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TOWNSHIP OF CENTRAL FRONTENAC

Waste Recycling Strategy

Submitted to:

Township of Central Frontenac
1084 Elizabeth Street, P.O. Box 89
Sharbot Lake, Ontario
K0H 2P0

Prepared with assistance from the Continuous Improvement Fund

REPORT

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1.0 INTRODUCTION

Waste Diversion Ontario (WDO) has identified having a current waste recycling strategy as a Best Practice (KPMG, 2007) and has begun tracking if municipalities have a current waste recycling strategy through its annual request for information on municipal recycling programs. Municipalities without a current waste recycling strategy will be penalized by receiving less annual blue box program funding. The waste recycling strategy helps the municipality plan how a municipal waste program will effectively and efficiently recycle its blue box materials into the future.

WDO defines a waste recycling strategy as being current if it has been prepared or updated within the past 5 years.

This Waste Recycling Strategy was developed by Golder Associates Ltd. (Golder) on behalf of the Township and with financial support from the Continuous Improvement Fund (CIF) and based on the Continuous Investment Fund's *Guidebook for Creating a Municipal Waste Recycling Strategy*.

The majority of statistics used for the calculation of the diversion rates in this report were sourced from the summary of the 2009 Municipal Datacall (2009 Datacall), published by the WDO and available on-line through the WDO website (www.wdo.ca).

1.1 Waste Recycling Strategy Purpose

This Waste Recycling Strategy was initiated by the Township of Central Frontenac (Township) to develop a plan to increase the efficiency and effectiveness of its recycling programs and maximize the amount of blue box material diverted from disposal.

Specifically, the purpose of the Waste Recycling Strategy is to:

- Maximize WDO Best Practise funding;
- Identify and evaluate practical options to increase diversion of blue box materials;
- Develop an implementation plan to reach defined blue box diversion targets, including monitoring of progress; and,
- Extend use of the remaining capacity of the Oso and Olden Waste Disposal Sites by increasing diversion of waste from the landfills.

1.2 Summary of Waste Management Programs

The Township currently operates three waste management sites:

- Oso Waste Disposal Site;
- Olden Waste Disposal Site; and,
- Hinchinbrooke Waste Transfer Station.

Waste is disposed of directly in the landfill at the Oso and Olden Waste Disposal Sites. Waste collected at the Hinchinbrooke Waste Transfer Station is transferred to and landfilled at the Oso Waste Disposal Site. Each of the three waste management sites also has a blue box recycling depot. The Township's waste management by-law (#1998-23) prohibits landfilling of recyclable waste. Enforcement of the by-law is the responsibility of the landfill attendant.

There is no municipal collection of solid waste or blue box materials, though some residents pay a private contractor for this service.

The Township's obligations for managing municipal waste also include:

- Hosting one household hazardous waste day per year;
- Collection of scrap metal and white goods at waste disposal sites;
- A burn area for trees, brush and clean lumber;
- E-waste collection at the Oso Waste Disposal Site (through Ontario Electronic Stewardship (OES));
- Scrap tire collection at the Oso and Olden Waste Disposal Sites (through Ontario Tire Stewardship (OTS)); and,
- Support and maintenance of a Waste Management Committee which reports to Township Council.

The Township faces a number of waste management challenges, which this Waste Recycling Strategy will help address. In particular:

- Low population density and a large service area;
- Large proportion (approximately 50%) of seasonal residents coming from municipalities with different and diverse waste management programs;
- Low capture of blue box material (the Township is currently ranked as a WDO "poor performer");
- Limited budget and personnel for waste management initiatives;
- Shrinking disposal capacity of two waste disposal sites; and,
- Public pressure to improve waste diversion rates.

2.0 OVERVIEW OF THE PLANNING PROCESS

This Waste Recycling Strategy was prepared for the Township by Golder Associates, Ltd. (Golder).

Preparation of the Waste Recycling Strategy includes the following steps:

- Public notification of the Waste Recycling Strategy project;
- A review of Township waste management documentation;
- Meeting with Township representatives to review documentation and discuss approach;
- Consultation with Waste Management Committee and Township residents;
- Assessment of current waste management system and project future needs;
- Identification and evaluation of practical options for increase diversion;
- Preparation of a draft report, including an implementation plan;
- Presentation of draft report to Waste Management Committee;
- Presentation of draft report to Council;
- Posting of draft report on Township website and solicitation of feedback from residents; and,
- Preparation of final report.

The next steps in this process include:

- Council endorsement of Waste Recycling Strategy;
- Preparation of a communications plan (to receive Promotion and Education (P&E) funding); and,
- Implementation of preferred recyclable diversion initiatives.

To ensure the public and local stakeholders were able to participate in the preparation of this Waste Recycling Strategy, the Township made efforts to notify and solicit feedback from Township residents and members of the Township Waste Management Committee. For more details on our public consultation process, see Section 4.

3.0 STUDY AREA

The study area for this Waste Recycling Plan is the Township of Central Frontenac, which is located in the County of Frontenac. The Township is approximately 970 square kilometres in area and has a population of 4,665 (Statistics Canada, 2006) permanent residents.

The Township is largely rural with several small urban communities. The Township Official Plan (2008) describes the communities situated within the Township as follows:

- Sharbot Lake (village) - largest community in the Township;
- Parham, Mountain Grove and Arden (hamlets); and
- Tichborne, Piccadilly, Godfrey, Henderson, Elm Tree, and Crow Lake (residential cross road communities).

The municipal offices for the Township of Central Frontenac are located in Sharbot Lake, which is located approximately 70 kilometres north of Kingston, Ontario.

The geographic area of the Township is shown in Figure 1.

This Waste Recycling Strategy will address the following sectors:

- Residential single family dwellings (3,909 households, 2009 Datacall);
- Residential multi family dwellings (1 unit, 2009 Datacall);
- Small local businesses, local Provincial Parks and local schools; and,
- Seasonal residences (1,957 of above, 2009 Datacall).

4.0 PUBLIC CONSULTATION PROCESS

The public consultation process followed in the development of this Waste Recycling Strategy consisted of a number of activities as outlined below.

1) A Project initiation meeting with the Township Chief Administrative Officer (CAO), Public Works Manager and Waste Management Committee chair to discuss the Waste Recycling Strategy approach and identify additional key stakeholders.

2) Notification of the Waste Recycling Strategy development and invitation for feedback through the Township website.

3) Distribution of 2,650 waste management surveys to Township residents through local newspaper publication and at Township waste management sites. Responses were collected at the Township waste management sites and municipal office, and through an on-line survey linked from Township website. Responses were accepted between February 10th and March 2nd, 2011.

4) Distribution of the Continuous Investment Fund's *Guidebook for Creating a Municipal Waste Recycling Strategy* Overview of Waste Recycling Options (Worksheet 8) to the Waste Management Committee to solicit feedback on preferred options.

5) Presentation of draft report to Waste Management Committee and request for feedback.

6) Presentation of draft report to Township Council and posting of draft report on Township website with request for feedback from residents.

7) Presentation of final report for acceptance at Council.

Stakeholder groups included in this consultation included:

- Municipal staff;
- Township Waste Management Committee;
- Township residents; and,
- Municipal Council.

4.1 Resident Waste Management Survey Responses

A total of 2,650 copies of the waste management survey were distributed. A copy of the survey is included in Appendix A. Of the surveys distributed, a total of 423 surveys were returned to the Township. Of these responses, 147 were completed on-line and 276 were completed as paper surveys. It is important to note that the survey was conducted in February, when the majority of respondents were year-round residents, rather than seasonal residents. Approximately 50 percent of the households in the Township are seasonal residences. The lack of responses from seasonal residents of the Township needs to be considered when using survey results as a basis for decision making.

The results of the survey show that the majority (86%) of respondents reside in the municipality year-round, and that, the majority (57%) of households produce less than ½ bag of garbage per week and visit a Township waste disposal site monthly (48%). Almost all survey respondents (96%) indicated that they regularly take the time to

separate recyclable materials from their garbage. Those who do not participate in recycling claim that a) it takes too long, b) the Waste Disposal Site is too far or they do not know where it is, c) they do not have room for recycling bins at home or d) they feel discouraged by the fact that recyclables still end up in the landfill. When asked what would encourage respondents to recycle more, the majority (61%) responded that they are currently recycling as much as they can.

Approximately 5% - 10% of respondents provided negative comments towards the implementation of a clear bag program. Only 2% of respondents indicated that the use of clear bags would encourage them to recycle more, whereas 12% of respondents suggested they would recycle more if provided a blue box by the Township. A number of respondents suggested that free garbage disposal should be offered in exchange for recyclables drop-off in order to increase diversion. (It is understood this is a practise in some of the neighbouring municipalities as discussed later in this report.) Suggestions were also made to increase the variety of recyclable materials accepted as part of the recycling program (e.g., Styrofoam, milk cartons and juice containers, food packaging, plastic bags, plastic film, batteries). Several respondents expressed concern that bag limits or increased disposal fees would result in illegal dumping.

Most survey respondents (51%) indicated their preferred method of receiving blue box information is through a notice with their tax bill. The most common place where respondents said they go to look for answers regarding recycling is the Waste Disposal Site (53%); versus only 14% who responded that they use the Township website. Comments on the surveys suggest that many respondents do not have a computer or internet access and others feel that the current website is not up-to-date or user-friendly. One suggestion to increase recycling was to hire a summer student to work at the Waste Disposal Site as an educational resource.

The results of the question relating to use of the Township website, might be an example of how seasonal residents' views might differ from those of year-round residents. It is likely that the majority of seasonal residents live in an urban area in eastern or southern Ontario. It is understood that seasonal residents are often organized through Lake Associations who make use of their websites to convey information to residents living outside of the Township for the majority of the year. This observation suggests the Township not discount use of the Township website (or links to Lake Association websites), based on the result of the waste management survey. Rather it is suggested that the Township include the use of the website as one of a number of communications channels through which to convey waste management information.

Several additional concerns were raised about the condition of the waste management sites being not well-maintained (e.g., overflowing bins, garbage in trees). Other concerns were raised about the lack of clear signage and aging bins at the waste management sites.

It is noted that, though outside the scope of the Waste Recycling Strategy, several respondents used the survey as an opportunity to highlight their support for organics diversion.

A summary of the survey results is included in Appendix A.

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 endeavours can vary greatly and depends on a municipality's size, geographic location and population.

The specific challenges facing the Township include:

- Limited budget and personnel for waste management initiatives;
- Large geographic area and small population;
- Large proportion (approximately 50%) of seasonal residents coming from municipalities with different waste management systems;
- Shrinking disposal capacity of two waste disposal sites;
- Currently ranked as a WDO "poor performer" because of low diversion rate (resulting in less funding for the blue box program);
- Public pressure to improve waste management programs; and,
- Perception (with some residents) that the Township is less progressive with respect to waste management than its neighbouring municipalities.

5.1 Township Waste Recycling Depots

Each of the three waste management sites has a blue box recycling depot. Separate bins are provided for collection of:

- Cardboard / paper (e.g. newspaper, magazines, flyers, catalogues, household paper, cardboard, boxboard (i.e. cereal boxes), cardboard egg cartons, envelopes and soft cover books);
- Cans (e.g. aluminium and tin food an beverage containers) and plastic (e.g. rigid containers, no. 1 through 7); and,
- Glass (e.g. clear and coloured glass bottles and jars).

The Township does not provide free blue boxes to any of its residents, nor does it offer blue boxes for sale at subsidized prices.

Observations made at the time of the site visit to the Olden Waste Disposal Site suggest limited signage is present to indicate what materials are to be placed in each container.

Pictures of the rural recycling depot at the Olden Waste Disposal Site are shown below.

Figure 2: Glass and Plastic/Cans Bins at the Olden Waste Disposal Site

Figure 3: Paper/Cardboard Bins at the Olden Waste Disposal Site

Collection and hauling of blue box materials from each waste management site is provided by Scott's Snow Removal and Lawn Maintenance (Scott's). Scott's also provides hauling services for waste from the Hinchinbrooke Waste Transfer Station. The current contract with Scott's commenced in May 2008 and will expire April 30, 2013.

Recyclable materials are processed by HGC Management (HGC) in Belleville, Ontario. It is understood that the Township has a direct account with HGC for all materials shipped by Scott's. Glass is currently not being transported to HGC because of a lack of revenue from end markets.

5.2 Bag Tag Waste Disposal Participation

The Township currently implements a "pay as you throw" system whereby residents are required to purchase tags ($1/each) and affix them to the bag or bundle of waste being deposited at the waste site. Additional fees apply for waste loads larger than a residential sized garbage bag. Each Township household is eligible to drop off one free load of waste per year. Adherence to the "pay as you throw" program is monitored by the landfill attendant.

Based on a review of outstanding Waste Management Committee items, and based on conversations with the Township staff, it is understood the annual revenues generated from the sale of bag tags for waste disposal is lower than would be expected, based on the volume of waste generated by the Township on an annual basis. It is the feeling of the Waste Management Committee that a number of residents are re-using bag tags or using partial bag tags to avoid paying the full cost to dispose of their waste.

To eliminate this problem, the Waste Management Committee has recommended to Township Council that the Township replace the use of tags with the use of clean plastic bags emblazoned with the Township logo. This would allow easy identification of the waste as being legitimately disposed of and would also provide a means for the landfill attendant to visually inspect the contents of the bag for prohibited materials, including blue box materials.

5.3 Remaining Landfill Capacity

The Township is in the fortunate position of having two operating landfills: the Oso Waste Disposal Site and the Olden Waste Disposal Site. The benefits of having Township owned landfill capacity include access to predictable and reliable waste disposal in relatively close proximity to the waste generation source. Municipalities that no longer have operating waste disposal sites are reliant on other municipalities or private services to dispose of their waste, which may not be close to the municipality. This limits the control municipalities have over the cost of the waste disposal services they are obligated to provide their residents.

Based on the results of the most recent topographic survey (June 2009) and the estimated current annual airspace consumption rate (approximately 3,000 cubic metres per year), the Oso Waste Disposal Site is estimated to have approximately 7 years of remaining capacity.

Based on the results of the most recent topographic survey (October 2010) and the estimated current annual airspace consumption rate (approximately 2,860 - 2,930 cubic metres per year), the Olden Waste Disposal Site is estimated to have between 17 and 18 years of remaining capacity.

It should be noted that there is a cost to the Township associated with continuing to operate the Oso and Olden Waste Disposal Sites to their full physical capacity. However, this cost will be significantly less than obtaining approvals to expand a landfill site (or license a new one) and will continue to provide the municipality with greater control over their waste disposal costs.

As previously mentioned, disposal of blue box recyclable material in the landfill is prohibited in the Township. Increasing the amount of waste diverted from the Township's landfills will extend their operating life and protect the Township's valuable remaining waste disposal capacity.

5.4 Comparison with Neighbouring Municipalities

Feedback from municipal staff, members of the Waste Management Committee and select resident surveys suggested that the Township lagged behind neighbouring municipalities with respect to its waste diversion. To assess the Township's waste diversion in comparison with the adjacent municipalities, Golder conducted a high-level comparison of Blue Box programs offered by several neighbouring municipalities based on a review of the municipalities' websites and published WDO performance ranking for 2011 (based on the 2009 Datacall). This comparison is provided in Table 1, and identifies the key Blue Box program elements and WDO performance ranking for each municipality.

Table 1 Overview of Blue Box Recycling Programs Offered by Neighbouring Municipalities.

Municipality	2011 WDO Performance Ranking	WDO Municipal Grouping	Curbside Blue Box Collection (Yes/No)	Clear Garbage Bags (Yes/No)	Bag Tags (Yes/No)	Program Incentives	Special Considerations
Township of Central Frontenac	Recycling rate[1]: 18.5 % Net cost per tonne[2]: $ 436.84 Performance factor[3]: 31%	Rural Depot – South	No. Recyclables brought to one of three waste sites.	No	Yes ($1.00/bag)	N/A	N/A
Township of Tay Valley	Recycling rate[1]: 39.0 % Net cost per tonne[2]: $ 545.63 Performance factor[3]: 57%	Rural Depot – South	No. Recyclables brought to one of three waste sites.	No	Yes ($1.00/ tag) 40 FREE tags per household per year.	1 free garbage bag disposal (without tag) in exchange for 1container of recyclables	"Waste Site Card" needed in order access any of the waste disposal sites
Township of North Frontenac	Recycling rate[1]: 13.8 % Net cost per tonne[2]: $ 987.50 Performance factor[3]: 27%	Rural Depot – South	No. Recyclables brought to one of seven waste disposal sites.	Yes	Yes ($2.00/tag)	1 free bag tag in exchange for 1container of recyclables	N/A
Township of Greater Madawaska	Recycling rate[1]: 23.0 % Net cost per tonne[2]: $ 454.28 Performance factor[3]: 39%	Rural Depot – South	No	N/A	N/A	N/A	Blue bins can be purchased for $10 from the township
Township of Carlow Mayo	Recycling rate[1]: 30.0% Net cost per tonne[2]: $ 594.98 Performance factor[3]: 39%	Rural Depot – South	No	N/A	N/A	N/A	Blue bins can be purchased for $10 from the township
Township of Brudenell, Lyndoch and Raglan	Recycling rate[1]: 20.2 % Net cost per tonne[2]: $ 404.03 Performance factor[3]: 39%	Rural Depot – South	No website				
Township of Admaston/ Bromley	Recycling rate[1]: 28.4 % Net cost per tonne[2]: $ 627.81 Performance factor[3]: 34%	Rural Depot – South	No	No	No	Free household garbage and blue box disposal at the landfill	N/A
Township of Dysert et al.	Recycling rate[1]: 50.0 % Net cost per tonne[2]: $ 311.40 Performance factor[3]: 84%	Rural Depot – South	No	Yes	No	Free household garbage and blue box disposal at the landfill	Landfill User Identification Cards Must Be Shown At Landfill Sites

Municipality	2011 WDO Performance Ranking	WDO Municipal Grouping	Curbside Blue Box Collection (Yes/No)	Clear Garbage Bags (Yes/No)	Bag Tags (Yes/No)	Program Incentives	Special Considerations
Township of Lanark Highlands	Recycling rate[1]: 38.3 % Net cost per tonne[2]: $ 461.77 Performance factor[3]: 42%	Rural Collection – South	Only in Lanark (360 houses)	No	N/A	N/A	N/A
Township of Stone Mills	Recycling rate[1]: 62.7 % Net cost per tonne[2]: $ 581.33 Performance factor[3]: 53%	Rural Collection - South	Only within the Village of Newburgh. Other residents must bring recyclables to one of three waste sites.	Yes	Yes ($2.00/bag)	10 free bags provided to households that participate in roadside litter pick-up program	N/A
Township of Rideau Lakes	Recycling rate[1]: 38.8 % Net cost per tonne[2]: $ 356.86 Performance factor[3]: 53%	Rural Collection - South	Yes	Yes	Yes ($2.00/tag)	N/A	Limit of 2 garbage bags per week. No bag tags required when waste brought directly to landfill.
Township of South Frontenac	Recycling rate[1]: 33.4 % Net cost per tonne[2]: $ 430.99 Performance factor[3]: 41%	Rural Collection - South	Yes	No	Yes ($2.00/tag) 50 FREE tags included with March tax notice	N/A	Residents must bring a tax notice with them to landfill or other proof of residency.

It is noted the number of Blue Box material tonnes marketed used in the calculation of the recycling rate are based on data provided in Waste Diversion Ontario's Municipal Datacall as marketed tonnes or collected tonnes minus a residue factor.

Waste Diversion Ontario (WDO) Assumptions

1) A program's recycling rate for Blue Box materials compares the material estimated to be generated by households served by the program (based on Stewardship Ontario's historical waste composition data) to the Blue Box tonnes marketed by that program and has a maximum value of 90%. **It is noted this calculation is different from the Average Blue Box Diversion Rate calculated later in this report.**

2) A program's net cost per tonne is net Blue Box program cost (gross program cost including calculated interest on municipal capital and administration less gross program revenue) divided by Blue Box tonnes marketed.

3) The Performance Factor evaluates the relative efficiency and effectiveness of a program using normal probability methods. The Performance Factor determines the share of funding allocated to the program relative to other members of the municipal group.

Assumption: This comparison of municipal services and programs was based on information obtained online from each of the Township's respective websites. Golder accepts no responsibility for the accuracy of the information provided on these websites.

6.0 CURRENT SOLID WASTE TRENDS, PRACTICES AND SYSTEM AND FUTURE NEEDS

6.1 Community Characteristics

The Township of Central Frontenac has a population of 4,665 (2009 Datacall) permanent residents. It is understood that this population data is consistent with the 2006 Statistics Canada data.

The municipality has 3,910 total households or dwellings: 3,909 single-family households and 1 multi-family unit. Of the 3,910 households, 1,957 are seasonal dwellings.

Using the WDO Generally Accepted Principles (GAP) calculation method, the number of seasonal residents was calculated assuming each seasonal dwelling was occupied by 2.5 people for 1/6 of the year, which equates to an equivalent additional population of 815 people.

The Township Official Plan (Official Plan, 2008) suggests a seasonal residential community of approximately 4,980 residents, which generally agrees with the assumption that each seasonal residence is occupied by an average of 2.5 people.

The total population of the Township, including both permanent and equivalent seasonal residents is calculated to be 5,480 people.

6.2 Existing Programs and Services

Currently the Township has the following policies and programs in place to manage municipal solid waste:

- Pay as you throw ($1/bag tag)
- Prohibition on landfilling of:
  - Hazardous waste;
  - Recyclable waste (including blue box materials, scrap metal and white metal);
  - Tires;
  - Compostable items (including brush and clean, nail free, untreated lumber);
  - Industrial waste; and,
  - Other materials (e.g. asphalt pavement, cement or brick blocks, etc.)

As previously discussed, waste disposal services for regular waste are provided to the residents through residential drop off at one of three waste disposal sites, while recycling services are provided at the depots located at each waste management site. Disposal and recycling services are paid for primarily through general tax revenues. Once recyclable materials have been collected, they are taken to HGC, located in Belleville, Ontario.

Upcoming important collection-related milestones that may affect how collection services are administered include:

- Implementation of the proposed transition from bag tags to clear bags (2011); and,
- Re-tendering/renewal of the waste and recyclables hauling contract (April 30, 2013).

6.3 Current Waste Generation and Diversion

The Township is estimated to currently landfill 6,000 cubic metres of waste on an annual basis. It is estimated that daily/interim cover accounts for approximately 10% of the landfill volume. Based on a waste density of 0.6 tonnes/cubic metre, the Township is estimated to dispose of 3,240 tonnes of waste per year from all three of its operating waste management sites. (It is noted landfilling of waste only occurs at the Olden and Oso Waste Disposal Sites.) However, there are uncertainties about the waste density assumptions used to derive the annual disposal rate tonnage from the topographic surveys of the Township landfills. It is also noted that landfill waste volumes contributed by businesses (e.g. IC&I waste) are not differentiated from residential waste.

Because the Township does not have weigh scales at its waste disposal sites, they do not report the annual tonnage of residential waste generated. The 2009 Datacall assumes a total residential waste generated for the Township calculated based on a waste per capita rate for similar municipalities. Based on this assumption, the 2009 Datacall reports the Township landfilled 1,916.73 tonnes of waste in 2009, or 349.74 kilograms per person.

For consistency with the 2009 Datacall, the remainder of this report uses an annual total waste generation rate for the Township of 1,916.73 tonnes of waste per year.

A summary of the other waste quantities, as reported by the Township in 2009 to the WDO, are presented in the table below.

Table 2: Waste Materials Managed in 2009

Waste Material Category	Quantity (Tonnes)
Recyclables (Residential Deposit Return)	25.70[1]
Recyclables (Blue Box)[2]	225.50
Scrap Metal	98.16
Recyclable Sub-total	***349.36***
Municipal Hazardous and Special Waste (MHSW)	22.24
Total	**371.60**

1. This value is calculated by the WDO Datacall spreadsheet to account for recyclables diverted by Beer Store and LCBO bottle returns.

2.The audited 2009 Datacall data published by WDO suggests a blue box tonnage of 210 tonnes. The published value was used in the remainder of the calculations for consistency.

No tonnages were reported by the Township for diversion of WEEE or organics (e.g. clean wood and brush) in 2009.

Of the total amount of waste generated, 210 tonnes, or 11.0%, is diverted through the blue box program. Currently, the most common material recycled is paper, while the remainder is a combination of aluminium, steel and plastics, which are collected together. Based on the 2009 Datacall waste composition, this material was split 40/60 between metals and plastics.

The table below summarizes the current waste generation and blue box diversion rates.

Table 3: Residential Solid Waste Generated and Diverted through Blue Box (2009)

Residential Solid Waste Generated and Diverted through Blue Box		
Residential Waste Stream/Blue Box Material	**Tonnes**	**Percent of Total Waste**
Total waste generated	1,917	-
Papers (ONP, OMG, OCC, OBB and fine papers)	152	7.9%
Metals (aluminum, steel, mixed metal)	25	1.3%
Plastics (containers, film, tubs and lids)	34	1.7%
Glass	0*	0.0%
Total Blue Box material currently diverted	**210**	**11.0%**

*Note: Glass is currently not being marketed off-site because of the current low market price for glass and the high cost of shipping this material. However, the Township is not landfilling glass. It is currently stockpiled at the waste management sites with the intent to process this material when market conditions become more favourable.

As the table below indicates, the Township's current diversion rate is below average for its WDO municipal grouping.

Table 4: Average Blue Box Diversion Rate (2009)

Average Blue Box Diversion Rate (year)	
Township of Central Frontenac	11.0 %
Municipal Grouping: Rural Depot - South	21.0 %

In 2009, the total net annual recycling costs for the Township were reported as $91,721 (2009 Datacall).

A summary of all costs associated with the blue box depot program, including the 3% administration costs eligible for funding, the salaries of depot staff, and the portion of the municipal staff salaries associated with the depot (30%), is presented in the table below.

Table 5: Township Blue Box Recyclable Depot Costs (2009)

Item	Cost
Depot Processing Cost (mixed containers)	$3,438
Depot Operation Cost (salaries)	$37,010
Depot Transfer Costs (haulage)	$47,893
Promotion and Education Costs	$500
Administration Costs	$1,876
Contract Costs (3%)	$1,540
Gross Residential Cost	$92,256
Revenue from Sale of Cardboard	($534.99)
Net Costs	**$91,721**

This amounts to $437 per tonne, or $17 per capita. As the table below shows, net annual recycling costs for the Township are below average for its WDO municipal grouping.

Table 6: Recycling Cost per Tonne (2009)

	Net Recycling Cost (per tonne per year)
Township of Central Frontenac	$ 437
Municipal Grouping: Rural Depot - South	$ 597.56

6.4 Potential Waste Diversion

In the absence of waste audit data from the Township, the Township's waste composition was calculated using the waste audit sample generated through WDO from the Region of Muskoka (Rural Regional) provided in the *Guidebook for Creating a Municipal Waste Recycling Strategy*. It was noted that the Region of Muskoka is similar to the Township due to its large geographic area, dispersed population and large proportion of seasonal residents.

Table 7 outlines the estimated quantities of the various blue box materials, based on waste composition data established for the Region of Muskoka. As shown, approximately 901 tonnes of blue box material is available in the waste stream generated in the Township of Central Frontenac.

Table 7: Estimated Potential Available Blue Box Material (2009)

Material	***Composition (%) (from Region of Muskoka)***	***Total Residential Waste Generated (tonnes/year)***	**Total Blue Box Material in Waste Stream (tonnes)**
Papers (ONP, OMG, OCC, OBB and fine papers)	28	1,917	537
Metals (aluminum, steel, mixed metal)	3		57
Plastics (containers, film, tubs and lids)	9		172
Glass	7		134
Total	**47**	**1,917**	**901**

The *Guidebook for Creating a Municipal Waste Recycling Strategy* has recommended a target capture rate for the Township's WDO grouping (Rural Depot – South) of 70% (i.e. capturing 70% of the available blue box materials in the total waste stream).

Using the 70% capture rate as a target, it is calculated that a total of approximately 631 tonnes of blue box recyclable materials are available for diversion, of which approximately 421 tonnes are still currently in the waste stream. Estimates of blue box material available for diversion are listed in the table below.

Table 8: Potential Available Blue Box Material Available

Current and Potential Diversion			
Material	***Total Available in Waste Stream (tonnes/year)***	***Currently Recycled (tonnes/year)***	**Potential Increase *(tonnes/year)***
Papers (ONP, OMG, OCC, OBB and fine papers)	376	152	224
Metals (aluminum, steel, mixed metal)	40	25	15
Plastics (containers, film, tubs and lids)	121	34	87
Glass	94	0	94
Total	**631**	**210**	**421**

Diverting 70% of the blue box material remaining in Townships' waste stream could raise its overall waste diversion rate to **32.9%**.

6.5 Anticipated Future Waste Management Needs

The Township Official Plan (Approved with Modifications, June 18, 2008) indicates that the twenty year average growth rate within the Township is calculated as 0.97% per annum, but that there have been periods of accelerated growth of up to 2.76% per year within the last 20 years. As such, the Township Official Plan provides for a potential population increase of 1,687 over the planning period based on a projected growth rate of 1.5% per year or 6,584 by 2020.

Based on a permanent population of 4,665 in 2009 (2009 Datacall) and an annual growth rate of 1.5% per year in both the number of permanent residents and seasonal residents, Golder calculated an equivalent population in 2015 of 5,904 and an equivalent population in 2020 of 6,360.

Based on the population growth assumptions stated above, solid waste generated rates in the Township are expected to grow over the next 10 year planning period. The Table below depicts the expected growth rates for solid waste generation and blue box material recovery (assuming a 70% target capture rate).

Anticipated Future Solid Waste Generation Rates and Available Blue Box Material

	Current Year	**{Current Year + 5}**	**{Current Year + 10}**
Population	5,480	5,904	6,360
Total Waste (tonnes)	1,917	2,065	2,224
Blue Box Material Available (tonnes)	631	679	732

7.0 GOALS AND OBJECTIVES

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

- Maximize Best Practises funding for the blue box program;
- Increase the blue box material capture rate; and,
- Preserve landfill capacity by eliminating landfilling of blue box recyclables.

This Waste Recycling Strategy has identified a number of goals and objectives for the Township. These are presented below.

Table 9: Waste Recycling Goals and Objectives

Waste Recycling Goals and Objectives	
Goals	**Objectives**
To increase the capture rate of the blue box recycling program	To monitor current capture rate with the aim of increasing blue box capture rate to: ■ 50% in 2 years ■ 70% in 5 years ■ 85% in 10 years
To increase diversion of blue box materials from landfill	■ Divert 23.5% of municipal solid waste through the blue box program in 2 years ■ Divert 32.9% of municipal solid waste through the blue box program in 5 years ■ Divert 40.0% of municipal solid waste through the blue box program in 10 years
To extend duration of landfilling capacity in the Township	■ Approximately 4 years

8.0 PLANNED RECYCLING SYSTEM

8.1 Overview of Planned Initiatives

The Township Waste Management Committee was identified during the project initiation meeting as a group of key stakeholders who should be solicited for input with respect to the Waste Recycling Strategy. As a means of facilitating this input, the members of the Waste Management Committee were each provided with a blank copy of the Continuous Investment Fund's *Guidebook for Creating a Municipal Waste Recycling Strategy* Overview of Waste Recycling Options (Worksheet 8), as well as some guidance on how to fill out the worksheet.

The list of Best Practises / Options were scored based on a series of criteria, which included:

- Proven results;
- Reliable market / end use;
- Economic feasibility;
- Accessibility to the public; and,
- Ease of implementation.

The results of each of the individual worksheet scores were tabulated and summed. Based on the relative score received by each of the best practise options presented in the table, a relative ranking was made. The top five best practises for the Township, based on the summed ranking of the Waste Management Committee, collectively, were:

1) Public Education and Promotion Program
2) Training of Key Program Staff
3) Enhancement of Recycling Depots
4) Provision of Free Blue Boxes
5) Following Generally Accepted Principles for Effective Procurement and Contract Management

A copy of the tabulated results is included in Appendix B.

The initiatives stated above generally align well with the responses provided by the public survey, which highlighted potential for the following initiatives:

- Promotion and education through landfill attendants and signage;
- Provision of free blue boxes;
- Enhancement of recycling depots; and,
- Acceptance of additional blue box materials.

Additional initiatives the Township staff requested for consideration as part of the Waste Recycling Strategy included:

- A change from the use of "bag tags" to clear bags to facilitate better enforcement of the ban on landfilling of recyclables;
- Hiring a summer student to promote diversion of recyclables and educate residents about waste diversion programs; and,
- Improvement of signage at blue box material depots to clarify range of acceptable materials.

Based on input by the Township Waste Management Committee to the Waste Recycling Strategy a number of Priority Initiatives were identified. The estimated cost for implementing the Priority Initiatives is approximately $20,200. Consideration of additional future initiatives will be contemplated following a review of the recycling capture rates in the first 2 years following implementation of the Priority Initiatives. The Table below presents the Priority Initiatives and their estimated costs. A review of these initiatives, their costs and their steps for implementation are reviewed on the following pages.

Priority Initiatives		
Initiatives	**Implementation Costs**	**Operation Costs**
Priority Initiatives		
Increasing expenditure of promotion and education (P&E) to $1/household	n/a	$4,000
Providing additional material type signage at recycling depots	$2,000	$0
Replacement of bag tags with clear garbage bags	$500	$9,500
Employment of summer student to educate residents and enforce ban on landfilling of recyclables		$4,200 (assumes 12 wks at 35 hr/wk. and $10/hr)
Estimated Total Cost (Priority Initiatives)	***$2,500***	***$17,700***

It is noted that the Township has submitted an expression of interest to the CIF for funding towards promotion and education, which is not reflected in the costs above.

8.2 Priority Initiatives

8.2.1 Public Promotion and Education (P&E)

The implementation of additional promotion and education (P&E) was identified as the number one priority through both the public survey and the responses returned by the Township Waste Management Committee.

A well-designed and implemented P&E program can have positive effects on virtually all aspects of the Blue Box system, including planning, collection, processing, marketing and policy development. Moreover, having a P&E plan contributes toward the amount of WDO funding a municipality receives as identified in the Best Practices section of the WDO municipal data call.

Ideally, P&E programs should begin with the development of a current and effective communications plan, which include a statement of goals and objectives, target audiences, key messages, tactics, timing, and plans for monitoring and evaluation. The CIF offers municipalities free assistance in the development of communications plan for their blue box recycling strategy (see following section on resources).

It is noted that the majority of the residents surveyed indicated their preferred method of receiving waste management information was through a notice sent with their tax bill. However, there are currently a large number of inserts delivered with the tax bill and anecdotal evidence from Township waste management site staff suggests that a large number of tax bill inserts are discarded. Based on this input, the Township intends to deliver handouts to residents when they visit one of the Township waste management sites, as well as exploring additional means of promoting their waste diversion programs.

It is anticipated that the implementation of this initiative will result in the follow Key Benefits and Outcomes:

- Increased community involvement in the Blue Box diversion program;
- Proper separation of recyclables from landfilled waste;
- Lower residue rates at processing facilities resulting in higher recovery rates , lower costs, and potentially higher revenue for marketed material; and,
- Higher waste diversion rates overall.

It has been found that successful P&E programs employ a mix of media, including:

- Print (calendar, newspaper inserts, utility bill inserts, paid ads, brochures, newsletters);
- Broadcast (radio ads, Public Service Announcements, TV ads);
- Electronic (regularly updated and highly branded website, emails);
- Outreach (special events, presence at community celebrations, school visits, facility tours for students, community education centres, door to door campaigns, landfill/depot contract, etc.); and,
- Icons & Incentives (magnets and other gifts', community mascots, etc.).

The effectiveness of each of these best practices is community specific, and should be evaluated through a Township P&E plan.

As previously described, different forms of communication should also be targeted towards seasonal versus year-round residents. As an example, electronic communication may be a much more powerful tool for targeting seasonal residents than year-round residents and the Township may wish to consider piggy-backing of existing electronic networks (e.g. Lake Association websites), already accessed by seasonal residents.

A statistical analysis of P&E spending in 2005 (as analyzed by KPMG for the *Blue Box Enhancement and Best Practices Assessment Project, 2007*) suggests that there is a correlation between P&E spending and heightened diversion, even though the correlation is somewhat weak. According to this report, many communities that were achieving 60% diversion of Blue Box materials in 2005 spent between $0.83 and $1.18 per household on recycling P&E. Supporting this conclusion is the *U.S. Curbside Value Partnership (www.recyclecurbside.org),*

which used $1/per household as a general spending guide for existing recycling programs, but recommends spending levels of up to $3 or $4 per household when implementing new programs or major program changes.

It is noted the Township has applied for funding through the CIF Request for Expressions of Interest (REOI) for $5,000 of funding for general blue box material promotion and education and $4,000 of funding (up to 60% of the total cost) for promotion and education related specifically to capture of blue box material plastics. In order to receive this funding, the Township is required to create a Communications Plan. Assistance in creating this plan is available through the CIF.

8.2.2 Additional Signage at Recycling Depots

It is the Township's intent to improve the signage at the waste management site recycling depots as a priority initiative.

The report entitled *Blue Box Program Enhancement and Best Practises Assessment Project (July, 2007)*, written for WDO and available through Stewardship Ontario's website (http://www.stewardshipontario.ca/pdf/eefund/KPMG_final_report_vol1.pdf), identified a number of key attributes for effective recycling depots, including:

- Safe and accessible location and convenient to use;
- Designed to limit the potential for contamination and illegal dumping;
- Trained and knowledgeable staff;
- Attractive and well maintained (removal of materials with adequate frequency);
- Appropriate signage and clear instructions for residents;
- Robust record keeping processed; and,
- Optimized container design and transportation system.

With respect to appropriate signage, the report notes that signs should be biased towards graphics, photos or displays of acceptable and unacceptable items, rather than text. The signs should use bright colours and complement the depot appearance. Each bin should be clearly labelled to indicate the types of materials it can receive.

The report entitled *Optimizing Peterborough County's Recycling Depots (September 2009)*, prepared for the County of Peterborough by 2cg Inc. and available on Stewardship Ontario's website (www.stewardshipontario.ca/bluebox/pdf/eefund/reports/326/326_final_report.pdf) also noted the use of excessive text on and around the County of Peterborough's recycling depot bins was not as effective as visual graphics/pictures displaying the correct materials for each bin.

Examples of the graphics-based container labels from this report are in shown below.

Figure 4: Example of Paper/Cardboard Depot Bin Signage

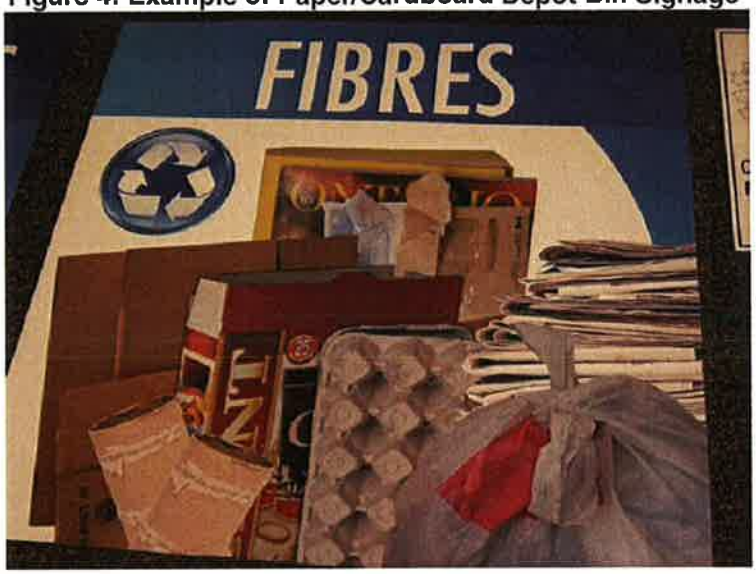

Photo Source: http://www.stewardshipontario.ca/bluebox/pdf/eefund/reports/326/326_final_report.pdf

Figure 5: Example of Plastic/Cans Depot Bin Signage

Photo Source: http://www.stewardshipontario.ca/bluebox/pdf/eefund/reports/326/326_final_report.pdf

Additional Resources: The KPMG report (July 2007) notes that additional examples of depot graphics and signage examples are available through the 'Recyclers' Knowledge Network'.

(www.*recyclersknowledgenetwork.ca)*

8.2.3 Implementation of Clear Bag Program

It is noted that the Waste Management Committee is currently recommending implementation of a switch from use of "bag tags" to use of clear garbage bags to: a) prevent cheating (i.e. reuse of tags); b) support enforcement of ban on landfilling recyclables; and c) provide consistency with programs implemented in neighbouring municipalities.

Implementation of the clear bag program will cost the Township $0.21 per clear bag, as opposed to $0.02 per bag tag. The Township estimates that approximately 50,000 tags should be sold on an annual basis, suggesting an estimated increased cost to the Township of approximately $10,000 per year. The Township expects to recover part of this cost through increased revenues as a result of reduced illegal use of tags, and through diversion of recyclable material from landfill which will maintain available landfill capacity.

It is noted that up to 10% of the residents surveyed indicated they were not in favour of clear bags. However, a focussed promotion and education campaign to educate residents on the reasons for implementing such a program, supported by recycling diversion statistics from this Waste Recycling Strategy will likely help transition the Township residents to this new system.

It is also noted the Township is considering making Blue Boxes available to residents for purchase at the time the clear bag program is introduced.

8.2.4 Hiring of Additional Staff

The Township intends to hire a student for the summer to educate the Township residents on the recycling system and promote the waste diversion programs offered by the Township. Waste management site staff are anticipated to play a key role in transitioning the Township into a clear bag disposal program.

In a report prepared for Quinte Waste Solutions entitled *Evaluation of Best Practises of Rural Recycling Depot Programs (SGS Lakefield Research Limited, April 2006),* it was identified that the depot attendant is a key factor in:

- Preventing material contamination;
- Promoting the waste diversion program;
- Encouraging proper material; and,
- Increasing the perceived and actual effectiveness of the diversion program.

All of these factors contribute to a higher rate of community participation and overall capture rate.

8.3 Implementation Plan and Program Monitoring

It is the Township's intent to implement the Priority Initiatives listed in the previous sections during 2011. As such, the milestones for monitoring progress relative to the Township's set targets (see Table 9) will be in 2013, 2016 and 2021, respectively.

To track and measure the effectiveness of the Priority Initiatives and to meet the requirements as set out in the WDO Municipal Datacall question "Does your plan include a monitoring and evaluation component?", the Township will implement a measurement plan.

The model adopted for direct measurement is based on the process developed by Stewardship Ontario, for use by local partners, to measure the impacts from various advertising campaigns. This approach includes the following steps:

1) Populating a spreadsheet to track recycling system performance (through outbound recyclables)

2) Completing and annual report that provides comments on the performance outcome

3) Providing a summary of other measures (e.g. website hits, user surveys, etc.) generated after discreet promotional events

The Township current tracks its outgoing recyclable waste quantities through weigh scale tickets provided by the recycling hauler.

Beginning in 2011, the Township will track outgoing recycling tonnages and review the data on a bi-annual basis to determine trends and what impact the implementation of Priority Initiatives may be having on the tonnage of recyclables being captured.

The spreadsheet will include:

- Collected tonnage;
- A conversion of this data into kilograms per household served; and,
- A calculation of the percentage change in kilograms per household, as compared with the previous 6 months.

In addition, spreadsheet data (both tonnes collected and kilograms per household) will be charted for comparison with the previous two years of similar data.

The Township will also review the data on an annual basis to determine the influence of other factors on the performance of the recycling program, including:

- Introduction of additional initiatives;
- Revision of Township waste management policies;
- Addition of new residences, seasonal residences, or commercial or institutional buildings; and,
- Changes to the collection or processing systems (e.g. modifications to the depots).

At the end of each calendar year, the Township will prepare a brief summary for Council to update them on the progress of the Township towards their stated diversion goals (Table 9).

After 2 years, a summary will be created by the Township to comment on the progress made towards reaching their stated diversion goals of 50% capture rate for Blue Box materials (Table 9).

After 5 years, a summary will be created by the Township to comment on the progress made towards reaching their stated diversion goals of 70% capture rate for Blue Box materials (Table 9). At this time this Waste Recycling Strategy will be updated and the current 10 year goal of 85% (Table 9) will be evaluated and revised accordingly.

9.0 AVAILABLE RESOURCES

There are a number resources available to municipalities to support their Blue Box recycling programs through WDO, CIF and Stewardship Ontario.

Some specific examples of resources are provided in the following sections.

9.1 Public Promotion and Education (P&E)

There are a number of resources available to help the Township design and implement a cost-effective and successful P&E program. Several resources include:

- CIF's 'One-stop P&E Shop for Small Programs':
  - FREE P&E material & program guidance
- CIF's Multi-residential P&E program Materials:
  - FREE P&E material for the multi-res sector
- WDO CAN/OCNA Advertising Program:
  - FREE newspaper lineage
- WDO 'Ad Bank' :
  - FREE P& E sample ads and graphics
- P&E module on the 'Recyclers' Knowledge Network' (http://vubiz.com/stewardship/Welcome.asp):
  - Best practices and program guidance
  - Municipal P&E Workbook
- E & E Fund Approved Communication and Education Projects

For information on promoting the importance of the P&E budget with Council, visit http://www.stewardshipontario.ca/bluebox/pdf/eefund/reports/68/PE_Workbook.pdf

9.2 Staff Training Opportunities

The following resources are available to provide training to depot staff:

- E&E Fund: Ontario Blue Box Recycler Training; and
- FREE two-day P&E course, developed by MWA.

For more information contact: Carrie Nash at carrie@municipalwaste.ca

Report Signature Page

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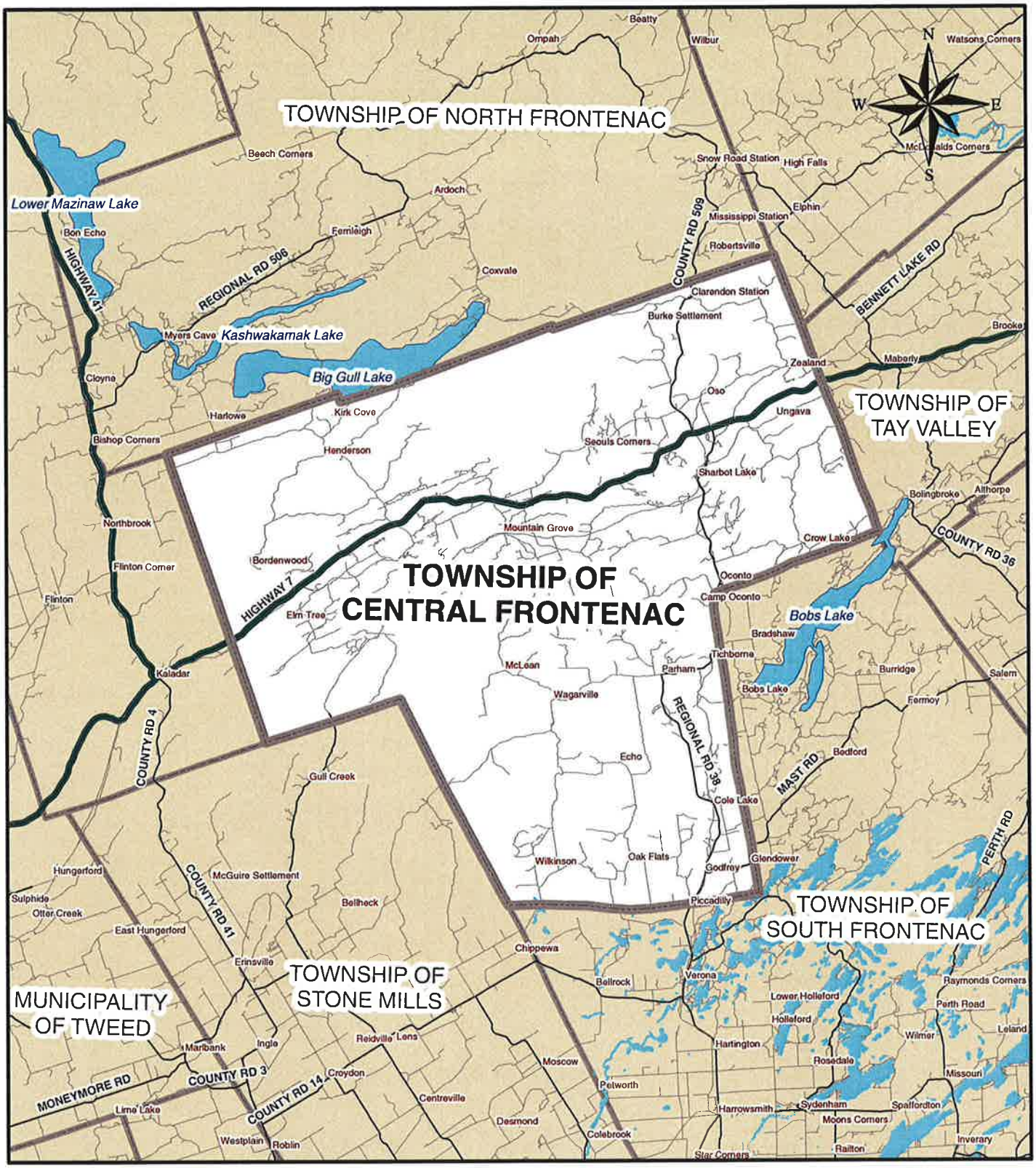

NOTE

This figure is to be read in conjunction with the accompanying Golder Associates Ltd. report No. 10-1125-0046

REFERENCE

Digital base map data supplied by DMTI Spatial Inc. CANMAP, 2008
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 18

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Golder Associates
Ottawa, Ontario

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APPENDIX A

Waste Recycling Strategy – Resident Survey and Summary of Responses

April 2011
Report No. 10-1125-0046

Golder Associates

APPENDIX A - Summary of Completed Surveys

Question 1: In which part of the municipality do your reside?
423 answered - Arden District (26%); Mountain Grove District (13%); Parham District (26%); **Sharbot Lake District (35%)**

Question 2: How many months of the year do you reside in the municipality?
425 answered – Year round (86%); > 6 months of the year (3%); < 6 months of the year (3%); Periodic visits to a seasonal residence (8%)

Question 3: On average, how many bags of garbage does your household produce each week?
423 answered – <1/2 bag (57%); 1 bag (30%); 2 bags (1%); 3 bags (1%); 4 bags (0%); >4 bags (0%)

Question 4: Which is your preferred Township Waste Disposal Site?
425 answered - Hinchinbrooke Waste Transfer Station (24%); **Olden Waste Disposal Site (42%)**; Oso Waste Disposal Site (34%)

Question 5: How often do you visit a Township Waste Disposal Site to dispose of your garbage when residing in the Township?
418 answered - **Monthly (48%);** Every 2 weeks (32%); Weekly (19%); More than once a week (1%)

Question 6: Do you regularly separate recyclable materials from your garbage and deposit them at the depot at the Waste Disposal Site?
421 answered – Yes (96%); No (2%); I did, but stopped (2%)

Question 7: What would encourage you to recycle or recycle more material? (Please check all that apply)
594 answered - If I was provided a blue box for recyclable materials (12%); If I had to dispose of my garbage in clear bags to ensure that there were no recyclables in the bag (2%); If I had to pay more for each bag of garbage taken to the Waste Disposal Site (2%); If I was limited by the amount of garbage I could take to the Waste Disposal Site during one visit (3%); If I had more information about how and what to recycle at the depot (10%); **I am currently recycling as much as I can (61%)**; Other (9%)

Question 8: What is your preferred method of receiving blue box information?
454 answered - Local newspapers (35%); Township Website (8%); **Notice with Tax Bill (51%)**; Other (6%)

Question 9: When you have questions regarding recycling, where do you look for answers?

500 answered - Local newspapers (9%); Township Website (14%); Call Township Office (17%); **Ask at the Waste Disposal Site (53%)**; Other (7%)

Question 10: Have you visited the Township website for garbage and recycling information?
413 answered - Once a week (0%); Once a month (6%); Once a year (29%); **Never (65%)**

Question 11: How easily were you able to find the garbage and recycling information you needed on the Township website?
204 answered - Very easily (37%); Took only a few minutes (36%); Took quite some time (10%); Never found what I was looking for (17%)

Assumptions and Limitations:

1. Overall, there were 423 completed surveys, of which 147 (35%) were completed online and 276 (65%) were completed and returned as paper surveys.
2. Several questions have more than 423 responses because:
    a. Question 7 was designed to allow respondents to select multiple responses (i.e. "check all that apply").
    b. Question 9 of the online survey was set-up to allow respondents to select multiple responses.
    c. For the paper surveys, many respondents provided multiple responses to Questions 7, 8 and 9.
3. The online survey was designed to prevent respondents from skipping questions. However there was no way to prevent this for the paper surveys. This explains why several questions have less than 423 responses.
4. For questions with multiple responses, percentages were calculated by dividing the results by the total number of responses, rather than the total number of surveys.
5. For questions with the possible response "other", a breakdown of the 'other' responses has not been included in this summary.
6. For questions with the possible response "no", these appeared on the surveys as "No, if not why". The "why" component of these responses has not been included in this summary.
7. Lastly, there was no clear response to Question 11 if respondents answered "never" to Question 10. This should be taken into consideration when evaluating the results for Question 11.

APPENDIX B

Summary of Waste Management Committee Responses for Overview of Waste Recycling Options (Worksheet 8).

Summary of Waste Management Committee Responses for Overview of Waste Recycling Options (Worksheet 8)

Description of Options/Best Practices		Waste Management Committee Member Rankings									TOTAL SCORES	RELATIVE RANKING
		Survey 1	Survey 2	Survey 3	Survey 4	Survey 5	Survey 6	Survey 7	Survey 8	Survey 9		
Promotion and Outreach												
	Public Education and Promotion Program	20	15	18	21	23	17	14	25	18	**171**	**1**
	Training of Key Program Staff	18	19	19	25	16	19	18	20	15	**169**	**2**
Collection												
	Optimization of Collection Operations	15	15		21	18	5	16	24	5	**119**	**10**
	Bag Limits	5	15	16	17	13	5	6	5	7	**89**	
	Enhancement of Recycling Depots	20	20	17	25	19	12	11	23	18	**165**	**3**
	Provision of Free Blue Boxes	22	12	12	15	20	14	19	24	15	**153**	**4**
	Collection Frequency	19	5		18	19	5	0	23	5	**94**	
	Broaden material categories for Blue Box	16	12		25	19	11	10	23	16	**132**	**6**
Transfer and Processing												
	Optimization of Processing Operations	23	15		15	23	5	15	22	5	**123**	**8**
Partnerships												
	Multi-Municipal Collection and Processing of Recyclables	22	15	7	21	19	5		22	17	**128**	**7**
	Standardized Service Levels and Collaborative Haulage Contracting	18	12	8	21	15	5	8	22	8	**117**	
	Intra-Municipal Committee	5	12	4	21	15	19	13	15	10	**114**	
Additional Research												
	Assess Tools and Methods to Maximize Diversion	5	5	5	21	20	15	12	25	14	**122**	**9**
Administration												
	Following Generally Accepted Principles for Effective Procurement and Contract Management	25	5	6	25	22	5	14	15	25	**142**	**5**