

**Woodstock Transfer Station
E & E Project # 247
City of Woodstock
Final Report - Project Implementation**

May 2009

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This project has been delivered with the assistance of Stewardship Ontario's Effectiveness and Efficiency Fund, a fund financed by Ontario municipalities and stewards of blue box waste in Ontario. Notwithstanding this support, the views expressed are the views of the authors, and the Association of Municipalities of Ontario and Stewardship Ontario accept no responsibility for these views.

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Executive Summary

This report documents the implementation of the Effectiveness and Efficiency Fund Project #247: “Woodstock Transfer Station” project. The main goals of this project were to increase efficiency for curbside collection and processing as well as maintaining and possibly reducing overall system costs. (i.e. labour, operational costs).

Prior to project implementation, the City had a seven stream curbside sort recycling program. Recyclables were taken to the City’s MRF where they were sorted and prepared for market.

Conceptually, making a move from a 7 stream to a 2 stream curbside collection program should be easier for residents and changing the MRF to a Transfer Station for recyclables should reduce material handling. The City estimated they would save approximately \$300,000/year and that the payback for the conversion would be approximately 2 years. The City further expected that recycling tonnages would increase as a result of this new program.

The City submitted an application and received approval from Stewardship Ontario’s Effectiveness and Efficiency (E&E) Fund to cover 50% of the cost of converting the MRF to a Transfer Station for recyclables (\$480,000) and 50% of the promotion and education costs (\$50,450) to convert from a 7 stream to a 2 stream curbside collection program. A grant of \$246,225 was received and included funding for the following items:

1. Compactor and Conveyor;
2. Overhead Door Modification (increase height);
3. Hopper and conveyor to move containers into the compactor (this item replaces the loading dock item in the original application);
4. Weigh Scale;
5. Pitwork for conveyor;
6. Fibre Storage area concrete block wall;
7. Demolition of former sorting equipment;
8. Electrical demolition and conveyor & compactor hook-up; and
9. Communication and Education (newsletter and brochure, door to door campaign and media ads, poster, website, post campaign launch monitoring).

The change to two stream recyclables collection commenced in early July 2008 and most of MRF conversion and installation of new equipment was completed prior to that time.

The impact of these changes were monitored, from July through December 2008, by



tracking tonnages collected and processed; undertaking a set-out study and preparing and disseminating a survey of residents.

Overall the changes to the recycling program appear to be well received and there are indications that this is having a positive impact on tonnages collected and reducing costs.

It is anticipated that there will be an annual savings of at least \$100,000/year to operate the City's Blue Box recycling program. On this basis the City expects a payback of less than 2 years, based on the City's approximate contribution of \$200,000 to the capital building conversion cost.

When considering the intended objectives of this project to increase collection capacity, decrease processing costs and introduce additional materials to the recycling program, the following conclusions can be made:

- Purchasing new collection trucks has allowed for an increase in collection capacity;
- Changing the MRF to a transfer facility allows for more material to be processed since material does not need to be stored for extended periods of time;
- It appears that processing costs have decreased due to fewer employees required to run the facility. This will be confirmed in 2009 when a full year of data will be available;
- Preliminary results indicate that participation and recycling capture rates have increased by about 15.2% with the new 2-stream program;
- The changes to the recycling program has increased recycling tonnages;
- A Survey indicated an overall positive response to the new program and residents would like to see additional waste diversion opportunities provided in the future;
- The traditional Blue Box container is no longer capable of handling the material quantities coming from a recycling program using a modern MRF. If a municipality is going to transition to this extent, container choice and sizing is something that needs more consideration. The majority of households in Woodstock use more than two blue boxes with many using other containers, boxes and unfortunately even clear bags to manage the quantity of materials set out for collection; and
- Interest from other municipalities has been limited to Southwest Oxford, which starting shipping recyclables to Woodstock in February 2009.

Next steps include reviewing a full year of data to make a meaningful cost and tonnage assessment on the impact of the changes to the MRF and collection of recyclables and additional program monitoring to identify further collection and processing efficiencies.

1.0 Introduction

The City of Woodstock (City) retained 2cg Inc. (2cg) to document the implementation of the Effectiveness and Efficiency Fund Project #247: “Woodstock Transfer Station” project. This report provides an overview of recycling in Woodstock, a project description and a summary of project implementation and monitoring. Information was gathered from City staff and through on-site research.

2.0 Background

The City provides its residents with a number of waste management services using both public and private contractors. Management services provided by the City include:

- Residential curbside garbage and recycling collection;
- Central business district commercial garbage and recycling collection;
- Limited multi-residential/institutional garbage collection;
- Recycling processing (with assistance from contracted forces); and
- Yard waste drop off (material composted at Oxford County Salford landfill).

Curbside recycling collection commenced in 1978 in the City. The City has operated a materials recovery facility (MRF) at the James Street Works Yard to separate and bale recyclables since 1984. The MRF expanded and evolved over the years to receive higher material quantities and to accept additional types of materials.

Prior to project implementation, the City had a seven stream curbside sort recycling program. Residents were required to separate for set out at curb the following materials:

- Newsprint;
- Fine paper;
- Boxboard;
- Cardboard;
- Glass;
- Plastic (#1-5); and
- Steel cans/aluminum cans.

Blue box material was collected using 5 to 6 trucks with trailers each with 1 driver and 2 contract collectors, offloading up to 5 times daily. Labour to collect recyclables employed between 9-15 people on alternating days. There was significant congestion at the MRF with up to 3 truck/trailers in a queue to offload for periods of up to one hour. At the MRF, plastics were sorted into three streams (#1 PET, #2 HDPE, #3-5 tubs and lids), glass into two streams (clear and coloured), and cans into two streams (aluminum and steel). The plant regularly operated with 1.5 City full time staff daily

and 16 part-time contract staff on alternate days on one shift. The MRF processed residential blue box material from the City and some IC&I material from a hospital and businesses in the central commercial district. The MRF did not have a weigh scale.

Photos 1 and 2 depict curbside placement of recyclables and the collection vehicle.



Photo 1 – Recyclables at Curbside



Photo 2 – Collection Vehicle

Table 2.1 depicts recycling tonnages from 2005 - 2007. In general, annual tonnages have been increasing. The removal of LCBO glass resulted in a tonnage reduction in 2007.

Table 2.1 Recycling Tonnages Marketed from 2005 - 2007

| | Households | Newspaper | Cardboard | Boxboard | Office Waste | Food & Beverage | Aluminum | Glass | Plastics | Total (tonnes) |
|---------|------------|-----------|-----------|----------|--------------|-----------------|----------|-------|----------|----------------|
| 2005 | 14,104 | 1,112 | 511 | 183 | 33 | 106 | 34 | 361 | 138 | 2,477 |
| 2006 | 14,380 | 1,231 | 540 | 241 | 22 | 108 | 33 | 372 | 157 | 2,706 |
| 2007 | 14,640 | 1,265 | 478 | 257 | 15 | 80 | 48 | 297 | 167 | 2,605 |
| Average | 14,375 | 1,203 | 510 | 227 | 23 | 98 | 38 | 343 | 154 | 2,596 |

Table 2.2 depicts gross system costs and annual recycling tonnage from 2003 to 2007.

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Table 2.2 Recycling Costs and Tonnages from 2003 - 2007

| Year | Annual Costs | Annual Tonnage |
|-----------------|--------------|----------------|
| 2001 | \$438,000 | 2,116.8 |
| 2002 | \$482,000 | 2,132.1 |
| 2003 | \$592,000 | 2,446.5 |
| 2004 | \$650,000 | 2,506.8 |
| 2005 | \$680,000 | 2,477.0 |
| 2006 | \$741,000 | 2,706.0 |
| 2007 | \$770,000 | 2,605.0 |
| % change | 75.8 | 23.1 |

* These costs include all direct costs related to recycling with the exception of employee benefits and management supervision.

Recycling tonnages increased by 23% over 7 years while gross recycling costs increased by 76%. The increase in recycling can be attributed to the introduction of a bag tag fee for garbage in 2003 and growth in the City. A newly constructed Toyota Plant in the Woodstock area will likely increase City growth further, further increasing recycling rates.

Collection capacity and MRF capacity were exceeded, resulting in excessive stockpiling of materials. This reduced the efficiency of MRF operations and resulted in increased costs. Finally, the City wanted to introduce additional materials to the recycling program (e.g. gable top containers) which could not be accommodated with the current collection system and MRF.

The City found that the non-profit corporation that supplied the workforce (mentally challenged and socially disadvantaged people) could no longer supply the quality of labourers required to collect and process the material.

A review of the City's recycling program and MRF was undertaken by the office of Stewardship Ontario's Municipal Recycling Program Advisor in 2006. Several suggestions were made including:

- expanding the existing MRF;
- building a new, much larger MRF, and
- bulk-shipping materials for processing to an existing MRF outside the county.

City Council recommended that Public Works convert the MRF to a transfer station, send material to an outside MRF for processing, switch from trucks with trailers to standard 2 compartment rear packers for recycling, and move from a 7-stream curbside collection system to a 2 stream curbside collection system.



3.0 Project Description

The main goals of this project were to increase efficiency for curbside collection and processing as well as maintaining and possibly reducing overall system costs. (i.e. labour, operational costs).

Conceptually, making a move from a 7 stream to a 2 stream curbside collection program should be easier for residents and changing the MRF to a Transfer Station for recyclables should reduce material handling.

The City submitted an application and received approval from Stewardship Ontario's Effectiveness and Efficiency (E&E) Fund to cover 50% of the cost of converting the MRF to a Transfer Station for recyclables (\$480,000) and 50% of the promotion and education costs (\$50,450) to convert from a 7 stream to a 2 stream curbside collection program. A grant of \$246,225 was received and included funding for the following items:

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5. Pitwork for conveyor;
6. Fibre Storage area concrete block wall;
7. Demolition of former sorting equipment;
8. Electrical demolition and conveyor & compactor hook-up; and
9. Communication and Education (newsletter and brochure, door to door campaign and media ads, poster, website, post campaign launch monitoring).

The goal of the communications and education (C&E) program was to train residents not to bag material and to move them to a two stream system.

The City estimated they would save approximately \$300,000/year and that the payback for the conversion would be approximately 2 years. The City further expected that recycling tonnages would increase as a result of this new program.

4.0 Project Implementation

4.1 Collection

The recycling program was converted from a 7 stream to a 2 stream fibre/container effective July 7, 2008. A new black box was delivered to all households, by summer students, prior to the implementation of the new recycling program. The black box is designated for fibres, while the green box (which residents already had) is for containers. Recyclables are collected from households on the same day each week. Three new 2-compartment recycling collection trucks (40,000 lb GVW conventional cab and chassis with 35 cu yd recycling body - Photo 3) were purchased to collect recyclables.



Photo 3 - Recycling Collection Truck

The recycling program was expanded to include the following new items:

- Gable top containers;
- Aseptic containers;
- Cardboard cans;
- Aluminum foil and trays;
- Expanded polystyrene (#6); and
- Empty aerosol and paint cans.

An intensive C&E program was undertaken in the months leading up the July 7 launch date. The following methods were used to promote the new program:

- What's On Woodstock magazine;
- Stickers for recycling bins;
- School campaign;
- Speaking appearances;
- An information booth at the Energy Expo; and
- Door to door visits by summer students with a brochure and new black box.

An example of C&E material is included in Appendix 1.

4.2 Transfer Station for Recyclables

The MRF located at the James Street Works Yard was converted to a transfer station for recyclables. Modifications commenced on June 9, 2008. The installation of a Mettler Toledo weigh scale for recording recycling weights was completed by 13 June. Installation of a Baleforce compactor and conveyor was completed on 6 July 2008. Modifications to the overhead door, pitwork for the conveyor and the building of a concrete block wall for the fibre storage area were completed by Vance Construction. Electrical work was completed by Glenile Electric. These physical modifications and conversion of the MRF were completed by 6 July 2008, to coincide with the changes to curbside collection of recyclables.

It should be noted that there was a delay in installing the hopper and conveyor to transfer containers to the compactor. In the interim containers were loaded using a front end loader. This was installed at the end of November 2008.

Photos 4-6 depict the conversion of the MRF to a transfer station.



Photo 4 – Fibre Storage Area showing new retaining walls



Photo 5 – Preparation of Compactor Area



Photo 6 – Weigh Scale

4.3 Processing

Delivery and unloading of recyclable materials at the transfer station occurs in the following manner:

- Recycling collection vehicles enter the site from Clarke Street South and cross weigh scale for initial weighing;
- Vehicles proceed to offload containers at container storage area;
- Vehicles cross weigh scale for secondary weighing;
- Vehicles enter transfer station and offload fibre material onto tipping floor; and
- Vehicles proceed to weigh scale for a final weighing before exiting the works yard.

Recyclable materials delivered to the transfer station are stored in different areas of the building. The fibre stream is stored inside the building while the container stream is stored under a roofed enclosure attached to the building. The fibre is loaded onto walking floor trailers by a front-end loader and conveyor. The containers were initially loaded into roll-off containers using a front-end loader. After installation of the hopper and conveyor, they are now also loaded onto walking floor trailers. A compactor compacts fibre and container loads to maximize the load quantity.

Photos 7-10 depict the processing of recyclables at the transfer station.

Photo 8 depicts the temporary storage of containers



Photo 7 - Loading of Fibres into Compactor



Photo 8 - Container Storage Area



Photo 9 - Walking Floor Trailer attached to Compactor



Photo 10 - Hopper and Conveyor for Containers

The City approached both HCG (Brantford) and Canada Fibres to submit pricing to receive and process recyclable materials as well as the materials that could be processed/marked by both companies. Canada Fibres submitted the lowest price proposal as well as offering the greatest number of materials that could be included in the program. City Staff visited the MRF's included in the Canada Fibres proposal prior to recommending the contract award to City Council.

All recyclable materials from the transfer station are shipped via BJ Bear Transportation to Canada Fibres recyclable processing facilities. Fibres are shipped to the Canada Fibres facility located at 322 Horner Avenue Toronto. Containers are shipped to the Canada Fibres City of Hamilton Resource Recovery Facility located at 1579 Burlington St East, Hamilton. The existing baler was retained to bale any source separated IC&I recyclable materials (e.g. OCC). Any monies received from these recyclables are used to supplement revenues received from the residential stream.

Initially there were some concerns expressed by the Ministry of the Environment with regard to the Certificate of Approval application to operate this transfer station and the request for an all Ontario service area because of possible contamination from loads outside the municipality ending up in the local landfill. The City received the C of A in February 2009 that included an all Ontario service area.

5.0 Project Monitoring- Methodology

5.1 Observations

The changeover to the new program was observed and qualitatively documented from July through November 2008. This included discussions with City staff.

5.2 Tonnage

Tonnage data, split into fibres and containers, was collected from July through November 2008.

5.3 Set-out Studies

Baseline recyclable set-out rates of 100 households (i.e. weekly participation) were measured in three study areas at the beginning of the new program. Study areas were located in the North-Centre, Centre and Northeast parts of the City. This involved counting the households that had set out fibres and the households that

had set out containers (it did not include quantity of set-out). This monitoring was repeated at the same households in September/October 2008 to document any changes.

Photo 11 depicts recycling set-out data collection.



Photo 11 - Monitoring Set-out Rate

5.4 Survey

A short survey was developed to gauge public opinion on the changes to their recycling program, participation and interest in other waste management programs that could be introduced in Woodstock.

The survey was designed to require approximately 3 minutes of the respondent's time and to be easily disseminated. It was disseminated using a variety of methods including in person at a variety of venues (e.g., downtown, on special event days); at the library and senior centre; on the Town's web-site (accessible until the end of August); and at the Town's offices. A copy of the survey is included in Appendix 2.

Photo 12 depicts the recycling survey being completed at Sobey's grocery store.



Photo 12 - Surveying

6.0 Project Monitoring -Results

6.1 Observations

Several challenges were encountered during the launch of the new recycling program and continued for several collection cycles, as discussed below.

6.1.1 Collection

It was observed that the new program change was not fully understood by all residents at the launch date. As well, the new bi-weekly collection was confusing to many and additional collection day flyers had to be delivered by students. This resulted in many residents storing recyclables for three weeks, creating a larger than usual volume of recyclables for collection.

There was an increase in volumes observed at the curb. Some of this may have been due to new allowable items and because residents may have stockpiled these new recyclables in anticipation of the program launch.

There was a learning curve for the recycling truck operators with regard to vehicle operation, material collection and collection routes. This also had an impact on collection speed and efficiency at the beginning of the new program.

In the old program multi family recycling collection occurred on the day when there was no single family collection. This was changed as part of the new program. Initially, some of the old truck/trailer collection vehicles (in addition to new collection vehicles) were utilized to keep up with the collection of all recyclables.

Information on new recyclable items was well received by residents. However, the change from bagging all recyclables to no longer using plastic bags to separate categories was a more difficult concept to put into practice. In blue boxes where material was bagged, all materials except one bag were taken and an “oops” sticker was attached to the remaining bag, reminding the residents of the change. By the second collection cycle, the amount of material tagged with stickers had significantly declined.

Contamination of recyclables decreased. Previously, residents would include bagged garbage with the recyclables (to avoid paying for garbage disposal). Since materials are no longer bagged, this type of contamination has been nearly eliminated. Contamination generally consisted of plastic bags, and non-recyclable plastic containers.

6.1.2 Set-out Results

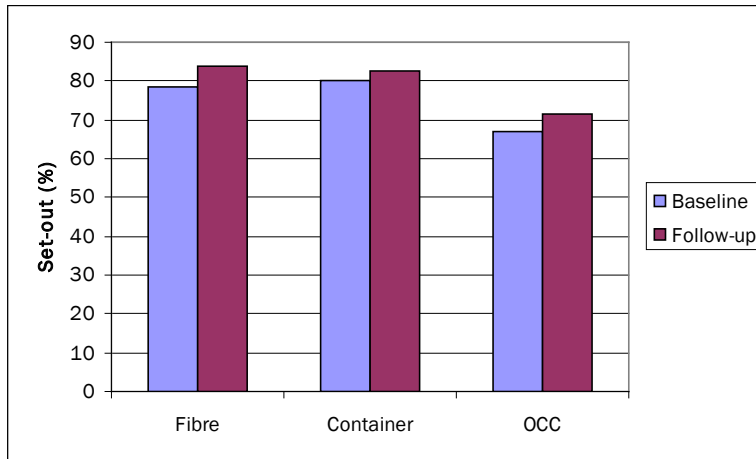
Baseline and follow-up set-out data was collected in three study areas (data was collected twice in each study area). Study Area 1 was Week 1 collection, Thursday

route. Study Area 2 was Week 2 collection, Wednesday route. Study Area 3 was Week 2 collection, Thursday route.

Average baseline data (July-August) showed the following set-out rates: fibres (78%), containers (80%), OCC (67%). Follow-up data collection (September-October) shows an increase in set-out rate for all categories: fibres (84%), containers (83%), OCC (72%). Figure 6.2 depicts this data.

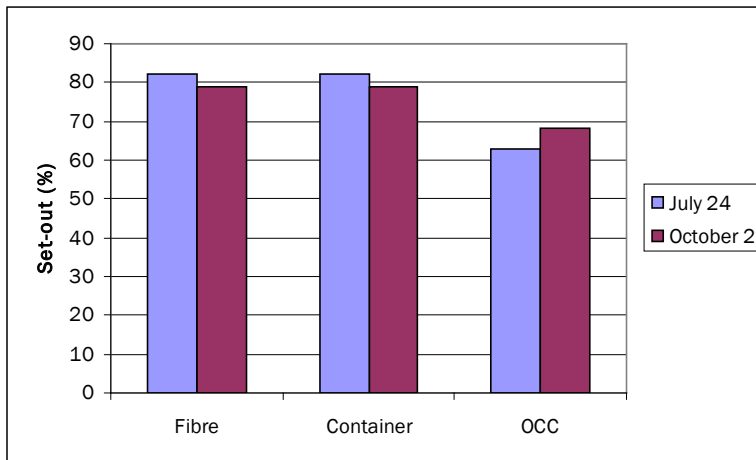
This overall increase in set-out rates could be a function of the new program although seasonality issues (i.e. program was launched in July when many people take vacations) also likely had an impact.

Figure 6.2 Set-out Rate Baseline Data vs. Follow-up Data



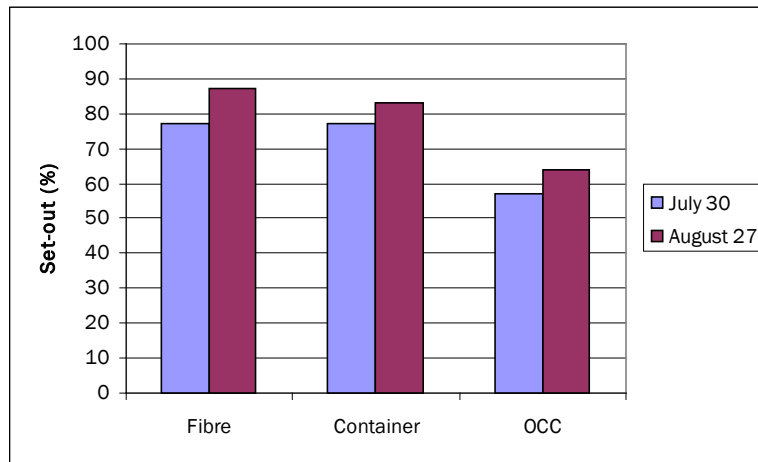
Data was also separately analyzed for each study area. Study Area 1 showed a slight decrease in set-out for fibres and containers and a slight increase for OCC. Figure 6.3 depicts Study Area 1 results.

Figure 6.3 Study Area 1 - Set-out Rate



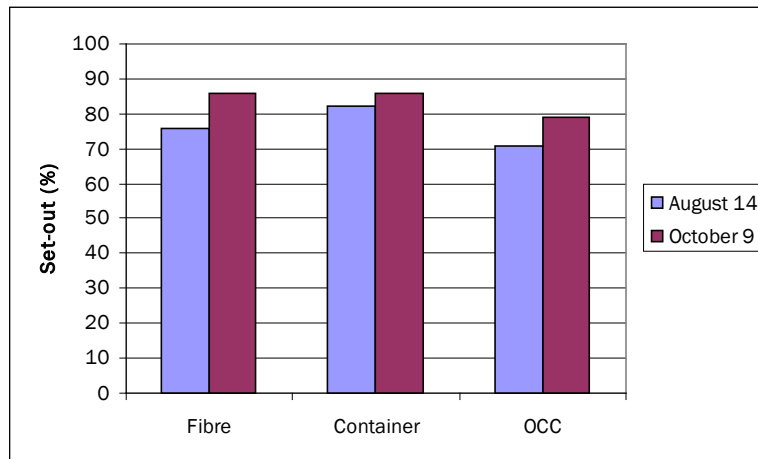
Study Area 2 showed an increase for fibres, containers and OCC. Figure 6.4 depicts Study Area 2 results.

Figure 6.4 Study Area 2- Set-out Rate



Study Area 3 showed an increase for fibres, containers and OCC. Figure 6.5 depicts Study Area 3 results.

Figure 6.5- Study Area 3- Set-out Rate



6.1.3 Processing

Fibres are compacted in a walking floor trailer at the transfer station and shipped out approximately every 3 days. Initially, containers were loaded into roll-off bins because the hopper and required conveyor to transfer containers from the drop-off area into the compactor had not been installed. The hopper and conveyor were installed at the end of November 2008 and containers are now transferred into the compactor using this equipment. The container transfer is completed by one staff person in 2 to 2-1/2 hrs.

A number of maintenance issues have surfaced with the new equipment. The
 May 2009

container conveyor seizes in very cold weather. Use of a portable propane heater in such conditions is used to resolve this issue. The problem is with the rollers turning and it is suspected that the grease in the rollers is the problem.

One of the three collection vehicles has a diesel particulate filter problem rendering this truck inoperable. It is under warranty but the vendor has not resolved the problem. This continues to affect the efficiency of the recycling collection program.

6.2 Tonnage

Table 6.1 depicts the number and tonnages of fibre and container loads shipped from the transfer facility from July to December 2008.

Table 6.1 Tonnage of Fibre and Container Loads Shipped from the Transfer Facility

| Month | Fibre | Loads | Weight | Container | Loads | Weight | Total |
|-----------------------------|--------------|-------|-------------|------------|-------|-------------|--------------|
| | tonnes | # | tonnes/load | tonnes | # | tonnes/load | tonnes |
| July | 202 | 6 | 33.6 | 50 | 13 | 3.9 | 252 |
| August | 178 | 7 | 25.4 | 67 | 7 | 9.6 | 245 |
| September | 199 | 7 | 28.5 | 56 | 6 | 9.3 | 255 |
| October | 207 | 7 | 29.6 | 60 | 4 | 15.1 | 268 |
| November | 179 | 7 | 25.6 | 73 | 6 | 12.2 | 252 |
| December | 175 | 7 | 25.0 | 53 | 4 | 13.3 | 228 |
| Total | 1,140 | | | 360 | | | 1,500 |
| Total (Extrapolated) | 2,280 | | | 720 | | | 3,000 |

For fibre full loads weighed as much as 33.6 tonnes although most loads were from 25-29 tonnes. There may be some opportunity to consistently get loads of 30 tonnes or more.

For container loads the July data was from moving loads in roll-off containers. Using the compactor and trailer for loads of containers was initiated in August 2008. Typical load weights have increased to 12-15 tonnes.

When the data from the first six months is extrapolated and annualized it is estimated that approximately 3,000 tonnes will be captured, a 395 tonne increase over 2007 (2,605 tonnes). This results in a predicted 15.2% increase in recyclables that will be collected in the first year of this program. Data should continue to be monitored to determine the full impact of the changes to the recycling program and MRF.

All material collected is transferred to the MRF for processing. There is some residue in the recycling stream but it is not removed at the Woodstock transfer station. The contract with Canada Fibres includes a 5% allowance for residue.

6.3 Survey Results

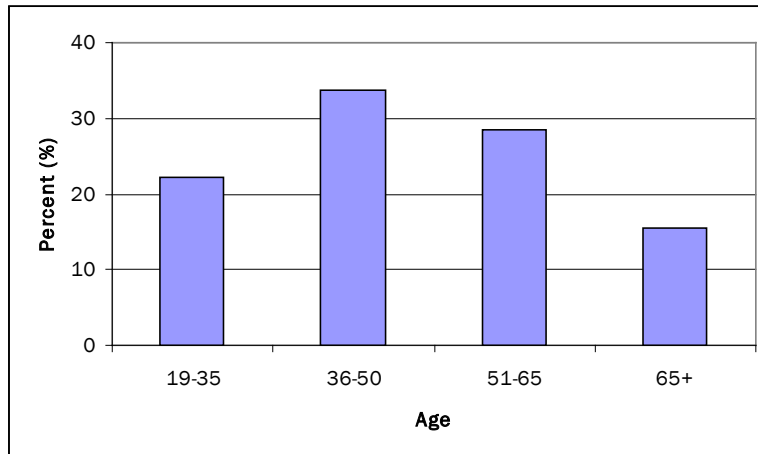
Two hundred and ninety-six (296) surveys were completed.



6.3.1 Demographics

Figure 6.6 depicts the age of the respondents. The largest group of respondents (ca. 34%) was between 36-50 years old. Those aged 51-65 represented 28% of survey respondents and those aged 19-35 represented 22% of survey respondents. The age group 65+ had the fewest respondents (16%).

Figure 6.6 Age of Respondents



Of the respondents, 70% were female and 30% were male.

The largest group of respondents, about 25%, lived on the Tuesday route, while the second largest group of respondents, about 22%, lived on the Thursday route. The remainder of the respondents were distributed approximately equally among the other three collection days.

6.3.2 Recycling Habits

Before the change to the new recycling program, approximately 76% of respondents put their recycling at the curb on each collection day. Approximately 12% set out recycling monthly, 10% set out bi-monthly and 2% never put recycling at the curb.

Figure 6.7 depicts recycling participation rates for fibre. Types of fibre (paper) that had the highest recycling rate included newspaper (97% of respondents), cardboard (94%) and boxboard (91%). 82% of respondents said they recycled magazines while 71% of respondents recycle other paper (e.g. gift wrap, paper bags, egg cartons).

Figure 6.7 Recycling Participation Rates for Paper

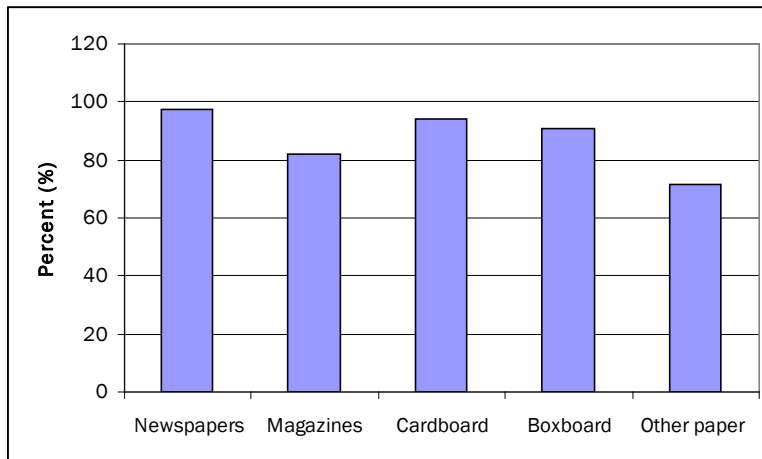
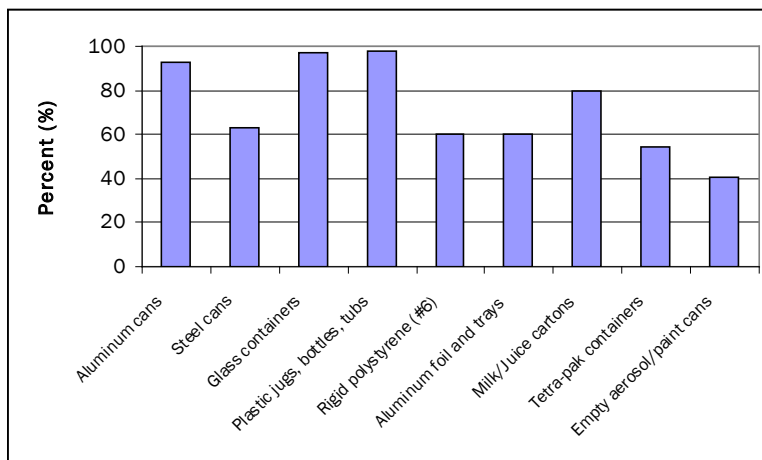


Figure 6.8 depicts recycling participation rates for containers. Types of containers that had the highest recycling rate included plastic jugs, bottles and tubs (98% of respondents), glass containers (97%), aluminum cans (93%) and milk/juice cartons (80%). Steel cans were recycled by 63% of respondents while rigid polystyrene and aluminum foil and trays were recycled by 60% of respondents. Tetra-pak containers and empty aerosol and paint cans were only set out for recycling by 54% and 41% of respondents respectively.

Figure 6.8 Recycling Participation Rates for Containers



An earlier version of the survey was printed and disseminated in person, which did not include cardboard cans (e.g. frozen juice cans) and plastic bags. Therefore, only respondents that filled out the survey on-line answered this question. Of the 36 on-line respondents, approximately 67% recycle cardboard cans and 54% recycle plastic bags.

90% of respondents were aware that containers purchased at the LCBO have a deposit and can be returned to the Beer Store. 10% of respondents were unaware of

this program.

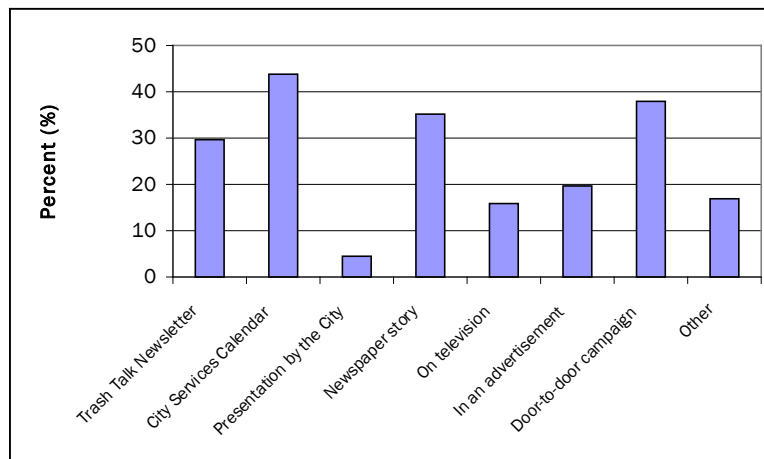
Of the respondents that were aware of this program, approximately 66% always take containers to the Beer Store, 12% always put containers in the blue box, while approximately 20% sometimes take them to the Beer Store or sometimes put them in the blue box. Approximately 2% of respondents put them in the garbage.

6.3.3 New Recycling Program

Approximately 97% of respondents were aware of the new recycling program in Woodstock.

Figure 6.9 depicts how respondents became aware of the new recycling program. Approximately 44% became aware of the changes to the program through the City Services Calendar, while 38% learned about it from the City's door-to-door campaign and 35% through a newspaper story. The Trash Talk Newsletter reached approximately 30% of respondents. Other respondents became aware of the program through a variety of other vehicles. Only 5% of respondents learned about the program from a presentation by the City.

Figure 6.9 Method by which Respondents Became Aware of the New Recycling Program

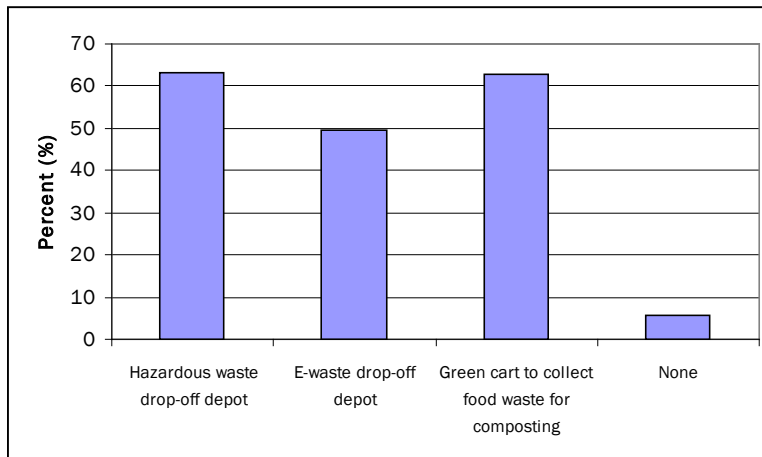


Based on survey responses the new recycling program will help 83% of respondents recycle more, 15% recycle the same amount and 2% recycle less.

Figure 6.10 depicts requests for other waste management programs. Other waste management programs that respondents would like to see in Woodstock include hazardous waste drop-off (63%), green cart to collect food waste for composting (62%) and E-waste drop-off depot (49%). Approximately 6% of respondents do not feel any other waste management programs are necessary.



Figure 6.10 Requests for Other Waste Management Programs



6.3.4 Comments

Respondents were given the opportunity to make general comments on the new program and give suggestions for additional recycling opportunities. A summary of the main comments is provided.

Request for Weekly Recycling Collection

The most frequent request made by respondents is weekly recycling collection. Many respondents are finding it difficult to store 2 weeks worth of recyclables. Many would prefer weekly recycling collection and bi-weekly garbage collection

Ideas for Diversion

Polystyrene was the material that was most frequently mentioned for inclusion in the recycling program. This was one of the new items added to the recycling program and clearly not all residents were aware of this change. Also, many respondents would like more frequent pick-up/drop-off days for major appliances including fridges/freezers.

Composting awareness and a green bin program were requested by approximately 14% of respondents who submitted a comment.

Education

Several respondents found the new recycling program very confusing and many would like more education about what types of materials are recyclable (specifically, acceptable plastic numbers). One comment suggested a discrepancy regarding acceptable recyclables between the printed and online brochures.



There was much concern in the community with the departure from the bagging of recyclables. The question of whether shredded paper could continue to be bagged was raised throughout the entire P & E campaign. Changes to the program no longer accept bagged recyclables, however, the City has not rejected any bagged shredded paper to date as long as it is placed in a clear bag. The recycling message is being reinforced using a monthly insert in the “Whats on Woodstock” community magazine and will address this issue and others through this venue. Reference to proper recycling of shredded paper should be made on educational material.

Containers

Many respondents commented on the fact that the two recycling containers provided by the City do not provide sufficient capacity to hold 2 weeks worth of recyclables. Respondents would like additional containers to be provided free of charge or for a nominal fee. The City continues to supply recycling containers at cost to residents. Recognizing the increased volume of recyclables they will be offering wheeled carts to residents at cost starting 2009.

Several respondents were upset that their excess recycling was not being collected because it was placed in a clear bag (which is no longer accepted in the new recycling program).

6.4 Cost Assessment

The capital costs of the building conversion were \$389,204 (excl GST). The total City contribution from capital for the building was approximately \$200,000.

Additional operational costs included C&E costs of \$37,526 (excl tax) and \$73,937 to supply each resident with a second blue box to support the new 2 stream program. As the County funds operations the balance of the C&E and the second blue box costs (i.e. portion not funded by SO) were funded by the County.

The total anticipated gross cost for Blue Box recycling in 2009 is \$669,000 versus \$766,000 in 2007.

Gross cost per tonne under the old system to collect, process and transfer recyclables was approximately \$294 (\$766,000 for 2,605 tonnes). Gross cost per tonne under the new system is estimated to be \$224 (\$669,000 for 2,980 tonnes). Cardboard, which is received from the IC&I, accounts for an approximately 100 tonnes per year. It is included in the aforementioned budget and therefore reduces cost per tonne to approximately \$220.

There are some caveats to the above cost estimates. Firstly, it includes \$40,000 which was an estimated additional processing cost due to the poor market conditions for recyclables. Secondly, costs noted above do not include employee benefits, a

percentage for management supervision and other indirect costs (this is normal practice). Thirdly the 2009 data is based on estimates as opposed to actual costs.

If all costs are included it is estimated that a gross cost per tonne in 2007 was \$328 and gross cost per tonne in 2009 was anticipated to be \$242.

It is anticipated that there will be an annual savings of at least \$100,000/year to operate the City's Blue Box recycling program. On this basis the City expects a payback of less than 2 years, based on the City's approximate contribution of \$200,000 to the capital building conversion cost.

7.0 Conclusions

When considering the intended objectives of this project to increase collection capacity, decrease processing costs and introduce additional materials to the recycling program, the following conclusions can be made:

- Purchasing new collection trucks has allowed for an increase in collection capacity;
- Changing the MRF to a transfer facility allows for more material to be processed since material does not need to be stored for extended periods of time;
- It appears that processing costs have decreased due to fewer employees required to run the facility. This will be confirmed in 2009 when a full year of data will be available;
- Preliminary results indicate that participation and recycling capture rates have increased by about 15.2% with the new 2-stream program;
- The changes to the recycling program has increased recycling tonnages;
- A Survey indicated an overall positive response to the new program and residents would like to see additional waste diversion opportunities provided in the future;
- The traditional Blue Box container is no longer capable of handling the material quantities coming from a recycling program using a modern MRF. If a municipality is going to transition to this extent, container choice and sizing is something that needs more consideration. The majority of households in Woodstock use more than two blue boxes with many using other containers, boxes and unfortunately even clear bags to manage the quantity of materials set out for collection; and
- Interest from other municipalities has been limited to Southwest Oxford, which starting shipping recyclables to Woodstock in February 2009.

8.0 Next Steps

Next steps will focus on confirming the impact of the new equipment on costs and ability to capture additional recyclables.

8.1 Cost Assessment

A full year of data is required to make a meaningful assessment on the impact of the changes to the MRF and collection of recyclables on costs (and tonnages collected). This data will be compiled in 2010.

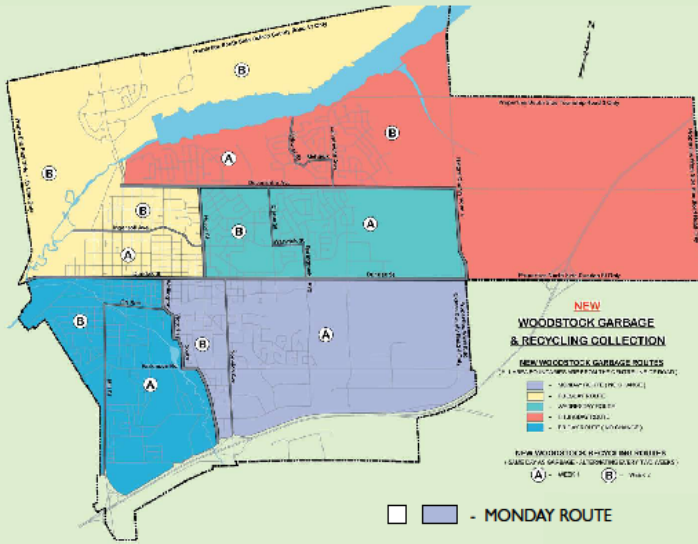
This assessment will include the impacts of these changes on collection and processing costs and will be used to confirm actual return on investment.

8.2 Program Monitoring

Both collection and processing will continue to be monitored in 2009 to help identify any additional efficiencies that could be used to help optimize program cost reductions.

Appendix 1
Example of C&E Material

NEW GARBAGE & RECYCLING COLLECTION MAP



Your garbage & recycling route is:

- | | |
|--|---|
| <input type="checkbox"/> (A) - WEEK 1 | <input type="checkbox"/> - MONDAY ROUTE |
| <input type="checkbox"/> (B) - WEEK 2 | <input type="checkbox"/> - TUESDAY ROUTE |
| <input type="checkbox"/> - WEDNESDAY ROUTE | <input type="checkbox"/> - THURSDAY ROUTE |
| <input type="checkbox"/> - FRIDAY ROUTE | |

Looking for more information, maps and diagrams? Go to www.gogreenwoodstock.ca

**TOO GOOD
2
BE TRUE**
EASIER + GREENER



1



2

How to Sort

Please avoid use of bags;
place heavier items on top.

FIBRES

- newspapers, flyers, junk mail
- Fine paper, computer paper, window and non-window envelopes
- gift wrap (no foil), greeting cards
- magazines, catalogues, telephone books, soft cover books
- boxboard, cereal boxes, food boxes, paper bags
- paper towel rolls, tissue boxes, dryer sheet boxes, laundry detergent boxes
- paper egg cartons, coffee takeout trays, soap boxes
- corrugated cardboard, pizza boxes



CONTAINERS

- aluminum, metal and glass containers
- plastic jugs, bottles and tubs (#1 through #5), plastic egg cartons, plastic pop and water bottles, empty medicine/vitamin containers, toiletry bottles

NEW

- gable top and Tetra-Pak containers, drinking and soup boxes
- Film plastics, plastic bags, plastic milk, vegetable and bread bags
- Cardboard cans such as frozen juice cans, chip/nut cans and refrigerated dough cans
- aluminum foil and trays
- rigid polystyrene (#6) such as bakery trays, coffee cup lids, fruit and vegetable containers (no styrofoam)
- empty aerosol cans, paint, stain and varnish cans



Test your recycling know-how - Go to www.gogreenwoodstock.ca and play our "How To Sort" interactive game!

GENERAL INFORMATION

Effective Monday, July 7th, 2008 the City of Woodstock will introduce two-stream curbside recycling collection. Under the new program, all fibre material (i.e. newspaper, fine paper, cardboard, boxboard) is to be placed in one bin, while all containers (cans, plastic bottles, glass bottles) are to be placed in a second bin. Recyclables can be set out using any container as long as the fibre material is separate from the container material. Go to www.gogreenwoodstock.ca to learn more about these changes and how they benefit Woodstock residents and the environment. You'll also find the 2008-2009 recycling calendar, "Whose Job Is It?" Information and our Trash Talk column from What's On Woodstock magazine. Plus, test your recycling knowledge with our "How To Sort" interactive game!

SPECIAL RECYCLING INFORMATION

| FIBRES | |
|--|---|
| Corrugated cardboard | Flatten and bundle, no larger than 75 x 75 x 20 cm (30" x 30" x 8"). Place inside or beside your black bin. |
| Boxes | Remove any plastic inserts or wrap. |
| CONTAINERS | |
| Beverage & food cartons, bottles & containers | Rinse and place loose in green bin. Tip: crush cans/cartons to make more room in your bin. |
| Glass | No ceramic, window or mirror glass. |
| Paint cans | Cans must be empty and lids removed. |
| Plastic bags | Plastic bags should be bundled together (one inside other). Zip-lock sandwich bags not accepted. |

Appendix 2 Recycling Survey

1. Introduction

The City changed its recycling program as of 7 July 2008. We would like to ask you a few questions about your recycling habits and the changes in the program.

When you are finished the survey click "Done" to ensure your responses are submitted for tabulation.

1. My age is between:

- 19-35 36-50 51-65 65+

2. I am:

- female male

3. I live in the following area:

- Monday route Tuesday route Wednesday route Thursday route Friday route

4. Before the change to the new recycling program how often did you put your recycling at the curb?

- Never On each collection day Monthly Bi-monthly

5. Did you know that containers that you buy at the LCBO have a deposit and can be returned to the Beer Store?

- Yes No

6. What do you do with empty containers purchased from the LCBO?

- Always put in blue box Sometimes put in blue box Sometimes take to the Beer Store Always take to Beer Store Put in garbage

2. Woodstock's new recycling program

The City has changed to a new recycling program effective 7 July 2008. At the curb it has changed from a 7 stream to a 2 stream (fibres and containers) sort. This will allow for more efficient processing and ultimately make the program more cost effective.

We would like to ask you a few questions about this program.

7. Are you aware of the new recycling program?

- Yes No (proceed to question 12)

8. I became aware of changes to the recycling program through the following (select all that are relevant).

- Trash Talk Newsletter City Services Calendar At a presentation by the City In a newspaper story On television In an advertisement City's door-to-door campaign (students) Other

9. What types of paper do you currently recycle? (select as many answers as you like)

- Newspapers Magazines Cardboard Boxboard Other paper (e.g. gift wrap, paper bags, egg cartons)

10. What types of containers do you currently recycle? (select as many answers as you like)

- Aluminum cans Rigid polystyrene (#6) Empty aerosol and paint cans
 Steel cans Aluminum foil and trays Cardboard cans (e.g. frozen juice containers)
 Glass containers Milk/Juice cartons Plastic bags
 Plastic jugs, bottles and tubs Tetra-pak containers (e.g. juice boxes)

11. This new recycling program will help me:

- Recycle the same amount Recycle more Recycle less

12. What other waste management programs would you like to see in Woodstock?

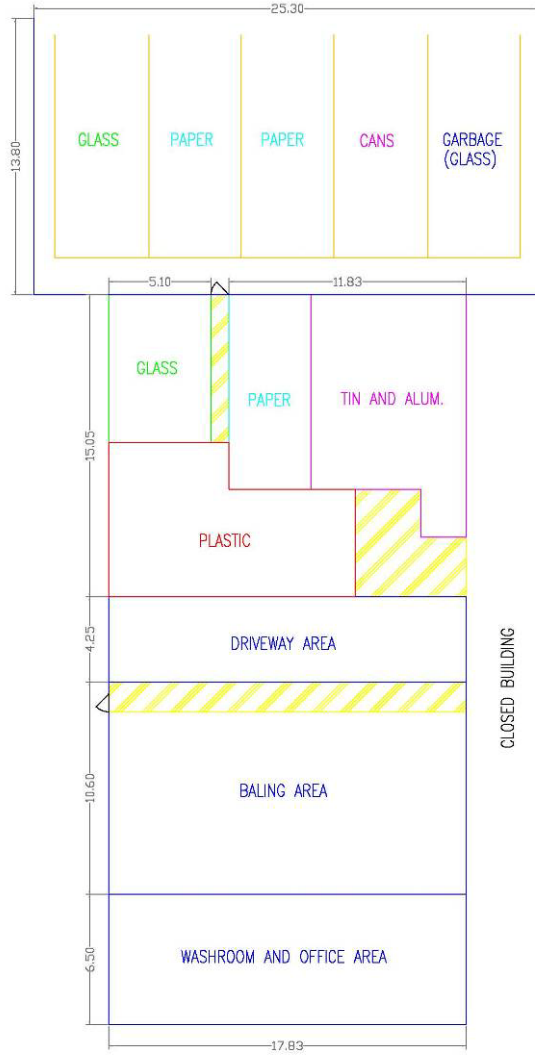
- Hazardous waste drop-off depot E-waste drop-off depot Green cart to collect food waste for composting None

13. Is there anything else the City can do to help you with recycling? Please feel free to type in any suggestions.

Thank-you very much for your help!!!

Appendix 3
Floor Plan of Existing MRF

EXISTING WOODSTOCK MRF.



AUG 20 / 07
SCALE 1:200

Appendix 4
Proposed Transfer Station

