Public Space Recycling Program - Phase 1
Final Report

Prepared for:
Continuous Improvement Fund
Project Number 564.7

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Table of Contents

LIST OF TABLES

EXECUTIVE SUMMARY

This report presents the findings from Phase 1 of Niagara Region's Public Space Recycling Program. The Program was launched during the summer of 2011 in select locations of the Niagara Region and within the municipalities of St. Catharines, Pelham, Niagara Falls and Grimsby, as well as the Niagara Peninsula Conservation Authority (NPCA). A total of 161 recycling bins were placed in downtown streetscapes, parks, trails and municipal facilities.

The key program objectives related to efficiency and/or effectiveness were to:

1. Provide more opportunities for residents to divert recyclables from landfill and recover valuable resources in public spaces.
2. Maximize capture of the commonly generated recyclables in public spaces, with a primary focus on beverage containers to ensure highest quality and value of material.
3. Reduce the amount of contamination for materials processed at the MRF by focusing on the capture of beverage containers from public spaces.
4. Encourage and reinforce at home recycling behaviour and indirectly increase the residential recycling rate.
5. Provide a consistent 3Rs message and environmentally focused image to residents, businesses and visitors across the region.
6. Share knowledge and program communications materials with other Ontario municipalities.

Extensive communication materials were developed in order to maximize program participation and capture of recyclables, and minimize contamination in the bins. These included: bin labels, posters, stickers and various media (i.e. websites, newsletters and newspaper articles). The focus of the communication materials was on the capture of "beverage containers only" (i.e. #1 PET, #2 HDPE and glass bottles & jars and aluminum cans), and the reduction of contamination (e.g. no coffee cups) in the Public Space Recycling bins. The NPCA communication materials also promoted the inclusion of gable-top cartons, tetra-paks and recyclable paper materials in three designated bins only.

A total of three waste and visual audits (pre-peak season, peak season and end of peak season) were conducted in St. Catharines, Pelham and NPCA only, in order to measure the overall effectiveness of the Phase 1 Program. The average results from each of the three waste audits were compiled to determine an annual weight per bin and an average recycling capture and contamination rate per bin. Annual weights from the St. Catharines and NPCA audits were extrapolated to similar project partners, which were not audited (e.g. Niagara Falls parks, Grimsby downtown and Niagara Region's beach), to determine the total annual tonnes generated and the recycling capture and contamination rates for all Phase 1 locations.

The audits provided the following results:

- Approximately 17 tonnes per year of Blue Box recyclables were diverted, when extrapolated across all Phase 1 public space locations (St. Catharines, Pelham, Niagara Falls, Grimsby and NPCA);
- The average annual capture rate for "beverage containers only" was 92.60%, when extrapolated across all Phase 1 public space locations;
- Based on the St. Catharines, Pelham and NPCA's audit results, the average annual capture rate for "beverage containers only" was 96.91%;
- The average annual capture rate for "all acceptable Blue Box recyclables" in Niagara Region's program was 78.02%, when extrapolated across all Phase 1 public space locations;

- Based on the St. Catharines, Pelham and NPCA's audit results, the average annual capture rate for "all acceptable Blue Box recyclables" was 89.75%;
- The average annual contamination rate for "all acceptable Blue Box recyclables" was 9.95%, when extrapolated across all Phase 1 public space locations.
- Based on the St. Catharines, Pelham and NPCA's audit results, the average annual contamination rate for "all acceptable Blue Box recyclables" was 11.28%;
- Based on the St. Catharines, Pelham and NPCA's audit results, the average annual contamination rate for "beverage containers only" was 17.04%;
- The most common contaminants found inside the recycling bins were: non-recyclable waste i.e. confectionary wrappers, chip bags, used napkins, etc. (6.59%), paper coffee cups (3.32%), and food and pet waste (1.37%);
- PET beverage containers accounted for 36.33%; glass beverage bottles accounted for 19.35%; and aluminum beverage cans accounted for 14.61% of the total recycling stream. and;
- There was minimal illegal dumping or litter found in or around the St. Catharines, Pelham and NPCA's public space bins.

Based on the above results, it can be concluded that Phase 1 of Niagara Region's Public Space Recycling Program was a success. Further recommendations on implementing future programs include: additional public outreach, surveys/focus groups, future follow-up audits and ongoing monitoring.

SECTION 1 - INTRODUCTION

Phase 1 of Niagara Region's Public Space Recycling Program was co-sponsored by Niagara Region and the Continuous Improvement Fund (CIF), in partnership with the lower-tier municipalities of St. Catharines, Niagara Falls, Grimsby and Pelham, as well as the NPCA.

The total cost of the Phase 1 Public Spaces Recycling Program (i.e. recycling bins and signage, communication items, audits, reports, etc.) was approximately $147,000. CIF provided funding, in the form of a Waste Diversion Ontario (WDO) grant of $56,157, as follows:

Monitoring & Measuring Strategy	$5,495	(10% of funding)
Purchase of Recycling Receptacles & Signage	$36,923	(65% of funding)
Monitoring, Data Analysis, Final Report & Project Evaluation	$13,739	(25% of funding)
Total WDO Grant (including HST)	$56,157	

Niagara Region, in partnership with the participating municipalities and NPCA, funded the remaining portion of the recycling receptacles. The design and production costs for the program materials (i.e. posters and bin labels) were funded solely by Niagara Region. The Program included strategically-placed recycling bins next to existing garbage bins, pictogram-based bin labels and posters, and an extensive public awareness campaign.

Project Purpose

The primary purpose of this project was to increase opportunities for residents and visitors of Niagara Region to divert the commonly generated recyclables in the areas of higher pedestrian traffic.

Key elements included:

1. Partnering with the Region's lower tier municipalities and the Niagara Peninsula Conservation Authority to provide the necessary infrastructure for Public Space Recycling.
2. Purchasing and installing recycling bins in designated public areas primarily for capturing beverage containers, which has been identified as a priority for Phase 1 of the Niagara Region Public Space Recycling Program, using Best Practices for the bin design, wherever possible, combined with project partner requirements.
3. Developing (or refining) and implementing communication materials to maximize participation and minimize contamination based on Continuous Improvement Fund's Best Practices and Niagara Region pilot results and Best Practices research.
4. Reviewing existing Regional/municipal Public Space Recycling bins with respect to labeling, signage or other Best Practices that need to be applied to improve the program.
5. Monitoring and assessing the Program.

Project Alignment with CIF Priorities

This project aligns with the following CIF priorities:

1. The implementation of the Phase 1 Public Space Recycling Program is one of the key steps in the expansion of Niagara's diversion services, which will directly and indirectly increase

the residential diversion rate. It will contribute to the Region's target of 65% diversion by 2012.

2. This Program will increase the collection and processing of Blue Box materials that are not currently captured/recycled.

3. Social marketing and outreach, which includes a range of communication activities is needed to maximize program participation and minimize contamination rates. This will affect the Program performance and align with Best Practices.

4. Mechanisms to increase behaviour change in order to facilitate participation in the recycling program, increase capture rates and reduce contamination include:
   - Recycling program monitoring, assessments and feedback; and
   - Following Public Space Recycling Program Best Practices documented in the CIF research and Niagara Region pilot work, where possible.

5. Public Space Recycling is one of the last waste management program areas to be developed and implemented across the region. The new service fits in with the CIF service optimization and rationalization.
   - In the case of streetside recycling bins, the collection contractor is passing by and collecting recyclables from the properties that are on the route.
   - In the case of bins that are collected by municipal staff, staff time is expended collecting the garbage stream regardless. The recyclables are then taken to a central location and placed at the curb, typically in 95 gallon wheeled bins, which optimizes the collection. The stops are already on existing collection routes.
   - Collection is optimized in both cases based on the fact that no additional or special routes are generally needed for the new program. This increases cost effectiveness of the program, particularly for the stops that are already on the collection routes.

SECTION 2 – PROGRAM IMPLEMENTATION

Phase 1 Project Partners and Bin Information

Public space recycling and garbage are typically the responsibility of the lower-tier municipalities. Some of the municipalities had a limited public space program in place, so additional labeling and other Best Practices were applied to improve upon their existing program.

The Region worked with the following Phase 1 project partners to implement a container stream recycling program in priority public space locations visited by residents:

i) **Town of Grimsby** – A total of six streetscape recycling bins were installed beside existing litter bins in the downtown area, and on Livingston Avenue near the high school. These recycling bins were selected by the Town to match their existing litter bins in place. These recycling bins were placed in addition to the 18 streetscape recycling bins that were included, as part of the pilot.

ii) **City of Niagara Falls** – A total of 15 recycling bins were installed beside existing litter bins in the following five high-use parks (3 recycling bins in each park): Oakes, Kerr, Patrick Cummings, Mitchelson and Kalar. These recycling bins were selected by the City to match existing recycling bins in place.

iii) **Town of Pelham** – A total of 46 recycling bins were installed beside existing litter bins in the following locations: Fonthill and Fenwick downtown streetscapes, high-use parks and trails, homes, and the Fonthill arena. These recycling bins were selected by the Town to match their existing litter bins in place.

iv) **City of St. Catharines** – A total of 92 recycling bins were installed beside existing litter bins in the downtown streetscape, including the City Hall and Market Square and bus terminal. Recycling bins were also placed at the City-owned golf course. The 65 downtown recycling bins were selected by the City to match their existing downtown litter bins in place. The 18 municipal golf course recycling bins were deemed ineligible by MIPC, as part of the Public Space Recycling program, so they were not included in the overall analysis.

v) **Niagara Peninsula Conservation Authority** (NPCA) – The Region also partnered with one of its associated agencies, NPCA, to place a total of 21 bins in three of their high use parks (Balls Falls, Chippawa Creek and Long Beach). Three of these bins (one at each park) collected both paper and container recycling streams. Two of these bins were multi-compartment (garbage, papers, containers and organics), which were installed inside the Ball's Falls Education Centre. These bins were selected by the NPCA.

vi) **Niagara Region** – The Region also placed one Public Space Recycling bin at its Wainfleet Public Access Beach on Lake Erie to collect the garbage and recycling container streams. The 4 recycling bins installed at Niagara Region's Headquarters building were deemed ineligible by MIPC, as part of the Public Space Recycling program, so they were not included in the overall analysis.

A detailed list of all the Phase 1 Public Space Recycling bins, including their locations, types and photos of each bin, is included in Appendix A.

Program Tasks

The Region consulted with municipal and NPCA staff to determine the quantity and type of public space bins required. The Region coordinated ordering, delivering and installing these bins, as well as developing all communication materials. The bins are emptied by the Region's collection contractor, or municipal/NPCA staff, on a weekly basis, which were arranged by the Region.

The Region contacted the various downtown business associations to obtain their assistance with the program (i.e. distribution of the window stickers to the businesses, as well as inclusion of program information in their newsletters and websites).

Region staff conducted the waste and visual audits and calculated the results of these audits. Region staff prepared the final report for CIF.

Communication Materials

Communication materials for the Public Space Recycling program were designed to:

- align with Best Practices;
- maximize program participation;
- reduce contamination, and;
- encourage and reinforce at-home recycling behaviour.

The communication materials promoted the capture of beverage containers only (i.e. #1 PET, #2 HDPE and glass bottles & jars and aluminum cans), and the reduction of contamination (e.g. no coffee cups) inside the Public Space Recycling bins. The NPCA's communication materials (e.g. bin labels) also promoted the inclusion of gable-top cartons, tetra-paks and recyclable paper materials in the three designated bins only.

The following communication materials were utilized to promote the program and inform the public of which items were acceptable in the bins:

- Bin labels (1 label on the top lid and 2 labels on the side of each container);
- Posters (St. Catharines and Pelham downtowns and municipal facilities, Niagara Falls parks and St. Catharines and Pelham Farmer's Markets);
- Downtown Business Window Stickers (St. Catharines, Pelham and Grimsby);
- Websites (Niagara Region, NPCA, municipalities of St. Catharines, Grimsby, Pelham, Niagara Falls and the St. Catharines, Grimsby and Pelham Downtown Business Associations (e.g. http://www.niagararegion.ca/living/waste/Recycling-PublicBins.aspx and http://mypelham.com/articles.php?id=6721);
- Newsletters (e.g. Niagara Region's GreenScene and Our Niagara (on-line), NPCA, municipalities of St. Catharines, Grimsby, Pelham and the St. Catharines, Grimsby and Pelham Downtown Business Associations);
- Media Release;
- Magazine Advertisement (e.g. St. Catharines Streetseen, Fall 2011 issue);
- Outreach with municipal, NPCA and Downtown Business Association staff.

The posters, stickers and labels included the following items:

- '*Niagara Recycles … on the go'* program branding;
- photos, mobius loop and supplemented with text, guiding and motivational signage.

As a result of the media release, a newspaper article on the program was published in the St. Catharines Standard on September 3, 2011.

Appendix B provides samples of the various types of communication materials, including the St. Catharines Standard's newspaper article.

Program Costs

Table 1 summarizes the budget vs. actual costs for the Phase 1 Public Space Recycling (PSR) Program:

Table 1 – Summary of Phase 1 Public Space Recycling Program Costs

Item	Total PSR Program Budget	WDO Grant	Actual PSR Program Costs [1]	Budget vs. Actual Difference
Public Space Recycling Bins & Signs [2]	$130,190.95	$36,923.00	$135,582.43	($5,391.48)
Communication Materials:				
- Posters [3]	$0.00	$0.00	$165.94	($165.94)
- Downtown Business Window Stickers [3]	$0.00	$0.00	$497.89	($497.89)
- Magazine Advertisement	$0.00	$0.00	$800.00	($800.00)
Monitoring Strategy and Final Report:				
- Waste and Visual Audits [4]	$2,447.00	$5,495.00	$7,543.58	($5,096.58)
- Final Report [5]	$2,378.50	$13,739.00	$2,378.50	$0.00
Total:	**$135,016.45**	**$56,157.00**	**$146,968.34**	**($11,951.89)**

Notes:
1) Actual Program costs include the net HST portion only, excluding NPCA, which pays full HST.
2) Includes shipping and installation costs for recycling bin portion only. Excludes garbage bin-related costs and the 18 golf course recycling bins installed in St. Catharines and the 4 recycling bins installed at Niagara Region's headquarters.
3) Includes printing costs only. Does not include any Regional staff costs associated with the design of the materials.
4) Includes supplies, portable scale rental, truck hourly chargeback and student labour costs related to conducting audits.
5) Final Report was written in-house. Actual Program costs include Regional staff costs associated with writing the report.

The public space recyclables and garbage are collected, as part of Emterra's residential collection route. As a result, there is no ability to determine the actual tonnages collected in the public spaces program. In 2011, Emterra charged the Region $132 per bin, per year, to collect the public space recyclables. It is estimated that the collection costs associated with the public space recycling bins would be offset by any tipping fee savings from less public space garbage being landfilled and the recycling revenues generated from the sale of these recyclables.

SECTION 3 - MONITORING AND ASSESSMENT

Monitoring and Measurement Strategy

A detailed Monitoring and Measurement Strategy was developed, which identified the locations and number of bins to be audited, frequency and methodology for conducting the audits. Follow-up public surveys were not required, as part of this Strategy. A copy of the detailed Strategy is included in Appendix C.

Waste and Visual Audit Methodology

The waste and visual audits of the garbage and recycling streams were conducted at the following locations:

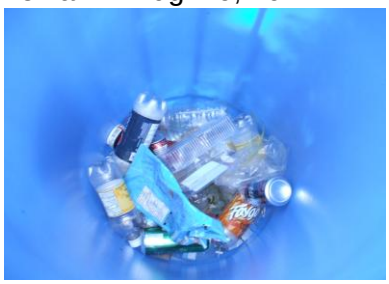
- St Catharines – Downtown Streetscape (5 bins – waste audit; 5 bins – visual audit)
- Pelham – Steve Bauer Trail (5 bins – waste audit; 5 bins – visual audit)
- NPCA – Chippawa Creek Park (5 bins – waste audit; 5 bins – visual audit)

A total of three waste audits and three visual audits (pre-peak season, peak season and end of peak season) were conducted on the following dates:

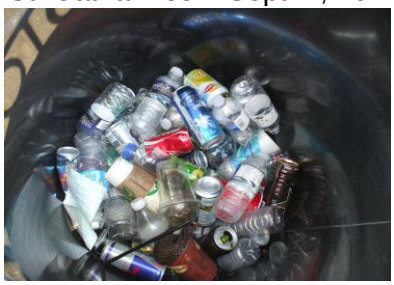
- St Catharines – July 29, September 2, and September 30, 2011
- Pelham – July 25, August 29, and September 26, 2011
- NPCA – July 27, August 31, and September 28, 2011

Each waste audit involved sorting and weighing the materials placed in the garbage and recycling bins into 16 material categories, as described in Appendix D, and taking photos of the materials and contaminants, which were placed inside the bins.

Pelham – Aug. 29, 2011



St. Catharines – Sept. 2, 2011



NPCA – Sept. 28, 2011

Each visual audit involved a rudimentary sort of the materials placed in the recycling bins only, and taking photos of the recycling materials and contaminants, which were placed inside the bins.

Pelham – July 25, 2011

St. Catharines – Sept. 30, 2011

NPCA – Aug. 31, 2011

In addition, bin evaluations were conducted to determine the fullness of each bin audited, including the amount of litter around the outside of the bin, any illegal dumping inside the bin, condition of the signs, and cleanliness of bin and surrounding area.

Pelham – Aug. 2, 2011

St. Catharines – Sep. 2, 2011

NPCA – Aug. 31, 2011

Waste Audit Analysis

Three waste audits were conducted on the 5 bins in each of St. Catharines, Pelham and NPCA. The detailed results of these three waste audits are included in Appendix E.

The average results from each of the three waste audits were compiled to determine an annual weight per bin and an average recycling capture and contamination rate per bin. Annual weights from St. Catharines or NPCA were extrapolated to the project partners, which were not audited (e.g. Niagara Falls parks, Grimsby downtown and Niagara Region beach), to determine the total annual tonnes generated and recycling capture and contamination rates for all Phase 1 locations.

Table 2 – Summary of Waste Audit Results

Project Partner	Total No. of Bins	Annual Tonnes Generated per Bin		Total Annual Tonnes Generated		Beverage Containers Only		All Recyclables	
						Capture Rate	Contamination Rate	Capture Rate	Contamination Rate
		Gar	Rec	Gar	Rec	Rec	Rec	Rec	Rec
St. Catharines (1)	74	0.56	0.13	41.40	9.47	86.23%	23.10%	61.26%	16.00%
Pelham (1)	46	0.32	0.05	14.54	2.20	94.80%	28.44%	81.97%	16.36%
NPCA (1)	19	0.24	0.12	4.64	2.29	96.11%	9.20%	87.89%	3.78%
Niagara Falls (2)	15	0.24	0.12	3.66	1.81	96.11%	9.20%	87.89%	3.78%
Grimsby (3)	6	0.56	0.13	3.36	0.77	86.23%	23.10%	61.26%	16.00%
Niagara Region (2)	1	0.24	0.12	0.24	0.12	96.11%	9.20%	87.89%	3.78%
Total:	**161**	**2.17**	**0.66**	**67.84**	**16.65**	**92.60%**	**17.04%**	**78.02%**	**9.95%**

Notes:
1) Results were based on an average of the three waste audits (July, August and September 2011) and extrapolated to determine a total annual tonnes generated, recycling capture rate and contamination rate for each project partner.
2) Results from NPCA's waste audits were extrapolated to determine the City of Niagara Falls and Niagara Region's total annual tonnes generated, recycling capture rate and recycling contamination rate.
3) Results from St. Catharines' waste audits were extrapolated to determine the Town of Grimsby's total annual tonnes generated, recycling capture rate and recycling contamination rate.

Table 3 provides a detailed breakdown, by material stream, of the average waste audit results for St. Catharines, Pelham and NPCA only.

Table 3 – Breakdown of Average Waste Audit Results by Material Stream

Material Category	St. Catharines		Pelham		NPCA		Total		% of Total	
1. CONTAINERS	**Gar**	**Rec**	**Gar**	**Rec**	**Gar**	**Rec**	**Gar**	**Rec**	**Gar**	**Rec**
Gable Top Cartons	0.02	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.10%	0.19%
Aseptic Containers	0.00	0.00	0.01	0.01	0.05	0.02	0.06	0.03	0.36%	0.51%
PET Beverage Water Bottles	0.09	0.59	0.00	0.17	0.01	0.34	0.11	1.11	0.65%	21.02%
PET Beverage Other	0.11	0.54	0.02	0.13	0.02	0.14	0.14	0.81	0.87%	15.31%
HDPE Beverage	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.03	0.05%	0.56%
Aluminum Beverage Cans	0.04	0.28	0.01	0.08	0.01	0.41	0.06	0.77	0.36%	14.61%
Glass Beverage Bottles	0.04	0.34	0.00	0.26	0.01	0.42	0.05	1.02	0.33%	19.35%
Other Recyclable Containers	0.02	0.00	0.01	0.00	0.01	0.08	0.04	0.08	0.25%	1.49%
Total Containers (kg.)	**0.32**	**1.77**	**0.05**	**0.67**	**0.11**	**1.42**	**0.49**	**3.85**	**2.97%**	**73.04%**
2. PAPER/FIBRES										
Paper Fast Food Packaging	0.08	0.02	0.00	0.01	0.07	0.00	0.15	0.03	0.93%	0.66%
Other Recyclable Fibres	0.77	0.01	0.10	0.06	0.06	0.55	0.92	0.62	5.64%	11.79%
Total Paper/Fibres (kg.)	**0.85**	**0.03**	**0.10**	**0.07**	**0.12**	**0.55**	**1.08**	**0.66**	**6.57%**	**12.45%**
3. ORGANICS										
Food Waste	0.08	0.01	0.15	0.01	0.27	0.00	0.51	0.02	3.10%	0.33%
Pet Waste	0.00	0.00	5.48	0.05	0.47	0.00	5.95	0.05	36.30%	1.04%
Total Organics (kg.)	**0.08**	**0.01**	**5.63**	**0.06**	**0.75**	**0.00**	**6.46**	**0.07**	**39.41%**	**1.37%**
4. PLASTICS										
Polystyrene Fast Food Packaging (including cups)	0.04	0.12	0.01	0.02	0.01	0.02	0.07	0.16	0.40%	3.02%
Film Plastic	0.01	0.01	0.00	0.00	0.02	0.00	0.03	0.01	0.19%	0.21%
Total Plastics (kg.)	**0.05**	**0.12**	**0.01**	**0.03**	**0.04**	**0.02**	**0.10**	**0.17**	**0.59%**	**3.24%**
5. OTHER										
Non-recyclable Materials	4.65	0.20	0.25	0.07	3.14	0.07	8.03	0.35	49.02%	6.59%
Paper Coffee/Drink Cups	0.19	0.16	0.02	0.02	0.03	0.00	0.24	0.18	1.44%	3.32%
Total Other (kg.)	**4.83**	**0.36**	**0.26**	**0.09**	**3.17**	**0.08**	**8.27**	**0.52**	**50.46%**	**9.91%**
GRAND TOTAL (kg.)	**6.13**	**2.29**	**6.06**	**0.92**	**4.19**	**2.07**	**16.39**	**5.27**	**100.00%**	**100.00%**
Acceptable Recycling - all material streams (Niagara Region)	**1.22**	**1.92**	**0.17**	**0.77**	**0.27**	**1.99**	**1.66**	**4.68**	**10.13%**	**88.72%**
Non acceptable materials (including Organics)	**4.91**	**0.37**	**5.89**	**0.15**	**3.92**	**0.08**	**14.73**	**0.59**	**89.87%**	**11.28%**
Capture Rate - All Recyclables		**61.26%**		**81.97%**		**87.89%**		**73.81%**		**89.75%**
Contamination Rate - All Recyclables		**16.00%**		**16.36%**		**3.78%**		**11.28%**		**11.28%**
Acceptable container stream materials (Public Space Recycling)	**0.28**	**1.76**	**0.04**	**0.66**	**0.05**	**1.32**	**0.37**	**3.74**	**2.26%**	**70.85%**
Non acceptable materials (Public Spaces Recycling)	**5.85**	**0.53**	**6.03**	**0.26**	**4.14**	**0.19**	**16.01**	**1.54**	**97.74%**	**29.15%**
Container capture rate recyclables (Public Space Recycling)		**86.23%**		**94.80%**		**96.11%**		**90.98%**		**96.91%**
Contamination rate recyclables (Public Space Recycling)		**23.10%**		**28.44%**		**9.20%**		**29.15%**		**29.15%**

Based on the results of these waste audits, the following observations can be drawn:

- Approximately 17 tonnes per year of Blue Box recyclables were diverted, when extrapolated across all Phase 1 locations (i.e. St. Catharines, Pelham, Niagara Falls, Grimsby and NPCA);
- the average annual capture rate for "beverage containers only" (i.e. #1 PET, #2 HDPE and glass bottles & jars and aluminum cans) was 92.60%, when extrapolated across all Phase 1 locations;
- Based on St. Catharines, Pelham and NPCA's audit results, the average annual capture rate for "beverage containers only" (i.e. #1 PET, #2 HDPE and glass bottles & jars and metal cans) was 96.91%;
- the average annual capture rate for "all acceptable Blue Box recyclables" in Niagara Region's program was 78.02%, when extrapolated across all Phase 1 locations;
- Based on St. Catharines, Pelham and NPCA's audit results, the average annual capture rate for "all acceptable Blue Box recyclables" in Niagara Region's program was 89.75%;
- the average annual contamination rate for "all acceptable Blue Box recyclables" was 9.95%, when extrapolated across all Phase 1 locations.
- Based on St. Catharines, Pelham and NPCA's audit results, the average annual contamination rate for "all acceptable Blue Box recyclables" was 11.28%;
- Based on St. Catharines, Pelham and NPCA's audit results, the average annual contamination rate for "beverage containers only" was 17.04%;
- the most common contaminants found inside the recycling bins were: non-recyclable waste i.e. confectionary wrappers, chip bags, used napkins, etc. (6.59%), paper coffee cups (3.32%), and food and pet waste (1.37%);
- PET beverage containers accounted for 36.33%; glass beverage bottles accounted for 19.35%; and aluminum beverage cans accounted for 14.61% of the total recycling stream.

Visual Audit Analysis/Bin Evaluation

Three visual audits were conducted on the 5 bins included as part of the waste audit, as well as 5 additional bins in each of St. Catharines, Pelham and NPCA. The detailed results from these three visual audits are included in Appendix F.

Table 4 – Average of Bin Evaluations

Bin Evaluation Category	St. Catharines Downtown				Pelham Trail				NPCA Park			
	Waste Audits		Visual Audits		Waste Audits		Visual Audits		Waste Audits		Visual Audits	
	Garb	Rec	Garb	Rec	Garb	Rec	Garb	Rec	Garb	Rec	Garb	Rec
1. Twinned? (Y or N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. Fullness of Bin	3	2	3	2	3	2	4	2	3	3	3	3
3. Label on Bin?	N	Y	N	Y	N	Y	N	Y	Y	Y	Y	Y
4. Condition of Label	1	5	1	5	1	5	1	5	1	5	1	5
5. Condition of Bin	3	5	4	5	4	5	4	5	5	5	5	5
6. Illegal Dumping Visible?	Med	N/A	Med	Low	Low	N/A	N/A	N/A	Med	N/A	Low	N/A
7. Litter Around Bin?	1	1	1	1	1	1	1	1	1	1	1	1

Legend:
2. Fullness of Bin:
   1 = empty; 2 = ¼ full; 3 = ½ full; 4 = ¾ full; 5 = full; 6 = over-flowing

4. Condition of Label:
   1 = Not Appl.; 2 = poor; 3 = fair; 4 = good; 5 = excellent
5. Condition of Bin:
   1 = very poor; 2 = poor; 3 = fair; 4 = good; 5 = excellent
6. Illegal Dumping Visible:
   N/A = None; Low = 1 bag; Medium = 2-4 bags; High = >4 bags
7. Litter Around Bin:
   1 = no litter; 2 = little litter; 3 = some litter; 4 = high litter; 5 = excessive amount of litter

Based on the results of these bin evaluations, the following observations can be drawn:

- all locations were twinned with a garbage and recycling bin. This may have contributed to the lower contamination of the recycling stream;
- the garbage bins were approximately ½ full each week. The recycling bins were approximately ¼ full each week, excluding the NPCA bins, which were ½ full each week. This demonstrates that the size of the bins and collection frequency were adequate;
- the garbage bins did not have any directional labeling on them, excluding the NPCA bins. All of the recycling bins had motivational and directional labels on them, which were in excellent condition;
- most of the garbage bins were in good condition, excluding the NPCA bins, which were brand new. All of the recycling bins were in excellent condition;
- there was some illegal dumping (i.e. residential and/or business waste) found inside the St. Catharines, Pelham and NPCA garbage bins. The St. Catharines garbage bins were located in the downtown area, which were used by both residents and businesses in the area, and did not have a lid or any labels. This may have contributed to the illegal dumping. The Pelham garbage bins did not have any labels, which may have contributed to the illegal dumping. The recycling bins did not have any illegal dumping inside them, with the exception of a few St. Catharines bins;
- there was no litter found around the outside of the garbage or recycling bins.

SECTION 4 – LESSONS LEARNED AND NEXT STEPS

The Region followed established Best Practices in the selection of Public Space Recycling bins, wherever possible, and in the development of the communication materials. This allowed for increased opportunities for residents and visitors of the Niagara region to divert the commonly generated recyclables in the areas of higher pedestrian traffic.

This is supported by the results obtained from the waste audits that were conducted. The program achieved a capture rate for beverage containers of more than 95%, while minimizing contamination to less than 10% in the recycling bins.

Lessons Learned

The following steps are recommended for any Public Space Recycling program implementation:

1) Focus Groups: Include patrons, as well as the residents and business owners living in the area, in advance of the program being launched. This will provide an opportunity for any suggestions on how to improve upon the program (i.e. communication materials).

2) Outreach: This would include one-on-one meetings with the public, after the program is launched, to explain how it works. This will help to reduce the levels of contamination (i.e. illegal dumping and non-recyclables) found inside the bins and create a general awareness of the program, which would further increase the capture rate of recyclables.

3) Follow-up Surveys: Conduct follow-up surveys with the public to determine their level of acceptance of the program. This will help to encourage participation and create a general awareness of the program.

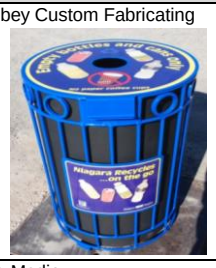
4) Follow-up Waste Audits/Ongoing Monitoring: Conduct follow-up waste audits a few months after the launch, and then on an annual basis. This will help to identify any obstacles or successes with the program.

Next Steps

Niagara Region has included $100,000 in its 2012 Operating Budget to implement Phase 2 of its Public Spaces Recycling Program. The Region will be seeking interest from its lower-tier municipalities to participate in this next phase, on a 50/50 cost-sharing basis. Depending on the level of interest, the Region will determine how many additional Public Space Recycling bins will be installed in 2012.

APPENDICES

Appendix A - Phase 1 Public Space Recycling Bins

Municipality	Quantity of Bins	Type of Public Space	Location	Bin Manufacturer & Photo	Bin Name & Description (colour, capacity, liner, etc.)	Material Streams Collected	Plastic Bag Used For Inside Liner?	Lockable Lid?
Grimsby	6	Streetside	Livingston Ave (between high school and Hazelwood Ave.)	Chevy Lane 	- Round Metal Strap, black in colour - Grey Rubbermaid untouchable liner with 83 litre capacity - 2 side plates for motivational labels and 1 top directional label - 5" centre opening	containers	No	No
Total No. Bins:	**6**							
Pelham	10	Streetside	Fonthill Business District	Classic Displays 	- Standard Recycling Can, blue in colour - Grey Rubbermaid untouchable liner with 83 litre capacity - 2 side plates for motivational labels and 1 top directional label - 5" centre opening	containers	No	No
	4	Streetside	Downtown Fenwick (Canboro Road)				No	No
	2	Town Hall	Fonthill				No	No
	2	Arena	Fonthill				No	No
	6	Park	Peace Park				No	No
	3	Park	Marlene Stewart				No	No
	2	Park	Harold Black				No	No
	2	Park	Centennial				No	No
	3	Park	Woodstream				No	No
	1	Park	Hurleston				No	No
	1	Park	Cherry Ridge				No	No
	1	Park	Harold Bradshaw				No	No
	1	Park	North Pelham				No	No
	1	Park	Rolling Meadows				No	No
	5	Trail	Steve Bauer				No	No
	1	Trail	Pelham Corners				No	No
	1	Trail	Berkwood Terrace				No	No
Total No. Bins:	**46**							
Niagara Falls	3	Park	Oakes	Busch Systems Int'l Inc. 	- Better Than Stone - Model SS-BTS-05, blue in colour - without liner, bin has170 litre capacity - with liner, it has a 98 litre capacity - 5.75" centre opening - 2 motivational side labels on bottom and 4 labels (2 directional and 2 motivational) on lid	containers	No	Yes
	3	Park	MF Ker				No	Yes
	3	Park	Patrick Cummings				No	Yes
	3	Park	EE Mitchelson				No	Yes
	3	Park	Kalar				No	Yes
Total No. Bins:	**15**							
St. Catharines	65	Streetside	Downtown Area	Colbey Custom Fabricating 	- Trystan Model TU3-C model - Approx 25" outside diameter with lid and 5" centre hole - Frames powder coated blue - Liner is black polyethlene, with a 215 litre capacity - 2 side plates for motivational labels and 1 top directional label	containers	No	Yes
	2	City Hall	City Hall & Market Square Building	Eco-Media 	- Envyrozone 3 stream unit (canopy to be modified) - Polyethylene liner with 70 litre capacity each - top directional labels and bottom motivational poster on front and back	2 containers, 1 waste	No	Yes
	7	Bus Terminal	Downtown Bus Terminal	Chevy Lane 	- Parks Package - Single. blue in colour - Blue 121 litre Brute liner - 2 side plates for motivational labels and 1 top directional label - 5" centre opening	containers	No	No
	18	Golf Course	Garden City Golf Course			containers	No	No
Total No. Bins:	**92**							
NPCA	8	Park	Chippawa Creek	Busch Systems 	- Supersorter 2-stream Multi - Polyethylene liner with 120 litre capacity each - 5.75" opening (recycling) and 6" x 10" opening (garbage) - top directional label and bottom motivational poster on front	containers, waste	No	Yes
	8		Long Beach			containers, waste	No	Yes
	2	Park	Ball's Falls Education Centre (inside placement)	Busch Systems 	- Waste Watcher (30" high, 87 litres, grey in colour) - top directional label	paper	No	No
					- Waste Watcher (30" high, 87 litres, blue in colour) - top directional label	containers	No	No
					- Waste Watcher (30" high, 87 litres, green in colour) - top directional label	organics	No	No
					- Waste Watcher (30" high, 87 litres, black in colour) - top directional label	waste	No	No
	1	Park	Chippawa Creek	Eco-Media 	- Envyrozone 3 stream unit (canopy not modified) - Polyethylene liner with 70 litre capacity each - top directional labels and bottom motivational poster on front and back	containers, paper, waste	No	Yes
	1		Long Beach			containers, paper, waste	No	Yes
	1		Ball's Falls			containers, paper, waste	No	Yes
Total No. Bins:	**21**							
Niagara Region	1	Beach	Wainfleet Public Access Beach	Busch Systems 	- Supersorter 2-stream Multi - Polyethylene liner with 120 litre capacity each - 5.75" opening (recycling) and 6" x 10" opening (garbage) - top directional label and bottom motivational poster on front	containers, waste	No	Yes
Total No. Bins:	**1**							

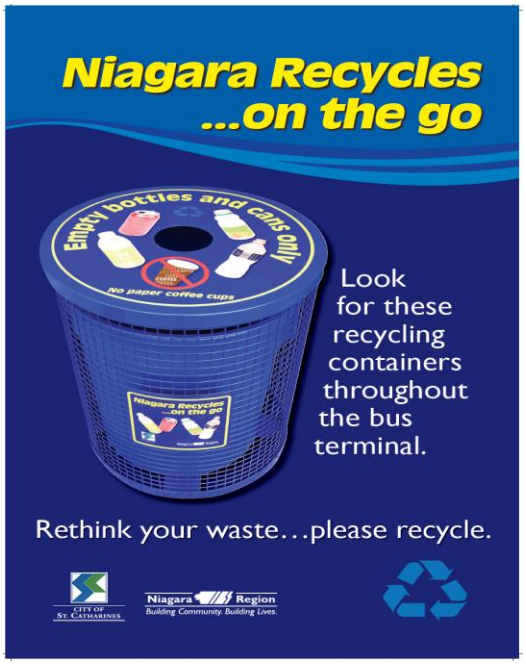
Appendix B

Samples of Communication Materials

Posters:

Niagara Falls (parks)

St. Catharines (bus terminal)



St. Catharines (downtown)

Pelham (downtown, arena, trails, parks)

Appendix B

Samples of Communication Materials (cont'd)

Downtown Business Window Stickers:

Town of Grimsby

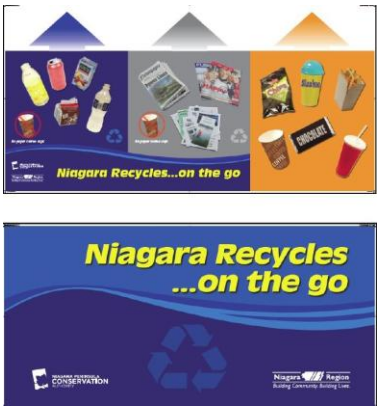
Town of Pelham

City of St. Catharines

Bin Labels:

NPCA (containers & garbage)
(top and bottom)

NPCA (containers, paper, garbage)
(front and back)



Niagara Falls
(top and bottom)

St. Catharines & Pelham (recycling top and bottom)

Appendix B

Samples of Communication Materials (cont'd)

Newspaper Article:

The St. Catharines Standard

New recycling bins given a warm welcome across Niagara

Sat Sep 3 2011
Page: A3
Section: News

Byline: JEFF BOLICHOWSKI , STANDARD STAFF

Fahin Khan's water bottles are no longer destined for the dump thanks to a few blue newcomers downtown.

The 19-year-old St. Catharines resident said he'll be chucking his plastic into one of the 200 new recycling bins Niagara region has rolled out in downtowns and public spaces across the peninsula. Often he trashes his water bottles, he said, but no more.

"If they don't have it (a recycling bin), there's nothing else I can do," he said.

Now, though, it's hard to miss the vibrant blue pails sitting next to garbage bins throughout downtown St. Catharines.

"your eye just catches it," Khan said. "It just tells you. It's like a physical language."

the bins were rolled out this summer following a pilot program in 2010, said andrew pollock, the region's director of waste-management services. that program, which saw bins placed in some public spaces in St. Catharines, thorold, Grimsby and Wainfleet, saw a 66% increase in the number of beverage containers collected.

That could translate into more dough for the region: pollock said a tonne of recycled plastic can sell for $600, and a tonne of aluminum for $1,700.

"It went really well," pollock said of the pilot program. "There was a significant increase in capacity of beverage containers af ter they went in."

He said the new bins came with a $125,000 price tag, but Stewardshi p Ontario fronted about $47,000 of that. the rest was divided evenly between the region and local municipalities.

In St. Catharines, 65 bins have been set up on streets in the downtown core. another 50 have been set up at the bill burgoyne and merritton arenas, the Garden City Golf Course, market Square and the downtown transit terminal.

Niagara Falls got 15 bins, three in each of five parks. thorold got 23 for four parks, pelham got 46 downtown and across several parks and Grimsby got 17 downtown and six on Livingstone ave. Wainfleet got 10 bins.

another 20 have been set up at ball's Falls, Long beach and Chippawa Creek conservation areas as well as the new Wainfleet public beach.

many downtown-goers Friday welcomed the recycling bins.

For amy robins, 26, they save her a trip.

"I think it's great. I love it," she said. "We don't have one in our office, so I go outside and toss stuff in there."

robins said she's from alberta and has come to love Ontario's focus on recycling. the easily accessible bins here appeal to her all the more.

In fact, she said she'd be fine with more.

ashley regimbal-Kung, who comes from toronto, said she likes the region's bins better than those in her hometown. She said toronto's recycling bins often don't have enough room.

She said she normally hangs on to her water bottles for lack of anywhere else to put them.

Kenneth Shelley of St.Cat h a r i n e s , a c c omp a n y - ing regimbal-Kung, said he's for anything that gets people recycling.

"the world's been here for five billion years," he said. "It's going to continue to be here. It's not saving the environment so much as saving ourselves."

jbolichowski@stcatharinesstandar d.ca

Appendix C

Monitoring and Measurement Strategy for Niagara Region Public Space Recycling Project – CIF #564.7

In order to meet the funding requirements of the Continuous Improvement Fund, Niagara Region has developed a monitoring and measurement strategy for the Public Space Recycling Project.

Waste Audits Approach and Schedule

CIF recommends that the monitoring take place over a course of several seasons, to the extent possible, in order to achieve sufficient monitoring results. To comply with this recommendation, Niagara Region will conduct three waste audits at 15 receptacle locations corresponding to pre-peak season (late June), peak season (mid August) and end of peak season (late September/early October). This approach will also enable Niagara Region to see how tourists use the recycling receptacles during peak summer use and how locals use them at end of peak season use.

Niagara Region will install recycling receptacles in the following five locations, as part of Phase 1 of a full Region-wide deployment: St. Catharines and Grimsby streetscapes, Niagara Peninsula Conservation Authority (NPCA) and City of Niagara Falls parks, and Pelham trails. Each location, with the exception of City of Niagara Falls and Grimsby, will have a set of waste audits and visual audits performed over three seasons. Since Grimsby participated in the pilot public space study undertaken for Niagara Region by StewardEdge in 2010, it is felt that continuing the monitoring in Grimsby would be redundant.

The number of proposed waste audits and visual audits for each location is as follows:

- St Catharines streetscape (65 recycling bins) – waste audit = 5; visual audit = 5
- Pelham trails (8 recycling bins) – waste audit = 5; visual audit = 5
- NPCA parks (23 recycling bins) – waste audit = 5; visual audit = 5

It is assumed that each waste audit can be conducted by two students, who will be capable of sorting the materials placed in the garbage and recycling receptacles into maximum 16 categories of waste (this needs to be reviewed). In one day, two students will sort and record five waste and recycling receptacle locations at each site. Prior to the sorting process, the students will conduct a container evaluation to determine the fullness of each container, the amount of litter surrounding the containers, illegal dumping in and around the containers, condition of the signs, cleanliness of bins and surrounding area, etc. A container evaluation survey will be developed prior to the auditing process.

While the auditing methodology will be consistent throughout the auditing process, the physical auditing process will take place at different locations, as follows:

- St Catharines – The students will sort the materials in a designated facility at the Humberstone Landfill;
- Pelham – The students will sort the materials in a designated facility at the Humberstone landfill;

- NPCA - The students will conduct the waste audits at the location of the bins on site in the selected park.

Waste Audits:

It is proposed that Niagara Region conduct three waste audits at 15 receptacle locations corresponding to pre-peak season (late June/early July), peak season (mid August) and end of peak season (late September/early October). The following table allocates time and budget to conduct the waste audits.

Waste Audit		**Total time per audit**		
Location	Receptacle Locations	1st audit - End of June	2nd audit – mid August	3rd audit – end of September
Pelham Trails	5	16 hours + 1 hr to collect & transport	16 hours + 1 hr to collect & transport	16 hours + 1 hr to collect & transport
NPCA Park	5	16 hours	16 hours	16 hours
St. Catharines Streetscape	5	16 hours + 2 hrs to collect & transport	16 hours + 2 hrs to collect & transport	16 hours + 2 hrs to collect & transport
Total hours		51 hours	51 hours	51 hours
Total Labour (@ $18/hr)		$918	$918	$918
Total Cost	$2,754			

Visual Audits:

It is proposed that Niagara Region conduct three visual audits at 15 receptacle locations corresponding to pre-peak season (late June/early July), peak season (mid August) and end of peak season (late September/early October).

It is assumed that each visual audit can be conducted by two students, who will be capable of conducting a rudimentary sort of the materials placed in the recycling receptacles, and take photos of the recyclable materials, contaminants, etc. In less than day, two students should be able to sort and record five receptacle locations at each site.

The following table allocates time and budget to conduct the visual audits.

Visual Audit		**Total time per audit**		
Location	Receptacle Locations	1st audit - End of June	2nd audit – mid August	3rd audit – end of September
Pelham Trails	5	9 hours	9 hours	9 hours
NPCA Park	5	9 hours	9 hours	9 hours
St. Catharines Streetscape	5	10 hours + 2 hrs to collect & transport	10 hours + 2 hrs to collect & transport	10 hours + 2 hrs to collect & transport
Total hours		30 hours	30 hours	30 hours
Total Labour (@ $18/hr)		$540	$540	$540
Total Cost	$1,620			

The total monitoring budget for 2 students to conduct a series of waste audits and visual audits is $4,374. The remaining budget can be used to rent vehicles, purchase supplies, conduct field observations and follow up. Surveys are not considered necessary.

Since the recyclables and garbage are collected, as part of the residential collection route, there is no opportunity to record collection and tonnages associated with public space recycling. Consequently, this makes the auditing component more important to the study. Emterra is charging $132/bin/year to collect recyclables, which will be offset by tipping fee savings and recycling revenues. These savings can be estimated, as part of the study.

It is assumed that the $2,500 set aside for report writing is adequate and that any data analysis associated with the project will be conducted by Niagara staff.

Appendix D

Public Space Waste Audit Sort Categories

Containers

1. Gable Top Cartons
2. Aseptic Containers
3. PET Beverage Water Bottles
4. PET Beverage Other
5. HDPE Beverage
6. Aluminum Beverage Cans
7. Glass Beverage Bottles
8. Other Recyclable Containers

Paper/Fibres

9. Paper Fast Food Packaging
10. Other Recyclable Fibres

Organics

11. Food Waste
12. Pet Waste

Plastics

13. Polystyrene Fast Food Packaging (including cups)
14. Film Plastic

Other

15. Paper Coffee/Drink Cups (non-recyclable)
16. Non-recyclable Materials

Public Space Waste Audit Definitions

Categories	Examples	Illustration
Recyclable Containers		
Gable Top Cartons	Milk cartons, juice cartons	
Aseptic Containers	Tetra pak juice boxes, juice cartons, milk cartons	
PET Beverage water bottles	Plastic water bottles	
PET Beverage other	Plastic (#1) bottles - pop, juice, vitamin water, Gatorade	
HDPE Beverage	Plastic (#2) bottles	
Aluminum Beverage cans	Pop, juice	
Glass Beverage bottles	Juice, beer, alcohol	
Other recyclable containers	- Metal Food Cans - Plastic shampoo, bleach, detergent, motor oil and windshield washer bottles - Any wide mouth plastic tub and lid such as yogurt, margarine and ice cream - Pringles potato chips containers	

Categories	Examples	Illustration
Plastics		
Polystyrene fast food packaging (including cups)	Styrofoam food containers, Styrofoam coffee cups, plastic cutlery, etc.	
Other recyclables – film plastic	retail, milk and bread bags, dry cleaning bags, clean bubble wrap, and the plastic outer covering from items such as toilet tissue, paper towels and pop cases	
Paper/Fibres		
Paper fast food packaging	Paper boxes, pizza boxes, fries boxes, etc.	
Other recyclable fibres	Newspapers, magazines, flyers, cardboard, boxboard, envelopes, office paper, paper bags, etc.	
Organics		
Food waste	Fruits, vegetables, bread, meat, fish, pasta, cereal, dairy, coffee grinds, tea bags, candy	

Appendix E - 2011 Public Spaces Waste Audit Results

Summary of Waste Audits

Project Partner	Total No. of Bins	Annual Tonnes Generated per Bin		Total Annual Tonnes Generated		Capture Rate - Containers Only	Capture Rate All Recyclables	Contamination Rate - All Recyclables	Contamination Rate - Containers Only
		Garbage	Recycling	Garbage	Recycling	Recycling	Recycling	Recycling	Recycling
St. Catharines [1]	74	0.56	0.13	41.40	9.47	86.23%	61.26%	16.00%	23.10%
Pelham [1]	46	0.32	0.05	14.54	2.20	94.80%	81.97%	16.36%	28.44%
NPCA [1]	19	0.24	0.12	4.64	2.29	96.11%	87.89%	3.78%	9.20%
Niagara Falls [2]	15	0.24	0.12	3.66	1.81	96.11%	87.89%	3.78%	9.20%
Grimsby [3]	6	0.56	0.13	3.36	0.77	86.23%	61.26%	16.00%	23.10%
Niagara Region [2]	1	0.24	0.12	0.24	0.12	96.11%	87.89%	3.78%	9.20%
Total:	**161**	**2.17**	**0.66**	**67.84**	**16.65**	**92.60%**	**78.02%**	**9.95%**	**17.04%**

Notes:

1) The results were based on an average of the three waste audits (July, August and September 2011) and extrapolated to determine the total annual tonnes generated for all bins.

2) The results from NPCA's waste audits were used to determine the City of Niagara Falls and Niagara Region's annual total tonnes generated, recycling capture rate and recycling contamination rate.

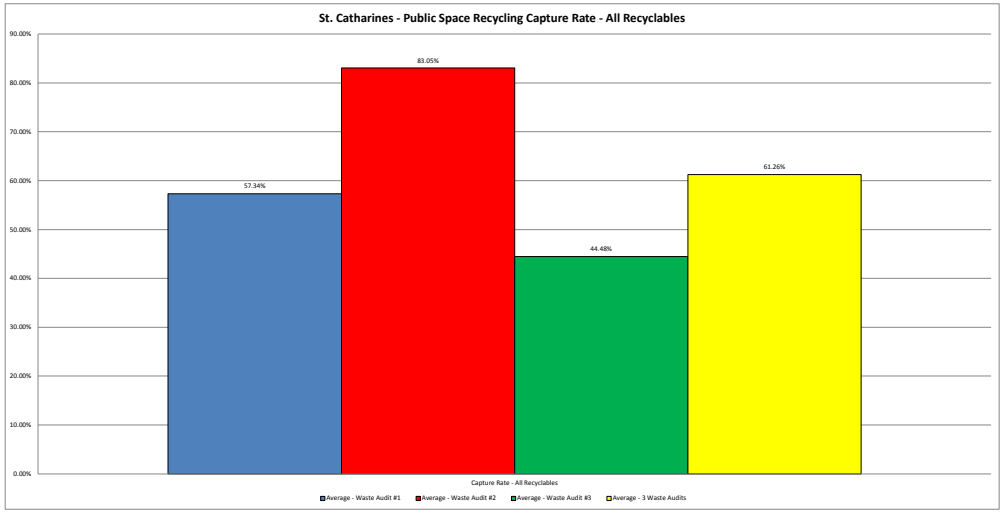
3) The results from St. Catharines' waste audits were used to determine the Town of Grimsby's annual total tonnes generated, recycling capture rate and recycling contamination rate.

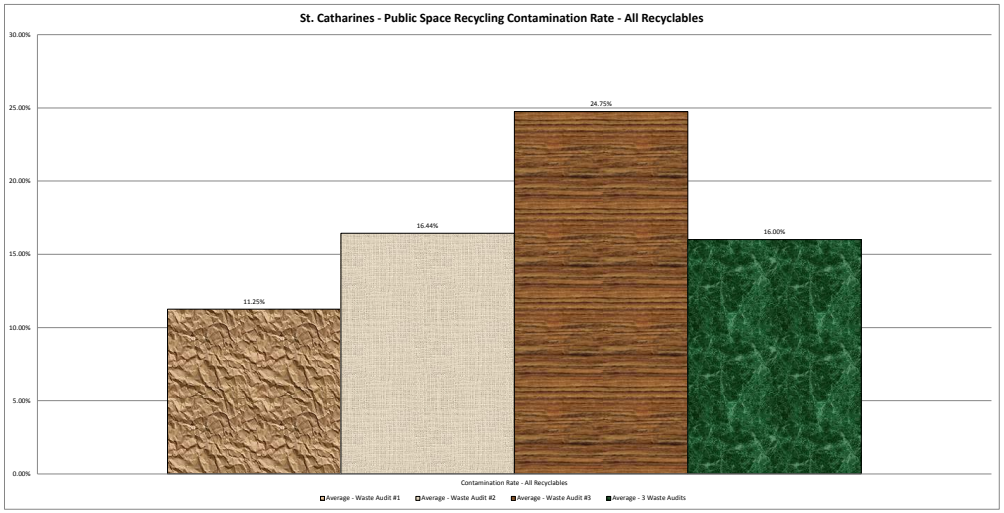
Material Category	St. Catharines		Pelham		NPCA		Total		% of Total	
	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling
1. CONTAINERS										
Gable Top Cartons	0.02	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.10%	0.19%
Aseptic Containers	0.00	0.00	0.01	0.01	0.05	0.02	0.06	0.03	0.36%	0.51%
PET Beverage Water Bottles	0.09	0.59	0.00	0.17	0.01	0.34	0.11	1.11	0.65%	21.02%
PET Beverage Other	0.11	0.54	0.02	0.13	0.02	0.14	0.14	0.81	0.87%	15.31%
HDPE Beverage	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.03	0.05%	0.56%
Aluminum Beverage Cans	0.04	0.28	0.01	0.08	0.01	0.41	0.06	0.77	0.36%	14.61%
Glass Beverage Bottles	0.04	0.34	0.00	0.26	0.01	0.42	0.05	1.02	0.33%	19.35%
Other Recyclable Containers	0.02	0.00	0.01	0.00	0.01	0.08	0.04	0.08	0.25%	1.49%
Total Containers (kg.)	**0.32**	**1.77**	**0.05**	**0.67**	**0.11**	**1.42**	**0.49**	**3.85**	**2.97%**	**73.04%**
2. PAPER/FIBRES										
Paper Fast Food Packaging	0.08	0.02	0.00	0.01	0.07	0.00	0.15	0.03	0.93%	0.66%
Other Recyclable Fibres	0.77	0.01	0.10	0.06	0.06	0.55	0.92	0.62	5.64%	11.79%
Total Paper/Fibres (kg.)	**0.85**	**0.03**	**0.10**	**0.07**	**0.12**	**0.55**	**1.08**	**0.66**	**6.57%**	**12.45%**
3. ORGANICS										
Food Waste	0.08	0.01	0.15	0.01	0.27	0.00	0.51	0.02	3.10%	0.33%
Pet Waste	0.00	0.00	5.48	0.05	0.47	0.00	5.95	0.05	36.30%	1.04%
Total Organics (kg.)	**0.08**	**0.01**	**5.63**	**0.06**	**0.75**	**0.00**	**6.46**	**0.07**	**39.41%**	**1.37%**
4. PLASTICS										
Polystyrene Fast Food Packaging (including cups)	0.04	0.12	0.01	0.02	0.01	0.02	0.07	0.16	0.40%	3.02%
Film Plastic	0.01	0.01	0.00	0.00	0.02	0.00	0.03	0.01	0.19%	0.21%
Total Plastics (kg.)	**0.05**	**0.12**	**0.01**	**0.03**	**0.04**	**0.02**	**0.10**	**0.17**	**0.59%**	**3.24%**
5. OTHER										
Non-recyclable Materials	4.65	0.20	0.25	0.07	3.14	0.07	8.03	0.35	49.02%	6.59%
Paper Coffee/Drink Cups	0.19	0.16	0.02	0.02	0.03	0.00	0.24	0.18	1.44%	3.32%
Total Other (kg.)	**4.83**	**0.36**	**0.26**	**0.09**	**3.17**	**0.08**	**8.27**	**0.52**	**50.46%**	**9.91%**
GRAND TOTAL (kg.)	**6.13**	**2.29**	**6.06**	**0.92**	**4.19**	**2.07**	**16.39**	**5.27**	**100.00%**	**100.00%**
Acceptable Recycling - all material streams (Niagara Region)	**1.22**	**1.92**	**0.17**	**0.77**	**0.27**	**1.99**	**1.66**	**4.68**	**10.13%**	**88.72%**
Non acceptable materials (including Organics)	**4.91**	**0.37**	**5.89**	**0.15**	**3.92**	**0.08**	**14.73**	**0.59**	**89.87%**	**11.28%**
Capture Rate - All Recyclables		**61.26%**		**81.97%**		**87.89%**		**73.81%**		**89.75%**
Contamination Rate - All Recyclables		**16.00%**		**16.36%**		**3.78%**		**11.28%**		**11.28%**
Acceptable container stream materials (Public Space Recycling)	**0.28**	**1.76**	**0.04**	**0.66**	**0.05**	**1.32**	**0.37**	**3.74**	**2.26%**	**70.85%**
Non acceptable materials (Public Spaces Recycling)	**5.85**	**0.53**	**6.03**	**0.26**	**4.11**	**0.19**	**16.01**	**1.54**	**97.74%**	**29.15%**
Container capture rate recyclables (Public Space Recycling)		**86.23%**		**94.80%**		**96.11%**		**90.98%**		**96.91%**
Contamination rate recyclables (Public Space Recycling)		**23.10%**		**28.44%**		**9.20%**		**29.15%**		**29.15%**

2011 Public Spaces Garbage/Recycling Waste Audit Results - City of St. Catharines

Municipality:	St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines	
Sample Area:	Downtown		Downtown		Downtown		Downtown		Downtown		Average - Waste Audit #1		Downtown		Downtown		Downtown		Downtown		Downtown		Downtown		Downtown		Downtown		Average - Waste Audit #3		Average - 3 Waste Audits	
Location of Bin:	185 St. Paul Street		201 St. Paul Street		6 James Street		18 James Street		38 James Street				185 St. Paul Street		201 St. Paul Street		6 James Street		18 James Street		38 James Street		185 St. Paul Street		201 St. Paul Street		6 James Street		18 James Street		38 James Street		
Waste Stream:	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling
Date Collected (month/day/year):	July 29, 2011		July 29, 2011		July 29, 2011		July 29, 2011		July 29, 2011		July 29, 2011		September 2, 2011		September 2, 2011		September 2, 2011		September 2, 2011		September 2, 2011		September 30, 2011		September 30, 2011		September 30, 2011		September 30, 2011		July 29, Sep 2, Sep 30/11	
Waste Generation Period (number of days):	4.00	7.00	4.00	7.00	4.00	7.00	4.00	7.00	4.00	7.00	4.00	7.00	4.00	0.00	4.00	7.00	4.00	7.00	4.00	7.00	4.00	7.00	4.00	5.60	4.00	7.00	4.00	7.00	4.00	7.00	4.00	6.53
No./Bins collected:	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Audit/Supervisor:	Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw	
Notes:																																
Material Category	"Accepted? ("R" if accepted in Region's recycling or "O" if accepted in organics collection program)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)
1. CONTAINERS																																
Gable Top Cartons	R	0.15	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Aseptic Containers	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PET Beverage Water Bottles	R	0.00	0.20	0.00	0.66	0.06	2.03	0.35	1.05	0.11	0.23	0.10	0.83	0.00	0.00	0.00	0.38	0.08	1.50	0.02	0.51	0.03	0.74	0.03	0.63	0.00	0.00	0.57	0.03	0.06	0.88	0.00	0.69
PET Beverage Other	R	0.05	1.65	0.00	1.00	0.26	0.73	0.11	0.54	0.51	0.91	0.19	0.97	0.00	0.00	0.00	0.61	0.18	0.18	0.00	0.68	0.14	0.43	0.06	0.38	0.00	0.00	0.00	0.00	0.37	0.65	0.00	0.61
HDPE Beverage	R	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aluminum Beverage Cans	R	0.12	0.36	0.00	0.34	0.09	0.46	0.09	0.54	0.12	0.39	0.08	0.42	0.00	0.00	0.00	0.31	0.01	0.30	0.02	0.44	0.03	0.37	0.01	0.28	0.00	0.03	0.05	0.07	0.05	0.27	0.00	0.17
Glass Beveraae Bottles	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.64	0.00	0.13	0.05	0.00	0.00	0.00	2.03	0.00	0.92	0.00	0.36	0.00	0.17	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.27
Other Recyclable Containers	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.18	0.00	0.00	0.00
Total Containers		**0.32**	**2.25**	**0.00**	**2.14**	**0.41**	**3.22**	**0.55**	**2.38**	**1.47**	**1.53**	**0.55**	**2.30**	**0.00**	**0.00**	**0.00**	**3.33**	**0.27**	**2.92**	**0.04**	**2.00**	**0.23**	**1.71**	**0.11**	**1.99**	**0.04**	**0.03**	**0.80**	**0.10**	**0.48**	**2.31**	**0.00**	**1.74**
2. PAPER/FIBRES																																
Paper Coffee/Drink Cups	Non-recyclable	0.24	0.39	0.10	0.23	0.23	0.10	0.27	0.09	0.28	0.16	0.22	0.19	0.02	0.00	0.10	0.37	0.11	0.14	0.11	0.16	0.41	0.19	0.15	0.17	0.19	0.00	0.18	0.10	0.35	0.13	0.08	0.08
Paper Fast Food Packaging	R	0.17	0.17	0.00	0.00	0.22	0.00	0.20	0.00	0.23	0.00	0.16	0.03	0.00	0.00	0.00	0.05	0.00	0.01	0.04	0.05	0.00	0.00	0.01	0.02	0.07	0.00	0.05	0.00	0.06	0.05	0.13	0.00
Other Recyclable Fibres	R	3.54	0.06	0.00	0.04	1.86	0.00	0.00	0.00	0.00	0.00	1.08	0.02	0.00	0.00	0.00	0.95	0.03	0.00	0.00	0.00	0.52	0.00	0.29	0.01	0.08	0.00	0.04	0.00	3.20	0.00	1.26	0.00
Total Paper/Fibres		**3.95**	**0.62**	**0.10**	**0.27**	**2.31**	**0.10**	**0.47**	**0.09**	**0.51**	**0.16**	**1.47**	**0.25**	**0.02**	**0.00**	**0.10**	**1.05**	**0.45**	**0.11**	**0.15**	**0.21**	**0.93**	**0.19**	**0.45**	**0.20**	**0.34**	**0.00**	**0.27**	**0.10**	**3.61**	**0.18**	**1.47**	**0.08**
3. ORGANICS																																
Food Waste	O	0.39	0.11	0.00	0.00	0.19	0.00	0.00	0.00	0.19	0.00	0.15	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.06	0.00	0.00	0.00	0.00	0.00
Pet Waste	O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Organics		**0.39**	**0.11**	**0.00**	**0.00**	**0.19**	**0.00**	**0.00**	**0.00**	**0.19**	**0.00**	**0.15**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.26**	**0.00**	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
4. PLASTICS																																
Polystyrene Fast Food Packaging (including cups)	R	0.11	0.15	0.00	0.12	0.14	0.13	0.08	0.26	0.02	0.17	0.07	0.17	0.00	0.00	0.04	0.45	0.06	0.02	0.01	0.16	0.07	0.08	0.04	0.14	0.04	0.00	0.00	0.05	0.04	0.11	0.04	0.03
Film Plastic	R	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Plastics		**0.11**	**0.15**	**0.00**	**0.12**	**0.21**	**0.13**	**0.08**	**0.26**	**0.02**	**0.17**	**0.08**	**0.17**	**0.00**	**0.00**	**0.04**	**0.57**	**0.06**	**0.02**	**0.01**	**0.16**	**0.07**	**0.08**	**0.04**	**0.17**	**0.04**	**0.00**	**0.00**	**0.05**	**0.04**	**0.11**	**0.04**	**0.03**
5. OTHER																																
Non-recyclable Materials	Non-recyclable	0.41	0.18	6.71	0.04	0.91	0.07	1.12	0.23	6.52	0.00	3.13	0.10	1.06	0.00	6.74	0.58	1.78	0.20	0.89	0.08	16.63	0.43	5.42	0.26	10.16	0.00	10.12	0.00	0.54	0.33	1.09	0.26
Total Other		**0.41**	**0.18**	**6.71**	**0.04**	**0.91**	**0.07**	**1.12**	**0.23**	**6.52**	**0.00**	**3.13**	**0.10**	**1.06**	**0.00**	**6.74**	**0.58**	**1.78**	**0.20**	**0.89**	**0.08**	**16.63**	**0.43**	**5.42**	**0.26**	**10.16**	**0.00**	**10.12**	**0.00**	**0.54**	**0.33**	**1.09**	**0.26**
GRAND TOTAL (kg.)		**5.18**	**3.31**	**6.81**	**2.57**	**4.03**	**3.52**	**2.22**	**2.96**	**8.71**	**1.86**	**5.39**	**2.84**	**1.08**	**0.00**	**7.83**	**4.93**	**2.22**	**3.29**	**1.09**	**2.45**	**17.86**	**2.41**	**6.02**	**2.62**	**10.84**	**0.03**	**11.25**	**0.25**	**4.67**	**2.93**	**2.60**	**2.11**
Acceptable Recycling - all material streams (Niagara Region)		**4.14**	**2.63**	**0.00**	**2.30**	**2.70**	**3.35**	**0.83**	**2.64**	**1.72**	**1.70**	**1.88**	**2.52**	**0.00**	**0.00**	**0.99**	**3.98**	**0.33**	**2.95**	**0.09**	**2.21**	**0.82**	**1.79**	**0.45**	**2.19**	**0.23**	**0.03**	**0.89**	**0.15**	**3.78**	**2.47**	**1.43**	**1.77**
Non acceptable materials (including Organics)		**1.04**	**0.68**	**6.81**	**0.27**	**1.33**	**0.17**	**1.39**	**0.32**	**6.99**	**0.16**	**3.51**	**0.32**	**1.08**	**0.00**	**6.84**	**0.95**	**1.89**	**0.34**	**1.00**	**0.24**	**17.04**	**0.62**	**5.57**	**0.43**	**10.61**	**0.00**	**10.36**	**0.10**	**0.89**	**0.46**	**1.17**	**0.34**
Capture Rate - All Recyclables			**38.85%**		**100.00%**		**55.37%**		**76.08%**		**49.71%**		**57.34%**		**#DIV/0!**		**80.08%**		**89.94%**		**96.09%**		**68.56%**		**83.05%**		**11.54%**		**14.42%**		**39.52%**		**55.31%**
Contamination Rate - All Recyclables			**20.54%**		**10.51%**		**4.83%**		**10.81%**		**8.60%**		**11.25%**		**#DIV/0!**		**19.27%**		**10.33%**		**9.80%**		**25.73%**		**16.44%**		**0.00%**		**40.00%**		**15.70%**		**16.11%**
Acceptable container stream materials (Public Space Recycling)		**0.17**	**2.21**	**0.00**	**2.14**	**0.41**	**3.22**	**0.55**	**2.38**	**1.38**	**1.53**	**0.50**	**2.30**	**0.00**	**0.00**	**0.00**	**3.33**	**0.27**	**2.90**	**0.04**	**1.99**	**0.20**	**1.71**	**0.10**	**1.99**	**0.00**	**0.03**	**0.62**	**0.10**	**0.48**	**2.31**	**0.00**	**1.74**
Non acceptable materials (Public Space Recycling)		**5.01**	**1.10**	**6.81**	**0.43**	**3.62**	**0.30**	**1.67**	**0.58**	**7.33**	**0.33**	**4.89**	**0.55**	**1.08**	**0.00**	**7.83**	**1.60**	**1.95**	**0.39**	**1.05**	**0.46**	**17.66**	**0.70**	**5.91**	**0.63**	**10.84**	**0.00**	**10.63**	**0.15**	**4.19**	**0.62**	**2.60**	**0.37**
Container capture rate recyclables (Public Space Recycling)			**52.86%**		**100.00%**		**88.71%**		**81.23%**		**52.58%**		**82.06%**		**#DIV/0!**		**100.00%**		**91.48%**		**98.03%**		**89.53%**		**95.11%**		**100.00%**		**13.89%**		**82.80%**		**100.00%**
Contamination rate recyclables (Public Space Recycling)			**33.23%**		**16.73%**		**8.52%**		**19.59%**		**17.74%**		**19.27%**		**#DIV/0!**		**32.45%**		**11.85%**		**18.78%**		**29.05%**		**24.08%**		**0.00%**		**60.00%**		**21.16%**		**17.54%**

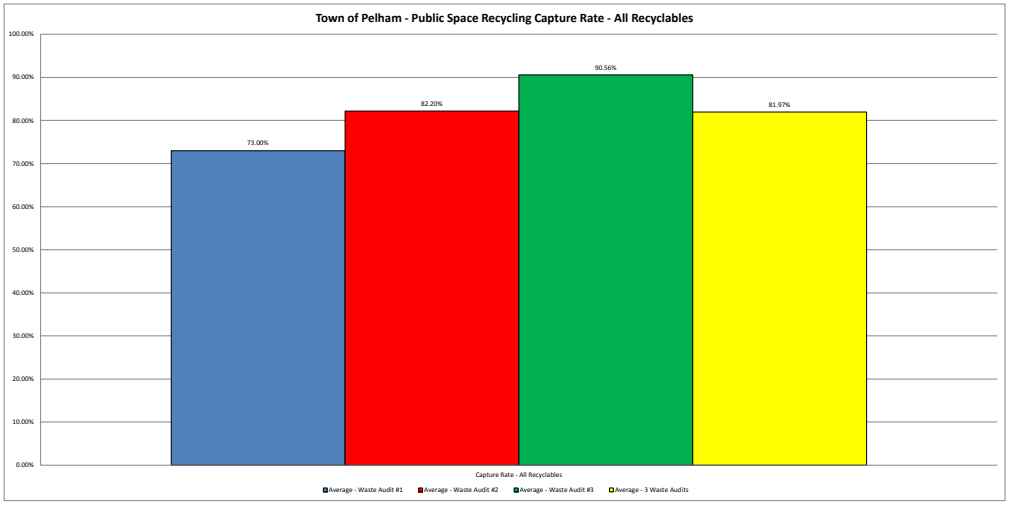
Municipality:	St. Catharines		St. Catharines	
Sample Area:	Annual Total			
Location of Bin:				
Waste Stream:	Garbage	Recycling	Garbage	Recycling
Date Collected (month/day/year):	Jan 1 to Dec 31/11			
Waste Generation Period (number of days):	91.25	55.87		
No./Bins collected:	74	74		
Audit/Supervisor:	Brad Whitelaw			
Notes:				
Material Category	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)
1. CONTAINERS				
Gable Top Cartons	108.04	11.02		
Aseptic Containers	13.51	8.27		
PET Beverage Water Bottles	607.73	2,452.95		
PET Beverage Other	729.27	2,235.22		
HDPE Beverage	0.00	38.59		
Aluminum Beverage Cans	274.60	1,165.84		
Glass Beveraae Bottles	288.11	1,391.84		
Other Recyclable Containers	144.05	0.00		
Total Containers	**2,165.30**	**7,303.72**		
2. PAPER/FIBRES				
Paper Coffee/Drink Cups	1,251.46	642.18		
Paper Fast Food Packaging	544.70	101.98		
Other Recyclable Fibres	5,176.92	35.83		
Total Paper/Fibres	**6,973.08**	**779.98**		
3. ORGANICS				
Food Waste	553.71	30.32		
Pet Waste	0.00	0.00		
Total Organics	**553.71**	**30.32**		
4. PLASTICS				
Polystyrene Fast Food Packaging (including cups)	292.61	482.32		
Film Plastic	40.52	33.07		
Total Plastics	**333.12**	**515.39**		
5. OTHER				
Non-recyclable Materials	31,376.62	843.37		
Total Other	**31,376.62**	**843.37**		
GRAND TOTAL (kg.)	**41,401.83**	**9,472.79**		
Acceptable Recycling - all material streams (Niagara Region)	**8,220.04**	**7,956.93**		
Non acceptable materials (including Organics)	**33,181.79**	**1,515.87**		
Capture Rate - All Recyclables		**49.19%**		
Contamination Rate - All Recyclables		**16.00%**		
Acceptable container stream materials (Public Space Recycling)	**1,899.70**	**7,284.43**		
Non acceptable materials (Public Space Recycling)	**39,502.13**	**2,188.36**		
Container capture rate recyclables (Public Space Recycling)		**79.32%**		
Contamination rate recyclables (Public Space Recycling)		**23.10%**		

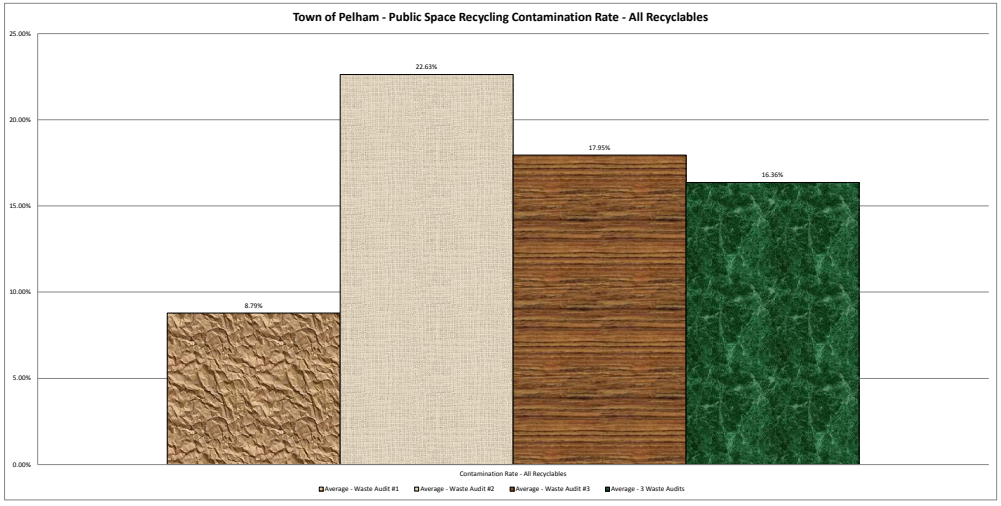




2011 Public Spaces Garbage/Recycling Waste Audit Results - Town of Pelham

Municipality:	Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham	
Sample Area:	Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Average - Waste Audit #1		Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Average - Waste Audit #2		Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Average - Waste Audit #3		Average - 3 Waste Audits		Annual Total	
Location of Bin:	Arena Entrance		Welland Rd. Entrance		Line Ave. Entrance		Merritt Rd. Entrance		Port Robinson Rd. Entrance				Arena Entrance		Welland Rd. Entrance		Line Ave. Entrance				Arena Entrance		Welland Rd. Entrance		Line Ave. Entrance		Merritt Rd. Entrance		Port Robinson Rd. Entrance						
Waste Stream:	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling
Date Collected (month/day/year):	July 25, 2011		July 25, 2011		July 25, 2011		July 25, 2011		July 25, 2011		July 25, 2011		August 29, 2011		August 29, 2011		August 29, 2011		August 29, 2011		September 26, 2011		September 26, 2011		September 26, 2011		September 26, 2011		September 26, 2011		July 25, Aug 29, Sep 26/11		Jan 1 to Dec 31/11	
Waste Generation Period (number of days):	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	52.14	52.14
No. Bins collected:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	46	46
Audit Supervisor:	Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw	
Notes:																																		
Material Category	Accepted? ("Yes" if accepted in Region's recycling or "Chill accepted in organics collection program)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)	Weight (kg)
1. CONTAINERS																																				
Gable Top Cartons	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20
Aseptic Containers	R	0.15	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.05	0.03	0.02	0.01	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	27.18	19.19
PET Beverage Water Bottles	R	0.05	0.59	0.00	0.05	0.00	0.04	0.00	0.23	0.00	0.13	0.01	0.21	0.00	0.14	0.00	0.27	0.00	0.19	0.00	0.12	0.00	0.31	0.00	0.21	0.00	0.08	0.00	0.00	0.00	0.08	0.00	0.17	8.00	417.35
PET Beverage Other	R	0.00	0.35	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.20	0.20	0.09	0.00	0.24	0.03	0.00	0.00	0.27	0.05	0.16	0.03	0.30	0.00	0.06	0.00	0.23	0.00	0.11	41.58	303.82
HDPE Beverage	R	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	6.40	19.19
Aluminum Beverage Cans	R	0.05	0.15	0.00	0.07	0.00	0.05	0.00	0.01	0.13	0.15	0.04	0.09	0.00	0.11	0.00	0.06	0.00	0.06	0.00	0.05	0.01	0.25	0.00	0.11	0.00	0.00	0.00	0.09	0.00	0.02	0.00	0.17	0.00	0.06	0.01	0.08	30.38	198.28
Glass Beverage Bottles	R	0.00	0.28	0.00	0.00	0.00	0.00	0.00	1.08	0.00	0.27	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.23	0.00	0.00	0.00	1.84	0.00	0.00	0.00	0.47	0.00	0.26	0.00	634.82
Other Recyclable Containers	R	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	14.36	3.20
Total Containers		**0.33**	**1.37**	**0.00**	**0.12**	**0.00**	**0.14**	**0.00**	**1.32**	**0.13**	**0.60**	**0.09**	**0.71**	**0.01**	**0.47**	**0.20**	**0.42**	**0.00**	**0.49**	**0.04**	**0.29**	**0.06**	**0.84**	**0.06**	**0.50**	**0.03**	**0.65**	**0.00**	**0.31**	**0.00**	**0.40**	**0.00**	**2.11**	**0.00**	**0.47**	**0.01**	**0.79**	**0.05**	**0.67**	**127.92**	**1,599.05**
2. PAPER/FIBRES																																									
Paper Coffee/Drink Cups	Non-recyclable	0.04	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.01	0.00	0.02	0.00	0.00	0.08	0.00	0.03	0.01	0.02	0.07	0.00	0.01	0.01	0.03	0.00	0.00	0.02	0.02	0.02	43.17	36.78
Paper Fast Food Packaging	R	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.02	0.00	0.01	11.19	23.99
Other Recyclable Fibres	R	0.37	0.09	0.00	0.00	0.00	0.00	0.00	0.03	0.43	0.02	0.16	0.03	0.00	0.05	0.00	0.00	0.00	0.00	0.19	0.00	0.03	0.00	0.04	0.01	0.45	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.10	0.15	0.10	0.06	239.86	151.91
Total Paper/Fibres		**0.46**	**0.09**	**0.00**	**0.00**	**0.02**	**0.01**	**0.00**	**0.03**	**0.43**	**0.02**	**0.18**	**0.03**	**0.06**	**0.05**	**0.01**	**0.00**	**0.02**	**0.00**	**0.19**	**0.13**	**0.03**	**0.04**	**0.06**	**0.04**	**0.52**	**0.00**	**0.01**	**0.01**	**0.06**	**0.00**	**0.00**	**0.11**	**0.03**	**0.84**	**0.12**	**0.19**	**0.12**	**0.09**	**294.22**	**212.67**
3. ORGANICS																																									
Food Waste	O	1.60	0.00	0.00	0.00	0.00	0.00	0.26	0.12	0.29	0.00	0.43	0.02	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.01	366.18	19.19
Pet Waste	O	1.45	0.00	7.75	0.00	4.71	0.00	1.91	0.00	1.54	0.00	3.47	0.00	0.96	0.00	6.39	0.04	6.34	0.00	1.97	0.00	2.18	0.00	3.57	0.01	11.51	0.00	9.46	0.03	16.13	0.00	6.78	0.00	3.07	0.75	9.39	0.16	5.48	0.05	13,136.18	131.12
Total Organics		**3.05**	**0.00**	**7.75**	**0.00**	**4.71**	**0.00**	**2.17**	**0.12**	**1.83**	**0.00**	**3.90**	**0.02**	**1.02**	**0.00**	**6.39**	**0.04**	**6.34**	**0.00**	**1.97**	**0.00**	**2.26**	**0.00**	**3.60**	**0.01**	**11.51**	**0.00**	**9.46**	**0.03**	**16.13**	**0.00**	**6.78**	**0.00**	**3.07**	**0.75**	**9.39**	**0.16**	**5.63**	**0.06**	**13,502.36**	**150.31**
4. PCASTICS																																									
Polystyrene Fast Food Packaging (including cups)	R	0.03	0.11	0.00	0.01	0.00	0.01	0.00	0.02	0.08	0.00	0.02	0.03	0.00	0.08	0.00	0.02	0.05	0.02	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.02	0.01	0.02	25.58	57.57
Film Plastic	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	6.40
Total Plastics		**0.03**	**0.11**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.02**	**0.08**	**0.00**	**0.02**	**0.03**	**0.00**	**0.08**	**0.00**	**0.02**	**0.05**	**0.02**	**0.00**	**0.00**	**0.00**	**0.03**	**0.01**	**0.03**	**0.00**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.07**	**0.00**	**0.02**	**0.01**	**0.03**	**25.58**	**63.96**
5. OTHER																																									
Non-recyclable Materials	Non-recyclable	0.34	0.06	0.00	0.07	0.26	0.00	0.04	0.02	0.48	0.09	0.22	0.05	0.00	0.03	0.00	0.09	0.12	0.09	0.01	0.01	1.69	0.44	0.36	0.13	0.04	0.04	0.22	0.01	0.00	0.00	0.00	0.00	0.50	0.13	0.15	0.04	0.25	0.07	591.65	172.70
Total Other		**0.34**	**0.06**	**0.00**	**0.07**	**0.26**	**0.00**	**0.04**	**0.02**	**0.48**	**0.09**	**0.22**	**0.05**	**0.00**	**0.03**	**0.00**	**0.09**	**0.12**	**0.09**	**0.01**	**0.01**	**1.69**	**0.44**	**0.36**	**0.13**	**0.04**	**0.04**	**0.22**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.50**	**0.13**	**0.15**	**0.04**	**0.25**	**0.07**	**591.65**	**172.70**
GRAND TOTAL		**4.21**	**1.63**	**7.75**	**0.20**	**4.99**	**0.16**	**2.21**	**1.51**	**2.95**	**0.71**	**4.42**	**0.84**	**1.09**	**0.63**	**6.60**	**0.57**	**6.53**	**0.60**	**2.21**	**0.43**	**4.04**	**1.35**	**4.09**	**0.72**	**12.10**	**0.72**	**9.69**	**0.36**	**16.19**	**0.40**	**6.78**	**2.22**	**3.60**	**2.26**	**9.67**	**1.19**	**6.06**	**0.92**	**14,541.74**	**2,198.69**
Acceptable Recycling - all material streams (Niagara Region)		**0.78**	**1.57**	**0.00**	**0.13**	**0.00**	**0.15**	**0.00**	**1.37**	**0.64**	**0.62**	**0.28**	**0.77**	**0.03**	**0.60**	**0.20**	**0.44**	**0.05**	**0.51**	**0.23**	**0.34**	**0.09**	**0.88**	**0.12**	**0.55**	**0.48**	**0.68**	**0.00**	**0.31**	**0.03**	**0.40**	**0.00**	**2.20**	**0.00**	**1.30**	**0.10**	**0.98**	**0.17**	**0.77**	**404.56**	**1,838.90**
Non acceptable materials (including Organics)		**3.43**	**0.06**	**7.75**	**0.07**	**4.99**	**0.01**	**2.21**	**0.14**	**2.31**	**0.09**	**4.14**	**0.07**	**1.06**	**0.03**	**6.40**	**0.13**	**6.48**	**0.09**	**1.98**	**0.09**	**3.95**	**0.47**	**3.97**	**0.16**	**11.62**	**0.04**	**9.69**	**0.05**	**16.16**	**0.00**	**6.78**	**0.02**	**3.60**	**0.96**	**9.57**	**0.21**	**5.89**	**0.15**	**14,137.18**	**359.79**
Capture Rate - All Recyclables			**66.81%**		**100.00%**		**100.00%**		**100.00%**		**48.21%**		**73.00%**		**95.24%**		**68.75%**		**91.07%**		**59.65%**		**90.72%**		**82.20%**		**58.62%**		**100.00%**		**93.02%**		**100.00%**		**100.00%**		**90.56%**		**81.97%**	
Contamination Rate - All Recyclables			**3.68%**		**35.00%**		**6.25%**		**9.27%**		**12.68%**		**8.79%**		**4.76%**		**22.81%**		**15.00%**		**29.93%**		**34.81%**		**22.63%**		**5.56%**		**13.89%**		**0.00%**		**0.90%**		**42.48%**		**17.95%**		**16.36%**	
Acceptable container stream materials (Public Space Recycling)		**0.14**	**1.37**	**0.00**	**0.12**	**0.00**	**0.11**	**0.00**	**1.32**	**0.13**	**0.55**	**0.05**	**0.69**	**0.00**	**0.45**	**0.20**	**0.42**	**0.00**	**0.49**	**0.03**	**0.27**	**0.01**	**0.83**	**0.05**	**0.49**	**0.03**	**0.65**	**0.00**	**0.31**	**0.00**	**0.40**	**0.00**	**2.11**	**0.00**	**0.44**	**0.01**	**0.78**	**0.04**	**0.66**	**86.35**	**1,573.46**
Non acceptable materials (Public Space Recycling)		**4.07**	**0.26**	**7.75**	**0.08**	**4.99**	**0.05**	**2.21**	**0.19**	**2.82**	**0.16**	**4.37**	**0.15**	**1.09**	**0.18**	**6.40**	**0.15**	**6.53**	**0.11**	**2.18**	**0.16**	**4.03**	**0.52**	**4.05**	**0.22**	**12.07**	**0.07**	**9.69**	**0.05**	**16.19**	**0.00**	**6.78**	**0.11**	**3.60**	**1.82**	**9.67**	**0.41**	**6.03**	**0.26**	**14,455.39**	**625.23**
Container capture rate recyclables (Public Space Recycling)			**90.73%**		**100.00%**		**100.00%**		**100.00%**		**80.88%**		**92.78%**		**100.00%**		**67.74%**		**100.00%**		**90.00%**		**58.81%**		**91.11%**		**95.59%**		**100.00%**		**100.00%**		**100.00%**		**100.00%**		**99.24%**		**94.80%**	
Contamination rate recyclables (Public Space Recycling)			**15.95%**		**40.00%**		**31.25%**		**12.58%**		**22.54%**		**17.58%**		**28.57%**		**26.32%**		**18.33%**		**37.21%**		**38.52%**		**31.28%**		**9.72%**		**13.89%**		**0.00%**		**4.95%**		**80.53%**		**34.40%**		**28.44%**	

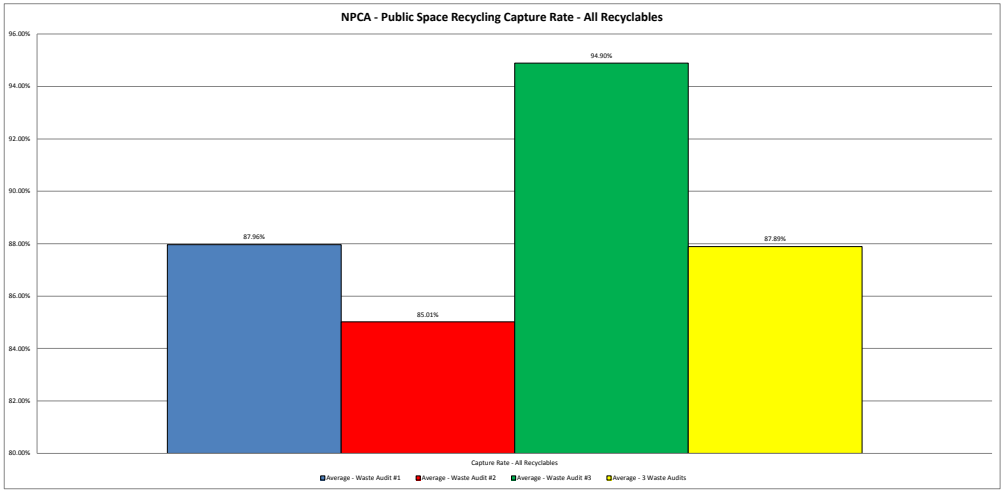


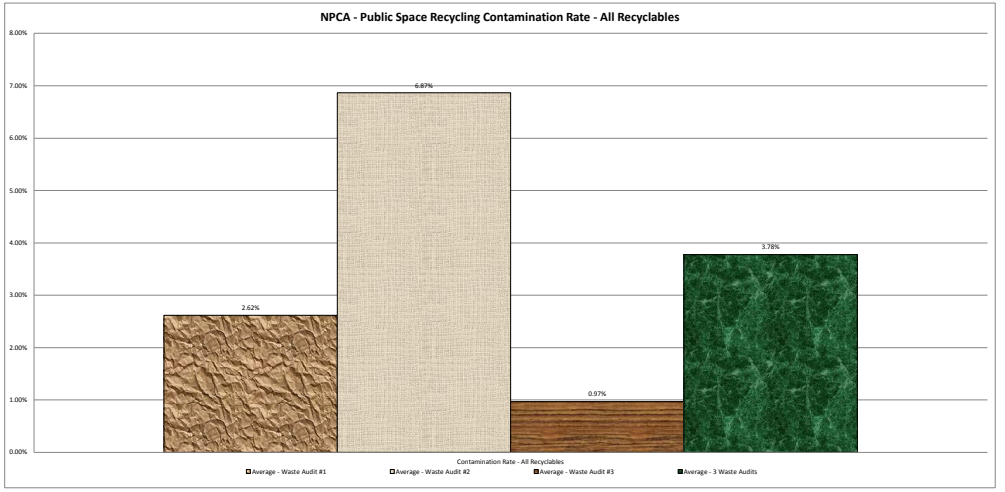


2011 Public Spaces Garbage/Recycling Waste Audit Results - Niagara Peninsula Conservation Authority

Municipality:	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA	NPCA
Sample Area:	Chippawa Creek		Chippawa Creek		Chippawa Creek		Chippawa Creek		Chippawa Creek		Average - Waste Audit #1		Chippawa Creek		Chippawa Creek		Chippawa Creek		Average - Waste Audit #2		Chippawa Creek		Chippawa Creek		Chippawa Creek		Chippawa Creek	
Location of Bin:	Gatehouse		Pavilion		Beach Parking Lot		Triangle		Fishing Pier by Camping				Gatehouse		Pavilion		Beach Parking Lot				Triangle		Fishing Pier by Camping					
Waste Stream:	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling
Date Collected (month/day/year):	July 27, 2011		July 27, 2011		July 27, 2011		July 27, 2011		July 27, 2011		July 27, 2011		August 31, 2011		August 31, 2011		August 31, 2011		August 31, 2011		August 31, 2011		September 28, 2011		September 28, 2011		September 28, 2011	
Waste Generation Period (number of days):	7.00	7.00	7.00	7.00	2.00	2.00	1.00	1.00	7.00	7.00	4.80	4.80	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
No./Bins collected:	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Audit Supervisor:	Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw		Brad Whitelaw	
Notes:	3-stream bin												3-stream bin								3-stream bin							
Material Category	Accepted? ("R" if accepted in Region's recycling or "O/M if accepted in organics collection program)	Weight (kg)	Wt/Bgt (kg)	Weight (kg)	Wt/Bgt (kg)	Weight (kg)	Wt/Bgt (kg)	Weight (kg)	Wt/Bgt (kg)	Weight (kg)	Wt/Bgt (kg)	Weight (kg)	Wt/Bgt (kg)	Weight (kg)	Wt/Bgt (kg)	Weight (kg)	Wt/Bgt (kg)	Weight (kg)	Wt/Bgt (kg)	Weight (kg)	Wt/Bgt (kg)	Weight (kg)	Wt/Bgt (kg)	Weight (kg)	Wt/Bgt (kg)	Weight (kg)	Wt/Bgt (kg)	Weight (kg)	Wt/Bgt (kg)
1. CONTAINERS																													
Gable Top Cartons	R	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	6.64
Aseptic Containers	R	0.00	0.01	0.00	0.00	0.24	0.04	0.10	0.04	0.07	0.00	0.08	0.02	0.00	0.01	0.01	0.07	0.26	0.02	0.00	0.06	0.00	0.00	0.05	0.03	0.01	0.00	0.00	0.00	0.05	0.02	50.91	18.44
PET Beverage Water Bottles	R	0.17	1.14	0.02	0.21	0.00	0.47	0.00	1.00	0.00	0.00	0.04	0.56	0.00	0.20	0.00	1.55	0.00	0.03	0.01	0.07	0.00	0.10	0.00	0.39	0.00	0.05	0.00	0.01	0.00	0.01	0.00	0.13	0.00	0.07	0.01	0.34	14.76	377.74
PET Beverage Other	R	0.00	0.12	0.03	0.16	0.00	0.28	0.07	0.33	0.00	0.01	0.02	0.18	0.00	0.12	0.00	0.35	0.04	0.30	0.00	0.17	0.00	0.00	0.01	0.19	0.00	0.00	0.01	0.00	0.00	0.06	0.00	0.04	0.11	0.16	0.02	0.05	0.02	0.14	19.18	154.93
HDPE Beverage	R	0.00	0.04	0.00	0.00	0.05	0.00	0.00	0.13	0.03	0.01	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	5.90	13.28
Aluminum Beverage Cans	R	0.00	1.12	0.00	0.53	0.00	0.72	0.00	0.58	0.00	0.06	0.00	0.60	0.00	0.58	0.00	0.56	0.01	0.44	0.03	0.33	0.05	0.23	0.02	0.43	0.00	0.15	0.00	0.09	0.00	0.06	0.00	0.24	0.00	0.40	0.00	0.19	0.01	0.41	6.64	449.30
Glass Beverage Bottles	R	0.00	0.18	0.00	0.18	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.54	0.00	0.34	0.00	0.26	0.17	1.38	0.00	0.23	0.03	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	0.00	1.30	0.00	0.42	0.01	0.42	12.54	464.05
Other Recyclable Containers	R	0.06	0.00	0.00	0.00	0.00	0.18	0.00	0.14	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.17	0.00	0.67	0.03	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.08	14.76	85.58
Total Containers		**0.23**	**2.70**	**0.05**	**1.08**	**0.29**	**2.76**	**0.17**	**2.22**	**0.10**	**0.08**	**0.17**	**1.77**	**0.00**	**1.45**	**0.01**	**2.87**	**0.45**	**1.05**	**0.21**	**2.18**	**0.05**	**1.23**	**0.14**	**1.76**	**0.01**	**0.20**	**0.01**	**0.10**	**0.00**	**0.13**	**0.00**	**1.24**	**0.11**	**1.99**	**0.03**	**0.73**	**0.11**	**1.42**	**124.68**	**1,569.97**
2. PAPER/FIBRES																																									
Paper Coffee/Drink Cups	Non-recyclable	0.02	0.06	0.12	0.00	0.15	0.01	0.00	0.00	0.02	0.00	0.06	0.01	0.06	0.00	0.01	0.00	0.04	0.00	0.01	0.00	0.04	0.00	0.03	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	36.89	5.16
Paper Fast Food Packaging	R	0.16	0.00	0.00	0.00	0.19	0.00	0.20	0.00	0.00	0.00	0.11	0.00	0.01	0.00	0.35	0.00	0.02	0.00	0.07	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	73.78	0.00
Other Recyclable Fibres	R	0.05	7.34	0.13	0.00	0.31	0.00	0.10	0.00	0.00	0.00	0.12	1.47	0.23	0.53	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.06	0.11	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.06	0.55	64.19	608.66
Total Paper/Fibres		**0.23**	**7.40**	**0.25**	**0.00**	**0.65**	**0.01**	**0.30**	**0.00**	**0.02**	**0.00**	**0.29**	**1.48**	**0.30**	**0.53**	**0.36**	**0.00**	**0.11**	**0.00**	**0.08**	**0.00**	**0.04**	**0.00**	**0.18**	**0.11**	**0.00**	**0.38**	**0.02**	**0.00**	**0.01**	**0.00**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.08**	**0.16**	**0.55**	**174.85**	**613.82**
3. ORGANICS																																									
Food Waste	O	0.15	0.03	0.32	0.00	0.05	0.00	1.80	0.00	0.00	0.00	0.46	0.01	0.83	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.94	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	302.48	2.21
Pet Waste	O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.00	1.62	0.00	0.87	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.30	0.00	1.81	0.00	1.50	0.00	0.72	0.00	0.47	0.00	522.34	0.00
Total Organics		**0.15**	**0.03**	**0.32**	**0.00**	**0.05**	**0.00**	**1.80**	**0.00**	**0.00**	**0.00**	**0.46**	**0.01**	**0.83**	**0.00**	**0.00**	**0.00**	**0.98**	**0.00**	**1.63**	**0.00**	**1.81**	**0.00**	**1.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.30**	**0.00**	**1.81**	**0.00**	**1.50**	**0.00**	**0.72**	**0.00**	**0.75**	**0.00**	**824.82**	**2.21**
4. PLASTICS																																									
Polystyrene Fast Food Packaging (including cups)	R	0.02	0.02	0.02	0.10	0.00	0.06	0.00	0.01	0.03	0.00	0.01	0.04	0.01	0.01	0.00	0.02	0.03	0.02	0.05	0.00	0.02	0.00	0.02	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.02	13.28	20.66
Film Plastic	R	0.07	0.00	0.03	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.04	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.09	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	27.30	0.74
Total Plastics		**0.09**	**0.02**	**0.05**	**0.10**	**0.00**	**0.06**	**0.09**	**0.01**	**0.03**	**0.00**	**0.05**	**0.04**	**0.10**	**0.01**	**0.00**	**0.02**	**0.03**	**0.02**	**0.05**	**0.00**	**0.02**	**0.00**	**0.04**	**0.01**	**0.09**	**0.03**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.02**	**0.01**	**0.04**	**0.02**	**40.58**	**21.40**
5. OTHER																																									
Non-recyclable Materials	Non-recyclable	2.90	0.03	0.33	0.00	7.46	0.30	3.63	0.01	4.14	0.00	3.69	0.07	2.68	0.54	1.33	0.03	8.76	0.01	1.64	0.09	5.11	0.02	3.90	0.14	0.94	0.03	0.67	0.01	0.30	0.00	0.00	0.00	7.19	0.00	1.82	0.01	3.14	0.07	3,473.40	78.94
Total Other		**2.90**	**0.03**	**0.33**	**0.00**	**7.46**	**0.30**	**3.63**	**0.01**	**4.14**	**0.00**	**3.69**	**0.07**	**2.68**	**0.54**	**1.33**	**0.03**	**8.76**	**0.01**	**1.64**	**0.09**	**5.11**	**0.02**	**3.90**	**0.14**	**0.94**	**0.03**	**0.67**	**0.01**	**0.30**	**0.00**	**0.00**	**0.00**	**7.19**	**0.00**	**1.82**	**0.01**	**3.14**	**0.07**	**3,473.40**	**78.94**
GRAND TOTAL		**3.60**	**10.18**	**1.00**	**1.18**	**8.45**	**3.13**	**5.99**	**2.24**	**4.29**	**0.08**	**4.67**	**3.36**	**3.91**	**2.53**	**1.70**	**2.92**	**10.33**	**1.08**	**3.61**	**2.27**	**7.03**	**1.25**	**5.32**	**2.01**	**1.04**	**0.64**	**0.70**	**0.12**	**0.61**	**0.13**	**1.81**	**1.24**	**8.80**	**2.00**	**2.58**	**0.83**	**4.19**	**2.07**	**4,638.33**	**2,286.34**
Acceptable Recycling - all material streams (Niagara Region)		**0.53**	**10.06**	**0.23**	**1.18**	**0.79**	**2.82**	**0.56**	**2.23**	**0.13**	**0.08**	**0.45**	**3.27**	**0.34**	**1.99**	**0.36**	**2.89**	**0.55**	**1.07**	**0.33**	**2.18**	**0.07**	**1.23**	**0.33**	**1.87**	**0.10**	**0.61**	**0.01**	**0.11**	**0.00**	**0.13**	**0.00**	**1.24**	**0.11**	**2.00**	**0.04**	**0.82**	**0.27**	**1.99**	**303.22**	**2,200.02**
Non acceptable materials (including Organics)		**3.07**	**0.12**	**0.77**	**0.00**	**7.66**	**0.31**	**5.43**	**0.01**	**4.16**	**0.00**	**4.22**	**0.09**	**3.57**	**0.54**	**1.34**	**0.03**	**9.78**	**0.01**	**3.28**	**0.09**	**6.96**	**0.02**	**4.99**	**0.14**	**0.94**	**0.03**	**0.69**	**0.01**	**0.61**	**0.00**	**1.81**	**0.00**	**8.69**	**0.00**	**2.55**	**0.01**	**3.92**	**0.08**	**4,335.11**	**86.32**
Capture rate - all recyclables (Niagara Region)			**98.00%**		**83.69%**		**78.12%**		**79.92%**		**38.10%**		**87.96%**		**85.41%**		**88.92%**		**66.05%**		**86.85%**		**94.62%**		**85.91%**		**91.67%**		**100.00%**		**100.00%**		**94.79%**		**94.90%**		**87.89%**		**87.89%**
Contamination rate - all recyclables (Niagara Region)			**1.18%**		**0.00%**		**9.90%**		**0.45%**		**0.00%**		**2.62%**		**21.34%**		**1.03%**		**0.83%**		**3.96%**		**1.60%**		**5.87%**		**4.69%**		**8.33%**		**0.00%**		**0.00%**		**0.97%**		**3.78%**		**3.78%**
Acceptable container stream materials (Public Space Recycling)		**0.17**	**2.60**	**0.05**	**1.08**	**0.05**	**2.54**	**0.07**	**2.04**	**0.03**	**0.08**	**0.07**	**1.67**	**0.00**	**1.44**	**0.00**	**2.80**	**0.05**	**1.03**	**0.21**	**1.95**	**0.05**	**0.56**	**0.06**	**1.56**	**0.00**	**0.20**	**0.01**	**0.10**	**0.00**	**0.13**	**0.00**	**1.24**	**0.11**	**1.99**	**0.02**	**0.73**	**0.05**	**1.32**	**59.02**	**1,469.30**
Acceptable paper stream materials (Public Space Recycling)		**0.21**	**7.44**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.21**	**7.44**	**0.24**	**0.54**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.24**	**0.54**	**0.01**	**0.38**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.01**	**0.38**	**0.15**	**2.79**	**169.69**	**3,083.86**
Non acceptable materials (Public Space Recycling)		**3.22**	**0.14**	**0.95**	**0.10**	**8.40**	**0.59**	**5.92**	**0.20**	**4.26**	**0.00**	**4.55**	**0.21**	**3.67**	**0.55**	**1.70**	**0.12**	**10.28**	**0.05**	**3.40**	**0.32**	**6.98**	**0.69**	**5.21**	**0.35**	**1.03**	**0.06**	**0.69**	**0.02**	**0.61**	**0.00**	**1.81**	**0.00**	**8.69**	**0.01**	**2.57**	**0.02**	**4.11**	**0.19**	**4,545.38**	**210.26**
Containers capture rate recyclables (Public Space Recycling)			**93.86%**		**95.58%**		**98.07%**		**96.68%**		**72.73%**		**95.75%**		**100.00%**		**100.00%**		**95.37%**		**90.28%**		**91.80%**		**96.17%**		**100.00%**		**90.91%**		**100.00%**		**94.76%**		**96.83%**		**96.11%**		**96.11%**
Papers capture rate recyclables (Public Space Recycling)			**97.25%**		**N/A**		**N/A**		**N/A**		**N/A**		**97.25%**		**69.23%**		**N/A**		**N/A**		**N/A**		**69.23%**		**97.44%**		**N/A**		**N/A**		**N/A**		**97.44%**		**94.78%**		**94.78%**
Contamination rate recyclables (Public Space Recycling)			**1.38%**		**8.47%**		**18.85%**		**8.93%**		**0.00%**		**6.13%**		**21.74%**		**4.11%**		**4.63%**		**14.10%**		**55.20%**		**17.21%**		**9.38%**		**16.67%**		**0.00%**		**0.00%**		**0.50%**		**2.18%**		**9.20%**		**9.20%**

Municipality:	NPCA
Sample Area:	Annual Total
Location of Bin:	
Waste Stream:	Garbage	Recycling
Date Collected (month/day/year):	Jan 1 to Dec 31/11
Waste Generation Period (number of days):	58.24	58.24
No./Bins collected:	19	19
Audit Supervisor:	Brad Whitelaw
Notes:	
Material Category	Weight (kg)	Wt/Bgt (kg)
1. CONTAINERS		
Gable Top Cartons	0.00	6.64
Aseptic Containers	50.91	18.44
PET Beverage Water Bottles	14.76	377.74
PET Beverage Other	19.18	154.93
HDPE Beverage	5.90	13.28
Aluminum Beverage Cans	6.64	449.30
Glass Beverage Bottles	12.54	464.05
Other Recyclable Containers	14.76	85.58
Total Containers	**124.68**	**1,569.97**
2. PAPER/FIBRES		
Paper Coffee/Drink Cups	36.89	5.16
Paper Fast Food Packaging	73.78	0.00
Other Recyclable Fibres	64.19	608.66
Total Paper/Fibres	**174.85**	**613.82**
3. ORGANICS		
Food Waste	302.48	2.21
Pet Waste	522.34	0.00
Total Organics	**824.82**	**2.21**
4. PLASTICS		
Polystyrene Fast Food Packaging (including cups)	13.28	20.66
Film Plastic	27.30	0.74
Total Plastics	**40.58**	**21.40**
5. OTHER		
Non-recyclable Materials	3,473.40	78.94
Total Other	**3,473.40**	**78.94**
GRAND TOTAL	**4,638.33**	**2,286.34**
Acceptable Recycling - all material streams (Niagara Region)	**303.22**	**2,200.02**
Non acceptable materials (including Organics)	**4,335.11**	**86.32**
Capture rate - all recyclables (Niagara Region)		**87.89%**
Contamination rate - all recyclables (Niagara Region)		**3.78%**
Acceptable container stream materials (Public Space Recycling)	**59.02**	**1,469.30**
Acceptable paper stream materials (Public Space Recycling)	**169.69**	**3,083.86**
Non acceptable materials (Public Space Recycling)	**4,545.38**	**210.26**
Containers capture rate recyclables (Public Space Recycling)		**96.11%**
Papers capture rate recyclables (Public Space Recycling)		**94.78%**
Contamination rate recyclables (Public Space Recycling)		**9.20%**





2011 Public Spaces Recycling Waste Audits -- Description of Audit and Notes

Contact Information

Municipalities: St. Catharines, Pelham and Niagara Peninsula Conservation Authority (NPCA)

Municipal Contact Name: Brad Whitelaw

Municipal Contact Phone: 905-685-4225 ext, 3316

Municipal Contact E-mail: brad.whitelaw@niagararegion.ca

Study Conducted By: Cassandra Price; Steve Chappell

Audit Supervisor Name: Brad Whitelaw

Audit Supervisor Phone: 905-685-4225 ext, 3316

Audit Supervisor E-mail: brad.whitelaw@niagararegion.ca

Regular Waste Collector(s) Emterra Environmental (St. Catharines and NPCA) and Municipality (Pelham)

Sample Size and Timing

Total No. of Bins Sampled: 15 Litter and 15 Recycling

Study Start Date: July 25, 2011

Study End Date: September 30, 2011

Sampling Dates: July 25 to July 29, 2011; August 29 to September 2, 2011; and September 26 to September 30, 2011

Description of Sample Areas

Sample Area 1: Steve Bauer Trail, Pelham

Sample Area 2: Chippawa Creek Conservation Park (NPCA)

Sample Area 3: 185 and 201 St. Paul Street; 6, 18 and 38 James Street, St. Catharines Downtown

Information on Waste Streams and Collection Frequency

Recyclables - Fibres: Weekly (NPCA only)

Recyclables - Containers: Weekly

Garbage: Weekly, excluding St. Catharines, which is collected 3 times per week

Notes / Observations

(pertinent information that may be useful for understanding the results, problems/issues with the audit, general observations about the waste, etc)

2011 Public Spaces Recycling Waste Audits – Waste Sort Worksheet

Municipality: _____ **Waste Generation Period:** _____

Sample Area: _____ **Sort Team Supervisor:** _____

Waste Stream (Waste or Recycling): _____ **Sorting Team:** _____

Date Material was Collected: _____

(month/day/year)

Material Category	Accepted? ("X" if accepted in Region's recycling or organics program)	Net Weight (kg)*	Notes**
1. CONTAINERS			
Gable Top Cartons	R		
Aseptic Containers	R		
PET Beverage Water Bottles	R		
PET Beverage Other	R		
HDPE Beverage	R		
Aluminum Beverage Cans	R		
Glass Beverage Bottles	R		
Other Recyclable Containers	R		
2. PAPER/FIBRES			
Paper Coffee/Drink Cups	Non-recyclable		
Paper Fast Food Packaging	R		
Other Recyclable Fibres	R		
3. ORGANICS			
Food Waste	O		
Pet Waste	O		
4. PLASTICS			
Polystyrene Fast Food Packaging (including cups)	R		
Film Plastic	R		
5. OTHER			
Non-recyclable Materials			

* Show individual weights for each material category, not just the sum. Record multiple weights as follows: e.g. "85.15 + 25.25".

** Describe and weigh separately items that dramatically affect the total weight measured for a material category (e.g. a magazine collection)

Summary of Average Waste and Visual Audit Results

Visual Audit Category	No. of Waste Audit Bins per Mun.	No. of Visual Audit Bins per Mun.	St. Catharines - Waste Audit Bin Results		St. Catharines - Visual Audit Bin Results		Pelham - Waste Audit Bin Results		Pelham - Visual Audit Bin Results		NPCA - Waste Audit Bin Results		NPCA - Visual Audit Bin Results	
			Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling
1. Twinned? (Y or N)	5	5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. Fullness of Bin	5	5	3	2	4	2	3	2	3	2	3	3	3	3
3. Label on Bin?	5	5	N	Y	N	Y	N	Y	N	Y	Y	Y	Y	Y
4. Condition of Label	5	5	1	5	1	5	1	5	1	5	1	5	1	5
5. Condition of Bin	5	5	3	5	4	5	4	5	4	5	5	5	5	5
6. Illegal Dumping Visible?	5	5	Y-medium	N/A	Y-medium	Y-low	Y-low	N/A	N/A	N/A	Y-Med	N/A	Y-Low	N/A
7. Litter Around Bin?	5	5	1	1	1	1	1	1	1	1	1	1	1	1

LEGEND:

1 **Twinned?** (Y or N)

2 **Fullness of Bin**
1 = empty
2 = ¼ full
3 = ½ full
4 = ¾ full
5 = full
6 = over-flowing

3 **Label on Bin?** (Y or N)

4 **Condition of Label**
1 = Not Appl.
2 = poor
3 = fair
4 = good
5 = excellent

5 **Condition of Bin**
1 = very poor
2 = poor
3 = fair
4 = good
5 = excellent

6 **Illegal Dumping Visible?** (Y or N)
If Y, then identify:
Low = 1 bag
Medium = 2-4 bags
High = >4 bags

7 **Litter Around Bin?**
1 = no litter
2 = little litter
3 = some litter
4 = high litter
5 = excessive amount of litter

2011 Public Spaces Waste/Recycling Visual Audit Evaluation Results - City of St. Catharines

Municipality:	St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines	
Sample Area:	Downtown		Downtown		Downtown		Downtown		Downtown		Average - Waste Audit #1		Downtown		Downtown		Downtown		Downtown		Average - Waste Audit #2		Downtown		Downtown		Downtown		Downtown		Average - Waste Audit #3		Average - 3 Waste Audits	
Location of Bin:	185 St. Paul Street		201 St. Paul Street		6 James Street		18 James Street		38 James Street				185 St. Paul Street		201 St. Paul Street		6 James Street		18 James Street		38 James Street				185 St. Paul Street		201 St. Paul Street		6 James Street		18 James Street		38 James Street					
Waste Stream:	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling
Date Collected (month/day/year):	July 29, 2011		July 29, 2011		July 29, 2011		July 29, 2011		July 29, 2011		July 29, 2011		September 2, 2011		September 2, 2011		September 2, 2011		September 2, 2011		September 2, 2011		September 30, 2011		September 30, 2011		September 30, 2011		September 30, 2011		September 30, 2011		September 30, 2011		July 29, Sep 2, Sep 30/11	
1. TWINNED? (Y or N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. FULLNESS OF BIN	2	3	2	2	2	2	2	2	2	2	2	2	2	1	3	3	2	2	2	2	5	3	3	2	5	2	5	2	3	2	2	2	3	2	4	2	3	2
3. LABEL ON BIN?	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y
4. CONDITION OF LABEL	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5
5. CONDITION OF BIN	3	5	3	5	3	5	3	5	4	5	3	5	3	5	3	5	3	5	3	5	4	5	3	5	3	5	3	5	3	5	3	5	4	5	3	5	3	5
6. ILLEGAL DUMPING VISIBLE?	N	N	Y-medium	N	N	N	N	N	Y-low	N	Y-medium	N/A	Y-low	N	N	N	N	N	N	N	Y-high	N	Y-medium	N/A	Y-high	N	Y-high	N	N	N	Y-medium	N	Y-medium	N	Y-medium	N/A	Y-medium	N/A
7. LITTER AROUND BIN?	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Municipality:	St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines		St. Catharines	
Sample Area:	Downtown		Downtown		Downtown		Downtown		Downtown		Average - Visual Audit #1		Downtown		Downtown		Downtown		Downtown		Average - Visual Audit #2		Downtown		Downtown		Downtown		Downtown		Average - Visual Audit #3		Average - 3 Visual Audits	
Location of Bin:	101 St. Paul Street		108 St. Paul Street		123 St. Paul Street		142 St. Paul Street		160 St. Paul Street				101 St. Paul Street		108 St. Paul Street		123 St. Paul Street		142 St. Paul Street		160 St. Paul Street				101 St. Paul Street		108 St. Paul Street		123 St. Paul Street		142 St. Paul Street		160 St. Paul Street					
Waste Stream:	*Garbage	* Recycling	Garbage *	**Recycling	Garbage*	Recycling	Garbage *	Retrycling	*Garbage	* Recycling *	Garbage*	*Recycling	Garbage	Retrycling	* Garbage	Recycling *	Garbage*	*Recycling	Garbage *	Retrycling	* Garbage	Recycling *	Garbage*	* Recycling	Garbage *	Recycling	* Garbage	Retrycling*	*Garbage	* Recycling	Garbage *	Recycling	* Garbage	Retrycling*	*Garbage	* Recycling	Garbage*	Retrycling *
Date Collected (month/day/year):	July 29, 2011		July 29, 2011		July 29, 2011		July 29, 2011		July 29, 2011		July 29, 2011		September 2, 2011		September 2, 2011		September 2, 2011		September 2, 2011		September 2, 2011		September 30, 2011		September 30, 2011		September 30, 2011		September 30, 2011		September 30, 2011		September 30, 2011		July 29, Sep 2, Sep 30/11	
1. TWINNED? (Y or N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. FULLNESS OF BIN	1	2	4	5	4	3	3	2	5	2	3	3	1	1	3	2	4	1	5	2	5	2	4	2	5	3	5	2	2	3	6	3	5	2	5	3	4	2
3. LABEL ON BIN?	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y
4. CONDITION OF LABEL	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5
5. CONDITION OF BIN	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5
6. ILLEGAL DUMPING VISIBLE?	N	N	N	Y-medium	N	N	N	N	Y-high	N	Y-low	Y-low	N	N	Y-low	Y-medium	N	N	Y-medium	N	Y-medium	N	Y-medium	Y-medium	Y-high	N	Y-high	N	N	N	Y-high	N	Y-low	N	Y-medium	N/A	Y-medium	Y-low
7. LITTER AROUND BIN?	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	2	1	1	1

LEGEND:

1 Twinned? (Y or N)

2 Fullness of Bin
1 = empty
2 = ¼ full
3 = ½ full
4 = ¾ full
5 = full
6 = over-flowing

3 Label on Bin? (Y or N)

4 Condition of Label
1 = Not Appl.
2 = poor
3 = fair
4 = good
5 = excellent

5 Condition of Bin
1 = very poor
2 = poor
3 = fair
4 = good
5 = excellent

6 Illegal Dumping Visible? (Y or N/A)
If Y, then identify:
Low = 1 bag
Medium = 2-4 bags
High = >4 bags

7 Litter Around Bin?
1 = no litter
2 = little litter
3 = some litter
4 = high litter
5 = excessive amount of litter

2011 Public Spaces Garbage/Recycling Visual Audit Evaluation Results - Town of Pelham

Municipality:	Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham	
* Sample Area:	Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Average - Waste Audit #1		Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Average - Waste Audit #2		Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Steve Bauer Trail		Average - Visual Waste #3		Average - 3 Waste Audits	
Location of Bin:	Arena Entrance		Welland Rd. Entrance		Line Ave. Entrance		Merrit Rd. Entrance		Port Robinson Rd. Entrance				Arena Entrance		Welland Rd. Entrance		Line Ave. Entrance		Merrit Rd. Entrance		Port Robinson Rd. Entrance				Arena Entrance		Welland Rd. Entrance		Line Ave. Entrance		Merrit Rd. Entrance		Port Robinson Rd. Entrance							
Waste Stream:	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling
Date Collected (month/day/year):	July 25, 2011		July 25, 2011		July 25, 2011		July 25, 2011		July 25, 2011		July 25, 2011		August 29, 2011		August 29, 2011		August 29, 2011		August 29, 2011		August 29, 2011		September 26, 2011		September 26, 2011		September 26, 2011		September 26, 2011		September 26, 2011		September 26, 2011		July 25, Aug 29, Sep 26/11	
1. TWINNED? (Y or N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. FULLNESS OF BIN	3	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	3	2	2	2	3	2	4	2	3	2	3	3	3	2	3	2
3. LABEL ON BIN?	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y
4. CONDITION OF LABEL	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5
5. CONDITION OF BIN	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5
6. ILLEGAL DUMPING VISIBLE?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y-Medium	N/A	N/A	N/A	N/A	Y-High	N/A	Y-Low	N/A	N/A	N/A	Y-low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y-low	N/A
7. LITTER AROUND BIN?	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Municipality:	Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham		Pelham	
Sample Area:	Harold Black Park		Harold Black Park		Harold Black Park		Marlene Street Park		Marlene Street Park		Average - Visual Audit #1		Harold Black Park		Harold Black Park		Harold Black Park		Marlene Street Park		Marlene Street Park		Average - Visual Audit #2		Harold Black Park		Harold Black Park		Harold Black Park		Marlene Street Park		Marlene Street Park		Average - Visual Audit #3		Average - 3 Visual Audits	
Location of Bin:	Entrance to Park		Sportsfield		Playground		Entrance to Park		Inside Park				Entrance to Park		Sportsfield		Playground		Entrance to Park		Inside Park				Entrance to Park		Sportsfield		Playground		Entrance to Park		Inside Park					
Waste Stream:	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling
Date Collected (month/day/year):	July 25, 2011		July 25, 2011		July 25, 2011		July 25, 2011		July 25, 2011		July 25, 2011		August 29, 2011		August 29, 2011		August 29, 2011		August 29, 2011		August 29, 2011		September 26, 2011		September 26, 2011		September 26, 2011		September 26, 2011		September 26, 2011		September 26, 2011		July 25, Aug 29, Sep 26/11	
1. TWINNED? (Y or N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. FULLNESS OF BIN	2	2	2	2	2	2	2	2	2	2	2	2	3	2	4	2	3	3	3	3	3	3	3	3	3	3	2	2	3	2	2	2	3	2	3	2
3. LABEL ON BIN?	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y
4. CONDITION OF LABEL	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5
5. CONDITION OF BIN	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5
6. ILLEGAL DUMPING VISIBLE?	Y-low	N/A	Y-low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y-low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7. LITTER AROUND BIN?	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1

LEGEND:

1 Twinned? (Y or N)

2 Fullness of Bin
1 = empty
2 = ¼ full
3 = ½ full
4 = ¾ full
5 = full
6 = over-flowing

3 Label on Bin? (Y or N)

4 Condition of Label
1 = Not Appl.
2 = poor
3 = fair
4 = good
5 = excellent

5 Condition of Bin
1 = very poor
2 = poor
3 = fair
4 = good
5 = excellent

6 Illegal Dumping Visible? (Y or N/A)
If Y, then identify:
Low = 1 bag
Medium = 2-4 bags
High = >4 bags

7 Litter Around Bin?
1 = no litter
2 = little litter
3 = some litter
4 = high litter
5 = excessive amount of litter

2011 Public Spaces Waste/Recycling Visual Audit Evaluation Results - Niagara Peninsula Conservation Authority

Municipality:	NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA	
* Sample Area:	Chippawa Creek		Chippawa Creek		Chippawa Creek		Chippawa Creek		Chippawa Creek		Average - Waste Audit #1		Chippawa Creek		Chippawa Creek		Chippawa Creek		Chippawa Creek		Average - Waste Audit #2		Chippawa Creek		Chippawa Creek		Chippawa Creek		Chippawa Creek		Chippawa Creek		Average - Waste Audit #3		Average - 3 Waste Audits	
Location of Bin:	Gatehouse		Pavilion		Beach Parking Lot		Triangle		Pier by Camping				Gatehouse		Pavilion		Beach Parking Lot		Triangle		Pier by Camping				Gatehouse		Pavilion		Beach Parking Lot		Triangle		Pier by Camping					
Waste Stream:	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling
Date Collected (month/day/year):	July 27, 2011		July 27, 2011		July 27, 2011		July 27, 2011		July 27, 2011		July 27, 2011		August 31, 2011		August 31, 2011		August 31, 2011		August 31, 2011		August 31, 2011		September 28, 2011		September 28, 2011		September 28, 2011		September 28, 2011		September 28, 2011		September 28, 2011		July 27, Aug 31, Sep 28/11	
1. TWINNED? (Y or N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. FULLNESS OF BIN	5	5	2	2	3	3	4	4	2	3	3	3	3	2	3	4	5	4	4	4	4	3	4	3	2	2	2	2	2	2	2	2	6	3	3	2	3	3
3. LABEL ON BIN?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4. CONDITION OF LABEL	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5
5. CONDITION OF BIN	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6. ILLEGAL DUMPING VISIBLE?	N/A	N/A	N/A	N/A	N/A	N/A	Y-high	N/A	Y-medium	N/A	Y-medium	N/A	N/A	N/A	N/A	N/A	Y-medium	N/A	Y-medium	N/A	Y-high	N/A	Y-medium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y-high	N/A	Y-medium	N/A	Y-Med	N/A
7. LITTER AROUND BIN?	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Municipality:	NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA		NPCA	
Sample Area:	Chippawa Creek		Chippawa Creek		Chippawa Creek		Long Beach		Balls Falls		Average - Visual Audit #1		Chippawa Creek		Chippawa Creek		Chippawa Creek		Long Beach		Balls Falls		Average - Visual Audit #2		Chippawa Creek		Chippawa Creek		Chippawa Creek		Long Beach		Balls Falls		Average - Visual Audit #3		Average - 3 Visual Audits	
Location of Bin:	Beach by Comfort Sl'n		Playground		Pier by Pavilion		Gatehouse		Picnic Area				Beach by Comfort Sl'n		Playground		Pier by Pavilion		Gatehouse		Picnic Area				Beach by Comfort Sl'n		Playground		Pier by Pavilion		Gatehouse		Picnic Area					
Waste Stream:	*Garbage	* Recycling	Garbage *	* Recycling	Garbage*	Recycling	Garbage *	Retrycling	*Garbage	* Recycling *	Garbage*	*Recycling	Garbage	Retrycling	* Garbage	Recycling *	Garbage*	* Recycling	Garbage *	Retrycling	* Garbage	Redycling *	*Garbage*	* Recycling	Garbage *	Recycling	* Garbage	Retrycling*	*Garbage	* Recycling	Garbage *	Recycling	* Garbage	Retrycling*	*Garbage	* Recycling *	Garbage*	Redycling *
Date Collected (month/day/year):	July 27, 2011		July 27, 2011		July 27, 2011		July 27, 2011		July 27, 2011		July 27, 2011		August 31, 2011		August 31, 2011		August 31, 2011		August 31, 2011		August 31, 2011		August 31, 2011		September 28, 2011		September 28, 2011		September 28, 2011		September 28, 2011		September 28, 2011		July 27, Aug 31, Sep 28/11	
1. TWINNED? (Y or N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. FULLNESS OF BIN	2	2	2	2	3	3	2	2	2	2	2	2	4	3	4	4	4	5	5	6	2	2	4	4	2	2	2	2	4	3	5	2	1	1	3	2	3	3
3. LABEL ON BIN?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4. CONDITION OF LABEL	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5
5. CONDITION OF BIN	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6. ILLEGAL DUMPING VISIBLE?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y-low	N/A	Y-low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y-low	N/A	Y-low	N/A	N/A	N/A	Y-low	N/A	N/A	N/A	N/A	N/A	Y-low	N/A	Y-Low	N/A
7. LITTER AROUND BIN?	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

LEGEND:

1 Twinned? (Y or N)

2 Fullness of Bin
1 = empty
2 = ¼ full
3 = ½ full
4 = ¾ full
5 = full
6 = over-flowing

3 Label on Bin? (Y or N)

4 Condition of Label
1 = Not Appl.
2 = poor
3 = fair
4 = good
5 = excellent

5 Condition of Bin
1 = very poor
2 = poor
3 = fair
4 = good
5 = excellent

6 Illegal Dumping Visible? (Y or N/A)
If Y, then identify:
Low = 1 bag
Medium = 2-4 bags
High = >4 bags

7 Litter Around Bin?
1 = no litter
2 = little litter
3 = some litter
4 = high litter
5 = excessive amount of litter