

Temagami First Nation Waste Diversion Project Final Report

August 2018

Prepared for:



Prepared by:



Table of Contents

Table of Contents

1. Background	1
2. Project Objectives	1
3. Community and Waste Management Profile	1
4. Waste Generation and Composition.....	3
5. Public Consultation.....	6
5.1. 1st Open House September 20th, 2017	6
5.2. Community Waste Management Survey	7
5.3. 2nd Open House December 5th, 2017	9
5.4. 3 rd Open House August 9th, 2018.....	9
6. Implementation of Waste Diversion Programs	9
6.1. Blue Box Recycling.....	9
6.2. Collection Options Examined and Cost Estimates.....	9
6.3. Preparing for Blue Box Program Launch	10
6.4. Blue Box Program Launch	15
6.5. Household Hazardous/Special Waste	16
6.6. Paints	18
6.7. Electronic waste	18
6.8. Batteries.....	23
6.9. Pens and Markers.....	24
6.10. Scrap Metal.....	24
6.11. Tires	26
6.12. Construction and Renovation Waste	27
6.13. Organics	28
7. Status of the Waste Free Ontario Act	28
8. Summary of Activities.....	30

1. Background

Temagami First Nation is situated on Bear Island on Lake Temagami with 241 permanent residents living on the island. Band members have access to garbage collection services provided at a depot located on the island but have limited opportunity to participate in recycling and other waste diversion programs as there are none provided on the island.

Temagami First Nations initiated a study in spring 2017 to design and implement a realistic and cost efficient waste diversion system for the community which includes Blue Box recycling, household special waste collection, used tire collection, scrap metal collection, construction waste collection, organics collection and waste electronics collection. While some of these materials may not be feasible to divert, at the present time, there may be opportunities at a future date.

This report describes the activities undertaken to meet the objectives of the project.

2. Project Objectives

The following project objectives were outlined in the project proposal:

- Establish the current waste management system profile and discuss with Temagami FN Public Works staff the limitations and challenges with the current waste management operations;
- Work with staff to identify potential diversion opportunities and needs and meet with the community to better understand their needs and preferences;
- Conduct research to identify innovative waste and recycling collection and transfer programs being implemented by small northern communities that could be adopted by Temagami FN and to identify potential partnerships with nearby communities;
- Evaluate the waste diversion opportunities for blue box recycling, household special waste, waste electronics, used tires, construction waste, organics and scrap metal including supporting policies, infrastructure needs, costs, contract/MTA requirements and present the finding to staff with the intent to identify on a preferred approach;
- Assist staff implementing the waste diversion system, with emphasis on developing a promotion and education strategy (including outreach activities, webpage development) to educate members of the community about the enhanced waste diversion services and establish support for them;
- Help staff design, order and implement the promotion and education program;
- Help staff develop a monitoring system and ensure that all funding avenues (e.g. Blue Box funding) have been secured.

3. Community and Waste Management Profile

Temagami First Nation is situated on Bear Island on Lake Temagami with 241 permanent residents living on the island. During the summer the community experiences a population increase to 281 persons. There are approximately 95 households and 13 Band facilities including a daycare (with 13 children enrolled), public school (with 39 children enrolled at the school), Elder's building, Home and Community Care building, Health Centre, Administration building, library, Police Headquarters, etc.

Temagami First Nation Waste Diversion Final Report

Band members have access to garbage collection services provided at a depot located on the island. Garbage is compacted in 15 cubic yard containers and barged over to the mainland when full. Currently, band members have no opportunity to participate in recycling and other waste diversion programs with none provided on the island.

The community does not provide curbside collection of garbage, nor does it operate a landfill which has been closed for some time. Residents must bring their garbage to a central location in which a compactor is located. Residents must place the garbage in the compactors, which compacts the garbage in four 15 cubic yard containers. While the compactor and bins are maintained by public work staff, there are no attendants at the compactor site. Residents use the compactor free of charge.

Work's staff must winch the 15 cubic yard bin on to a trailer and haul the bin to a barge during the summer or ice road during the winter in order to transport the garbage to the Municipality of Temagami's Briggs Waste Disposal Site. A barge carries the garbage across the lake, twice per month at a cost of \$200 per trip. The barge can handle 50 tonnes of weight and vehicles up to 40 feet long.

With its landfill closed, Temagami FN uses the Municipality of Temagami's Briggs Waste Disposal Site located roughly eight km away (four km of which is water travel). According to a report prepared by AECOM for the Municipality of Temagami dated December 2014, the Briggs Waste Disposal site is estimated to have enough capacity to continue operating until 2027.

The landfill is open Monday & Wednesday 1:00 pm to 4:30 pm and Thursday 8:30 am to 12:00 pm. The Municipality of Temagami manages the Briggs Landfill site and has an attendant on duty during the hours it is open to the public. Temagami First Nation has an arrangement with the Municipality of Temagami in which it pays an annual fee to dispose its waste at the landfill. This year's fee was \$2,900 but is expected to increase over the next couple of years. While, there is no weigh scale at the landfill, staff estimated that Temagami FN disposes about 80 tonnes per year of compacted waste at the landfill.

Temagami First Nation has a 10 year agreement with the Municipality of Temagami allowing Temagami FN members to use the parking lot used exclusively at the end of the Lake Temagami Access Road and have an agreement to access to the Briggs Waste Disposal Site. Staff recognize that the current agreement with the dumping fees at the Briggs Waste Disposal Site needs some attention.

Table 1 presents how recyclable materials were being managed at the beginning of the project.

Table 1: Management of Recyclable Materials Before Start of Project

Material	Landfilled	Burned	Other
Blue box recyclables	√ (bottles/cans/containers)	√ (paper, cardboard)	
Waste electronics	√		
Tires			Nominal generated
Household Hazardous Waste	√		
Used Oil			Sam's Pump Service occasionally hired to remove oil and gas
Construction & demolition waste	√	√	

Table 2 presents how recyclable materials are being managed now.

Table 2: Management of Recyclable Materials at End of Project

Material	Landfilled	Recycled	Other
Blue box recyclables		√	
Waste electronics		√	
Tires			Nominal generated can be taken to authorized collector in North Bay or Cobalt
Scrap Metal and Appliances		√	
Batteries		√	
Household Hazardous Waste		North Bay Depot	
Pens and Markers		√	
Used Oil		Underway	Sam's Pump Service occasionally hired to remove oil and gas
Construction & demolition waste	√	√	

4. Waste Generation and Composition

Understanding the composition and quantity of waste and potential recyclable materials is a key component of any waste management and diversion study. Unfortunately, however, most compositions studies available in Ontario focus on southern communities and never on First Nation communities. Waste audits conducted in Ontario communities reveal that the average Ontario household generates about 900 kg/hhld/year with northern Ontario communities generating about 800 kg/hhld/year. These generation rates skew the reality in First Nation communities which imply much higher waste generation rates than is the actual situation as demonstrated by recent waste audits conducted in two Ontario FN communities revealing average waste generation rates of about 550 kg/hhld/year.

In 2013/2014, the Ontario First Nations Technical Services Corporation (OFNTSC) retained the AET Group Inc to conduct a seasonal curbside residential waste audit study for two First Nation communities, M'Chigeeng First Nation (located on the Island of Manitoulin) and Georgina Island First Nations (located in southern Ontario on Lake Simcoe). The scope of this study involved a physical audit of solid, non-hazardous waste generated during 2 week sample collection periods completed in each four seasons (Summer, Fall, Winter, Spring), from September 2013 through June 2014. The waste audit study included collecting and sorting both garbage and recycling from each of the communities and maintaining a log that identified the types and amounts of materials set out at the curbside.

The total waste generation rates and potential recycling rates for Temagami First Nation have been estimated by multiplying the total households in the community by the waste audit results from the four season waste audits conducted in the M'Chigeeng First Nation communities and presented Table 3. The summary table below shows that the community generates an estimated 57 tonnes of waste annually

based on a population of 95 households. This does not include waste generated from Band facilities which could add an estimated 10% (6 tonnes per year) for a total of 63 tonnes of garbage generated by the Temagami FN community.

Table 3: Estimated Waste Generation Rates for Temagami First Nations

		M'Chigeeng	Temagami FN	
		Total Waste Generated (kg/hh/yr)	Total Waste Generated (kilograms)	% Total (%)
Paper	Newspaper & Magazines	13.83	1,314	2.33%
	Mixed Recyclable Paper	43.46	4,129	7.31%
	Recyclable Paper (Fibre) Containers	5.01	476	0.84%
	OCC (Corrugated Cardboard)	14.65	1,392	2.47%
	Non-Recyclable Paper	7.44	707	1.25%
	Total Paper	84.39	8,017	14.20%
Plastics	PET and HDPE Bottles	16.94	1,609	2.85%
	Tubs and Lids	2.26	215	0.38%
	Other Recyclable Plastic	9.68	920	1.63%
	Recyclable Films	9.68	920	1.63%
	Other Non-Recyclable Plastic	30.6	2,907	5.15%
	Total Plastics	69.16	6,570	11.64%
Metal	Recyclable Aluminum and Steel Containers	20.85	1,981	3.51%
	Other Non-Recyclable Metal	2.05	195	0.34%
	Total Metals	22.9	2,176	3.85%
Glass	Recyclable Glass Bottles & Jars	19.54	1,856	3.29%
	Other Non-Recyclable Glass	2.58	245	0.43%
	Total Glass	22.12	2,101	3.72%
HHW	Household Hazardous Waste	1.28	122	0.22%
	Total HSW	1.28	122	0.22%
Organic	Food Waste	231.61	22,003	38.97%
	Leaf and Yard Waste	4.33	411	0.73%
	Total Organics	235.94	22,414	39.70%
Other Material	Construction & Renovation	0.45	43	0.08%
	Electronics & Electrical	3.77	358	0.63%
	Diapers and Sanitary Waste	58.32	5,540	9.81%
	Other Waste	73.76	7,007	12.41%
	Tissue/Towelling	22.21	2,110	3.74%
	Total Other Materials	158.51	15,058	26.67%
	Total All Material	594.29	56,458	100.00%

In order to generate diversion estimates for the blue box recycling program options, it was necessary to determine how much recyclable material could be diverted from the Temagami FN community. This was done by applying a set of capture rates to the designated recyclable materials. Capture rate is the % of recyclable materials diverted through the recycling program compared with the amount that is available for recycling. For example, if 100 kilograms of recyclables were generated in the waste stream and 50 kilograms were placed in the blue box for recycling, then there would be a 50% capture rate.

Table 4 shows the results of different capture rate assumptions (40%, 50%, 60% and 75%) that potentially could be collected from Temagami FN households along with an assumption about the amount of designated recyclables that could be collected from Temagami FN facilities. Based on the types of recyclable materials that are recycled by R&D Recycling (see Table 5) it was estimated that Temagami FN could generate between 6 tonnes to 12 tonnes of Blue Box materials annually, depending on the capture rate achieved.

Table 4: Potential Amount of Recyclables Diverted based on Different Capture Rates

Recyclable Material	40% capture rate	50% capture rate	60% capture rate	75% capture rate
Total estimates kg for Temagami FN households	5,556	6,945	8,335	10,418
+ 10% facilities (kg)	556	695	833	1,042
Total tonnes potentially available	6.11	7.64	9.17	11.46

Table 5: Recyclable Materials accepted by R&D Recycling Ltd.

Material Categories	Materials
Paper products	Newspapers Magazines Computer Paper Pamphlets Flyers
Containers	Aluminum/Steel Cans (for food or drink) Bottles and plastic containers (1 thru 7) symbol Glass Jars & Bottles (for food or drink)
Paper Products	Cardboard/Boxboard Cereal Boxes Soap Boxes Egg Cartons Tissue Boxes

5. Public Consultation

5.1. 1st Open House September 20th, 2017

Temagami FN community members were consulted throughout the project. The first community open house was conducted on September 20th, 2017. Members were invited to learn about the project and provide input into the process.

The event was well attended with an estimated 40 members attending.

During the open house, the consultant made a short presentation to introduce the different waste diversion programs to be implemented and to get feedback on the type of blue box containers preferred by the community.

TEMAGAMI FIRST NATION RECYCLES

We are introducing a recycling program this fall!

Learn about our recycling plans by joining us for food and beverages at the LMLC School September 20th at 5:30.

There will be activities for the children, a presentation from our consultant and information about the Blue Box recycling, waste electronics recycling, battery recycling, scrap metal recycling and used paint recycling.

Come learn, discuss, comment on our recycling and other waste diversion plans.

Wednesday, Sept. 20th
At 5:30 pm



Blue Box Container Preferences – Community members were asked to indicate what type of recycling container they would prefer by placing a sticky note in one of three containers on display. The containers provided are shown in the diagram below.

We need your input

- Containers** - We need your help identifying the most suitable recycling container for storing and transporting recyclables to the depot



22 gallon container
Rona - \$17 each



14 gallon container
Rona - \$14 each



Reusable Bags
Price - \$5 each

The vast majority of people attending the open house preferred the 22 gallon container as a means of storing and transporting recyclables.

5.2. Community Waste Management Survey

During the first open house, attendees were asked to complete a community waste management survey to help staff and the consultant better understand their waste management habits and information needs. A copy of the survey is provided in Appendix C.

Temagami FN Waste Diversion Survey Results

Number of surveys completed = 20

1. Not applicable
2. Not completed in a manner that provided useful information.
3. Average number of bags of garbage = 1.8 bags per household per week.
4. Importance of implementing a recycling program – with one exception all respondents indicated that having access to recycling was very important.
5. Importance of having other waste diversion programs available.

Program	Very important	Somewhat important	Not important
Waste electronics recycling	15	4	1
Battery recycling	20	0	0
Paint recycling	12	7	0
Scrap metal recycling	14	6	0
Backyard composting	11	7	1

The results indicate that all respondents agreed that having access to battery recycling was very important to them. This was followed by having access to waste electronics and scrap metal recycling. Backyard composting seemed to experience the least support.

Other ideas expressed included:

Centralized composting

Ban on polystyrene and single use plastics

Establishing “free stores” (reuse depots)

Encouraging members to bring their own “feast bundles” (plates, bowls, cutlery, cups) to Pow Wows and community dinners

Focus on reduce and reuse activities

One respondent expressed concern that backyard composting would encourage bears.

Temagami First Nation Waste Diversion Final Report

6. Why recycling is important.

Program	Strongly Agree	Somewhat Agree	Disagree	Strongly Disagree
Help to achieve a healthy environment	18	2	0	0
Help to achieve a healthy community	18	2	0	0
Diverting waste from disposal	19	1	0	0
For our children's futures	18	2	0	0

Most respondents strongly agreed with all statements as to why recycling was important. In hindsight the question should have been re-worded so that respondents had to rank which statements would be most appealing to members of the community. Other reasons mentioned were: peace of mind and responsibility.

7. Educational materials that would be most helpful.

Program	Most helpful	Medium	Least helpful
a. Articles in the local newsletter	13	3	2
b. Brochures delivered to your door	7	0	10
c. Magnets/stickers for your fridge	12	2	5
d. Poster/signs around the community	11	5	2

The most helpful helpful materials were identified as articles in the local newsletter and fridge magnets, followed by posters and signs around the community. Brochures and pamphlets were not viewed as an effective way to educate members about the new waste diversion programs. Other ideas expressed included:

Information posted on the Temagami FN website
 Developing short videos
 Sending information through emails
 Using Facebook
 Educational workshops
 Establishing a mascot to help educate children in the community

One member suggested developing short videos starring community members who would discuss and demonstrate the how's and why's of recycling, 3Rs, and composting and suggested delegating the work to Daisy, Brad and Paul.

Container Preferences - The vast majority of respondents preferred the 22 gallon container as a means of storing and transporting recyclables. This supported the results from September open house.

One survey respondent who receives at home collection services indicated that the reusable bag would be better. As a result, staff will provide reusable bags to those who need extra help with collection service.

Educational Materials – The survey respondents indicated that fridge magnets and articles written in the monthly newsletter – The Bear Island Blast – would be the most preferred type of educational materials.

5.3. 2nd Open House December 5th, 2017

In anticipation of the launch of the Blue Box recycling program at the end of December, a program launch lunch and dinner was held on December 5th, 2017.

Lunch - A lunch was provided for staff to introduce the upcoming blue box program to Temagami FN offices and facilities and to deliver office blue boxes and brochures to staff members.

Dinner - The purpose of the dinner was to celebrate the upcoming launch of the Blue Box recycling program and to go over some key information about how to participate in the program. Those who attended received a 22 gallon blue box along with educational materials for their household.

The Executive Director, Virginia Paul spoke about the importance of the recycling program coming to Temagami FN, which was followed by a presentation on what can and cannot be recycled presented by Raymond Katt and the consultant. Staff and volunteers helped in the set up and cleaning up after the dinner, which was greatly appreciated.

Over 60 community members attended the evening, which was considered to be a great success.

5.4. 3rd Open House August 9th, 2018

A barbeque was organized on the evening of August 9th, to launch the new waste diversion program and to provide information to residents about the program. The consultant along with Raymond Katt described the new waste diversion program to attendees and explained what materials could be recycled.

6. Implementation of Waste Diversion Programs

6.1. Blue Box Recycling

The early part of the project focused on designing a cost effective recycling program for the Temagami FN community. The realities of implementing a recycling program are challenging as all recyclables must be transferred off the island at a substantial cost and transferred to the only viable recycling facility (R&D Recycling) situated about 120 kilometers away.

6.2. Collection Options Examined and Cost Estimates

In order to determine the most effective recycling program five collection, storage and transport scenarios were developed including:

Temagami FN provides curbside collection and direct haul to R&D:

- Weekly collection - Temagami FN hires staff to provide weekly curbside collection to residents and band buildings using available pickup truck (potentially modified) and drives the materials to R&D recycling.

- Bi-weekly collection - Temagami FN hires staff to provide bi-weekly curbside collection to residents and band buildings using available pickup truck (potentially modified) and drives the materials to R&D recycling.

Temagami FN provides curbside collection and stores on-site with R&D providing transport:

- Weekly collection - Temagami FN hires staff to provide weekly curbside collection to residents and band buildings using available pickup truck (potentially modified) and stores the material in a sea container (or alternative) and arranges with R&D to collect and transport when full.
- Bi-weekly collection - Temagami FN hires staff to provide bi-weekly curbside collection to residents and band buildings using available pickup truck (potentially modified) and stores the material in a sea container (or alternative) and arranges with R&D to collect and transport when full.

Temagami FN provides depot style collection of recyclables and stores the material in a sea container (or alternative) and arranges with R&D to collect and transport when full.

Cost estimates for each scenario were developed based on the establishment of cost assumptions from communications with Temagami FN staff and the owner and president of R&D Recycling, Jean Luc Labonté. The different collection scenarios and cost estimates were presented to staff in an interim report. A summary of the scenarios and cost estimates is provided in Appendix A.

6.3. Preparing for Blue Box Program Launch

In the end, Temagami FN staff decided to pursue Scenario 3 - Temagami FN provides depot style collection of recyclables and stores the material in a sea container (or alternative) and arranges with R&D to collect and transport when full. This approach was thought to best complement the existing garbage collection system. The collection and cost assumptions are presented in Appendix B.

In anticipation for the need to purchase blue box containers for each household the consultant prepared an REOI funding submission to the Continuous Improvement Fund requesting full funding for 300 blue boxes (22 gallon) to distribute to residents and facilities and to have a few extra on hand. It was assumed that each household would receive 2 blue boxes (~200 total) with the remaining 100 distributed to band facilities (~40 blue boxes) or saved as extras (~60 blue boxes) with the CIF will funding up to 50% of the costs.

The submission was received by the CIF on May 3rd, 2017. Unfortunately, the consultant was informed in August 2017 that CIF would not fund any portion of the purchase of the new blue box containers as it is not CIF policy to fund new container purchases.

Following the CIF decision, the project team decided to use existing project funds to purchase the following recycling containers:

- 144 x 22 gallon (80 litre) Blue Box containers for use by households
- 40 x 5.5 gallon (21 litre) office recycling bins for use by office staff
- 21 reuseable bags for use by elderly or disabled members



22 gallon Blue Box



5.5 gallon office bin



Reusable recycling bag

Arrangements needed to be made with R&D Recycling for delivery of a rented 20 ft sea container modified to collect the single stream recyclables. It was hoped that an existing trailer used by Temagami FN to transport the garbage container could be used to collect the sea container from the Temagami landing; however, the width of the trailer did not accommodate the sea container. Further arrangements were made to purchase a modified trailer from R&D Recycling for transport purposes.

In order to fund the purchase of the trailer (@ \$10,000) and other waste diversion program needs, Temagami FN submitted an application for funding to the Capital Facilities and Maintenance (CFM) program to Indigenous Services Canada (ISC). The application requested funding for the following items:
List of Items for ISC CFMP:

- Used Oil Tank
- MHSW Storage Shed
- Scrap metal pile clean up
- On-going scrap metal bins
- Recycling Trailer purchase cost
- Community Backyard Composter bins
- Waste Management Staff part time for 3 years

Working with Temagami FN staff and R&D Recycling the Blue Box program launch date was established for early December 2017 (previously planned for mid November but delayed due to the trailer problems). In preparation, a notice was developed for the November Bear Island Blast and the Temagami FN website (see below) as well as a community dinner and staff lunch planned for December 5th (see section 5.3 for further details).

Recycling Is Coming In December

Temagami First Nation Blue Box Recycling in the community of Bear Island



TFN are excited to announce that Blue Box recycling will be coming to Bear Island with the launch date set for the beginning of December 2017.

Get Ready, Get SetR

Coming soon!

Blue Box Recycling in the community of Bear Island, Temagami First Nation

We are excited to announce that Blue Box recycling will be coming to Bear Island with the intent to launch the recycling program mid-November 2017.

A recycling station will be established at the garbage collection site in which community residents can bring their recyclables; including the Home and community care clients will have the additional benefit of curb side recycling services added to their weekly garbage pick-up

At the time of the recycling program launch, each residential home will receive a blue box container to store their recyclables and information about what can and cannot be recycled.



Temagami First Nation has partnered with R&D Recycling, based in North Bay, to provide the recycling service.

Get ready, Get set...

Stay Tuned!



Temagami First Nation Waste Diversion Final Report

During the December 5th community dinner and open house, 22 gallon blue box containers were provided to attending households with the remaining delivered over the next few days. In addition to the blue box containers, each household was provided with educational information, based on feedback on what educational information they wanted. Samples of the educational material is provided below.

Educational Materials:



Fridge Magnet



Information Sheet - Front



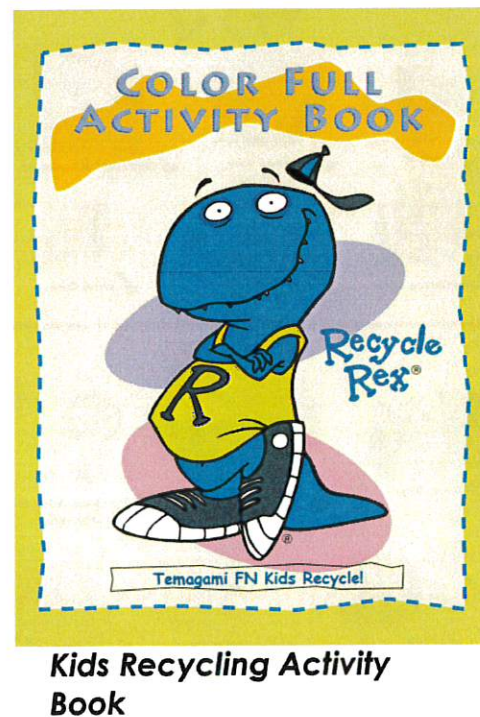
Information Sheet - Back

In addition, office blue boxes and educational materials were delivered to each staff. An information sheet (shown above) was provided to each staff. In addition, posters were hung over 22 gallon blue box containers located in high traffic and public spaces. See the sidebar for a sample of the poster.

Office Recycling Poster



Staff also decided to provide the younger school children with a recycling handbook and stickers to encourage them to learn about recycling and participate in recycling at school and at home. A 15 page Kids Recycling Activity Book and Recycle Rex sticker was developed, printed and distributed to all children in grades kindergarten to grade 4. See below for a sample of the cover page and sticker. A copy of the activity book is provided in Appendix D.



All educational materials were developed by the consultant who also arranged printing and shipping.

6.4. Blue Box Program Launch

On December 12th, the Blue Box recycling program was officially launched with the delivery of a temporary storage trailer by R&D Recycling. Since then the storage trailer has been replaced by a sea container and a working transport trailer.

PHOTOS to be provided

To help maintain the Blue Box recycling program and other waste diversion initiatives, the consultant helped to establish a Waste Diversion Working Group consisting of four members of the community. The first meeting was held on December 5th in which the members named the working group - N'Dakimanan Green (our land). The first meeting established the governance policy and short term goals.

The Blue Box program has been well received by the community and has exceeded expectations in terms of participation and diversion of blue box materials. To date, the Temagami FN community has diverted 6 tonnes of blue box materials, with a goal to divert 10 tonnes of material by the end of 2018.

To keep members informed of their achievements, a barometer has been developed by the consultant that shows progress in meeting their recycling target. An easy to use excel program was developed to update the barometer. By inputting the most recent tonnage data received by R&D Recycling, the barometer is automatically updated and can be copied for inclusion in the Recycling News update developed for the Bear Island Blast. The first update was developed below.

Recycling news article designed for the Bear Island Blast

Recycling News

Congratulations to everyone who has participated in the recycling program. To date, our community has diverted about 2.5 tonnes of blue box materials. That is an exceptional amount for a small community!

The consultant estimated that our community will achieve a great recycling rate if we can divert 10 tonnes this year and we are well on our way to achieving this goal.

Let's start a barometer to track our goal! To date, Temagami FN has achieved **25%** of its recycling goal.

Feedback from our recycling processor (R&D Recycling) has been very positive. The loads of recyclables contain few non-recyclables – that means the recyclable materials you are putting in your blue box are what should be recycled.

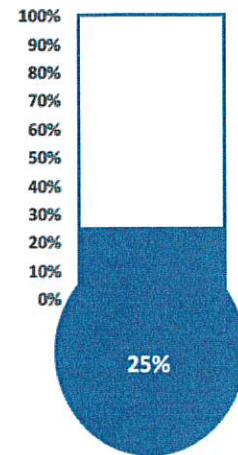
Keep up the good work!

Why recycling matters:



- ✓ 1 recycled tin can would save enough energy to power a television for 3 hours.
- ✓ 70% less energy is required to recycle paper compared with making it from raw materials.
- ✓ You can make 20 aluminum pop cans out of recycled material with the same amount of energy it takes to make one new aluminum pop can.
- ✓ Recycling one tonne of newspapers saves 17 trees.

**Temagami FN
2018
Recycling Goal
(10 tonnes)**



6.5. Household Hazardous/Special Waste

The Municipal Hazardous and Special Waste (MHSW) Program Plan was initiated by the Minister of the Environment in December 2006. With Stewardship Ontario established as the IFO, the first phase (Phase 1) of the MHSW Program Plan was implemented in July 2008.

Industry stewards that produce designated hazardous or special wastes are responsible for the collection, transportation, processing and responsible handling (recycling and safe disposal) of nine designated materials. There are two organizations that manage Phase 1 MHSW, Stewardship Ontario and Product Care. Both programs are suppose to be 100% funded by industry stewards.

Stewardship Ontario

Stewardship Ontario, has established the Orange Drop program that encourages residents to dispose of their household hazardous or special waste in an environmentally safe manner. The Materials covered by the Orange Drop program include:

- Single-Use Batteries
- Pressurized Cylinders that held Propane, Oxygen, Helium or Other Gasses
- Vehicle Engine Antifreeze/Coolant and its Containers
- Empty Lubricating Oil Containers
- Oil Filters

There are a few options available to Temagami FN to manage the household special waste (HSW) generated by band members. Options include:

- Hosting an annual HSW event in the community,
- Establishing a permanent HSW facility within the community
- Partnering with another community that accepts HSW

While Stewardship Ontario/Product Care provide funding for one day events and depots, it is an onerous process and there are no guarantees that Temagami FN will receive more than 50% of costs paid. Communications with staff from the City of Temiskaming Shores demonstrates the high costs to host a HSW event. Temiskaming Shores typically sets aside \$6,000 for its annual HSW event. In 2016, the City hosted its annual event and hired Drain All (a certified collector/processor) to provide the packing, transport and disposal services for the event. The event cost \$26,000 and although Temiskaming Shores received 90% payment back, other First Nation communities have received much less funding or no funding, to date.

Operating a permanent depot can be costlier to operate annually but cheaper on a per tonne or per customer basis.

Due to the high costs associated with operating a one a year collection events or permanent depot, neither option is recommended as a viable option for Temagami FN, at this point in time.

Another option was identified to Temagami FN staff. The City of North Bay operates a permanent MHSW depot, which has a distinct Environment Compliance Approval (ECA) allowing the City to service jurisdictions beyond its borders. There are only a handful of communities in Ontario that have this type of ECA allowing them to accept HSW from neighbouring jurisdictions, including: Peterborough County, Renfrew County and the City of Sudbury.

Conversation with Al Tomak, Waste Management Coordinator and Environmental Control Officer with the City of North Bay confirms that a viable HSW solution is available to Temagami FN. The City charges a flat fee of \$2 per household per year and this entitles residents of a partnering community to use the HHW depot all year round. The depot will accept up to 60 litres of material at any one time, which means that neighbours can take HHW from their neighbours. The City is trying to discourage contracted people from bringing down loads of HHW collected from a community. No contract is required and the community can withdraw from the service at any time.

6.6. Paints

On December 10, 2014, Waste Diversion Ontario (WDO) approved the Product Care Association (PCA) Industry Stewardship Plan (ISP) for the management of end-of-life paints and coatings. As of June 2015, all responsibility for management of paints and coatings transferred from Stewardship Ontario (previously listed under Phase 1 MHSW targeted materials) to Product Care. In December 2017, Product Care also assumed responsibility for Pesticide, Solvents and Fertilizer with the program launched April 1, 2016

To date, Product Care has responsibility over the following products:

- Paints and Coatings,
- Aerosols (this does not include propane),
- Pesticides,
- Solvents (also called Miscellaneous Organics), and
- Fertilizers

Temagami FN became the first Ontario First Nation community to participate in a joint venture between Ontario Electronics Stewardship and Product Care to collect waste paints, paint aerosols and waste electronics. See Section 6.4 for further description.

6.7. Electronic waste

Ontario Electronic Stewardship (OES), the extended producer responsibility organization that manages waste electronics, has established an excellent program and service, providing collection bins that best meet the needs and operations of the community, at no charge, and promotional/education material to post and distribute to community members. Registered collectors (e.g. First Nation communities) are required to report waste electronic shipments using an on-line system developed by OES, which ensures timely and reliable pick up service at no charge to the community. In addition, OES pays \$150 to \$185/tonne for electronic waste collected at registered sites.

Ontario Electronic Stewardship (OES) pays 100% of the costs to collect electronic waste and most communities make money by establishing themselves as a collection site for waste electronics. The OES program accepts computers, laptops, TV's, printers and phones and a total of 44 accepted categorizes of electronic waste. Figure 1 provides a list of waste electronics accepted by OES. Unfortunately, OES cannot accept small household appliances (e.g. coffee makers, blenders, vacuums), at this time, nor does it accept any appliance containing CFCs.

Figure 1: Waste Electronics Accepted by OES

OES currently services about 20 Ontario First Nation communities with permanent or semi-permanent bins, including two island communities - Georgina Island First Nations and the Archipelago Islands.

Communication was established with the OES Field Operator (Nina Digioacchino) in early 2018. Ms. Digioacchino offered several collection options available to Temagami FN including:

Establishing a permanent electronic collection site in which OES will deliver a sea container (10 or 20 feet in length) or cardboard boxes on a skid to the island which remains permanently until it is time to be collected by the OES service provider. This option pays \$150/tonne for waste electronics collected.

Establishing a semi-permanent site in which a sea container is dropped off for a period of time (e.g. spring and summer) and then collected in the fall. This avoids potential challenges with winter management of the bins and reduces registration and administration requirements for the community. The semi-permanent approach also makes more money for the community as OES pays \$185/tonne for waste electronics collected.

Conducting seasonal event, in which OES hires the event providers and pays for all waste electronic collection, sorting, transportation and management activities. The community is required to staff and promote the event. As with the semi-permanent option, the event pays \$185/tonne for waste electronics collected.

The consultant worked with Ms. Digioacchino to register Temagami FN as a collection site, to have the Collection Site Operator Agreement signed by Temagami FN contact (Raymond Katt).

The original plan to have Temagami FN operate the waste electronic program as a semi permanent site was modified when Temagami FN became the first Ontario FN to participate in a pilot program in which the waste electronics program sponsored by Ontario Electronics Stewardship would be conducted in partnership with a paint collection program sponsored by Product Care. At the same time, residents were permitted to recycle their batteries as part of the program. This innovative program enables residents in small First Nation communities to participate in a multi-purpose recycling program that targets waste electronics, waste paints and waste batteries that are collected in a single container. This program is expected to be rolled out to other First Nation communities.

The transport service provider is Goat Transport operated out of Ajax, Ontario. In early August, Goat Transport delivered a 20 cubic yard sea container to Temagami FN at the Water Treatment Facility. It is open to the public during the week from 9 am to 5 pm.

Temagami First Nation Waste Diversion Final Report



Raymond Katt with the 20 cubic ft. sea container that will collect waste electronics, waste paint and batteries.

A barbeque was organized on the evening of August 9th, to launch the new waste diversion program and to provide information to residents about the program. The consultant along with Raymond Katt described the new waste diversion program and each resident received an information brochure and a bag for collecting batteries. See below for a copy of the brochure.

How to prepare your electronics for recycling

- Clear all personal information from computers, cell phones and electronics
- Wipe your drives/clear your SIM cards

How to prepare your paints for recycling

- Must be in a sealed/closed container
- Must be from residential
- Must be identifiable (original label intact)
- Must be dropped off during normal business hours
- Individual containers cannot exceed 25 litres each

How to prepare your batteries for recycling

- Cover the 9V and lithium battery connections with tape
- Place batteries in a plastic bag to keep them dry

Location of the Recycling Container

The recycling container is located at the Water Treatment Centre.

Hours of operation: 9am to 4:30pm
Monday - Friday

For further information please
Contact: **Raymond Katt**
Community Health Representative
Phone: (705) 237-8900



Please help your neighbours who lack transportation or have mobility issues.





TEMAGAMI FIRST NATION

HOW TO RECYCLE

waste electronics



paints




batteries



How to Recycle your Waste Electronics

What can be recycled


- ✓ Cell phones, home phones
- ✓ TVs
- ✓ Desktop computers, monitors
- ✓ Laptop computers, tablets & accessories
- ✓ Printer & Fax machines
- ✓ VCR/DVD players/video recorder
- ✓ Cameras
- ✓ Stereos, tuners, turntables, speakers, receivers




* We also take small kitchen appliances


How to Recycle your Paints

What can be recycled

Aerosol Paints 

Paints and Coatings 


- ✓ Deck coatings
- ✓ Floor paints
- ✓ Varnishes and urethanes
- ✓ Concrete/masonry paints
- ✓ Primers (metal, wood, drywall)
- ✓ Wood finishing oils

Sealers 

- ✓ Driveway and Roof Sealers

What can't be recycled

- ✗ Unlabelled containers
- ✗ Waxes and polishes
- ✗ Arts and craft paints




How to Recycle your Batteries

What can be recycled


Single Use Batteries

- ✓ AAA
- ✓ AA
- ✓ 9V
- ✓ D-cell
- ✓ Button




Rechargeable Batteries

- ✓ Lithium
- ✓ Ni-Cd (Nickel Cadmium)
- ✓ Ni-MH (Nickel Metal Hydride)



What can't be recycled

- ✗ Automotive batteries (lead-acid)
- ✗ Boat batteries (lead-acid)



Brochure

6.8. Batteries

The industry organization “Call2Recycle” is responsible for collecting all cellphones and batteries - accepting dry-cell consumer batteries weighing up to 5 kg each. Staff can order collection kits (boxes) that will be mailed by Call2Recycle and then set up in key community location where members frequent (e.g. admin office, library, school). Once the boxes are full, they are mailed back to the organization at no charge.

The consultant contacted Call2Recycle to order battery collection boxes and was informed that the organization had met its collection obligations and would not be issuing more collection boxes. The consultant could place Temagami FN on a waiting list. Alternatively, Temagami could collect the batteries and deliver them to approved collection sites at the locations listed below:

New Liskeard Battery Collection Locations*

RONA 245 Whitewood Avenue New Liskeard, ON P0J 1P0 705-647-6784	Mikrolink Computers 9 Riverside Dr New Liskeard, ON P0J 1P0 705-647-4679
The Source 883303 65 Rr2 Timiskaming Sq. Hwy New Liskeard, ON P0J 1P0 705-647-0100	

North Bay Battery Collection Locations*

Staples 1899 Algonquin Ave North Bay, ON P1B 4Y8 705-472-7223	City of North Bay 112 Patton St. North Bay, ON P1B 8G4 705-474-0400
Gateway Professional Tools 790 Cassells St North Bay, ON P1B 4A4 705-495-4906	The Source 300 Lakeshore Dr North Bay, ON P1A 3V2 705-476-4486
ListenUp! Canada 1833 Cassells St North Bay, ON P1B 4C8 705-474-3896	Spectrum Telecom Group Ltd 132 Imperial Rd North Bay, ON P1A 4M5 705-474-6368
Home Depot 1275 Seymour St North Bay, ON P1B 9V6 705-845-2300	

*All locations accept:

- Rechargeable Batteries
- Cellphones
- Alkaline /Single-Use Batteries

In an effort to find an alternative solution, the consultant pursued discussions with the Executive Director of the Ontario Electronic Stewardship (OES) who kindly offered to allow Temagami FN members to place used batteries in the OES storage bin for management by OES. This approach enables Temagami FN to implement an easy and cost-effective battery recycling solution.

Three pails have been delivered to staff to be used for collecting batteries in high traffic locations throughout the community. When the pails are full, all staff need to do is put the batteries in an enclosed plastic container with a lid and ensure that any 9-volt or lithium batteries are wrapped in tape.

Each household was provided with a zip lock baggie to store their batteries, with instructions to tape the connectors on 9V and lithium – see photo.



6.9. Pens and Markers

Carolyn Laronde, Lands & Resources Office Manager has begun a collection program in the TFN Lands and Resources Office to collect used markers, sharpies, pens, highlighters and crayons. She has used a modified bucket (as shown in the photo) and when full, she will take the used pens and markers to the Staples store in North Bay to be recycled.

This initiative has been extended to the public school and will be offered in other Temagami FN facilities.



6.10. Scrap Metal

Over the years, a large informal scrap metal pile has accumulated in an isolated area on the island. The scrap metal pile consisted of scrap metal, scrap appliances (including refrigerators containing CFCs) and derelict cars. In addition, it was estimated that there were about 10 derelict cars scattered throughout the community requiring removal. Cleaning up the existing scrap metal pile and establishing a sustainable collection system on a go forward basis has been a priority with the Temagami FN staff.

The names of three local scrap metal companies were identified and a tender was issued to the following companies:

Temagami First Nation Waste Diversion Final Report

- Phippin Waste Management in Temiskaming, ON
- Mid North Recycling in New Liskard, ON
- North Bay Salvage (formally Piche and Sons) in North Bay, ON

The tender requested separate quotes to remove the scrap pile in summer and winter as well as a separate quote to rent a 40 cubic yard bin per month basis and a cost to remove and replace the bin when full (on call basis) for a minimum three year contract. The quotes were due January 24, 2018. A copy of the tender is provided in Appendix E.

In the end, Temagami FN received two quotes from Mid North Recycling and North Bay Salvage. A summary of the quotes to remove the existing scrap metal pile is provided in Table 6.

Table 6: Comparison of Quotes to Remove the Scrap Metal Piles

One Time Scrap removal	Summer using Barge		Winter Using Ice Road	
	Mid North Recycling	North Bay Salvage	Mid North Recycling	North Bay Salvage
	New Liskard	North Bay	New Liskard	North Bay
Transportation cost	\$19,175	\$20,000	\$9,375	\$20,000
Barge	in transport	\$8,000	n.a.	n.a.
Labour	\$9,375	\$4,400	\$5,550	\$4,400
CFC Removal	\$2,000	\$1,250	\$2,000	\$1,250
Total	\$30,550	\$33,650	\$16,925	\$25,650
Cost per CFC removal	\$40	\$25	\$40	\$25
40 fridges	\$1,600	\$1,000	\$1,600	\$1,000
10 cars	\$400	\$250	\$400	\$250
	price appears firm	price is an estimate	price appears firm	price is an estimate

A summary of quotes to provide rented 40 cubic yard bin and service the bin on an on-call basis for a three year contract is summarized in Table 7.

Table 7: Comparison of Scrap Bin Rental and Removal Quotes

Scrap Bin Rental and Removal	Mid North Recycling	North Bay Salvage	Mid North Recycling	North Bay Salvage
	New Liskard	North Bay	New Liskard	North Bay
40 cubic yd bin Rental per Month	\$300.00	\$250	\$300.00	\$250
annual rental	\$3,600	\$3,000	\$3,600	\$3,000

Temagami First Nation Waste Diversion Final Report

Scrap Bin Rental and Removal	Mid North Recycling	North Bay Salvage	Mid North Recycling	North Bay Salvage
	New Liskard	North Bay	New Liskard	North Bay
each pick up and drop off	\$2,550 (\$1,275 pick up and \$1,275 set up of new bin)	\$1,000	\$1,250	\$600
	includes barge	includes barge		
assume one year pick up	\$6,150	\$4,000	\$4,850	\$3,600
notes		confirm price is firm		confirm price is firm

Based on the quotes received, it was recommended that Mid North Recycling in New Liskard be awarded the contract to remove the existing scrap metal pile at a cost of access at \$16,925 with winter road access or \$30,550 during summer barge access. In addition, there is a charge per unit to remove CFCs at \$40 per unit quoted by Mid North Recycling and \$25 per unit quoted by North Bay Salvage.

To date no contract has been awarded for the scrap metal recycling due to the lack of funding yet received from ISC.

6.11. Tires

Tires are designated an EPR material. Launched in September 2009, the Used Tires Program allows consumers to have old tires recycled by dropping them off at registered collectors across Ontario. The program is managed and funded through the Ontario Tire Stewardship (OTS). Tire brand owners and first importers are registered as tire stewards and required to pay fees for every tire they supply into the Ontario market, which are used to fund all aspects of the Program. The fees vary depending on the size of the tire.

OTS provides financial incentives for registered organizations that collect, transport, and process the used tires and/or manufacture recycled products in accordance with the Program Plan. As with the WEEE program, collection, transportation and management of the collected tires are fully funded by OTS. The program covers 100% of the costs.

The option available to Temagami FN is whether it wanted to become a collection site with Ontario Tire Stewardship (OTS) or establish a partnership with Temagami municipality to co-collect tires at the Briggs Waste Disposal Site. Discussions with Temagami FN staff indicated that tires do not represent a problem in the community and, therefore, no management plan was required

OTS has several registered collectors located in New Liskard and North Bay who will accept tires brought to them from any source. The registered collectors are listed below:

New Liskeard Battery Collection Locations

Ok Tire Commercial 486 Brazeau Blvd	Tri Town Car Wash 64 Armstrong St
Fountain Tire (New Liskeard) 100 Craven Dr.	Gastons Auto Centre 95 Craven Drive
Tritown Motorsport 121 Regina Street	Canadian Tire 068 997431 Hwy-11 North
Miller Maintenance Limited 883316 Highway 65	Wilson Chevrolet Buick GMC Ltd 100 Wilson Ave
Kal Tire 851 34 Hessle St	

North Bay Battery Collection Locations

Delucas Auto Service 294 Main Street East	Midas North Bay 390 Main St East
Speedy Auto Service 1307 Fisher St.	True Centre Muffler & Brakes 567 Mcgaughey Ave
Northern Honda 1401 Seymour St.	True North Chevrolet Cadillac Ltd 1370 Seymore Street
Performance Auto And Tire Service 65 Lakeshore Drive	Dirty Rydz 49 Lakeshore Drive
Sj Auto 1363 Franklin Street	Juniors Tire Service Inc 1524 Cholette St.

6.12. Construction and Renovation Waste

Temagami FN currently burns wood waste and sends other construction and demolition waste to Briggs landfill for disposal.

While it was proposed that Temagami FN explore opportunities to divert construction and renovation waste at the Briggs Waste Disposal Site, there appears no opportunities to divert construction and demolition waste at this time.

6.13. Organics

Currently there are few options available to Temagami FN to divert food waste at the present time. Discussions were held with staff about potential opportunities to establish a windrow compost operation on the island or work with Temagami Municipality to establish a windrow operation at the Briggs Waste Disposal facility. None of the options were considered viable at the present time.

There are few examples of northern communities, including First Nation communities engaging in source separated organics collection and processing, except for the First Nation of Wahnapiatae. Although Wahnapiatae collects organic waste and composts it at the landfill, it is a limited operation. The landfill is also protected from animals by a well-constructed and high chain link fence. Currently, this option is not available in Temagami FN.

A funding request for Temagami to purchase and pilot several community backyard composters was rejected by ISC. No further action has been taken to date.

7. Status of the Waste Free Ontario Act

On June 1, 2016, the Ontario Legislature passed Bill 151, the Waste-Free Ontario Act, 2016 (WFOA). The WFOA replaces the Waste Diversion Act, 2002 (WDA) with a new producer responsibility framework that makes producers individually responsible and accountable for their products and packaging at end of life. Under this regime, producers become directly accountable for recovering resources and reducing waste as required by regulation.

At the same time, the WFOA replaced Waste Diversion Ontario (WDO) with the Resource Productivity and Recovery Authority (RPRA) empowering it with greater oversight and enforcement capabilities and requiring it to act as a data clearinghouse.

There are two Schedules to the WFOA:

Schedule 1 – The Resource Recovery and Circular Economy Act, 2016 (RRCEA) that sets out the new producer responsibility framework; and

Schedule 2 – The Waste Diversion Transition Act, 2016 that sets out the operation of existing waste diversion programs (including their wind up).

Under RRCEA, the Minister is responsible for developing a *Strategy for a Waste Free Ontario* – i.e. how to build the system that puts valuable resources destined for landfill back into the economy. On February 28, 2017, the Minister released the final strategy document after several months of active consultation. The government's two primary goals in the Strategy are to achieve zero waste (i.e. the province's new long-term waste diversion goal) and to achieve zero greenhouse gas emissions from the waste sector. The Strategy serves as the province's roadmap to shift Ontario towards a circular economy and towards a zero waste in the future.

Since the enactment of the Waste Free Ontario Act, the government has been active in winding up several existing extended producer responsibility (EPR) programs including:

Tires - The Minister of Environment and Climate Change (MOECC) issued a letter to Ontario Tires Stewardship (OTS) on February 17, 2017 directing OTS to develop a “wind-up plan” for the used tire program. OTS submitted its proposed Used Tires Program Wind Up Plan to the Resource Productivity and Recovery Authority (RPRA) on November 30, 2017. After a consultation process, the MOECC filed the new Tire Regulation 225/18 on April 9th, 2018 governing the system in which used tires are managed. The legislation was published to e-Laws on April 10 and is now in full effect. The existing tire program will cease operations on December 31, 2018 with the new tire program launching January 1st, 2019.

Waste Electronics (WEEE) - The Minister of Environment and Climate Change (MOECC) issued a letter to Ontario Electronics Stewardship (OES) on February 8, 2018 directing OES to develop a “wind-up plan” for the WEEE program by December 31, 2018, which is to be approved by the Ministry by June 30, 2019 with the program to cease operations on June 30, 2020.

Municipal Household Special Waste (MHSW) - The Minister of Environment and Climate Change (MOECC) issued a letter to Stewardship Ontario (SO) on April 12, 2018 directing SO to develop a “wind-up plan” for the MHSW program by December 31, 2018, which is to be approved by the Ministry by June 30, 2019 with the program to cease operation on December 31, 2020.

Product Care - will become a PRO under RRCEA with no further changes to the program.

The Blue Box Program - The Waste Free Ontario Strategy set an initial target of 2023 for the “complete transition of the Blue Box Program”. Under pressure from both producers (through Stewardship Ontario - SO - and the Canadian Stewardship Services Alliance - CSSA) and many municipalities (coordinated through The Association of Ontario Municipalities - AMO and the newly formed Municipal Resource Recovery and Research Collaborative – M3RC), the new Minister agreed to a much quicker timetable for the blue box transition planning. The Minister directed SO (with the support of RPRA and in consultation with AMO and other stakeholders) to submit an amended Blue Box Program Plan (a-BBPP) for approval by February 15, 2018.

During this period, SO undertook extensive consultations to get input from municipalities and First Nation communities between October 2017 and January 2018. At the time in which a draft Blue Box Plan was to be submitted, SO announced that it needed further time to continue the consultation process. The draft plan remains on hold with no resolution in sight.

Food Waste and Organics - On April 30th, 2018, the Ministry of Environment and Climate Change published its Food and Organic Waste Framework (including an Action Plan and Policy) with the goal of reducing the amount of food and organic waste entering landfills, which was a specific commitment included as part of the Strategy for Waste Free Ontario: Building a Circular Economy (released February 2017). The Framework commits to having the Ministry ultimately impose a phased in food waste disposal ban at landfills beginning in 2022. The government recognizes, however, that introducing a ban on organic waste in Northern Ontario will be challenging as there is no composting infrastructure currently in place and constructing the composting facilities and developing organics collection programs will be extremely costly for northern communities.

With the recent election of the Progressive Conservative government in Ontario, it is unclear when the organic ban will commence, if at all.

8. Summary of Activities

Table 8 summarizes the status of the eight targeted waste stream materials. Used oil has also been addressed.

Table 8: Summary of Waste Diversion Activities

Waste Streams	Management of Materials before Project	Management Now	Go Forward
Blue Box Recycling	bottles/cans/containers – landfilled paper/cardboard - burned	Recycled through the Blue Box program	Monitor and report back to community on successes and challenges Continually remind community about contamination challenges
Electronic Waste	landfilled	Permanent collection system in place with Ontario Electronics Stewardship (OES). A sea container located at the water treatment plant is used to store waste electronics.	Staff to arrange with Goat Transport to have the sea container removed when it 75% full Need to keep members informed of collection times and diversion successes.
Batteries	landfilled	Collect system to be completed at key locations to collect used batteries	Batteries need to be placed in a sealed plastic container and placed in the container to be managed by OES 9-volt and lithium batteries need to have connections taped
Paints	landfilled	Paints can be recycled. A sea container located at the water treatment plant is used to store waste paints.	Staff to arrange with Goat Transport to have the sea container removed when it 75% full Need to keep members informed of collection times and diversion successes
Household Hazardous Waste	landfilled	HHW can be taken to the North Bay HHW depot	Staff need to arrange membership with North Bay and pay annual fee
Scrap Metal	Informal scrap metal pile established and derelict cars scattered throughout community	Contract established with scrap metal company to clean up scrap metal pile and provide bin for on-going collection of scrap metal	Staff need to monitor the scrap metal bin and arrange collection when full. A three- year contract has been built into the contract with the scrap metal bid, which needs to be overseen by staff Staff need to follow up on this initiative.

Temagami First Nation Waste Diversion Final Report

Waste Streams	Management of Materials before Project	Management Now	Go Forward
Tires	Tires are not a problem in Temagami FN and require no further attention	A list of registered tire collectors has been provided to staff	Staff should continue monitoring scrap tires and direct members to take old tires to registered collectors.
Used Oil	Sam's Pump Service occasionally hired to remove oil and gas	OFNTSC is arranging purchase and delivery of a certified used oil tank for the community	Staff should keep touch with Stephanie Allen of OFNTSC on the status of the used oil tank.
Construction & Renovation Waste	Landfilled	Opportunities are not available to divert C&D waste	It is recommended that staff continue to work with the Municipality of Temagami municipality to explore future diversion opportunities at the Briggs Landfill
Organic Waste	Currently not a viable option	Opportunities are not available at this time.	It is recommended that staff continue to monitor the Provincial Government's Food Waste Framework and monitor future composting activities in the area.

Appendices

Appendix A

Blue Box Program Scenarios and Cost Estimates

The assumptions used in developing the five scenario costs estimates are provided below and the costs estimates are identified in Table 9.

Assumptions used in developing the scenario cost estimates:

- Assumes picking up from 100 residences and about 10 band buildings
- Temagami FN pickup truck operation costs - \$55/hour
- Temagami FN labour - \$35/hour
- Assume two persons required to collect
- Estimated 4 hours to collect recyclables from residential homes and buildings
- Single stream recycling is provided
- R&D sea container rental cost is \$150/mth (to purchase \$4,000)
- R&D pick up and transport cost for the sea container is \$500 per trip
- The barge and trailer can handle sea containers.
- Barge costs \$200 per round trip.
- Temagami FN staff will transport the sea containers to the access point requiring four hours and one staff
- Single stream density is 50 kg/yd³ to 75 kg/yd³
- A 20 yd³ sea container can hold 1 tonne of single stream material before requiring transport (assume density = 50 kg/yd³ single stream - conservative)
- Assuming 60% capture rate of recyclables from residents and band buildings – approximately 9.17 tonnes will be generated by Temagami FN annually
- Assuming 75% capture rate of recyclables from residents and band buildings – approximately 11.5 tonnes will be generated by Temagami FN annually

Table 9: Curbside Collection Recycling Program Cost Estimates

Capture Rates		60%	75%
Estimated tonnes captured		9.17	11.5
Curbside Collection Annual Costs	Assumptions		
Capital Cost		use existing pickup truck	use existing pickup truck
estimated hours per collection	4		
Cost per collection (assumes two person per collection)	\$125	\$500	\$500
weekly collection	52	\$26,000	\$26,000
Bi-weekly collection	26	\$13,000	\$13,000
Direct Haul Costs (5 hrs)			
Estimated hours to direct haul to R&D Recycling	5	\$625	\$625
barge costs weekly	\$200	\$10,400	\$10,400

Capture Rates		60%	75%
Estimated tonnes captured		9.17	11.5
Curbside Collection Annual Costs	Assumptions		
barge costs bi-weekly	\$200	\$5,200	\$5,200
Weekly collection	52	\$32,500	\$32,500
Bi-weekly collection	26	\$16,250	\$16,250
On site storage			
20 yd3 sea container (mthly rental @ \$150/mh)	\$150	\$1,800	\$1,800
Number of trips annually	3	4.00	4.00
Barge costs	\$200	\$800	\$800
Transport from island to access road	\$360	\$1,440	\$1,440
transport (\$500 per trip)	\$500	\$2,000	\$2,000
Total Transport		\$6,040	\$6,040
Processing Recyclables at R&D			
Single stream processing at \$75/tonne	\$75	\$688	\$863

Under a depot collection scenario, the same assumptions apply as with the curbside collection scenario, with one exception:

There will be a reduction in the amount of recyclable materials recycled due to lower expected participation in the depot program. During the early stages of the depot program, 50% capture rate can be expected – approximately 7.64 tonnes will be generated by Temagami FN annually. The capture rate is expected to increase over time, therefore, a range of 50% and 60% capture rate has been used. A platform will need to be constructed to enable residents to access the top of the sea container and the openings. Cost estimates to construct the platform need to be established in consultation with Temagami FN staff.

The assumptions used in developing the five scenario costs estimates are provided below and the costs estimates are identified in Table 10.

Table 10: Depot Collection Recycling Program Cost Estimates

Capture Rates		50%	60%
Estimated tonnes captured		7.7	9.2
Depot Collection Annual Costs	Assumptions		
On site storage			
20 yd3 sea container (mthly rental @ \$150/mh)	\$150	\$1,800	\$1,800
Number of trips annually	3	3.00	4.00
Barge costs	\$200	\$600	\$800

Capture Rates		50%	60%
Estimated tonnes captured		7.7	9.2
Transport from island to access road	\$360	\$1,080	\$1,440
transport (\$500 per trip)	\$500	\$1,500	\$2,000
Total Transport		\$4,980	\$6,040
Processing Recyclables at R&D			
Single stream processing at \$75/tonne	\$75	\$574	\$688

Total Cost Estimates and Estimated Funding Opportunities

Table 11 presents the total estimated costs for the five recycling scenarios. The estimated annual operating costs for each of the five scenarios, based on the assumptions and costing above, are presented in Column A. The potential funding available from INAC (80% of off-reserve costs) and Blue Box Funding (assumes 30% of total costs for curbside collection services and 20% of total costs for depot styled collection) to offset the operating costs are presented in Column B. The final estimated annual operating costs that will need to be funded by Temagami FN are presented in Column C.

Table 11: Estimated Annual Operating Costs for the Five Recycling Scenarios

	A.	B.		C.
Scenarios	Annual Operating cost	Funding Opportunities		Temagami FN Costs
	Assumes 75% capture rate	Potentially Fundable INAC Portion (80%)	Potential Blue Box EPR funding	Temagami FN Costs after Potential Funding
curbside collection and direct haul to R&D		Assume contract only	Assume 30% of total	
weekly collection	\$59,363	\$25,826	\$17,809	\$15,728
bi-weekly collection	\$30,113	\$12,826	\$9,034	\$8,253
curbside collection with R&D transporting				
weekly collection	\$32,903	\$4,370	\$9,871	\$18,662
bi-weekly collection	\$19,903	\$4,370	\$5,971	\$9,562
Onsite depot with R&D transporting	Assumes 50% capture rate		Assume 20% of total	
	\$5,554	\$3,579	\$1,111	\$864
	Assume 60% capture rate			
	\$6,728	\$3,680	\$1,346	\$1,702

On May 16th, the consultant arranged a tour of the R&D recycling facility located in North Bay to see how the recyclable materials are processed and to talk with the owner, Jean Luc Labonté, about potential collection and processing options. R&D recycling is the only facility available to Temagami FN to provide recycling collection and processing services.

Other processing opportunities are not available due to recent closures of the New Liskard material recycling facility (MRF) in Temiskaming that was operated by the Cochrane-Temiskaming Waste Management Board. Temiskaming Shores currently operates the New Liskard MRF as a bulking and transfer station with the recyclables transported to R&D recycling for processing. Townships can use the New Liskard MRF are charged \$250/tonne by Temiskaming Shores to bulk, transport and recycle. Communities must deliver the blue box materials to the MRF using this system include Hudson Township, Harley Township, Charleson and Chamberlain Dack Township. It was determined that shipping directly to R&D Recycling would be more cost effective for Temagami First Nation.

Appendix B

Preferred Blue Box Scenario

Preferred Scenario #3 -Temagami FN provides depot style collection of recyclables and stores the material in a sea container (or alternative) and arranges with R&D to collect and transport when full.

Assumptions used in developing the cost estimates for Scenario 3

- Single stream recycling is provided
- A sea container is placed adjacent to the compactor used for garbage at the Temagami FN waste depot
- R&D sea container rental cost is \$150/mth (Temagami FN owns after 5 years) Note: after discussing the option to purchase the sea containers up front, it was determined that there would be minimal cost savings since they would need to be modified to allow for top loading and are guaranteed for the five years in use
- R&D pick up and transport cost for the sea container is \$500 per trip (at access point)
- The barge and trailer can handle sea containers.
- Barge costs \$200 per round trip
- A 20 yd³ sea container can hold 3 tonne of single stream material, if compressed using back hoe) before requiring transport
- Temagami FN will use its back hoe to compact the recyclable materials in the sea container to triple the weight of the container before requiring transport
- Sea container will be stored on Bear Island and transported by Temagami FN staff to the access point when the container is full
- Estimated 4 hours to transport the sea containers from the depot to the access point using band equipment (pick-up truck and trailer)
- Anticipate five pick-ups annually (R&D to transport from the access point)
- Processing cost is ~ \$75/tonne (this does not include fees charged back to Temagami FN for residue rates)

Table B1 assumes a total annual cost of approximately \$5,500 to \$6,700 with Temagami FN assuming estimated annual operating costs of \$1,000 to \$1,700 depending on available funding.

Table B1: Preferred Recycling Program Total Estimated Annual Operating Costs

	Annual Operating cost	Funding Opportunities		Temagami FN Annual Costs after Estimated Funding
		Fundable INAC Portion (80% of transport & processing)	Potential Blue Box EPR funding (20% of net costs)	
On Site Depot				
Sea Container Rental	\$1,800			
Transportation to and from Bear Island to Access Point	\$1,080			
R&D Transport collection	\$1,500			
Processing	\$574			
Total	\$5,554 - \$6,728	\$3,579 - \$3,680	\$1,111 - \$1,346	\$864 - \$1,702

Appendix C

Temagami FN Waste Management Survey

Please answer the following questions:

How many people live in your house? Adults _____ Children _____

Who is responsible for the taking the garbage to the depot? _____

How many bags of garbage do you throw out weekly, on average?

Please Circle 1 2 3 4 5+

Temagami FN is working to establish a recycling program. How important is it for you to have access to recycling?

Very important ☐ somewhat important ☐ not important ☐

Temagami FN is also working to establish other waste diversion programs. Please indicate how important these opportunities are to you. Mark a ✓ in one box for each

	Very important	Somewhat important	Not important
Waste electronics recycling			
Battery recycling			
Paint recycling			
Scrap metal recycling			
Backyard composting			
Other ideas:			

Please indicate why recycling is important - mark a ✓ in one box for each question

	Strongly agree	Agree somewhat	Disagree	Strongly Disagree
Help to achieve a healthy environment				
Help to achieve a healthy community				
Diverting waste from disposal				
For our children's futures				
Other reasons:				

What educational materials would you find most helpful?

Please rate from 1 to 5, with 1 = not important and 5 = very important

Articles in the local newsletter	1	2	3	4	5
Brochures delivered to your door	1	2	3	4	5
Magnets/stickers for your fridge	1	2	3	4	5
Poster/signs around the community	1	2	3	4	5
Other ideas:					

Please indicate your referred storage and transport container by checking the box.



22 gallon container



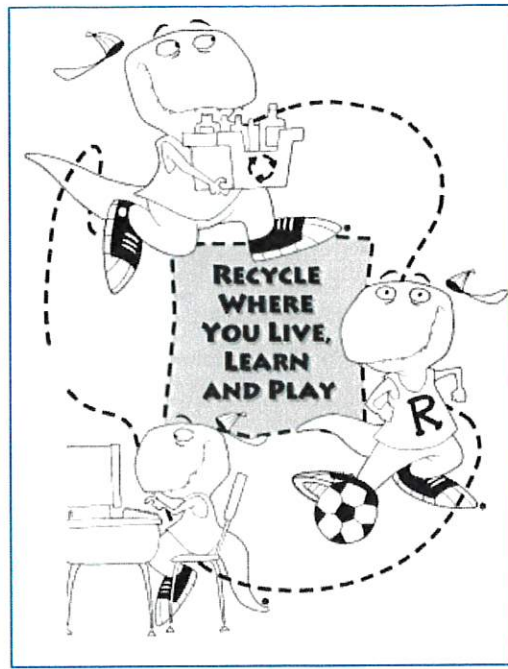
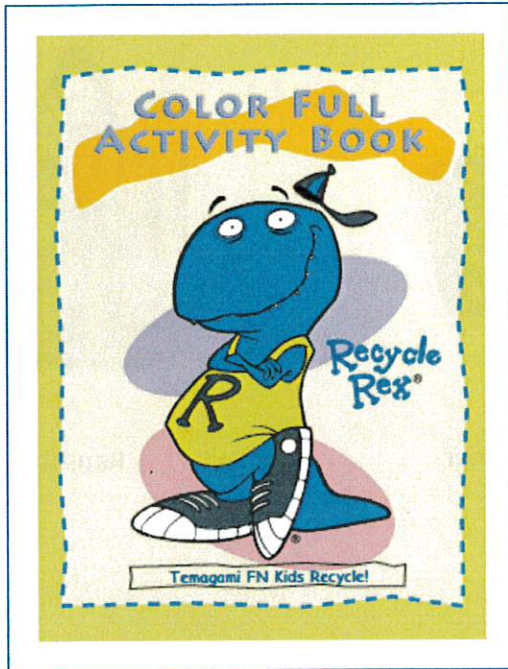
14 gallon container



Reusable bag

Appendix D

Kids Recycling Activity Book



RECYCLE

Names, please!
Draw a line from each Recycle Guy to their name.

Sam Soda Bottle
Glenda Glass
Bart Battery
Perry Paper
Molly Milk Jug
Toby Tire
Clayton Can

Use this number-letter code to find the Recycle Guy's secret message.

1 = A	5 = E	9 = I	13 = M	17 = Q	21 = U	25 = Y
2 = B	6 = F	10 = J	14 = N	18 = R	22 = V	26 = Z
3 = C	7 = G	11 = K	15 = O	19 = S	23 = W	
4 = D	8 = H	12 = L	16 = P	20 = T	24 = X	

18 5 3 25 3 12 5 20 15 4 1 25

6 15 18 1

2 5 20 20 5 18 20 15 13 15 18 18 15 23

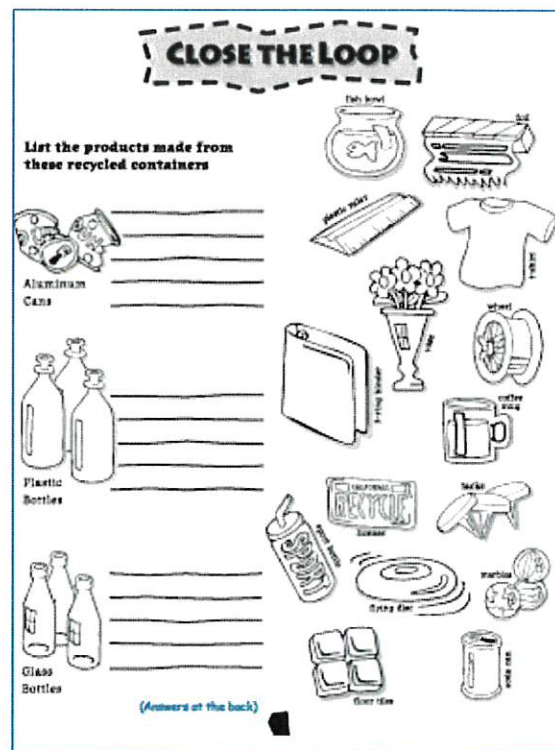
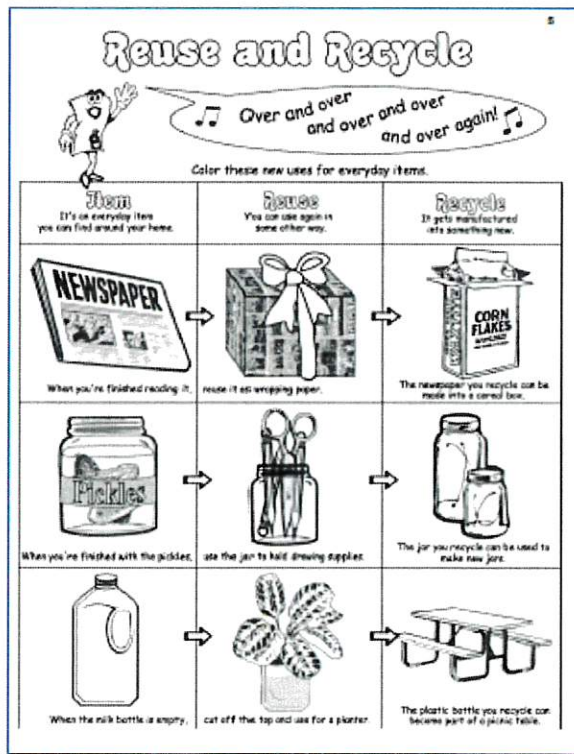
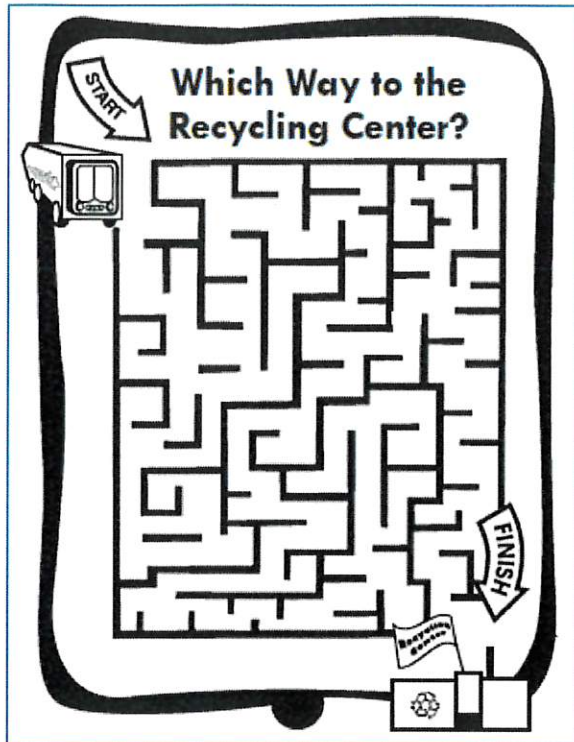
Name: _____

Sorting Trash

Cut the pictures at the bottom and paste them in the right category.

Recycle	Garbage

Valerie Young 2002 www.kidsrecycling.com



You Can Be a Recycling Superhero!

Reduce, reuse, recycle and buy recycled products.
It's good for you and our environment.
You can help protect our planet.



Word Search

Paper is an important resource. Each year North Carolinians throw away enough recyclable paper to fill 1,000 soccer fields three feet deep. See if you can find these recycling words hidden in the letters below!

BOOK	LANDFILL	PREVENTION	REUSE
CARDBOARD	LEAF	RECOVERY	TRASH
ENVIRONMENT	NEWSPAPER	RECYCLED	TRUCK
FLASK	PAPER	RESOURCES	WASTE
FOREST	POLLUTION		WOOD



AKRECOVERYMF
NEWSPAPERRLI
LTASABOXEEP
AISLPALNECRE
NQTNEXLCOVER
DWETREUSECVQ
FAOKEDTMBLEF
IGUOERIWHENO
LCARDBOARDTR
LTRASHNTXAE
RESOURCESHOS
WENVIRONMENT

(See page 7 for answers)

Craft: Using Blue Box materials to create a Garden



Make your own gardens of recycled flowers and plants!

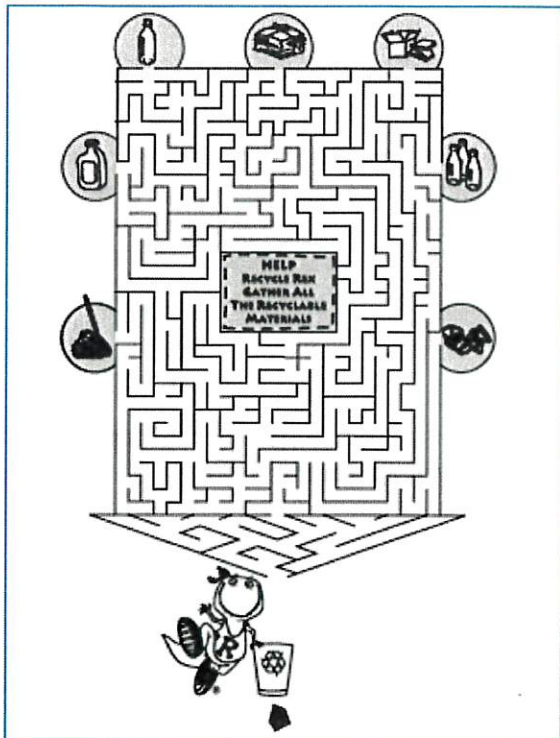
Supplies You'll Need

- Recycled materials (cardboard food boxes, old magazines, drinking straws, container lids, bottle caps, plastic spoons, plastic cups, etc.)
- construction paper or card stock
- Kids scissors
- glue and glue sticks

Add dimension to flowers by creating layers of different types of materials (cardboard boxes, magazine pages, etc.) and ending with a fun bottle cap or top.



I Love to Recycle



Name _____

Let's find out your G.Q. score!

HOME WASTE SCORE CARD

Determine the G.Q. (Green Quotient) grade of your family's waste stream management. Check YES or NO for each of the categories below. Then, add up your YES column.

Yes	No	Do you recycle...
<input type="checkbox"/>	<input type="checkbox"/>	Paper (office paper, newspaper, magazines, bulk mail, cardboard) Does your family save them to take to the recycling drop off location?
<input type="checkbox"/>	<input type="checkbox"/>	Plastic (water bottles, plastic containers) Does your family save them to take to the recycling drop off location?
<input type="checkbox"/>	<input type="checkbox"/>	Aluminum (beverage cans, pet food containers) Does your family save them to take to the recycling drop off location?
<input type="checkbox"/>	<input type="checkbox"/>	Steel cans (canned goods, coffee, pet food containers) Does your family save them to take to the recycling drop off location?
<input type="checkbox"/>	<input type="checkbox"/>	Glass (food and beverage containers) Does your family save them to take to the recycling drop off location?
<input type="checkbox"/>	<input type="checkbox"/>	Compostable food (fruits, vegetables but no meat, bones or oily foods) Have your family started composting using a backyard composter?
<input type="checkbox"/>	<input type="checkbox"/>	Small electronics (e.g., computers, televisions, cell phones) Do you know that Tensagent FN makes money from unwanted electronics when they are recycled at the depot?
<input type="checkbox"/>	<input type="checkbox"/>	Batteries (e.g., AA, D, AAA, rechargeable batteries) Do you bring your used batteries to one of battery recycling boxes located at the school, band office and library?
<input type="checkbox"/>	<input type="checkbox"/>	Household Hazardous Waste (e.g., paint, solvents) Does your family take your unwanted household chemicals to the storage bin at the drop-off site?

G.Q. Score

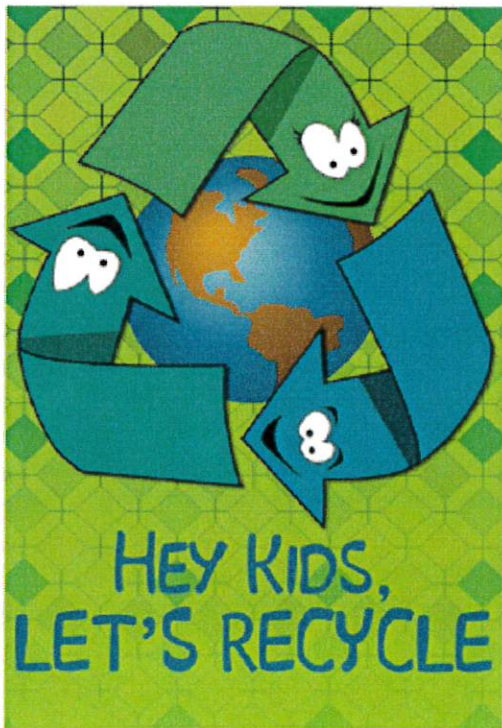
☐ 10 Amazing! We applaud your commitment!

☐ 7-9 Great! The family is doing a terrific job!

☐ 4-6 Well done. You should be proud of your efforts.

☐ 3-1 Good start. Rally the family to do a little bit more.

☐ 0 Consider taking one of the categories and get started in "greening" your family's waste management.



Appendix E

Request for Quotation - Scrap Pile Clean Up and On-going Services

Temagami First Nation is situated on Bear Island on Lake Temagami with 241 permanent residents living on the island. The island can be accessed by boat in the summer and an ice road in the winter. All transportation begins at the end of the Lake Temagami Access Road. The Band offers a variety of transport services including a barge and a maintained ice road in the winter. Directions to the access point can be accessed by clicking here <https://www.google.ca/maps/place/Temagami+First+Nation/@46.9611786,-80.0278041,15.3z/data=!4m5!3m4!1s0x4d2f55ab0447f5f5:0xd182cf43471a9706!8m2!3d46.980668!4d-80.0689739>.

Temagami First Nations has initiated a study to design and implement a waste diversion system for the community which includes clean-up of a large scrap metal pile and placement of a rental 40 cubic yard bin for future containment of scrap metal.

Over the years, a large informal scrap metal pile has accumulated in an isolated area on the island. There has been a request to clean up the scrap pile. The scrap metal pile is located in an easily accessible area and includes scrap metal, scrap appliances (including refrigerators containing CFCs) and derelict cars. It is estimated that there will be about 10 derelict cars requiring removal. All cars will be collected ahead by Temagami FN staff and placed at the scrap pile location.

Photos of the pile are provided below.





A quote to remove the scrap pile is requested as well as a separate quote to rent a 40 cubic yard bin per month basis and a cost to remove and replace the bin when full (on call basis). Temagami First Nations is looking for a minimum three year contract. The quote is due by **January 24, 2018**.

Information that will help with the quote is as follows:

- A barge will be available to transport the necessary vehicles and containers. The barge can handle 50 tonnes of weight and vehicles up to 40 feet long. The cost per trip is \$400 (from Bear Island to Temagami Access Road landing and return).
- Heavy duty equipment (e.g. back hoe, excavator, /front end loader with fork lift) can be rented from the Temagami First Nation at \$110/hour.
- The contractor may keep all revenue from the sale of the scrap metal.
- Appliances containing CFCs will need to be managed properly with CFC removed and recycled. There are an estimated 35-40 appliances.
- It is estimated that travel time from North Bay to the end of Temagami Lake Access Road is approximately 1.5 hours with additional travel time on the barge at one hour (one way)

All prices, listed above, must be included in quote to the extent that the services are used.

Other Tender Requirements:

Contractor, at its sole cost and expense, shall maintain throughout the term of this Agreement all permits, licenses and approvals necessary or required for Contractor to perform the work and services pursuant to this Agreement.

Contractor shall indemnify and hold harmless Temagami First Nation from and against any and all costs, loss, expense, liability damages, or claims for damage arising or resulting from any work by Contractor, including attorney's fees, expenses and costs of defending any action on account of any injury or damage to property or persons, or on account of any other action against First Nation for any liability arising out of any work performed by or required of Contractor and on account of any injury (including death) to any persons or property arising from or resulting from the work provided for or performed by Contractor.

A Certificate of Insurance in the amount of no less than 2 million dollars per incident for property damage and or personal injury resulting from activities by the contractor causing damage during the execution of any services awarded hereunder.

The Contractor's right to perform this contract may be terminated by First Nation in the event First Nation finds Contractor to be in default for non-performance or inadequate performance. The removal of the material specified must be to the satisfaction of the First Nation at their sole discretion, failing which the First Nation reserves the right to withhold payment and/or retain additional contractors.

For further questions please contact
Virginia Paul, Executive Director
Temagami First Nation
Phone: (705) 237-8943
Email: ed@temagamifirstnation.ca

QUOTE FORM

Please complete the following Quote Form, for a three year contract period.

All prices must include the barging cost at \$400 per trip.

All prices must include any Temagami First Nation heavy equipment rental at \$110/hour.

Contractor to keep revenue from scrap metal.

One Time Scrap Metal Removal

One time price to remove existing scrap pile from Temagami First Nation location on Bear Island, including all Labour and transportation costs.

Transportation Costs (Incl.barging): \$ _____

Labour: \$ _____

CFC Removal: \$ _____

Total: \$ _____

(Excluding

HST)

Scrap Metal Bin Rental and Collection

Price to rent a 40 cubic yard bin on a monthly basis.

Rental per month \$ _____

GST \$ _____

PST \$ _____

Total \$ _____

Collection price to collect and transport the full bin of scrap metal and replace it with an empty 40 cubic yard bin. Collection to be provided on an on-call basis. Price to include barging cost.

Transportation and set up empty bin at site (incl. barging) \$ _____

Transportation for removal of full bin from site (incl. barging) \$ _____

Labour \$ _____

Total \$ _____

Quote due by **January 24, 2018**.

Please send the quote to:

Virginia Paul, Executive Director

Temagami First Nation

Bear Island, ON P0H 1C0

Email: ed@temagamifirstnation.ca

