



Halifax Harbourwalk Public Spaces Recycling Pilot Project Report

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Prepared for:

Nestlé Waters Canada and the Waterfront Development Corporation Limited

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EXECUTIVE SUMMARY

This document is a report on the Public Spaces Recycling Pilot Program that was implemented along the Harbourwalk in Halifax, Nova Scotia. This project was funded by Nestlé Waters Canada in partnership with the Waterfront Development Corporation Limited.

Section I summarizes the planning and implementation steps; describes the waste streams utilized, provides a brief overview of the site and describes the waste audit and data analysis methodology. The goals of the pilot program included:

- Measure and improve public spaces recycling performance;
- Create an effective and attractive recycling system for beverage containers, paper products and organics generated along the Halifax Harbourwalk;
- Create opportunities for the public to manage their beverage containers, paper products and organic waste to reduce the amount of litter;
- Select and install functional and aesthetically pleasing recycling and waste receptacles;
- Increase public awareness of the opportunities and convenience of recycling along the Halifax Harbourwalk.

Solid waste audits of the new recycling bins were conducted subsequent to implementation of the new bins. The baseline diversion rate was determined to be 0% at the outset as there was no recycling system in place prior to implementation of the pilot program. The waste audit examined one week's worth of waste from each bin, with each sample classified according to the material categories identified in the Stewardship Ontario waste audit protocol¹.

In the data analysis the material categories were consolidated to arrive at a kilogram/week calculation for 22 material categories along with projected total annual generation.

The public awareness campaign included the use of posters and public service announcements.

Project results demonstrate that the program was extremely successful at increasing the recovery rate of recyclable beverage containers. Beverage container recovery averaged 95%. Recyclable fibres were recovered at a rate of 60%.

¹ The Stewardship Ontario Waste Audit Protocol is used in a number of jurisdictions due to its comprehensive and clear categorization of municipal waste.

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SECTION I: PLANNING AND METHODOLOGY

1. INTRODUCTION

The Halifax Harbourwalk is located in historic downtown Halifax. The Harbourwalk offers visitors and locals approximately four kilometres of boardwalk complete with views of the harbour, as well as opportunities to dip into waterfront cafes, shops and museums. The Public Spaces Recycling Project was sponsored by Nestlé Waters Canada in partnership with the Waterfront Development Corporation Limited (WDCL).

Public spaces recycling captures the “last mile” of recyclables – items normally collected through Nova Scotia’s deposit-refund and curbside recycling programs but often left by consumers in areas such as parks, streetscapes and other public spaces.

Nestlé Waters Canada and the WDCL co-funded the purchase of four-stream recycling receptacles on the Harbourwalk in Halifax. StewardEdge Inc., a Canadian packaging and product stewardship program consultancy was contracted to manage the project. StewardEdge was responsible for siting the recycling bins, recommending the quantity and type of bins, providing input to promotion and education, and measurement of the successes and challenges of the program. The WDCL was responsible for the operating cost of the program.

The pilot Public Spaces Recycling Program was three months in duration and was designed and implemented by StewardEdge in collaboration with the WDCL. The pilot program included strategically placed recycling and waste bins, signage and a public awareness program. When properly implemented, public spaces recycling will help beautify a community and increase participation in curbside recycling and this program was designed to do just that.

2. HALIFAX HARBOURWALK PROFILE AND WASTE STREAMS

The Halifax Harbourwalk is a popular destination for locals and tourists alike. On a busy day, five or more cruise ships may stop for a visit. It is estimated that 550,000 tourists visit the Harbourwalk each year.

1.1 General Overview

StewardEdge designed and implemented a pilot public spaces recycling program along the Harbourwalk from the ferry terminal to Tall Ships Quay. The eco-friendly receptacles, manufactured by Big Belly Solar feature a solar powered waste compactor that reduces collection frequency which saves time, money and GHG emissions.

Solid waste audits were conducted subsequent to bin implementation to measure the effectiveness of the initiative. Pre-implementation audits were not conducted, because there were no recycling services available along the Harbourwalk before this program began.

Goals

The project goals were to:

- Measure and improve public spaces recycling performance;
- Create an effective and attractive recycling system for beverage containers and paper products generated along the Halifax Harbourwalk;
- Create opportunities for the public to manage their beverage containers and paper products to reduce the amount of litter;
- In consultation with Nestlé Waters Canada and the WDCL identify, select and install functional and esthetically pleasing recycling and waste receptacles;
- Increase public awareness of the opportunities and convenience of recycling at the Halifax Harbourwalk.

Objectives

Project objectives included:

- Identify current recycling and disposal behaviours;
- Assess recycling systems already in place including measurement of baseline volumes of beverage containers and fibre being recycled and landfilled;
- Compare the number of containers that are purchased and consumed at Halifax Harbourwalk vendor locations to the number of containers taken away from the area;
- Integrate the messaging with the communication related to the residential and mandatory commercial diversion² program and the recently initiated public spaces recycling program;
- Identify in the report one time capital costs and ongoing operational costs;
- Recommend bin signage options;
- Measure the contamination rate of non-recyclables in the recycling stream pre and post-implementation;
- Measure the increased rate of recycling achieved by measuring the pre and post-implementation recycling rates achieved at the Halifax Harbourwalk.

² A source separation system is required by law at all restaurants & businesses in Halifax Regional Municipality. Failure to comply with these regulations will result in issuance of a Summary Offence Ticket.
<http://www.halifax.ca/wrms/documents/RestaurantInfoFeb10.pdf>.

3. WASTE AUDIT METHODOLOGY

StewardEdge conducted a detailed waste composition study, which included detailed waste audits for each of the recycling sites subsequent to bin implementation. The primary objective of the waste composition study was to determine the composition of solid waste disposed and the waste diversion rate of the new system. The new recycling sites included:

- | | |
|--|--------------------------------|
| 1. Chebucto Landing - Ferry Terminal North | 7. Bayside Buggy |
| 2. Chebucto Landing - Ferry Terminal South | 8. Sackville Landing |
| 3. Cable Wharf (Murphy's) | 9. Summit Boardwalk |
| 4. Queen's Wharf North | 10. Foundation Place |
| 5. Queen's Wharf Food Court (waterfront) | 11. Tall Ship Quay #2 (South) |
| 6. Queen's Wharf South (parking lot) | 12. Bishop's Stage |
| | 13. Bishop's Fountain |
| | 14. South Battery Marina |
| | 15. Tall Ship Quay #1 (Arbour) |

The waste composition study was conducted from September 30 to October 3, 2010.

The waste composition study represents a one-time sampling of the solid waste and recycling disposed along the Halifax Harbourwalk. As this study represents a “snapshot” of the solid waste stream, the resultant data may not reflect seasonal variations. However, based on discussions with the WDCL and a selection of food service tenants, our understanding is that while the volume of waste generated may fluctuate, the composition of the waste stream does not vary substantially throughout the year. Given this information, the study data provides a reasonable representation of the composition of the public spaces waste streams along the Halifax Harbourwalk.

3.1 WASTE SORT METHODOLOGY

The following tasks outline the work performed during the solid waste composition study.

3.1.1 *Composition Study Set Up*

This task required WDCL staff to arrange for access and space to conduct the waste sorting exercise in an inactive area of the parking lot adjacent to the Waterfront Warehouse. WDCL staff collected and labelled all of the waste streams each day in preparation for the waste sort.

3.1.2 *Waste Sort Categories*

To ensure consistency with Stewardship Ontario waste composition data, SE staff used Stewardship Ontario material categories for the waste sort. Table 3.1 provides the material categories utilized during the study.

3.1.3 Sampling

Each sample was hand-sorted into 62 material categories and weighed. The cumulative weekly weight of each of the material categories was used to develop a profile of the public spaces waste composition along the Halifax Harbourwalk.

The waste generated was sampled daily for a seven day period. All of the waste and recyclables generated were weighed and hand-sorted to determine the composition of the solid waste stream.

3.2 DATA ANALYSIS/METHODOLOGY

Waste sort data was compiled and summarized by waste stream and then converted to kilogram (kg) per week estimates. The audit team collected and sorted one week's worth of garbage and recycling from each bin so few adjustments were necessary to develop the kg per week estimates.

To make the dataset more manageable and results more meaningful, the original list of material categories was collapsed from 62 to 22 categories focusing on recyclable materials accepted in the Halifax Regional Municipality recycling program. Table 0-1 presents the list of material the categories utilized during the waste sort.

The data were used to generate the tables and charts presented in Section 5. The charts and tables summarize waste composition, waste generation and recovery rates for recyclable materials, contamination rates and the overall diversion rate for the Halifax Harbourwalk.

The kilogram per week estimates were used to project the annual tonnage for each material category (recyclable containers, fibre, organics and garbage). To calculate annual waste generation data, it was assumed that peak season was from May 15 to September 30 (21 weeks) and then from October 1 to May 14 (31 weeks) there would be decreased usage and waste generation would decrease to 10% of what it was during peak season.

TABLE 0-1 WASTE AUDIT MATERIAL CATEGORIES

	PRINTED PAPER		PLASTICS		METALS		ORGANICS
1	Newspaper*	17	Polyethylene Plastic Bags & Film – Recyclable*	34	Aluminum Beverage Containers*	47	Motor Oil
2	Telephone Books / Directories*	18	Polyethylene Plastic Bags & Film - Non-Recyclable	35	Aluminum Food Cans*	48	HSW liquids
3	Magazines & Catalogues*	19	PET Water Bottles #1*	36	Aluminum Foil & Foil Trays*	49	HSW sharps
4	Mixed Fine Paper*	20	PET Beverage Bottles Other*	37	Aerosol Cans	50	Food Waste
5	Books*	21	PET Other Bottles & Jars*	38	Steel Food Cans*	51	Yard Waste
6	Other Paper *	22	PET Other Packaging *	39	Steel Paint Cans	52	Pet waste
	PAPER PACKAGING	23	HDPE Beverage Bottles #2*	40	Other Metal		OTHER WASTE MATERIALS
7	Coffee Cups	24	HDPE Other Bottles & Jugs #2*		GLASS	53	Diapers and Sanitary Products diapers
8	Tissue/Toweling**	25	PVC Bottles & Jars #3	41	Deposit Containers*	54	Electronic Waste
9	Molded Pulp**	26	Other Bottles, Jars & Jugs, LDPE, PP, & #7	42	Dairy Containers*	55	Small Kitchen Appliances
10	Gable Top Cartons*	27	Polystyrene #6 PS	43	Food Containers*	56	Textiles
11	Aseptic Containers*	28	Wide Mouth Tubs & Lids, HDPE, LDPE & PP *	44	Other Glass	57	Carpeting
12	Cardboard*	29	Large HDPE & PP Pails & Lids		HOUSEHOLD SPECIAL WASTES	58	Construction & Renovation Waste
13	Kraft Paper*	30	Plastic Laminated Films*	45	Batteries	59	Tires and Other Rubber
14	Boxboard / Cores**	31	HSW Bottles, Jugs and Tubs empty HSW containers	46	Paint & Stain cans	60	Ceramics
15	Laminated Packaging	32	Other Rigid Plastic Packaging			61	Large Bulky
16	Composite Can	33	Durable Plastic Products			62	Other Waste

* accepted in Halifax Regional Municipality recycling program

** accepted in Halifax Regional Municipality composting program

SECTION II: PROGRAM IMPLEMENTATION

4. PUBLIC AWARENESS CAMPAIGN

An important contributing factor in the success of this program to date is the promotion and education materials that have been deployed in its support. The communications program was designed to increase public awareness about the new recycling program along the Halifax Harbourwalk and to clearly indicate which materials were acceptable or not acceptable in this program. Each of the communications components was developed with the same “look and feel” and utilized pictograms to facilitate greater understanding and program participation.

Planning and implementing strategic communications for recycling is a specialized activity. StewardEdge Inc. provided strategic communications expertise, drafting plans for a targeted program that was designed to offer specialized recycling communications expertise and respond, as needed to specific requests for feedback and assistance. StewardEdge staff worked in partnership with Nestlé Waters and the WDCL to plan and develop essential features of the communications program to support the public spaces recycling initiative.

Key activities included:

- Drafting a recycling communications plan for the public spaces initiative
- Brainstorming appropriate tactics and activities to support program launch
- Assistance in target audience identification
- Research & analysis of existing public spaces recycling communications samples and their potential applicability to this project
- Providing sample key messages, fun facts and other key points to consider integrating in communications
- Offering input to communications tactics (signs, invitation, press releases etc.) at various points as they were developed by the WDCL.

Working with on-the-ground communications experts (at WDCL and in partner agencies) and other members of the project team, StewardEdge was able to contribute to an overall effort that generated cost-effective, attractive and accessible materials for this program.

SECTION III: RESULTS

5. WASTE AUDIT RESULTS & ANALYSIS

This section summarizes the results of the waste audit as they pertain to waste generation, composition, recovery and contamination. Detailed waste audit results are presented in the tables in Appendix C.

5.1 Waste Generation Estimates

The Halifax Harbourwalk is regularly utilized in the spring and summer months, roughly the period from May to September. This is the period during which the majority of waste is generated. Based on interviews with WDCL staff and tenants, the estimate of the waterfront usage during the off-season (October 1 to May 15) is 10% of usage during the peak summer period.

Weekly and annual waste generation was significant. Approximately 580 kilograms of waste per week was generated based on the waste audit results. Table 0-1 summarizes the quantity of waste generated and the contamination rate for each waste stream that was identified during the waste audit.

TABLE 0-1 WASTE GENERATION AND CONTAMINATION SUMMARY

Kg Per Week (Overall System i.e. 15 Bins)	Garbage Stream	Recycling Containers Stream	Recycling Fibre Stream	Organics Stream	Total All Waste
	kg/week	kg/week	kg/week	kg/week	kg/week
Recyclable Fibre	17.7	0.4	30.3	2.5	50.9
Recyclable Beverage Containers	8.5	154.3	0.0	0.4	163.3
Recyclable Non Beverage Containers	6.5	0.9	0.0	2.4	9.8
Recyclable Containers	15.1	155.2	0.0	2.8	173.1
Total Recyclables (Fibre + Containers)	32.8	155.6	30.3	5.3	224.0
Compostable Organics	168.7	13.9	10.7	23.1	216.3
Other Material	92.7	16.3	16.8	12.0	137.7
Total All Material	294.1	185.7	57.8	40.4	578.0
Contamination Rate	N/A	16%	48%	43%	

Table 5-2 shows that the Halifax Harbourwalk generates approximately 4.2 tonnes of recyclable containers, 1.2 tonnes of recyclable fibre and 5.2 tonnes of compostable organics each year for a total of almost 10.6 tonnes of potential diversion annually. These findings are based on the recyclable material data from the disposal and recycling streams. To account for seasonality, it was assumed that the Harbourwalk operates at 100% capacity for 21 weeks (from May 15 to September 30) and at 10% capacity for the rest of the year.

TABLE 0-2 ESTIMATED ANNUAL WASTE GENERATION

Annual Tonnage Projections*	Garbage Stream	Recycling Containers Stream	Recycling Fibre Stream	Organics Stream	Total All Waste
	tonnes/year	tonnes/year	tonnes/year	tonnes/year	tonnes/year
Recyclable Fibre	0.43	0.01	0.73	0.06	1.23
Recyclable Beverage Containers	0.21	3.72	0.00	0.01	3.94
Recyclable Non Beverage Containers	0.16	0.02	0.00	0.06	0.24
Recyclable Containers	0.36	3.74	0.00	0.07	4.17
Total Recyclables (Fibre + Containers)	0.79	3.75	0.73	0.13	5.40
Compostable Organics	4.06	0.33	0.26	0.56	5.21
Other Material	2.23	0.39	0.41	0.29	3.32
Total All Material	7.09	4.48	1.39	0.97	13.93

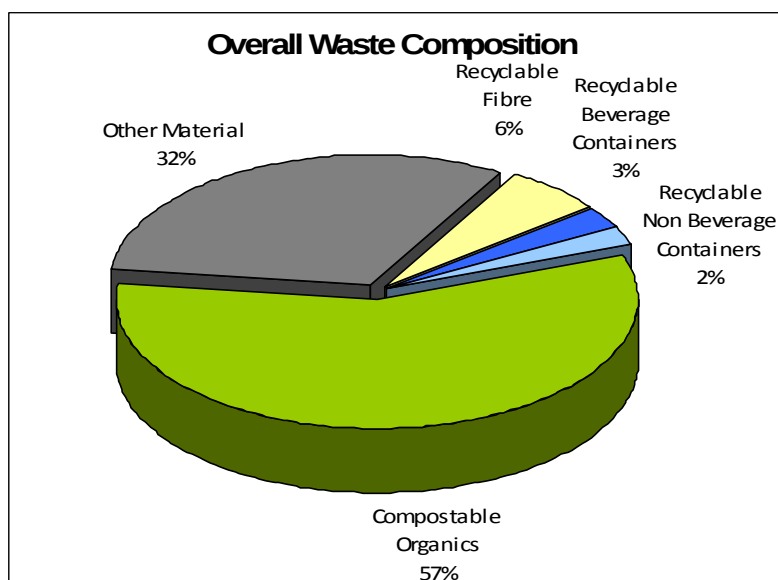
*for the 15 bins assuming 21 weeks at 100% and 31 weeks at 10%

5.2 Waste Composition Analysis

The waste was sorted and classified into 62 material categories. The data categories were then consolidated amalgamated for the purpose of analysis. Waste composition analysis provides insight into how the recycling behaviour changed subsequent to implementation of public space recycling (PSR).

Overall Waste Composition & Contamination

In general, recyclable and/or compostable materials comprise approximately 68% of the solid waste generated along the Halifax Harbourwalk. Figure 0.1 illustrates the composition of the new solid waste and recycling system. The waste audit findings show that the largest component of the waste stream by weight was compostable organics (57%), followed by other materials (32%), recyclable paper fibre (6%), recyclable beverage containers (3%) and recyclable non-beverage containers (2%).

FIGURE 0.1 OVERALL WASTE COMPOSITION

Waste Composition Analysis by Material

This section presents the waste composition of the waste stream, by material category. Figure 0.2 presents the composition of the Recyclable Containers Stream. The largest component (84%) of the Containers Stream was recyclable beverage containers. This category consisted of glass, PET and aluminum cans. The compostable organic component (7%) consisted primarily of liquid left in bottles. The other material (9%) category consisted of coffee cups, paper napkins, straws and small rigid plastics, such as utensils, all of which are considered to be contaminants in the recycling stream. Recyclable non-beverage containers represented less than 1% of this stream (e.g. food tins, glass jars).

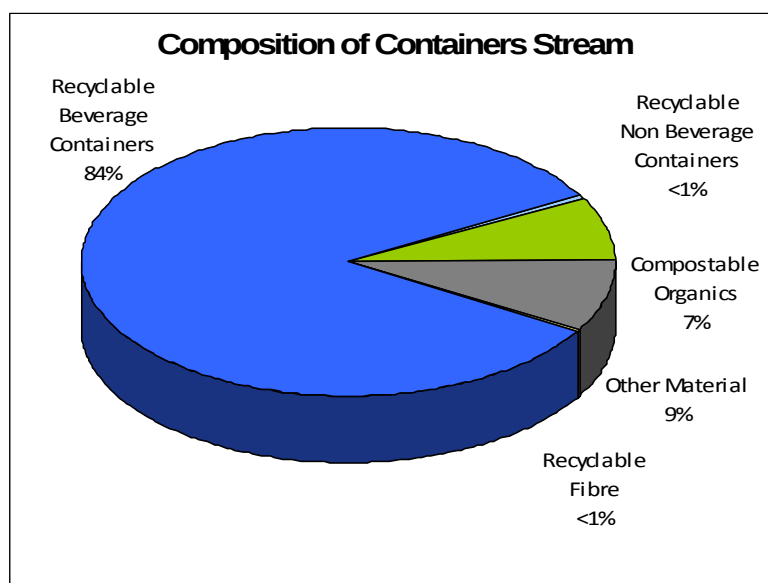
FIGURE 0.2 COMPOSITION OF THE CONTAINERS STREAM

Figure 5.3 shows the composition of the recyclable fibre stream. The majority of the material was correctly sorted and consisted primarily of recyclable paper products such as newspaper, magazines and office paper (53%). Other material (29%) consisted primarily of coffee cups, which are classified as contamination in both the fibre and organics waste streams. The compostable component consisted of paper napkins and tissues, which could be diverted to the compostable organics waste stream.

FIGURE 0.3 COMPOSITION OF THE FIBRE STREAM

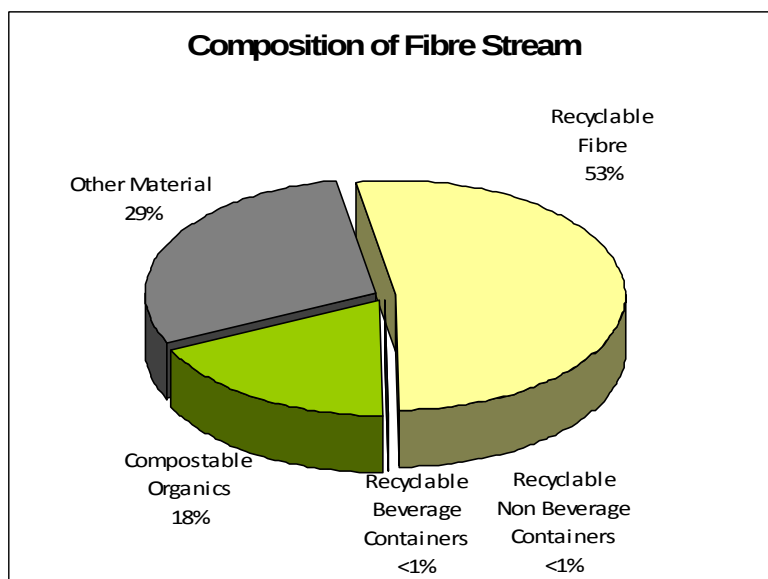
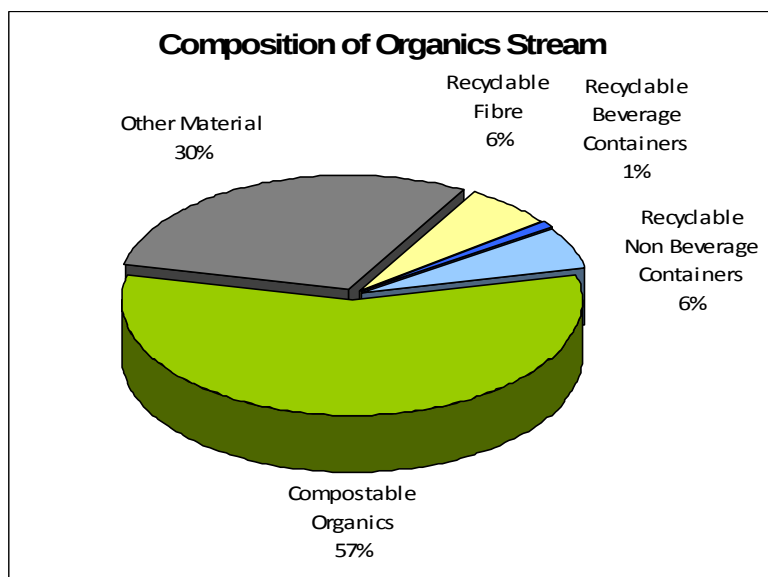


Figure 5.4 illustrates the composition of the organics stream. The contents consisted of compostable organics (57%) and recyclable paper products (6%). Other materials (30%) consisted primarily of small, non-recyclable plastics and coffee cups, which are not acceptable in the Halifax Regional Municipality composting system.

FIGURE 0.4 COMPOSITION OF THE ORGANICS STREAM



5.3 RECYCLABLE MATERIAL RECOVERY RATES

Implementation of the Public Space Recycling pilot along the Halifax Harbourwalk was highly successful. The recovery rates for each material category are presented in Table 0-3 below:

TABLE 0-3 RECOVERY RATES BY MATERIAL STREAM

Material Stream	Recovery Rate	Notes
Recyclable Fibre	60%	Includes newspaper, directories, magazines & catalogues, fine paper, books, molded pulp, cardboard & kraft paper. Excludes boxboard.
Recyclable Beverage Containers	95%	Includes beverage gable top, aseptic, PET, HDPE, aluminum cans & glass bottles.
Recyclable Non-Beverage Containers	9%	Includes non beverage PET, HDPE, glass jars, aluminum trays & steel food cans and recyclable plastic film/bags.
Recyclable Containers	90%	The average recovery of beverage and non-beverage containers.
Total Recyclables (Fibre + Containers)	83%	The average recovery rate of containers and fibre.
Total Organics	11%	Includes food waste, tissue/toweling and boxboard.
Overall Diversion	49%	Overall Diversion = total material in recycling and organics stream divided by the total material generated (includes contamination and non-targeted recyclables/organics collected).

Table 5.3 shows, that the recovery rate for all recyclable materials (fibre, containers and organics) was 49%, following introduction of the new recycling system.

The recovery rate of recyclable beverage containers was 95% while the recovery rate of all recyclable containers was 90%.

The beverage container and fibre recovery results suggest that there is significant scope for extending the program to the other waterfront areas managed by the WDCL. For example Bedford Harbour, Dartmouth and Lunenburg.

6. CONCLUSIONS

Implementation of the Public Spaces Recycling Program along the Halifax Harbourwalk has been highly successful. Recycling rates, especially for beverage containers, are significant at 95% diversion.

The combined recovery rate both for the container and fibre streams is also impressive, with a recovery rate of 83% of total containers and fibre generated. This rate was achieved even though the bins, signage and messaging were in place for only a short period of time.

Expanding the PSR pilot to similar waterfront locations has the potential to recover an estimated 95% of the 4,000 kilograms of recyclable beverage containers generated along the Halifax Harbourwalk.

APPENDICES

Data Tables

TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-1 WASTE AND RECYCLABLES GENERATION AND RECOVERY

Material Categories		Materials Accepted	Total Collected Over One Week (15 Bins)					Average Collected Per Bin Per Week				
			Garbage Stream	Recycling Containers Stream	Recycling Fibre Stream	Organics Stream	Total All Waste	Garbage Stream	Recycling Containers Stream	Recycling Fibre Stream	Organics Stream	Total All Waste
			kg/week	kg/week	kg/week	kg/week		kg/week/bin	kg/week/bin	kg/week/bin	kg/week/bin	kg/week/bin
1. PAPER												
1	Newspaper	x	2.54	0.00	13.42	0.52	16.48	0.17	0.00	0.89	0.03	1.10
2	Telephone Books / Directories	x	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Magazines & Catalogues	x	0.00	0.00	7.68	0.00	7.68	0.00	0.00	0.51	0.00	0.51
4	Mixed Fine Paper	x	2.18	0.08	5.49	0.59	8.34	0.15	0.01	0.37	0.04	0.56
5	Books	x	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Other Paper		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Paper		4.71	0.08	26.59	1.11	32.49	0.31	0.01	1.77	0.07	2.17
2. PAPER PACKAGING												
7	Coffee Cups		26.70	2.14	0.51	0.77	30.12	1.78	0.14	0.03	0.05	2.01
8	Tissue/Toweling	x	12.54	0.16	5.13	2.21	20.04	0.84	0.01	0.34	0.15	1.34
9	Molded Pulp	x	5.52	0.18	1.93	0.59	8.22	0.37	0.01	0.13	0.04	0.55
10	Gable Top Cartons	x	0.42	0.15	0.00	0.03	0.60	0.03	0.01	0.00	0.00	0.04
11	Aseptic Containers	x	0.13	0.13	0.01	0.00	0.27	0.01	0.01	0.00	0.00	0.02
12	Cardboard	x	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Kraft Paper	x	7.49	0.16	1.75	0.77	10.17	0.50	0.01	0.12	0.05	0.68
14	Boxboard / Cores	x	40.55	0.27	3.73	2.03	46.58	2.70	0.02	0.25	0.14	3.11
15	Laminated Packaging		6.82	0.16	2.77	0.30	10.05	0.45	0.01	0.18	0.02	0.67

Material Categories		Materials Accepted	Total Collected Over One Week (15 Bins)					Average Collected Per Bin Per Week				
			Garbage Stream	Recycling Containers Stream	Recycling Fibre Stream	Organics Stream	Total All Waste	Garbage Stream	Recycling Containers Stream	Recycling Fibre Stream	Organics Stream	Total All Waste
			kg/week	kg/week	kg/week	kg/week		kg/week/bin	kg/week/bin	kg/week/bin	kg/week/bin	kg/week/bin
16	Composite Can		0.08	0.07	0.00	0.00	0.15	0.01	0.00	0.00	0.00	0.01
	Total Paper Packaging		100.25	3.42	15.83	6.70	126.20	6.68	0.23	1.06	0.45	8.41
3. PLASTICS												
17	Polyethylene Bags & Film – Recyclable	x	3.22	0.46	0.00	2.37	6.05	0.21	0.03	0.00	0.16	0.40
18	Polyethylene Bags & Film – Non Recyclable		3.58	11.24	13.19	8.99	37.00	0.24	0.75	0.88	0.60	2.47
19	PET Water Bottles #1	x	0.46	7.58	0.00	0.01	8.05	0.03	0.51	0.00	0.00	0.54
20	PET Beverage other	x	1.37	9.49	0.00	0.05	10.91	0.09	0.63	0.00	0.00	0.73
21	PET Other Bottles & Jars #1	x	0.97	0.16	0.00	0.00	1.13	0.06	0.01	0.00	0.00	0.08
22	PET Other Packaging #1	x	1.67	0.25	0.00	0.00	1.92	0.11	0.02	0.00	0.00	0.13
23	HDPE Beverage Bottles #2	x	0.38	0.25	0.00	0.02	0.65	0.03	0.02	0.00	0.00	0.04
24	HDPE Other Bottles & Jugs #2	x	0.16	0.00	0.00	0.00	0.16	0.01	0.00	0.00	0.00	0.01
25	PVC Bottles & Jars #3		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	Other Bottles, Jars & Jugs #4 LDPE, #5 PP, & #7		0.43	0.07	0.00	0.00	0.50	0.03	0.00	0.00	0.00	0.03
27	Polystyrene #6 PS		11.89	1.85	0.22	0.37	14.33	0.79	0.12	0.01	0.02	0.96
28	Wide Mouth Tubs & Lids # 2, #4, #5		0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00

[illegible]

[illegible]

Material Categories		Materials Accepted	Total Collected Over One Week (15 Bins)					Average Collected Per Bin Per Week				
			Garbage Stream	Recycling Containers Stream	Recycling Fibre Stream	Organics Stream	Total All Waste	Garbage Stream	Recycling Containers Stream	Recycling Fibre Stream	Organics Stream	Total All Waste
			kg/week	kg/week	kg/week	kg/week		kg/week/bin	kg/week/bin	kg/week/bin	kg/week/bin	kg/week/bin
58	Construction & Renovation Waste		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59	Tires and Other Rubber		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	Ceramics		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61	Large Bulky		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	Other Waste		6.28	0.00	0.00	0.00	6.28	0.42	0.00	0.00	0.00	0.42
	Total Other Waste		15.11	0.08	0.00	0.05	15.24	1.01	0.01	0.00	0.00	1.02
	Grand Total		294.14	185.74	57.80	40.36	578.04	19.61	12.38	3.85	2.69	38.54

TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-2 HALIFAX HARBOURWALK WASTE COMPOSITION – FALL 2010

Material Categories		Garbage Stream	Recycling Containers Stream	Recycling Fibre Stream	Organics Stream	Total All Waste
		% Comp.	% Comp.	% Comp.	% Comp.	% Comp.
1	Newspaper	0.9%	0.0%	23.2%	1.3%	2.9%
2	Telephone Books / Directories	0.0%	0.0%	0.0%	0.0%	0.0%
3	Magazines & Catalogues	0.0%	0.0%	13.3%	0.0%	1.3%
4	Mixed Fine Paper	0.7%	0.0%	9.5%	1.5%	1.4%
5	Books	0.0%	0.0%	0.0%	0.0%	0.0%
6	Other Paper	0.0%	0.0%	0.0%	0.0%	0.0%
	Total Paper	1.6%	0.0%	46.0%	2.8%	5.6%
7	Coffee Cups	9.1%	1.2%	0.9%	1.9%	5.2%
8	Tissue/Toweling	4.3%	0.1%	8.9%	5.5%	3.5%
9	Molded Pulp	1.9%	0.1%	3.3%	1.5%	1.4%
10	Gable Top Cartons	0.1%	0.1%	0.0%	0.1%	0.1%
11	Aseptic Containers	0.0%	0.1%	0.0%	0.0%	0.0%
12	Cardboard	0.0%	0.0%	0.0%	0.0%	0.0%
13	Kraft Paper	2.5%	0.1%	3.0%	1.9%	1.8%
14	Boxboard / Cores	13.8%	0.1%	6.5%	5.0%	8.1%
15	Laminated Packaging	2.3%	0.1%	4.8%	0.7%	1.7%
16	Composite Can	0.0%	0.0%	0.0%	0.0%	0.0%
	Total Paper Packaging	34.1%	1.8%	27.4%	16.6%	21.8%
17	Polyethylene Bags & Film – Recyclable	1.1%	0.2%	0.0%	5.9%	1.0%
18	Polyethylene Bags & Film – Non Recyclable	1.2%	6.1%	22.8%	22.3%	6.4%
19	PET Water Bottles #1	0.2%	4.1%	0.0%	0.0%	1.4%
20	PET Beverage other	0.5%	5.1%	0.0%	0.1%	1.9%
21	PET Other Bottles & Jars #1	0.3%	0.1%	0.0%	0.0%	0.2%
22	PET Other Packaging #1	0.6%	0.1%	0.0%	0.0%	0.3%
23	HDPE Beverage Bottles	0.1%	0.1%	0.0%	0.0%	0.1%

Material Categories		Garbage Stream	Recycling Containers Stream	Recycling Fibre Stream	Organics Stream	Total All Waste
		% Comp.	% Comp.	% Comp.	% Comp.	% Comp.
	#2					
24	HDPE Other Bottles & Jugs #2	0.1%	0.0%	0.0%	0.0%	0.0%
25	PVC Bottles & Jars #3	0.0%	0.0%	0.0%	0.0%	0.0%
26	Other Bottles, Jars & Jugs #4 LDPE, #5 PP, & #7	0.1%	0.0%	0.0%	0.0%	0.1%
27	Polystyrene #6 PS	4.0%	1.0%	0.4%	0.9%	2.5%
28	Wide Mouth Tubs & Lids # 2, #4, #5	0.0%	0.0%	0.0%	0.0%	0.0%
29	HDPE & PP Pails & Lids > 4 litres	0.0%	0.0%	0.0%	0.0%	0.0%
30	Plastic Laminated Films*	0.5%	0.0%	0.1%	0.0%	0.3%
31	HSW Bottles & Jugs, Empty HSW containers	0.0%	0.0%	0.1%	0.0%	0.0%
32	Other Rigid Plastic Packaging	1.4%	0.0%	0.0%	0.0%	0.7%
33	Durable Plastic Products	1.3%	0.1%	0.0%	0.4%	0.7%
	Total Plastics	11.4%	17.0%	23.4%	29.7%	15.7%
34	Aluminum Beverage Cans	0.1%	2.9%	0.0%	0.1%	1.0%
35	Aluminum Food Cans	0.1%	0.0%	0.0%	0.0%	0.1%
36	Aluminum Foil & Foil Trays	0.1%	0.0%	0.0%	0.0%	0.0%
37	Steel Food Cans	0.0%	0.0%	0.0%	0.0%	0.0%
38	Aerosol Cans	0.0%	0.0%	0.0%	0.0%	0.0%
39	Steel Paint Cans	0.0%	0.0%	0.0%	0.0%	0.0%
40	Other Metal	0.2%	0.2%	0.0%	0.0%	0.2%
	Total Metals	0.5%	3.1%	0.0%	0.1%	1.2%
41	Deposit Containers	1.9%	70.7%	0.0%	0.7%	23.7%
42	Dairy Containers	0.0%	0.0%	0.0%	0.0%	0.0%
43	Food Containers	0.0%	0.0%	0.0%	0.0%	0.0%
44	Other Glass	0.0%	0.0%	0.0%	0.0%	0.0%

Material Categories		Garbage Stream	Recycling Containers Stream	Recycling Fibre Stream	Organics Stream	Total All Waste
		% Comp.	% Comp.	% Comp.	% Comp.	% Comp.
	Total Glass	1.9%	70.7%	0.0%	0.7%	23.7%
45	Batteries	0.0%	0.0%	0.0%	0.0%	0.0%
46	Paint & Stain cans / tubs	0.1%	0.0%	0.0%	0.0%	0.0%
47	Motor Oil	0.0%	0.0%	0.0%	0.0%	0.1%
48	Other HSW liquids	0.0%	0.0%	0.0%	0.0%	0.0%
49	Other HSW sharps	0.0%	0.0%	0.0%	0.0%	0.0%
	Total HSW	0.1%	0.0%	0.0%	0.0%	0.1%
50	Food Waste	39.3%	7.2%	3.2%	46.8%	25.9%
51	Yard Waste	0.0%	0.0%	0.0%	0.0%	0.0%
52	Pet waste	6.0%	0.0%	0.0%	3.2%	3.3%
	Total Organics	45.3%	7.2%	3.2%	50.0%	29.2%
53	Diapers and Sanitary Products	2.4%	0.0%	0.0%	0.0%	1.2%
54	Electronic Waste	0.1%	0.0%	0.0%	0.0%	0.0%
55	Small Kitchen Appliances	0.0%	0.0%	0.0%	0.0%	0.0%
56	Textiles	0.6%	0.0%	0.0%	0.1%	0.3%
57	Carpeting	0.0%	0.0%	0.0%	0.0%	0.0%
58	Construction & Renovation Waste	0.0%	0.0%	0.0%	0.0%	0.0%
59	Tires and Other Rubber	0.0%	0.0%	0.0%	0.0%	0.0%
60	Ceramics	0.0%	0.0%	0.0%	0.0%	0.0%
61	Large Bulky	0.0%	0.0%	0.0%	0.0%	0.0%
62	Other Waste	2.1%	0.0%	0.0%	0.0%	1.1%
	Total Other Waste	5.1%	0.0%	0.0%	0.1%	2.6%
	Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-3 HALIFAX HARBOURWALK RECOVERY RATES – FALL 2010

			Recovery Rates		
Material Categories		Materials Accepted	Containers	Fibre	Organics
1. PAPER					
1	Newspaper	x		81%	
2	Telephone Books / Directories	x		n/a	
3	Magazines & Catalogues	x		100%	
4	Mixed Fine Paper	x		66%	
5	Books	x		n/a	
6	Other Paper				
2. PAPER PACKAGING					
7	Coffee Cups				
8	Tissue/Toweling	x			11%
9	Molded Pulp	x		23%	
10	Gable Top Cartons	X	25%		
11	Aseptic Containers	x	48%		
12	Cardboard	x		n/a	
13	Kraft Paper	x		17%	
14	Boxboard / Cores	x		8%	4%
15	Laminated Packaging				
16	Composite Can				
3. PLASTICS					
17	Polyethylene Bags & Film – Recyclable	x	8%		
18	Polyethylene Bags & Film – Non Recyclable				

			Recovery Rates		
Material Categories		Materials Accepted	Containers	Fibre	Organics
19	PET Water Bottles #1	x	94%		
20	PET Beverage other	x	87%		
21	PET Other Bottles & Jars #1	x	14%		
22	PET Other Packaging #1	x	13%		
23	HDPE Beverage Bottles #2	x	38%		
24	HDPE Other Bottles & Jugs #2	x	0%		
25	PVC Bottles & Jars #3				
26	Other Bottles, Jars & Jugs #4 LDPE, #5 PP, & #7				
27	Polystyrene #6 PS				
28	Wide Mouth Tubs & Lids #2, #4, #5				
29	HDPE & PP Pails & Lids > 4 litres				
30	Plastic Laminated Films*				
31	HSW Bottles & Jugs, Empty HSW containers				
32	Other Rigid Plastic Packaging				
33	Durable Plastic Products				
4. METALS					
34	Aluminum Beverage Cans	x	94%		
35	Aluminum Food Cans	x	10%		
36	Aluminum Foil & Foil Trays	x	0%		
37	Steel Food Cans	x	N/A		
38	Aerosol Cans				
39	Steel Paint Cans				
40	Other Metal				

			Recovery Rates		
Material Categories		Materials Accepted	Containers	Fibre	Organics
5. GLASS					
41	Deposit Containers	x	96%		
42	Dairy Containers	x	n/a		
43	Food Containers	x	0		
44	Other Glass				

Collection Bins

The following are images of the bins used at during the pilot project.



Two examples of the fifteen Big Belly's along the Halifax Harbourwalk

