



Highlands East Depot Upgrades
CIF Project Number #850

Final Report – June 30, 2016

Prepared for:
Waste Diversion Ontario
Continuous Improvement Fund Office
Barrie, Ontario

Prepared by:
Glen Covert, Environmental Supervisor
Tracy Vader, Environmental Assistant

Acknowledgement

This Project has been delivered with the assistance of Waste Diversion Ontario's Continuous Improvement Fund, a fund financed by Ontario municipalities and stewards of Blue Box waste in Ontario. Notwithstanding this support, the views expressed are the views of the author(s), and Waste Diversion Ontario and Stewardship Ontario accept no responsibility for these views.

© 2016 Waste Diversion Ontario and Stewardship Ontario

All rights reserved. No part of this publication may be reproduced, recorded or transmitted in any form or by any means, electronic, mechanical, photographic, sound, magnetic or other, without advance written permission from the owner.

Table of Contents

Executive Summary.....	4
1 Introduction.....	5
2 Program Background	5
2.1 Community Profile	5
2.2 Waste Management System	5
2.3 Current Waste Management Performance	6
2.4 Program Challenges	7
3 Project Description & Goals	8
3.1 Description of the Project	8
3.2 Project goals	8
4 Approach	9
4.1 Set Up and Implementation	9
4.2 Monitoring and Measurement.....	9
5 Project Results and Analysis.....	10
5.1 Overview of Results.....	10
5.2 Comparison of Results.....	10
5.3 Analysis of Results	10
5.4 Lessons Learned	10
6 Project Budget	11
6.1 Budget	11
6.2 Project Schedule.....	11
7 Conclusions.....	12

List of Figures

Figure 1: Map of Municipal service area and depots (green boxes)	5
Figure 2: Two of the 50-yard bins at the Mumford Road Depot	6
Figure 3: Two of the 50-yard bins at the Highway 28 depot	7
Figure 4: Two of the 50-yard bins at Bicroft Depot	8
Figure 5: Containers signage at the Bicroft recyclable depot.....	9
Figure 6: Two of the 50-yard bins at the Monmouth (Tory Hill) Depot.....	12

List of Tables

Table 1: Decreased lifts and haulage – January to May 2015 vs 2016	10
Table 2: Project budget and actual costs	11
Table 3: Project Schedule and Actual Completion.....	11

Executive Summary

The Municipality of Highlands East is committed to reducing the amount of waste filling up their Landfills. As a result of this promise Highlands East is continually looking for ways to combat the waste management issues facing rural Ontario Municipalities with seasonal population patterns and large rural road networks. In 2014 the Municipality of Highlands East in partnership with Waste Diversion Ontario (WDO, the Continuous Improvement Fund – CIF), and Stewardship Ontario entered into an agreement to purchase and install (12) 50 yard bins to improve efficiency and reduce transportation costs.

This objective was achieved by installing the new 50 yard bins at our 5 Waste Disposal sites for the collection of recyclable material. The Township completed site upgrades to accommodate the new bins over August – November 2015. The bins were purchased throughout August – November 2015 for \$6,950 per bin, total project costs of \$87,712 including installation, shipping and taxes. The final bin arrived November 3rd, 2015. The 50 yard bins were all operational by November 2015.

The new bins decreased the number of collections required thus reducing our haulage costs. Township staff compared the first five (5) months of haulage billings between the 2015 (pre) and 2016 (post) years. From January to May 2015 we required forty (40) pickups with the 40 yard bins. From January to May 2016 we required thirty (30) pickups with the 50 yard bins.

The Township also managed an additional 20 tonnes of recyclable materials (141 tonnes vs 121) during the first 5 months of 2016. The average weight per load sent to the material recovery facility increased from 3.09 tonnes (2015) to 4.75 tonnes (2016) by switching to the larger bins; bins are hauled two at a time by trailer. The cost per haul did not change after we switched from the 40-yard to 50-yard bins.

Based on cost analysis, the new 50 yard bins have saved the Municipality of Highlands East approximately \$6,200.00 in the first five months of 2016. We estimate that the new bins will save us approximately \$18,500 per year in shipping costs. The return on investment of the 50 yard bin implementation is estimated at 4.75 years.

The project was completed on schedule and below budget.

For additional information regarding this project, please contact:

Tracy Vader | Administrative Assistant - Environmental Department | Township of Highlands East
o: 613-339-2442 | e: tvader@highlandseast.ca

1 Introduction

The Municipality of Highlands East was awarded CIF funding for this cost savings project. This project consisted of purchasing and installing two new 50 yard bins at each of our 5 landfill sites to capture mixed paper and plastics plus 2 bins (12 bins total) to be kept in circulation by our hauling contractor to ensure capacity is always available at our depots. This report provides an overview of the project including an introduction, approach, project results and analysis. Information was gathered by Municipal staff from Progressive Waste Solutions billing. The project data commences January 2015 and ends May 31, 2016.

2 Program Background

2.1 Community Profile

The Municipality of Highlands East is situated on the Eastern side of Haliburton County and covers 758 square kilometers. Highlands East has a permanent population of approximately 3,300 and a seasonal population of roughly 13,000 with a total of 4,300 households. The Municipality was originally incorporated in 2001 with the amalgamation of the Townships of Bicroft, Cardiff, Glamorgan and Monmouth.

2.2 Waste Management System

The map below details the locations of the five Landfills within the boundary lines of the Municipality of Highlands East. New 50 yard bins have been installed at all five locations. Highlands East operates a curbside pickup program in the Cardiff Townsite as well as in the subdivisions of Bicroft and Dyno Estates. All other residents take their waste to one of our five landfill locations depicted by green boxes on the above map.

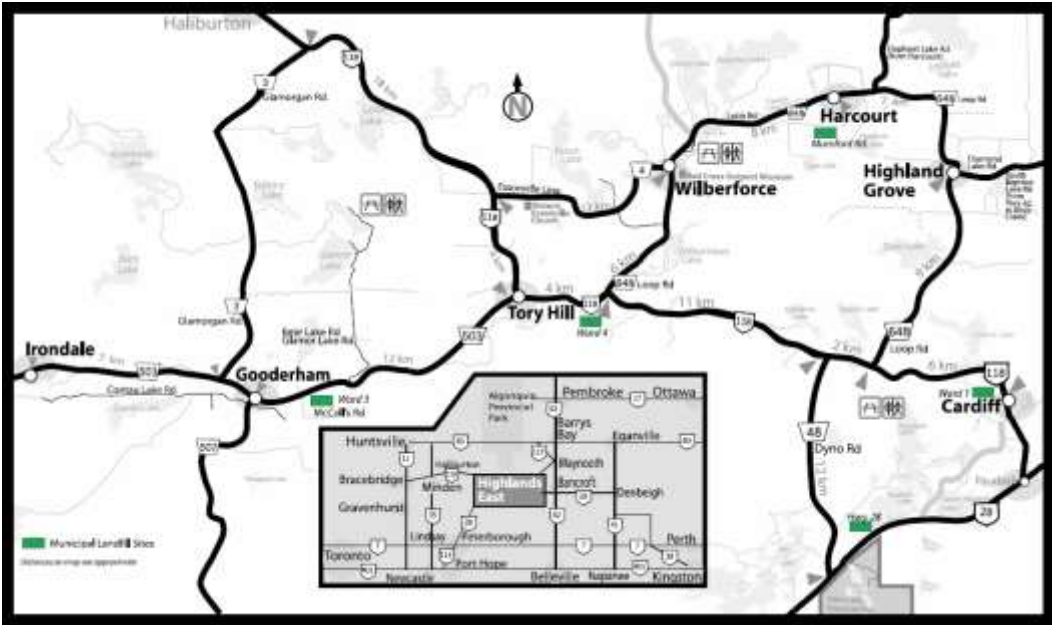


Figure 1: Map of Municipal service area and depots (green boxes)

Separation of recyclables at our landfills is achieved through a two bin setup where residents separate their materials into Fibres and Containers streams. The Landfills are only used by residents of Highlands East. Highlands East reduces waste by operating a recycling program that diverts the standard blue box program items: glass, card board, newspapers, and certain plastics. The Municipality does not accept polystyrene or plastic film through the recycling program.

The recyclables are taken by Progressive Waste Solutions to the Bracebridge Materials Recovery Facility (MRF). The use of 50 yard bins have helped Highlands East reduce the consumption of diesel fuel and resultant air emissions by reducing the number of trips and lifts required by Progressive Waste Solutions and overall waste management efficiency.

In addition, The Municipality of Highlands East also operates diversion programs for all metals, white goods (fridges, stoves and freezers), tires, electronics, batteries, plastic jugs, hazardous materials and C & D waste. If the above programs operate properly the only materials that remain in the landfills is standard non-hazardous residential, commercial waste. Processing and treatment of waste is undertaken at the Landfill on a daily basis. Wood waste is chipped on site and used for cover onsite.



Figure 2: Two of the 50-yard bins at the Mumford Road Depot

2.3 *Current Waste Management Performance*

Based on the Municipality's 2015 WDO Data Call our Blue Box Processing Material Handling Cost for 2014 was \$147,286 versus \$153,338 for 2015. This increase in cost can be attributed to an increase in haulage cost from Progressive Waste Solutions (BFI). An approximate 2% increase from 2014 to 2015. In 2014 and 2015 between the months of January and May Progressive/BFI hauled eighty (80) bins from our landfills to their MRF. In 2016 between the months of January and May Progressive/BFI hauled sixty (60) bins.

Records supplied by Progressive Waste indicate in 2014 we collected 392 tonnes of Blue Box Material and marketed 353 tonnes. In 2015 we collected 385 tonnes and marketed 339 tonnes. This variation can be attributed to our seasonal influx in population.

2.4 Program Challenges

The Municipality felt that they were spending unnecessary money shipping their recyclables to the MRF in Bracebridge and could make their program more efficient by increasing the tonnage they shipped per trip which could be accomplished by increasing the size of the roll-off bins they were using. Increasing the size of containers would not increase the cost per lift from BFI as the contract could use the same truck and trailer to lift the new 50-yard bins as the previous 40-yard bins. Thus savings would be realized through the reduced number of hauls necessary to take materials to the Bracebridge MRF.



Figure 3: Two of the 50-yard bins at the Highway 28 depot

3 Project Description & Goals

3.1 Description of the Project

This project will increase the efficiency and effectiveness of the Municipality's recycling program. It will reduce direct haul costs, save fuel and resultant air emissions and reduce staff time to check the remaining capacity in the recycling bins.

The project includes the purchase of larger bins (50-yard) to accommodate more recyclables at the Municipal depots. The larger bins will reduce the number of hauls required to move materials to the contracted MRF in Bracebridge. The bins were purchased through a competitive tender process.

To accommodate the bins, cement pads were constructed at the Highway 28 depot only. This work was completed by municipal staff, over the course of three days.



Figure 4: Two of the 50-yard bins at Bicraft Depot

3.2 Project goals

The goals set out by the Municipality of Highlands East for this project center on Cost Savings and include:

- Increase capacity of bins – 25% larger volume
- Decrease haulage costs – Reduce haulage by 25% while costs per lift remain the same
- Decrease amount of recyclable material going in to landfills by increasing bin capacity
- Cost savings of approximately \$19,911 per year
- Capital expenses will be recovered in 5 years

4 Approach

4.1 Set Up and Implementation

The Municipality estimated that a total of \$101,361 would be required for the project and was granted funding by CIF for this project as a cost savings initiative.

This estimated project costs included:

- 12 – 50 yard roll-off bins purchased and shipped
- Undercoating of bins
- Concrete Cement Pads & Blocks

The purchase of the roll-off bins was completed through a competitive tender process in April of 2015. Tender for the roll-off bins was awarded to Shanahan of Phelpston Ltd on April 23rd, 2015. The first bins arrived on August 18th, 2015 and the new bins were fully operational in November 2015. Installation of the concrete pads and blocks was completed by Municipal staff in July 2015. This process took approximately three days.

4.2 Monitoring and Measurement

Staff used Progressive Waste Solutions (BFI) billings and Waste Management Staff Reports from January 1st, 2015 through to May 31st, 2016. The billings provide staff with three items for comparison:

1. The number of hauls over the study period
2. The amount of material hauled per lift (tonnes per lift)
3. The cost to haul material

This information will allow staff to monitor the performance of the new 50-yard bin setup and identify any cost savings realized.



Figure 5: Containers signage at the Bicroft recyclable depot

5 Project Results and Analysis

5.1 Overview of Results

Results used in this report include Progressive Waste Solutions (BFI) billing and Waste Management Staff Reports. The timing of this information spans from January 1st, 2015 through to May 31st, 2016.

5.2 Comparison of Results

Data from BFI billings from years 2015 and 2016 for the months of January to May are compared below. The 'pre' 50 yard bins is shown in the year 2015 against the 2016 use of 50 yard roll of bins when the new bin were fully operational at all 5 landfill sites. All information is shown before tax.

Table 1: Decreased lifts and haulage – January to May 2015 vs 2016

	Actuals – January to May				Projected		
	Tonnes	Tonnes per Lift	Lifts	Costs	Tonnes	Lifts	Cost
2015	121	3.09	40	\$24,670	384	125	\$77,094
2016	141	4.75	30	\$18,503	449	95	\$58,591
savings				\$6,168			\$18,503

5.3 Analysis of Results

The installation of 50 yard roll-off bins at the Landfill sites in Highlands East proved effective. The first 6 months savings realized after the installation were \$6,200.00, a 25% decrease in cost. The number of bins collected was also reduced by 25% as was the haulage. The projected cost savings of the new bin operation is estimated at \$18,500 per annum.

The Municipality managed an additional 20 tonnes of recyclable material during the five month period of 2016 vs 2015. The average amount of material hauled per lift increased approximate 50%. Materials are hauled two bins at a time by the contractor and therefore the per bin weight of materials hauled using 50-yard bins is approximate 2.38 tonnes per bin. Staff have noticed that more material is being recycled this year compared to previous. This may be the result of greater participation in the program from residents.

5.4 Lessons Learned

The following section is based on Waste Management Staff reports concerning the 50 yard roll-off bins. The 50 yard bins are very effective in terms of haulage costs. These units have reduced the work required for Staff as they are no longer required to check the capacity available in the bins as frequently. Staff also note that the larger bins make it easier to use heavy equipment to compact materials. This has allowed staff to increase the material density per lift to achieve further efficiencies in hauling.

6 Project Budget

6.1 Budget

Table 6.1 depicts the financial planning behind our depot upgrade project. The purchase and installation of 12 – 50 yard bins was originally budgeted for \$100,742.

The final project cost was \$92,412. The cost of the project was under budget by \$8,330. The bins were purchased from Shanahan of Phelpston for \$6,950 each. The bins had been priced at \$7,700 each, but the Township managed to get a better rate through the competitive tender process and increasing the number of bins to be purchased. Further the price of the bins also included undercoating.

To date, six of the bins have been repurposed within the Municipality, three have been sold (\$3,200) and the remainder are available for purchase. Required site improvements at the Highway 28 depot to accommodate the bins included cement pads. The site improvements were completed by Township staff, over the course of three days.

Table 2: Project budget and actual costs

Cost of Bins	Budget	Actual
12 – 50 Yard Roll Off Bins	\$92,400.00	\$83,400.00
Shipping of Bins	\$3,000.00	\$4,800.00
Undercoating	\$3,600.00	(included in item 1)
Concrete for cement Pads for Bins	-----	\$1,813.86
Cement Blocks	-----	\$800.00
Less: 40 yd bin sales		-\$3,200.00
Less: 40 yd bins repurposed		-\$1,500.00
Non-redeemable HST	\$1,742.40	\$1,598.32
TOTAL	\$100,742.40	\$87,712.18
CIF FUNDING (41%)	\$41,980.00	\$35,962.00
Municipality of Highlands East	\$58,762.40	\$51,750.19

6.2 Project Schedule

Table 3 outlines the budgeted time allocated for each major step in the project and the funding associated with it.

Table 3: Project Schedule and Actual Completion

Project Deliverables/Milestones	Approved Payment	Percent of Funding	Expected Completion	Actual Completion
Phase 1 – Purchase & Installation of roll-off units	\$31,485.00	75%	Apr 30, 2015	Dec 21, 2015
Phase 2 – Final report, detailing costs & savings over 6 months of operation	\$10,495.00	25%	May 1, 2016	Jun 20, 2016
CIF Funds Requested	\$41,980.00	100%		

7 Conclusions

In summary, the installation of 50 yard roll-off bins has been a success for the Municipality of Highlands East.

To date the following goals have been achieved:

- Reduced staff time to check the remaining bin capacity of recycling bins
- Make our recycling program more efficient
 - Improved density per lift
 - Easier for staff to compact material
 - Easier access for residents as it is less likely they will be full
- Reduced direct haul costs 25%
- An anticipated payback on invested project costs of less than 5 years
- Saved fuel and resultant air emissions

There have been no issues regarding the larger bins to date. The recyclables processing contractor has noted that the quality of material entering the MRF remains the same as when collected using the 40-yard bins.

Council and Staff are satisfied with the addition and its positive results.



Figure 6: Two of the 50-yard bins at the Monmouth (Tory Hill) Depot