

CIF# 534.4

Multi-residential Recycling: Implementing Best Practices *City of Brantford*



Final Project Report

November 24, 2015

City of Brantford

CIF 534.4

Acknowledgement:

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Contents

1. Executive summary.....	5
2. Introduction.....	7
3. Background: Multi-residential recycling program overview	8
4. The project scope	9
4.1 Phase 1: Develop and maintain a database of buildings	9
4.1.1 Sources & collection methodology	9
4.1.2 Database and completeness of data.....	10
4.1.3 Data maintenance	11
4.1.4 Summary and recommendation:	11
4.2 Phase 2: Benchmarking recycling performance.....	11
4.2.1 Procedure for estimating recycling rates.....	11
4.2.2 Recycling rate estimates.....	12
4.2.3 Barriers to Recycling	16
4.2.4 Featured building: 640 West Street.....	19
4.3 Phase 3: Provide P&E materials	20
4.3.1 Print materials	20
4.3.2 On-Site and Face to Face Outreach.....	21
4.3.3 Lobby Display Effectiveness	22
4.3.4 Reusable Recycling Bags and Flyers	22
4.3.5 Recycling Posters	23
4.3.6 Recycling Tote Labels	23
4.4 Phase 4: Increase recycling container capacity	23
4.4.1 Type of recycling containers.....	23
4.4.2 How much recycling capacity is being provided?	23
5. Project budget	26
6. Concluding Comments.....	27
7. Appendices.....	28
Appendix A – 2-Stream Recycling Poster	28
Appendix B – Site Visit Form	29

Appendix C – CIF Multi-Res Database Screenshot.....	30
Appendix D – Locations with MR BP implementation - Apr to Dec 2014.....	31
Appendix E – Duration and Traffic of Lobby Displays	33
Appendix F – Lobby Display Announcement Flyer.....	34
Appendix G – Bag and Flyer Designs.....	35
Appendix H – Label Designs	37
Appendix I – Mail-Out Letter	38
Appendix J – Sample Fullness Chart.....	39

List of Tables

Table 1: Distribution of MR recycling services	8
Table 2: Municipal service multi-residential recycling before and after project (August, 2015).....	8
Table 3: Database summary	10
Table 4: Barriers to recycling. 30 baseline site visits (32 buildings) conducted April to December 2014. 17	
Table 5: Summary of P&E materials used.....	21
Table 6: Total number of recycling containers	24
Table 7: Recycling capacity, baseline and post-implementation.....	24
Table 8: Project budget planned and actual	26

List of Figures

Figure 1: City staff performing waste audit.....	13
Figure 2: Pre versus post bin fullness at MR locations that received bags from April to December 2014 14	
Figure 3: Visual estimate of annual tonnes diverted through MR program.....	14
Figure 4: Visual estimate of average recycling rate per year.....	15
Figure 5: Change in quantity of recycling as noted by respondents.....	15
Figure 6: Totes in service before and after program implementation	16
Figure 7: Change in quality of recycling as noted by superintendents.....	18
Figure 8: Are recycling bags still being used?	19
Figure 9: 640 West Street garbage room.....	20
Figure 10: Recycling capacity, baseline and post implementation.....	25

Figure 11: Suggested marketing strategies by respondents.....	27
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1. Executive summary

This is a summary report of a project implemented by the City of Brantford between January 2014 and August 2015. The goal of this project was to increase recycling rates and decrease contamination rates by implementing a citywide enhanced multi-residential recycling program. The Continuous Improvement Fund (CIF) provided financial and technical assistance.

The City of Brantford has a blue box diversion rate of 37%, as per the 2013 WDO Datacall. The City's 2008 Long Term Sustainable Solid Waste Plan recommends the City's goal to be the recommended provincial diversion rate of 60%, which can be achieved through various initiatives including increasing awareness of the City's recycling program. Multi-residential (MR) buildings, which account for approximately 33% of Brantford's housing stock, were targeted in this project. In an effort to move toward increased diversion, Best Practices, as outlined by CIF, were implemented during this project including creating a database of MR buildings, evaluating the recycling performance of individual buildings, estimating the overall program recycling rate, increasing the number of recycling containers at each buildings and distributing new educational materials to tenants and building staff.

The City of Brantford currently provides recycling collection to 126 MR sites, which contain 8 or more units. Each site was given educational materials such as reusable recycling bags, informational flyers, recycling tote labels, posters depicting proper sorting practices, and, where applicable, lobby displays. As of August 11, 2015, all locations received these materials and 63-360 litre recycling carts were added to the program, increasing the recycling container capacity to 38.7 L per MR residential unit, which is just below the suggested Best Practice range of 45 to 55 litres per unit. This report aims to identify the success of this project by focusing on changes in average recycling fullness across targeted locations that received bags. This report will also look at the change in number of totes being used and qualitative data derived from public feedback.

Comparing baseline vs post project implementation, visual estimates indicate the annual tonnes of container and fibre material has increased 27% and 17% respectively. An alternative interpretation is to note the average recycling rate per unit has increased from 73 kg/unit baseline to 84.12 kg/unit post implementation, a 15% increase. The recycling rate did not increase proportional to the annual tonnage of the program as the number of MR units receiving recycling service increased 2.9%. Staff is pleased with the improvement in blue box diversion from the MR program and are confident the additional container capacity and P&E will maintain this success into the future.

Contamination of recycling totes is more variable depending on the location. While a general decrease has been seen it is believed to be largely due to the efforts of several superintendents who sort and remove contaminants. Lobby displays are assumed to have had influence on increased output. Based on public feedback from sample locations, the general consensus is that since program implementation, recycling output has gone up while garbage output has gone down. Some respondents to public feedback questions also believed there was an improvement in recycling quality since implementation.

It is important to continuously monitor MR recycling efforts in order to acquire a more in-depth evaluation of the project's success. The visual audits to identify cart fullness and setout completed by student staff have been a quick and efficient method of attaining performance statistics for the MR

program. The visual estimate formula to calculate annual tonnes of material diverted through the recycling service has been very helpful for staff in monitoring success. In the future, staff plan on continuing the visual audit practice on regular and recurring intervals such that P&E campaigns and other program changes may be monitored for evaluation.

The cost to complete the project budget was \$67,705. The City of Brantford was approved for \$33,852.00 funding from CIF.

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2. Introduction

The City of Brantford has a population of 94,945 and a total of 38,645 households, of which 26,140 are single family households and 12,505 are multi-family households. In 2013, the City launched an enhanced blue box program for single family homes and in 2014 launched an enhanced multi-residential recycling program for multi-residential homes. The purpose of the enhanced multi—residential program was to increase tenant’s knowledge of the City’s recycling program in hopes of increasing diversion rates and reducing the level of contamination, found in many of the buildings

It has been determined that multi-residential buildings, which represent 33% of Brantford’s housing market, have a lower level of participation than single family homes. Accessibility to totes, anonymity of tenants, lack of adequate supervision, and lack of commitment by superintendents and building owners are considered some of the major contributing factors to the poorer recycling performance in the multi residential buildings. It was hoped that by creating greater awareness of the City’s multi-residential sector through an updated database, and increasing the knowledge base of those who are part of the multi residential sector, through the distribution of promotional and educational material, the effect would be an overall improvement in the City’s multi-residential program.

The City developed an MR campaign that included developing a database of buildings, benchmarking the buildings performance prior to the launch of the Promotional and Educational program, implementation and distribution of promotional and educational material, increasing recycling container capacity and evaluating the overall campaign once it was completed.

As of August 2015, there were 126 locations in the post-implementation phase. This report addresses all of the locations firstly and then focuses on 30 of these locations in an attempt to do a more in-depth evaluation of the project’s success. These locations, listed in Appendix D, received P&E materials between April and December of 2014. By comparing data from before and after the delivery of materials, we aim to identify the effectiveness of recycling bags, labels, posters, and lobby displays on output and contamination rates of recycling. By comparing the amount of totes in service from before and after program implementation, we can also determine if demand for recycling services has changed. An increase in the amount of totes being used would suggest an increase in output. Another source from which we can determine program success is the feedback given from superintendents and building managers. A survey was conducted in August 2015 just before this report was written which helped to form conclusions and recommendations.

3. Background: Multi-residential recycling program overview

There are 164 multi residential buildings in the City of Brantford, which represents 7,166 units. It is estimated that multi residential households make up a third of Brantford's housing stock, which makes it an important demographic to focus on. The municipal recycling program in which many of these multi residential households participate is comprised of two streams of recycling: paper and containers (Appendix A).

Multi residential and curbside recycling are collected together on a weekly basis by 8 trucks owned and operated by one contractor. Currently, 75% of MR buildings are serviced by our municipal recycling program, while 11.6% are serviced by a private contractor and 13.1% do not use recycling services at all. When non-recycling buildings join the municipal MR recycling program, the City provides totes at no charge and distributes them at a ratio of one tote per seven units, where possible. Some buildings do not have the required space for a large number of totes and some superintendents/owners do not want that many totes to maintain

Table 1 breaks down locations and units by type of recycling service received. Our objective is not only to improve output and reduce contamination at existing buildings but also to encourage those buildings that do not recycle to offer a recycling program to their tenants.

Table 1: Distribution of MR recycling services

Recycling service	Locations	%	Units	%
Municipal recycling	126	76.8	5,084	71
Private recycling	19	11.6	1142	15.9
Non-recycling	19	11.6	940	13.1
Total	164	100	7166	100

Table 2 presents the number of buildings and MR units receiving recycling service pre versus post project implementation. The number of MR units receiving recycling service has increased approximately 2.9% from baseline.

Table 2: Municipal service multi-residential recycling before and after project (August, 2015)

	Before project	After project	% change
Buildings with recycling	123	126	2.4
Units with recycling	4,939	5,084	2.9
Unit/building	40.1	40.3	0.20
Total totes in service	483	546	13%

4. The project scope

The project scope included five main phases:

- Phase 1: Develop and maintain a database of buildings
- Phase 2: Benchmark recycling performance
- Phase 3: Provide P&E materials
- Phase 4: Increase recycling container capacity
- Phase 5: Post-implementation performance evaluation

Each of the phases is discussed in the following sections.

4.1 Phase 1: Develop and maintain a database of buildings

Creating and maintaining a database of all multi-residential buildings was an important step towards implementing Best Practices. To obtain the list of multi-residential buildings, there were a number of sources of data, including:

- Property management or rental associations who had listings of their members' buildings and contact information for owners and property managers
- City Staff-Planning Department
- Brantford Housing
- Google Maps
- Internet Research (e.g. rental websites, etc.)

4.1.1 Sources & collection methodology

The first task in the Enhanced Multi-Residential project was for City staff and the Co-op student to update the inventory of multi-residential buildings in Brantford, including the addresses of each location, the contact information, the number of units etc. for each location. This information was obtained through a number of sources including City of Brantford and Brantford Housing databases, "For Rent" or "Property Management" signs located on the properties, contact with tenants living in the buildings, google maps and internet searches (ie. reverse lookups)

In addition to collecting data, City staff implemented the Enhanced Multi-Residential recycling program, communicating information about the City's enhanced program to staff and tenants as well as delivering educational tools and materials. Tracking down data and delivering the program during the same site visit allowed the City to take a "snapshot" of the building's recycling performance, allowing for more accurate conclusions to be drawn concerning any post-implementation improvements. Post-implementation interviews were conducted within the last month of the program in order to determine the impact of the activities undertaken as part of recycling P&E efforts. Locations designated as poor performers based on ongoing data collection will be targeted for additional site visits to ensure multi-residential buildings have continued support with their recycling programs.

Site visits were generally conducted in teams of two, with a Co-op student accompanied by a Supervisor. The Supervisor would not stay for the lobby display (if applicable) unless there seemed to be a safety risk. The visits were, where possible, conducted with a Superintendent, Owner, or Property Manager

present, in order to establish personal contact and get more in-depth information about the building's recycling program. During site visits staff checked the building layout, recorded location of recycling totes, distributed P&E materials, put up posters, and re-labelled totes.

In some cases, Property Managers or Owners did not want to meet us on-site but gave permission for us to conduct a site visit on our own. In these cases as much information was gathered on the phone prior to the site visit.

Site visits were conducted in accordance with Best Practices. The City updated the CIF Site Visit form, which can be found in Appendix B, to include performance measures such as evaluations for signage and labels, stream mixing, and contamination. In post-implementation interviews, barriers previously identified were discussed to see if any improvements had been made.

4.1.2 Database and completeness of data

Microsoft Access was used to create a database to store data collected from site visits. The Multi-Residential Database was developed by Competitive Edge Information Systems Inc. Over the course of the project, properties were added and full contact information was recorded. Important notes tracked in the database included contact information of the Property Management Company and the on-site contact person. As well, recycling and garbage information was recorded and a building picture was added for reference.

The information of all 126 buildings currently in post-implementation stage has been updated within the last 3 months. The data for all records are updated whenever an interaction occurs with the properties contained in the database.

A screen shot of the database can be found in Appendix C.

Table 3: Database summary

Buildings	Total in municipality¹	Recycling provided by municipality	Site visits completed²	Data updated²
Number of buildings	164	126	126	164
% of all buildings	100	76.8	100 ³	100 ³

Notes

¹ Total number of buildings of eight or more residential units.

² Site visits and data updates were completed at all buildings where access was permitted.

³Percentage of locations receiving municipal recycling

4.1.3 Data maintenance

It was important to protect this investment by maintaining the database and ensuring a process of keeping it up-to-date.

City staff has access to the database and were trained on how to view and update the information. Information on the waste management programs and/or contact information for a particular property were updated when the property:

- Ordered additional totes
- Reported a collection issue
- Requested in-unit bags or other P&E materials
- Staff conducted a site visit
- Letters were returned as undeliverable

Due to the high turnover in on-site contacts such as superintendents and property managers, staff should review the contact information of all buildings yearly in order to ensure the information in the database is correct and up to date.

4.1.4 Summary and recommendation:

The Microsoft Access Database has proved to be an effective tool to store and collect data regarding the City's multi-residential recycling program. City staff will be updating the database as required.

It is recommended that data be entered shortly after it is collected and information be updated every time recycling totes are delivered or broken totes are replaced. This will ensure that if there are questions on the data or comments noted during site visits, they can be verified easily by the data collector and that there is a running total of recycling totes in service.

4.2 Phase 2: Benchmarking recycling performance

A key step in implementing program improvements was to benchmark pre-implementation performance so that recycling targets could be established and program improvements could be comparatively measured.

Performance indicators such as container fullness and contamination were monitored during site visits. Performance data completed during site visits is an estimate only as it is not based on precise weights. However if done consistently research suggests that visual inspection performance data can be used comparatively with actual weights since they have been found to be within close range of each other. Obtaining this information from each building was helpful both for flagging low performing buildings and for highlighting top performing buildings.

4.2.1 Procedure for estimating recycling rates

Staff completed visual waste audits during the program and interviews after the program's implementation, for a large percentage of multi-residential buildings. Visual waste audits were conducted the morning of the building's collection day, representing a 'snap-shot' of the multi-

residential program at the time. At each location, totes were checked for fullness, contamination, and cross-contamination (i.e. stream mixing). Fullness was measured in increments of 25% (Appendix J).

In some cases, locations were often missed due to being collected before the audit could be complete. In the cases where empty totes were found on the curb, they were presumed to be 100% full. When totes were no longer on the curb, the fullness was not recorded for that day as it was unknown whether the totes had been placed out or not. If a location was found to be consistently missed, it was either visited the day before its collection day or in some cases a request would be made to the contractor to delay collection at that location.

This data faces inaccuracies due to its observational methodology. Only the top layer of material is visible, so the variety and amount of contamination is merely an estimation of what is held within the rest of the tote. While fullness is a measure with less room for error, it is important to note that the Co-op student completing daily audits changed every four months. While methodology is carefully detailed, there is still room for individual error. For example, a tote that is 65% full could be recorded as either 50% or 75% full, which is up to that individual. The level of detail contained in audit notes also varies which may for some periods seem more or less contaminated than others.

4.2.2 Recycling rate estimates

Figure 2 shows the average fullness of recycling totes observed on completed site visits at 30 selected locations that received bags from April to December 2014 (Appendix D). The baseline average is comprised of data collected from January 13 to May 30, 2014. The average four months post-implementation accounts for each week after delivery of P&E materials and bags were delivered for four months (sixteen weeks). Baseline fullness average was 71%, this increased to 85% post project implementation.



Figure 1: City staff performing waste audit

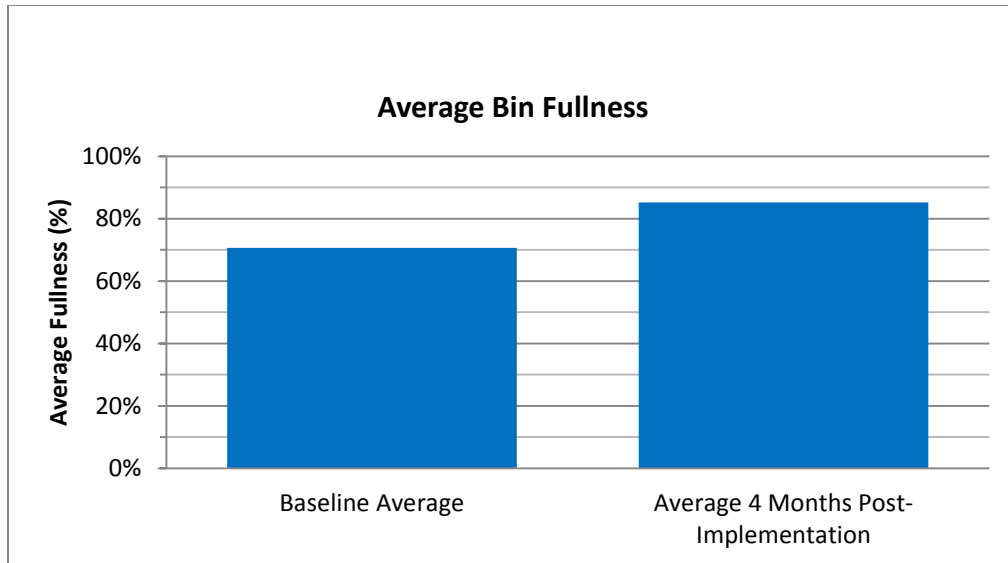


Figure 2: Pre versus post bin fullness at MR locations that received bags from April to December 2014

Figure 3 presents a correlation of the fullness data presented in Figure 2 with density estimates, and the number of carts set out for collection, to arrive at an approximate weight of material set out for collection on an annual basis. Based on the 30 sample locations, and a number of visual audits from January 2014 to July 2015, the average annual tonnes diverted for fibre went from 103.35 to 112.59 and the average annual tonnes diverted for containers went from 47.44 to 57.40. .

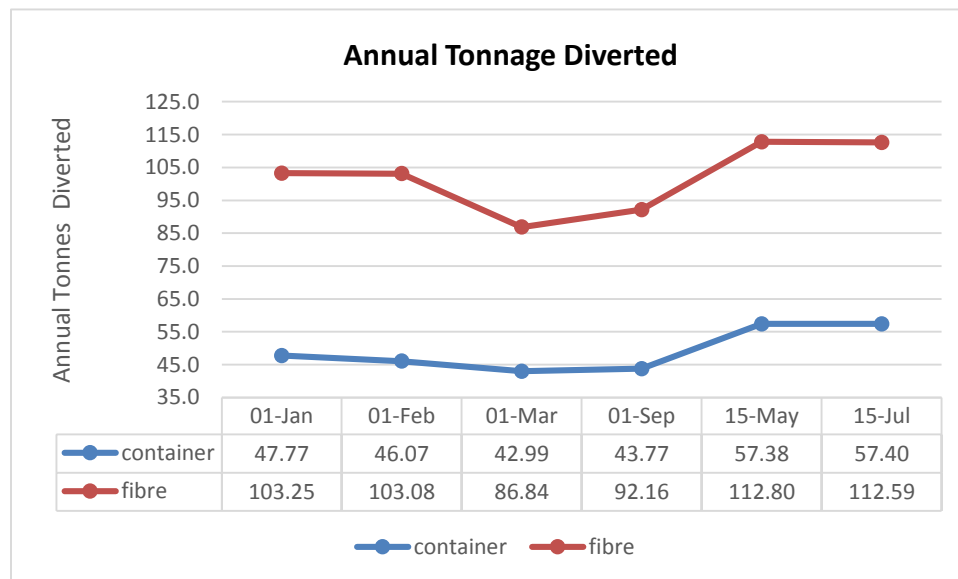


Figure 3: Visual estimate of annual tonnes diverted through MR program

An alternative way to evaluate the change in performance of the MR program is to consider the average recycling rate on a per MR residential unit basis. Using the estimate data for annual tonnes presented in Figure 3 and dividing by the number of units that receive MR recycling service, staff was able to estimate

the recycling rate for MR as 77 kg/unit baseline and 84 kg/unit post project implementation. This represents a 15% increase in the amount of material diverted through the MR program.

Figure 4, illustrates this improvement in recycling rates after completion of the project. The average recycling rate, for multi-residential buildings, went from 78 to 84 kg/unit per year.

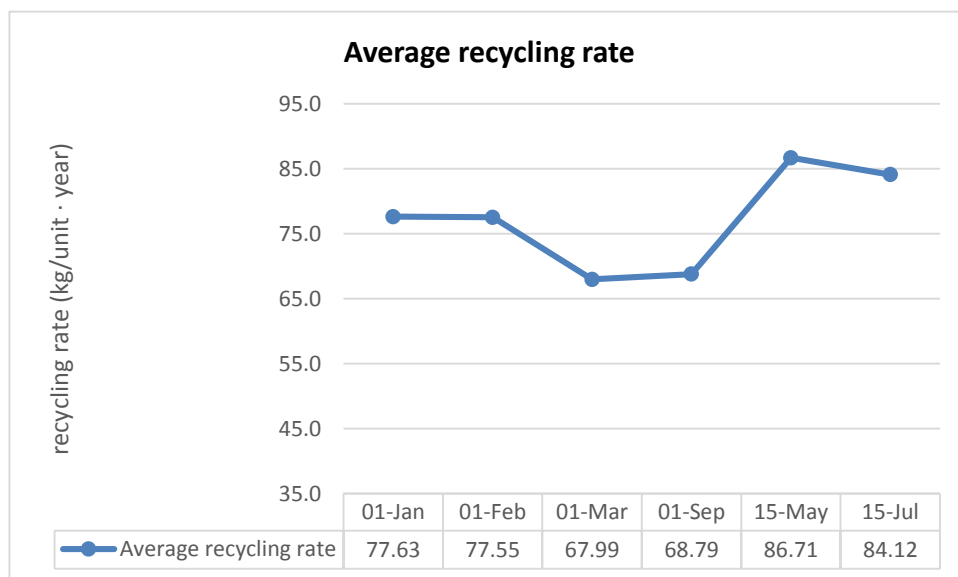


Figure 4: Visual estimate of average recycling rate per year

Data collected from post-implementation interviews appeared to echo this trend over the course of the program. Based on 25 respondents ranging from Superintendents to Facilities and Garbage Managers, when asked about the change in recycling output since program implementation, 13 said there was a definite increase in output. One respondent said there was only a slight increase, 7 said there was no change and only one said there was a decrease in recycling quantity. Figure 5 illustrates this.

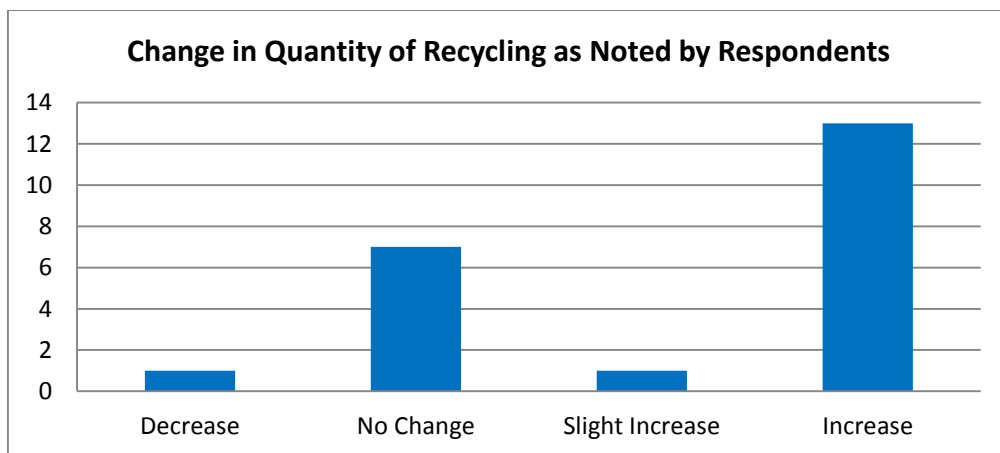


Figure 5: Change in quantity of recycling as noted by respondents

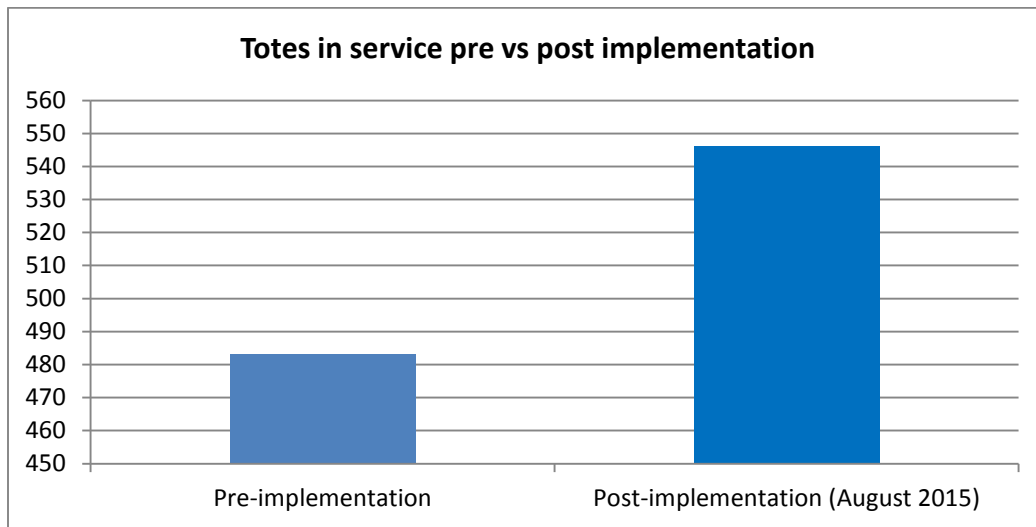


Figure 6: Totes in service before and after program implementation

Moreover, this can be supported by the changing number of totes in service which has increased by 63 over the span of the program, from 483 before program implementation to 546 during the post-implementation phase (Figure 6). This represents a 13% increase in recycling capacity from May 2014 to July 2015.

An increase of recycling output can be inferred through the increase in demand for recycling capacity. Some of the factors influencing this trend include:

- Delivery of bags, labels, and posters.
- Lobby displays (at select locations).
- The addition of acceptable materials in the containers recycling totes. In November 2012, the City of Brantford started accepting all plastic containers and all rigid plastic packaging (#1-7 and with no numbers). Previously only plastic packaging marked 1, 2, and 5 were accepted.
- Ongoing monitoring by the City's on-road staff.

4.2.3 Barriers to Recycling

During site visits, information was collected on the following barriers to recycling:

- OCC (loose beside cart)
- Contamination
- Stream mixing
- Accessibility of recycling
- Loose materials noted
- Overflowing carts
- Cleanliness of area
- Area well lit
- Carts well labelled
- Signage

Buildings were ranked 1-3 for the above barriers with 1 denoting need for corrective action and 3 being a high-standard, 'model' building. Table 4 summarizes the findings of these barriers during the baseline site visits at each of the 30 locations that received P&E materials from April to December 2014. The site visits were generally completed on the day that the recycling materials were delivered.

As a means of measuring change in quality of recycling, the same 24 respondents were asked if they had seen a decrease, slight decrease, no change, slight increase or increase in sorting, cleanliness and contamination since pre-implementation. Based on the answers, along with observations made during waste audits, there have been a few locations who have improved. However, a majority of locations have seen no change in this area. Many respondents said they still find contaminants such as plastic bags, plastic film, Styrofoam and coffee cups in the recycling.

Table 4: Barriers to recycling. 30 baseline site visits (32 buildings) conducted April to December 2014.

Barrier to increased recycling	1 - Requires corrective action	% of total	2	% of total	3 - High standard	% of total
OCC	1	3%	26	87%	3	10%
Contamination	3	10%	25	83%	2	7%
Stream mixing	6	20%	20	67%	4	13%
Accessibility of recycling	2	7%	24	80%	4	13%
Loose materials noted	1	3%	27	90%	2	7%
Overflowing carts	2	7%	27	90%	1	3%
Cleanliness of area	2	7%	19	63%	9	30%
Area well lit		0%	24	80%	6	20%
Carts well labelled	1	3%	11	37%	18	60%
Signage	1	3%	11	37%	18	60%

One question that was asked was whether any change in the quality of recycling had been noticed. As illustrated in Figure 7, it ranged from no improvement in quality to an increase in quality implying that the project did have some impact on some residents. Overtime, there could be greater improvement as tenants learn from other tenants.

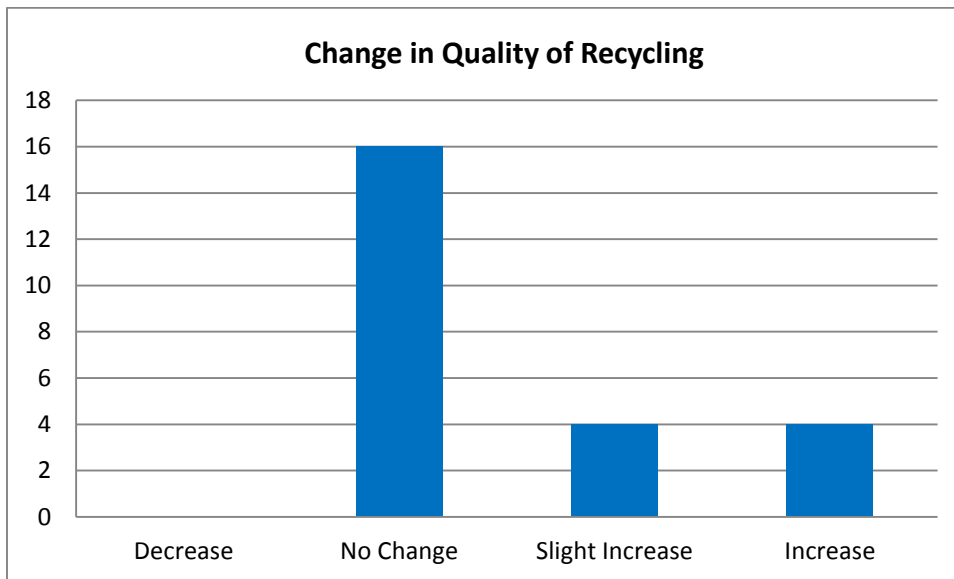


Figure 7: Change in quality of recycling as noted by superintendents

Another question asked to gauge the success of the enhanced MR recycling program was if the reusable recycling bags were still being used, as observed by respondents. This was an important metric to get as it tells us how effective the tools were to improve recycling participation. Based on answers given, after a year post-implementation, recycling bags are often used at 29% of locations, sometimes used at 62.5% of locations, and no longer used at 8% of locations (Figure 8).

A common issue that came up during these interviews was a high tenant turnover rate experienced within the last year, which resulted in a lot of bags going missing as people moved out and a short supply of bags to be given out as people move in.

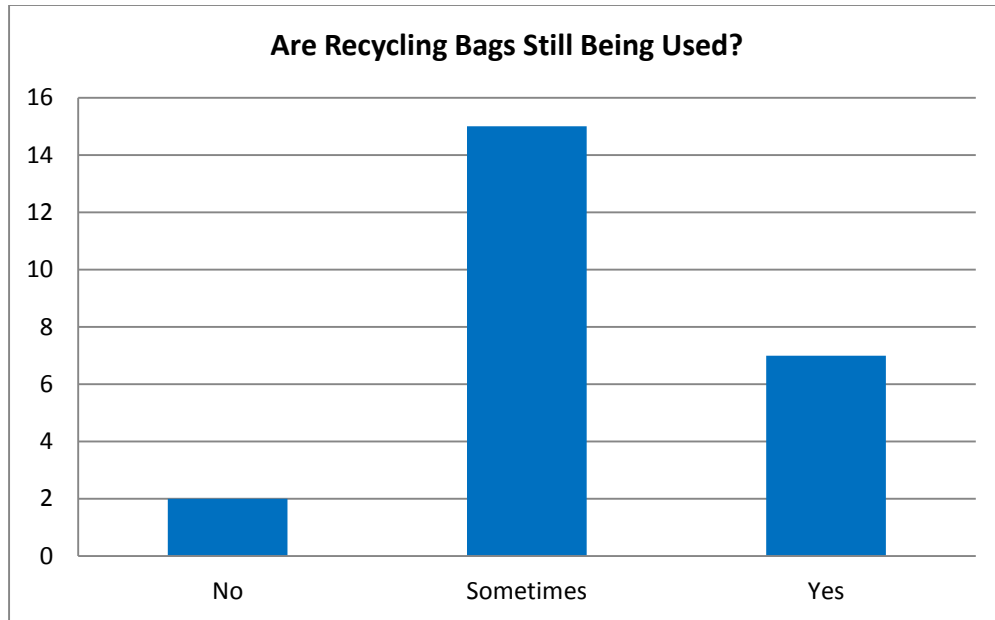


Figure 8: Are recycling bags still being used?

For buildings that have ongoing issues with contamination and stream mixing, corrective action is and will continue to be implemented. As of August 26, 2015, 4 locations that were ranked poorly during waste audits were delivered a mail-out letter that discussed the benefits of recycling, acceptable recyclable materials as well as common contaminants found in recycling during waste audits (Appendix I).

It was discovered that signage in particular poses a barrier that can be difficult to address due to the fact that many recycling areas in the City of Brantford are located outdoors where there is nowhere to put signs. In these cases, signage can, where possible, be placed in common areas such as laundry rooms and hallways to remind residents of proper preparation and acceptable materials. It is recommended that buildings are followed up on once a year or more to ensure that posters remain in good condition.

During post-implementation interviews, respondents were asked about these and other barriers to see if any improvements had been made or if there were still challenges to the program. Based on the data collected from this, there seemed to be concern regarding contamination with garbage and cross-stream mixing of paper and container products.

4.2.4 Featured building: 640 West Street

A building that seems to claim the position of recycling champion is 640 West Street (Figure 9). This location consistently puts out full totes of properly sorted and uncontaminated recycling each week. One of the factors that make this building so good is the live-in superintendent who plays a role in both sorting recycling and creating a waste management room that makes it easy for tenants to do their part.

Below are images of the waste management room at 640 West Street, which keeps paper and container totes separate, contains a spot to bundle corrugated cardboard, bins for e-waste such as batteries, ink cartridges and light bulbs, and signage to educate tenants on proper waste management.

The room is well lit and kept in very clean condition.



Figure 9: 640 West Street garbage room

4.3 Phase 3: Provide P&E materials

4.3.1 Print materials

A project goal was to distribute new print materials to promote recycling and educate building residents and staff about what can and cannot be recycled. Municipalities have access to print templates (resident flyers, posters and signs for buildings and container labels) through the CIF website. The template materials were customized with information specific to Brantford. The materials included:

- Lobby displays

- Reusable recycling bags
- Flyers
- Tote labels
- Sorting posters

The various materials given to each location are listed in Appendix D.

The *CIF Best Practice Guidelines* recommends strategies for distribution of print materials which state that:

- Print materials should be distributed directly to residents
- Posters should be distributed and displayed at multi-residential buildings, and
- Labels should be applied to recycling containers.

If time permits, a good practice is to hand out the posters, signs and other materials at the time when recycling containers are being delivered to the building.

Each material is discussed in the subsections below.

Table 5: Summary of P&E materials used

P&E Component	Number distributed	Method of distribution
Reusable recycling bags	5,084	By municipal staff to each unit
Resident flyers	5,084	By municipal staff to each unit
Posters	575 4 to 6 per building, depending on building size	Posted by municipal staff on each floor (chute room), laundry room, lobby, mail room, etc.
Containers labels	546	By municipal staff

4.3.2 On-Site and Face to Face Outreach

Direct face to face communication is considered the best outreach mechanism. Lobby displays were offered to help educate residents at MR buildings on the recycling program. The City was flexible in the type of lobby display offered to the building as each building is unique. Some buildings had more formal presentations and others had staffed lobby displays that were generally held for around two hours.

Each lobby display included roll-up banners with photographs and labels of acceptable materials to illustrate the comprehensive list of recyclables accepted in the City's recycling program. Additionally, promotional materials such as pen/highlighter combos and bookmarks were distributed in order to encourage interaction with residents.

Of the 31 locations that received P&E materials between April and December 2014, a total of 22 locations received lobby displays.

Participation in the lobby displays varied, with some being very successful and others only having a few residents attend. A summary of display traffic and duration can be found in Appendix E.

It is recommended that lobby displays are mandatory and are advertised three to five days before. If the building is new to recycling, it is recommended that the lobby display occurs on the same day as the delivery of the recycling carts and the in-unit tenant packages. A sample lobby display announcement flyer can be found in Appendix F.

4.3.3 Lobby Display Effectiveness

Lobby displays were held at 22 of the 31 locations given bags from May to December 2014 and ranged from half an hour to three hours long. The 9 locations that were not given lobby displays generally did not have a suitable area in which to host one, although in three instances at 7 Bain Street, 920 Colborne Street, and 155 Dundas Street there were no displays due to a predicted lack of traffic advised by the property manager or superintendent. The lobby displays are, in theory, an interactive and personal approach to reinforcing recycling concepts; but they are entirely dependent on the amount of residents that pass by the display (i.e. “traffic”). Logically, the longer the lobby display is, the more traffic it will have, however traffic is largely a function of the building demographics. Buildings with mostly senior residents generally had higher traffic than those with demographics including working professionals.

Timing of displays can also affect traffic. Conducting displays in the morning, around lunchtime, and at three to four o’clock help to target groups such as working professionals going to and from work and families who are either taking their children to school or picking them up. Buildings with seniors can be more difficult to target as most residents are retired, however they tend to come and go in a more leisurely fashion, which often leads to more in-depth conversations about recycling. One way to encourage traffic is for either the City or the building manager to post a notice alerting residents to the time and date of the display. Attendance at community gatherings (where applicable) is another tactic to reach a large audience.

Based on output data from February 2014 – July 2015, lobby displays are assumed to have had an impact on the output of recyclable materials. As seen in figure 3 and figure 4, there is a positive growth in recycling quantity from before and after delivery of P&E materials.

4.3.4 Reusable Recycling Bags and Flyers

At each location, every unit received a reusable recycling bag. The bag has a divider in the middle so that residents can separate their recyclable material into the two streams. Screened images on the bag’s exterior clearly illustrate acceptable and unacceptable materials in the program. These recycling bags help residents to properly sort, store, and transport recyclable materials to the recycling totes.

Each bag contained a flyer that detailed information on what is acceptable and unacceptable in the recycling program and how to properly prepare and separate acceptable materials.

Designs of the flyers and bags can be found in Appendix G.

4.3.5 Recycling Posters

Recycling posters provide visual guidance to residents for proper separation of materials. In locations with indoor recycling rooms, posters were put up near the totes. If the location did not have an indoor recycling room but had a common area such as a laundry room, posters were placed there in order to reinforce proper sorting habits.

Poster designs can be found in Appendix A.

4.3.6 Recycling Tote Labels

Recycling tote labels included pictures of recyclable materials as reminders to residents as to what is acceptable in the program. The pictures on the labels match those on the posters and in-unit recycling bags. The labels read “Containers” and “Paper Products” in order to identify which material goes in each tote.

Label designs can be found in Appendix H.

4.4 Phase 4: Increase recycling container capacity

Having enough storage space for recyclables is one of the most critical factors in a successful recycling program and it is important to address this first before other program improvements are put in place. During site visits the baseline container quantities were recorded and information was collected about where containers could be relocated within the building to provide more convenience to residents. Site visits also provided the opportunity to determine if additional containers are required and where additional containers would be stored and ultimately used.

4.4.1 Type of recycling containers

Recycling storage space is referred to as ‘capacity’. The ‘capacity’ is provided by the building’s communal recycling totes that are available for residents to dispose of their recyclables in.

The CIF Best Practices recommend one 360 litre recycling tote for every seven units based on a 60% recovery rate. Recycling totes are provided to the buildings by the City free of charge.

4.4.2 How much recycling capacity is being provided?

Based on the provincial target of recycling 70% of all recyclables it is recommended that each residential unit be provided with a minimum of 50 litres of storage capacity. This is equivalent in size to a standard 14 gallon Blue Box. In terms of multi-residential containers, the following guidelines are recommended by the CIF and are considered best practices:

- 360 litre carts – one cart for every 7 residential units

The cart to unit ratio outlined by the CIF is considered best practice. Continuous Improvement Funding is provided on the basis that municipalities implement these best practice ratios. The guidelines represent average requirements and it is assumed that at the building level there will be ranges depending on the

demographics. Additional cardboard bundled and placed beside the recycling totes is not captured in the litres capacity per unit.

Building demographics can affect recycling output. For example, buildings with many seniors tend to have a lower number of residents per residential unit and therefore generate less recyclables. Lower income households also tend to generate a lower-than-average amount of recyclables.

Table 6: Total number of recycling containers

	Baseline (Jan 2014)	Post implementation (Aug 2015)
Units with recycling service	4939	5084
360 litre carts	483	546
Total program capacity in litres	173,693.5	196,349.2
Capacity per unit (l/unit)	35.2	38.6

Table 7: Recycling capacity, baseline and post-implementation

Capacity range	Baseline	Post-implementation
	Number of Buildings	Number of Buildings
Best practice range: 45 to 55 litres/unit	32	34
Low: less than 45 litres/unit	42	36
High: more than 55 litres/unit	23	27

The recommended ratio of one 360 litre tote per 7 units in the distribution of recycling totes proved to be sufficient capacity for multi-residential buildings in Brantford. At the beginning of the enhanced multi-residential recycling program, 55 locations were either within or above the recommended range for recycling capacity, compared to 42 that were below. After program implementation however, these numbers improved. Currently, 63 locations are at or above the recommended capacity and only 34 are below. Demand for capacity will hopefully continue to grow as the program evolves and recycling output increases.

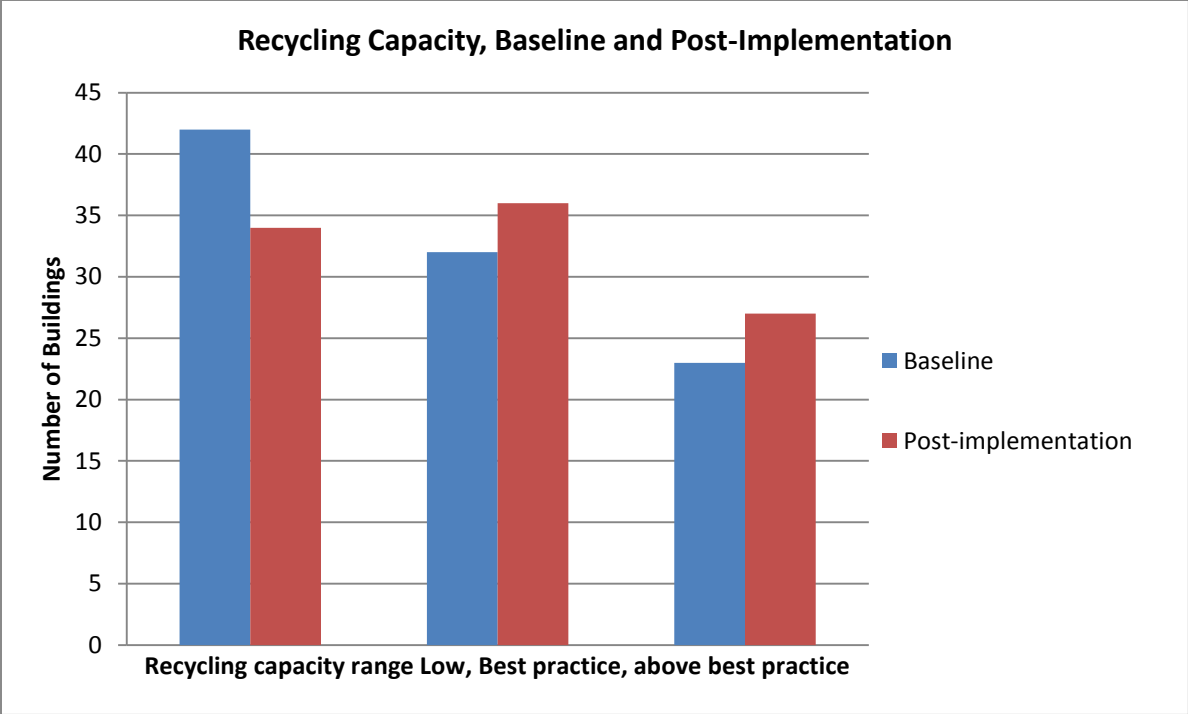


Figure 10: Recycling capacity, baseline and post implementation

5. Project budget

Table 8: Project budget planned and actual

Description	Unit	Quantity (est.)	Unit Cost (est.)	CIF Approved (upset limit)	Quantity (actual)	Unit Cost	Cost
Staff support	Building	141	\$35	\$4,935	126	\$35	\$4,410
Increase capacity	96 Gallon carts & cart labels	625	\$60	\$18,750	497	\$77.50	\$19,260
Final report	Report	1	\$4,000	\$2,000	1	\$2,000	\$2,000
In-unit containers	Reusable Bags	6,500	\$2.00	\$6,500	11,160	\$1.15	\$6,390
Print costs	Resident recycling book	13,000	\$1.00	\$6,500	13,000	\$0.80	\$717
Other P&E materials	Display banners	2	\$1,000	\$1,875	2	\$600	\$600
Other costs	HST @ 1.76%	1		\$632	1		\$475
Total				\$39,625			\$33,852

6. Concluding Comments

The post-implementation trend is that more material is being recycled through the MR program. This can be attributed to the enhanced recycling service and the efforts of on-site personal overseeing the quality of the recycling being put at the curb. In order to maintain high output levels, contact should be made on a regular basis with building personal and additional P&E materials should be provided to the buildings biyearly to act as a reminder of the recycling program (Figure 11).

A correlation between lobby displays and average fullness of material has also not been found, which implies that the effect of lobby displays on recycling output may be insufficient to warrant the cost. Despite this, it is still beneficial to have face-to-face contact with building managers and tenants in order to enhance City outreach. In order to maximize outreach to tenants, lobby displays should be timed accordingly with the building demographic. If a building has many seniors, displays can generally be done at any time whereas buildings with working professionals should receive lobby displays in the morning or late afternoon when there is a chance of them departing or returning from work. Buildings with families should also have lobby displays that are timed this way.

In order to better understand the effectiveness of P&E materials on recycling output and amount of contamination, buildings should be continuously monitored using the visual audit methodology. Implementation should be completed for all locations as soon as possible, and additional rounds of site visits should commence immediately after at locations that were the first to receive the P&E materials.

Another way to determine success was by asking superintendents and building managers. Based on a survey conducted to 24 locations, the general feeling was that the program has been successful. The surveys reported that there were 22 reports of seeing bags still being used, 8 reports of improved recycling quality and 14 reports of increased recycling output. These opinions, can give us an indication that the program has had a positive impact on multi-residential recycling.

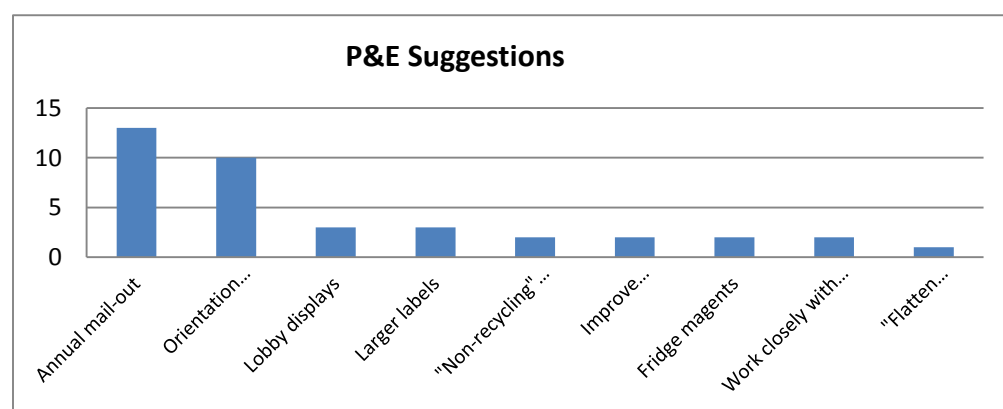


Figure 11: Suggested marketing strategies by respondents

There have been some key learnings to take away from this program, of which all will be tied back into the continual improvement of the multi-residential recycling program.

7. Appendices

Appendix A – 2-Stream Recycling Poster

PAPER PRODUCTS



Magazines, catalogues, phone books, soft & hard cover books (remove hard covers)



Household paper



Boxes, egg cartons, tubes (flatten)



Newspapers, flyers



Cardboard boxes
Flatten & place large pieces between carts. Bundle large quantities. Bundles no larger than 75cm x 75cm x 20cm (30" x 30" x 8")



CONTAINERS



Aerosol cans (empty)



Plastic bottles, tubs, jugs



Plastic clamshell containers
No Styrofoam™



Spiral wound (cardboard) cans



Glass bottles & jars



Cartons & drink boxes



Steel & aluminum cans, metal paint cans (empty), aluminum foil and pie plates



Appendix B – Site Visit Form

Multi-residential Recycling Program: Site Visit Form

Address (full mailing): _____

Units: _____ Floors: _____ Site Visit Date & Day of Week: _____

Condo / Rental / Senior / Student / Co-op / Public Recycling Collection Day(s) _____

Garbage: Municipal / Private

Recycling: Municipal / Private

Garbage Collection Day(s): _____

Contact Information

Property Manager: Same as owner ☐

Company: _____ On-Site Contact: Super / Property Manager / Owner / NA

Name: _____ Name: _____

Phone #: _____ Phone #: _____

Cell #: _____ Cell #: _____

E-Mail: _____ E-Mail: _____

Address: _____ Address: _____

Performance Evaluation

Recycling Containers: # of 65 gal = _____ # of 95 gal = _____ # bins x size = _____

Stream 1: _____ # ~~Cont~~ _____ # full or partfull containers: _____

Stream 2: _____ # ~~Cont~~ _____ # full or partfull containers: _____

OCC : ~~approx~~ quantity

Barrier Evaluation: Rate on a scale of 1 to 3: 1 = Bad and requires attention, reserve rate of 3 for Excellent

OCC _____ Contamination _____ Stream mixing _____ Accessibility _____

Loose materials _____ Overflowing carts _____ Area clean _____ Area well light _____

Labels & Signage _____

Recycling & Garbage Area Description – check all that apply

Garbage: # bins x size _____ Or curbside ☐ Garbage Chutes ☐ Weekly Pickup ☐ Twice/~~wk~~ ☐

Recycling Area: Outdoor ☐ ~~Outdoor~~ Under cover ☐ Inside room ☐ Main Fl ☐ ~~Under ground~~ ☐ Collect from each floor ☐

Number of Recycling Depots _____ Twinned with garbage ☐ Recycling containers shared with other buildings ☐

Addresses that share _____

Room to add extra recycling containers ☐ Where _____

Comments:

Appendix C – CIF Multi-Res Database Screenshot

Multi Residential Management System

File Home Add-Ins

Clipboard Cut Copy Paste Filter Ascending Descending Advanced Sort & Filter Refresh Save Delete More Records Find Go To Select Find Replace Size to Fit Form Windows Switch Windows Text Formatting

Property Find

Building Name
City
Street Name
Property Type
Contact First Name
Contact Last Name
Contact Company Name

Clear All Search

Building Name	City	Street Name	Property Type	City	First Name	Last Name	Company Name	Contact Type
Dufferin Apartments	54	Dufferin Avenue	Apartments	Brantford	Jillian	Howden	Active Management Ltd.	Property Manager
BHNCDSB - Christ the King	165	Dufferin Avenue	School	Brantford	Jim	Muir	BHNCDSB	Principal
BHNCDSB - Christ the King	165	Dufferin Avenue	School	Brantford	Annette	Finnie	BHNCDSB	Principal

Property

City
Street Name
City
Province
Postal Code

Building Information
Building Name
Property Type
Property Number

Contacts
Recycling
Garbage
Communications
Documents
Images

First Name	Last Name	Company Name	Contact Type
Jillian	Howden	Active Management Ltd.	Property Manager
Martin	Howden		Maintenance

Property Management
Company: Active Management Ltd.
Contact: Jillian
Work Phone: (905) 333-5506 x 33
Email

Recycling Capacity
26 Units
55 lbs/unit

Image

Appendix D – Locations with MR BP implementation - Apr to Dec 2014

#	Street	P&E Materials Given
45	Albion Street	Bags, flyers, labels, posters, display, bookmarks, pens
7	Bain Street	Bags, flyers, labels, posters
3	Cloverdale Avenue	Bags, flyers, labels, pens
24	Colborne Street	Bags, flyers, labels, posters, display, bookmarks, pens
793	Colborne Street	Bags, flyers, labels, posters
920	Colborne Street	Bags, flyers, labels, posters
150	Darling Street	Bags, flyers, labels, posters, display, bookmarks, pens
155	Dundas Street	Bags, flyers, labels, posters
321	Fairview Drive	Bags, flyers, labels, display, bookmarks, pens
421	Fairview Drive	Bags, flyers, labels, display, bookmarks, pens
5	Fordview Court	Bags, flyers, labels, posters, display, bookmarks, pens
36	Freeborn Avenue	Bags, flyers, labels, posters, display, bookmarks, pens
300	Grand River Avenue	Bags, flyers, labels, display, bookmarks, pens
312	Grand River Avenue	Bags, flyers, labels, display, bookmarks, pens
36	Hayhurst Road	Bags, flyers, labels, posters, display, bookmarks
24, 26, 28	Helen Avenue	Bags, flyers, labels, posters, display, bookmarks, pens
71	King George Road	Bags, flyers, labels, posters
50	Memorial Drive	Bags, flyers, labels, posters, display, bookmarks, pens
325	North Park Street	Bags, flyers, labels, posters, display, bookmarks, pens
575	Park Road North	Bags, flyers, labels, posters, display, bookmarks, pens
183, 185	Pearl Street	Bags, flyers, labels, posters, display, bookmarks, pens
85-109	Sympatica Crescent	Bags, flyers, labels, posters
80-82	Tecumseh Street	Bags, flyers, labels
126	Toll Gate Road	Bags, flyers, labels, posters, display, bookmarks, pens
130, 136	Toll Gate Road	Bags, flyers, labels, posters, display, bookmarks, pens
129	Wellington Street	Bags, flyers, labels, posters, display, bookmarks, pens
118	West Street	Bags, flyers, labels, posters, display, bookmarks, pens
640	West Street	Bags, flyers, labels, posters

661	West Street	<i>Bags, flyers, labels, posters, display, bookmarks, pens</i>
	Winston Court	<i>Bags, flyers, labels, posters, display, bookmarks, pens</i>

Appendix E – Duration and Traffic of Lobby Displays

Address	Duration	Traffic
45 Albion St.	2 hours	Unknown
24 Colborne St.	2 hours	Spoke to around 80 people
793 Colborne St.	2 hours	Minimal
150 Darling St.	2 hours	Minimal - visitor's lobby
321 Fairview Dr.	2 hours	Average
421 Fairview Dr.	Unknown	Unknown
5 Fordview Ct.	3 hours	Spoke to around 100 people
36 Freeborn Ave.	2 hours	Minimal
300 Grand River Ave.	2 hours	Minimal
312 Grand River Ave.	1 hour	Minimal
36 Hayhurst Rd.	2 hours	Spoke to at least 50 people
24, 26, 28 Helen Ave.	2 hours each	Minimal
50 Memorial Dr.	2 hours	Spoke to around 20 people
325 North Park Rd.	2 hours	Minimal - spoke to 1 person
575 Park Rd. N	Unknown	Average
183, 185 Pearl St.	Unknown	Unknown
126 Toll Gate Rd.	1/2 hour	Nobody
130, 136 Toll Gate Rd.	1/2 hour each	Minimal - spoke to around 3 people in 130, nobody in 136
129 Wellington St.	1 hour	Spoke to around 5 people
118 West St.	3/4 hour	Minimal - spoke to 1 person
661 West St.	2 hours	Spoke to around 25 people

Appendix F – Lobby Display Announcement Flyer



Multi-Residential Recycling Display in the lobby

When is it?

**Wednesday
April 16th!
11am-2pm**



What will be there?



. **New Bags!**

To store recyclable materials in before taking them to your building's recycling totes

. **Recycling Program Flyers!**

Explaining acceptable materials and slight changes in the program

. **New Labels!**

For your building's recycling totes

. **Posters for Your Building!**

Explaining acceptable materials

. **Helpful City Employee!**

Willing to answer questions and listen to concerns regarding the multi-residential recycling program

Appendix G – Bag and Flyer Designs

Bag Side 1

Recycling makes a Difference
Thank You!

RECYCLE OFTEN



Boxes, egg cartons, tubes flatten)

Newspapers, flyers

Magazines, catalogues, phone books, soft & hard cover books (remove hard covers)

Household paper

Cardboard boxes
Flatten & place large pieces between carts, or in cardboard bins. Bundle large quantities. Bundles no larger than 75cm x 75cm x 20cm (30" x 30" x 8")

Learn more at brantford.ca or call 519-759-1350

BRANTFORD
SOLID WASTE OPERATIONS

Funding in part by Waste Diversion Ontario's Continuous Improvement Fund

Bag Side 2

Recycling makes a Difference
Thank You!

RECYCLE MORE



Plastic bottles, tubs, jugs

Cartons & drink boxes

Aerosol cans (empty)

Steel & aluminum cans, metal paint cans (empty), aluminum foil and pie plates

Plastic clamshell containers
No Styrofoam™


Spiral wound (cardboard) cans

Glass bottles & jars

Learn more at brantford.ca or call 519-759-1350

BRANTFORD
SOLID WASTE OPERATIONS

Funding in part by Waste Diversion Ontario's Continuous Improvement Fund



Multi-residential 2

sort recycling program

Details for multi-residential recycling, can be found on the reverse.

Please note the *CHANGES* that have been made to the recycling collection program. We now take more plastics!

MORE PLASTICS:
All plastic* bottles, jugs, tubs and trays with the numbers 1 through 7 on the bottom, can be recycled. This includes clear plastic "clamshell" containers.



*There are exceptions: Please do not include foam plastic packaging (e.g. Styrofoam), plastic bags, plastic wrap (e.g. bubble wrap), and "blisterpak" plastics (e.g. the rigid clear plastic cover on toys and other products). Clean plastic grocery bags can be taken to the Brantford Food Bank, 1100 Clarence Street South.



PAPER MILK AND JUICE
CARTONS, DRINKING BOXES



PLASTIC TUBS
AND LIDS



ALL PLASTIC
BOTTLES WITH
TWIST OFF TOPS



BRANTFORD
Solid Waste Operations
Questions? 519.759.1350
or visit: brantford.ca

TOTE 1 NEWSPAPER
JUNKMAIL
BOXBOARD

TOTE 2 PLASTIC/METAL
ALUMINUM/GLASS
MILK/JUICE CARTONS
DRINKING BOXES





Multi-residential 2

sort recycling program

PAPER PRODUCTS



Magazines, catalogues,
phone books, soft &
hard cover books
(remove hard covers)



Household paper



Boxes, egg cartons,
tubes (flatten)



Newspapers, flyers



Cardboard boxes
Flatten & place large pieces between carts.
Bundle large quantities. Bundles no larger
than 75cm x 75cm x 20cm (30" x 30" x 8")

CONTAINERS



Plastic bottles, tubs, jugs



Aerosol cans
(empty)



Plastic clamshell
containers
No Styrofoam™



Spiral wound
(cardboard) cans



Glass bottles
& jars



Cartons
& drink boxes



Steel & aluminum cans, metal paint cans
(empty), aluminum foil and pie plates



PAPER PRODUCTS



FOOD, BEVERAGE &
LIQUID CONTAINERS

Appendix H – Label Designs

Containers Label



Paper Products Label



Appendix I – Mail-Out Letter

Brantford Recycles!

Can be recycled



Cannot be recycled



Helpful tips:

- Keep recycling **sorted** – separate **paper products** and **containers**
- Keep recycling **loose** – do not use plastic bags
- Keep recycling **clean** – remove food/beverage residue and garbage

Recycling saves landfill space and natural resources.

Brantford residents like you can improve our community by recycling properly!



Please recycle this letter

www.brantford.ca/residents/waste



Appendix J – Sample Fullness Chart

	Address	# Totes	# Plastic	# Paper	Total Fullness					Weeks of Data	Average Weekly Fullness					Average Fullness	Quality (1= bad, 5= good)
					0.00	0.25	0.50	0.75	1.00		0	0.25	0.50	0.75	1.00		
16	Coachwood Road	2	1	1			1		1	1	0.00	0.00	0.50	0.00	1.00	75.00%	3
20	Coachwood Road	3	1	2			1	2		1	0.00	0.00	0.50	1.50	0.00	66.67%	4
24-30	Coachwood Road	9	4	5			1	7	1	1	0.00	0.00	0.50	5.25	1.00	75.00%	4
301	Fairview Drive	6	3	3			2	1	3	1	0.00	0.00	1.00	0.75	3.00	79.17%	3
321	Fairview Drive	11	4	5			2	2	8	1	0.00	0.00	1.00	1.50	8.00	95.45%	3
421	Fairview Drive	6	3	3			2	1	3	1	0.00	0.00	1.00	0.75	3.00	79.17%	3
36	Hayhurst Road	15	7	8				3	12	1	0.00	0.00	0.00	2.25	12.00	95.00%	4
50	Memorial Drive	7	3	4			1	1	5	1	0.00	0.00	0.50	0.75	5.00	89.29%	3
325	North Park Street	12	2	3					0	1	0.00	0.00	0.00	0.00	0.00	0.00%	
575	Park Road North	5	2	3				1	2	1	0.00	0.00	0.00	0.75	2.00	55.00%	3
640	West Street	9	4	4					8	1	0.00	0.00	0.00	0.00	8.00	88.89%	5
661	West Street	10	5	5			1		6	1	0.00	0.00	0.50	0.00	6.00	65.00%	3