

A Waste Recycling Strategy for The Municipality of West Nipissing

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1.0 Introduction

This Waste Recycling Strategy (Strategy) was initiated by the Municipality of West Nipissing (Municipality) to develop a plan to increase the efficiency and effectiveness of its recycling program and maximize the amount of Blue Box material diverted from disposal. This plan will be updated at least every five years.

Specifically, the purpose of this Strategy is to:

- Maximize Best Practices funding;
- Identify and demonstrate continuous improvements toward Best Practices;
- Clarify long term Blue Box diversion goals; and
- Identify cost effective options to maximize Blue Box diversion for the Municipality.

The Municipality's obligations for managing residential waste include the following:

- Weekly garbage collection for Sturgeon Falls, and surrounding areas of Springer, Field, and Cache Bay (six bag limit);
- Public access to attended recycling depots at the municipally owned waste disposal sites and unattended centrally located depot sites offering unlimited hours of operation (24 hour service);
- Bi-weekly curbside Blue Box collection (two stream) to urban areas;
- Municipally owned and operated MRF located at the waste disposal site in Sturgeon Falls;
- Seasonal leaf and yard waste collection;
- Special events recycling programs;
- Dedicated municipal collection vehicle for the Industrial, Commercial and Institutional (IC&I) sector for corrugated cardboard, clean office paper and containers.
- Scrap Metal, Tire and Waste Electronic recycling at the disposal sites; and
- Access to household hazardous special waste depot in North Bay.

The Municipality faces a few waste management challenges that this Strategy can address including:

- Low Blue Box capture rates;
- Low proximity to end markets and MRF's;
- Aging MRF ; and
- No curbside bans or mandatory recycling by-laws supporting Blue Box participation.

This Strategy was developed with financial support from the Continuous Improvement Fund (CIF). The CIF's *Guidebook for Creating a Municipal Waste Recycling Strategy* was used to help develop this Strategy.

2.0 Overview of the Planning Process

This Strategy was prepared by environmental consulting firm 2cg Inc and municipal staff.

The development of the Strategy included the following steps:

- Gather relevant data from municipality;
- Submit Draft report to the municipality for comment/input;
- Incorporate municipal comments to Draft report; and
- Prepare final Strategy and post on website and submit to Council to adopt.

The next steps include:

- Endorsement of this Waste Recycling Strategy by Council;
- Committee decision on which initiatives to implement; and
- Expand routine reporting and monitoring systems to track success of Blue Box program.

3.0 Study Area

The study area for this Strategy is the amalgamated Municipality of West Nipissing in northeastern Ontario on Lake Nipissing in the Nipissing District. It is comprised of former towns, villages, townships including, Cache Bay, Crystal Falls, Desauliniers, Field, Kipling, Lavigne, North Monteville, River Valley, Sturgeon Falls and Verner.

The Municipality is accessible via Trans Canada Highway 17 along the north shore of Lake Nipissing, approximately 40 km west of North Bay and 90 km east of Sudbury. Travel time to Toronto represents approximately 4 to 5 hours. West Nipissing is commonly associated with the Town of Sturgeon Falls, representing the largest population centre within the municipality located directly off of Highway 17.

The geographic area of the Municipality in relation to proximity of other urban centres is depicted in Figure 1.

This Waste Recycling Strategy addressed the following sectors:

- Curbside residential collection; and
- Rural depot users.



4.0 Public and Stakeholder Consultation Process

Stakeholder groups included in this consultation included:

- Municipal staff;
- Municipal website; and
- Municipal council.

The public and stakeholder consultation process followed in the development of this Strategy consisted of the following activities:

- Interviews with staff to discuss current situation and expand on information previously gathered from site visits in April 2010;
- Submission of Draft report to staff for comment;
- Submission of Final report incorporating staff comments to Council to adopt; and
- Posting of Final Report on the municipal website.

Figure 1 Area Map depicting location of the Municipality of West Nipissing



5.0 Stated Problem

Management of municipal solid waste, including the diversion of Blue Box materials, is a key responsibility for all municipal governments in Ontario. The factors that

encourage or hinder municipal blue box recycling endeavors can vary greatly and depends on a municipality's size, geographic location and population.

The challenges facing the Municipality are:

- High geographic area accompanied with low population density in the rural areas;
- High distance to end market impacts decision to manage some Blue Box items; and
- Blue Box capture rates particularly in rural areas serviced by depots.
- Monitoring to track success of recycling programs.

The Municipality offers bi-weekly collection of fibres and containers. If residents have an abundance of Blue Box material, they are instructed to use a 24 hour depot or bring material to the MRF. The Municipality collects an expanded range of blue box material which includes the following:

Containers	Fibres
<ul style="list-style-type: none"> • Glass bottles and jars 	<ul style="list-style-type: none"> • Newspaper, flyers, magazines, inserts
<ul style="list-style-type: none"> • Metal food and beverage containers & foil 	<ul style="list-style-type: none"> • Office paper, fine paper, envelopes
<ul style="list-style-type: none"> • Empty dry paint cans 	<ul style="list-style-type: none"> • Non-metallic wrapping materials, greeting cards, books
<ul style="list-style-type: none"> • Plastic containers (1-7) excluding film & polystyrene 	<ul style="list-style-type: none"> • Boxboard, corrugated cardboard, brown paper bags

Curbside and rural depot residents use a standard size blue box for recyclables.

Photos 1-3 depict recyclables collection mechanisms used by the Municipality.



Photo 1 Blue Box and Waste Collection Vehicle (split truck)



Photo 2 24 Hour Unattended Blue Box Depots



Photo 3 Attended Blue Box Depots at Disposal Sites

Overall the program operates better in the urban areas compared to the rural areas. The capture rates from the rural depot sites are low causing associated collection costs to appear high.

The key drivers that led to the development of this Waste Recycling Strategy include:

- Maximize Best Practices funding;
- Increasing overall Blue Box capture rates; and
- Increase public perception of the Municipality’s dedication to the Blue Box program.

6.0 Goals and Objectives

This Strategy development process identified a number of goals and objectives for the Municipality. These are presented below.

Waste Recycling Goals and Objectives	
Goals	Objectives
To maximize diversion of residential waste through the curbside and rural depot recycling program	In 2011 aim to divert 15% of municipal solid waste through the Blue Box program through implementation of simple measures (Priority Initiatives Table Section 8.2). Beyond 2011 <u>consider</u> setting target to divert 20% of municipal solid waste through the Blue Box program through the implementation of more comprehensive measures (Future Initiatives Table Section 8.2).
To increase participation in the rural recycling program	To monitor current participation rate and aim to ensure that participation in rural Blue Box program is at least 80%

7.0 Current Solid Waste Trends, Practices and System and Future Needs

Community Characteristics

The reported population (2009) for West Nipissing is approximately 13,400 people or 7,080 households representing 4,935 households on curbside blue box collection and 2,145 households serviced by a depot program.



Table 7.0 depicts the demographics of West Nipissing urbanized areas.

West Nipissing Urban Areas	Approximate Household Count
Sturgeon Falls	4,000
Verner	315
Field	310
Cache Bay	310
Total	4,935

Currently, the Municipality has the following policies and programs in place to manage residential solid waste:

- Landfill tipping fees; and
- Six bag waste limit per week.

The Municipality does not have supporting mandatory recycling or curbside/disposal bans for blue box material (no rejection of contaminated recyclables at the curb). The Municipality offers a first blue box free of charge while additional blue boxes may be purchased from the Municipality at \$7/box for standard size boxes.

Existing Recycling Programs and Services

The bi-weekly service is conducted with a crew of two Environmental Services staff using a right hand drive 30 cubic yard Labrie (2006) vertical split truck (60/40). The collection truck is operational on a weekly basis (Tuesdays to Thursdays) to service the various urban areas within West Nipissing. Collected areas are sectioned off into Wards (1-6) with the collection vehicle operating on a weekly basis to capture all the communities. Mondays are dedicated to leaf and yard waste collection, delivery of blue boxes, composters, WEEE consolidation, etc., and Fridays are dedicated to maintenance and related Environmental Services activities. Residents are asked to use blue boxes, clear plastic bags or clearly marked containers for curbside materials.

To accommodate rural and seasonal residents, the Municipality has four unattended Haul All HL6 depot sites located in centralized areas throughout the area (Verner Arena, Crystal Falls Boat Launch, Monetville Fire hall, Field Public Works Yard). The sites increase accessibility for residents coming to the communities to do their shopping etc. The sites experience moderate contamination and some illegal dumping of materials beside the bins.



Waste disposal sites (Sturgeon Falls, Field, Verner, Lavigne, Badgerow, Kipling and River Valley) within the Municipality offer attended recycling depot service to permanent and seasonal residents in rural locations not serviceable by curbside collection. The Municipality uses Haul All HL 6 depot containers for collecting fibre and container material and used sea containers for the storage of bulky recyclables. The Haul All bins were purchased used from the Municipality of East Ferris.

Blue box material is delivered to the municipality's Material Recovery Facility (MRF). The MRF is sited at the rear of the municipally owned Sturgeon Falls waste disposal site. The MRF operates as both a point of transfer for the comingled containers and as a processing operation for the fibre material. There are two full time staff and one part time staff (1 operator, 1 full time labourer and 1 part time labourer) who work at the MRF. Duties include sorting fibre materials, baling fibre, loading trucks and trailers. The Municipality receives 100% revenue for the sale of all processed fibre material. Collected container material is tipped into a three sided structure that is attached to the MRF. All containers are transferred to R&D Recycling located along highway 17, 10 Km east of North Bay, ON.

The MRF is a heated, metal clad Butler building equipped with three phase power, concrete flooring, approximately 8,000 square feet with three overhead doors. The facility does not have a weigh scale. The labour and layout of the MRF currently meets the needs of the Municipality. Material is processed an average of 4 days per week with one day for maintenance and other recycling related duties (delivering blue boxes, loading outbound trailers, etc). The access road and property is not paved but dust generated from inbound trucks has not been a concern due to facility location. The Municipality owns all equipment and facilities associated with the MRF with no outstanding debt associated with equipment amortization.

Photos 4-6 depict the MRF operations at the Sturgeon Falls Site



Photo 4 Exterior of MRF



Photo 5 Interior of MRF



Photo 6 Container Storage Area beside MRF

Current Waste Generation and Diversion

Table 7.1 depicts total waste quantities managed by the Municipality. Quantities are estimated based on inbound volumes and landfill contours and average rate of compaction at the site.

Table 7.1 2009 Total Waste Quantities

Waste Material (2009)	Quantities (Cubic Yards)	Tonnage
Municipal and Drop off Waste at Landfill	39,145 cubic yards	6,939 tonnes (39,145 cubic yards)X 650lbs/2,200lbs)=11,565 tonnes x60%
Municipal BB Collection		496
Municipal BB Depot Collection		128
Municipal ICI BB Collection (Downtown Core)		294
Residential Self Haul Scrap Metal		290
Total Waste		8,147 Tonnes



In 2009, the Municipality managed a total of 8,147 tonnes of waste (MHSW quantities are not recorded). From this, it is estimated that approximately 5,000 tonnes of waste is from the residential sector, 624 tonnes is from the residential Blue Box waste and 294 tonnes is municipally collected at the curb from the downtown sector.

It is important to note that the downtown Blue Box tonnages support the overall diversion of waste from the Municipal landfill site and encourage participation in the Blue Box program (residents living in West Nipissing and working in Sturgeon Falls). To calculate residential Blue Box diversion rate, the commercial tonnages are not factored as part of the calculations of this Waste Recycling Strategy (2010). Inclusion of commercial sector data can be included in future updates to the Municipal Recycling Strategy when the Municipality develops additional baseline data on the commercial sectors being serviced (building counts, types of generators, and segregation of commercial sector waste from other dropped off waste from the residential sector).

Table 7.2 summarizes the current residential **Blue Box** diversion rates. It is important to note that the Strategy focus is on the Blue Box program and reference to diversion rates and capture rates is specific to Blue Box recyclables and does not incorporate overall waste diversion rates from other sources.

Table 7.2 Residential Wastes and Blue Box Diversion Rate (2009)

Residential Solid Waste Generated and Diverted through Blue Box		
Residential Waste Stream/ Blue Box Material	Tonnes	Percent of Total Waste
Total Residential Waste Generated	5,000.0	-
Papers (ONP, OMG, OCC, OBB and fine papers)	482.0	9.6%
Mixed Containers (aluminum, steel, plastic & glass)	142.0	2.8%
Separated Plastics	0.0	0.0%
Separated Glass	0.0	0.0%
Total Blue Box material diverted	624.0	12.5%

Table 7.3 depicts that the Municipality’s current residential Blue Box diversion rate is lower than the WDO municipal grouping.



Table 7.3 Blue Box Diversion Rates

Average Blue Box Diversion Rate (2009)	
Municipality of West Nipissing	12.5%
Municipal Grouping: Rural Collection North	20.29%

Specific to West Nipissing, the residential curbside program contributes to the majority of the Blue Box tonnages.

Table 7.4 depicts Blue Box capture variance from the urban and rural Blue Box program within the Municipality.

Table 7.4 Urban vs. Rural Blue Box Quantities (2009)

Blue Box Material (2009)	Quantities (Tonnes)	Percentage of Total BB	Households Serviced	Kg/HH
Municipal BB Collection	496	80%	4,935	127
Municipal Depot Collection	128	20%	2,145	60
Overall	624	100%	7,045	88

Table 7.5 depicts the cost breakdown for the urban curbside Blue Box collection for the Municipality. The areas serviced by curbside represents 6 different collection Wards. The distances between stops are low but the travel time to each Ward is somewhat high. Currently, there is one truck and 2 operators, devoted to the residential curbside recycling program operating 52 weeks per year (bi-weekly services), capturing an average of 127 kilograms per household per year of blue box material at a rate of \$222/tonne or \$22/household.

Comparably, the 31 curbside programs in the Rural Collection North category average a slightly lower capture of 122 kg/hh/yr, based on 79,016 total Rural Collection North households and 9,718 total Rural Collection North Blue Box tonnes.

Table 7.5 Residential Curbside Collection Costs (2009)

Item	Cost
Municipal Curbside Contract Cost-Sturgeon Falls	\$98,800.00
Collection Admin/Management	\$11,709.00
Total Collection Costs	\$110,509.00
Total Curbside Residential Tonnes	496.00
Residential Curbside Cost Per Tonne	\$222.80
Operating Cost (Total Inbound) Per Household (4,900)	\$22.55



The depot collection costs for the Municipality are split among all attended and unattended sites. On average, the **depot program captures approximately 60 kilograms per household per year of blue box material at a rate of \$476 per tonne or \$28 per household.**

Comparably, Rural Depot North program information gathered from the WDO website (2009) report northern rural depot programs average somewhat higher capture of Blue Box material reflecting 79 kilograms per household based on 58,568 total Rural Depot North households and 4,684 total Rural Depot North Blue Box tonnes.

Table 7.6 depicts the costs associated for the rural areas serviced by the depot sites.

Table 7.6 Residential Rural Depot Collection Costs (2009)

Item	Cost
Municipal Contract Cost-Surrounding Hamlets (Depots)	\$49,335.00
Collection Admin/Management	\$11,709.00
Total Depot Collection Costs	\$61,044.00
Total Depot Tonnes	128
Cost Per Tonne	\$476.91
Total Households	2,145
Operating Cost Per Household	\$28.46

In 2009, the net overall residential recycling cost for the Municipality was \$296,744.00. This represents all costs associated with the Blue Box program inclusive of the MRF operations, residential curbside and depot collection as well as administration costs associated with the program and Blue Box revenue.

Details of overall residential Blue Box costs are depicted in Table 7.7.

Table 7.7 Overall Blue Box Costs (2009)

Item	Annual Cost
BB MRF Operations	\$ 160,312.00
BB Curbside Collection	\$ 110,509.00
BB Depot Collection	\$ 61,044.00
Total Gross BB Costs	\$ 331,865.00
BB Revenue (2009)	-\$35,121.00
Net BB Costs	\$296,744.00

This amounts to a net operating cost of \$475 per tonne, \$22 per capita or \$42 per household.



Overall recycling costs for the Municipality are lower than the average for the Rural Collection North municipal grouping.

Net Recycling Cost (per tonne per year)	
Municipality of West Nipissing	\$475
Municipal Grouping: Rural Regional	\$552

To quantify, a few outlier programs exceed \$1,000/tonne skewing overall data. In general, West Nipissing costs reflect the average costs of curbside programs servicing more than 5,000 households in the Rural Collection North grouping.

Potential Waste Diversion

It should be noted that the Municipality's waste composition was calculated using the Rural Collection North waste audit sample (WDO) that was specifically conducted in West Nipissing and is referenced in the CIF guidebook as a suitable sampling comparator to establish current Blue Box capture rates.

Referencing data from the Rural Collection North waste audit sample (West Nipissing), it has been estimated that the Municipality's **capture rate of Blue Box material from the current waste stream is approximately 32%**. This can be calculated by using the Municipality's 2009 total residential waste generation of 5,000 tonnes and comparing it to the composition data from the Rural Collection North sample audit. As a result, it can be estimated that approximately 1,900 tonnes of Blue Box material is available in the **residential waste stream** and currently, the Municipality has captured 624 tonnes of the Blue Box material (624 Blue Box tonnes/1,900 available Blue Box tonnes =32% capture rate).

Table 7.8 depicts details of potential total Blue Box material available in the Municipality's waste stream based on waste audit composition data from the Rural Collection North sample audit.

Table 7.8 Potential Blue Box Diversion

Current and Potential Blue Box Diversion			
Waste/Resource Material	Composition (%) (from CIF Rural Collection North sample audit- W.Nipissing)	Total Residential Waste Generated (tonnes)	Total Blue Box Material in Waste Stream (tonnes)
Papers (ONP, OMG, OCC, OBB and fine papers)	23	5000.0	1150.0
Metals (aluminum, steel, mixed metal)	3		150.0
Plastics (containers, film, tubs and lids)	8		400.0
Glass	4		200.0
Total Blue Box Materials	38.0	5,000.0	1,900.0

The CIF guidebook has set a target capture rate of 70% Blue Box material for the Rural Collection North municipalities.

Reflecting the 70% projected capture rate against the existing Municipality's waste stream represents approximately 1,330 tonnes of Blue Box recyclable material or an additional 743 tonnes that could potentially be captured by the Municipality's Blue Box program from the residential waste stream.

Details of estimates of Blue Box material available for capture are listed in Table 7.9 below.

Table 7.9 Potential Blue Box Tonnage at 70% Blue Box Capture Rate

Current and Potential Diversion			
Waste/Resource Material	Total Available in Waste Stream (tonnes/year)	Currently Recycled (tonnes)	Potential Increase (tonnes/year)
Papers (ONP, OMG, OCC, OBB and fine papers)	805.0	482.0	323.0
Metals (aluminum, steel, mixed metal)	105.0	142.0	0.0
Plastics (containers, film, tubs and lids)	280.0	0.0	280.0
Glass	140.0	0.0	140.0
Total Blue Box Materials	1,330.0	624.0	743.0

Capturing 70% of Blue Box material from the Municipality’s residential waste stream would raise its **Blue Box diversion rate to about 27%** (i.e. 624 Blue Box tonnes + 743 potential tonnes / total residential waste of 5,000 tonnes). The 743 additional tonnes would increase Blue Box diversion by about 15 percentage points.

Anticipated Future Waste Management Needs

Solid waste generated rates in the Municipality are expected to grow slowly (ca. 1% per annum over the next 10 year planning period). Table 7.10 below depicts the expected growth rates for solid waste generation and Blue Box material recovery (based on projected population growth rates).

Table 7.10 Projected Blue Box Recovery Rates

Anticipated Future Solid Waste and Blue Box Recovery Rates			
	Current Year	Current Year + 5	Current Year + 10
Population	13,400.0	14,083.5	14,801.9
Total Waste	5,020.0	5,276.1	5,545.2
Blue Box Material Available	1,335.3	1,403.4	1,475.0



8.0 Planning a Recycling System

The following section outlines some possible strategies that are suitable for the Municipality to consider increasing blue box diversion and capturing rates in the upcoming years.

8.1 Possible Strategy to Increase Recycling

The Municipality presently diverts approximately **12%** of its wastes through its Blue Box program. The average for municipalities of its type is approximately **20%**.

Given that the Municipality has lower than the average diversion rate for municipalities of its grouping but with lower than average costs for the Blue Box program a phased approach is proposed. This will ensure that program results can be closely monitored by Municipal staff.

It is anticipated that it should be possible to also increase the capture rate of the Blue Box program within the context and costs of the current program. This would be done by encouraging residents to recycle more of their wastes using the existing program and implementing supporting infrastructures such as recycling by-laws, reducing the number of bags at the curbside, curbside ban of recyclables in the waste (e.g. no waste collection if no blue box set out, etc), offering larger capacity blue boxes to the rural depot residents, and enhancing rural depot education program.

A reasonable preliminary goal would be to increase diversion rate to **15%**. A second and aspirational future goal would be to achieve a **20%** diversion rate as a result of the Blue Box program. The minimum future goal would be to at least reach the average **15% Blue Box diversion rate in the next 12 months**.

Table 8.1 highlights the estimated number of tonnes that would need to be captured to attain 15% and 20% Blue Box diversion rates. It includes consideration of the impact of population growth in the Municipality (1%/annum).

Table 8.1 Projected Blue Box Tonnages

Capture Rates to Meet Waste Diversion Goals			
	% Waste Diversion		
	Current (12)	15	20
	tonnes captured/year		
2010	624	753	1,004
2015	656	791	1,055
2020	689	832	1,109

It should be possible to capture additional Blue Box materials with the existing program. The following table highlights attaining a 20% diversion rate as a result of the Blue Box.



Table 8.2 Forecasting Diversion Rates

Meeting 20% Blue Box Diversion Rate		
Current Capture (12%)	tonnes/year	624
15% Capture	tonnes/year	753
20% Capture (additional tonnes)	tonnes/year	129
Per household	kg/year	18.2
Per household	kg/week	0.4
Collection routes	#	5
Per route	tonnes/year	26
Per route	kg/week	0
Current program costs	\$/year	\$296,744
Current program costs	\$/tonne	\$476
New program costs	\$/tonne	\$394

On average this would amount to each household recycling an additional 18 kg/year or 0.4kg/week.

This has potential to reduce the overall cost per tonne for recycling. It is important to note that the challenge for the Municipality and other programs in the Rural Collection North grouping is the increasing volume of collected material. If the Municipality improves on capture of additional plastic material, existing curbside Blue Boxes and truck capacity decreases and becomes an issue with handling and transportation costs. If the Municipality improves promotion specific to capture of fibre material, there is less of an impact on available collection capacity.

8.2 Overview of Planned Initiatives

The best approach for increasing the capture rate and decreasing costs was to stage possible changes to the current Blue Box program and try to develop improvements.

With that in mind a number of options were reviewed and scored based on a series of criteria, which included:

- Estimate of waste diverted (%);
- Proven Results;
- Reliable Processing facilities/End Use;
- Accessible to Public; and
- Ease of Implementation.

A summary of the options reviewed with Municipal staff and their scoring are provided in Appendix 1. Using the evaluation criteria table pulled from the CIF guidebook that lists possible ranking of options surrounding promotion, collection, processing and Best Practices, staff provided feedback on areas requiring consideration. This exercise does not commit to a final decision but acts as a guide to assist with making future decisions.



From there a refined list of options have been summarized into two tables:

- Possible Priority Initiatives; and
- Possible Future Initiatives.

These tables are tools to be considered by the Municipality and to reference as part of this Strategy.

Based on general comments from staff and taking into account comments from the public a list of priority and possible future initiatives was developed.

Table 8.3 depicts a summary of the Priority Initiatives that can be considered for implementation in 2011. (See below).

Table 8.3 Priority Initiatives (2011)

Possible Priority Initiatives (Immediate Future 2011)				
Initiative	Estimated Implementation Cost	Estimated Annual Operating Cost	Implementation Time Line	Comments
Enhance Rural Depot Public Education and Promotion (P&E) Program	\$3,000	\$1,000	2011 with the assistance of the on-line P&E tool https://blueboxpe.wdo.ca/ to establish marketing plan.	Intent to better publicize Depot program and capture more Blue Box materials.
Improve Accessibility of Rural Depot Sites	\$5,000-\$10,000	\$1,000	Phase starting in 2011 and gradually upgrade all sites.	Improvements to traffic flow and encourage resident participation.
Purchase larger capacity blue boxes (22 gal.) for Rural Depot Users	50% of BB costs funded by CIF	None-possible staff time to distribute boxes.	2011	Support program with updated Depot flyers handed out with new blue boxes.



CIF Promotion and Education Tool

CIF has recently assigned the Municipality with a registered username and password. The online tool provides the Municipality with all the elements needed to run a successful Blue Box P&E program. After completing a questionnaire a customized marketing plan and customized marketing materials will be prepared. The marketing plan is a 3-year plan that is organized in seven sections including:

- Program Guiding Principles;
- Goals;
- Key Messages;
- Target Audiences;
- Resources;
- Tactics; and
- Tracking.

The service is free to the Municipality. The costs reflect possible flyer preparations, mail outs, and advertising to promote the participation of the rural Blue Box program.

Rural Depot Improvements

The rural depots at the Municipal landfill sites have had recent signage upgrades to improve awareness and participation (CIF). With the new signage, supporting infrastructure such as improved traffic flow and depot attendant participation (handing out flyers or larger blue boxes) can be considered to improve depot capture rates.

A report commissioned by WDO through the Effectiveness and Efficiency Fund entitled Best Practices for Rural Depot Recycling (2006) outlines the following key factors for effective rural recycling depots:

- **Depot Accessibility** – clean, easy to load depot containers with sufficient turning radius for vehicular traffic and an area separate from congestion of waste disposal traffic;
- **Supportive infrastructure to reduce contamination and increase participation**-including provisions of Blue Boxes to seasonal residents to segregate recyclables at the cottage, illegal dumping and mandatory recycling by-laws, the use of clear bags and bag limits for waste;
- **Entrance signage at the depot site and simple messaging** on the depot container -using graphics and minimal text for easy reading; and
- **Depot attendant actively involved in monitoring recycling depot** –hand out literature to new residents, sell Blue Boxes at the depot site for residents.

The Municipality can consider implementing some or all of these best practices to increase depot capture rates.

Large Capacity Blue Boxes

Currently, residents using the rural depot sites are using either smaller size Blue Boxes or makeshift boxes. Funding exists for the purchase of larger capacity Blue Box containers (22 gallon boxes). The added capacity may not only increase capture but lower unit operating costs. The Municipality can apply for capital funding from CIF to offset the purchase cost of the larger capacity Blue Boxes and continue to maintain cost recovery of the boxes by charging for all boxes.

The following Table 8.4 outlines possible future initiatives to take into consideration to improve Blue Box diversion and capture rates.

Table 8.4 Future Initiatives

Possible Future Initiatives				
Initiative	Estimated Implementation Cost	Estimated Annual Operating Cost	Implementation	Comments
Reduce Bag Limits	Staff time	Could result in shift in collection costs from waste to blue box.	2012	Current limit is 6 bags/wk, consider reducing to 3 bags/wk.
Curbside Bans	Staff time (collection crew enforcement)	Could result in shift in collection costs from waste to blue box.	2012-2013	May chose to support with landfill bans (clean OCC)
Weekly Blue Box Collection	Staff time and possible increase in curbside collection costs by approx. 7% based on CIF guidebook.	Could result in shift in collection costs from waste to blue box and possible overall reduction in costs if incorporated with waste bag limits, curbside bans.	2014-15.	Potential to increase capture rate toward 70% and blue box diversion rate toward a minimum of 20%.
User Pay	Staff time	Tag revenue offset overall operating	2014-2015	Possible Phase Approach to program with bag

Possible Future Initiatives					
Initiative	Estimated Implementation Cost	Estimated Annual Operating Cost	Implementation	Comments	
		costs of program		limits and ban first and tie in with weekly curbside collection.	
Enhance Blue Service	ICI Box Staff time + educational material. Possibly fund ICI program from revenue sale of ICI material or encourage local ICI sponsorship.	\$500/year for material plus staff time.	2012	Possible increase range of collected material if program is successful.	

Bag Limits

Currently, the Municipality has a high bag limit that does not support reduction in weekly waste quantities for curbside collection. Another Best Practice outlined in the KPMG/RW Beck Report to increase participation and capture rate of a Blue Box program is by employing a limit to the number of bags a household can set out for collection (e.g. 2-3 bags per household per week). The following table excerpted from the CIF guidebook suggests effective bag limit levels for various Blue Box recycling programs. Programs with alternating weekly Blue Box collection have a suggested bag limit of **3 bags per week** and a further reduction to 2 bags per week when supported by an organics collection program.

Table 8.3 provides information depicted in the CIF guidebook:

Table 8.3 Suggested Bag Limits

Recycling System	Collection Frequency	Garbage	Suggested Bag Limit	Add Kitchen Organics	Suggested Bag Limit
Multi-Sort	Weekly	Weekly	3	Weekly	2
	Bi-weekly	Weekly	4	Weekly	3
Two Stream	Weekly	Weekly	3	Weekly	2
	Bi-weekly	Weekly	4	Weekly	2
	Alternating weeks	Weekly	3	Weekly	2

Bag limits can generally be administered without capital expense and are typically regarded as a low-cost initiative.



Curbside Bans

As outlined in the CIF guidebook, curbside bans entail the banning of material from garbage collection and forcing residents to dispose of the material through the Blue Box program or other diversion options. Forms of curbside bans can include no collection of waste if there are resident who do not set out any Blue Box material or rejection of Blue Box items that are not recyclable in the current program. Supporting curbside bans can be mandatory recycling by-laws which can encourage recycling participation from multi-residential sectors and are enforced by posted fines.

As outlined in the CIF guidebook for creating a Waste Recycling Strategy, fundamental Best Practices (KPMG /RW Beck Best Practices Report 2007) are for municipalities to use a combination of policy mechanisms and incentives to stimulate recycling and discourage excessive generation of garbage. Economic incentives are diverse. The objective is to place a cost on disposing of residential waste and an importance on Blue Box diversion. Curbside bans can also be supported by landfill bans such as clean corrugated cardboard bans.

User Pay

Full User Pay or Pay-As-You-Throw (PAYT) has the potential to recover a portion or all of waste management costs from system users. If the Municipality were to implement a Full User Pay program the potential savings in collection fees may further be supported by a potential gain in revenue from bag tag sales. As an example, in 2009, the Municipality collected approximately 3,456 tonnes of waste from the curbside program. Using a broad assumption that a bag of waste averages 20 kg, it can be loosely estimated that Municipality collected approximately 172,800 bags of waste in a year. If the Municipality operated under a Full User Pay program and a charge of \$2/bag was applied to all 172,800 bags, the Municipality could potentially have captured \$345,600 in user fees to offset the Blue Box program. Realistically, it is anticipated that residents would reduce their curbside set out of waste or may default to bringing material to the landfill sites thereby reducing available fees.

To support increases in user fees at the disposal sites and at the curbside, it will be important to have infrastructures in place such as illegal dumping and mandatory recycling by-laws, bag limits (2-3 bags per week) and possibly greater access to recycling through weekly blue box collection. Further, a phased in approach would be necessary to ensure public buy in and subsequent participation.

Increasing Blue Box Diversion from ICI sector

The Municipality provides separate curbside collection to several commercial establishments within the urban areas of West Nipissing. Currently, full data for this

sector is limited. It is estimated that 294 tonnes or 32% of the total Blue Box material collected (918 tonnes in 2009) is from the ICI special collection. A protocol for tracking ICI tonnages and sources and maintaining separate tracking of sold tonnages may help the Municipality better assess the success or cost of this service.

Currently, there is little commercial Blue Box educational material available to the downtown customers to encourage full participation. Perhaps the Municipality could initiate the ICI Blue Box Program with supporting flyers specific to the ICI sector. The Recycling Council of Ontario provides supporting educational links, www.rco.on.ca/businesses with ideas for take back programs, waste audits, etc.

8.3 Contingencies

The priority initiatives can be impacted if there is no municipal funding available.

If no future initiatives are implemented then the Municipality will revert to priority initiatives.

9.0 Monitoring and Reporting

The monitoring and reporting of the Municipality’s recycling program is considered a Blue Box program fundamental best practice and will be a key component of this Waste Recycling Strategy.

Once implementation of the Strategy begins, the performance of the Waste Recycling Strategy will be monitored and measured against the baseline established for the current system. Once the results are measured, they will be reported to Council and the public. The recommended approach for monitoring the Municipality’s Strategy is outlined in Table 9.1.

Table 9.1 Blue Box Monitoring Strategy

Recycling System Monitoring		
Monitoring Topic	Monitoring Tool	Frequency
Measurement of Blue Box materials captured.	Documented total weight data as outlined in this Strategy and compare it to target capture rates (70%)	Annual summary
Diversion rate (Blue Box)	Document BB Diversion Rate Formula: (Blue box materials diversion) ÷ Total waste generated * 100%	Annual summary
Program participation (Curbside)	Document Curbside Set-out Studies or Curbside Participation Studies to determine frequency of curbside set out, number of boxes, fullness of boxes, type of boxes used.	Once every 1-2 years.
Program participation	Document Depot site Participation	Once every 1-2

(Depot)	Studies (use) to determine frequency of residents using the sites, number of boxes they bring to the site, fullness of the depot bin when it is collected.	years.
Customer satisfaction	Customer survey (e.g., telephone); tracking calls/complaints received to the municipal office	Every 3 years
Opportunities for improvement	Customer survey (e.g., telephone); tracking calls/complaints received to the municipal office	On-going
Planning activities	Describe what initiatives have been fully or partially implemented, what will be done in the future	Annually
Staff Training	Conduct a review of program services with all depot attendants-offer a planned training day for staff. Encourage depot attendant feedback.	Annually
Review of Recycling Strategy	A periodic review of the Recycling Plan to monitor and report on progress, to ensure that the selected initiatives are being implemented, and to move forward with continuous improvement	Annual for current initiatives Every 5 years to re-evaluate and refine list of initiatives

10.0 Conclusion

The Municipality currently has a moderate Blue Box waste diversion rate (12%) and pays a reasonable rate (i.e. \$475/tonne) for its Blue Box program and experiences an overall low Blue Box capture rate (32%).

A staged process to increase capture rate and maintain cost per tonne cost was **recommended**. There are a number of future initiatives that could be implemented.

It is recommended that the Municipality annually monitor its progress against this Strategy and update this Strategy as it sees fit. It is **recommended** that this Strategy be fully updated in 2015.

Appendix 1
Waste Recycling Option Scores

Waste Recycling Option Scores

Suitable? Y/N	Description of Options/Best Practices (For more information: <i>More information: Blue Box Program Enhancement and Best Practices Assessment Project Final Report, Volume 1</i>)	Criteria (Score out of 5)						Total Criteria Score	Score x/100
		% Waste Diverted	Proven Results	Reliable Market/ End Use	Economically Feasible	Accessible to Public	Ease of Implementation		
Promotion and Outreach									
Y	Public Education and Promotion Program	1-3%	5	5	5	3	3	21	
Y	Training of Key Program Staff	1-3%	5	4	5	4	4	22	
Collection									
N	Optimization of Collection Operations	0%	5	5	1	n/a	1	12	
Y	Bag Limits	3-5%	3		4	5	3	15	
Y	Enhancement of Recycling Depots	3-5%	5	5	1	5	1	17	
Y	Provision of Free Blue Boxes	1-3%	5	5	3	5	3	21	
Y	Collection Frequency	3-5%	5	5	1	5	1	17	
N	Broaden materials categories for Blue Box	1-3%	5	1	4	5	4	19	
Transfer and Processing									
Y	Optimization of Processing Operations	0%	5	5	2	4	1	17	
Partnerships									
Y	Multi-Municipal Collection and Processing of Recyclables	3-5%	5	5	3	5	1	19	

