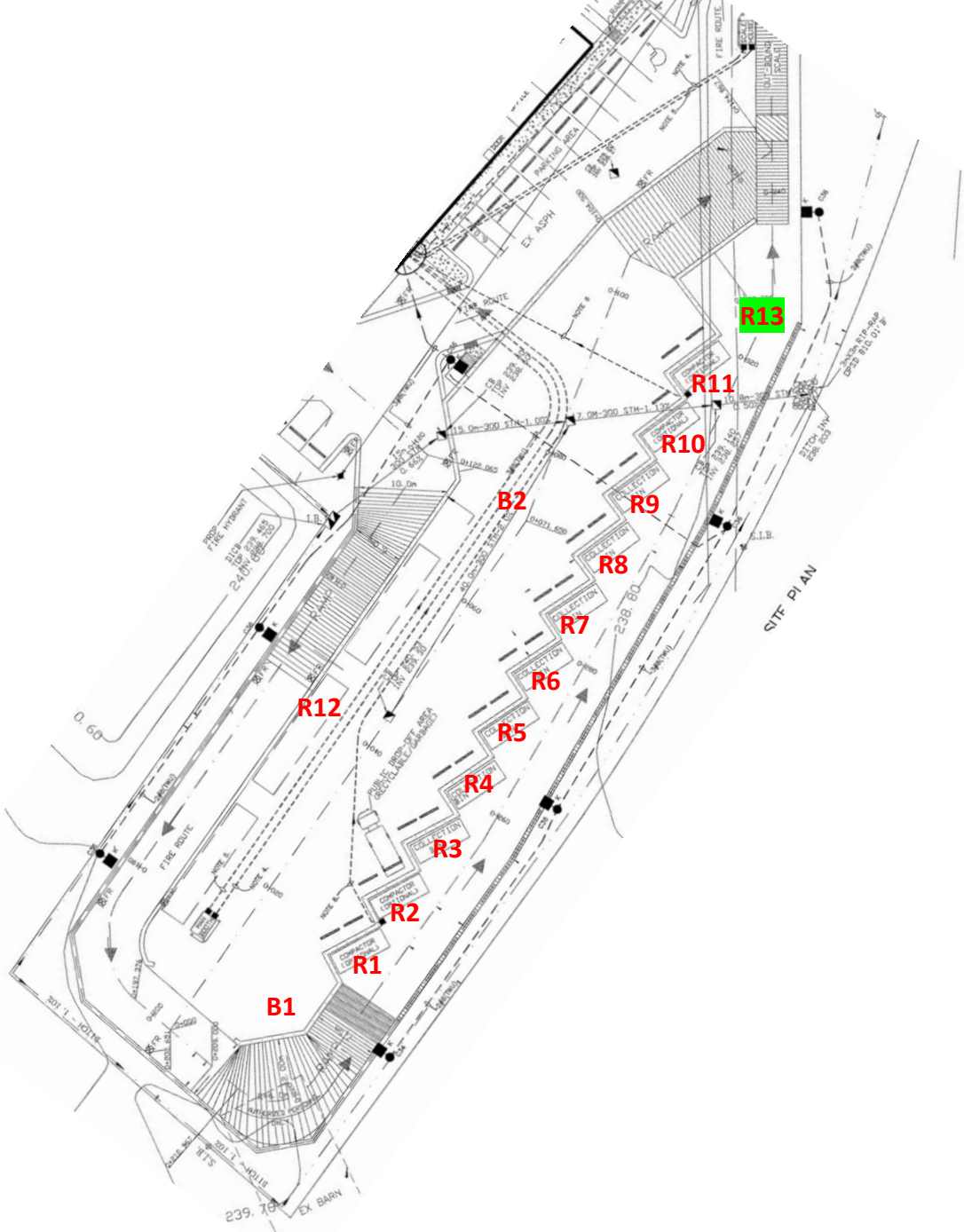


Brampton Bin ID

Transtor	Material Type
T1	Hard Plastics
T2	Hard Plastics
T3	Recycling
T4	Recycling
T5	Recycling
T6	Spare
T7	Spare
T8	Garbage
T9	Garbage
T10	Garbage

Roll-off	Material Type
R1	Electronics
R2	Televisions
R3	Appliances
R4	Scrap Metal
R5	Drywall
R7	Wood
R8	Wood
R9	Wood
R10	Yard Waste
R11	Yard Waste
R12	Shingles
R13	Clean Fill
R14	Bulky/Oversized Garbage
R15	Compost
R16	Tires

Bolton



Bolton Bin ID

Roll-off	Material Type
R1	Scrap Metal
R2	Wood
R3	Yard Waste
R4	Recycling
R5	Wood
R6	Wood
R7	Wood
R8	Wood
R9	Waste
R10	Waste
R11	Waste
R12	Electronics
R13	Tires

Bunker	Material Type
B1	Rubble
B2	Fridges

Appendix D: Model Instructions

This Appendix provides instructions on how to enter data into the cost allocation model.

There are six tabs that require data entry for this model. These include:

1. General - Allocation Inputs
2. Exp and Rev (note - this will be for the expenditure inputs)
3. Non-HHW - Cost Inputs
4. HHW - Cost Inputs
5. Area Allocation Inputs
6. Labour Allocation Inputs

These are discussed on the following pages.

The information that will be required to complete the model include:

1. List of materials managed at the depot.
2. Annual tonnage managed for each material.
3. Number of loads or shipments of each material¹.
4. Ledger line costs.
5. Estimated areas used to receive and manage materials.
6. Estimated distribution of labour to manage materials.

Sample tables are attached to assist with data collection. You can use the Sample Tables as worksheets and copy your inputs over to the Excel Model Spreadsheet.

¹ The pre-populated allocation principles allocate some of the ledger lines to the number of loads or shipments for materials. If this information is not readily available, then the ledger lines allocated to loads or shipments should be reallocated to labour, tonnage or area.

A. General - Allocation Inputs

There are two main tables requiring data in the **General - Allocation Inputs** tab - the “Non-HHW Materials Only” table and the “HHW Materials” table.

Non-HHW Materials Only

The “Non-HHW Materials Only” table includes four columns:

1. Accepted Materials - Type in the name of the specific material (e.g., blue box fibres, blue box plastics, drywall, etc.)
2. Material Category - From the dropdown menu, select the Material Category. The material categories have been pre-populated based on the Peel CRC material categories. However, they can be updated using the “List” tab (found to the right of the “HHW Summary – Outputs” tab on the spreadsheet) under the “Category” column.
3. Tonnage - Enter in the annual tonnes for the Accepted Material.
4. # Of Loads - Enter in the number of loads or shipments of each material. Note - if the number of loads is not available, then ensure that none of the ledger lines are allocated based on loads (see “B. Exp and Rev”).

HHW Materials

The “HHW Materials” table includes three columns:

1. Accepted Materials - this is a pre-populated list of materials typically accepted through HHW programs. It can be updated and customized as required. There is room for up to 30 different materials.
2. Tonnage - Enter in the annual tonnes for the Accepted Material. If the information available is number of units or is in kilograms, then they will need to be converted to tonnes.
3. # Of Loads - Enter in the number of loads or shipments of each material. Note - if the number of loads is not available, then ensure that none of the ledger lines are allocated based on loads (see “B. Exp and Rev”). *(Each time a material appears on a Manifest from the hauler, count it as a load regardless of the volume.)*

B. Exp and Rev

The **Exp and Rev** tab (for expenditure inputs) requires cost data from the depot ledger to be entered. The ledger line names are pre-populated, but they can be customized as required.

It is important to note that the model requires that each ledger line account number be unique. Users can enter in their own ledger account code or use the pre-populated codes.

The ledger lines are organized into eight categories:

- Hauling and Processing;
- Salaries and Wages;
- Equipment Repairs and Maintenance;
- Building Repairs and Maintenance;
- Internal Charges;
- Utilities;
- Other Operational Needs; and
- Clothing and Staff Training.

Space has been allocated for costs from three administrative areas:

- Platform;
- Scale house; and
- HHW.

The annual costs for each ledger line are to be entered under their respective columns.

Note: Reallocation of Cost Centre Expenditures

Any reallocations of costs between the platform/scale house and HHW must be done at this stage, as the model has not been designed to reallocate expenditures between cost centres. For example, there may be instances where platform staff spend time assisting the HHW depot; however, their labour costs remain within the platform cost centre.

If the municipality wishes to reallocate some of this time to the HHW depot, then it must be done within the municipal ledger or when the data is being entered into the model on the Exp and Rev Tab.

C. Non-HHW - Cost Inputs

The **Non-HHW - Cost Inputs** tab is where the ledger line allocations are entered for non-HHW materials. This is one of the key components of the model, as it determines how the specific costs will be applied to each material.

The ledger line numbers, descriptions and a sum of the platform and scale house costs entered in the Exp and Rev tab will appear in columns B to D of the Non-HHW - Cost Inputs tab. Allocations have been pre-entered, but these can be adjusted based on the experience at your depot and the perspectives of the depot managers.

There are five allocation types to be considered, and each are entered as a percentage:

- a) **Material Specific** - This is for cost line items that directly support a single waste material, or waste group category and will be directly allocated to that material or category. In such cases, the steps to follow include:
 - a. Enter a value of “100%” under column F for that line item, so the cost of that line item can be directly attributable to a specific material or material group. Then;
 - b. Under columns M to AF, enter in the specific costs for each material. The costs must equal the total line-item cost as shown in column D. If not, then the cell in column AQ will be shaded in pink with red text to indicate the imbalance.
- b) **Tonnage of Material Handled** - This is for line items that are best allocated based on tonnage (see note below about mixing allocations).
- c) **Area Used to Manage Material** - This allocation is for those line items that are best allocated based on the proportion of working area that is used to receive, store, or manage specific materials.
- d) **Labour Used to Manage Material** - This allocation is for those line items that are best allocated based on the amount of labour used to manage specific materials.
- e) **Number of Material Transfers** - This refers to the number of bin shipments or loads. This would be used when the costs are directly related to the number of transfers or bin shipments made, such as costs related to travel expense.

Note: Mixing Allocations

In some cases, it may be determined that some line items are to be allocated to two different allocation types. For example, the cost of maintaining the property and grounds may be allocated in part to tonnage received and the area used to receive and store it. Line-item allocations can be divided among tonnage, area, labour and/or number of material transfers, so long as the allocation total under Column K equals 100%.

Only Material Specific allocations must be either 100% or 0%.



D. HHW - Cost Inputs

The **HHW - Cost Inputs** tab is where the ledger line allocations are entered for HHW materials. The structure and procedure for this tab follows the same as the **Non-HHW - Cost Inputs** tab.

The ledger line numbers, descriptions and costs for HHW entered in the Exp and Rev tab will appear in columns B to D of the HHW - Cost Inputs tab. Allocations have been pre-entered, but these can be adjusted based on the experience at your depot and the perspectives of the depot managers.

Follow the same instructions as noted in Section C.

E. Area Allocation Inputs

The **Area Allocation Inputs** tab is used to allocate costs based on the area used to receive and store waste materials at the depot. The worksheet is divided into three sections: CRC Building and Land Use, Area for Non-HHW Zone, and Area for HHW Zone.

The CRC Land and Building Use section is used to divide the CRC into the various applicable zones. The inputs required include:

- Name of the CRC (or depot);
- Total Site Area;
- The name of the CRC zones; and
- The approximate area they use on the site.

An area designated “Platform” has been pre-populated under the CRC Zones column. Other areas, as necessary, can be added.

It should be noted:

- All areas are to be entered in square metres.
- To minimize error check flags, consider entering areas rounded to the nearest 5 or 10.

The Area for Non-HHW Zone section is used to enter in the area allocated for each material in each CRC Zone. If there are areas within each zone that are shared among more than one material, then the shared space can be allocated to the various materials at the municipality’s discretion.

The Area for HHW Zone section is used to enter in the area allocated for each HHW material. If the specific area is known for each material, then it should be entered in the Area for HHW Zone table. If the specific areas are not known, or if they fluctuate over time depending on the amount of material received and stored, then the area should be divided equally between each material.

F. Labour Allocation Input

The **Labour Allocation Input** tab is used to allocate costs based on the proportion of labour estimated to be spent managing a specific material. The value is based on the proportion of working time. There are two allocation tables in this worksheet: Non-HHW Labour Cost Allocations Only, and HHW Labour Cost Allocations.

In the Non-HHW Labour Cost Allocations Only table, there are columns for Foreperson, Sub-Foreperson, Haulage Operator and Labourer (as well as additional, optional columns). The Foreperson, Sub-Foreperson, and Haulage Operator columns utilize the same time distribution as the Labourer position. However, these can be modified at the municipality's discretion if they have time distribution data for the other positions. In the Labourer column, the estimated or calculated proportion of time spent per material is to be entered as a percentage. The percentages should add up to 100% in every column.

Idle or non-active time is not to be included. Labour costs that would be associated with idle or non-active time would be distributed proportionately to the other materials.

Allocation values for the HHW Labour Cost Allocations are pre-populated, based on the pre-populated list of HHW materials. The values are based on the results of a time and motion study undertaken at the Peel CRCs. These values can be modified at the municipality's discretion. The percentages should add up to 100%.

G. Data Output

With the data entered, the cost outputs for materials managed at the CRC/depot can be viewed in the **Summary - Outputs** tab. Cost data for the specific HHW materials can be found in the **HHW Summary - Outputs** tab.

H. Sample Tables

Attached are the following sample tables to assist with completing the model:

- Sample Table A1: Materials Managed at Depot (non-HHW)
- Sample Table A2: Materials Managed at Depot (HHW)
- Sample Table B: Expenditure Inputs (for Exp and Rev Tab)
- Sample Table C: Estimated Area to Receive and Manage Materials - Zones
- Sample Table D: Estimated Distribution of Labour (%)

[illegible]

Sample Table A2: Materials Managed at Depot (HHW) for General Allocation Input Tab

Accepted Materials	Tonnage (metric tonnes)	# of Loads
Waste Paint Pails		
Waste Paint Drums		
Fertilizers		
Dry Cell Batteries		
Ethylene Glycol		
Pesticide		
Misc. Flam Drums		
Misc. Flam Pails		
5lb Plus Propane Cylinder		
<5lb Propane		
Misc. Flam Cylinders		
Misc. Non-Flam Cylinders		
Aerosols		
Oil Filters		
Fluorescent Tubes 4's		
Fluorescent Tubes 8's		
Misc. Fluorescent Tubes		
Rechargeable Batteries		
Pharmaceuticals		
Syringes		
Fire Extinguishers		
Mercury		
Inorganic Acids		
Inorganic Bases		
Oxidizers		
Fuel		
PCB Ballasts		
Motor Oil		
Wet Cell Batteries		
Empty Oil Containers		
TOTALS	0.00	0

Sample Table B: Expenditure Inputs for Exp and Rev Tab

Account		Platform	Scale house	H.H.W
Expenses				
GL 1	Waste Disposal-Hazardous Waste			
GL 2	Recycling Processors			
GL 3	Transfer -Depots			
GL 4	Haulage -Depots			
GL 5	Disposal -Depots			
HAULING AND PROCESSING				
GL 6	Salary Regular			
GL 7	Salary Overtime			
GL 8	Salary-Contract Staff			
GL 9	OMERS			
GL 10	WSIB			
GL 11	Statutory Benefits			
GL 12	Group Benefits -Employer			
GL 13	Hrly Wage-Barg & Non-Barg			
GL 14	Hrly Wage-Overtime			
GL 15	Hrly Wage-Contract Staff			
GL 16	Hrly Wage-Sick Leave			
GL 17	Hrly Wage-Vacation Pay			
GL 18	Hrly Wage-Statutory Holiday Pay			
GL 19	Hrly Wage-Shift Premium			
GL 20	Hrly Wage-Temporary/Casual (Barg & Non-Barg)			
GL 21	Hrly Wage Students			
GL 22	Hrly Wage-Permanent P/T			
GL 23	Accrued Vacation			
GL 24	Accrued Salary/Wages			
GL 25	Accrued Fringe Benefits			
SALARIES AND WAGES				

Account		Platform	Scale house	H.H.W
GL 26	Gas & Diesel Fuel			
GL 27	Repair & Maintenance - Equipment			
GL 28	Travelling Expenses (e.g., tolls)			
GL 29	Equipment Rental			
GL 30	Fleet - Shared Repair & Maintenance			
GL 31	Fleet -Shared Administration			
EQUIPMENT REPAIRS AND MAINTENANCE				
GL 32	Repair & Maintenance – Property Grounds			
GL 33	Repair & Maintenance - Buildings			
GL 34	Security System Maintenance			
GL 35	Stormwater Management			
GL 36	Municipal Taxes			
GL 37	Janitorial Services			
GL 38	Alarm System Rental			
GL 39	Office/Space Rental			
GL 40	Contribution to Waste Buildings			
BUILDING REPAIRS AND MAINTENANCE				
GL 41	Shared Workforce			
GL 42	Shared Radio Service			
GL 43	Insurance			
GL 44	Facilities Leasing			
GL 45	Public Works Utility / CRC Site Servicing			
GL 46	CRC & HHW Shared Admin			
INTERNAL CHARGES				

Account		Platform	Scale house	H.H.W
GL 47	Natural Gas			
GL 48	Hydro			
GL 49	Telephone Services			
GL 50	Mobile Phones-Mthly Rental			
GL 51	Water & Sewer Charges C			
UTILITIES				
GL 52	Office Supplies			
GL 53	Advertising			
GL 54	Misc. Materials & Supplies			
GL 55	Small Hand Tool Access			
GL 56	Misc. Expense			
GL 57	Debit/Credit Card Fees			
GL 58	Software Maintenance			
GL 59	Computer Hardware			
OTHER OPERATIONAL NEEDS				
GL 60	Clothing			
GL 61	Safety/First Aid Training			
GL 62	Workshop & Seminars, Training			
CLOTHING AND STAFF TRAINING				
GROSS EXPENDITURE				

Account		Platform	Scale house	H.H.W
Revenues				
GL 63	Provincial Subsidies			
GL 64	Material Drop-off Fees			
GL 65	Property Rental Income			
GL 66	Recyclable Waste			
GL 67	White Goods/Scrap Metal			
GL 63	Provincial Subsidies			
REVENUE				
NET EXPENDITURE				

**Sample Table C: Estimated Area to Receive and Manage Materials - Zones for Area Allocation Inputs
TAB**

CRC Zones	Approximate Area (sq. m.)
HHW Building and Laneway (Enter 0 if HHW not collected)	
Platform	
(Optional #1)	
(Optional #2)	
(Optional #3)	
(Optional #4)	
(Optional #5)	
General Area (unallocated)	0.00
TOTAL	0.00

Sample Table D: Estimated Distribution of Labour (%) for Labour Allocation Input Tab

[illegible]