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## York Street Transfer Site – Compactor Hydro Upgrade



Prepared for: The Continuous Improvement Fund – CIF

CIF Project #1024

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## Background

### 1.1 Community Profile

The Municipality of Whitestone is located in beautiful cottage country in the District of Parry Sound approximately two hours north of Toronto. The Municipality incorporates the townships of East Burpee, Burton, McKenzie, Ferrie, Haggerman, and the communities of Ardbeg, Dunchurch, Maple Island and the Village of Whitestone. The Municipality covers a wide territory of nearly 1,000 square kilometres featuring beautiful lakes and rugged Canadian Shield terrain.

This Municipality is home to a permanent population of approximately 1,000 and at least twice as many seasonal residents during summer months.

### 1.2 Waste Management System

The Municipality provides two-stream recycling and garbage at each of our two waste transfer sites as there is no curbside collection of waste or recycling. The depots are staffed and open to the public during scheduled hours of operation.

In 2012, the Municipality purchased solar compaction units for the recycling program to improve hauling costs of transferring this material to the material recovery facility (MRF) in Bracebridge through an agreement with the CIF under project 281. The compactors were a success in reducing the number of hauls required to move material and in effect improved the recycling program's bottom line.

The recycling program accepts:

**Containers:** Glass bottles and jars, plastic containers and lids, metal cans and foil, polystyrene, and plastic bags.

**Fibres:** Newspapers, magazines and books, boxboard and mixed paper, corrugated cardboard, tetra-pak boxes and gable-top cartons.

### 1.3 Program Challenges

The waste transfer sites utilize compaction units to bulk recyclables prior to transport to the MRF. While the equipment is efficient in reducing the number of hauls required to move materials, the solar units incorporated had not performed as anticipated. During winter months, there is very little solar input to the units and staff are forced to run generators in order to run the units and maintain power levels within the solar unit batteries. This has proven costly in terms of fuel, staff time and the capital costs of the generator themselves.

In 2015 staff recognized a decision would need to be made regarding purchasing a new larger capacity generator or directly connecting the compaction units to the hydro electric grid. Staff determined connection to the grid would provide a more financially sustainable option for the York Street site.



## **2 Approach**

To retrofit the existing compaction units to the hydro electric grid required the Municipality to contract assistance from an electrician and Hydro One. Additionally Municipal staff completed site improvements at the waste transfer site in preparation for the upgrades to accommodate a new spotters shed, hydro poles and electrical equipment. All work completed at the York Street site were completed during the fall of 2018.

### **2.1 Monitoring and Measurement Methodology**

In evaluating the impact of the project, the Municipality completed a pre vs post analysis of costs related to maintaining and operation the compaction units at the York Street waste transfer site. Specifically the costs of staffing, fuel (pre), capital deprecation and hydro costs were compared. Costs in the pre condition focused on additional labour inputs (overtime) from arriving at site outside of operating times to charge and cycle the compactors vs post condition costs related to hydroelectric fees.

### **2.2 Implementation**

#### **2.2.1 Site Improvements**

Minor site improvements were completed at the York Street waste transfer site early 2018 to facilitate the implementation of the connection to the hydro grid. Temporary connection to new electrical service as well as overhead line extension was completed by outside contractors and Hydro One.

#### **2.2.2 Electrical Installation**

E.A Shipman Electric Ltd. was contracted in January of 2018 to supply and install overhead line extension. BRS Electric Ltd. was contracted in February of 2018 and again in March of 2019 to provide temporary connection of trash compactors to new electrical service and then permanent connection. Hydro One was contracted to connect the site equipment to the grid.

### **2.3 Projects Results**

Staff note the allocation of their time to the recycling program has improved as they are no longer operating the generator before and after collection hours. Additional savings were likely to have resulted from the retrofit as staff had previously had to arrive early prior to shifts in order to prepare the compaction units for service prior to operating hours during colder winter months or after low solar input periods where the batteries would have lost their charge.



## 2.4 Analysis of Results

The retrofitted system is saving the Municipality approximately \$9,243 per year in operating costs at the York Street waste transfer site.

**Table 1: Cost savings following project implementation**

Item	Savings
Staffing overtime	\$1,386
Fuel expenditures	\$2,773
Capital expenditure planning	\$3,697
Maintenance	\$924
Other	\$463
<b>Total</b>	<b>\$9,243</b>

The project costs (detailed below) amount to approximately \$37,654. The cost savings of the retrofit therefore provide a return on investment in 4 years. The solar panels will be sold as per our Surplus Equipment policy at an estimated sale price of \$100.00.

## 2.5 Lessons Learned

This project has been well received by the community, staff and attendants at the waste transfer site. The real learnings for the Municipality have been related to the difficulties in relying solely on the solar power system to operate the compaction units which cannot be reliable without the use of a medium-heavy generator.

## 3 Project Budget

The budgeted project related to CIF project 1024 is presented below and was completed on budget.

**Table 2: Project budget**

Vendor	Item	Subtotal
EA Shipman Ltd.	Supply & Install Overhead Line Extension	\$30,342
BRS Electric Ltd.	Provide Temporary Connection	\$680
BRS Electric Ltd.	Permenant Connection	\$3,040
Hydro One	Hydro Service Equipment	\$3,592
<b>Total</b>		<b>\$37,654</b>

## 4 Conclusions

In conclusion the Municipality would like to thank the Continuous Improvement Fund and Stewardship Ontario for supporting the retrofit of the compaction units at the York Street waste transfer site. Staff are pleased with the improvement in the operational efficiency of the program as we are no longer reliant on generators to recharge the solar system and cycle the units during low solar input times.

Further, reducing the Municipality's reliance on fossil fuels and improved safety on site are additional benefits to the retrofit and connection to the hydro grid.