

Recycling Program Implementation Evaluation

CIF Project 136

July 2nd 2009

Prepared for
Continuous Improvement Fund

Prepared by



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.

© 2009 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

1.0	Introduction	1
2.0	Current Waste Management Situation	2
2.1	Community Profiles	2
2.2	Blue Box Material Processors	6
3.0	Blue Box Generation and Diversion Estimates	8
3.1	Potential Curbside Estimates	8
3.2	Potential Depot Estimates	10
4.0	Recycling System Opportunities	11
4.1	Turn Key Operation	12
4.2	Curbside Collection of Recyclables	13
4.2.1	Contract Collection Services	13
4.2.2	Town Provided Services	14
4.2.3	Hire Additional Collection Crew	16
4.2.4	Alternate Garbage and Recycling Collection	17
4.3	Depot Collection	18
4.4	Storage, Transportation and Processing	20
4.4.1	Recool Canada Ltd.	20
4.4.2	Green Circle Environmental	21
4.4.3	Black Sturgeon Enterprises Ltd.	22
4.4.4	John Cress Contracting	23
4.4.5	CPR Rail	25
4.5	WDO Blue Box Funding	25
5.	Comparison of Costs	26
5.1	Curbside Collection Summary	26
5.2	Depot Collection Summary	30
5.3	Additional Supporting Policies and Regulations	32
6.0	Recommended Approach	34

1.0 Introduction

The Province of Ontario has succeeded in bring recycling to majority of residential households throughout the province, with a few exceptions. Those exceptions include communities characterized by small populations (less than 5,000 populations), remote locations (Northern Ontario) and limited access to markets (typically hundreds of kilometers to the nearest material recycling facility). This portrays the situation experienced by the communities of Red Rock, Nipigon, Schreiber, and Terrace Bay situated on the north shore of Lake Superior.

Currently there is no recycling program in any of these communities, as each falls below the legislative requirements set out by Ontario 3Rs Regulation, in particular O.Reg. 101/94 that exempts any community less than 5,000 population from the need to establish and operate a blue box recycling program. Despite this exemption, there has been interest expressed by the staff and elected officials of these communities to explore opportunities to implement a cost effective recycling program to meet the needs and desires of its citizens.

A recent survey conducted by the Town of Terrace Bay confirmed the interest by residents in establishing a recycling program in which 85% rated the need for a recycling program as very important and 88% were willing to pay ~\$50 annually (see Appendix A for survey results).

The four communities of Red Rock, Nipigon, Schreiber, and Terrace Bay recognized the value in partnering to conduct an evaluation study and explore opportunities to share financial and staff resources to achieve a cost effective and efficient recycling program. At the same time, the Town of Marathon decided to join the partnership to further explore cost saving opportunities for itself. Currently, the Town of Marathon offers a recycling service to its citizens in the form of a curbside recycling program.¹

Consequently, a request was made to the Continuous Improvement Fund (CIF) of Waste Diversion Ontario (WDO), to conduct a recycling program implementation evaluation study for the five communities located on the North Shore of Lake Superior.

The following report examines a variety of opportunities to provide recycling services to these five communities and the estimated costs associated with collection, transportation and processing of the recyclables. The costs provided in this report are based on best available information at this point in time. The cost estimates acquired from different sources were not obtained through a tendering process and are subject to change.

Why Recycle?

Recycling programs have become an important feature of a community's sustainability planning process by helping to reduce the community's environmental footprint and promote social benefits. Recycling saves trees, protects habitat, helps reduce greenhouse gases, reduces the need for landfills, and curbs pollution. The average homeowner can reduce garbage by as much as 30 or 40 per cent by recycling.

Furthermore, the US Institute for Local Self Reliance has estimated that for every 10,000 tonnes of waste material handled, landfilling generates 1 job where as recycling generates 10 recycling related jobs.²

Recycling also makes environmental and economic sense especially when looking at it from four key elements: (1) upstream subsidies for virgin resource extractive industries, (2) downstream subsidies for landfills and incinerators, (3) the true long-term societal and environmental costs of resource extraction and (4) the local economic benefits of reuse and recycling.

¹ Since joining the partnership in early 2009, the Town of Marathon has signed a three year recycling contract with Recool Ltd.

² **The Economic Benefits of Recycling. 1993.** prepared by Brenda Platt and David Morris for the Institute for Local Self-Reliance (ILSR)

2.0 Current Waste Management Situation

2.1 Community Profiles

All five participating communities are situated on the northeastern shore of Lake Superior within a one and half to a four hour drive from Thunder Bay. A profile of each community and its current waste management situation is provided below and summarized in Tables 2.1, 2.2 and 2.3.

Table 2.1: Demographic Statistics for 2008

Community	Population	Single Family Hhlds	Multi Family Hhlds	Total hhlds	IC&I Units	Total All
Red Rock	986	456	30	486	11	497
Nipigon	1500	656	In SF	656	61	717
Schreiber	901	550	23	573	42	615
Terrace Bay	1,625	713	127	690	63	753
Marathon	3,863	1491	187	1,678	40-50	1,723

* IC&I – industrial, commercial & institutional

Table 2.2: Garbage Services for 2008

Community	Curbside Garbage	Public vs Private	User Pay	SF	MF	IC&I	Annual Collection Cost/unit
Red Rock	Weekly	Public	No	√	√	√	n.a.
Nipigon	Weekly	Public	No	√	√	√	n.a.
Schreiber	Weekly	Contracted to Brad Lemieux Trucking	No	√	√	√	\$116*
Terrace Bay	Weekly	Public	No	√	√	√	\$118.00*
Marathon	Weekly	Public	Full user pay (\$1/tag)	√	√	√	\$32.90 (\$98.47)*

* includes disposal costs

Table 2.3: Recycling Services for 2008

Community	Curbside Recycling	Public vs Private	Provision of Service				Annual Cost/unit	Revenues
			Depot	SF	MF	IC&I		
Red Rock	No	n.a.	No					
Nipigon	No	n.a.	No					
Schreiber	No	n.a.	No					
Terrace Bay	No	n.a.	No					
Marathon	Bi-weekly IC&I -3 x weekly	Contracted to ReCool Canada	No	√	√	√	\$68.67* + \$2.20** ReCool keeps 100% revenue	

* \$118,325 divided by (SF + MF + ICI units)

** includes administration and Promotion & Education

Red Rock, Ontario

The community of Red Rock is located approximately 100 km east of Thunder Bay on the north shore of Lake Superior. The town has a population of 986 living in mostly single family residences. The town provides public garbage collection services to its single family, multi family and IC&I (institutional, commercial, industrial) establishments using a packer truck and two collection crew. All units are provided weekly garbage collection. The town has not implemented a Pay-as-you-Throw (PAYT) program and there are no restrictions on the amount of garbage that can be set out at any one time and collected.

The Town of Red Rock owns its landfill, located approximately 10 km outside of the town and has an estimated 50 years of capacity remaining. There are no scales at the landfill so all incoming waste is charged and recorded on a volume basis. The tipping fee is as follows:

Load	\$/load
Resident - Tandem Load (1 Ton +)	\$15.00
Non-resident/Contractor - Tandem Load	\$25.00
Resident - Regular Load (less than 1 ton)	No charge
Non-Resident - Regular Load	\$10.00/

Currently, the town does not offer recycling services. However, a private sector business started up a depot program several years ago but discontinued the program after experiencing high contamination among the fibre and container streams. The Rotary club collects aluminum pop cans and bottles as a method of fundraising.

Nipigon, Ontario

A neighbour of Red Rock, the Town of Nipigon is situated on Highway 17 about 110 km east of Thunder Bay. The town has a population of approximately 1,500 and an estimated 656 units (including single family, multi family) and 61 IC&I establishments receiving public garbage collection services. The garbage collection services are provided on a weekly basis to the residential sector once a week and twice a week to the commercial sector using two collection crew and a packer truck. The town has not implemented a Pay-as-you-Throw (PAYT) program and there are no restrictions on the amount of garbage that can be set out at any one time and collected.

Nipigon has its own landfill which is located approximately 1.5 km from the Town with about 100 years capacity remaining. Nipigon residents and property users pay no tipping fee at the landfill for regular household bagged garbage. However, the Town charges a tipping fee for non-regular garbage such as construction debris, ranging from \$2.00 to \$30.00 per load depending on the size of the vehicle. Since the landfill has no scales, all incoming waste is charged and recorded on a volume basis.

Currently, the Town of Nipigon has no recycling program.

Schreiber, Ontario

The Town of Schreiber has a population of 901 of which majority live in single family residences. Located approximately 200 km east of Thunder Bay, the Town of Schreiber contracts its garbage collection services to a private waste hauler (Brad Lemieux Trucking Ltd.). Using two collection crew and a packer truck, garbage collection is provided on a weekly basis to all households (550 single family and 23 multi family) and twice a week to 42 commercial and institutional establishments in the town at an annual cost of about \$116 per household. Schreiber places no restrictions on the amount of garbage that can be set out for collection and does not have a Pay-as-you-Throw (PAYT) program in place.

The Town of Schreiber shares a landfill with the Town of Terrace Bay which is located half way between the two communities on Highway 17, about 6 km from Schreiber. The landfill is currently owned by the

Township of Terrace Bay with user agreements in place for the Township of Schreiber. The life expectancy of the landfill is estimated anywhere from 30 years by Municipal Staff to 54 years by the Ministry of the Environment. Since the landfill has no scales, it charges tipping fees based on waste volumes using a punch card system. The tipping is as follows:

Load	Punches	\$/load
- Cars; ½ ton truck with equivalent of 5 or less garbage bags - car and light truck tires	2 Punches	\$4.00
- ½ ton truck with equivalent of more than 5 garbage bags or construction waste	4 Punches	\$6.00
- large truck tires	10 Punches	\$20.00
- Trucks over 1 ton, up to and including single axle dump trucks	12 Punches	\$24.00
- Tractor/heavy equipment tires	20 Punches	\$40.00
- Tandem or tri-axle trucks - Licensed sewage disposal trucks (to be dumped in appropriate drying bed)	50 Punches	\$100.00
- Tandem or tri-axle trucks with fuel-contaminated soil	100 Punches	\$200.00
- Derelict Vehicles		\$50.00

Although the Town of Schreiber provided a recycling depot program a few years back, due to financial and operational issues, the program was dropped in 2007. The program has not been replaced. See the Terrace Bay profile for further discussion.

Terrace Bay, Ontario

Situated east of Schreiber, the Town of Terrace Bay is located on the shores of Lake Superior about 210 km east of Thunder Bay. With a population of 1,625, the Town is the second largest community among the participating communities. Garbage collection service is provided using public collection services to 713 single family residences, 127 multi family units and 63 commercial and institutional establishments. It takes three collection crew and one packer truck on full day (Tuesday) to collect from all residences and commercial establishments on a weekly basis. The waste from the mill is picked up on a separate trip on Wednesday or Thursday usually taking 2 hours and one trip to the landfill. The cost to provide garbage collection service is estimated at \$118 per household per year. As with the other communities, Terrace Bay places no restrictions on the amount of garbage that can be set out for collection and has no PAYT program in place. A week is set aside in May for spring cleanup.

Terrace Bay and Schreiber share a local landfill, located mid way between the two communities (about 7 km from Terrace Bay). The landfill is currently owned by the Township of Terrace Bay with user agreements in place for the Township of Schreiber. The life expectancy of the landfill is estimated anywhere from 30 years by Municipal Staff to 54 years by the Ministry of the Environment (MOE) (the MOE estimate is believed to be over-estimated). Further discussion of the operation of the landfill and tipping fees are provided in the Schreiber profile.

Terrace Bay offered a depot recycling service until September 2007, which was operated by a private sector entrepreneur using a recycling depot located beside the town's tourism information centre. The company was making deliveries in the area and returning to Thunder Bay with an empty truck, so it offered to take the recyclables as a back haul for \$200/month. As gas prices increased, it made the

situation less attractive and the company stopped offering the service. The township has been without a provider since then.

Marathon, Ontario

The Town of Marathon is situated almost 300 km east of Thunder Bay and is the largest of the five participating communities, with a population of almost 3,900. The Town provides public garbage collection service to about 1,500 single family households, 190 multi family units and 40-50 commercial and institutional establishments. All units are provided weekly garbage collection services and must purchase and affix a tag (at \$1.00 per tag) to each bag of garbage set out for collection as part of the Town's Pay-as-you-Throw (PAYT) program.

The Town owns a landfill located in town which is nearing the end of its capacity and will be replaced by a new landfill located outside of the community. All garbage will be temporarily stored and compacted at the old landfill which will act as a transfer station to the new landfill. Until recently, all incoming waste is charged on a volume basis ranging from \$5.00 to \$8.00 for a small load to \$113 for a garbage truck; however, the Town has recently installed scales at the landfill which has enabled it to record incoming waste on a tonnage basis.

Unlike the other communities, the Town of Marathon provides a curbside recycling program to its citizens, both residential and IC&I sectors. Any resident or IC&I establishment receiving garbage collection services from the Town is entitled to receive recycling services. Marathon offers a two stream curbside recycling program in which mixed fibres are collected separately from mixed containers using transparent bags and are collected by a private hauler using a cube van, contracted by Recool Ltd. Residents receive bi-weekly service and IC&I customers receive up to 3 times per week service, depending on their needs. Once collected, the recyclable materials are stored in 18 wheel transport trailers (fibres in one transport trailer and containers in the other) which are transported to the Recool material recycling facility (MRF) in Thunder Bay on a weekly basis.

The following materials are collected.:

- paper fibres (including newspaper, telephone books, magazines and catalogues, fine paper and books),
- paperboard fibres (including corrugated cardboard, boxboard, molded pulp, gable top cartons and aseptic containers),
- PET and HDPE bottles and jugs, and
- aluminum and steel cans.

In order to reduce system costs and due to poor markets, glass is not collected or processed at this time.

Prior to the curbside recycling program, the Town of Marathon operated a depot recycling program. Under the depot program, the Town reported recycling diversion rates of 5-7%; now with curbside collection, it reports diversion rates of 28% in 2007.

In June 2009, the Town renewed its contract with Recool Ltd. to provide curbside recycling collection, storage, transportation and processing services for the next three years. Recool offered a 5% discount if Marathon accepted all four options and keeps 100% of the revenue from the sale of the recyclable material. The annual contract cost is as follows:

Service Provided	Total Annual Cost
residential collection	\$ 24,000.00
commercial collection	\$ 26,000.00
processing	\$ 36,000.00
transport	\$ 41,000.00
Subtotal with 5% discount	\$ 120,650.00

The cost to provide the curbside garbage and recycling services is provided in Table 2.4.

Table 2.4 Marathon’s Waste and Recycling Costs

Service	Year of Cost Estimate	Frequency of Service	Public vs Private	Provision of Service			Annual Cost/unit
				SF	MF	IC&I	
Garbage	2008	weekly	public	√	√	√	\$97.47
Recycling (current contract to 2009)	2008	Bi-weekly IC&I -3 x weekly	Contracted to Recool Canada	√	√	√	\$68.67*
Recycling (new contract 2010-2013)	2010	Bi-weekly IC&I -3 x weekly	Contracted to Recool Canada	√	√	√	\$70.02*

* Recool keeps 100% of revenue from the sale of recyclable materials
Does not include administration and education costs at approximately \$2.20/unit/yr

As a result of this new contract, the City of Marathon removed itself from the project in June 2009.

2.2 Blue Box Material Processors

Currently there are two potential blue box materials processors available to handle recyclable materials collected by the North Shore communities:

- Recool Canada Inc. based in Thunder Bay;
- Green Circle Environmental based in Sault Ste. Marie.

Each processor has a different material collection and processing approach as described below.

Recool Canada Inc.

Recool Canada Inc. is a recycling and waste management company based in Thunder Bay that has been operating since 1991. Recool provides recycling collection and processing services to the City of Thunder Bay and collection or processing services to a variety of surrounding communities including the Town of Marathon, Neebing, O’Conner, Atikokan, etc.

Recool has a unique collection and processing system that allows the company to operate in a cost effective manner. In order to reduce collection costs, Recool collects recyclable materials using transparent bags and in two separate streams – fibres and containers. This set out approach enables Recool to use 16 ft and 18 ft cube vans to collect the material. In the City of Thunder Bay, the cube van is operated by one person who is responsible for driving and collecting the bags of recyclables. Once the

cube van is full, the driver delivers the material to the Material Recycling Facility (MRF) and off loads the bags of material into one of two areas, a fibre area or a container area.

ReCool has a split processing line. There are two in-feed conveyors in the centre of the MRF. One conveyor feeds a fibre sorting line to the right of the in-feed conveyor. A horizontal baler is at the end of this sorting line. One employee is responsible for manually opening the bags at the base of the conveyor and shaking out contents onto the conveyor. Three or more employees are situated at the top of the conveyor who pick out those fibre materials not heading for the baler. For example, if newspaper is being baled then the cardboard, boxboard and household paper will be pick off the conveyor.

The other conveyor feeds the container processing line to the left of the conveyor. An employee will stand at the base of the conveyor and manually open the bags containing the containers and pull out gable top and tetrapak containers that he drops in to an adjacent vertical baler. Three other employees pick PET, HDPE and the bags and drop them in to bunkers. Steel is removed by a belt magnet and aluminum with an Eddy current system. Glass and residual is negative sorted and drops into a 6 yard bin below. The containers are baled when there is enough material.

ReCool processed about 10,000 tonnes in 2007 using 1 shift of 6 employees working a 36 hour work week. Recool staff claim that the MRF can process up to 20,000 by staffing both sides of the processing line at the same time, or running two shifts alternating fibre and container materials on the different shifts.

Currently, Recool accepts a variety of recyclable material, except glass, including:

Containers	Fibres
<ul style="list-style-type: none"> - steel (tin) food cans - aluminum cans - Aluminium foil wrap & trays - No. 1 plastic containers (e.g. pop bottles) - No. 2 plastic containers (e.g. shampoo bottles) - Milk cartons & juice boxes 	<ul style="list-style-type: none"> - newspapers and flyers - magazines - phone books - hardcover & soft cover books - boxboard/small boxes (e.g. cereal boxes) - paper egg cartons - toilet/towel paper rolls - clean milk cartons - household fine paper - office paper and envelopes - Cardboard boxes and pizza boxes should be broken down and bundled in 3' x 2' x1' bundles and placed beside the yellow box.

Green Circle Environmental

Green Circle Environmental is a privately owned and operated company that provides a wide range of services including: industrial and commercial collection, residential recycling collection and processing, Material Recovery Facility (MRF - Blue Box Materials), transfer station and other special services.

Green Circle provides recycling collection and processing for the City of Sault Ste. Marie, servicing over 23,000 single family households, approximately 9,000 multi-residential units and schools. All materials are processed at Green Circle’s MRF, located at 86A Sackville Road. The MRF also processes depot recyclable material from the communities of Wawa and Prince.

The City of Sault Ste. Marie’s waste diversion program currently includes a two stream recycling program with the collection and recycling of fibers and containers. Each resident receives a blue box for containers and a yellow box for fibres (paper products). Green Circle does not accept recyclable materials collected in bags. All recyclable material must be collected and received at the Green Circle MRF in loose form. Green Circle accepts the following recyclable materials:

Containers	Fibres
<ul style="list-style-type: none"> - steel (tin) food cans - aluminum cans - No. 1 plastic containers (e.g. pop bottles) - No. 2 plastic containers (e.g. shampoo bottles) - glass bottles and jars 	<ul style="list-style-type: none"> - newspapers and flyers - magazines - phone books - boxboard/small boxes (e.g. cereal boxes) - paper egg cartons - toilet/towel paper rolls - clean milk cartons - clean pizza boxes - all other paper products (e.g. mail, computer paper) - Cardboard boxes should be broken down and bundled in 2' x 2' x1' bundles and placed beside the yellow box.

The MRF processes the two streams (fibres and containers) separately using sorters to pick off the fibres including newspapers and flyers, magazines, boxboard/small boxes (e.g. cereal boxes), household paper and cardboard. The container stream uses a belt magnet to separate steel cans and an Eddy current to separate out aluminum cans. The other containers are hand picked by sorters into separate bins (i.e. PET and HDPE).

Green Circle has stated that it will not accept glass, gable tops or aseptic containers from other programs.

3.0 Blue Box Generation and Diversion Estimates

3.1 Potential Curbside Estimates

None of the participating communities have scales at their landfill; therefore, no records are kept on the amount by weight of garbage generated by the communities’ residents and IC&I establishments. In order to project the amount of recyclables available for collection to the communities, it was necessary to use waste generation and composition studies conducted by other communities with similar characteristics.

Stewardship Ontario is obligated under the Blue Box Program Plan to complete a series of residential municipal solid waste audits in single family and multi family households every year as part of its monitoring and fee setting requirements. Since 2005, Stewardship Ontario has been conducting comprehensive waste audits in different communities throughout Ontario, providing a representative sample of geographic, size and urban/rural community characteristics in Ontario. The waste audit program has targeted both the single family residential sector as well as the multi family residential sector.

Over the past several years, Stewardship Ontario has conducted a series of municipal solid waste audits in northern Ontario communities, including West Nipissing, Thunder Bay and Sault Ste. Marie, see below for details:

- 2006 – Sault Ste. Marie (population 75,000) – single family and multi family waste audits
- 2006 – West Nipissing (population 13,000) – single family waste audits
- 2007 – Thunder Bay (population 110,000) – single family and multi family waste audits

After reviewing the waste audits and discussing the waste audit results with the client, it was decided that the waste composition for West Nipissing most closely approximated the waste composition of the North Shore communities. Whereas Thunder Bay was the closest community to the North Shore communities, problems encountered during the audit made the results difficult to use.

In order to determine the waste generation rates for single family households and multi family households, a number of approaches were used:

- The Town of Marathon reported waste generation rates for its single family residential sector as part of the Waste Diversion Ontario (WDO) 2007 datacall requirements. Marathon generates an estimated 772 kg/hhld/year.
- The City of Sault Ste. Marie participated in multi family waste audits in 2006 resulting in waste generation estimates of 529 kg/hhld/year.

These waste generation rates were combined with the waste composition estimates and multiplied by the number of single family households and multi family households for each of the communities to calculate the potential amount of recyclable material available in the residential sector for each of the communities.

In order to determine the amount of recyclables that could be reasonably diverted through a curbside recycling program, the capture rates reported for several communities were applied including:

- West Nipissing – low capture rate;
- Marathon – medium capture rate;
- Sault Ste Marie – high capture rate.

Diversion estimates for the IC&I sector were based on recycling rates reported by the Town of Marathon for the IC&I sector. In 2007, the Town of Marathon reported that a total of 50.76 tonnes of recyclable materials were collected from approximately 45 businesses, which equates to approximately 1.13 tonnes of recyclables diverted per business per year. This estimate was used for estimating the amount of recyclable materials that could be potentially diverted by the businesses in the other four communities.

Table 3.1 summarizes the range of recycling diversion estimates for the Towns of Marathon, Red Rock, Nipigon, Schreiber and Terrace Bay. The actual amount of recyclables reported in the 2007 WDO datacall by Marathon was 282 tonnes which is about the same as the medium diversion rate calculated for Marathon. Detailed diversion tables for each community are provided in Appendix B.

Table 3.1: Recyclable Diversion Estimates for Curbside Collection

Diversion Rate Estimates for Recyclable Materials	Marathon	Terrace Bay	Schreiber	Nipigon	Red Rock
	tonnes/yr	tonnes/yr	tonnes/yr	tonnes/yr	tonnes/yr
Low estimate	189	139	96	125	53
Medium estimate	281	185	128	162	80
High estimate	329	209	145	182	94
Average	266	178	123	156	76

3.2 Potential Depot Estimates

In determining the potential tonnage of recyclables that could be diverted through a depot system two sources of information were used:

- A report titled *Moving on Diversion: A Recyclable Material Diversion Plan*, by Trow Consulting involved preparing a recyclable material diversion plan for six communities located on the east shore of Lake Superior, including Neebing Township, Conmee Township, Township of Oliver Paipouge, Gillies Township, O'Connor Township and Shuniah Township. The 2009 report estimated that combined these six townships were achieving 10% recycling diversion rates using a depot recycling system;
- A report prepared by SGS Lakefield Research Ltd, titled *Evaluation of Best Practices of Rural Recycling Depot Programs* (2006) reported that North Rural Recycling Depot programs were achieving an average capture rate of approximately 52 kg/hhld/yr.

An assumption was made that the business establishments would divert approximately half of the amount estimated for curbside collection (~ 500 kg/yr).

Table 3.2 summarizes the range of diversion rates estimated for the five communities. The depot system is estimated to achieve about half the diversion of a curbside program.

Table 3.2: Recyclable Diversion Estimates for Depots

	Marathon	Terrace Bay	Schreiber	Nipigon	Red Rock
	tonnes/yr	tonnes/yr	tonnes/yr	tonnes/yr	tonnes/yr
Low Estimate – based on North East Depot Diversion Rate (10%)	125	62	44	51	37
Medium Estimate – based on Northern Ontario Average Depot Rate (52 kg/hhld/yr)	87	36	30	34	25
Average	106	49	37	42	31
Average with IC&I added	129	80	58	73	37

4.0 Recycling System Opportunities

A number of recycling system opportunities were presented to the participating municipalities during a meeting held in Schreiber on May 1st, 2009. The list of options included a range of collection, storage, transportation and processing alternatives for consideration. The long list of opportunities is provided in Appendix C. A modified list of opportunities worth pursuing further was established based on discussions with the participating municipalities and is provided in Table 4.1.

Table 4.1: Recycling System Opportunities

	Examples	How system Could Work	Considerations
1. Turn Key Operation			
Turn Key Operation	Marathon	- Hire one company to collect, transport and process the recyclable materials	- Potentially more expensive but easier to administer
2. Curbside Collection of Recyclables			
Collection Service Contract	Atikokan	- each community hires a private company to provide collection service - some communities partner and share the cost of the collection services	- may be more costly but could be cost effective if alternate garbage collection with recycling - share one collection vehicle and collection crew to reduce costs
Town Provided Services	Pembroke	- use existing garbage collection crew and modify the collection schedule to accommodate recycling collection -	- may need to invest in a collection vehicle - may need to re-negotiate contract - may need new collection crew
3. Depot Collection of Recyclables			
Depot at landfill	Muskoka	- use attendants at landfill to monitor depot	- very cost effective but poorest recovery rates due to inconvenience of depot
Depot(s) in Town centre (satellite locations)	Augusta	- study in Augusta identified that 75% of residents travel no more than 10km	- cost effective with higher recovery rates due to added convenience - expect poorer recovery rates than curbside
Attended Depot	Hanover	- landfill attendant - hired staff - community groups	- need to coordinate times of attendants - expect higher diversion rates and lower contamination rates
Unattended Depot	Walkerton	- depot is provided to community and left unattended	- expect lower diversion rates and higher contamination rates
4. Storage and Transportation			
Store and transport at shared or single location	Southgate	- all recyclables are stored and transported from single location that is shared among the partnering communities	- effectiveness and efficiency of system depends on distance among the partnering municipalities
Store and transport at individual locations	Marathon	- each community would store the recyclables at a location within their community	- transportation could be shared or left to each community - expected to be more expensive

		Examples	How system Could Work	Considerations
5.	Processing			
	Process recyclable materials at Recool in Thunder Bay	Marathon	- Materials processed at the Recool Material Recycling Facility (MRF) in Thunder Bay	- Collection, storage and transportation of the recyclable materials must meet the performance needs of the MRF
	Process Recyclable materials at Green Circle in Sault Ste. Marie	Wawa	- Materials processed at the Green Circle Material Recycling Facility (MRF) in Sault Ste Maria	- Collection, storage and transportation of the recyclable materials must meet the performance needs of the MRF
	Investigate other processing options		- Materials could be processed at another location, if identified	- Collection, storage and transportation of the recyclable materials must meet the performance needs of the MRF

4.1 Turn Key Operation

In June 2009, the Town of Marathon renewed a contract with Recool to provide collection, storage, transportation and processing services for the next three years. Under the contract, Recool will provide the following services:

- Bi-weekly residential collection of recyclables;
- IC&I collection of recyclables based on existing schedule, up to three times per week;
- Supply of three 18 wheel trailers (two at Marathon landfill and one spare at Recool MRF) and transportation of trailers on a weekly basis to the Recool MRF in Thunder Bay;
- Receiving and processing of the recyclable material at the Recool MRF in Thunder Bay.

The cost to the Town of Marathon is summarized in Table 4.2 and outlined in the Report to Council in Appendix D. Recool keeps 100% of the revenues from the sale of the recyclable materials. The annual contract cost to provide recycling services to Marathon’s single family, multi family residential sector and industrial, commercial & institutional (IC&I) sector is approximately \$70 per unit per year or \$5.80 per month.

Table 4.2: Recool Recycling Contract with Marathon

Service Provided	Annual Cost
Residential collection	\$ 24,000.00
Commercial collection	\$ 26,000.00
Transportation	\$ 41,000.00
Processing	\$ 36,000.00
<i>Subtotal</i>	<i>\$ 127,000.00</i>
Subtotal with 5% discount	\$ 120,650.00
Cost per units served (1723)	\$ 70.02
Administration & Promotion and Education	\$ 3,818.00
Total Cost	\$ 124,468.00
\$/units/yr	\$ 72.24

A similar request was sent to ReCool Canada to provide quotes for the collection, storage, transportation and processing of recyclables for the communities of Red Rock, Nipigon, Schreiber and Terrace Bay. In particular, the following cost estimates were request on the different system components:

1. Cost to provide each service level - curbside collection, transportation and processing - for all four communities (broken down by each service level) – this assumes some cost savings by servicing all our communities together;
2. Costs to provide each service level curbside collection, transportation and processing for each community: Red Rock, Nipigon, Terrace Bay, and Schreiber;
3. Cost to transport recyclables from the Schreiber/Terrace Bay landfill (located mid way between Schreiber and Terrace Bay on Highway 17) using 18 wheel trailers provided by ReCool;
4. Cost to transport recyclables from Nipigon landfill (located 1.5 km outside of the Town) using 18 wheeler trailers provided by ReCool;
5. Cost to transport and process recyclables using a 40 cubic yard container, from the same locations as above;
6. Cost to process fibres and containers on a per tonne basis, which assumes that the material is delivered to the MRF at the expense of the community(ies).

In response, ReCool chose not to quote on providing curbside collection to any of the communities, arguing that the administration and logistics of organizing the collection services for the four communities was too onerous. However, ReCool offered to provide storage, transportation and processing services which is further explored in Section 4.4.

Conversation with Green Circle in Sault Ste Marie also resulted in a lack of interest to provide turn key operations. Green Circle provided quotes for transportation and processing of materials which is further explored in Section 4.4.

4.2 Curbside Collection of Recyclables

There are a number of different opportunities worth exploring for the provision of curbside collection services of recyclables for the communities of Red Rock, Nipigon, Schreiber and Terrace Bay. The options explored include:

- Contract collection services to a local entrepreneur;
- Use existing garbage collection crew and modify the collection schedule; and
- Hire new collection staff.

4.2.1 Contract Collection Services

ReCool contracts out the curbside recycling collection services for the Town of Marathon to Jim Moffat Enterprises of Manitouwadge. Contact was established with Moffatt Enterprises to explore the level of interest in providing collection services to some or all of the partnering communities and the cost associated with provision of the services.

Jim Moffat Enterprises is an entrepreneurial company that provides a wide range of services including collection services. Owned by Jim Moffatt, the company currently has a three year contract with ReCool to provide curbside recycling services to the residential and IC&I sector in the Town of Marathon. Contact information is:

Jim Moffat
Jim Moffat Enterprises
72 Neebig Ave,
Manitouwadge, Ontario
P0T 2C0
Phone: 807-826-4393

In response to the level of interest to provide recycling collection services, Mr. Moffat expressed interest in providing curbside recycling collection services to the communities of Schreiber and Terrace Bay. The company declined to offer collection services to Red Rock and Nipigon.

Jim Moffat Enterprises will provide the following recycling collection services to Schreiber and Terrace Bay:

- Provide bi-weekly curbside collection to the residential households and at least twice weekly collection to the IC&I business units in Terrace Bay and Schreiber;
- Provide the collection vehicle and necessary staff to collect the recyclables;
- Transport the collected recyclables to the Schreiber/Terrace Bay landfill (located mid way between Schreiber and Terrace Bay on Highway 17) and transferring the bags to 18 wheel trailers provided on-site.

The price to provide these recycling services to both communities is \$3,500 per month or \$42,000 annually. This works out to approximately \$1,750 per community per month or \$21,000 per community annually. Further discussion is provided in Section 5.

4.2.2 Town Provided Services

During discussion with the communities, it became apparent that the garbage collection crew in each of the four communities do not work a full week and there may be opportunities to modify the existing collection schedule to accommodate the additional curbside collection of recyclables. Several questions were raised that needed to be addressed:

- a) Since all four communities use packer trucks to collect garbage, is it possible to use these same packer trucks to collect the recyclable materials?
- b) If packer trucks cannot be used, what collection vehicle is required?
- c) To what extent could the town use existing garbage collection crew and modify the collection schedules to accommodate curbside collection of recyclables?
- d) Is it feasible to hire new staff and share resources among some communities?

Using Packer Trucks

Most municipalities use rear loading packer trucks for manual collection of garbage. The packer trucks have the advantage of being able to compact collected trash while on route which enables the truck to carry a payload about twice as large. The truck can then be emptied as a conventional dump truck by tilting the body up. Packer trucks are relatively low cost compared to side loaders or automated loading collection vehicles.

Discussions with the MRF operators identified several disadvantages to using the packer trucks to collect the recyclable materials:

- Potential contamination of the recyclable materials with garbage residue means that the trucks would need to be washed after every garbage collection;

- Neither MRF is not willing to handle compacted recyclables which adds additional labour to sort and increases contamination of different recycling streams as the compacted materials tend to stick together and do not sort into their respective categories as easily;
- While the compaction level on the packer truck can be adjusted, it requires manual adjustment every time which is time and labour consuming (cannot press a switch to adjust compaction level).

For these reasons, the use of a packer truck to collect the recyclable materials was not considered a viable option.

Alternative Collection Vehicles

As described in Section 2.2 Recool collects recyclable materials in two streams (fibres and containers) using transparent bags which has the advantage of easy set out and collection. The town of Marathon and the City of Thunder Bay use 16 ft cube vans to collect the recyclable materials which provides a low cost and effective collection solution.

Currently, Recool is selling used 16ft cube vans for an estimated cost of \$10,000 to \$20,000. A new 16ft van costs about \$50,000. These costs amortized over 10 years for new and 5 years for used at 6% interest work out to \$6,800 for a new cube van and \$3,600 for a used cube van (@ \$15,000 used).

The MRF operator, Green Circle located in Sault Ste Marie, requires that all recyclable materials be provided loose in two streams, fibre and containers (see Section 2.2 for further details). In order to meet these processing requirements, Green Circle recommends investing in a side loader which can cost in the range of \$220,000-\$300,000, depending on the make and requires investment in recycling carts. An alternative would be a manual side loader (Top Select) which can be used in conjunction with a blue box approach and is estimated to cost in the range of \$150,000 to \$200,000. Both vehicles unload by pushing the material out the back which would need to be coordinated with transferal into an 18 wheel trailer used for material storage. The amortized cost for a collection truck averaging \$200,000 over ten years at 6% interest works out to \$27,175 per year.

Using Existing Collection Resources

During the meeting with partnering communities in May, it became apparent that there might be an opportunity for the communities to use existing town resources to collect the recyclables from residential and IC&I properties. With the exception of Schreiber, the Towns of Red Rock, Nipigon and Terrace Bay provide public garbage collection services. The Town of Schreiber, contracts its garbage collection services to a private company, which includes the collection vehicle (packer truck), profits and other costs. The garbage collection schedule for each community is provided in Table 4.3.

Table 4.3: Garbage Collection Schedules

	Residential Garbage Service	IC&I Garbage Service	Number of Crew	Salaries
Red Rock	- Wednesday and part of Thursday (8 hrs)	- Thursday (6 hrs)	2	- \$24.33/hr (1 union) - \$17.00/hr (1 non-union)
Nipigon	- Tuesday *	-Friday and Tuesday*	2	- \$25.00 (union)
Schreiber	- Wednesday (5.5 to 6 hrs)	- Tuesday and Friday (2.5/hrs)	2	- Contract \$58,0000
Terrace Bay	- Tuesday (6.5 hrs)	- Tuesday (3.5 hrs)	3	- \$31.00/hr (1 union) - \$20.44/hr (2 non-union)

Note: Red Rock and Nipigon share a packer truck between the two communities

* assumes same number of hours to collect as Red Rock

All four communities are able to provide full curbside garbage collection services to the residential and IC&I sector in two days or less. It may be possible to use the collection crew to provide recycling collection services on alternative days, when garbage collection is not taking place. The towns could consider bi-weekly or weekly collection, depending on the collection schedule. The towns would need to invest in a cube van (new or used) and could consider sharing the cube van to save on costs. Currently, Red Rock and Nipigon share a new packer truck for garbage collection.

The communities should see a significant reduction in the amount of garbage set out for collection with the introduction of a curbside recycling program. Consequently, this should result in reduced times for garbage collection and more time available for alternative activities.

The estimated costs are provided in Table 4.4. The cost estimates assume the same number of hours to collect the recyclables as to collect the garbage. The table shows cost estimates to provide weekly curbside recycling collection and half the cost to provide bi-weekly curbside recycling collection. These are rough estimates since the time anticipated to collect the recyclables is expected to be lower than the time required to collect the garbage and the time to collect recyclables on a bi-weekly schedule will be more than half the time to collect on a weekly schedule due to the additional volume of recyclable materials set out.

Table 4.4: Estimated Costs to provide Curbside Recycling Services using Existing Collection Crew

	Red Rock	Nipigon	Schreiber	Terrace Bay
Residential and IC&I Garbage Service assumptions	28 total person hrs (2 crew) \$24.33/hr (union) \$17.00 (non-union)	28 total person hrs (2 crew) \$25/hr (union)	17 total person hrs (2 crew) contract price of \$58,000	30 total person hrs, (3 crew) \$31.00/hr (union -1) \$20.44/hr (non-union -2)
Weekly Residential and IC&I Recycling				
Estimated Annual Cost	\$ 30,088	\$ 36,400	Not applicable	\$ 41,221
Bi-Weekly Residential and IC&I Recycling				
Estimated Annual Cost	\$ 15,044	\$ 18,200	Not applicable	\$ 20,611

4.2.3 Hire Additional Collection Crew

The towns could hire one or two additional collection staff to provide curbside recycling services on a weekly or bi-weekly basis. A number of options could be considered:

- Hire two collection crew and share the costs and services among neighbouring communities, with Red Rock and Nipigon sharing resources and Schreiber and Terrace Bay sharing resources;
- Hire one collection crew to drive behind the garbage packer truck and help collection recyclables on the same day as the garbage (to reduce the load, the each stream of recyclables could be collected on a weekly basis for example, fibres collected on week 1 and containers collected on week 2)

Table 4.5 provides a cost estimate to hire two non-unionized crew to provide curbside recycling collection services. A number of assumptions have been used in generating the cost estimates, as follows:

- Jim Moffat Enterprises has 2 crew that work approximately 9 hours a day to collect half of Marathon’s residential sector (800 households);
- Jim Moffat collect recyclables on a bi-weekly schedule;
- Jim Moffat Enterprises has 1 crew that work approximately 9 hours per week to collect from about 45 businesses;
- Red Rock pays \$17 per hour for non-unionized collection crew;
- It is assumed that weekly collection requires a doubling of the time of bi-weekly collection;
- This does not include the cost of purchasing a cube van.

Table 4.5: Cost Estimates to Hire Collection Crew

	Assumptions	Marathon	Red Rock	Nipigon	Schreiber	Terrace Bay
Collection from Residential Households						
Total Households		1,678	486	656	573	690
Total hhd collected per day	work 9 hrs/day	800				
Estimated Number of total person hrs based on Marathon	assumes 2 crew		10.9	14.8	12.9	15.5
Estimated Annual Cost (bi-weekly collection)	\$17/hr		\$4,833	\$6,524	\$5,698	\$6,862
Estimated Annual Cost (weekly collection)	\$17/hr		\$9,667	\$13,048	\$11,397	\$13,724
Collection from IC&I Units						
Total IC&I Units		45	11	61	42	63
Hours/IC&I unit	work 9 hrs/wk	0.20				
Estimated Number of total person hrs based on Marathon	assumes 1 crew		2.2	12.2	8.4	12.6
Estimated Annual Cost (weekly collection)	\$17/hr		\$1,945	\$10,785	\$7,426	\$11,138
Total Cost Estimate for Residential & IC&I Collection	weekly collection		\$11,611	\$23,833	\$18,823	\$24,863
	bi-weekly collection		\$6,778	\$17,309	\$13,124	\$18,000

4.2.4 Alternate Garbage and Recycling Collection

Alternatively, the communities could switch to a bi-weekly collection schedule for garbage and alternate collection with curbside recycling such that garbage would be collection one week and recyclables the other week. Laurentian Valley Township provides this collection arrangement all year round. Some communities provide weekly collection of garbage in the summer to accommodate the putrescibles. Several communities (i.e. Dryden, Pembroke, Petawawa) provide bi-weekly garbage collection in the winter and weekly garbage collection in the summer (e.g. June to September) with recycling provided on a bi-weekly collection schedule all year round. It is assumed that the current collection costs would vary slightly under this arrangement except for the added garbage collection service provided in the summer.

The additional costs would be associated with providing weekly curbside garbage collection services for a three month period in the summer (July to September) as shown in Table 4.6. Under this scenario, the following assumptions apply:

- The town’s existing collection crew would provide bi-weekly garbage collection and bi-weekly recycling during the winter months (October to June);
- A cube van would need to be purchased and shared among neighbouring communities with Red Rock and Nipigon sharing the cube van and Schreiber and Terrace Bay sharing the cube van.
- Each town’s collection crew would switch to weekly garbage collection during the months of July, August and September;
- Hire two non-unionized collection crew for the months of July, August and September to provide bi-weekly recycling and share the costs and services among neighbouring communities, with Red Rock and Nipigon sharing resources and Schreiber and Terrace Bay sharing resources;
- Red Rock pays \$17 per hour for non-unionized collection crew.

Table 4.6: Additional Estimated Annual Costs Associated with Alternating Garbage and Recycling

	Assumptions	Red Rock	Nipigon	Schreiber	Terrace Bay
Estimated Cost to provide 3 months of bi-weekly recycling	2 non-union crew at \$17/hr	\$1,695	\$4,327	\$3,281	\$4,500
Cube Van (amortized @ \$6,800 annual)*	shared costs	\$3,400	\$3,400	\$3,400	\$3,400
Additional Collection Costs		\$5,095	\$7,727	\$6,681	\$7,900

* a used cube van will reduce the annual costs by about \$1500 annually

4.3 Depot Collection

Effort was made to acquire quotes to provide depot collection services for recyclable materials. Neither Recool nor Green Circle was interested in providing depot services or processing the depot materials due to:

- the high contamination rates at the depot locations;
- low participation and capture rates for the recyclable materials.

Waste Diversion Ontario (WDO) requires all communities with curbside or depot recycling services to complete a lengthy datacall survey as part of the requirements to receive Blue Box funding. Waste Diversion Ontario publishes the main results of the datacall from every participating community. Using 2007 datacall information provided by Northern Ontario communities with depot collection programs, the estimated costs to provide a depot collection program are provided in Table 4.7. These costs are gross costs without WDO funding.

Table 4.7: Estimated Costs for a Recycling Depot

Northern Ontario depot collection costs (2007)		Red Rock	Nipigon	Schreiber	Terrace Bay
residential hhlds		486	656	573	690
Estimated Cost per Unit	\$32.97	\$ 32.97	\$ 32.97	\$ 32.97	\$ 32.97
Estimated Annual Costs		\$ 16,023	\$ 21,628	\$ 18,892	\$ 22,749

Unattended Depot at Landfill

Estimated costs to operate a depot at the landfill, assuming that the landfill attendant can monitor the depot effectively, are minimal, see Table 4.8. However, it should be noted that neither processor (Recool or Green Circle) will accept highly contaminated streams; therefore, monitoring is essential. The estimated costs to operate a depot at the landfill are based on the following assumptions:

- A depot system will be established at a shared location serving the communities of Red Rock and Nipigon;
- A depot system will be established at a shared location serving the communities of Schreiber and Terrace Bay;
- Two 40 cubic yard container depot units will be purchased at an average cost of \$15,000 per unit (ranging from \$10,000 to \$20,000 per unit) and amortized over a 10 year period at 6% interest. The annual amortized cost for each unit is \$2,038.
- The materials will be transported and processed by Recool at the rate of ~\$800/trip from Terrace Bay/Schreiber and ~\$700 from Red Rock/Nipigon. It is assumed that the depots will need to be transported on a bi-weekly or monthly basis.

Table 4.8: Unattended Depot Cost Estimates at the Landfill

	Assumptions	Red Rock and Nipigon	Schreiber and Terrace Bay
Depot amortized	2	\$4,076	\$4,076
Transportation and Processing	assume bi-weekly	\$18,200	\$20,800
Estimated Total annual cost (bi-weekly transport)		\$22,276	\$24,876
Transportation and Processing	assume monthly	\$8,400	\$9,600
Estimated Total annual cost (monthly transport)		\$12,476	\$13,676

According to a report by Quinte Waste Solution looking at the features associated with successful depot operations, "A responsible depot attendant is the best defence against material contamination. An attendant who promotes the program and encourages proper material separation contributes to the program's success and increases its perceived and actual effectiveness. This in turn, results in higher community participation and overall capture rates".³

Attended Depot

Estimated costs to operate an attended depot are provided in Table 4.9. The following assumptions were used in establishing the costs:

- A depot system will be established at a shared location serving the communities of Red Rock and Nipigon;
- A depot system will be established at a shared location serving the communities of Schreiber and Terrace Bay;
- Two 40 cubic yard container depot units will be purchased at an average cost of \$15,000 per unit (ranging from \$10,000 to \$20,000 per unit) and amortized over a 10 year period at 6% interest. The annual amortized cost for each unit is \$2,038.

³ Quinte Waste Solutions. April 2006. Evaluation of Best Practices of Rural Recycling Depot Programs. Stage 1, pg ii.

- Each depot will have an attendant to ensure that the two stream of materials (fibres and containers) are properly sorted into the designated depot. It is assume the attendant will work 14 hours per week at a salary of \$17/hour as paid for un-unionized staff in Red Rock;
- The materials will be transported and processed by Recool at the rate of ~\$800/trip from Terrace Bay/Schreiber and ~\$700 from Red Rock/Nipigon. It is assumed that the depots will need to be transported on a bi-weekly or monthly basis.

Table 4.9: Attended Depot Cost Estimates

	Assumptions	Red Rock and Nipigon	Schreiber and Terrace Bay
Attended Depot (14 hours/week)	\$17/hr	\$12,376	\$12,376
Depot amortized	2	\$4,076	\$4,076
Transportation and Processing	assume bi-weekly	\$18,200	\$20,800
Estimated Total annual cost (bi-weekly transport)		\$34,652	\$37,252
Transportation and Processing	assume monthly	\$8,400	\$9,600
Estimated Total annual cost (monthly transport)		\$24,852	\$26,052

4.4 Storage, Transportation and Processing

A number of requests were made for transportation and processing quotes from the following companies:

- Recool Canada Ltd, based in Thunder Bay;
- Green Circle Environmental, based in Sault Ste Marie;
- John Cress Contracting, based in Heron Bay;
- Black Sturgeon Enterprises Ltd., based in Marathon;
- CPR Rail.

In addition, effort was made to track a lead on Waste Management Inc. based near Sault Ste. Marie. All efforts failed to identify the company. While all companies responded to the request for quotes, the quotes varied considerably as discussed below.

4.4.1 Recool Canada Ltd.

In response to a request for quotes to provide storage, transportation and processing of recyclable materials, Recool provided quotes to service two locations:

7. Cost to transport and process recyclables from the Schreiber/Terrace Bay landfill (located mid way between Schreiber and Terrace Bay on Highway 17) using 18 wheel trailers provided by ReCool;
8. Cost to transport and process recyclables from the Nipigon landfill (located 1.5 km outside of the Town) using 18 wheeler trailers provided by ReCool.

Although a request was made to provide processing costs on a per tonne basis (assuming material delivered at the MRF), Recool declined to provide per tonne processing costs and responded with only per trailer processing costs. The quotes provided by Recool are shown in Table 4.10.

Table 4.10: Recool Prices

Service Provided	Red Rock/Nipigon	Terrace Bay/Schreiber
Transportation and Processing per trailer	\$1,450	\$1,800
Monthly Trailer Rental for two trailers	\$600	\$600
Annual Cost Estimates		
Scenario 1		
Transportation & processing every two weeks		\$93,600
trailer rental		\$7,200
Annual Cost		\$100,800
Scenario 2		
Transportation & processing every three weeks	\$49,300	\$61,200
trailer rental	\$7,200	\$7,200
Annual Cost	\$56,500	\$68,400
Scenario 3		
Transportation and processing every four weeks	\$34,800	
trailer rental	\$7,200	
Annual Cost	\$42,000	

4.4.2 Green Circle Environmental

Green Circle Environmental provided quotes to transport and process loose recyclable material collected in two streams, fibres and containers. The costs are as follows:

- \$55+/tonne to process the material with Green Circle keeping 100% of the revenues from the sales of the materials;
- Approximately \$1,000 per load to collect and transport an 18 wheel walking trailer to the Green Circle MRF (assumes a 10 hr turn around time) Note: this cost is considered low since the average turn around time estimated by Black Sturgeon is 16 to 17 hours per trip.

Green Circle does not provide the trailers which would need to be purchased or rented. Walking trailers or push wall trailers are relatively expensive at \$80,000 to \$140,000 new or in the range of \$20,000 to \$25,000 used. These costs amortized over 10 years for new and 5 years for used at 6% interest work out to \$13,600 for a trailer costing \$100,000 new and \$5,500 for a used trailer (@ \$23,000). It is assumed that the walking or push trailer could be rented for \$1,000 each per month.

The estimated cost to process the material is provided in Table 4.11.

Table 4.11: Estimated Costs to Process Recyclable Materials at Green Circle Environmental

	Red Rock	Nipigon	Schreiber	Terrace Bay
Estimated annual recyclables (tonnes)	76	156	123	178
Processing cost estimates (@\$55/tonne)	\$ 4,170	\$ 8,591	\$ 6,750	\$ 9,769

Service Provided	Red Rock/ Nipigon Annual Cost	Terrace Bay/ Schreiber Annual Cost
Processing Costs	\$ 12,761	\$ 16,519
Estimated transportation per trailer	\$ 1,000	\$ 1,000
Estimated trailer rental (2) per month	\$ 2,000	\$ 2,000
Annual Cost Estimates		
Scenario 1		
Transportation & processing every two weeks		\$68,519
trailer rentals		\$24,000
Annual Cost		\$92,519
Scenario 2		
Transportation & processing every three weeks	\$46,761	\$50,519
trailer rentals	\$24,000	\$24,000
Annual Cost	\$70,761	\$74,519
Scenario 3		
Transportation & processing every four weeks	\$36,761	
trailer rentals	\$24,000	
Annual Cost	\$60,761	

4.4.3 Black Sturgeon Enterprises Ltd.

Black Sturgeon is a local hauler that was recommended by staff at the Town of Marathon as a possible candidate for transporting the recyclable materials to a final processing destination. Contact information is:

Kurt Klinge
 Black Sturgeon Enterprises Ltd.
 Marathon, ON, P0T 2E0
 Phone: 807-229-8106

Black Sturgeon was asked to provide quotes for the following services:

1. Cost to transport recyclables from the Schreiber/Terrace Bay landfill (located mid way between the two communities on Highway 17) to the Recool MRF in Thunder Bay and the Green Circle MRF in Sault Ste. Marie using an 18 wheel trailer;

2. Cost to transport recyclables from Nipigon landfill (located 1.5 km outside of the Town) to the Recool MRF in Thunder Bay and the Green Circle MRF in Sault Ste. Marie using an 18 wheeler trailer; and
3. Cost to rent two 18 wheeler trailers for each of the above locations, for the purpose of storing and transporting the recyclables materials.

Table 4.12 summarizes the costs estimates based on the following quote provided by Black Sturgeon Enterprises:

- Dry van rental: \$1,000.00 per trailer per month;
- Haul from Terrace Bay/Schreiber to Thunder Bay (10 hr @ \$115.00) - \$1,150.00 per trip;
- Haul from Terrace Bay/Schreiber to Sault Ste. Marie (16 hr @ \$115.00) - \$1,840.00 per trip;
- Haul from Nipigon to Thunder Bay (8 hr @ \$115.00) - \$920.00 per trip;
- Haul from Nipigon to Sault Ste. Marie (17 hr @ \$115.00) - \$1955.00.

Haul rates are at current fuel prices.

Table 4.12: Estimated Transportation Costs Provided by Black Sturgeon

	Transport to Recool		Transport to Green Circle	
	Red Rock/Nipigon Annual Cost	TerraceBay/Schreiber Annual Cost	Red Rock/Nipigon Annual Cost	TerraceBay/Schreiber Annual Cost
Transportation per trailer	\$ 920	\$ 1,150	\$ 1,955	\$ 1,840
trailer rental (1) per month	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000
Annual Cost Estimates				
Scenario 1				
Transportation every two weeks		\$59,800		\$95,680
trailer rental		\$24,000		\$24,000
Annual Cost		\$83,800		\$119,680
Scenario 2				
Transportation every three weeks	\$31,280	\$39,100	\$66,470	\$62,560
trailer rental	\$24,000	\$24,000	\$24,000	\$24,000
Annual Cost	\$55,280	\$63,100	\$90,470	\$86,560
Scenario 3				
Transportation and processing every four weeks	\$22,080		\$46,920	
trailer rental	\$24,000		\$24,000	
Annual Cost	\$46,080		\$70,920	

4.4.4 John Cress Contracting

John Cress has a hauling company located in Heron Bay that was recommended by staff at the Town of Marathon as a possible candidate for transporting the recyclable materials to a final processing destination. Contact information is:

John Cress
 John Cress Contracting
 16 Pic River Rd
 Heron Bay, Ontario
 POT 1RO
 Phone: 807 229-0832

John Cress Contracting was asked to provide quotes for the following services:

4. Cost to transport recyclables from the Schreiber/Terrace Bay landfill (located mid way between the two communities on Highway 17) to the Recool MRF in Thunder Bay and the Green Circle MRF in Sault Ste. Marie using an 18 wheel trailer;
5. Cost to transport recyclables from Nipigon landfill (located 1.5 km outside of the Town) to the Recool MRF in Thunder Bay and the Green Circle MRF in Sault Ste. Marie using an 18 wheeler; and
6. Cost to rent two 18 wheeler trailers for each of the above locations, for the purpose of storing and transporting the recyclables materials.

Table 4.13 summarizes the costs estimates based on the following quote provided by John Cress Contracting:

- Haul from Terrace Bay/Schreiber to Thunder Bay - \$1,100 per trip;
- Haul from Terrace Bay/Schreiber to Sault Ste. Marie - \$1,870 per trip;
- Haul from Nipigon to Thunder Bay - \$1,100 per trip;
- Haul from Nipigon to Sault Ste. Marie - \$2,420;
- All costs include the rental of two trailers.

Table 4.13: Estimated Transportation Costs to Thunder Bay Provided by John Cress

	Transport to Recool		Transport to Green Circle	
	Red Rock/Nipigon Annual Cost	TerraceBay/Schreiber Annual Cost	Red Rock/Nipigon Annual Cost	TerraceBay/Schreiber Annual Cost
Transportation per trailer (includes 2 trailers)	\$ 1,100	\$ 1,100	\$ 2,420	\$ 1,870
Annual Cost Estimates				
Scenario 1				
Transportation every two weeks Annual Cost		\$57,200		\$97,240
Scenario 2				
Transportation every three weeks Annual Cost	\$37,400	\$37,400	\$82,280	\$63,580
Scenario 3				
Transportation and processing every four weeks Annual Cost	\$26,400		\$58,080	

4.4.5 CPR Rail

Effort was made to acquire quotes to ship the recyclable materials by rail under the following conditions:

1. Cost to transport recyclables by rail from the Terrace Bay, Ontario to Thunder Bay using an intermodal containers;
2. Cost to transport recyclables by rail from the Terrace Bay, Ontario to Sault Ste. Marie, Ontario using an intermodal containers;
3. Cost to transport recyclables by rail from Nipigon, Ontario to Thunder Bay, Ontario using intermodal containers;
4. Cost to transport recyclables by rail from Nipigon, Ontario to Sault Ste. Marie, Ontario using intermodal containers; and
5. Cost to rent intermodal containers, for the purpose of storing and transporting the recyclables materials. Please indicate size and volume of the intermodal containers.

Unfortunately, the response has not been favourable. The intermodal network of terminals has been discontinued in the Thunder Bay area as it was no longer feasible. According to a CPR representative, rail makes financial sense if the transportation link is longer than 800 to 1,000 km (500-600 miles) and if there is a large volume of material to transport. Neither condition applies here.

4.5 WDO Blue Box Funding

In December 2003, the Minister of the Environment approved the Blue Box Program Plan which addresses a portion of consumer packaging material and printed papers commonly found in the residential waste stream and obligate stewards to pay fees that will be used to cover up to 50% of the municipal Blue Box program costs. The Blue Box Program Plan designated and defined "Stewards" as brand owners and first importers in Ontario of products that result in Blue Box waste.

Since the Blue Box industry stewardship program began in January 2004, Stewardship Ontario's packaging and printed paper industry members have contributed more than \$191 million to municipalities to help pay recycling costs and \$19.75M project grants to improve effective & efficiency of municipal recycling programs.

The formula used for determining the amount of funding received by each municipality is very complicated and is based on operating costs, revenues and recovery rates for materials. Data collected through the annual WDO datacall on revenues for each material, as well as gross costs, are entered into the Blue Box Funding Formula to calculate net program costs and the share that industry will pay in any given year. Some compensation is built in for geographic location of the municipalities. The funding is provided for municipal operating costs reported two years previous; therefore, municipalities are currently receiving funding in 2009 for costs reported in 2007. In general, northern communities receive about 40% of the residential recycling program operational costs. The funding only applies to the residential recycling operational costs and any IC&I recycling costs must be backed out.

Section 5.0 incorporates the estimated financial support that the four communities could receive from Waste Diversion Ontario using a funding formula of 40% for different recycling scenarios.

5. Comparison of Costs

5.1 Curbside Collection Summary

Tables 5.1 and 5.2 provide a summary of the collection, storage, transportation and processing costs described in Section 4.0 for the communities of Red Rock and Nipigon combined and the communities of Schreiber and Terrace Bay combined.

Table 5.1: Recycling Options Cost Comparison for Red Rock and Nipigon

Scenarios	Contract Collection Jim Moffat Enterprises bi-weekly collection		Existing Town Provider				Hire non-union crew bi-weekly collection	
	Red Rock	Nipigon	Use Collection crew for Bi-weekly collection		Alternate with garbage collection		Red Rock	Nipigon
			Red Rock	Nipigon	Red Rock	Nipigon		
Annual Collection Costs	n.a.	n.a.	\$15,044	\$18,200	\$1,695	\$4,327	\$6,778	\$17,309
Collection Equipment (assume shared costs 50/50)								
cube van (Recool)			\$3,400	\$3,400	\$3,400	\$3,400	\$3,400	\$3,400
side loader collection truck (Green Circle)			\$13,588	\$13,588	\$13,588	\$13,588	\$13,588	\$13,588
Sub-Total Collection Costs								
Recool Destination	n.a.	n.a.	\$18,444	\$21,600	\$5,095	\$7,727	\$10,178	\$20,709
Green Circle Destination			\$28,632	\$31,788	\$15,282	\$17,915	\$20,366	\$30,896
Storage, Transport & Processing (assume shared costs 50/50)	Red Rock	Nipigon	Red Rock	Nipigon	Red Rock	Nipigon	Red Rock	Nipigon
	Recool estimate		Green Circle estimate		Black Sturgeon estimate		John Cress estimate	
18 wheel trailer rental (2)	\$3,600	\$3,600	\$12,000	\$12,000	\$12,000	\$12,000	included in transport cost	included in transport cost
Transportation Costs (assume every 4 weeks)								
Recool Destination	\$17,400	\$17,400			\$11,040	\$11,040	\$13,200	\$13,200
Green Circle Destination			\$12,000	\$12,000	\$23,460	\$23,460	\$29,040	\$29,040
Processing Costs								
Recool Destination	included with transport cost	included with transport cost			n.a.	n.a.	n.a.	n.a.
Green Circle Destination			\$6,381	\$6,381	\$6,381	\$6,381	\$6,381	\$6,381
Sub-Total transportation and Processing Costs								
Recool Destination	\$21,000	\$21,000			n.a.	n.a.	n.a.	n.a.
Green Circle Destination			\$30,381	\$30,381	\$41,841	\$41,841	\$35,421	\$35,421

Table 5.2: Recycling Options Cost Comparison for Schreiber and Terrace Bay

Curbside Collection Scenarios	Contract Collection Jim Moffat Enterprises bi-weekly collection		Existing Town Provider				Hire non-union crew	
			Use Collection crew for Bi-weekly collection		Alternate with garbage collection		bi-weekly collection	
	Schreiber	Terrace Bay	Schreiber	Terrace Bay	Schreiber	Terrace Bay	Schreiber	Terrace Bay
Annual Collection Costs	\$21,000	\$21,000	n.a.	\$20,611	\$3,281	\$4,500	\$13,124	\$18,000
Collection Equipment (assume shared costs 50/50)	\$0	\$0						
cube van (Recool)			\$3,400	\$3,400	\$3,400	\$3,400	\$3,400	\$3,400
side loader collection truck (Green Circle)			\$13,588	\$13,588	\$13,588	\$13,588	\$13,588	\$13,588
Sub-Total Collection Costs								
Recool Destination	\$21,000	\$21,000	n.a.	\$24,011	\$6,681	\$7,900	\$16,524	\$21,400
Green Circle Destination				\$34,198	\$16,869	\$18,088	\$26,712	\$31,588
Storage, Transport & Processing (assume shared costs 50/50)	Schreiber	Terrace Bay	Schreiber	Terrace Bay	Schreiber	Terrace Bay	Schreiber	Terrace Bay
	Recool estimate		Green Circle estimate		Black Sturgeon estimate		John Cress estimate	
18 wheel trailer rental (2)	\$3,600	\$3,600	\$12,000	\$12,000	\$12,000	\$12,000	included in transport cost	included in transport cost
Transportation Costs (assume every 3 weeks)								
Recool Destination	\$30,600	\$30,600			\$19,550	\$19,550	\$18,700	\$18,700
Green Circle Destination			\$12,000	\$12,000	\$31,280	\$31,280	\$31,790	\$31,790
Processing Costs								
Recool Destination	included with transport cost	included with transport cost			n.a.	n.a.	n.a.	n.a.
Green Circle Destination			\$8,259	\$8,259	\$8,259	\$8,259	\$8,259	\$8,259
Sub-Total transportation and Processing Costs								
Recool Destination	\$34,200	\$34,200			n.a.	n.a.	n.a.	n.a.
Green Circle Destination			\$32,259	\$32,259	\$51,539	\$51,539	\$40,049	\$40,049

In all transportation and processing scenarios, Green Circle results in the most expensive storage, transportation and processing option and, therefore, has not been considered further in the comparison of costs. This is a similar conclusion presented by Marathon.

In the case of Marathon, the report to Council highlighting the tendered recycling costs concludes that *"The process in Sault Ste. Marie would require significant changes to how we currently handle our recyclables. Instead of a blue bag program we would be required to convert over to the commonly used approach of the blue box program. This would require significant modifications to the collection vehicles as the cube van approach would not be efficient."* See Appendix D.

Tables 5.3 and 5.4 present the least cost curbside collection options for Red Rock and Nipigon and for Schreiber and Terrace Bay. These costs incorporate potential WDO Blue Box funding. In both situations, the two least cost scenarios involves:

1. Adopting an alternating garbage and recycling collection program and using Recool storage, transportation and processing services;
2. Hiring non-union collection crew or contracting out the collection services and using Recool storage, transportation and processing service.

Table 5.3: Least Cost Curbside Collection and Processing Scenarios for Red Rock and Nipigon

	Red Rock	Nipigon		Red Rock	Nipigon
Scenario 1	Annual Cost		Scenario 2	Annual Cost	
Alternating Garbage and Recycling Collection Days*	\$1,695	\$4,327	Hire Non-Union Crew to Collect	\$6,778	\$17,309
Recool transports & processes (assume every four weeks)	\$21,000	\$21,000	Recool transports & processes (assume every four weeks)	\$21,000	\$21,000
<i>Total Annual Operating Costs</i>	<i>\$22,695</i>	<i>\$25,327</i>	<i>Total Annual Operating Costs</i>	<i>\$27,778</i>	<i>\$38,309</i>
Per household and IC&I unit cost	\$46	\$35	Per household and IC&I unit cost	\$56	\$53
Blue Box Program Revenue (40% of residential component)	\$8,877	\$9,269	Blue Box Program Revenue (40% of residential component)	\$10,865	\$14,020
<i>Total Annual Costs after Funding</i>	<i>\$13,818</i>	<i>\$16,058</i>	<i>Total Annual Costs after Funding</i>	<i>\$16,913</i>	<i>\$24,289</i>
Total Cost per Household & IC&I units served with BB Funding	\$28	\$22	Total Cost per Household & IC&I units served with BB Funding	\$34	\$34

*Assumes alternating bi-weekly garbage and recycling from October to June and weekly garbage collection and bi-weekly recycling during the summer months (July to September) using non-union crew

Table 5.4: Least Cost Curbside Collection and Processing Scenarios for Schreiber & Terrace Bay

	Schreiber	Terrace Bay		Schreiber	Terrace Bay
Scenario 1	Annual Costs		Scenario 2	Annual Costs	
Alternating Garbage and Recycling Collection Days*	\$6,681	\$7,900	Hire Non-Union Crew /contract to Collect	\$16,524	\$21,400
Recoil transports & processes (assume every three weeks)	\$34,200	\$34,200	Recoil transports & processes (assume every three weeks)	\$34,200	\$34,200
<i>Total Annual Operating Costs</i>	<i>\$40,881</i>	<i>\$42,100</i>	<i>Total Annual Operating Costs</i>	<i>\$50,724</i>	<i>\$55,600</i>
Per household and IC&I unit cost	\$66	\$56	Per household and IC&I unit cost	\$82	\$74
Blue Box Program Revenue (40% of residential component)	\$15,236	\$15,431	Blue Box Program Revenue (40% of residential component)	\$18,904	\$20,379
<i>Total Annual Costs after Funding</i>	<i>\$25,645</i>	<i>\$26,669</i>	<i>Total Annual Costs after Funding</i>	<i>\$31,820</i>	<i>\$35,221</i>
Total Cost per Household & IC&I units served with BB Funding	\$42	\$35	Total Cost per Household & IC&I units served with BB Funding	\$52	\$47

*Assumes alternating bi-weekly garbage and recycling from October to June and weekly garbage collection and bi-weekly recycling during the summer months (July to September) using non-union crew

Additional requirements identified by Marathon is the need for a ramp to ensure that the cube van is level with the trailer for easier manual transfer (hand tossing) of the bags from the cube van to the trailer. The cost for the ramp constructed at the Marathon landfill was \$5,000.

5.2 Depot Collection Summary

The depot collection costs are summarized in Tables 5.5 and 5.6. The costs incorporate potential WDO Blue Box funding.

Table 5.5: Annual Unattended Depot Costs

Unattended Depot	Red Rock & Nipigon		Schreiber & Terrace Bay	
	bi-weekly transport & processing	monthly transport & processing	bi-weekly transport & processing	monthly transport & processing
Depot Amortization	\$4,076	\$4,076	\$4,076	\$4,076
Transportation and Processing	\$18,200	\$8,400	\$20,800	\$9,600
<i>Estimated Total Annual Cost</i>	<i>\$22,276</i>	<i>\$12,476</i>	<i>\$24,876</i>	<i>\$13,676</i>
Per household and IC&I unit cost	\$45	\$17	\$40	\$18
Blue Box Program Revenue (40% of residential component)	\$8,713	\$4,566	\$9,271	\$5,013

Unattended Depot	Red Rock & Nipigon		Schreiber & Terrace Bay	
	bi-weekly transport & processing	monthly transport & processing	bi-weekly transport & processing	monthly transport & processing
assume				
Total Annual Costs after Funding	\$13,563	\$7,910	\$15,605	\$8,663
Total Cost per Household & IC&I units served with BB Funding	\$27	\$11	\$25	\$12

Table 5.5: Annual Attended Depot Costs

Attended Depot	Red Rock & Nipigon		Schreiber & Terrace Bay	
	bi-weekly transport & processing	monthly transport & processing	bi-weekly transport & processing	monthly transport & processing
assume				
Depot Attendant (staff)	\$12,376	\$12,376	\$12,376	\$12,376
Depot Amortization	\$4,076	\$4,076	\$4,076	\$4,076
Transportation and Processing	\$18,200	\$8,400	\$20,800	\$9,600
Estimated Total Annual Cost	\$34,652	\$24,852	\$37,252	\$26,052
Per household and IC&I unit cost	\$70	\$35	\$61	\$35
Blue Box Program Revenue (40% of residential component)	\$13,554	\$9,095	\$13,883	\$9,549
Total Annual Costs after Funding	\$21,098	\$15,757	\$23,369	\$16,503
Total Cost per Household & IC&I units served with BB Funding	\$42	\$22	\$38	\$22

The study by Quinte Waste Solutions examined the features of successful depot recycling program implemented in Ontario communities. The study concluded that successful depots have the following attributes: ⁴

- have an attendant at the depot to ensure that the material is separated properly;
- they are situated in high traffic areas;
- they are convenient to use and allow for easy flow of traffic;
- attractive and well maintained;
- they have good signage with clear instructions to users; and
- they are supported by waste diversion policies and regulation.

Other communities have implemented other support mechanisms including:

⁴ Quinte Waste Solutions. April 2006. Evaluation of Best Practices of Rural Recycling Depot Programs. Stage 1 and Stage 2 on Stewardship Ontario website at <http://www.stewardshipontario.ca/bluebox/eefund/projects.htm#45>

- Township of Augusta - provides free blue boxes or totes to residents to act as a reminder to participate in recycling and boost recovery rates;
- Muskoka District – has installed surveillance cameras at depots to act as a further deterrent to improper use;
- Township of Algonquin Highlands - offers extended hours of operation during the summer months;
- Township of Minden Hills – the landfill attendant inspects residents' garbage bags to determine if recyclables are in the bags. Bags containing recyclables must be sorted on site and recyclables diverted to the recycling depot.

5.3 Additional Supporting Policies and Regulations

In order to promote higher participation in recycling, communities will implement waste diversion policies and regulations. These policies and regulations provide an incentive to the resident or IC&I establishment to participate more actively in recycling and other waste diversion activities in order to reduce their operating costs and to reduce their environmental footprint. Many of the policies are low cost measures that can be effectively implemented in a small community. The communities of Red Rock, Nipigon, Schreiber and Terrace Bay could investigate implementing the following waste diversion policies in conjunction with implementing a recycling program in their communities.

Pay-as-you-Throw (User Pay)

Pay-As-You-Throw (PAYT), also referred as user pay, has become a popular method for financing residential waste management services and making householders more directly responsible for their waste generation and disposal habits. Pay-as-you-Throw is a program supported by a bylaw requiring residents pay directly for the amount of garbage they set out for collection, which may employ a tag or bag system or a variable cart system (e.g. different fee levels for different sized containers). Before implementation, supporting diversion programs must be in place.

PAYT may be introduced under one of two scenarios: a full PAYT program or a partial PAYT program. Under a full PAYT program, all garbage that is placed at the curb for collection must be paid for in advance (i.e. by purchasing a tag and placing it on each bag of garbage). Under a partial PAYT system, a designated number of bags/cans are permitted to be placed at the curb without requiring advance payment. If the householder exceeds the designated number of bags permitted at the curb then any additional bags/cans must be paid for in advance (i.e. by purchasing a tag and placing it on each additional bag of garbage). Many small communities in Ontario have implemented full and partial PAYT programs including:

- Town of Marathon – full PAYT;
- Town of Dryden – full PAYT;
- Brockton Township – full PAYT;
- Town of Hanover – full PAYT;
- Township of Amaranth – Partial 2 bag PAYT;
- Town of Fort Frances – Partial 1 bag PAYT.

PAYT is considered one of the most effective policies for maximizing diversion of single family waste, as it communicates a clear message to householders that encourages recycling and other diversion activities which minimize the amount of residential waste discarded.

Mandatory Recycling By-Laws

Many communities have mandatory recycling by-laws and support the by-laws with fines for non compliance. This approach targets the 5% to 10% of the population that does not participate in a recycling program or participates in a haphazard manner. The key to mandatory recycling is the

communication of the by-law requirement to all residents and enforcement of the by-law.⁵ Residents need to be given plenty of warning that they are in contravention of the by-law by providing them with notices that they are not participating, followed by a letter from a Town official and finally a fine. A number of communities have taken the following approach:

- **Township of Minden Hills** - The Council of the Township of Minden Hills passed a mandatory recycling by-law in August 2007, which was deemed necessary to ensure the longevity of the present landfill sites and to encourage all users to separate recycled material prior to arriving at any of the Municipal sites;
- **Township of Algonquin Highlands** – The Township implemented a mandatory recycling by-law in 2004 which prohibits residents from depositing Blue Box materials in the Township’s waste disposal sites.

Clear Bags

A clear bag program requires residents to set out all garbage for collection in clear garbage bags. The concept of requiring clear bags for garbage is that collectors can leave bags behind if they contain visible recyclable material, which has been effectively banned from the garbage through mandatory recycling by-laws.

Nova Scotia’s first Clear Bag Program was launched in Richmond County in 2003. Residential garbage was no longer collected in solid black or green bags. All garbage had to be placed in clear, transparent bags when set out at the curb. For privacy issues, most communities allow residents to use one solid bag (e.g. grocery bag) for personal waste. The clear bag program is attributed to increasing waste diversion between 20 to 40% on average in the participating municipalities in Nova Scotia. Over 22 municipalities in Nova Scotia have adopted a clear bag system⁶.

There are other communities sprinkled throughout Ontario that have implemented the clear bag program including

- City of Guelph, Ontario;
- Rideau Lakes Township in Ontario;
- Township of Madoc;
- Township of Amaranth.

The City of Hamilton has implemented a new program in which City collection crew will collect one solid garbage bag or container of garbage and one clear garbage bag (provided that the clear bag does not contain acceptable blue box and/or green cart material) per household per week. Collection crews will take note of addresses with more than one garbage container at the curb. Any additional garbage container(s) above one (in an opaque bag or in a clear bag containing acceptable blue box and/or green cart material(s)) will be tagged with *Oops!* stickers and left behind.

Disposal Bans at Landfill

Disposal bans ensure that materials that can be easily and effectively recycled do not end up in the landfill. A disposal ban by-law prohibit users from discarding the specified materials in the garbage and can be reinforced at the curb by leaving garbage bags behind that contain banned materials. Examples of communities with disposal bans include:

- Bluewater Recycling Association – has a ban on recyclables being disposed at the landfill;
- Hanover and Walkerton - have introduced a by-law banning electronic waste at the landfill.

⁵ Enforcement relies on the collection crew noticing recyclables in the garbage and leaving the bag(s) at the curb with a tag attached that notifies the resident about the mandatory recycling by-law and the reason for rejecting the bag(s) of garbage.

⁶ The clear bag initiative was recently rejected by Halifax recently, stating that although the Province thought clear bags were a good policy to increase diversion, they invade people’s privacy.

Promotion and Education

Effective Promotion and Education (P&E) is the backbone of any strong recycling program. Developing strong, consistent messages that ring true to the audience is the key to a successful P&E strategy. Many efforts have been made to better understand the characteristics of successful P&E strategies; for example, in the winter of 2007, the Association of Municipal Recycling Coordinators (AMRC)⁷ conducted a series of focus groups across the province to field test P&E best practices. During the focus groups, participants were asked to identify positive P&E messages to promote waste diversion. A number of positive incentive examples were offered such as:

- Tell people what the benefits are,
- Show the community the good they are doing,
- Offer tax rebates or credits, or hold a lottery for best Blue Box street.,
- Show the community's progress in public using signage (as in the ISO program),
- Show people (especially children) what is being made from recycled material,
- Post information on billboards.

Recommended Approach

Although a curbside recycling program is more expensive than a simple depot recycling program, it achieves more social and environmental benefits. It provides convenience to the householder and business which increases diversion rates and reduces garbage requiring disposal. Prior to the curbside recycling program, the Town of Marathon operated a depot recycling program. Under the depot program, the Town reported recycling diversion rates of 5-7%; now with curbside collection, it reports diversion rates of 28% in 2007.

Furthermore, WDO Blue Box funding supports higher diversion rates by providing more funding. For this reason, it is recommended that the communities adopt alternating curbside bi-weekly garbage and recycling collection schedules, with additional garbage collection provided in the summer, if required. The communities of Red Rock and Nipigon and the communities of Schreiber and Terrace Bay should share the costs and use of a cube van and use existing collection crew to collect the recyclable materials. See Section 4.2.4 for further discussion of the collection approach. The recyclable materials should be stored at the Nipigon landfill (for Red Rock and Nipigon) and the Terrace Bay landfill (for Terrace Bay and Schreiber) by renting 18 wheel trailers from Recool and using Recool to transport and process the materials. See Section 4.4.1 for further discussion. The estimated annual costs are estimated to be:

	Red Rock	Nipigon	Schreiber	Terrace Bay
Alternating Garbage and Recycling Collection Days*	\$1,695	\$4,327	\$6,681	\$7,900
Recool transports & processes	\$21,000	\$21,000	\$34,200	\$34,200
<i>Total Annual Operating Costs</i>	<i>\$22,695</i>	<i>\$25,327</i>	<i>\$40,881</i>	<i>\$42,100</i>
Per household and IC&I unit cost	\$46	\$35	\$66	\$56
Blue Box Program Revenue (40% of residential component)	\$8,877	\$9,269	\$15,236	\$15,431

⁷ Part of a Promotion and Education best practices report prepared for Stewardship Ontario

	Red Rock	Nipigon	Schreiber	Terrace Bay
<i>Total Annual Costs after Funding</i>	<i>\$13,818</i>	<i>\$16,058</i>	<i>\$25,645</i>	<i>\$26,669</i>
Total Cost per Household & IC&I units served with BB Funding	\$28	\$22	\$42	\$35

*Assumes alternating bi-weekly garbage and recycling from October to June and weekly garbage collection and bi-weekly recycling during the summer months (July to September) using non-union crew

Additional requirements identified by Marathon is the need for a ramp to ensure that the cube van is level with the trailer for easier manual transfer (hand tossing) of the bags from the cube van to the trailer. The cost for the ramp constructed at the Marathon landfill was \$5,000.

A depot system can be considered if there is a high degree of monitoring associated with it. The consequences of having high contamination of the two material streams could lead to frustration of the users and cancellation of the program. The cost associated with operating an attended depot system is similar to the cost associated with implementation of an alternating curbside collection program.

In addition, the communities should approach WDO's Continuous Improvement Fund (CIF) for financial support in setting up the recycling program, such as up front capital expenditures.

The CIF is a \$20 million fund that provides grants and loans to municipalities to execute projects that will increase the efficiency of municipal Blue Box recycling and help boost system effectiveness. The CIF started up in January 2008 and has a three year mandate to direct funding support to projects that will:

- identify and implement best practices,
- examine and test emerging technologies,
- employ innovative solutions to increase blue box materials marketed and
- promote gains in cost-effectiveness that can be implemented province-wide.

Municipalities are awarded CIF support in two ways. They may be approached by CIF to take on high priority and often higher risk projects that have been identified as being required by CIF staff, recycling industry experts and CIF committees. Municipalities are also encouraged to apply to CIF, identifying either community-specific project concepts or those that may be of broader interest.

APPENDICES

APPENDIX A

Township of Terrace Bay Recycling Survey Results

125 Household Surveys Completed By Terrace Bay Residents – Out of approximately 830 households, this is a statistically valid and representative sample of the total population.

- 2a. Live in a Home of Apartment:** 96% Home and 4% Apartment
- 2b. How Many in Household:** 1 = 15%, 2 = 45%, 3 = 14%, 4 = 12%, More than 4 = 15%
- 3. How Many Bags Equivalent:** 1 = 33%, 2 = 40%, 3 = 7%, 4 = 15%, More than 4 = 7%
* Note: this question has some predictive and content validity issues
- 4. Rate the Overall Need for Normal Recycling (defined as pop cans, etc)? Please rate from 1 to 7, with 1 being not important and 7 being very important:** 4 = 3%, 5 = 4%, 6 = 10%, 7 = 75%
- 5. Do You Bring Your Recycling to Thunder Bay:** Yes = 30%, No = 70%
- 6a. Would You Use A Depot Service If It Were Free of Charge?** Yes = 99%, No = 1%
* Note: this question has some predictive and content validity issues
- 6b. How Often Would You Use Depot?** Weekly = 51%, Monthly = 40%, Bimonthly = 6%, Not Often = 3%
- 7. Would You Use Curbside with Estimated Cost of \$1/week?** Yes = 88%, No = 12%
- 8. Agree with Statement Use More, Pay More? Please rate from 1 to 7, with 1 being you do not agree and 7 being you strongly agree -** 1= 17%, 2 = 9%, 3 = 12%, 4 = 18%, 5 = 17%, 6 = 0%, and 7 = 28%
- 9. What other recycling services do you see value in (note: there will be some costs)? Please rate from 1 to 7, with 1 being not important and 7 being very important**

	1	2	3	4	5	6	7
9a. E-Waste (ex. tvs and computers)	3%	3%	6%	13%	9%	14%	51%
9b. Used Batteries	1%	3%	3%	8%	10%	16%	59%
9c. Fluorescent Lights	3%	2%	3%	10%	11%	13%	58%
9d. Household Hazardous (ex. paint)	1%	3%	3%	7%	8%	14%	65%
9e. Backyard Composting	3%	4%	3%	16%	10%	9%	53%
9f. Product Subsidies (ex. composters)	8%	3%	3%	8%	13%	12%	55%

Various Survey Comments:

- Set up an area to recycle at the landfill
- Compost pile at the landfill would be great
- Significant concern over bears was actually written beside points 9e and 9f

Overall Survey Observations:

- Not representative in any way of the apartment demographic or businesses
- High percentage use of Thunder Bay for recycling does demonstrate some level of commitment
- Depot service had a very high rating, but it could be as a result of the 'free' point – cost \$15,000?
- How often someone would use the Depot also had a very high rating
- Curbside with associated cost had a very high rating and should be viewed as optimum
- Statement regarding the user pay system was negative, but could be taken due to the economy
- Reasonable support for all other forms of recycling services which could be a low-cost alternative



HOUSEHOLD RECYCLING SURVEY

This survey has been developed by the Township of Terrace Bay Municipal Staff to measure the feedback of regional households in regards to developing a robust and effective waste diversion program. Information provided is confidential and will only be released in mass format when describing overall opinions of households.

Please answer the following questions:

1. Township of Residence (Circle One)? Terrace Bay Schreiber Other _____
2. Do you live in a home or apartment? _____ How many people live in your dwelling? _____
3. How many garbage bags equivalent (1 garbage can represents 2 garbage bags) do you throw out weekly on an average garbage day? _____
4. How would you rate the overall level of need for normal recycling services (defined as pop cans, paper, cardboard, tins cans, milk cartons, and plastics)? Please rate from 1 to 7, with 1 being not important and 7 being very important 1 2 3 4 5 6 7
5. Do you currently take your recycling to Thunder Bay (circle one)? Yes No
6. Depot recycling is a type of service being considered whereby a supervised depot would be operated somewhere in the municipality (ex. the landfill) and residents could bring their recyclables there during landfill hours.
 - a. Would you use such a service if it were free of charge (circle one)? Yes No
 - b. How often would you use this service (circle one)? Weekly Monthly Bimonthly Not often
7. Curbside recycling is a type of service being considered whereby a vehicle would pick up recycled materials on a bi-weekly or monthly basis. The associated cost of this would be approximately \$1 per week per household which is an estimate based on other municipalities' experiences. It may be more or less and the Township will use this information only in regards to the \$1/week value
 - a. Would you use such a service for the estimated fee of \$1/week (circle one)? Yes No
8. To what extent do you agree with the statement "the more garbage people produce the more they should pay for the garbage" (e.g. a user pay bag/tag system)? Please rate from 1 to 7, with 1 being you do not agree and 7 being you strongly agree 1 2 3 4 5 6 7
9. What other recycling services do you see value in (note: there will be some costs)? Please rate from 1 to 7, with 1 being not important and 7 being very important
 - a. E-waste recycling (ex. tvs, and computers) 1 2 3 4 5 6 7
 - b. Used battery recycling 1 2 3 4 5 6 7
 - c. Fluorescent light recycling 1 2 3 4 5 6 7
 - d. Household hazardous waste (ex. paint) 1 2 3 4 5 6 7
 - e. Backyard composting classes 1 2 3 4 5 6 7
 - f. Product subsidies (ex. composters) 1 2 3 4 5 6 7

* If you have any comments, please add them to the back of this page, thank you for your time *
When finished, please fold the survey and place in the cardboard box on the table.

If you have any other questions or concerns, please contact Sean Irwin, the Special Projects Co-ordinator at 825-3315, 231 or s.irwin@terracebay.ca

APPENDIX B

Marathon Recycling Estimates

Material Category	Materials Accepted	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables
		Total SF + MF A + B tonnes	Estimated Capture Rates based on Marathon's curbside program Marathon	applying capture rates tonnes	Total SF + MF A + B tonnes	Estimated Capture Rates based on Marathon's curbside program West Nippising	applying capture rates tonnes	Total SF + MF A + B tonnes	Estimated Capture Rates based on Marathon's curbside program Sault Ste. Marie	applying capture rates tonnes
1. PAPER										
Newspaper – Dailys and Weeklys	x	20.85	76%	15.85	20.85	53%	10.96	20.85	94%	19.58
Newspaper - Other	x	44.34	76%	33.70	44.34	46%	20.19	44.34	95%	42.27
Telephone Books / Directories	x	2.39	76%	1.82	2.39	70%	1.68	2.39	87%	2.09
Magazines & Catalogues	x	29.90	76%	22.72	29.90	42%	12.63	29.90	93%	27.68
Mixed Fine Paper	x	32.20	76%	24.47	32.20	27%	8.81	32.20	57%	18.42
Books	x	3.39	76%	2.57	3.39	27%	0.92	3.39	82%	2.79
Other Paper	x	2.34	76%	1.78	2.34	27%	0.63	2.34	40%	0.94
Total Paper		135.42		102.92	135.42		55.81	135.42		113.77
2. PAPER PACKAGING										
Corrugated	x	71.98	76%	54.71	71.98	70%	50.17	71.98	90%	64.44
Kraft Paper			76%	0.00		16%	0.00		36%	0.00
Boxboard / Cores	x	52.73	76%	40.07	52.73	32%	16.72	52.73	74%	39.24
Molded Pulp	x	5.18	76%	3.94	5.18	21%	1.10	5.18	73%	3.80
Paper Cups and Paper Ice-Cream Containers										
Laminated Paper Packaging										
Composite Cans										
Gable Top Cartons	x	4.78	76%	3.63	4.78	21%	1.00	4.78	73%	3.50
Aseptic Containers Total	x	1.35	76%	1.02	1.35	2%	0.03	1.35	17%	0.23
Tissue/Toweling										
Total Paper Packaging		136.02		103.37	136.02		69.02	136.02		111.23
3. PLASTICS										
PET Beverage Bottles Total	x	15.19	35%	5.32	15.19	24%	3.64	15.19	83%	12.62
PET Other Bottles & Jars	x	4.07	35%	1.42	4.07	10%	0.41	4.07	59%	2.39
PET Other Packaging										
HDPE Beverage Bottles	x	1.37	35%	0.48	1.37	16%	0.23	1.37	86%	1.17
HDPE Other Bottles & Jugs	x	9.57	35%	3.35	9.57	23%	2.16	9.57	61%	5.84
PVC Bottles & Jars										
Other Plastic Containers Total										
Polystyrene Packaging										
Wide Mouth Tubs & Lids										
Large HDPE & PP Pails & Lids										
Polyethylene Plastic Bags & Film - Packaging										
Polyethylene Plastic Bags & Film - Non-Packaging										
Laminated/Other Plastic Film and Bags Total										
Other Rigid Plastic Packaging										
Durable Plastic Products										
Total Plastics		30.19		10.57	30.19		6.44	30.19		22.03
4. METALS										
Aluminum Food & Beverage Cans Total	x	11.23	35%	3.93	11.23	18%	2.00	11.23	83%	9.32
Aluminum Foil & Foil Trays										
Other Aluminum Containers										
Steel Food & Beverage Cans Total	x	26.03	35%	9.11	26.03	18%	4.57	26.03	85%	22.10
Steel Aerosol Cans										
Steel Paint Cans										
Other Metal										
Total Metals		37.26		13.04	37.26		6.57	37.26		31.42
Grand Total		338.89	68%	229.90	338.89	41%	137.84	338.89	82%	278.45
		45 IC&I units								
		with IC&I (@ 1.13/unit)		50.85			50.85			50.85
				total		total	188.69		total	329.30



Nipigon Recycling Estimates

Material Category	Materials Accepted	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables
		Total SF + MF A + B tonnes	Estimated Capture Rates based on Marathon's curbside program Marathon	applying capture rates tonnes	Total SF + MF A + B tonnes	Estimated Capture Rates based on Marathon's curbside program West Nippising	applying capture rates tonnes	Total SF + MF A + B tonnes	Estimated Capture Rates based on Marathon's curbside program Sault Ste. Marie	applying capture rates tonnes
1. PAPER										
Newspaper – Dailys and Weeklys	x	8.45	76%	6.42	8.45	53%	4.44	8.45	94%	7.93
Newspaper - Other	x	17.97	76%	13.65	17.97	46%	8.18	17.97	95%	17.13
Telephone Books / Directories	x	0.97	76%	0.74	0.97	70%	0.68	0.97	87%	0.85
Magazines & Catalogues	x	12.11	76%	9.21	12.11	42%	5.12	12.11	93%	11.22
Mixed Fine Paper	x	13.05	76%	9.92	13.05	27%	3.57	13.05	57%	7.46
Books	x	1.37	76%	1.04	1.37	27%	0.37	1.37	82%	1.13
Other Paper	x	0.95	76%	0.72	0.95	27%	0.26	0.95	40%	0.38
Total Paper		54.87		41.70	54.87		22.61	54.87		46.09
2. PAPER PACKAGING										
Corrugated	x	29.16	76%	22.16	29.16	70%	20.33	29.16	90%	26.11
Kraft Paper			76%	0.00	0.00	16%	0.00	0.00	36%	0.00
Boxboard / Cores	x	21.36	76%	16.24	21.36	32%	6.77	21.36	74%	15.90
Molded Pulp	x	2.10	76%	1.59	2.10	21%	0.45	2.10	73%	1.54
Paper Cups and Paper Ice-Cream Containers										
Laminated Paper Packaging										
Composite Cans										
Gable Top Cartons	x	1.94	76%	1.47	1.94	21%	0.41	1.94	73%	1.42
Aseptic Containers Total	x	0.55	76%	0.41	0.55	2%	0.01	0.55	17%	0.10
Tissue/Toweling										
Total Paper Packaging		55.11		41.88	55.11		27.96	55.11		45.07
3. PLASTICS										
PET Beverage Bottles Total	x	6.15	35%	2.15	6.15	24%	1.47	6.15	83%	5.11
PET Other Bottles & Jars	x	1.65	35%	0.58	1.65	10%	0.17	1.65	59%	0.97
PET Other Packaging										
HDPE Beverage Bottles	x	0.55	35%	0.19	0.55	16%	0.09	0.55	86%	0.48
HDPE Other Bottles & Jugs	x	3.88	35%	1.36	3.88	23%	0.87	3.88	61%	2.37
PVC Bottles & Jars										
Other Plastic Containers Total										
Polystyrene Packaging										
Wide Mouth Tubs & Lids										
Large HDPE & PP Pails & Lids										
Polyethylene Plastic Bags & Film - Packaging										
Polyethylene Plastic Bags & Film - Non-Packaging										
Laminated/Other Plastic Film and Bags Total										
Other Rigid Plastic Packaging										
Durable Plastic Products										
Total Plastics		12.23		4.28	12.23		2.61	12.23		8.92
4. METALS										
Aluminum Food & Beverage Cans Total	x	4.55	35%	1.59	4.55	18%	0.81	4.55	83%	3.77
Aluminum Foil & Foil Trays										
Other Aluminum Containers										
Steel Food & Beverage Cans Total	x	10.55	35%	3.69	10.55	18%	1.85	10.55	85%	8.95
Steel Aerosol Cans										
Steel Paint Cans										
Other Metal										
Total Metals		15.10		5.28	15.10		2.66	15.10		12.73
Grand Total		137.30	68%	93.14	137.30	41%	55.84	137.30	82%	112.81
		61 IC&I units								
		with IC&I (@ 1.13/unit)		68.93			68.93			68.93
		total		162.07		total	124.77		total	181.74

Terrace Bay Recycling Estimates

Material Category	Materials Accepted	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables	Estimated Recyclables
		Total SF + MF A + B tonnes	Estimated Capture Rates based on Marathon's curbside program Marathon	applying capture rates tonnes	Total SF + MF A + B tonnes	Estimated Capture Rates based on Marathon's curbside program West Nippising	applying capture rates tonnes	Total SF + MF A + B tonnes	Estimated Capture Rates based on Marathon's curbside program Sault Ste. Marie	applying capture rates tonnes
1. PAPER										
Newspaper – Dailys and Weeklys	x	10.30	76%	7.83	10.30	53%	5.41	10.30	94%	9.68
Newspaper - Other	x	21.91	76%	16.65	21.91	46%	9.97	21.91	95%	20.89
Telephone Books / Directories	x	1.18	76%	0.90	1.18	70%	0.83	1.18	87%	1.03
Magazines & Catalogues	x	14.77	76%	11.23	14.77	42%	6.24	14.77	93%	13.68
Mixed Fine Paper	x	15.91	76%	12.09	15.91	27%	4.35	15.91	57%	9.10
Books	x	1.67	76%	1.27	1.67	27%	0.45	1.67	82%	1.38
Other Paper	x	1.16	76%	0.88	1.16	27%	0.31	1.16	40%	0.47
Total Paper		66.91		50.85	66.91		27.58	66.91		56.21
2. PAPER PACKAGING										
Corrugated	x	35.57	76%	27.03	35.57	70%	24.79	35.57	90%	31.84
Kraft Paper			76%	0.00	0.00	16%	0.00	0.00	36%	0.00
Boxboard / Cores	x	26.05	76%	19.80	26.05	32%	8.26	26.05	74%	19.39
Molded Pulp	x	2.56	76%	1.94	2.56	21%	0.54	2.56	73%	1.88
Paper Cups and Paper Ice-Cream Containers										
Laminated Paper Packaging										
Composite Cans										
Gable Top Cartons	x	2.36	76%	1.79	2.36	21%	0.50	2.36	73%	1.73
Aseptic Containers Total	x	0.67	76%	0.51	0.67	2%	0.02	0.67	17%	0.12
Tissue/Toweling										
Total Paper Packaging		67.21		51.08	67.21		34.10	67.21		54.96
3. PLASTICS										
PET Beverage Bottles Total	x	7.51	35%	2.63	7.51	24%	1.80	7.51	83%	6.24
PET Other Bottles & Jars	x	2.01	35%	0.70	2.01	10%	0.20	2.01	59%	1.18
PET Other Packaging										
HDPE Beverage Bottles	x	0.68	35%	0.24	0.68	16%	0.11	0.68	86%	0.58
HDPE Other Bottles & Jugs	x	4.73	35%	1.65	4.73	23%	1.07	4.73	61%	2.89
PVC Bottles & Jars										
Other Plastic Containers Total										
Polystyrene Packaging										
Wide Mouth Tubs & Lids										
Large HDPE & PP Pails & Lids										
Polyethylene Plastic Bags & Film - Packaging										
Polyethylene Plastic Bags & Film - Non-Packaging										
Laminated/Other Plastic Film and Bags Total										
Other Rigid Plastic Packaging										
Durable Plastic Products										
Total Plastics		14.92		5.22	14.92		3.18	14.92		10.88
4. METALS										
Aluminum Food & Beverage Cans Total	x	5.55	35%	1.94	5.55	18%	0.99	5.55	83%	4.60
Aluminum Foil & Foil Trays										
Other Aluminum Containers										
Steel Food & Beverage Cans Total	x	12.86	35%	4.50	12.86	18%	2.26	12.86	85%	10.92
Steel Aerosol Cans										
Steel Paint Cans										
Other Metal										
Total Metals		18.41		6.44	18.41		3.25	18.41		15.52
Grand Total		167.45	68%	113.59	167.45	41%	68.11	167.45	82%	137.58
		63 IC&I units								
		with IC&I (@ 1.13/unit)		71.19			71.19			71.19
		total		184.78		total	139.30		total	208.77



APPENDIX C

Recycling System Opportunities

	Examples	How system Could Work	Considerations
1. Curbside Collection of Recyclables			
Turn Key operation	Marathon	<ul style="list-style-type: none"> - Hire one company to collect, transport and process the recyclable materials 	<ul style="list-style-type: none"> - Potentially more expensive but easier to administer
Bi-weekly 2 stream collection with bags with weekly garbage	Marathon	<ul style="list-style-type: none"> - curbside recycling provided bi-weekly - 2 stream collection of fibres and containers - co-collected in vehicle and separated at transfer station - garbage continues to be provided weekly 	<ul style="list-style-type: none"> - need to determine cost to provide bi-weekly curbside recycling
Bi-weekly alternating with bi-weekly garbage collection all year	Township of Laurentian Valley, Ottawa Valley provides bi-weekly garbage, green bin and recycling collection all year	<ul style="list-style-type: none"> - curbside recycling provided bi-weekly, alternating with bi-weekly garbage collection (maybe weekly during the summer) - 2 stream collection of fibres and containers - co-collected in vehicle and separated at transfer station 	<ul style="list-style-type: none"> - Will need to re-open garbage collection contract or wait until contract is up for renewal - May want to work with existing garbage collection crew to alternate garbage collection with recycling collection - Need to determine if collection truck can be used for both purposes
Bi-weekly alternating with bi-weekly garbage collection in the winter and weekly garbage collection in the summer	Dryden provides bi-weekly garbage and recycling collection in the winter and weekly garbage collection in the summer	<ul style="list-style-type: none"> - curbside recycling provided bi-weekly, alternating with bi-weekly garbage collection in the winter and weekly garbage collection during the summer (May to September) - 2 stream collection of fibres and containers - co-collected in vehicle and separated at transfer station 	<ul style="list-style-type: none"> - Will need to re-open garbage collection contract or wait until contract is up for renewal - May want to work with existing garbage collection crew to alternate garbage collection with recycling collection - Need to figure out extra garbage vehicles and crew requirements for summer - Need to determine if collection truck can be used for both purposes
Contracted by each Township	Marathon	<ul style="list-style-type: none"> - each community must hire a private company or use town staff to provide service 	<ul style="list-style-type: none"> - may be more costly but could be cost effective if alternate garbage collection with recycling
Partnership among Townships	??	<ul style="list-style-type: none"> - all communities share the cost of one collection vehicle and collection crew – providing weekly collection of recyclables 	<ul style="list-style-type: none"> - share one collection vehicle (e.g. cube van used by Recool) which provides weekly collection per community – maybe stationed mid way point (e.g. Terrace Bay or Schreiber)
Support Mechanisms			
User pay for garbage	Marathon Dryden	<ul style="list-style-type: none"> - most effective policy to encourage recycling 	
Bag limits	Northumberland	<ul style="list-style-type: none"> - limit the number of garbage bags that can be set out on a weekly basis (e.g. 2 bags/wk) 	
Mandatory Recycling By-law	Township of Minden Hills Marathon considering	<ul style="list-style-type: none"> - can increase recycling by 5 to 10% 	
Clear bags for	Hamilton	<ul style="list-style-type: none"> - can substantially increase recycling 	

	Examples	How system Could Work	Considerations
garbage	Township of Madoc Township of Amaranth	- can require all bags are clear or some	
Disposal bans at landfill	Bluewater Recycling Association	- ban recyclables from disposal at the landfill	
2. Depots			
Turn Key operation		- Hire one company to provide depots, transport and process the recyclable materials	- Potentially more expensive but easier to administer
Depot at landfill	Muskoka	- use attendants at landfill to monitor depot	- very cost effective but poorest recovery rates due to inconvenience of depot
Depot(s) in Town centre (satellite locations)	Augusta	- study in Augusta identified that 75% of residents travel no more than 10km	- cost effective with higher recovery rates due to added convenience - expect poorer recovery rates than curbside
Attended		- landfill attendant - hired staff - community groups	- need to coordinate times of attendants - expect higher diversion rates and lower contamination rates
Not Attended	Walkerton	- depot is provided to community and left unattended	- expect lower diversion rates and higher contamination rates
Support Mechanisms			
rewards	Township of La Valle	- provide financial incentives to attendants to oversee program and sort materials	
Provide free blue boxes or totes to residents	Township of Augusta	- provide free blue boxes or tote bags to residents to boost recovery rates	
Surveillance cameras at depots	Muskoka District	- using cameras posted at the depots to act as a deterrent to improper sorting of recyclables	
3. Storage and transportation			
Store and transport at central location	Southgate	- all recyclables are stored and transported from a central location that is shared among the partnering communities	- effectiveness and efficiency of system depends on distance among the partnering municipalities
Store at different locations		- each community would store the recyclables at a location within their community	- transportation could be shared or left to each community - expected to be more expensive
Store using lean-to facility	Southgate	Recyclables brought to a lean-to facility at the landfill and stored in 40 cubic yd roll off containers and transported when full	
Construct Transtor units for compaction trailer	Marathon Dryden	System enables recyclables to be compacted into transportation trucks to increase efficiency – very costly City of Dryden = \$440,000 capital costs	
Store using Lean-to facility and load onto walking trailers	??		

APPENDIX D

May 25, 2009

File No. 3-60

REPORT TO: Mayor Dumas & Members of Council

SUBJECT: **Recycling Contract Renewal**

Background: On April 14, 2009 the municipality received its renewal rates from Re-cool Canada Inc. concerning our recycling program. Subsequently a review was conducted concerning the prices and service provided. Council had also instructed Administration to look at the cost associated with supporting Pic River First Nation (PRFN) in our recycling program.

Discussion: The following areas were reviewed:

1. Residential Curbside Pickup (Town of Marathon);
2. IC & I collection based on existing loads (Town of Marathon);
3. Supply and transportation of trailers from Marathon to Thunder Bay;
4. Supply and transportation of trailers from Marathon to Sault Ste. Marie;
5. Receiving and processing material in Thunder Bay;
6. Receiving and processing material in Sault Ste. Marie; and
7. The support for Pic River First Nation (PRFN).

Two separate sources (Re-cool and Jim Moffat Enterprises) were looked at for pickup services. Several sources (Re-cool, Manitoulin, John Cress, Lafarge, and Black Sturgeon) were explored for supply and transportation of trailers. A single source (Re-cool) for receiving and processing in Thunder Bay and a single source (Green Circle) for receiving and processing in Sault Ste. Marie was considered.

The process in Sault Ste. Marie would require significant changes to how we currently handle our recyclables. Instead of a blue bag program we would be required to convert over to the commonly used approach of the blue box program. This would require significant modifications to the collection vehicles as the cube van approach would not be efficient.

Financial Implications:

The extra cost of diverting our recycling to Sault Ste. Marie is \$15,165.00 (refer to Figure 1, Note 1). The extensive modification to our existing approach and the extra cost does not warrant change at this time.

Based on the information gathered, there is only a \$590.00 (refer to Figure 1, Note 2) savings in separating the pickup activity from the other aspects of the recycling program. The added administrative cost to implement such a change suggests keeping our current approach.

The budget pressure facing our recycling program in 2009 is \$650.00.

To support Pic River First Nation (PRFN) in our recycling program, the additional costs would be \$20,000.

- Options:**
- A) Renew the 3 year contract with Re-cool Canada Inc. for \$120,650 / year and advise PRFN that recycling costs for that community would be \$20,000.
 - B) Renew the 3 year contract with Re-cool Canada Inc. for \$140,650 / year which includes recycling pickup at PRFN.

Recommendations: Your Administration recommends Option A) be selected and that the Mayor and Council endorse the renewal of recycling services in Marathon with Re-cool Canada Inc. for 3 year term at \$120,650 / year.

Respectfully submitted,

Jim Zimmerman, P. Eng., C.E.T.
Works and Operations Manager

JZ:jc