A Waste Recycling Strategy for The City of Peterborough Final

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Prepared by:

Mary Little Telephone: 905-372-4994,
Email: mary@2cg.ca

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1.0 Introduction

This Waste Recycling Strategy (Strategy) was initiated by the City of Peterborough (City), to develop a plan to increase the efficiency and effectiveness of its Blue Box recycling program, maximize the amount of Blue Box material diverted from disposal and to help maximize Blue Box funding provided by the stewards (i.e. producers) of packaging waste (i.e. materials that end up in the Blue Box), as managed by Waste Diversion Ontario (WDO). This Strategy will be updated at least every five years.

The development of a Strategy is considered to be a Best Practice (BP) and acts as a standalone document that functions as a tool for the City's waste management staff specific to the Blue Box Program. The Continuous Improvement Fund (CIF) *Guidebook for Creating a Municipal Waste Recycling Strategy* (March 2010) was used to help develop this Strategy, along with considerable feedback from municipal staff. This Strategy uses the most recent WDO Datacall data (2010 reporting year) as its starting point. It should be noted from the outset that all reference to diversion rates is specific to residential Blue Box diversion rates and does not incorporate overall waste diversion rates.

The implementation of Best Practices, such as completing this Strategy and monitoring the City's Blue Box program, as defined by WDO can help maximize Blue Box funding. According to the Continuous Improvement Fund (CIF) webpage, complying with BP standards will represent 15% of the 2011 blue box funding allocation, rising to 25% of the allocation in 2012. Ensuring compliance with BP standards will mean that the City will either maintain or improve the funding allocated to the City. Failure to comply means City Blue Box funding allocation will be reduced. The method WDO collects information from municipalities on compliance with blue box best practices is through a series of questions in its annual Datacall.

Implementing and maintaining Blue Box program monitoring initiatives outlined within this Strategy helps secure funding for the City in the future.

Specifically, the purpose of this Strategy is to:

- Help the City maximize WDO Blue Box funding;
- Act as a high level strategic roadmap and planning document to assist the City with future decision making specific to the Blue Box program;
- Assess current performance of the Blue Box program (diversion rates and programs costs) that can be used as a baseline to assess future performance (2011-2016);
- Set long-term Blue Box diversion goals and cost targets; and
- Identify and implement Best Practice initiatives to help improve future performance of the Blue Box program.

2.0 Overview of the Planning Process

This Strategy was prepared by the environmental consulting firm 2cg Inc in conjunction with City staff.

The development of the Strategy included the following steps:

- Gather relevant baseline data from the City;
- Assemble staff input/ranking on various waste recycling options;
- Prepare Draft Strategy;
- Incorporate staff feedback; and
- Prepare final Strategy.

The next steps include:

- Staff/Council endorsement of this Strategy; and
- Council decision on timing and which Blue Box supporting initiatives to implement.

3.0 Study Area

The study area for this Strategy is the City of Peterborough, located 135 km northeast of Toronto, along the Trent-Severn Waterway in the heart of the Kawarthas tourism region.

This Strategy addressed the following sectors:

- Residential single family; and
- Multi-residential sector.

Figure 1: Area Map depicting location of the City of Peterborough

4.0 Public and Stakeholder Consultation Process

Public and stakeholder groups included in this consultation included:

- Municipal staff; and
- Posting of Final Report on the municipal website.

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 City faces some Blue Box recycling challenges that this Strategy can address including:

- Aging MRF operating at capacity with limited opportunity for expansion at existing site;
- High processing contract fees (cost per tonne);
- Limited staff resources and budget; and
- Under-captured fibre material from the waste stream based on recent waste audit data (2006).

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

- Maximize Best Practices funding for the Blue Box program; and
- Increase overall Blue Box capture rate in a cost effective manner.

6.0 Goals and Objectives

This Strategy development process identified a number of goals and objectives for the City. These are presented in Table 6.1.

Table 6.1 City's Recycling Goals and Objectives

Waste Recycling Goals and Objectives	
Goals	**Objectives**
To maintain the cost-effectiveness	Aim to maintain costs but allocate some budget to implement some low cost enhancements to the existing program (P&E) to increase overall Blue Box tonnages.
To maximize capture and diversion of residential Blue Box	In 2012-13 aim to divert **34% household bagged waste** through the Blue Box program through targeting specific material and residential sectors such as Blue Box fibre and perhaps the multi-residential sector or student housing groups. Beyond 2013 consider setting target to divert **40%** and capture **85%** of residential bagged waste through the Blue Box program with support from integrated diversion programs and enforced by incentive mechanisms at the curbside (user fees, curbside bans, clear garbage bags)

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

Community Characteristics

The City has a population of approximately 79,334. It has about 34,915 households which includes about 26,240 single family households and 8,675 multi-residential households.

Existing Waste Management Services

The City provides waste management services including collection, diversion and disposal to single family, multi-residential and most of the small commercial establishments, including the downtown corridor of the City.

Peterborough provides the following:

- Weekly collection of garbage (City forces) and Blue Box material (Private forces, two stream collection);
- Two bag limit on garbage for residents and four bag limit for businesses;
- Joint ownership with the County of Peterborough and full City management/operation of the Peterborough County/City Waste Management Facility (landfill);
- Processing of Blue Box material at a City owned privately run Material Recovery Facility (MRF) located on Pido Road;
- Seasonal leaf and yard waste collection by City forces (April-November);
- Pilot for 625 households of source separated organics (SSO) through City forces;
- Multi-residential recycling program;
- User pay service for bi-annual large article collection ($15 for first item, additional items $5). City forces provides collection and material must be tagged.
- Public space recycling in parks, some City facilities and at special events;
- Operation of a public drop-off depot for the collection of Municipal Hazardous and Special Waste (MHSW) and Waste Electrical and Electronic Equipment (WEEE) (through Ontario Electronic Stewardship (OES) as well as excess Blue Box material for a public drop-off depot open year round, seven days per week, 24 hour service;
- Support of "at home" waste diversion programs, such as backyard composting with the provision of backyard composters (cost recovery), and promoting grass cycling;
- Education and promotion of waste reduction programs; and
- Updating the existing Waste Management Master plan (completion 2012).

Blue Box material is collected by BFI Canada (expiry December 31, 2016). The MRF processing contract is with HGC Inc. and expires December 31, 2014. The City retains 100% of its material revenue. The processing contract operates on a cost per tonne basis. The contractor also provides processing service under a separate

contract on behalf of the County of Peterborough (County retains 100% revenue from their portion of material sold).

All Blue Box materials are processed and marketed by HGC. The City collects an expanded range of Blue Box material which includes the following:

Containers (Blue)	Fibres (Gray)
• Glass bottles and jars	• Newspaper, flyers, magazines, inserts and office paper.
• Metal food and beverage containers & foil/pie plates	• Boxboard, corrugated cardboard, brown paper bags
• Plastic containers (1-7) inclusive of expanded polystyrene and styrene trays and plastic bags and wrap.	• Aseptic Containers • Polycoat

Currently, the City offers its single family residents 14 gallon boxes; two boxes per household (containers and paper), on a cost recovery basis of $5/box. One free Blue Box is available for first time residents and damaged boxes are replaced at no charge. The City offers its multi-residential buildings recycling carts on cost recovery basis ($75/cart) and each unit is provided with a free blue bag to carry recyclables to their depot. A promotional blitz carried out in2008/2009, with the assistance of CIF promoted multi-residential recycling.

Upcoming important Blue Box-related milestones that may affect how collection services are administered within the City include:

- Blue Box processing contract expiry in 3.25 years (December 2014); and
- Blue Box collection contract expiry in 5.25 years (December 2016).

Current Waste Generation and Diversion

Table 7.1 depicts total waste quantities managed by the City 2010 as gathered from the City's Datacall submissions. This table does not include any information on self management of wastes by residents (e.g. backyard composting, deposit return).

Table 7.1 2010 Total Residential Waste Quantities

Waste Material	Tonnes 2010
Garbage Collection	12,132
Garbage Depot	4,058
Total Garbage	16,190
Remove 8% IC&I Portion of Garbage	-1,295
Total Residential Waste (16,190 T-1,295 T)	**14,895**
Blue Box Collection & Depot	7,976
C&D Waste	1,089
Yard Waste Collected	4,232
Yard Waste Depot	709
Remove 8% IC&I Portion of Yard Waste	-395.28
Total Residential Yard Waste	**4,545**
SSO	205
Scrap Metal	190
Drywall	294
Tires	18
MSHW	225
WEEE	331
Total	**31,459**
Total Residential Quantities	**29,768**

In 2010 the City managed a total of 29,768 tonnes of residential waste (garbage and all divertibles) respectively. It is estimated that 8% of the garbage (1,295 tonnes) and yard waste components (395 tonnes) represents commercial waste. For the purpose of this Strategy, the focus is on residential quantities; as a result, the City managed 29,768 tonnes of residential material in 2010.

In 2010, the City diverted close to 15,269 tonnes/year of residential waste of which 7,976 tonnes per year was Blue Box waste. This represents an overall diversion rate of 50% (14,873 Residential Divertibles/29,768 residential waste tonnes); excluding diversion through bottle return and other self management programs which bumps overall diversion to slightly over 50% in 2010.

For the purposes of this Strategy, the 2010 residential Blue Box diversion rate is about 27% (i.e. 7,976 Blue Box Tonnes/29,768 Residential Waste Tonnes).

Table 7.2 summarizes the total waste generation and the **Blue Box** diversion rate.

Table 7.2 City's Residential Blue Box Diversion Rate (2010)*

2010 Residential Solid Waste Generated and Diverted through Blue Box		
Residential Waste Stream/ Blue Box Marketed Material	Tonnes	Percent of Total Waste
Total Residential Waste Generated	29,768	-
Papers (ONP, OMG, OCC, OBB and fine papers)	6,221	20.9%
Metals (aluminum, steel, mixed metal)	479	1.6%
Plastics (containers, film, tubs and lids)	798	2.7%
Glass	479	1.6%
Total Blue Box material diverted	**7,976**	**27%**

*Tonnages based on composition of material marketed.

The City's 2010 recovery rate for Blue Box materials per City's total household count is about 228 kg/hshld as compared to the Provincial average of about 177 kg/hshld (based on 2009 WDO Datacall).

Waste Diversion Ontario divides municipalities into a number of municipal groupings for comparison purposes. The City is included in the Medium Urban grouping with six other municipalities.

Table 7.3 shows that the City's current Blue Box diversion rate from the total residential waste generated (including organics) is above average for its grouping.

Table 7.3 Residential Blue Box Diversion Rate Comparison to Medium Urban Rate

Average Blue Box Diversion Rate (2010)	
Municipality of Peterborough (2010)	27%
Municipal Grouping: Medium Urban (2009)	20.38%

In 2010 the Gross cost to manage the Blue Box program was approximately $2,241,466 (inclusive of processing and collection contracts, City administration, and capital depreciation, and the City's Blue Box portion of the promotion and education program). Reflecting the 7,976 tonnes marketed of residential Blue Box material in 2010, this amounts to a Gross cost of $281 per tonne to manage the City's Blue Box program ($28 per capita or $64 per household).

As Table 7.4 shows, 2010 **Net** annual recycling costs (including revenue from sale of Blue Box material) for the City are **below the Net average cost for Medium Urban programs. The City's Gross costs are above what is proposed as a reasonable average** depicted for this grouping as per the CIF guidebook (2009).

Table 7.4 Municipality's Net Blue Box Costs vs. Net Medium Urban Costs

Recycling Cost (per tonne)	
City of Peterborough Net Costs (2010)	**$147**
Average Net Costs for Medium Urban (2009)	$230
City of Peterborough Gross Costs (2010)	**$281**
Proposed Reasonable Gross Cost for Medium Urban (Based on CIF guidebook-2009)	$170

Potential Waste Diversion

The City's current waste composition was estimated using the Large Urban waste composition presented in the CIF Guidebook. It should be noted that the City conducted a waste audit in 2006 and the composition of fibre was estimated to be 39% versus 32% in the Large Urban waste composition.

Perhaps the City generates a greater amount of paper fibre than other municipalities. For instance the City of Barrie, another Medium Urban program, depicts recent audit data for fibre to be 22% of the waste stream. The City may wish to confirm its paper fibre composition in a future waste audit.

Composition data focus is specific to curbside household bagged wastes and excludes organics, larger item components such as construction and demolition material (C&D) scrap metal, electronics and hazardous waste and tires. On this basis it is estimated, that approximately 22,871 tonnes of waste (garbage, and blue box) was generated in 2010. Table 7.5 depicts material breakdown.

Table 7.5 Household Wastes (2010)

City of Peterborough Household Wastes	2010
Residential Waste	14,895
Residential Blue Box	7,976
Residential Total	**22,871**

Reflecting only waste quantities consisting of bagged residential garbage and Blue Box recyclables, it has been estimated that the City's household waste quantity is 22,871. Applying Large Urban audit composition data to reflect the higher than average fibre composition, it can be estimated that approximately 10,521 tonnes of Blue Box materials are available in the City's waste stream.

Table 7.6 Potential Available Blue Box Material from the City of Peterborough*

Current and Potential Diversion			
Waste/Resource Material	Composition (%) (from Large Urban Waste Audit Data)	Total Residential Waste Generated (tonnes)	Total Blue Box Material in Waste Stream (tonnes)
Papers (ONP, OMG, OCC, OBB and fine papers)	32	22,871	7,319
Metals (aluminum, steel, mixed metal)	3		686
Plastics (containers, film, tubs and lids)	7		1,601
Glass	4		915
Total Blue Box Materials	46	22,871	10,521

*Referencing Large Urban Composition Data and Household Wastes only (excludes organics)

It can be estimated that the current capture rate of Blue Box materials is about 75% (i.e. 7,976/10,521).

It is estimated that there are approximately 2,545 tonnes of Blue Box material remaining in the City's waste stream (household depots, multi-residential and curbside) with the majority of the material representing plastics.

As depicted in Table 7.7 Medium and Large Urban municipalities have a recommended target capture rate of 85% of the Blue Box material from the residential waste stream. In the case of the City, this represents approximately 8,942 tonnes. The City would need to capture an additional 966 tonnes of additional Blue Box material from the residential waste stream to achieve this target (i.e. 8,942-7,976=966 remaining Blue Box tonnes).

Table 7.7 Available Blue Box Material from the City of Peterborough Residential Garbage Stream*

Current and Potential Diversion					
Waste/Resource Material	Composition (%) (from Large Urban Waste Audit Data)	Residential Waste Excluding Organics (tonnes)	Total Blue Box Material in Waste Stream (tonnes)	Target Blue Box Capture Rate (%)	Blue Box Material Available for Diversion
Papers (ONP, OMG, OCC, OBB and fine papers)	32	22,871	7,319	85.00	6,220.91
Metals (aluminum, steel, mixed metal)	3		686		583.21
Plastics (containers, film, tubs and lids)	7		1,601		1,360.82
Glass	4		915		777.61
Total Blue Box Materials	**46**	**22,871**	**10,521**	**85.00**	**8,942.56**

*Referencing Large Urban audit data and City's Household Bagged Waste and Blue Box Quantities (excludes organics)

Capturing 85% of Blue Box material from the City's household residential waste stream would raise its Blue Box diversion rate to close to 40% (i.e. (7,976 + 966)/ 22,871 tonnes) when excluding all other divertibles. It is important to note that this does not reflect overall residential waste quantities. The focus of diversion is on bagged residential waste (curbside and depot) and Blue Box material (curbside and depot).

Anticipated Future Waste Management Needs

It is estimated that the City's average growth rate will be approximately 1% per annum over the next 10 years.

Table 7.8 depicts the expected growth rates for solid waste generation and Blue Box material recovery (based on a projected population growth rate of 1% and 85% Blue Box capture rate).

Table 7.8 Forecasting 85% Capture of Blue Box Material from Household Bagged Waste Stream

Anticipated Future Solid Waste and Blue Box Recovery Rates			
	Current Year	Current Year + 5	Current Year + 10
Population	79,334	83,381	87,634
Total Waste	22,871	31,286	32,882
Blue Box Material Available	8,943	9,399	9,878

8.0 Planned Recycling System

The following section outlines some possible initiatives that could be implemented from 2011-2016 to help increase Blue Box diversion, capture and reduce costs.

The City has a good performing Blue Box program. Improving performance further will focus on maximizing the capture of recyclables using current program elements and then adding some new initiatives to the exist program to spur further capture of recyclables.

In general Priority initiatives could include improvements to:

- Staff training and increasing staff resources through training, use of volunteer groups, part-time staffing or full-time staffing, etc.;
- Enhance material capture through specific P&E programs aimed at target residential sectors (multi-residential, school/university/college housing, etc.)
- Enhance Public Space recycling; and
- Increase/Improve signage at the drop off depot at the MRF.

In general Future initiatives could include:

- Clear Bags for Waste, reinforced by leaving bags at the curb containing Blue Box materials;
- Enhance overall diversion program (SSO) to allow for reduction in waste collection frequency to increase Blue Box capture;
- Phase in a Pay-As-You-Throw program with max bag limit; and,
- Using Generally Accepted Principles (GAP) for Waste Management RFP preparation for future processing of the City's material with consideration of possible transfer of material to a third party MRF to reduce anticipated future program costs associated with an aging MRF.

8.1 Possible Strategy to Increase Recycling

The City presently diverts approximately 27% of its total residential wastes through its Blue Box program.

Specific to only bagged residential waste and Blue Box material, the Blue Box diversion rate can be estimated to be closer to 34%.

Further, the capture rate of Blue Box material from bagged residential household waste is 75%, which is approximately 10 percentage points away from the recommended target capture rate of 85% for the City's Medium Urban grouping.

A reasonable preliminary goal (2012-13) would be a **38%** Blue Box diversion rate from only the bagged residential household waste stream (i.e. about 4 percentage points more than current rate). It is expected that this could be accomplished within the context of the current program with supporting P&E enhancements targeting fibre material.

A second and aspirational future goal (2013-16) would be to achieve a **40%** diversion rate of bagged household waste as a result of the Blue Box program. This would result in a capture rate of household bagged waste of about **85%**. It is expected that this would require diversion initiatives in addition to the current program (i.e.: City-wide SSO program, Bi-weekly waste collection, etc).

Table 8.1 highlights the estimated number of tonnes that would need to be captured to attain current and **38%** and **40%** diversion rates of **Blue Box material** from the bagged residential waste stream. It includes consideration of the impact of population growth in the City (1% growth rate).

Table 8.1 Forecasting Diversion Rates based on Household Bagged Waste and Blue Box Material

Capture Rates to Meet Waste Diversion Goals			
	% Waste Diversion		
	Current (34)	38	40
	tonnes captured/year		
2010	7,976	11,312	11,907
2015	8,383	11,889	12,515
2020	8,810	12,495	13,153

Table 8.2 highlights the impact of attaining a 38% Blue Box diversion rate in terms of additional tonnes diverted and the impact on the current household bagged waste program and across the total household recycling (divided across single family and multi-residential households).

Table 8.2 Forecasting Diversion Rates of Bagged Household Wastes through the Blue Box

Meeting 38% Diversion Rate		
Current Diversion (34%)	tonnes/year	7,976
38% Capture	tonnes/year	11,312
38% Capture (additional tonnes)	tonnes/year	3,336
Per household	kg/year	534.6
Per household	kg/week	10.3

8.2 Overview of Planned Initiatives

A number of waste recycling options and Best Practices that could be implemented and/or expanded were reviewed with City staff 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 scores is provided in Appendix 1.

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 were summarized into two tables:

- Possible Priority Initiatives (Table 8.3); and
- Possible Future Initiatives (Table 8.4).

These options can be considered by staff and Council as part of this Strategy.

Table 8.3 Priority Initiatives (2011-2012)

Possible Priority Initiatives (Immediate Future 2011-2012)				
Initiative	**Estimated Implementation Cost**	**Estimated Annual Operating Cost**	**Implementation Time Line**	**Comments**
Training of Key Program Staff	Staff time	Free training is available from CIF (CIF Blue Box Recycler Training Courses). Fees for MWA and OWMA conferences. Estimate $2,000/year in travel costs and $1,500 for conferences.	Ongoing	Better educated staff will be able to develop a high quality waste and Blue Box collection tender and better manage the overall program .
Increase Staff Resources	For interim use co-op placements and train volunteer/service e club members on key P&E areas. Longer term, hiring of a full or part time staff member to implement programs.	Dependent on level of staff position	2012	Work with collection contractor, service clubs and CIF to maximize existing program. Advertise for position through MWA to capture broader range of competent staff.
Target Plastic and Paper Material out of the waste stream	Staff time and P&E costs. Apply to CIF for funding to offset costs. Estimate $1,500 in advertising and possibly $1,000 in disbursement costs for mileage of volunteers/service clubs.	$500 to maintain program	2011-12	Work with collection contractor to determine areas requiring more attention.
Enhance Depot Signage	Staff time and capital of signs. Apply to CIF for funding. Estimate $6,500 for signage.	None	2011-2012	Use graphics instead of a lot of text.

Table 8.4 Future Initiatives (2013-2016)

Possible Future Initiatives (2013-2016)				
Initiative	**Estimated Implementation Cost**	**Estimated Annual Operating Cost**	**Implementation**	**Comments**
Following Generally Accepted Principles (GAP) for Effective Procurement and Contract Management for MRF RFP	Use CIF template and staff time. Possible peer review by outside consultant $3,500	Not applicable	2013	Consider incorporating a Transfer Station option or applying to CIF to cover the costs of a Transfer Station study to determine most effective means of managing the City's material.
Updated Waste By-Law (includes mandatory recycling and diversion)	Staff time	Not applicable	2012-13	Strengthen current by-law to include mandatory requirement to divert Blue Box wastes and consider implementing curbside bans and landfill bans of fibre entering the waste stream.
Clear Bags for Waste	Estimated P&E launch costs and staff time. Estimate $6-8,000 in promotion costs.	In next tender to have collection contractor provide curbside enforcement	2015	Highly visible mechanism to target diversion through Blue Box and other diversion initiatives (SSO, etc).

Fundamental best practices, outlined in the CIF guidebook for creating a Waste Recycling Strategy are based on the KPMG /RW Beck Best Practices Repot 2007. These best practices are for municipalities to use a combination of policy mechanisms and incentives to stimulate recycling and discourage excessive generation of waste. It is recognized that implementation of immediate cost saving initiatives for the City would potentially be a function of the results of future processing or collection RFP's in 2014 and 2016, followed by enforcement mechanisms such as user fees per bags, landfill bans, etc.

To cite a local example of a cost effective collection tender for a program is the County of Northumberland. The tender was for co-collection (waste and single stream blue box material) from 38,000 households depicting similar geography and demographics. The tender was for an eight year term with two one year renewal options. The recycling portion represents approximately ($2.16/household/month), representing an average annual collection cost of approximately $990,000 per year to service both a rural and urban curbside program.

Another best practice outlined in the KPMG/RW Beck Report is to increase participation and capture rate of a Blue Box program by employing a limit to the number of bags a household can set out for collection (e.g. 3-4 bags per household per week). The following table excerpted from the CIF guidebook suggests effective bag limit levels for various Blue Box recycling programs. It is interesting to note that programs with a 2 stream sort but supported by an SSO program have a recommended 2 bag limit just like the City's program without the supporting diversion infrastructure.

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

At some point, consideration may need to be made on the bag limit but by incorporating a user fee on all bags with a possible upset limit of 3 bags to allow some flexibility but still offering economic disincentives to generate waste.

Economic incentives and disincentives are diverse. The objective is to place a cost on disposing of residential waste and an importance on Blue Box diversion. **Essentially, the key is to make it difficult to dispose of material and easier to recycle or divert material.** Further, 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.

Another best practice to consider is to upgrades for the drop off recycle depot at the City's MRF. It is suggested that the City consider new signage that incorporates graphics with limited descriptive text, improving material segregation. A report commissioned by WDO through the Effectiveness and Efficiency Fund titled 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 and 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;

- **Depot attendant actively involved in monitoring recycling depot** –hand out literature to new residents, sell blue boxes at the depot site for residents.

When considering the varying levels of financial investment required for improving depot participation, municipal staff noted that there is a very limited budget available to the recycling program. As a result, consideration to phasing in depot upgrades for future initiatives (2012-13) could be implemented. During this process, the City could apply for public education funding for depot signage.

Table 8.4 depicts some local examples of Blue Box diversion incentive programs.

Table 8.4 Program Examples

Municipality	Disposal	Blue Box Diversion
City of Kawartha Lakes	Weekly collection all public and private roads 2 bag limit Additional bags $3/bag 5 disposal sites (tipping fee)	Alternating weekly collection on all public and private roads (fibres week 1 , containers week 2) Depot service at all disposal locations. No free blue boxes.
Oxford County	Weekly collection All bag/container subject to $1.50 tag Waste can also be dropped off at landfill (tipping fee)	Bi-weekly collection of two stream material. First blue box free.
District of Muskoka	Bi-weekly collection in winter, weekly collection in summer to urban areas (Towns, Villages, Hamlets). 2 bag limit for areas with green cart program. 3 bag limit for areas without green cart program. Additional bags are charged $1/bag. Lake of Bays (Dorset area) only depot service-no collection.	Weekly collection to urban areas (Towns, Villages, Hamlets). Seasonal front-end bin service for water access cottagers (approx. 10 sites) Rural depots at waste disposal sites for private roads and seasonal residents on unassumed roadways. Two stream collection. No free blue boxes.
County of Northumberland	Weekly collection of all public roads. Weekly seasonal collection of select private roads (cottages). No free bags. All bags must be tagged ($2.75) Max. 3 bag limit.	Weekly collection on all public roads (rural and urban). Weekly seasonal collection of select private roads (cottages). Depot service at all disposal locations. Fully comingled enhanced single stream program using a bagged based program and optical sort technology.

8.3 Contingencies

The Priority initiatives can be impacted if there is no City funding available. However, there is CIF funding available so at least some of the initiatives should be able to be implemented.

The Future initiatives will be decided as an outcome of the waste and Blue Box material collection/processing tender. If no future initiatives are implemented then the City will revert to Priority initiatives.

9.0 Monitoring and Reporting

The monitoring and reporting of the City 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 Strategy will be monitored and measured against the baseline established as part of this Strategy for the current system. Once the results are measured, they can be reported to Council and the public annually using the Strategy format and updating the details. Some suggested approaches for monitoring the City's Strategy is outlined in Table 9.1.

Table 9.1 Blue Box Monitoring Strategy

Recycling System Monitoring		
Monitoring Topic	**Monitoring Tool**	**Frequency**
Meet regularly with collection contractor	Meet with collection contractor to identify any problems with Blue Box collection(e.g. contamination)	Bi-Monthly for an hour or have contractor call City every Friday.
Measurement of Blue Box materials captured.	Documented total weight data as outlined in this Strategy and compare it to target capture rates (85%)	Annual summary using Strategy format.
Diversion rate (Blue Box)	Document BB Diversion Rate Formula: (Blue box materials diversion) ÷ Total waste generated * 100%	Annual summary
Program participation	Documented Curbside Set-out Studies or Curbside Participation Studies to determine frequency of curbside set out, number of boxes, fullness of boxes, and type of boxes used.	Once every 1-2 years, using students or collection contractor to assist.
Composition Verification	Consider conducting a curbside waste audits from an outside firm to verify	Once.

Recycling System Monitoring		
Monitoring Topic	**Monitoring Tool**	**Frequency**
	program waste composition. Verify inbound composition of BB material entering the MRF specific to the City to ensure accuracy.	
Program Accuracy	Have the contractor segregate residential Blue Box material tonnage into designated material categories based on material sold (ie: steel, aluminum, glass, etc.) to determine current composition of Blue Box stream and for accuracy in the WDO Datacall.	Annual summary
Program Cost	Document Blue Box Program Costs to reflect each cost area to determine overall cost composition. Incorporate a revenue column to depict annual revenues from Blue Box program.	Annual summary
Customer satisfaction	Customer survey (e.g., telephone); tracking calls/complaints received to the municipal office.	Once 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	Annual summary
Review of Strategy	A periodic review of the Strategy to monitor and report on progress, to ensure that the selected initiatives are being implemented, and to move forward with continuous improvement	Annual summary Update Strategy every 5 years

10.0 Conclusion

The City currently has a higher than average Blue Box waste diversion rate for the Medium Urban grouping, and a solid curbside capture rate of Blue Box material from bagged residential waste as well as a lower than average Net program cost for its Blue Box recycling program compared to other medium urban programs.

As a result, a phased process to increase the capture rate and maintain, if not reduce, costs is **recommended**.

There are some fairly low cost priority initiatives that can be implemented to help boost the capture rate within the context of the current program. There are a number of low cost future initiatives that could be implemented.

It is recommended that the initiatives be reviewed annually and implemented as budget allows. It is **recommended** that this Strategy be fully updated in 2016.

Appendix 1
Best Practice Scores

Waste Recycling Options Summary of Scores

Suitable? Y/N	Description of Options/Best Practices (For more information: *More information: Blue Box Program Enhancement and Best Practices Assessment Project Final Report, Volume 1)*	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									
Yes	Public Education and Promotion Program	1-3%	4	NA	5	5	5	19/20	95%
Yes	Training of Key Program Staff	1-3%	4	NA	5	5	4	18/20	90%
Collection									
No	Optimize Collection	0%	NA						NA
Yes	Bag Limits	3-5%	5	NA	5	5	4	19/20	95%
Not at this time	Collection Frequency –already weekly BB-consider bi-weekly waste	3-5%							After City wide SSO
No-	Broaden materials categories for Blue Box	1-3%							Take all material
No	Provision of Free Blue Boxes	1-3%	2 NA	2	4	5		13/20	65%
Administration									
Under contract	Optimize MRF processing Operations-possibly consider a BB transfer station at MRF location in future	0%							