

# Municipality of McDougall



## **CIF Project # 282**

## **Final Report - June 2013**

Corporation of the Municipality of McDougall  
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# **Table of Contents**

## **Executive Summary**

### **1.0 Introduction**

### **2.0 Program Background**

2.1 Community Profile

2.2 Waste Management System

2.3 Pre – Compactor Waste Management Performance

### **3.0 Project Overview**

3.1 Description

3.2 Goals

3.3 Approach

Photo 1 Solar Powered Compactor

Photo 2 Solar Powered Compactor

3.4 Project Monitoring & Reporting

### **4.0 Project Results and Analysis**

4.1 Overview of Results

4.2 Comparison of Results

Table 4.2 Increased MP Tonnage over 4 months with Compaction

4.3 Key Findings

4.4 Lessons Learned

### **5.0 Project Financial**

5.1 Project Budget

Table 5.1 Project Budget and Actual Spending

5.2 Project Schedule

Table 5.2 Project Schedule and Actual Completion

### **6.0 Conclusions**

## **Executive Summary**

The Municipality of McDougall is committed to reducing the amount of waste filling up its Landfill. In light of this promise, McDougall is always looking for ways to combat the waste management issues that face Northern Ontario Municipalities like seasonal population patterns, and large rural road networks. In 2010, the Municipality in partnership with Waste Diversion Ontario (WDO), the Continuous Improvement Fund (CIF) and Stewardship Ontario entered into an agreement to install equipment to improve efficiency and reduce transportation costs. This objective was achieved by installing 2 solar compactors and 2 - 40 yard bins at the McDougall Landfill. These units increased the amount of mixed paper tonnage being hauled from McDougall. The project was completed on budget and met targeted goals.

## **1.0 Introduction**

The Municipality of McDougall was awarded CIF funding of \$90,447 for technology improvements. The project consisted of the installation of two solar powered compactors at the McDougall Landfill to capture corrugated cardboard. This report provides an overview of the project including an introduction, approach, project results and analysis. Information was gathered by Municipal staff and McDougall's Waste Diversion Ontario Report. The project data commences June 1, 2010 and ends December 31, 2012.

## **2.0 Program Background**

### **2.1 Community Profile**

The Municipality of McDougall is located in the District of Parry Sound, a 2 hour drive north of Toronto. A majority of the land area in the municipality is zoned rural. The landscape has many waterfront areas on Georgian Bay as well as many inland lakes and river systems.

The Township was originally incorporated on May 1, 1872 and was named after William McDougall, one of the Fathers of Confederation. In 2000 the merger of the Township of McDougall and the unorganized Township of Ferguson created the Municipality of McDougall. The area has a population of 2,428 people consisting of 1,838 households, 637 of which are seasonal.

## **2.2 Waste Management System**

McDougall's waste management system consists of the Municipality owned and operated Waste Transfer Station and Landfill. McDougall does not operate a curb side pickup program; instead residents can take their waste to the Municipal Transfer Station or Landfill.

The Transfer Station acts as an interim storage facility for waste to make it more efficient, effective and convenient for residents prior to shipping the waste to its final disposal location.

The landfill is used by McDougall and commercial accounts from neighboring Municipalities. McDougall reduces waste by operating a recycling program that diverts the standard blue box program items: glass, card board, newspapers, and certain plastics. These recyclables are taken by BFI Canada to the Bracebridge Materials Recovery Facility (MRF). In addition, the municipality must also operate diversion programs for all metals, white goods (fridges, stoves, and freezers), tires, hazardous materials and wood. If the above programs operate properly the only material that is being land filled is standard non-hazardous residential, commercial waste.

Processing and treatment of waste is undertaken at the Landfill on a daily basis. One by product of household land filling is leachate which is extracted from the landfill and processed in a leachate processing plant on site. Wood waste is chipped on site and used for daily cover or in the onsite road construction.

## **2.3 Pre – Compactor Waste Management Performance**

Prior to the installation all mixed paper products were diverted from the Transfer Station by BFI to the Bracebridge Recycling Centre. Mixed paper was never diverted from the landfill using BFI services, only the Transfer Station was serviced. Compactors were never in operation at either site.

## **3.0 Project Description & Goals**

### **3.1 Description of the Project**

Further increase system efficiency and effectiveness by utilizing solar powered compaction. Solar power was chosen over electric and fossil fuels for its positive environmental impact.

### **3.2 Goals**

The goals set out by the Municipality of McDougall for this project centre on waste reduction and include:

- Efficiency in operation
- Triple diversion volume from 167 tons to 467 tons
- Reduce CH<sub>4</sub> and CO<sub>2</sub> by 34 tons annually
- Reduce number of lifts per months from 4 to 1, thus reducing the fuel surcharge by 75%

### **3.3 Approach**

The Municipality estimated that a total of \$132,784.14 would be required for the project and was granted \$90,447 by CIF. This estimate included:

- 2 solar powered compactors
- 2 - 40 yard bins
- Delivery, installation and training
- Concrete pads
- Raised hoods for public access

- Backup power supply
- 2 raised control stations
- Contingency of 15%

Tender for the solar powered compactors was awarded to Efficient Waste Management Services Inc. (EWM). Installation of the concrete pads was awarded to Fowler Construction.

### 3.4 Project Monitoring & Reporting

Performance measures used for this project included:

- WDO Reports - Tonnage costs
- BFI Billings - Monthly lifts
- Waste Management Staff Reports to C.A.O. and Council

#### Photo 1 Solar Powered Compactor



## Photo 2 Solar Powered Compactor



### **4.0 Project Results and Analysis**

#### **4.1 Overview of Results**

Results used in this report include WDO reports, BFI billing and Waste Management Staff reports. The timing of this information spans January 1<sup>st</sup>, 2009 through December 31<sup>st</sup>, 2012.

#### **4.2 Comparison of Results**

Data from WDO reports and BFI billings from years 2009, 2010 and 2011 are compared below. They span 4 months over each year beginning September 1<sup>st</sup> and ending December 31<sup>st</sup>. Years 2009 and 2010 show the pre-compaction amount of mixed paper (MP) being diverted against 2011, when the compaction units were added at the end of August.



**Table 4.2 Increased MP Tonnage over 4 months with Compaction**

<b>Year</b>	<b>Transfer Station MP Tonnage</b>	<b>Landfill MP Tonnage</b>	<b>Total MP Tonnage</b>
<b>2009</b>	32.51	0	<b>32.51</b>
<b>2010</b>	<b>34.93</b>	0	<b>34.93</b>
<b>2011</b>	34.38	<b>10.98</b>	<b>45.36</b>

### **4.3 Key Findings**

The project proved successful by allowing McDougall to increase mixed paper tonnage by 10.98 tonnes in 2011 with the addition of the compactors. Prior to the installation, McDougall was averaging approximately 0.9 tonnes of mixed paper per lift at the Transfer Station. Once the compactors were in place, 4 tonnes of mixed paper became the average lift. This quadrupled the recycling program's efficiency while decreasing the fuel surcharge.

### **4.4 Lessons Learned**

The following section is based on Waste Management Staff reports concerning the compactors:

- The compaction units are very efficient in terms of cost and diversion.
- Regular maintenance is required and should be included in annual operating budgets.
- These units have reduced the work for Staff as they no longer have to hand crush boxes.
- The workplace is much safer with the addition of compactors because Staff don't have to get into the mixed paper bins to crush boxes.

## **5.0 Project Financials**

### **5.1 Budget**

Table 5.1 depicts the financial planning behind the Compaction project. Cost for the compaction units was over budget by \$4,237.50. Custom guide extensions were not specifically included in the budget estimate and may be a contributing factor to the under estimation of costs. The cost of the station setup was all over by \$12,826.35 due to unforeseen equipment rentals and backup generation electrical installation costs. The introduction of HST may have also been cause for the departure from budget. Overall, the project was over budget by \$1,483.31.

**Table 5.1 Project Budget and Actual Spending**

<b>Cost of Bins</b>	<b>Budget</b>	<b>Actual</b>
Two Solar Compactors	\$ 63,880.00	\$ 58,680.00
Two Forty Yard Bins	17,690.00	17,690.00
Delivery, Installation & Training	1,650.00	3,300.00
Two custom guide extensions	-	7,300.00
Taxes*	10,818.60	11,306.10
<b>Total</b>	<b>94,038.60</b>	<b>98,276.10</b>
<b>Cost of Station Setup</b>	<b>Budget</b>	<b>Actual</b>
Concrete Pads	\$ 5,000.00	\$ 5,741.25
Gravel Base for Pads	4,000.00	4,000.00
Rental Equipment for Setup	-	5,763.00
Raised Hoods for Public Access	6,000.00	6,000.00
Backup Power Supply	3,000.00	7,846.50
Two Raised Control Stations	2,500.00	2,500.00
Taxes*	2,665.00	4,140.60
<b>Total</b>	<b>23,165.00</b>	<b>35,991.35</b>
Contingency (15%)	15,580.54	-
<b>Final Total</b>	<b>132,784.14</b>	<b>134,267.45</b>

<b>CIF Funding</b>	<b>(90,447.00)</b>	<b>(90,447.00)</b>
<b>Municipality of McDougall</b>	<b>42,337.14</b>	<b>43,820.45</b>

\* Agreement was entered into prior to HST; estimate was drafted using GST and PST

## 5.2 Project Schedule

This table outlines the budgeted time allocated for each major step in the project. The lag in completion of the project was due mainly to an unforeseen influx Public Works projects in the summer of 2010 that bogged down the department.

**Table 5.2 Project Schedule and Actual Completion**

<b>Project Deliverables</b>	<b>Approved Payment</b>	<b>Percent</b>	<b>Expected Completion</b>	<b>Completion Date</b>
<b>Phase 1 – Delivery of compaction units</b>	\$ 45,223.50	50%	July 30, 2010	January 31, 2011
<b>Phase 2 – Install processing equipment &amp; complete performance testing</b>	22,611.75	25%	August 31, 2010	December 31, 2012
<b>Phase 3 – Complete performance monitoring, final report &amp; CIF project evaluation</b>	22,611.75	25%	October 29, 2010	June 21, 2013
<b>CIF Funds Requested</b>	<b>90,447.00</b>	<b>100%</b>		

## **6.0 Conclusions**

In sum, the compaction project was a success for the Municipality of McDougall. Council and Staff are satisfied with the addition and its positive results. All goals were achieved including:

- Relief to WM budget and environment.
- Increase Waste Management efficiency.
- Stay on budget while installing compaction units.
- Triple diversion.
- Reduce CH<sub>4</sub> and CO<sub>2</sub> by reducing number of trips required by BFI.
- Reduce number of lifts per months, thus reducing the fuel surcharge.