

Review and Analysis of Recycling Works TV Advertising
Campaign Municipal Reports and Aggregate Data
(Project #294)

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Prepared for:



Prepared by:



451 Ferndale Avenue, London ON
Paul van der Werf Tel: 519-645-7733,
email: paulv@2cg.ca

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1.0 Introduction

In November 2007, a series of television ads entitled *Recycling Works* ran throughout Ontario. The ads, commissioned by Stewardship Ontario (SO) as part of project 294, were designed to stimulate Blue Box program support and participation from both residents living in single family homes and those living in multi-residential dwellings. The ads illustrated, in a humorous way, how Blue Box recycling works by giving new life to recycled items.

In order to document and assess the impacts of the *Recycling Works* advertising campaign, SO asked a select group of municipal partners for assistance in evaluating its success. Municipalities included the Bluewater Recycling Association, Essex-Windsor Solid Waste Authority, City of London, Region of Peel, Quinte Waste Solutions, City of Sault St. Marie and Region of Waterloo. In order to help measure the impact of the *Recycling Works* ad campaign, municipalities were given instructions, a standardized reporting format and standardized spreadsheets to complete.

This report is a summary of findings from each municipal partner regarding the impact of the *Recycling Works* ad campaign. It includes a summary of the text report that they prepared as well as aggregated analysis of quantitative data supplied by all municipalities.

2.0 Summary of *Recycling Works* Campaign Results

Table 2.1 presents an overview of the waste management programs of each of the municipal partners.



Table 2.1 Summary of Recycling Programs in Participating Municipalities

Municipalities	Program Possibilities							
	Recycling					Waste		Composting
	Single Stream	Two Stream	Weekly Collection	Bi-weekly Collection	Depots	Bag Limit	User Pay System	Organics Program
Bluewater Recycling Association*		X	X	X			X No bag limits \$1-\$2.50/bag Three communities with no User Pay and no bag limit	
Essex-Windsor Solid Waste Authority		X		X	X			
City of London		X	X			X		
Region of Peel	X		X		X	X		X
Quinte Waste Solutions		X	X		X			
City of Sault St. Marie		X	X		X	X	X 2 bag limit \$2/bag	
Region of Waterloo*		X	X	X	X			X

*Have communities that are collected weekly and biweekly.

Each municipal report was reviewed and summarized including a comparison of recyclables collected, recyclables marketed and how the municipalities viewed the impact of the *Recycling Works* ad campaign in their community.

Recyclables collected refers to the Blue Box recyclables collected from the curb in a given month. Recyclables marketed refers to recyclables marketed in a given month. Recyclables collected versus recyclables marketed, in a given month, will not necessarily match. Recyclables are marketed when there are sufficient quantities for a truck load. Marketing may also be impacted by market conditions (i.e. low prices versus high prices).

The following section outlines the participating municipal programs.

2.1 Bluewater Recycling Association

The Bluewater Recycling Association (Bluewater) services 22 municipalities, representing approximately 160,000 people in 71,720 households. All but two municipalities have a user pay program. The majority of wastes and Blue Box



recyclables are co-collected weekly. The program is mature and very successful at diverting Blue Box recyclables. Waste audits in the past have revealed a 90% capture rate of available recyclables and an 83% participation in the Blue Box program over a three week period.

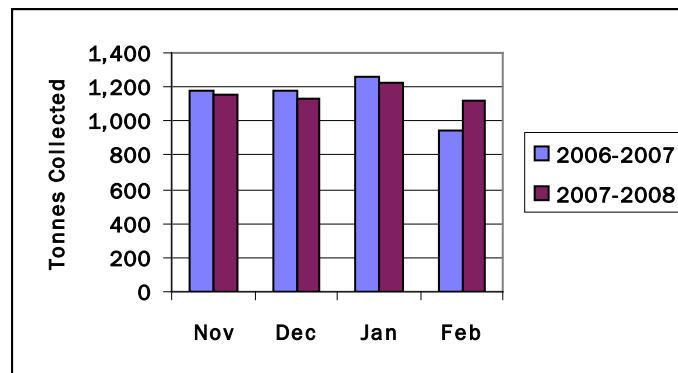
Performance

Recyclables Collected

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw an increased capture rate of 1.5%. Although tonnage collected was lower in Nov-Jan 2007-2008 relative to Nov-Jan 2006-2007, there was a large (18%) increase in tonnage collected in Feb 2008 relative to Feb 2007, accounting for the overall increase in capture rate. Figure 2.1 shows tonnes collected during the study period.

Since the introduction of the new LCBO Deposit Return Program, tonnage collected through the Blue Box program has steadily decreased. However, February 2008 saw an 18% increase in tonnage from February 2007 when the deposit return program was launched. This is likely in part due to the addition of 1,630 households in January 2008.

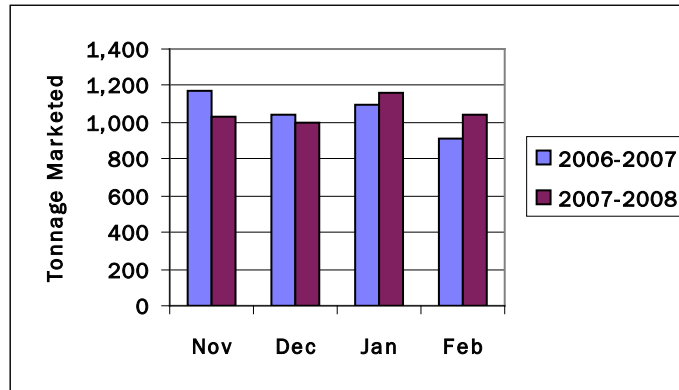
Figure 2.1 Bluewater Tonnes Collected Nov-Feb 2006-2007 vs. 2007-2008



Recyclables Marketed

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw an increase of 6.3% in recyclables marketed. Figure 2.2 shows tonnes marketed during the study period.

Figure 2.2 Bluewater Tonnes Marketed in Nov-Feb 2006-2007 vs. 2007-2008



Summary of Impact of Promotional Campaign

During the time the ad campaign was running, Bluewater did not register any calls directly related to the *Recycling Works* ad campaign.

Bluewater found it difficult to attribute any change in recycling habits or recyclables collection to the promotional campaign alone as any changes could be accounted for by several different variables.

2.2 Essex-Windsor Solid Waste Authority

The Essex-Windsor Solid Waste Authority (EWSWA) operates under the auspices of the County of Essex and the City of Windsor. The EWSWA provides bi-weekly residential curbside Blue Box recycling collection for both city and county residents to approximately 130,000 households. The Authority's recycling program is divided into two streams; containers are collected in the Blue Box and fibre products are collected in the Red Box.

The Authority owns and operates a Regional Landfill, two Transfer Stations, two Household Chemical Collection Centres, three Composting Pads, two Public DropOff Depots, and a MRF which comprises both a Container Recycling Building and a Fibre Recycling Building.

The Public Drop Off Depots (one in the city and one in the county) are open to the public for the receipt of: excess recyclables, garbage, yard waste, electronics, scrap metal, tires, white goods, and household chemical waste.



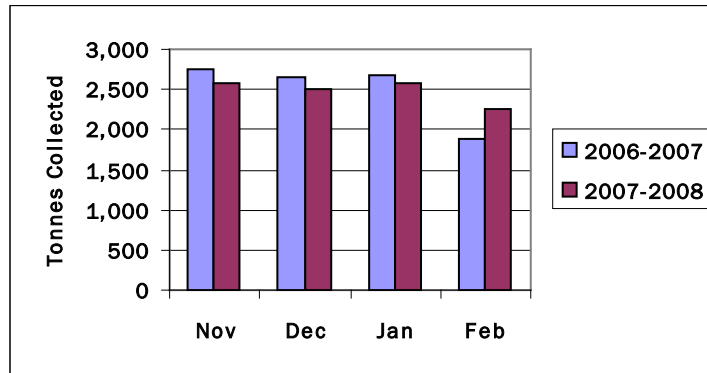
Performance

Recyclables Collected

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw a nominal decrease in capture rate of 0.7%. Figure 2.3 shows tonnes collected during the study period.

Since the introduction of the new LCBO deposit return program, tonnage collected through the Blue Box program has shown fluctuations. There was a 20% increase in tonnage in February 2008 relative to February 2007.

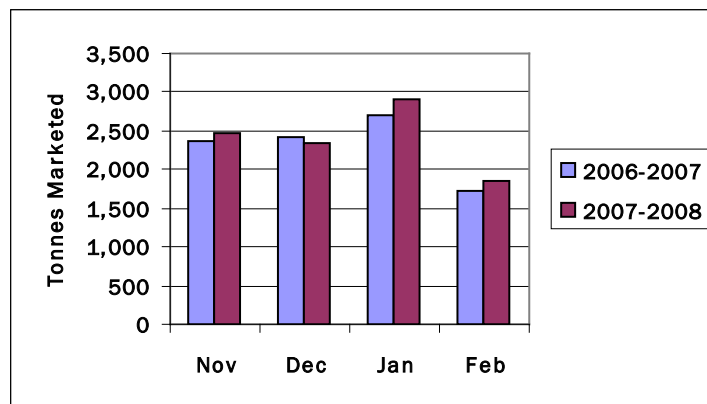
Figure 2.3 EWSWA Tonnes Collected Nov-Feb 2006-2007 vs. 2007-2008



Recyclables Marketed

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw an increase of 4.8% in recyclables marketed. Figure 2.4 shows tonnes marketed during the study period.

Figure 2.4 EWSWA Tonnes Marketed Nov-Feb 2006-2007 vs. 2007-2008



Summary of Impact of Promotional Campaign

EWSWA is not currently able to track the 'hits' on their website. Therefore no data is available to document any increased 'hits' due to the *Recycling Works* Campaign.

No calls from the public were documented as directly related to *Recycling Works* ads.

Although there were some marginal increases that appear to coincide with the airing of the *Recycling Works* ad campaign, it did not generate any significant increases in recyclable tonnage collected or tonnage marketed.

2.3 City of London

The recycling program in the City of London serves approximately 112,000 single family households and 41,800 multi-family units. The Blue Box recyclables are collected on an 8 day rotation. The City has a four container garbage limit, which was implemented in 2007.

Recycling Works was piloted in London during November 2006 and run again during the Ontario wide launch in November 2007.

Performance

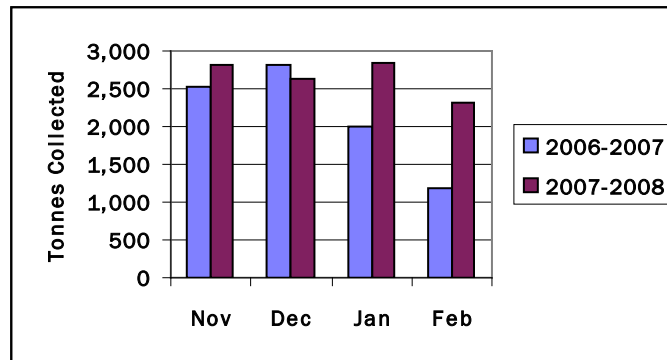
Recyclables Collected

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw a significantly increased capture rate of 24%. Only December 2007 showed a decrease in tonnage collected relative to December 2006. January and February 2008 showed significant increases in tonnage collected relative to January and February 2007 (42% and 96% respectively). Figure 2.5 shows tonnes collected during the study period.

The introduction of the new LCBO deposit return program seems to have had very little effect on tonnage collected. Data shows minimal increases and decreases from month to month in the year following the LCBO launch until the Nov-Feb 2007-2008 study period, when there was a significant increase in tonnage collected.



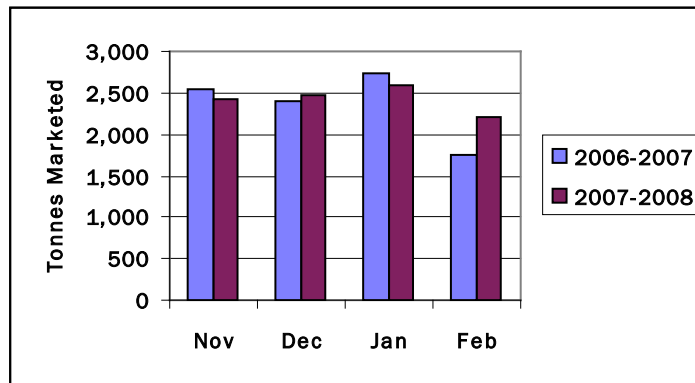
Figure 2.5 London Tonnes collected Nov-Feb 2006-2007 vs. 2007-2008



Recyclables Marketed

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw an increase of 8.6% in recyclables marketed. Figure 2.6 shows tonnes marketed during the study period.

Figure 2.6 London Tonnes Marketed Nov-Feb 2006-2007 vs. 2007-2008



Summary of Impact of Promotional Campaign

Since *Recycling Works* was piloted in London in November 2006, the impact of the 2007 campaign may have been different from the impact seen in other municipalities where the campaign was being run for the first time. With an increase of 24% in tonnage collected, the second showing of the ad campaign may have had an increased impact on London residents.

It should also be noted that the City had some challenges with its contractor in January and February 2007 and this resulted in less tonnes collected than normal. This skewed the impact of the tonnes collected during the study period.



No data was provided regarding hits to their web-sites or public inquiries regarding the *Recycling Works* ad campaign.

2.4 Region of Peel

The Region of Peel, home to 1.2 million residents, provides waste management services to the Cities of Brampton, Mississauga and the Town of Caledon. The Region's Blue Box Recycling Program is a weekly service provided to close to 300,000 single family households, over 88,000 multi-residential units, five Business Improvement Areas (DBIA), schools, churches, recreational centres, and municipal facilities. The Region of Peel also accepts, free of charge, dedicated loads of acceptable recyclable material at four centralized Community Recycling Centres (CRC).

In March 2006, the Region of Peel introduced single stream Blue Box recycling. Over 85% of single family households participate in the Blue Box program. In April 2007, the Region launched its weekly Organics Recycling program to all households receiving curbside waste collection services. Approximately 50% of residents participated in the program. In October 2007, the Region went from a three bag weekly limit to a two bag limit.

Performance

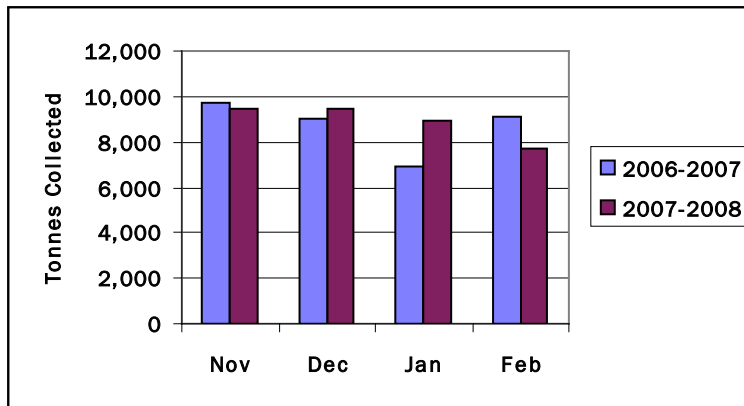
Recyclables Collected

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw an increased capture rate of 2.2%. Despite an increase in overall tonnage during the study period, recyclables collected declined month to month during the study period. The largest drop was from January to February 2008, with a decrease of 13% in recyclables collected. Figure 2.7 shows tonnes collected during the study period.

Since the introduction of the new LCBO deposit return program, tonnage collected through the Blue Box program has steadily decreased. February 2008 saw a 15% drop in tonnage from February 2007 when the deposit return program was launched. Introduction of the two bag standard in October 2007 appears to have had little effect on diversion as past set out studies have shown that over 75% of households were already averaging two bags/week prior to the reduced bag limit being implemented.



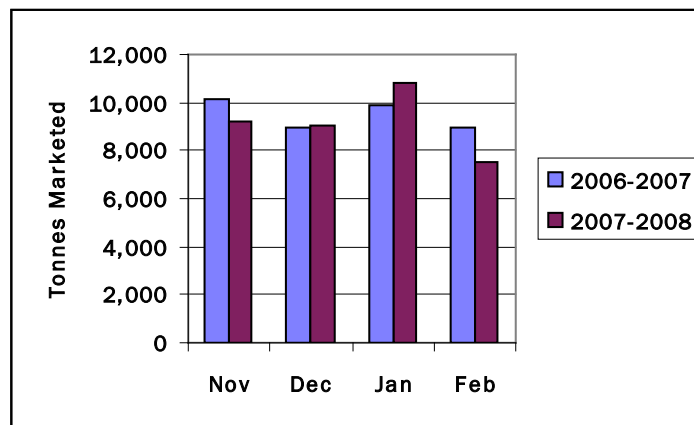
Figure 2.7 Peel Tonnes collected Nov-Feb 2006-2007 vs. 2007-2008



Recyclables Marketed

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw a nominal increase of 0.2% in recyclables marketed. Figure 2.8 shows tonnes marketed during the study period.

Figure 2.8 Peel Tonnes Marketed Nov-Feb 2006-2007 vs. 2007-2008



Summary of Impact of Promotional Campaign

During the time the ad campaign was running, the Customer Contact Centre in the Region of Peel registered one call specifically referring to the *Recycling Works* ad campaign.

The Region of Peel found it very difficult to attribute any changes observed in tonnage recovered through the Blue Box program to the *Recycling Works* ad campaign because the introduction of the 2 bag/week limit for garbage was also introduced at that time.



2.5 Quinte Waste Solutions

The Centre & South Hastings Waste Services Board, operating as Quinte Waste Solutions (QWS), is a 'Board of Management'. It consists of nine municipalities, each having one elected councilor appointed to be a member of this Board. The area has two urban centres, several smaller towns and extensive rural areas. Quinte Waste Solutions services approximately 64,000 households. Most residents receive curbside collection but depots are located in several outlying areas to provide total-area coverage. There are multi-residential buildings in the larger urban areas but these only account for approximately 3-4% of overall tonnage. There were no significant changes to the collection or processing methods being used throughout the test periods.

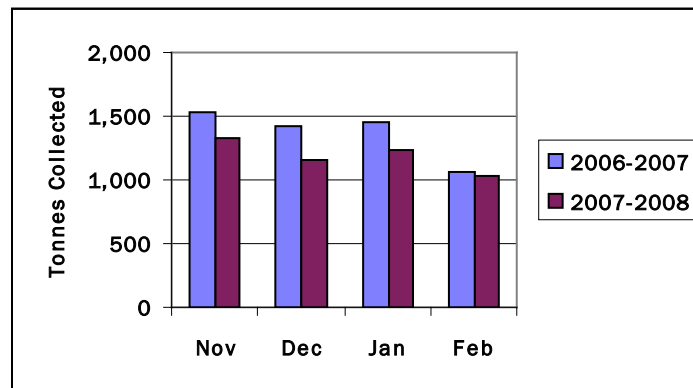
Performance

Recyclables Collected

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw a decreased capture rate of 13.6%. Figure 2.9 shows tonnes collected during the study period.

Since the introduction of the new LCBO deposit return program, tonnage collected through the Blue Box program has steadily decreased. The number of households being serviced also decreased by 3,200 from January 2007 to January 2008. This has clearly had an impact on tonnage collected.

Figure 2.9 QWS Tonnes Collected Nov-Feb 2006-2007 vs. 2007-2008

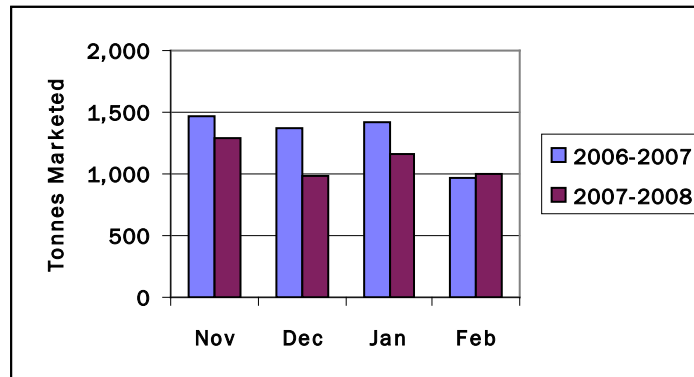


Recyclables Marketed

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw a decrease of 12.6% in recyclables marketed.

Figure 2.10 shows tonnes marketed during the study period.

Figure 2.10 QWS Tonnes Marketed Nov-Feb 2006-2007 vs. 2007-2008



Summary of Impact of Promotional Campaign

Quinte Waste Solutions found it difficult to prove definitively any impact of the *Recycling Works* ad campaign. Tonnage has decreased year over year and this was attributed, in part, to a general economic downturn.

2.6 City of Sault St. Marie

The Blue Box recycling program in the City of Sault St. Marie serves 23,519 single family households and 9,876 multi-residential units. The Blue Box recyclables are collected weekly curbside. The City has a two bag limit and a two dollar fee for every additional bag policy that was established in 2004. The municipality also decreased the maximum quantities of waste that can be delivered by residents to the landfill from 500kg to 300kg while increasing the minimum gate fee from \$2 to \$6, in 2005.

Performance

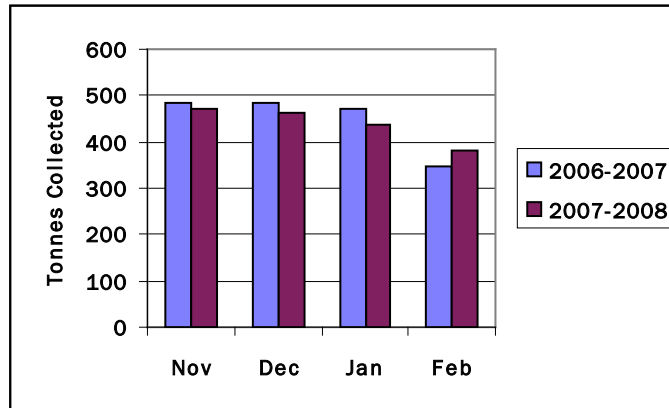
Recyclables Collected

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw a decreased capture rate of 1.9%. Figure 2.11 shows tonnes collected during the study period.

Since the introduction of the new LCBO deposit return program, tonnage collected through the Blue Box program has steadily decreased. However, February 2008 saw a 9% increase in tonnage from February 2007 when the deposit return program was launched.



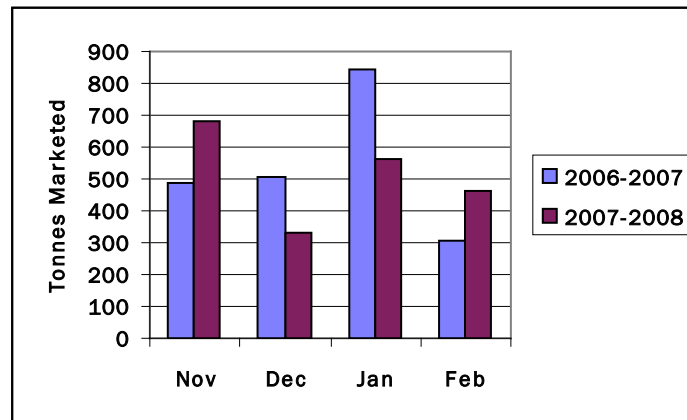
Figure 2.11 Sault St. Marie Tonnes Collected Nov-Feb 2006-2007 vs. 2007-2008



Recyclables Marketed

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw a decrease of 2.9% in recyclables marketed. In general, there appear to be a great deal of month-to-month variations in recyclables marketed. Figure 2.12 shows tonnes marketed during the study period.

Figure 2.12 Sault St. Marie Tonnes Marketed Nov-Feb 2006-2007 vs. 2007-2008



Summary of Impact of Promotional Campaign

During the period of the *Recycling Works* campaign from October 2007 to February 2008, Sault St. Marie received no calls or inquiries directly related to the campaign. There were a few inquiries on the webpage regarding recycling, however, this is typical.

Sault St. Marie concluded that the *Recycling Works* ad campaign has had very little



impact on the capture of Blue Box recyclables.

2.7 Region of Waterloo

The Region is responsible for waste disposal and collection programs for the local area municipalities. Approximately 186,000 single family households and multi-residential units are serviced by the Region's waste and Blue Box recycling program.

Residents recycle in a number of ways - the curbside Blue Box program, the multi-residential Cart recycling program, depots and transfer stations. The same Blue Box recyclables are collected through these programs and at these facilities. The cities of Cambridge, Kitchener and Waterloo have weekly curbside collection. The four townships of North Dumfries, Wellesley, Wilmot and Woolwich have different collection schedules ranging from weekly to bi-weekly collection to recycling depot drop-off. The collection truck drivers sort Blue Box recyclables at the curb into four streams: mixed fibres, co-mingled plastic and metal containers, clear glass and colored glass.

The Region of Waterloo ran an intensive promotion and education campaign in 2007 to encourage residents to properly identify, prepare and set out acceptable recyclables and to encourage reduction of their overall waste.

Landfill bans are in place for tires, corrugated cardboard, wood pallets and electronic waste. Curbside collection bans are in place for grass and electronic waste.

A Green Bin organics pilot program was launched in October 2006, servicing 5,000 households. The program was expanded to an additional 5,000 households in October 2007. Through monitoring of set-out rates of green bins, Blue Boxes and garbage, the Region has found a slight increase in recycling rates in the pilot areas compared to baseline data.

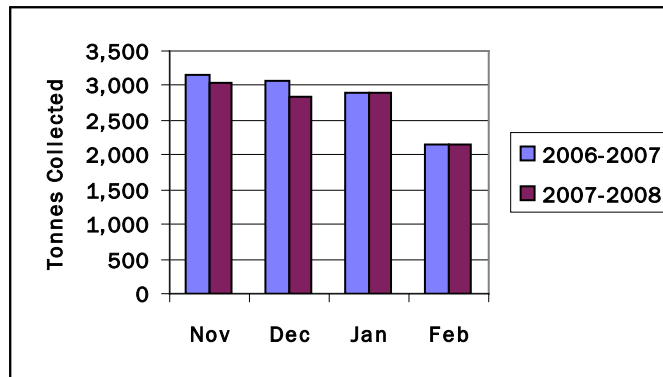
Recyclables Collected

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw a decreased capture rate of 2.9%. Figure 2.13 shows tonnes collected during the study period.

Since the introduction of the new LCBO deposit return program, tonnage collected through the Blue Box program has steadily decreased. Blue Box recyclables collected during the study period were either slightly less than or similar to the previous year.



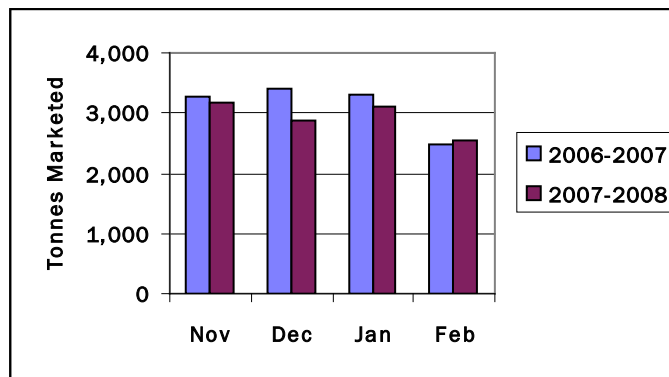
Figure 2.13 Waterloo Tonnes Collected Nov-Feb 2006-2007 vs. 2007-2008



Recyclables Marketed

Relative to Nov-Feb 2006-2007, the study period of Nov-Feb 2007-2008 saw an increase of 2.4% in recyclables marketed. Figure 2.14 shows tonnes marketed during the study period.

Figure 2.14 Waterloo Tonnes Marketed Nov-Feb 2006-2007 vs. 2007-2008



Summary of Impact of Promotional Campaign

Staff have observed an increase in general recycling interest and educational effort over the last year, particularly from the multi-residential sector. Several sites with existing long-standing Cart services have requested additional Carts and education at their locations. Furthermore, drivers report that these additional Carts tend to be full. While the number of residential units has remained constant at these sites, the increase in and request for education within the Cart recycling program may be attributed to the “multi-residential” TV ad run in November.

The Region of Waterloo received at least six unsolicited references to the TV commercials from different people at public events held between November 2007 and February 2008. All those who mentioned the commercials gave them a positive



review and many mentioned how the humour of the commercial had appealed to them.

No telephone calls were received directly relating to the TV commercials. However, there was a 44% increase in recycling related calls from users of the Cart program during the study period compared to the previous year.

3.0 Aggregate Data Analysis

3.1 Background

Data was collected by each of the seven municipalities using spreadsheets supplied by Stewardship Ontario. Data collected included recyclables collected and recyclables marketed and residue generated at the materials recovery facilities. It included factoring in the impact of changing populations and the impact of the LCBO Deposit Return program.

The data was aggregated and analyzed to determine if the *Recycling Works* ad campaign had a measureable collective impact on recyclables collection and recyclables marketed.

The data analysis examined the November 2007-February 2008 study period and compared it to the same months in the previous year.

The emphasis of data analysis was on recyclables collected and included an assessment of the impact of population change (i.e. assessing change on a per household basis) and the LCBO Deposit Return Program (i.e. eliminating glass from consideration).

Some data analysis on recyclables marketed was also undertaken, although the lag time between collection and marketing of many recyclables made it more challenging to pinpoint possible impacts of the *Recycling Works* ad campaign.

3.2 Recyclables Collected

Table 3.1 depicts tonnes of recyclables collected by each municipality for the study period and the same months in the prior year. It is important to note that the LCBO Deposit Return Program was implemented in February 2007 and impacted (i.e. reduced) the amount of recyclables collected from that month onward. Overall there was a modest average 2.3% increase in tonnage collected. Most municipalities had a +/- 3% percentage point change. The City of London had a significant increase and Quinte Waste Solutions a significant decrease when the study period was compared to previous year.



Table 3.1 Recycling (tonnes) Collected and Percent Change for all 7 Programs

Municipalities	Nov-Feb 2006-2007	Study Period Nov-Feb 2007-2008	Percentage Change
	tonnes		
Bluewater Recycling Association	4,565.0	4,633.3	1.5%
Essex Windsor Solid Waste Authority	9,980.8	9,906.9	-0.7%
City of London	8,526.0	10,611.0	24.5%
Region of Peel	34,782.0	35,555.0	2.2%
Quinte Waste Solutions	5,479.0	4,733.4	-13.6%
City of Sault Ste. Marie	1,790.2	1,756.0	-1.9%
Region of Waterloo	11,267.0	10,937.0	-2.9%
Total	76,390.0	78,132.6	2.3%

Table 3.2 depicts the change in households served between the study period and the previous year (i.e. average for each four month period).

Table 3.2 Change in Number of Households served for all 7 Programs

Municipalities	Nov-Feb 2006-2007	Study Period Nov-Feb 2007-2008	Percentage Change
	Households		
Bluewater Recycling Association	67,357.5	70,905.0	5.3%
Essex Windsor Solid Waste Authority	130,075.0	129,812.0	-0.2%
City of London	150,332.5	153,392.8	2.0%
Region of Peel	376,332.0	384,614.0	2.2%
Quinte Waste Solutions	65,649.0	64,700.0	-1.4%
City of Sault Ste. Marie	33,378.0	33,378.0	0.0%
Region of Waterloo	185,120.0	186,350.0	0.7%
Average	1,008,244.0	1,023,151.8	1.5%

On average it appears there was a 1.5% increase in households served. Bluewater Recycling Association's change in households was due to the addition of the Town of Mitchell to its service area. Quinte Waste Solutions' number of households served shrunk due to the completion and non-renewal of two municipal contracts.



Table 3.3 depicts recyclables collected per household. Using a weighted average it appears there was a 1.7% increase in recyclables collected and this closely matched the increase in the number of households served noted in Table 3.2. The weighted average accounts for the population of the various municipalities on the overall average (e.g. a populous municipality such as Peel Region has a larger impact on the average than communities with smaller populations). Most municipalities had a +/- 4% percentage point change. It is interesting to note that the recyclables collected for London increased significantly and those for Quinte Waste Solutions decreased significantly and that these changes cannot be attributed to the change in the number of households.

Table 3.3 Recyclables Collected Per Household for all 7 Programs

Municipalities	Nov-Feb 2006-2007	Study Period Nov-Feb 2007-2008	Percentage Change
	kg/hshld		
Bluewater Recycling Association	67.8	65.3	-3.7%
Essex Windsor Solid Waste Authority	76.7	76.3	-0.5%
City of London	57.0	69.0	21.1%
Region of Peel	92.4	92.4	0.0%
Quinte Waste Solutions	83.4	73.1	-12.4%
City of Sault Ste. Marie	53.6	52.6	-1.9%
Region of Waterloo	58.8	60.9	3.6%
Weighted average	75.4	76.7	1.7%

The LCBO Deposit Return Program was implemented in February 2007 and certainly had an impact on recyclables collected and marketed, in particular for glass. This makes it challenging to compare data from the study period and the previous year.

Table 3.4 depicts average recyclables collected per household with the glass marketed per household subtracted. In this analysis all municipalities showed an increase in recyclables collected except for Quinte Waste Solutions.



Table 3.4 Recyclables Collected Per Household with Glass Subtracted for all 7 Programs

Municipalities	Nov-Feb 2006-2007	Study Period Nov-Feb 2007-2008	Percentage Change
	kg/hshld		
Bluewater Recycling Association	58.2	59.1	1.5%
Essex Windsor Solid Waste Authority	75.1	75.4	0.3%
City of London	47.1	62.6	32.9%
Region of Peel	79.6	83.7	5.1%
Quinte Waste Solutions	75.4	68.2	-9.6%
City of Sault Ste. Marie	46.7	47.1	0.9%
Region of Waterloo	51.6	54.8	6.3%
Weighted average	66.2	70.3	6.2%

Overall it shows an increase in recyclables collected during the study period relative to the previous year. This increase is higher than the increase in households noted in Table 3.2. It is useful to examine the data more closely to try to identify the reasons for this increase.

Table 3.5 depicts average recyclables collected per household, with the glass marketed per household subtracted, for the month of November. This is the month in which the *Recycling Works* ad campaign was implemented. Overall there appeared to be a 1.2% increase in recyclables collected during this month. However, the impact between municipalities is not consistent, with some showing an increase and some a decrease.

The City of London is notable because it achieved a 19% increase in tonnes collected per household with glass tonnage removed during the study period. This was the second year that this ad campaign ran in London (the ads ran as a pilot in fall 2006, winter 2007). The pilot was deemed to have been a success and increased recyclables collected. This second iteration of the *Recycling Works* ad campaign may have led to a more positive impact on recyclables collected. This may speak to the need for repetition of key messages over time to educate and reinforce desired behaviors.



Table 3.5 Recyclables Collected Per Household for Month of November with Glass Subtracted for all 7 Programs

Municipalities	November 2006	Study Period November 2007	Percentage Change
	kg/hshld		
Bluewater Recycling Association	15.0	15.3	2.4%
Essex Windsor Solid Waste Authority	20.8	19.6	-5.5%
City of London	14.4	17.1	19.1%
Region of Peel	22.7	22.7	-0.4%
Quinte Waste Solutions	20.9	18.6	-10.9%
City of Sault Ste. Marie	12.9	12.8	-0.8%
Region of Waterloo	14.9	15.6	4.2%
Weighted average	18.8	19.1	1.2%

Table 3.6 depicts average recyclables collected per household, with the glass marketed per household subtracted, for the month of December. Overall there appeared to be a -0.8% decrease in recyclables collected during this month, with only Peel Region and Waterloo Region seeing an increase in recyclables collected.

Table 3.6 Recyclables Collected Per Household for Month of December with Glass Subtracted for all 7 Programs

Municipalities	December 2006	Study Period December 2007	Percentage Change
	kg/hshld		
Bluewater Recycling Association	16.0	14.6	-8.6%
Essex Windsor Solid Waste Authority	20.8	19.0	-8.4%
City of London	16.5	15.4	-7.0%
Region of Peel	21.1	22.3	5.3%
Quinte Waste Solutions	19.9	16.6	-16.8%
City of Sault Ste. Marie	12.8	12.7	-0.6%
Region of Waterloo	14.9	14.9	-0.1%
Weighted average	18.4	18.3	-0.8%



Table 3.7 depicts average recyclables collected per household, with the glass marketed per household subtracted, for the month of January. Overall there appeared to be a substantial 23.6% increase in recyclables collected during this month. The City of London and Peel Region drove this increase. In the case of the City of London, much of this increase can be attributed to contractor difficulties in January 2007 and the relatively low amount of recyclables collected during that month.

Table 3.7 Recyclables Collected Per Household for Month of January with Glass Subtracted

Municipalities	January 2007	Study Period January 2008	Percentage Change
	kg/hshld		
Bluewater Recycling Association	15.3	15.1	-1.5%
Essex Windsor Solid Waste Authority	20.0	19.6	-2.1%
City of London	9.9	16.6	68.2%
Region of Peel	14.4	20.4	41.6%
Quinte Waste Solutions	19.5	18.0	-7.7%
City of Sault Ste. Marie	11.9	11.7	-1.8%
Region of Waterloo	12.2	13.9	14.3%
Weighted average	14.3	17.7	23.6%

Table 3.8 depicts recyclables collected with the City of London removed from this analysis. On this basis there appeared to be an overall 18.5% increase in recyclables collected during this month. The Region of Peel's increase is likely at least in part due to the introduction of a two bag limit for garbage in October 2007.

Table 3.8 Recyclables Collected Per Household for Month of January with Glass Subtracted and London Removed From Analysis

Municipalities	January 2007	Study Period January 2008	Percentage Change
	kg/hshld		
Bluewater Recycling Association	15.3	15.1	-1.5%
Essex Windsor Solid Waste Authority	20.0	19.6	-2.1%
Region of Peel	14.4	20.4	41.6%
Quinte Waste Solutions	19.5	18.0	-7.7%
City of Sault Ste. Marie	11.9	11.7	-1.8%
Region of Waterloo	12.2	13.9	14.3%
Weighted average	15.1	17.9	18.5%

Table 3.9 depicts average recyclables collected per household, with the glass marketed per household subtracted, for the month of February. Overall there appeared to be a modest 3.9% increase in recyclables collected during this month. The City of London drove this increase. In the case of the City of London much of this increase can be attributed to contractor difficulties in February 2007 and the relatively low amount of recyclables collected during that month.

Table 3.9 Recyclables Collected Per Household for Month of February with Glass Subtracted for all 7 Programs

Municipalities	February 2007	Study Period February 2008	Percentage Change
	kg/hshld		
Bluewater Recycling Association	12.0	14.1	17.7%
Essex Windsor Solid Waste Authority	14.1	17.2	21.3%
City of London	6.4	13.5	112.9%
Region of Peel	21.3	18.4	-13.7%
Quinte Waste Solutions	15.1	15.0	-0.9%
City of Sault Ste. Marie	9.1	9.9	9.1%
Region of Waterloo	10.2	10.4	1.6%
Weighted average	14.7	15.3	3.9%



Table 3.10 depicts recyclables collected with the City of London removed from this analysis. On this basis there appeared to be an overall 3.6% decrease in recyclables collected during this month.

Table 3.10 Recyclables Collected Per Household for Month of February with Glass Subtracted and London Removed From Analysis

Municipalities	February 2007	Study Period February 2008	Percentage Change
	kg/hshld		
Bluewater Recycling Association	12.0	14.1	17.7%
Essex Windsor Solid Waste Authority	14.1	17.2	21.3%
Region of Peel	21.3	18.4	-13.7%
Quinte Waste Solutions	15.1	15.0	-0.9%
City of Sault Ste. Marie	9.1	9.9	9.1%
Region of Waterloo	10.2	10.4	1.6%
Weighted average	16.1	15.6	-3.6%

It appears that that the 6.2% increase in recyclables collected (Table 3.4) during the study period comes largely from the City of London and increased collection of recyclables in January-February 2008 compared to the previous year. As noted previously the City of London had contractor issues during January-February 2007. In February 2008 alone the City of London collected 1,100 more tonnes of recyclables than in the previous year.

As depicted in Table 3.11 when the City of London is removed from the analysis the increase in recyclables captured noted in Table 3.4 becomes 3%.

It appears that the *Recycling Works* ad campaign did not have a dramatic or sustained measureable overall impact on recyclables collected. Only the Region of Waterloo and Region of Peel showed an increase in recyclables captured that was greater than population growth (Table 3.2).



Table 3.11 Recyclables Collected Per Household with Glass Subtracted for all 7 Programs and London Removed From Analysis

Municipalities	Nov-Feb 2006-2007	Study Period Nov-Feb 2007-2008	Percentage Change
	kg/hshld		
Bluewater Recycling Association	58.2	59.1	1.5%
Essex Windsor Solid Waste Authority	75.1	75.4	0.3%
Region of Peel	79.6	83.7	5.1%
Quinte Waste Solutions	75.4	68.2	-9.6%
City of Sault Ste. Marie	46.7	47.1	0.9%
Region of Waterloo	51.6	54.8	6.3%
Weighted average	69.6	71.7	3.0%

Some additional analysis was undertaken on materials marketed to determine if any impact of the *Recycling Works* ad campaign could be identified.

3.3 Recyclables Marketed

Table 3.12 depicts all tonnes of Blue Box recyclables marketed in 2006 and 2007. Full years of data were analyzed to help better understand the impact of the LCBO Deposit Return Program.

Table 3.12 Total Materials Marketed

Municipalities	All Materials Marketed		Percentage Change
	Mar-Feb 2006- 2007	Mar-Feb 2007-2008	
	tonnes		
Bluewater Recycling Association	12,934	12,811	-1.0%
Essex Windsor Solid Waste Authority	26,619	28,396	6.7%
City of London	27,758	27,440	-1.1%
Region of Peel	107,716	107,086	-0.6%
Quinte Waste Solutions	16,117	14,623	-9.3%
City of Sault Ste. Marie	5,761	5,543	-3.8%
Region of Waterloo	37,378	35,943	-3.8%
Total	234,283	231,842	-1.0%



Glass

This analysis seeks to more precisely account for the impact of reduced amounts of glass in the Blue Box due to the LCBO Deposit Return Program. Annual glass marketed for March 2006 to February 2007 and March 2007 to February 2008 were used to help estimate the amount of “LCBO glass” contained in the Blue Box prior to the implementation of the LCBO Deposit Return Program.

Table 3.13 depicts the tonnes of glass marketed for the year of the study period and the year before the study period. The difference in glass marketed is, for analytical purposes, fully attributed to the deposit return of LCBO glass. Not surprisingly it is clear that there was a substantial decrease in glass marketed by these municipalities the year after the LCBO Deposit Return program was implemented.

Table 3.13 Glass Marketed

Municipalities	Glass Marketed		Percentage Change	LCBO Glass
	Mar-Feb 2006-2007	Mar-Feb 2007-2008		
	tonnes			tonnes
Bluewater Recycling Association	2,126	1,429	-32.8%	697.0
Essex Windsor Solid Waste Authority	599	472	-21.2%	127.0
City of London	4,380	2,817	-35.7%	1,563.0
Region of Peel	14,088	10,045	-28.7%	4,043.0
Quinte Waste Solutions	1,807	1,021	-43.5%	786.0
City of Sault Ste. Marie	710	544	-23.4%	166.0
Region of Waterloo	5,366	3,194	-40.5%	2,172.0
Total	29,076	19,522	-32.9%	9,554.0

The amount of “LCBO glass” in the pre- LCBO Deposit Return Program Blue Box was estimated. Table 3.14 shows the percentage of glass as a function of all materials marketed. Again not surprisingly it is lower the year after the LCBO Deposit Return Program was implemented.

Table 3.14 Percentage of Glass as a Function of all Recyclables Marketed

	Glass Percentage	
	Mar-Feb 2006-2007	Mar-Feb 2007-2008
	tonnes	
Glass Marketed	29,076.0	19,522.0
Total Materials Marketed	234,283.2	231,842.1
Percentage	12.4%	8.4%

One way to “normalize” the collection data is to remove the estimated “LCBO glass” from recyclables collected. Table 3.15 depicts recyclables collected with LCBO glass removed. It shows that there was an estimated 7% increase in recyclables collected during the study period. This is similar to the increase noted in Table 3.4 (in which all glass was subtracted out).

Table 3.15 Recyclables Collected (LCBO Glass out)

	Adjusted Tonnes Collected (Glass Removed)		Percent Change
	Nov-Feb 2006-2007	Study Period Nov-Feb 2007-2008	
	12.4%	8.4%	
	tonnes		
Tonnes Collected	76,390.0	78,132.6	2.3%
Estimated Glass	9,472.4	6,563.1	-30.7%
Total	66,917.6	71,569.5	7.0%

*Annual glass percentage applied to 4 month study period

Another way to analyze the data is to “net” out estimated LCBO glass in the year before the study period (i.e. 8.4% glass vs 12.4% glass is used for recyclables collected). Both years can be compared.

Table 3.16 depicts an estimation of the tonnes marketed with LCBO glass netted out (i.e. in year previous to study period). On this basis it is estimated that there has been about a 3% increase in materials marketed and that this increase has taken place since the LCBO Deposit Return Program was implemented. This is similar to the increase in recyclables collected as presented in Table 3.1, which did not correct for the removal of LCBO glass. Finally it would appear that a good portion of this increase can be attributed to the increase in the number of households (Table 3.2)

Table 3.16 Materials Marketed with LCBO Glass Removed

Total Materials Marketed			Percent Change
Mar-Feb 2006-2007		Mar-Feb 2007-2008	
12.4% Glass Content	8.4% Glass Content	8.4% Glass Content	
234,283	224,935	231,842	3.0%

Old Newspaper (ONP)

ONP is a significant part of Blue Box recycling. Because of its relatively constant volume it is more likely to be marketed in the month of receipt. For comparison purposes this is particularly relevant for the smaller municipalities.

Table 3.17 depicts average ONP marketed per household for the study period and the same months in the previous year. Overall there was essentially no change in ONP marketed during this time. The City of London and Essex Windsor Solid Waste Authority did show considerable increase in this material marketed, although for London this again reflects contractor difficulties experienced in January and February 2007.

Table 3.17 ONP Collected Per Household

Municipalities	Nov-Feb 2006-2007	Study Period Nov-Feb 2007-2008	Percentage Change
	kg/hshld		
Bluewater Recycling Association	27.2	27.6	1.3%
Essex Windsor Solid Waste Authority	39.4	41.9	6.2%
City of London	31.0	34.1	10.2%
Region of Peel	56.2	54.2	-3.6%
Quinte Waste Solutions	28.3	25.1	-11.2%
City of Sault Ste. Marie	49.8	46.5	-6.6%
Region of Waterloo	39.5	39.7	0.5%
Weighted average	43.3	43.1	-0.5%

Table 3.18 depicts average ONP marketed per household in November 2006 and 2007. There does not appear to be a positive impact from the *Recycling Works* ad campaign. The dramatic increase in the City of Sault Ste. Marie appears to be due to large fluctuations in ONP marketed rather than ONP collected.



Table 3.18 ONP Collected Per Household for Month of November

Municipalities	November 2006	Study Period November 2007	Percentage Change
	kg/hshld		
Bluewater Recycling Association	7.8	7.2	-7.0%
Essex Windsor Solid Waste Authority	10.3	10.6	3.4%
City of London	9.0	8.7	-3.3%
Region of Peel	15.7	14.3	-9.1%
Quinte Waste Solutions	7.9	7.6	-2.7%
City of Sault Ste. Marie	10.8	17.7	63.8%
Region of Waterloo	11.3	11.0	-2.2%
Weighted average	12.0	11.6	-3.3%

3.4 Residue

Residue generated at the various municipal MRFs was assessed on a per household basis. This residue would have been removed from the recyclables collected at the curb.

Table 3.19 depicts this residue generated by each municipality for the study period and the same months in the previous year.

Table 3.19 Residue Generation at Various Materials Recovery Facilities

Municipalities	Nov-Feb 2006-2007	Study Period Nov-Feb 2007-2008	Percentage Change
	kg/hshld		
Bluewater Recycling Association	1.9	2.5	31.4%
City of London	1.4	1.5	11.8%
Region of Peel	9.1	12.5	36.3%
Quinte Waste Solutions	3.3	3.7	13.4%
Region of Waterloo	2.1	2.7	29.6%
Weighted average	4.3	5.8	34.0%

EWSWA had incomplete data and is not included in this assessment. Sault Ste Marie provided no residue data.

It is clear that there is a wide range of residue rates from the various municipal programs. This will be a function of what is received in the Blue Box and how these recyclables are processed at the MRF.

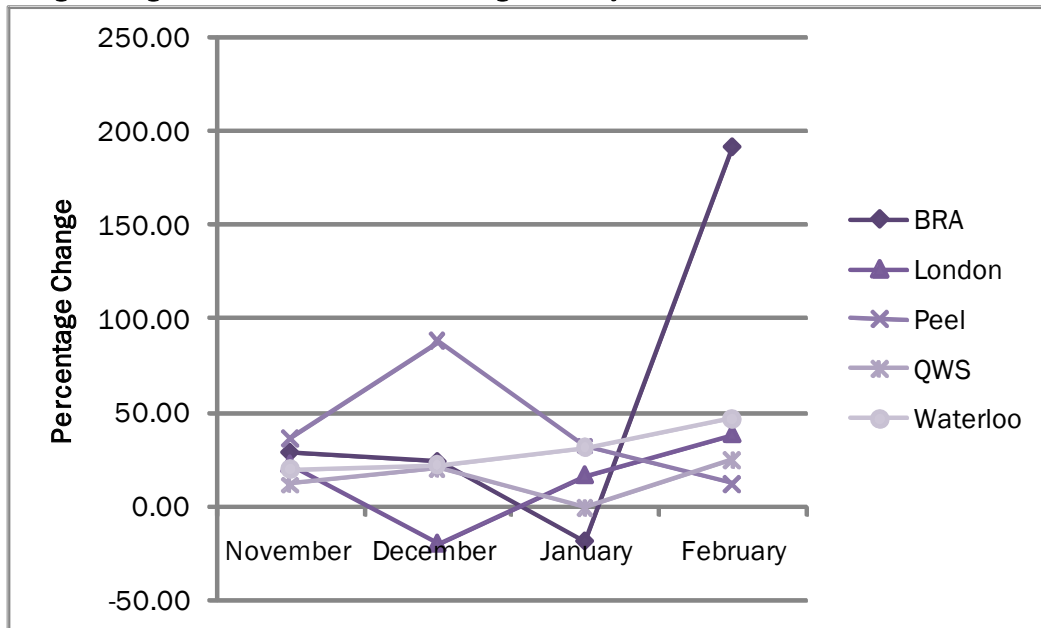
In all municipalities the amount of residue was at least 12% higher during the study period than the year before and as high as 36%. It is not clear what led to this increase in residue.

The Region of Peel had the highest residue rate by far. They also had the highest capture (i.e. recyclables collected) of all municipalities in this study (Tables 3.3, 3.4). They are the only program in this study with a single stream Blue Box recycling program. In October 2007, the Region went from a three bag weekly limit to a two bag limit and the increase in residue rate could have resulted from residents placing more wastes in the Blue Box.

It is not clear what is driving the increase in residue generation and what impact the *Recycling Works* ad campaign had on this increase. Figure 3.1 depicts month over month (i.e. study period versus previous year) data. There does not appear to be a clear trend and it is difficult to attribute any of this change in residue rates to the *Recycling Works* ad campaign.



Figure 3.1
 Percentage Change in Residue Generation during the Study Period Versus The Previous Year



4.0 Conclusions

The *Recycling Works* ad campaign did not appear to have a significant and measureable collective impact on the recyclables collected or marketed during the study period relative to the same months in the previous year. There were some results from individual municipalities which could, in part, be attributable to the *Recycling Works* ad campaign.

The following was noted:

- There was a 6.2% increase (about 4 kg/hshld) in recyclables collected (after glass was subtracted out) during the study period
 - Much of this increase can be attributed to the City of London whose recyclables collected for January and February 2008 were much higher than the previous year when they were experiencing difficulties with their contractor;
- There was a 3% increase (about 2 kg/hshld) in recyclables collected (after glass was subtracted out) during the study period when London was removed from calculations;
- The Regions of Peel and Waterloo both had increases in recyclables collected of greater than 5% which was greater than their population growth;
- The collective changes in recyclables collected in November (i.e. ads shown in this month) and December 2007 were minimal;



- The City of London showed a strong increase in recyclables collected in November 2007 (i.e. 19%) and this may be due to repeated exposure to these ads (i.e. ads piloted in London one year previous);
- The Region of Waterloo showed a greater than 4% increase in recyclables collected for both November and December 2008;
- The months of January and February showed considerable variability and swings in recyclables collected;
 - This is in part due to the impact of implementing the LCBO Deposit Return Program in February 2007 and the City of London who experienced difficulties with their contractor in January and February 2007;
- In general Quinte Waste Solutions showed a considerable reduction in recyclables collected and this was attributed to a downswing in the economy;
- Overall annual recyclables marketed did not appear to increase during the study period;
- If glass is removed annual overall recyclables collected did appear to increase during the study period;
- If the estimated content of LCBO glass is factored out of 2006/2007 (i.e. year before study period) data a 3% year over year increase in recyclables marketed was noted; and
- ONP marketed showed a minimal response during the study period of November 2007 and over the entire study period.

5.0 Recommendations

In general this study focused on collecting municipal recycling data for a four month study period (Nov 2007-Feb 2008), which commenced with the launch of the *Recycling Works* ad campaign.

This data was compared to the same months in the previous year. One of those months was February 2007, which coincided with the start of the LCBO Deposit Return Program. This was a variable that had a significant impact on being able to clearly identify possible sustained impacts of the *Recycling Works* ad campaign (i.e. beyond the first two months after its implementation).

Furthermore, it was challenging to assess the aggregated data and determine clear and real trends. It was impossible to fully account for variables including changes to service areas (i.e. households collected), changes in bag limits and other factors.

The final result was that it was not possible to identify clear and conclusive cause and effect outcomes as a result of the *Recycling Works* ad campaign.

In general the recyclables collected data were easier to analyze because it

represented “real time” data.

Collecting recyclables marketed data adds a time-lag variable as all recyclables are not marketed upon receipt. This was further confounded by the impact of the LCBO Deposit Return Program implementation.

It is **recommended** for future studies (i.e. television and radio) that the focus of data collection be on recyclables collected. In addition to collective (i.e. all recyclables) data it is also **recommended** that data collection focus on a few key recyclables that are the focus of an ad campaign.

It is **recommended** that a system be developed to exclusively collect data in “real-time”. This could involve collecting and assessing additional recyclables collected data on a more detailed week-by-week basis shortly before, during and shortly after an ad campaign. It is **recommended** that no more than two months of data be collected for analysis because beyond that too many other variables confound the ability to identify clear and real trends in the data.

Data collection for this study focused on “macro” and collective municipal data. It is **recommended** that a system be developed to supplement this data with “micro” municipal data from representative municipal neighbourhoods, while an ad campaign is underway.

It is envisioned that recyclables and/or wastes would be collected for auditing purposes in the same fashion as they have been for previous Stewardship Ontario projects. The parameters to be measured would need to be determined but could include weight of recyclables, weight of wastes, weight of specific recyclables etc. This assessment could be not detailed or detailed. It would be necessary to ensure that representative neighbourhoods had received quantitative advertising opportunities (e.g. xx showings of an ad, print ad received at homes etc.) so that a “cause and effect” could be more clearly measured.

Clearly the efficacy of advertising methods to stimulate desired behavior should be well known from marketing theory and marketing sectors and it is **recommended** that these should be more thoroughly consulted when developing a revised data collection and assessment system for these types of projects.

Finally, it is also **recommended** that a system be developed to drive recipients of advertising to a relevant web-site(s). The web-site could include a short survey that asks users how the ads impacted them directly. This web-site would be set up to track site visits by municipality.