Waste Recycling Strategy

Township of Russell

September, 2011

Project No. 163401082

Stantec

Waste Recycling Strategy

Township of Russell

File No. 163401082
September, 2011

Prepared for:

Township of Russell

Prepared by:

Stantec Consulting Ltd
Suite 1 – 70 Southgate Drive
Guelph ON N1G 4P5

Table of Contents

1.0 INTRODUCTION 1.1

2.0 OVERVIEW OF THE PLANNING PROCESS 2.1

3.0 PUBLIC CONSULTATION PROCESS 3.1

4.0 STATED PROBLEM 4.1
4.1 GOALS AND OBJECTIVES 4.1

5.0 CURRENT SOLID WASTE TRENDS, PRACTICES, SYSTEMS AND FUTURE NEEDS . 5.1
5.1 COMMUNITY CHARACTERISTICS 5.1
5.2 EXISTING PROGRAMS AND SERVICES 5.3
5.3 PROMOTION AND EDUCATION 5.8
5.4 CURRENT WASTE GENERATION AND DIVERSION 5.8
5.5 PROGRAM COSTS 5.11
5.6 POTENTIAL WASTE DIVERSION 5.12
5.7 ANTICIPATED FUTURE WASTE MANAGEMENT NEEDS 5.16

6.0 REVIEW AND EVALUATION OF WASTE MANAGEMENT OPTIONS 6.1
6.1 WASTE REDUCTION & REUSE OPTIONS 6.2
6.1.1 Adopting a Zero Waste Philosophy & Setting Reduction Targets 6.3
6.1.2 Per Capita Waste Reduction Target Setting 6.5
6.1.3 Grasscycling 6.6
6.1.4 Re-use Programming 6.7
6.1.5 Developing Green Procurement Policies 6.8
6.2 WASTE DIVERSION OPTIONS 6.9
6.2.1 Enhance Existing Waste Diversion Depot Program 6.10
6.2.2 Increase Recycling Container Capacity 6.11
6.2.3 Clear Garbage Bag Program 6.13
6.2.4 Enhanced and Sustained Advertising, Promotion & Education 6.14
6.2.5 At-Source Composting 6.16
6.2.6 Public Open Space & Special Events Recycling Program 6.17
6.2.7 Improved Municipal Facility Recycling 6.19
6.2.8 Organic Waste Collection & Processing Option 6.19
6.3 COLLECTION OPTIONS 6.21
6.3.1 Bi-Weekly (Every Other Week) Garbage Collection (With a Weekly Organics Program) 6.21

7.0 PRELIMINARY RECOMMENDED PROGRAMMING AND INITIATIVES 7.1
7.1 CURRENTLY IMPLEMENTED INITIATIVES 7.1
7.2 PRIORITY INITIATIVES 7.1
7.3 FUTURE PLANNING 7.3

8.0 CONCLUSIONS 8.1

9.0 MONITORING AND REPORTING 9.1
9.1 MONITORING 9.1
9.1.1 Waste Audits 9.1
9.1.2 Key Performance Indicators 9.2
9.2 REPORTING 9.2
9.3 PLAN REVIEW 9.3

List of Figures

Figure 5.1 Location of the Township of Russell 5.15
Figure 5.2 Close-up of Township of Russell 5.26
Figure 6.1 The Waste Hierarchy 6.3

List of Tables

Table 5.1 Current Tipping Fees at Russell's Landfill Site 5.7
Table 5-2 Russell Waste Generated, Diverted, and Disposed (2010) 5.9
Table 5-3 Russell Waste Generated and Diverted through Blue Box Program 5.10
Table 5-4 Comparison of Russell's Blue Box Diversion Rate with WDO Grouping 5.10
Table 5-5 Russell's 2009-2010 Costs for Curbside Recycling, Collection, and Processing 5.11
Table 5-6 Russell's Net Recycling Costs in Comparison with WDO Grouping 5.11
Table 5-7 Composition of Simcoe County's Waste Compared with Provincial Average 5.12
Table 5-8 Potential Diversion for Russell 5.14
Table 5-9 Russell Population and Waste Generation over Planning Period 5.16
Table 6-1 Program Option & Opportunities Assessment Factors 6.1
Table 6-2 Adopt a Zero Waste Philosophy 6.5
Table 6-3 Establish a Per Capita Waste Reduction Target 6.6
Table 6-4 Grasscycling 6.7
Table 6-5 Develop a Re-Use Centre, Re-Use Programs & Re-Use Partnering Initiatives 6.8
Table 6-6 Implement a Green Procurement Policy 6.9
Table 6-7 Enhance Existing Waste Diversion Depot Program 6.10
Table 6-8 Clear Garbage Bag Program 6.14
Table 6-9 Enhanced and Sustained Advertising, Education & Promotion 6.16
Table 6-10 At-Source Composting 6.17
Table 6-11 Public Open Space & Special Events Recycling Program 6.18
Table 6-12 Improved Administrative & Other Facility Recycling 6.19
Table 6-13 Organic Waste Collection and Processing 6.20
Table 6-14 Bi-Weekly Garbage Collection 6.22

List of Appendices

Appendix A - Waste Reduction Tips

1.0 Introduction

This Waste Recycling Strategy (WRS) was initiated by the Township of Russell (Russell) to develop a plan to increase the efficiency and effectives of their waste management system and to maximize the amount of waste material that they divert from disposal.

Although the focus of a Waste Recycling Strategy as outlined by the Continuous Improvement Fund's (CIF) *Guidebook for Creating a Municipal Waste Recycling Strategy* is the diversion of blue box material, Russell recognized the benefits of considering any program improvements in the context of the entire waste management system. Due to the interactive nature of waste management systems, looking at one component in isolation of the others could be counter-productive in that changing one component can affect the efficiency and effectiveness of other parts of the system and these impacts could be in the form of either added opportunities or added constraints (or both) to other parts of that system. As such, this WRS adopts this 'bigger picture' approach which allows Russell to identify potential blue box program improvements while ensuring that any changes recommended take into account the impacts to their waste management system as a whole and also reflect their unique community characteristics, circumstances and waste system dynamics.

This WRS was developed by Russell using the Continuous Investment Fund's *Guidebook for Creating a Municipal Waste Recycling Strategy* as a guiding document as well as Waste Diversion Ontario (WDO) best practices criteria, the Provincial *Policy Statement on Waste Management Planning* (June 2007) and other generally accepted industry best practices. In that context this WRS is also developed in accordance with the Waste Value Chain set out by the Province as part of the *Policy Statement on Waste Management Planning*. The Waste Value Chain places priority on waste prevention/reduction and reuse, then on maximizing diversion and minimizing disposal. This waste 'hierarchy' is discussed in more detail in Section 6.1 that explores a number of options for waste reduction and reuse.

2.0 Overview of the Planning Process

This WRS was prepared by Stantec Consulting Ltd. (Stantec) in collaboration with municipal staff from the Township of Russell (Russell). The following list provides an overview of the steps that were taken to complete the study:

1) Stantec obtained background information concerning Russell's current waste management system and had discussions with Russell staff to identify any problems/issues to be addressed during the course of the study as well as various goals and objectives as they related to the study;

2) Stantec assessed current waste management trends, practices, systems and future needs for Russell based on background information obtained and discussions with municipal staff. Background data was utilized to describe the 'status quo' system and act as the baseline to project future population and resulting tonnages to estimate Russell's long-term waste management needs. From this assessment we identified "gaps" that exist in current program performance and identified various opportunities for improvement to Russell's waste management system;

3) Based on program 'gaps' identified in Step 2, a list of waste reduction, reuse, and recycling options was generated based on WDO and other industry known best practices and programs successfully implemented in other municipalities. These options were reviewed in the context of appropriate criteria presented in Section 7.0 to assess their applicability to Russell and to identify those options that that might be the most logical and feasible for Russell to implement.

4) A reasonable implementation plan for the proposed waste reduction, reuse, and recycling options was developed;

5) A monitoring and reporting protocol was developed for the proposed waste reduction, reuse, and recycling options to help ensure that the goals and objectives are reached over the planning period; and,

6) Stantec developed the draft and this final Waste Recycling Strategy reflecting the results of the strategic planning process including public consultation.

3.0 Public Consultation Process

This draft report provides ideas and strategies that will assist the Township in improving the efficiency of their recycling programs, improve the diversion rate in moving closer towards provincial targets, as well as securing revenue for collected materials. Going forward, the success of new initiatives depend on public support and participation, thus input from engaged stakeholders and the public would assist with the decision to implement or ignore changes to existing programs. Public input can be sought in several ways, that is through meetings with targeted stakeholders (such as the Environment Committee, Business Owners/Developers), and with the public by an open house event or making information available on the Township website. The preferred method for consultation will be discussed once the content of this report has been reviewed by the Township and the most effective way for obtaining feedback agreed upon.

4.0 Stated Problem

The 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 waste reduction, reuse, and recycling endeavors can vary greatly and depends on a municipality's size, geographic location, demographic characteristics, population and population growth, population density and economy. These factors affect the ability to site local waste management infrastructure (landfill, transfer stations, material recovery facilities, organic waste processing facilities etc.), to utilize waste management infrastructure outside the municipal jurisdiction and also to implement various waste collection and programming strategies. The key drivers that led to the development of this WRS include:

- Russell currently diverts approximately 32.7% of its waste from landfill via various recycling programs. Russell is interested in exploring various program initiatives/options that could contribute to an increased waste diversion rate. For example, Russell could investigate accepted construction and demolition waste for diversion at their landfill site or could consider implementing a source separated organics (SSO) collection program.

- Russell needs an up-to-date waste diversion plan (blue box diversion plan) that establishes defined performance measures including diversion targets, monitoring objectives and a continuous improvement program. Through developing this WRS, Russell will move closer to achieving best practices as well as receiving increased Waste Diversion Ontario (WDO) funding.

4.1 GOALS AND OBJECTIVES

A number of goals and objectives were identified during the early stages of WRS development. These goals and objectives are designed to address existing system problems including:

- To improve the effectiveness and efficiency of Russell's waste diversion system to minimize costs but sustain and optimize overall system performance.

- To increase residential participation in the blue box program; additional strategies to increase diversion over the longer term.

- To identify opportunities for partnerships with other communities where feasible to increase the efficiency and effectiveness of their waste management system.

- To develop an up-to-date waste diversion plan (blue box diversion plan) that establishes defined performance measures including diversion targets, monitoring objectives and a continuous improvement program.

As such Russell's main objectives in the development of this Waste Recycling Strategy (WRS) are:

- To investigate various strategies available to increase participation rates in recycling programs, including enhanced communication strategies, for both the residential and business sector.
- To investigate additional diversion programs including organic waste collection and processing.
- To identify areas to improve system efficiencies and improvements in level of service.
- To gauge community understanding of programs and acceptance for program change.
- To develop and techniques to measure and track program performance.
- To explore opportunities for partnerships with other municipalities where possible.

5.0 Current Solid Waste Trends, Practices, Systems and Future Needs

5.1 COMMUNITY CHARACTERISTICS

The Township of Russell (Russell) is a lower-tier municipality located within the United Counties of Prescott Russell on the Castor River. Russell shares a common north and west boundary with the City of Ottawa and has a total land area of 199 km^2.

Figure 5.1 illustrates the location of Russell.

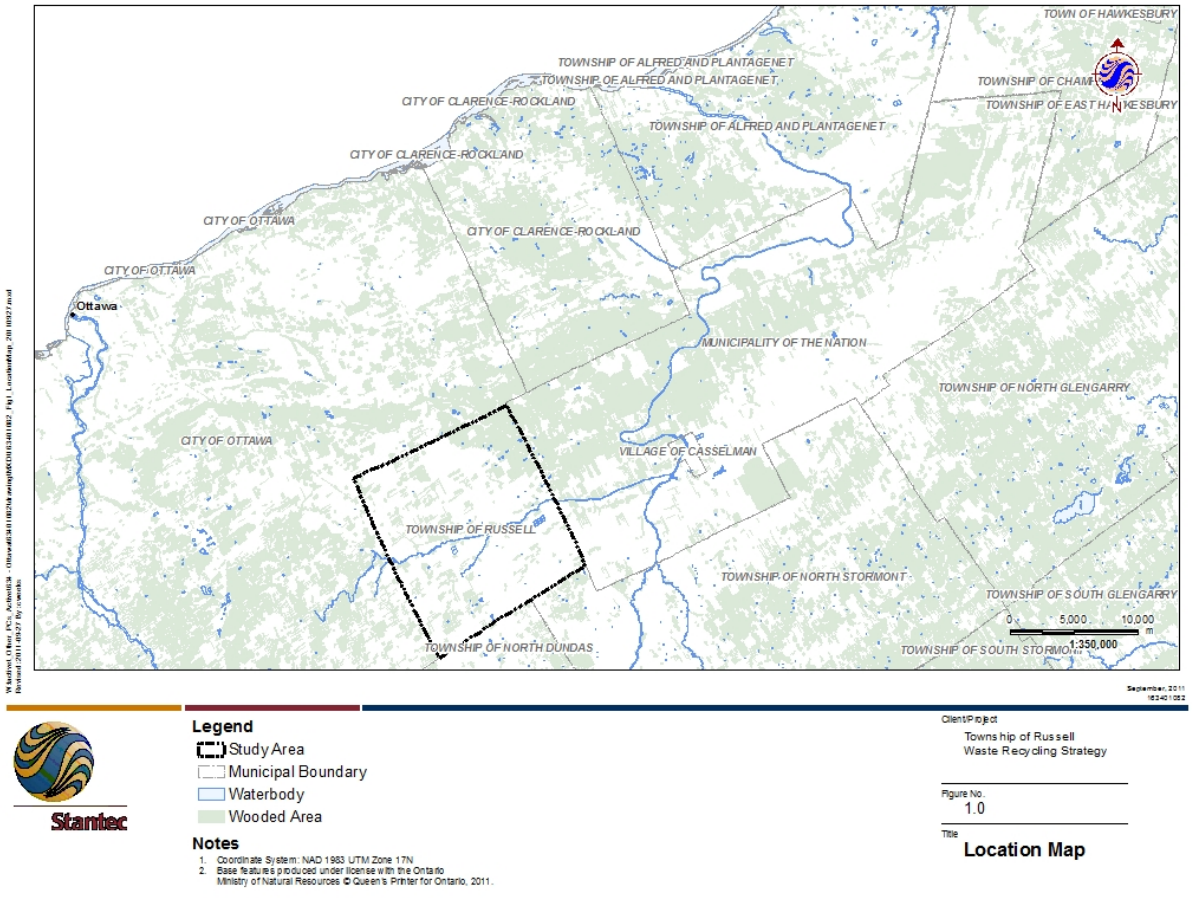

Figure 5.1 Location of the Township of Russell

Figure 5.2 shows a close-up view of the Township of Russell displaying major roads and local communities. The primary communities located in the Township are the communities of Russell and Embrun.

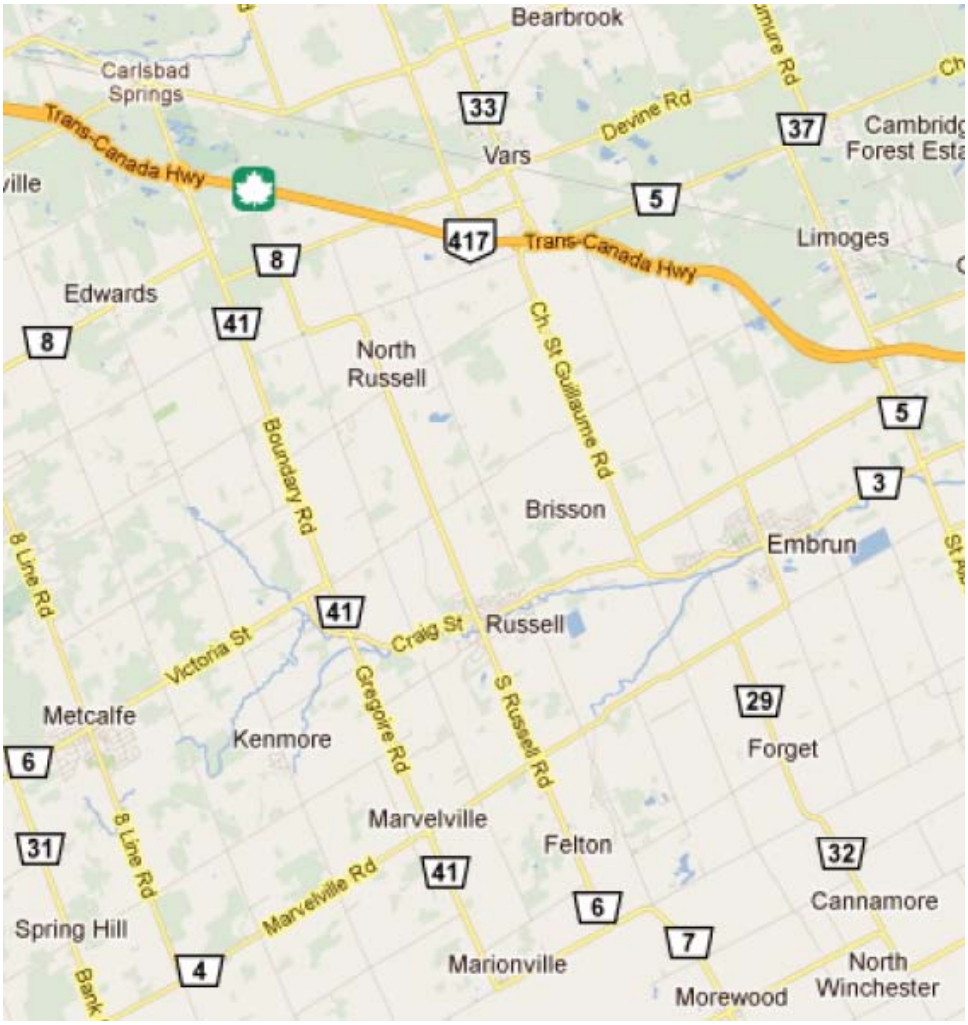

Figure 5.2 Close-up of Township of Russell

In 2010, Russell had a population of about 15,100.[1] The municipality is home to approximately 5,262 households.[2] Of these households, 5,219 are single-family residences and 43 are multi-family residences.[3] There are no seasonal dwellings located in the municipality.

[1] Calculated by referring to the Township of Russell Population, Reference Forecast (Table 16) in Hemson Consulting Ltd.'s Growth Forecast Report (2008).

While Russell has a fairly diverse work force the economy is based mainly on agricultural activities including major distribution of dairy and bovine products in the region, as well as sheep, corn, milk and other products.

5.2 EXISTING PROGRAMS AND SERVICES

Russell currently provides the following services to manage solid waste. Russell provides services to the residential and business sectors of the community.

▪ Weekly Collection of Garbage

Russell operates a full user-pay system with a one (1) container/bag limit per household per week. Each household is provided with 52 tags per year to place on each bag/container placed at the curb. Each business is provided with 104 tags per year. Additional tags can be purchased at the municipal office or any branch of the municipal library at a cost of $2.00 each.

Garbage collection is provided for by a private contractor, ABC Disposal. Russell entered into a five (5) year contract with ABC Disposal on March 3, 2007; the contract continues until March 2, 2012. Russell is currently completing another study alongside this WRS to assess future waste/recycling contracting options.

Garbage is disposed at the Township's landfill site located at 1852 St. Catherine Road, several kilometers south of Embrun.

▪ Weekly Collection of Single-Stream Recycling

Recycling collection is also provided for by ABC Disposal under the same contract as for garbage. ABC Disposal takes recyclables to RARE Recyclage in Alexandria, Ontario for processing. Russell does not receive any revenue from the sale of blue box material.

The following materials are currently accepted in the single-stream recycling program:

- Glass Bottles and Jars
- Aluminum Cans
- Steel Cans
- Aluminum Foil
- PET #1 (light-weight, clear plastic typically used in pop and water bottles)

---

[2] Calculated by taken persons per household observed in 2006 census and applying this to the current population.
[3] Calculated by taking the ratio of single family residences to multi-family residences as reported in the 2009 datacall and applying this ratio to the estimated number of households actually present in Russell.

- HDPE Plastic #2 (e.g. heavier, often coloured bottles used for shampoo, detergent and cleaning products)
- Plastic Bottles #3-7
- Plastic Film (e.g. grocery or shopping bags)
- Tubs and Lids (e.g. containers for spreads, yoghurt, cottage cheese)
- Styrofoam containers (Foam containers like coffee cups, or egg cartons)
- Clear polystyrene #6 (Clear bakery clam-shells)
- Newspapers, magazines and catalogues
- Household papers (e.g. letters, envelopes, and bulk mailings)
- Corrugated Cardboard
- Boxboard Cartons (e.g. cereal, tissue and detergent boxes)
- Gable Top Containers (e.g. milk and juice cartons)
- Aseptic Cartons (juice, broth and wine boxes)

Residents are permitted to use blue or transparent bags to place recyclables out for collection in lieu of blue boxes. Replacement blue boxes are provided to residents free of charge. Additional blue boxes can be purchased from the municipal office for a fee of $7.00 (or 3 valid garbage bag tags). In 2010, 148 blue boxes were purchased.

▪ Collection (Twice Yearly) of Bulky Waste

Russell provides for the collection of bulky waste twice per year (ABC Disposal). In 2011, collection is being provided the week of May 16th and the week of October 24th (on the same day as regular garbage collection). There is a fee of $10 per bulky item.

Appliances can also be collected as bulky items but residents must ensure that any appliances that contain refrigerant have been serviced by a licensed technician and tagged. Resident's can opt to use 5 garbage tags to pay for the collection of one large item in lieu of paying the $10 fee.

▪ Collection (Twice Yearly) of Leaf & Yard Waste

Russell provides for the collection of leaf & yard waste twice per year, once in the Spring and once in the Fall (provided by ABC Disposal). In 2011, the dates for collection are Saturday, June 4th and Saturday, November 5th. Collection is provided free of charge. Residents must place material in a paper bag or plastic container. No plastic bags are accepted in the program.

Residents are also permitted to bring their leaf & yard waste material to the landfill site free of charge 6 day a week.

▪ Waste Exchange Days (Twice Yearly)

Russell encourages its residents to participate in Curb Exchange days which are held twice per year. In 2011, the dates for the Curb Exchange days are May 14th, and October 22nd. Curb Exchange days involve residents placing reusable items at the curbside and marking them as "free" so that other residents can take the items.

▪ Spring Cleaning Weekends

Russell operates a Spring cleaning weekend in the spring (in 2011, it was the weekend of April 30th) during which it encourages residents to pick up waste from public spaces. Currently all primary and secondary schools actively participate in this program to clean up parks, roads etc. Russell coordinates the collect of this waste free of charge.

▪ Call2Recycle Program

Russell currently participates in the Call2Recycle program which allows residents to drop off old cell phones and rechargeable batteries at specific locations. The items collected are then recycled. There are currently two locations for drop-off including the municipal office located at 717 Notre-Dame in Embrun and at La Source located at 825 Notre Dame in Embrun.

▪ Household Hazardous Waste (HHW) Depot at the Landfill Site

Since 2003, Russell has operated a household hazardous waste (HHW) depot at its landfill. Licensed waste contractors, Drain-All, East Penn Canada (vehicle batteries only) and Veolia are currently contracted to collect these materials which include paint, motor oil, pesticides, propane tanks and other hazardous materials.

▪ Diversion of Tires, Appliances, Scrap Metal, Leaf & Yard Waste, and Christmas Trees, WEEE at the Landfill Site

The items listed above can be dropped off at the landfill site for diversion. All items are accepted free of charge except for tires that still have rims attached. The cost for tires with rim depends on the size of tire (see Table 5.1). Tires with rims are currently removed from the landfill site by Clarence Creek Recycling. Ontario Tire Stewardship only accepts tires without rims.

Appliances can be dropped off as long as refrigerant has been removed (tagged by a licensed technician). No appliances that still contain refrigerant are accepted at the landfill site.

Christmas trees can be dropped off at the landfill site free of charge or at the Embrun and Russell arenas during the first two weeks of January.

In addition to the above noted items, Russell is planning on amending the landfill's Certificate of Approval to so that they can accept waste electrical and electronic equipment (WEEE) at a depot at the landfill to make this waste diversion program more available to its residents. In 2010, Russell held a one-day event to collect WEEE from residents. The schools also collect WEEE for fundraising purposes which Russell helps to organize and would like to further promote in the future. In May 2011, the Rivière Castor Elementary School in Embrun hosted the WEEE fundraiser.

The location of the landfill site and its hours of operation are noted in the next subsection.

▪ Drop-off of Garbage and Bulky Waste at Landfill Site

Russell owns and operates an 8.1 hectare landfill located within a total site are of 31.04 hectares located at 1852 St. Catherine Road approximately 6.6 kilometres south of Russell and 5.5 kilometers south of Embrun.

Residents are permitted to drop-off garbage and bulky waste at the landfill site for a fee. There is a $10 charge for each bulky item.

Table 5.1 lists the current tipping fees at the landfill site.

The landfill's hours of operation are as follows:

- From September to April – Monday to Friday (Noon to 4 pm), Saturday (8 am to 4 pm)
- From May to August – Monday to Saturday (8 am to 4 pm)

Russell has operated the landfill site at this location since the early 1970's. The landfill is operated under Certificate of Approval No. A 471904. Based upon population and waste projections completed in 2010, it is estimated that the landfill has a remaining capacity of 500,191 m^3 (as of the end of 2010). Assuming that current waste generation rates remain steady and population increases as expected, the landfill is likely to reach capacity sometime in the year 2035.[4] By implementing the recommended programming changes discussed in section 6.0, the landfill's service life is likely to be extended.

[4] Stantec Consulting Ltd. 2010. Township of Russell 2010 Annual Operations Monitoring Report.

Table 5.1 Current Tipping Fees at Russell's Landfill Site

Vehicle (or item)			Cost	
(a)	Car		$11	
(b)	Mini-truck		$16	
(c)	Trailer			
	(i)	4' x 8'	$16	
	(ii)	6' x 8'	$21	
	(iii)	6' x 12'	$26	
	(iv)	7' x 20'	$37	
(d)	Van or truck 1/2 ton or 3/4 ton		$21	
(e)	Cube van		$37	
(f)	Dump trailer		Without roof shingles	With roof shingles
	(i)	6' x 9' x 3'	$37	$74
	(ii)	6' x 12' x 3'	$47	$95
	(iii)	6' x 12' x 4'	$58	$116
	(iv)	6' x 12' x 6'	$68	$137
	(v)	6' x 12' x 8'	$79	$158
(g)	Farm wagon			
	(i)	8' x 18'	$37	
	(ii)	8' x 24'	$47	
(h)	Dump truck			
	(i)	1 ton	$37	
	(ii)	2-4 ton	$58	
	(iii)	5-6 ton	$100	
	(iv)	Tandem	$168	
	(v)	Tri-axles	$231	
(i)	Roll-off containers			
	(i)	20 yards	$210	
	(ii)	30 yards	$315	
	(iii)	40 yards	$420	
(j)	Tractor trailer		$420	
(k)	Appliance (without freon)		Free	
(l)	Compostable material		Free	
(m)	Compactor		$263	
(n)	Tires – **No passes, tags or coupons can be used.**		Without Rims	With Rims
	Car tires (up to 12" in diam.)		Free	$3
	Truck tires (12" to 18" in diam.)		Free	$5
	Tractor tires (over 18" in diam.)		Free	$10

5.3 PROMOTION AND EDUCATION

In 2010, according to the Datacall information, Russell spent $3,707.00 promoting their blue box recycling program (compared to $3,577.00 in 2009). This amounts to spending about $0.70 per household. Overall, the Township utilizes the following forms of promotion and education (P&E) to advertise their waste management programs:

- Articles, including weekly municipal page in local paper;
- Insertions;
- Flyers/brochures;
- Annual calendars;
- Website;
- Stickers; and
- Stamps.

5.4 CURRENT WASTE GENERATION AND DIVERSION

Currently, Russell generates approximately 6,559 tonnes of residential solid waste per year. Of the total residential waste generated, Russell diverted approximately 2,147 tonnes, resulting in an overall residential diversion rate of approximately 32.7%.

The following materials were diverted from disposal in 2010:

- 1,287 tonnes of blue box recyclables[5];
- 64.3 tonnes of HHW from the HHW depot[6];
- 71 tonnes of tires from the landfill depot[7];
- 175 tonnes of scrap metal from the landfill depot[8]; and,
- 550 tonnes of leaf & yard waste and Christmas Trees[9].

The following materials were disposed in 2010:

[5] Takes into account 2009 residue rate of about 13.3%.
[6] Stantec Consulting Ltd. 2010. Township of Russell 2010 Annual Operations Monitoring Report.
[7] Stantec Consulting Ltd. 2010. Township of Russell 2010 Annual Operations Monitoring Report.
[8] Stantec Consulting Ltd. 2010. Township of Russell 2010 Annual Operations Monitoring Report.
[9] Approximate value based on volume of leaf & yard waste diverted (2,250 m^3) and an assumed density of 250 kg/m^3.

- 4,215 tonnes of residential garbage[10]
- Approximately 197 tonnes of recycling residue.

The following table summarizes the total waste generated, diverted, and disposed by Russell in 2010.

Table 5-2 Russell Waste Generated, Diverted, and Disposed (2010)

Waste Category	Tonnage (2010)
Waste Diverted	
Blue Box Recyclables (curbside and depot)	1,484 generated, 1,287 diverted[11]
HHW (depot)	64
Leaf & Yard Waste	550
Tires (depot)	71
Scrap Metal (depot)	175
Total Diverted	2,147
Waste Disposed	
Garbage (curbside and taken directly to landfill)	4,215
Recycling Residue	197
Total Disposed	4,412
Total Waste Generated	**6,559**
Waste Diversion Rate	32.7%

It is useful to compare Russell's waste management system performance to other similar municipalities to understand how Russell's waste management system is currently performing. There are no broad-based, generally accepted principles or criteria to assess a waste management systems performance relative to any other municipality other than through comparison provided by Waste Diversion Ontario (WDO).

WDO groups municipalities into one of nine municipal groupings in order to compare similar municipalities (i.e. in terms of demographic, geographic, and program type characteristics) to one another. Performance comparisons within a municipal grouping are used by WDO as one mechanism to allocate funding to each reporting municipality. Russell falls into WDO's *Rural Collection – South* municipal grouping.

[10] This is a calculated number based on the per capita garbage disposal rate reported in WDO data in 2009 multiplied by the estimated population as presented in this report. 8,647 tonnes of waste were reportedly landfilled at Russell's landfill in 2010; only about half of this material is from residential sources.
[11] Although Russell generated 1,484 tonnes of recyclables, only 1,287 were actually diverted. The rest is considered residue which would be landfilled.

Based on data gathered by WDO in 2009 (the last year for which data is publicly available), Russell's Generally Accepted Principles (GAP) diversion rate was 27.1%. The average GAP waste diversion rate for the *Rural Collection – South* municipal grouping was 29.7% making Russell's performance **only slightly below average**. It should be noted that the GAP diversion rate takes into account additional diversion such as grasscycling and the residential component of LCBO's deposit return program. In our calculations, we did not take these additional diversion items into account. That being said, according to actual data obtained from Russell for the 2010 year (without taking the additional forms of diversion into account), their diversion as noted above is actually now approximately 32.7% (the main reason for the difference is we included diversion of leaf & yard waste).

While the amount of waste diverted relative to the total amount of waste generated is important in terms of targeting all waste streams for diversion, it is also important to understand Russell's blue box diversion rate in order to target recyclables more specifically.

In 2010, of the waste that was diverted from landfill, 1,287 tonnes (or 19.6 % of the total waste) was diverted through the blue box recycling program. Currently, about 80% of what is collected via the blue box program is paper fibre with the remaining 20% consisting of containers (metal, plastic, and glass).[12]

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

Table 5-3 Russell Waste Generated and Diverted through Blue Box Program

Residential Waste Stream/Blue Box Material	Tonnes	Percent of Total Waste
Total waste generated	6,559	-
Papers (ONP, OMG, OCC, OBB and fine papers)	1,018	15.5%
Metals (aluminum, steel, mixed metal)	59	0.9%
Plastics (containers, film, tubs and lids)	130	2.0%
Glass	80	1.2%
Total Blue Box material currently diverted	**1,287**	**19.6%**

In order to assess the performance of Russell's blue box diversion program, WDO data was once again consulted. As the table below indicates, Russell's current blue box diversion rate is **only slightly below average** for its WDO municipal grouping.

Table 5-4 Comparison of Russell's Blue Box Diversion Rate with WDO Grouping

Average Blue Box Diversion Rate	
Russell (2010)	19.6%
Municipal Grouping: Rural Collection South (2009)	22.8%

[12] The breakdown of material types was determined by taking data from WDO for Russell for 2009 and applying that breakdown to the 2010 tonnages.

5.5 PROGRAM COSTS

In terms of costs, Russell reported (to WDO) on average of $279,577.00 per year for the years of 2009 and 2010 to operate its blue box recycling program. These costs include the contract cost for collection and processing, the cost for provision of blue boxes, promotional material costs, and program administration costs. The following table illustrates Russell's recycling program costs.

Table 5-5 Russell's 2009-2010 Costs for Curbside Recycling, Collection, and Processing[13]

Year	Calculated Blue Box Tonnes Marketed	Total Gross Costs	Gross Costs Per Tonne	Other Revenue	Total Net Cost	Net Cost Per Tonne
2009	1,251	$273,560	$218.67	$1,309	$272,251	$217.63
2010	1,287	$285,594	$221.97	$1,036	$284,558	$221.17

In 2010, the total net annual recycling cost for Russell was $284,558[14]. This amounts to $221 per tonne, or $19 per capita. As the table below shows, net annual recycling costs for Russell are **well below average** for its WDO municipal grouping.

Table 5-6 Russell's Net Recycling Costs in Comparison with WDO Grouping

Net Recycling Cost (per tonne per year) (2010)	
Russell	$221
Municipal Grouping: Rural Collection South	$420

In 2010, the total disposal costs for Russell were $325,450 which equates to a per tonne cost of $30.11. In addition to disposal costs, Russell also incurred garbage collection costs of $533,490, professional fees (for monitoring, hydrogeological study and development, operation and closure plan) of $34,621, tire removal costs of $1,548, and household hazardous waste depot costs of $54,421. Russell received $34,621 in revenue from tipping fees at the landfill.[15]

Russell pays ABC Disposal $2.93 per residential unit/month, $45.00 per commercial/institutional unit/month, and $13.40/dumpster/month for providing curbside collection services.[16] Recycling collection costs were $259,278 in 2010.

[13] 2009 data directly from WDO DataCall. 2010 data from Russell's internal records.
[14] Russell's 2010 internal records. This value does not include funding received by Stewardship Ontario.
[15] Stantec Consulting Ltd. 2010. Township of Russell 2010 Annual Operations Monitoring Report.
[16] Contract between ABC Disposal and Russell Township, December 2006.

5.6 POTENTIAL WASTE DIVERSION

In order to determine the potential amount of waste that Russell could divert, the composition of waste generated by the residential sector of Russell first had to be determined. As Russell has never conducted its own waste composition study, their waste composition had to be estimated using 'surrogate' data from another municipality.

The CIF *Guidebook for Creating a Municipal Waste Recycling Strategy* recommends that *Rural Collection – South* municipalities use waste composition data from the Town of Blue Mountains in order to estimate waste composition. Although the Guidebook references the Town of Blue Mountains be used as the reference municipality, Stantec determined that Town of Blue Mountain has sufficiently different characteristics (e.g. high number seasonal resorts, cottages) that bring on a higher presence of materials like glass than what is generally presented for most municipalities. For example, the Town of Blue Mountains reported 12% of their waste stream to be glass, while the provincial average for small urban and rural municipalities was in the order of 4%.

Because the Town of Blue Mountains data was deemed unsuitable, other surrogate data needed to be used. As Stantec had completed a comprehensive four season waste audit (following Stewardship Ontario guidelines) on behalf of Simcoe County in 2010, this data was consulted to see how it compared to the provincial average for small urban and rural municipalities as described in the CIF guidebook. The following table shows how Simcoe County's data (representative waste composition data) compares to small urban and rural municipalities. As the data shows, Simcoe County's data is very similar and was therefore used to estimate the overall composition of Russell's waste.[17]

Table 5-7 Composition of Representative Waste Data Compared with Provincial Average

Waste Material	Simcoe County Composition (2010)	Provincial Average (Small Urban and Regional)
Papers (ONP, OMG, OCC, OBB and fine papers)	24%	22%
Metals (aluminum, steel, mixed metal)	3%	2%
Plastics (containers, film, tubs and lids)	5%	6%
Glass	4%	4%
Total Recyclables	36%	34%

Table 5-8 reflects the potential diversion rate for Russell with increased participation in diversion programs (to 95%) and good but reasonable capture rates for each of the recyclable material

[17] It should be noted that the waste audit conducted in Simcoe County only included materials collected curbside (garbage, recycling, organics) and does not take into account other divertible materials such as WEEE, MHSW, etc., that may be brought to recycling depots. For this reason, the tonnage used for Russell only took into account curbside materials (garbage and recycling). Simcoe County also operates depots that accept a wide variety of divertible materials.

categories (for example, 100% of participants usually know that newsprint is recyclable but not all participants necessarily know that certain plastics (for example) may be recyclable). This is accounted for in the projections.

Table 5-8 also reflects the addition of an organic waste collection program. The participation rate (% of homes participating) is estimated at a reasonable 70%. Materials included in the potential organic waste collection program include food waste and paper toweling but excludes pet waste and diaper wastes. It is estimated that 85% of those materials would be captured by those participating in the program. While pet waste and diaper wastes have been included in organic waste collection programs in the past the Province now prefers these materials are not included to minimize odour and to eliminate plastics in that waste stream.

Based on reasonable participation rates and capture rates it is estimated that for the recycling program alone that Russell could achieve a diversion target of 36% (for curbside single stream recyclable materials only), or 49% when taking into account other diversion of HHW, LYW – leaf yard waste , Tires, and Scrap Metal) and with added organics could achieve a diversion rate of approximately 66% (curbside recycling and organics only) or 78% when taking into account other diversion of HHW, LYW, Tires, and Scrap Metal. This diversion rate doesn't account for any potential waste reduction or other diversion initiatives discussed in Section 7.0.

These initiatives would result in an increase in single stream recycling tonnage to an estimated 2,076 tonnes/year (from the current 1,287 tonnes/year) and organic tonnage to an estimated 1,697 tonnes per year. If the above mentioned diversion rates are achieved, Russell's residential waste disposal rate could decrease from the current rate of 4,215 tonnes/year to only 1,729 tonnes/year. Discussion on how to increase diversion rates is discussed in detail in Section 7.0.

Table 5-8 Potential Diversion for Russell

Material Category	Sub-Category	Composition			Participation Rate	Capture in Recyclables	Recyclables			Organics			Garbage		
		(%)	(kg/hh/yr)	(tonnes/yr)	%	%	(kg/hh/yr)	(Tonnes/yr)	%	(kg/hh/yr)	(Tonnes/yr)	%	(kg/hh/yr)	(Tonnes/yr)	%
Paper Fibres	Newspaper	10.12%	110	577	95%	99%	103.1	542	94%	0.0	0	0%	6.5	34	6%
	Magazines	2.43%	26	138	95%	99%	24.7	130	94%	0.0	0	0%	1.6	8	6%
	Phone Books	0.24%	3	13	95%	99%	2.4	13	94%	0.0	0	0%	0.2	1	6%
	Mixed Fine Paper	2.85%	31	162	95%	95%	27.8	146	90%	0.0	0	0%	3.0	16	10%
	Corrugated Cardboard	4.07%	44	232	95%	99%	41.4	218	94%	0.0	0	0%	2.6	14	6%
	Boxboard	4.25%	46	242	95%	99%	43.3	228	94%	0.5	2	1%	2.3	12	5%
	Egg Cartons	0.34%	4	19	95%	95%	3.3	17	90%	0.0	0	1%	0.3	2	9%
	Kraft Paper	0.73%	8	42	95%	95%	7.2	38	90%	0.2	1	2%	0.6	3	8%
	Laminated Paper Packaging	0.37%	4	21	95%	5%	0.2	1	5%	0.0	0	0%	3.8	20	95%
	Books	0.58%	6	33	95%	95%	5.7	30	90%	0.0	0	0%	0.6	3	10%
	Spiral Wound	0.21%	2	12	95%	90%	1.9	10	86%	0.0	0	0%	0.3	2	15%
	Other paper	0.09%	1	5	95%	5%	0.0	0	5%	0.0	0	0%	0.9	5	95%
	Gable Top	0.47%	5	27	95%	85%	4.1	22	81%	0.0	0	0%	1.0	5	19%
	Aseptic	0.19%	2	11	95%	85%	1.7	9	81%	0.2	1	10%	0.2	1	9%
	Sub-Total Paper	**26.93%**	**292**	**1,534**			**266.8**	**1,404**	**91%**	**0.9**	**5**	**0%**	**23.9**	**126**	**8%**
Ferrous	Steel Food and Beverage Cans	1.89%	20	107	95%	99%	19.2	101	94%	0.0	0	0%	1.2	6	6%
	Steel Aerosol cans	0.18%	2	10	95%	95%	1.8	9	90%	0.0	0	0%	0.2	1	10%
	Paint Cans	0.03%	0	2	95%	95%	0.3	2	90%	0.0	0	0%	0.0	0	10%
	Other Metal	0.54%	6	31	95%	95%	5.3	28	90%	0.1	0	1%	0.5	3	9%
	Sub-Total Ferrous	**2.64%**	**29**	**151**			**26.6**	**140**	**93%**	**0.1**	**0**	**0%**	**2.0**	**10**	**7%**
Aluminum	Aluminum Food and Beverage Cans	0.66%	7	38	95%	99%	6.8	36	94%	0.2	1	3%	0.2	1	3%
	Other Aluminum Containers	0.02%	0	1	95%	96%	0.2	1	91%	0.0	0	3%	0.0	0	6%
	Aluminum Foil Trays	0.27%	3	16	95%	91%	2.6	13	86%	0.0	0	1%	0.4	2	13%
	Sub-Total Aluminum	**0.96%**	**10**	**55**			**9.6**	**50**	**92%**	**0.3**	**1**	**2%**	**0.6**	**3**	**6%**
Glass	Alcoholic Beverage Glass	0.89%	2	51	95%	99%	1.5	48	94%	0.0	1	1%	0.1	3	5%
	Food and Beverage: Clear	2.65%	29	151	95%	95%	25.9	136	90%	0.3	2	1%	2.5	13	9%
	Food and Beverage: Coloured	0.23%	2	13	95%	95%	2.2	12	90%	0.0	0	1%	0.2	1	9%

	Other Glass	0.77%	8	44	95%	5%	0.4	2	5%	0.1	0	1%	7.9	42	94%
	Sub-Total Glass	**4.54%**	**49**	**259**			**30.0**	**198**	**61%**	**0.4**	**3**	**1%**	**10.7**	**58**	**23%**
PET	PET Beverage Bottles	1.55%	17	88	95%	99%	15.8	83	94%	0.0	0	0%	1.0	5	6%
	Other PET Bottles & Packaging	0.87%	9	49	95%	5%	0.4	2	5%	0.0	0	0%	8.9	47	95%
	Sub-Total PET	**2.41%**	**26**	**138**			**16.2**	**85**	**62%**	**0.0**	**0**	**0%**	**9.9**	**52**	**38%**
Other	HDPE (2) Bottle/Jug	1.03%	11	58	95%	95%	10.0	53	90%	0.0	0	0%	1.1	6	10%
	PVC #3	0.01%	0	1	95%	95%	0.1	1	90%	0.0	0	0%	0.0	0	10%
	LDPE and PP Bottles	0.05%	1	3	95%	95%	0.5	2	90%	0.0	0	1%	0.0	0	9%
	Polystyrene	0.69%	7	39	95%	90%	6.3	33	86%	0.4	2	5%	0.7	4	10%
	Tubs and Lids	0.46%	5	26	95%	85%	4.1	21	81%	0.3	1	5%	0.7	4	14%
	Recyclable Film	1.26%	14	72	95%	85%	11.0	58	81%	0.7	4	5%	1.9	10	14%
	Non-recyclable film	2.37%	26	135	95%	5%	1.2	6	5%	0.8	4	3%	23.7	125	92%
	Other Bottles	0.16%	2	9	95%	5%	0.1	0	5%	0.1	0	5%	1.6	8	90%
	Other Plastic Packaging	1.06%	11	60	95%	5%	0.5	3	5%	0.6	3	5%	10.3	54	90%
	Durable Plastics	1.41%	15	80	95%	5%	0.7	4	5%	0.2	1	1%	14.4	76	94%
	Sub-Total Other Plastics	**8.49%**	**92**	**484**			**34.6**	**182**	**38%**	**2.9**	**15**	**3%**	**54.4**	**287**	**59%**
Organics	Food	30.09%	326	1,715	70%	2%	4.6	24	1%	277.0	1457	85%	44.3	233	14%
	Diapers/sanitary	4.37%	47	249	70%	2%	0.7	3	1%	0.0	0	0%	46.7	246	99%
	Animal waste	8.15%	88	464	70%	2%	1.2	7	1%	0.0	0	0%	87.0	458	99%
	Tissues/towels	3.70%	40	211	70%	2%	0.6	3	1%	28.1	148	70%	11.5	60	29%
	Grass and Yard Waste	0.70%	8	40	70%	2%	0.1	1	1%	6.5	34	85%	1.0	5	14%
	Paper Cups and Ice Cream Containers	0.52%	6	30	70%	2%	0.1	0	0%	2.8	15	50%	2.8	15	50%
	Sub-Total Organics	**47.54%**	**515**	**2,709**			**7.2**	**38**	**1%**	**314.3**	**1,654**	**61%**	**193.3**	**1,017**	**38%**
Other Waste	Other waste	6.00%	65	342	95%	5%	3.1	16	5%	3.2	17	**5%**	58.6	308	90%
	Sub-Total Other Waste	**6.00%**	**65**	**342**			**3.1**	**16**	**5%**	**3.2**	**17**	**5%**	**58.6**	**308**	**90%**
HHW	HHW	0.49%	5	28	95%	10%	0.5	3	10%	0.3	1	5%	4.5	24	86%
	Sub-Total HHW	**0.49%**	**5**	**28**			**0.5**	**3**	**10%**	**0.3**	**1**	**5%**	**4.5**	**24**	**86%**
	Total	**100.00%**	**1,083**	**5,698**			**395**	**2,076**	**36%**	**322**	**1,697**	**30%**	**358**	**1,886**	**33%**

5.7 ANTICIPATED FUTURE WASTE MANAGEMENT NEEDS

Solid waste generation rates in Russell are expected to grow moderately over the next 10 year planning period (by approximately 2% per year based on population increases). The following table illustrates the increases in population and waste generation over a ten (10) year planning period. This represents an increase in waste generation that needs to be considered as it relates to future waste management infrastructure needs.

Table 5-9 Russell Population and Waste Generation over Planning Period

Parameter	2011	2016	2021
Population	15,400	17,000	18,700
Total Waste (tonnes)	6,559	7,385	8,123

6.0 Review and Evaluation of Waste Management Options

Russell has demonstrated implementation of various best or 'better' practices in their waste management programming including, bag limit/bag-tag programs, free replacement of damaged blue boxes, overflow of recyclables from boxes into transparent bags, free drop off of recyclables such as HHW, tires etc. at the landfill, as frequent collection of recycling to garbage, bulky-item collection, waste exchange events etc. The options presented in the following sections do not address these already implemented best practices and only represent best or 'better' practices that have not been implemented and that may serve to improve waste management system performance. 'Alternative' best practices are also discussed as appropriate, for example, Russell could, as an alternative to the current user-pay/bag-tag program, implement a clear bag program should it be determined that would net better blue box capture results.

Further, and although the focus of this WRS is improved recycling program performance, Russell's future recycling initiatives should not be evaluated in isolation of the impacts to the rest of their waste management system and nor should they be evaluated outside of the principles of the 3Rs hierarchy. As such, this section discusses a number of industry recognized best or 'better' practices for waste reduction as well. Other diversion program options beyond the blue box (e.g. organics) are also discussed.

In order to assess the relative merits of various program options a number of factors or 'criterion' are applied to the options presented in this section to determine whether they can be practically applied as part of each of Russell's waste management system.

While there may be more factors for Russell to consider, the factors described in Table 6-1 below provide some assessment and understanding of the impact of implementing various programming options.

Table 6-1 Program Option & Opportunities Assessment Factors

Consideration	Application to Options
Short-term or Long-term Option	▪ Short-term options would include those that can easily be implemented within the first few years of the waste recycling strategy (e.g. within the first five years) and/or those options that would only be reasonably available in the short-term. ▪ Long-term options would include those that require more time to implement (i.e. more than five years) and/or are more difficult to implement and/or are not economically feasible in the short term.
Interaction with other System Components	▪ Significance of interactions of options with other potential system components. ▪ Options should not negatively interact with other components. ▪ Some options will be contingent upon the viability of implementing another system component, i.e., single stream recycling requires access to a single stream processing facility.
Potential Cost Implications	▪ Potential costs implications for the options, including capital and operating costs and potential revenues. ▪ Potential costs should be within reasonable range of the current budget

Table 6-1 Program Option & Opportunities Assessment Factors

Consideration	Application to Options
	unless outside funding sources are available as they may be in some cases.
Potential Change in Diversion	▪ Potential changes in diversion rates that could directly or indirectly result from implementing any of the options are identified if possible.
Potential for System Efficiencies and Improvements in Level of Service	▪ Preferred if options increase efficiency and/or cost effectiveness of the waste system. ▪ Diversion and collection options should have potential to enhance/improve levels of service.
Potential Processing or Disposal Capacity Requirements	▪ Diversion processing options and waste disposal options must be able to provide sufficient capacity for a reasonable length of time. ▪ Potential decreases in required landfill capacity for diversion options, would reflect both increased diversion and changes in composition and density of waste requiring landfill disposal.

Ease of Implementation/Timing of Implementation	▪ Examples of implementation requirements may include:
	  ▪ Facility siting for any new facilities.
	  ▪ Procurement processes such as RFPs for development of new facilities and/or new contracts for collection, transfer, processing.
	▪ Implementation requirements/timelines for some system components affect others, for example, changes to collection programs e.g. shift to single-stream, procurement of collection vehicles if necessary etc.
	▪ Some options may be easier to implement than others given staff resources, budget resources etc.

Community Acceptance	▪ Some options may be more widely accepted than other options ▪ The best options are more akin to community wants, needs and desire to modify behavior e.g. curbside set-out practices.
Ability to Adjust Option to Changes to the WDA & Other Provincial Initiatives	▪ Options need to have flexibility to adapt to changes that could occur based on changes in Provincial regulatory requirements/policy e.g. added or reduced materials to recycling stream.

The following sections identify various waste reduction, reuse and diversion options that have been successfully employed by others. Each option is assessed relative to the criteria set out in Table 6-1 as they are deemed to apply specifically to Russell and are discussed and assessed relative to the current system.

6.1 WASTE REDUCTION & REUSE OPTIONS

Historically, the main driver guiding waste management regulation (and therefore municipal decisions) was waste diversion. Consequently, and with no regulatory or policy directives guiding them, very few municipalities have established waste reduction practices. Only recently has the Ontario Ministry of the Environment (MOE) stated that the province's waste diversion framework should be guided by the vision of zero waste.[18]

[18] "From Waste to Worth: The Role of Waste Diversion in the Green Economy", MOE, October 2009.

Although focusing on waste reduction from a strategic planning standpoint is fairly new in Ontario, there are other progressive jurisdictions in North America that have implemented successful waste reduction programs that can be drawn upon. Examples of waste reduction initiatives are provided below and while these are not defined as 'best practices' they can be considered 'better practices' for a system that has not established a comprehensive waste reduction program.

The programs discussed in this section are now finding their way into many municipal waste management strategic planning processes and are now being supported provincially in Ontario as demonstrated by the waste value chain set out by the Province of Ontario as part of the "Policy Statement on Waste Management Planning (June 2007)" The waste hierarchy or value chain places priority on preventing waste generation, maximizing diversion of the waste that is generated and minimizing disposal with preference to disposal methods that allow for recovery of energy.

There are many versions of the waste hierarchy in general circulation as set out in governmental and non-governmental policy statements developed for jurisdictions world-wide. Generally, each version presents certain nuances that reflect certain regional or national differences. Put simply, the hierarchy generally appears as set out in Figure 6.1.

Figure 6.1 The Waste Hierarchy

The following sections discuss implementation of a number of options that would reflect a solid waste management system being managed in the context of this waste hierarchy. For the initiatives presented in Section 6.1, for most cases there are no predictable impacts (e.g. from a waste diversion or reduction standpoint) because there is little documentation/results from these programs being implemented elsewhere.

6.1.1 Adopting a Zero Waste Philosophy & Setting Reduction Targets

The Zero Waste movement sprung out of our desire to live in harmony with nature by understanding the complete life-cycle of waste production, use and management and by establishing a closed-loop economy in which all waste is treated as a resource. In the Zero Waste approach, the term waste is replaced by the term resource.

Waste Recycling Strategy
Township of Russell

Zero Waste considers every stage of generation and procurement to determine the most efficient means to use raw materials, to eliminate the toxicity of the materials, and ensure that the materials or products are designed to be reused again as a resource. The Zero Waste approach advocates for the use of discarded materials to reduce and eliminate the need for disposal.

Adopting a Zero Waste goal means setting a framework to reduce waste generation over time through a variety of policy instruments including:

a) Redesigning the way resources and materials flow through society;

b) Eliminating subsidies for raw material extraction and waste disposal; and

c) Holding producers responsible for their products and packaging from "cradle to grave" (also referred to in Europe and Canada as Extended Producer Responsibility (EPR)).

These zero waste principals have begun to shape the way in which a number of municipalities set goals and policies. The formal adoption of the approach itself and the development of supporting programs like those described in this section, can trigger a fundamental shift in thinking for managers, councils and communities. This thinking often includes the notion that Zero Waste is a path or a road, along which society can progress towards a goal of minimizing the amount of waste requiring disposal.

Municipalities that have adopted Zero Waste, such as many communities in British Columbia, have defined the specific behavior shifts that are required for Zero Waste. For example, the Regional District of Kootenay Boundary has defined the necessary shifts in behavior as follows:

> ***"1. It asks consumers, taxpayers and local governments to stop thinking of resources as garbage for which they have to pay to landfill, but to maximize reuse, repair, recycling and composting instead.***
>
> ***2. It asks business to seek out materials efficiencies; redesign products and packaging the community cannot reuse, repair, recycle or compost so that they can be handled that way; and extend their responsibility for the product and its packaging by establishing take-back, reuse and remanufacturing systems.***
>
> ***3. It asks senior levels of government to shift economic incentives for the use of virgin resources to renewable and secondary resources and to facilitate the growth of Zero Waste initiatives."***

The Zero Waste approach can be adopted in the short-term or over a longer period and can set the framework for encouraging waste reduction and waste re-use initiatives through promotion and education initiatives. The impact of this programming is unknown from a waste reduction standpoint however this fundamental shift in thinking can trigger behavioral changes that create the potential for reduced waste generation and shifts toward further attempts to divert waste on an individual/household level.

Table 6-2 Adopt a Zero Waste Philosophy

Option: Adopt a Zero Waste Philosophy	
Short-term or Long-term Option	▪ Implement in short-term, sustain over long-term.
Interaction with other System Components	▪ Should be collaboratively developed with other promotion and education (P&E) initiatives. ▪ Could be the 'guiding principle' or overlying objective for all waste reduction based P&E activity.
Potential Cost Implications	▪ Included as part of the promotion & education (P&E) budget.
Potential Change in Diversion	▪ No mechanism to predict impact.
Potential for System Efficiencies and Improvements in Level of Service	▪ Potential for reduction of waste through system for reduced use of landfill disposal capacity and reduced residual waste in recycling.
Potential Processing or Disposal Capacity Requirements	▪ No substantial or quantifiable impact on processing or disposal capacity requirements.
General Implementation Requirements	▪ Review of P&E component in conjunction with other P&E initiatives.
General Implementation Timeframe	▪ 4-6 months (assessment of current programs and materials development). ▪ Integrated timing with existing P&E initiatives.
Community Acceptance	▪ Generally, the public is becoming more aware of society's wasteful tendencies and many embrace the concept of Zero Waste.
Ability to Adjust Option to Changes to the WDA	▪ WDA does not currently legislate waste reduction – this option is highly adjustable to any new legislation that targets waste reduction.

6.1.2 Per Capita Waste Reduction Target Setting

Most municipalities set diversion targets and partly monitor achievement of those targets on a per capita and/or a per household basis, however, many municipalities do not set waste reduction targets in the same way. This option involves a shift in thinking toward a more sophisticated approach that sets, monitors and appropriately supports (e.g. through promotion & education) a specific, measurable waste reduction target.

Beyond the environmental and social benefits of this initiative, it serves as a means to help locally offset the trend of increased per capita waste generation across Ontario. According to Statistics Canada, per capita waste generation (kg of waste per person that was disposed and diverted) increased in all provinces between 2004 and 2006; this increase was 2.74% for Ontario (Statistics Canada, 2009).

This option involves a shift in thinking toward a more sophisticated approach to adopting the principles of the "Waste Value Chain" in that a specific, measurable waste reduction target is set, monitored and appropriately supported. Both municipalities can monitor the achievement of waste reduction generally through routine weighing of its waste stream or to identify specific material streams being reduced, through routine and more detailed waste composition audits.

The best mechanism to achieve waste reduction targets is through various ongoing promotion and educational initiatives that includes specific ideas/instructions for residents (or municipal facility staff

if appropriate) to help them understand how to reduce waste generation. A sample of this technique is provided in **Appendix A**.

Table 6-3 Establish a Per Capita Waste Reduction Target

Option: Establish a Per Capita Waste Reduction Target	
Short-term or Long-term Option	▪ Implement in short-term, sustain over long-term.
Interaction with other System Components	▪ Going forward, should be collaboratively developed with other promotion and education initiatives and zero-waste principles.
Potential Cost Implications	▪ Minimal - integration with existing P&E initiatives.
Potential Change in Diversion	▪ Even a 5% reduction in waste production for Russell would year a reduction of waste in the order of 328 tonnes per year and would increase the diversion rate from 32.7% to 34.5% (assuming that the reduced waste is garbage only).
Potential for System Efficiencies and Improvements in Level of Service	▪ Reduced waste volumes contribute to additional remaining disposal capacity.
Potential Processing or Disposal Capacity Requirements	▪ Saves landfill capacity, has no impact on processing infrastructure capacity.
General Implementation Requirements	▪ Consider comparable waste composition data provided in this WRS to identify specific material targets to determine target materials for educational campaigns. ▪ Determine how to best to incorporate the initiative into design, development and distribution of P&E materials and incorporate program messaging. ▪ Could be implemented in municipal facilities as well. ▪ Development of an initial and ultimate per capita waste reduction target.
General Implementation Timeframe	▪ 4 to 6 months (program and materials development)/ /integrated timing with existing P&E initiatives to be sustained long-term. ▪ Longer term regular auditing/progress monitoring, feedback to residents and facility managers.
Community Acceptance	▪ Should be well received with strong educational campaign and clear instructions (see Appendix A).
Ability to Adjust Option to Changes to the WDA	▪ WDA does not currently legislate waste reduction – this option is highly adjustable to any new legislation that targets waste reduction.

6.1.3 Grasscycling

Grasscycling refers to leaving grass clippings on the lawn when mowing. Grasscycling eliminates and time and effort required to collect grass clippings and fill bags and also reduces the amount of waste that needs to be collected and processed. It also re-fertilizes the law as clipping decomposed and release nutrients back into the soil.

Grasscycling could be promoted through using materials such as information brochures, in annual waste management calendars, on the website in concert with other educational initiatives and

detailing what grasscycling is, why grasscycle is beneficial to the system, how it is done, and why grasscycling promotes a healthy lawn.

Table 6-4 Grasscycling

Option: Grasscycling	
Short-term or Long-term Option	▪ Implement in short-term, sustain over long-term.
Interaction with other System Components	▪ Going forward, should be collaboratively developed with other promotion and education initiative
Potential Cost Implications	▪ Minimal - integration with existing P&E initiatives.
Potential Change in Diversion	▪ Minimal
Potential for System Efficiencies and Improvements in Level of Service	▪ Reduced waste volumes contribute to additional remaining disposal capacity, could reduce odour issues (if any) at landfill.
Potential Processing or Disposal Capacity Requirements	▪ Saves landfill capacity
General Implementation Requirements	▪ Determine how to best to incorporate the initiative into design, development and distribution of P&E materials and incorporate program messaging.
General Implementation Timeframe	▪ 2 to 3 months (program and materials development)/ /integrated timing with existing P&E initiatives to be sustained long-term.
Community Acceptance	▪ Should be well received with strong educational campaign and clear instructions
Ability to Adjust Option to Changes to the WDA	▪ WDA does not currently legislate waste reduction – this option is highly adjustable to any new legislation that targets waste reduction.

6.1.4 Re-use Programming

Although Russell currently operates twice yearly waste (curb) exchange days for residents, it could consider additional forms of re-use programming. For example re-use centres are a common way that communities can reduce waste production and extend landfill life. Russell could consider developing a re-use centre at its landfill site where residents can drop off unwanted but reusable items that other residents could take free-of-charge.

Potential items that could be targeted for re-use include furniture (e.g. couches, chairs, and tables), housewares (e.g. dishes, utensils, pots, pans), clothing, books, CDs, DVDs, and various construction and renovation items, and novelty items.

Other local re-use initiatives may already exist, like those supported by organizations such as Habitat for Humanity or the Salvation Army. Russell can identify, locate, and partner with these organizations to promote local re-use initiatives.

In addition to the curbside exchange days currently operated, Russell could other tools like “wanted”, “for sale”, “free to good home” bulletin boards at municipal facilities as well as the addition of a link on their web page to Russell exclusive “waste exchange” or to other broader local and known ‘exchange sites’ for community information. Promotion should include specific items wanted for re-use purposes.

Table 6-5 Develop a Re-Use Centre, Re-Use Programs & Re-Use Partnering Initiatives	
Option: Develop a Re-Use Centre, Re-Use Programs & Re-Use Partnering Initiatives	
Short-term or Long-term Option	▪ Implement in short-term, sustain over long-term.
Interaction with other System Components	▪ Should be coordinated with other promotional and educational (P&E) programming initiatives.
Potential Cost Implications	▪ Small - P&E for waste exchange events, web based waste exchange site development, incorporation of re-use centre programming into P&E materials.
Potential Change in Diversion	▪ Diversion impact is minimal.
Potential for System Efficiencies and Improvements in Level of Service	▪ Larger re-useable items like furniture, windows, doors, etc., do not suit landfill operations nor are they easily/economically bulked for shipment to landfill elsewhere.
Potential Processing or Disposal Capacity Requirements	▪ Some potential for reduced landfill disposal capacity requirement. ▪ Material handling requirements vary by programming.
General Implementation Requirements	▪ Research and identify local community re-use organizations e.g. Habitat for Humanity. ▪ Incorporate re-use centre information into existing P&E/new P&E initiatives. ▪ Consider further the feasibility of a web-site link to a 'waste exchange' for the community. Consider in the context of a web link to information on all municipal waste management initiatives. ▪ Consider further the benefit of a 'waste exchange event' as described.
General Implementation Timeframe	▪ 3 months best practices/information gathering; re-use organizations. ▪ 2 months promotional materials design and development.
Community Acceptance	▪ Should be well received with strong promotion and educational campaign and good instruction regarding how and when to participate and what items are acceptable/wanted in the program.
Ability to Adjust Option to Changes to the WDA	▪ WDA does not currently legislate waste reuse – this option is highly adjustable to any new legislation that targets waste reuse initiatives.

6.1.5 Developing Green Procurement Policies

Also consistent with a Zero-Waste philosophy, green purchasing decisions typically focus on buying products with sustainable or recycled materials that have a limited amount of packaging, and that are produced as locally as possible. Green Purchasing or Green Procurement Policies focus on the use of recycled materials, in effect to encourage product producers to use alternative sources of raw materials and to consider the downstream effects of the product's life-cycle.

The potential change in diversion is minimal, however the quantity of non-recyclable packaging sent for disposal is reduced. Russell has the opportunity to undertake this initiative for all municipally operated facility procurement requirements.

Table 6-6 Implement a Green Procurement Policy

Option: Implement a Green Procurement Policy	
Short-term or Long-term Option	▪ Implement in short-term, sustain over long-term.
Interaction with other System Components	▪ Consistent with Zero Waste principles. ▪ Needs to be collaborative effort between waste management and facility purchasing staff.
Potential Cost Implications	▪ Staff time to develop research, develop policy and P&E/dependent on methods of promotion. ▪ Potential cost savings through changes in product purchases, bulk purchases etc.
Potential Change in Diversion	▪ Minimal – but reduced non-recyclable packaging for disposal at facilities.
Potential for System Efficiencies and Improvements in Level of Service	▪ n/a
Potential Processing or Disposal Capacity Requirements	▪ Actual effect on reducing disposal capacity requirements is difficult to quantify.
General Implementation Requirements	▪ Research, liaise with others to assess 'best practices' in procurement policy. ▪ Develop policy and promote the program on a long-term basis.
General Implementation Timeframe	▪ Staff resource availability.
Community Acceptance	▪ Should be well received but will require staff time/staff coordination to implement.
Ability to Adjust Option to Changes to the WDA	▪ WDA does not currently legislate waste reduction – this option is highly adjustable to any new legislation that targets waste reduction.

6.2 WASTE DIVERSION OPTIONS

The options discussed in this section reflect a series of best practices that may be employed to increase waste diversion and that have been successfully employed in one form or another in various municipalities in Ontario. These waste diversion programming opportunities are presented as a series of options that *may* be implemented by Russell, not from the standpoint of recommending that they *be* implemented. This section considers each option, its advantages and disadvantages, and offers discussion regarding the feasibility of implementation of that option in Russell Township.

These options are assessed relative to ease of implementation and relative to incremental gains in waste diversion. For example, there are programming options presented in this section that generally represent 'low hanging fruit', that is, they are relatively easy to implement at reasonable cost and have a decent impact at increasing diversion and at reducing waste disposal capacity requirements. Discussion on various curbside collection options that can improve waste diversion are presented in Section 6.3.

6.2.1 Enhance Existing Waste Diversion Depot Program

Russell currently operates 'diversion depots' at its landfill site for a number of recyclable items including tires, scrap metal and propane tanks, leaf & yard waste (including Christmas trees and brush) and HHW. Russell is also currently investigating the feasibility of developing a waste electrical and electronic equipment (WEEE) depot at its landfill site.

Russell could consider adding additional recyclable items to those accepted at their depots such as construction and demolition type materials. Many communities, for example, have developed effective shingle and drywall recycling programs which can save a significant amount of landfill space. Simcoe County for example sent 4,284.40 tonnes of residential and 1071.10 tonnes of IC&I shingles for recycling to TRY Recycling in London in 2008. The cost for trucking and processing was $179,890 or $33.59/tonne. They sent a further 1280.54 tonnes of residential and 320.14 tonnes of IC&I drywall for recycling at New West Gypsum in Oakville for a total cost of $50,046 or $31.26/tonne. Local markets for these materials could be explored further.

Other initiatives may include those like textile recycling (textiles represent approximately 2.5% of the waste stream). There very well may be local textile collection through bins owned and maintained by local charitable organizations but it might be reasonable to provide direct diversion options to residents who use Township depots to also divert textiles. Bin provision might well be arranged with existing local non-profit organizations.

These types of programs could be assessed relative to existing infrastructure/facilities and resourcing (e.g. staffing). Potential end-markets/end-users for all products should also be assessed e.g as discussed above for shingles and drywall.

Table 6-7 Enhance Existing Waste Diversion Depot Program

Option: Enhance Existing Waste Diversion Depot Program	
Short-term or Long-term Option	▪ Implement in short-term, sustain over long-term.
Interaction with other System Components	▪ Existing contracts/arrangements for materials handling: collection and recovery could be evaluated relative to any identified/recommended program change/expansion.
Potential Cost Implications	▪ Goal would be to maintain or reduce costs associated with various existing programs, costs associated with added materials at facilities could be determined as part of further evaluation of this option. ▪ Cost-benefit implications of additional resource requirements (e.g. staff) could be assessed. ▪ Potential to reduce landfill revenues from tip fees, and thus potential for higher net operating costs for disposal.
Potential Change in Diversion	▪ 1-2% (based on other municipal experience with subtle changes to their depot programs e.g. does not include a new shingle recycling program or a focused program for construction waste).
Potential for System Efficiencies and Improvements in Level of Service	▪ Potentially maintain or lower costs but increase diversion.
Potential Processing or Disposal	▪ Existing facility(s) capacity to manage additional materials may be

Table 6-7 Enhance Existing Waste Diversion Depot Program

Option: Enhance Existing Waste Diversion Depot Program	
Capacity Requirements	limited.
General Implementation Requirements	▪ Review of municipal best practices in handling, transportation and end-markets. ▪ Cost-benefit assessment of enhanced programming for each material type.
General Implementation Timeframe	▪ 3 months, best practices review and cost-benefit assessment. ▪ Existing contract/arrangement dependent, dependent on existing infrastructure capacity.
Ability to Adjust Option to Changes to the WDA	▪ This option is flexible to changes in the WDA and would complement any new designated wastes under the WDA.

6.2.2 Increase Recycling Container Capacity

Russell could consider the use of either larger blue box containers, carts or the sole use of clear or blue transparent bags (widely available on the market) to increase curbside recycling set-out capacity. Although Russell already encourages the use of blue or clear bags for recycling overflow, the movement to either larger capacity containers or the sole use of bags has been shown to capture more recyclable materials by diverting the overflow that occurs by default to the garbage stream when the blue/grey box is full. Given the success of these programs one of the *Continuous Improvement Fund* (CIF) priorities for 2010 was to fund some 200,000 large blue box containers to be distributed in the province ($1,400,000 CIF budget). It is our understanding that there is still funding available to support this program. As far as the Township is concerned:

1. Cart-Based Program: Russell could implement a residential cart-based program. The cost of these larger carts are however higher than either blue transparent bags or the use of larger blue and grey boxes. For some residents they are also undesirable from a handling perspective e.g. hauling the container out to the curb and back, storage because of size. Carts don't necessarily have an advantage over larger containers or blue bags from a diversion standpoint but some municipalities have reported cost-savings because of reduced collection times/increased route size associated with automated cart-based collection. .

2. Blue Transparent Bags: Blue transparent bags are deemed to be the 'endless container' and their use provides tremendous opportunity to capture additional recyclable materials at the curb. Blue bags can be easily used to manage single-stream collection of recyclable materials, and are also more convenient than cart or box based programs as the residents does not have to return to the curb after collection to retrieve the container.

   While the use of blue transparent bags does increase the potential capacity for collection of blue box materials at the curb Russell is reliant on other processors to receive their blue and grey box materials and would also be reliant on retail providers for provision of the blue bags locally for purchase. Russell's current processor can handle the receipt of materials in bags as is the case for several other MRF's in Ontario. A shift to a blue bag program would

preclude receipt by some MRFs in Ontario and may eliminate processing options/alternatives in the future for Russell should they arise.

3. Larger Blue and Grey Boxes: The use of larger (than the standard size currently distributed by Russell) blue and grey boxes (e.g 55 gallon) is a good mechanism to increase recycling container capacity at the curb. It requires no change in recyclable material storage (prior to collection) and set out behaviour for residents but offers additional space to recover more materials. .

6.8 Option: Increase Recycling Container Capacity	
Short-term or Long-term Option	▪ Implement in short-term and sustain over long-term.
Interaction with other System Components	▪ Impact to collection program – increasing tonnage for collection of recyclables, decreased garbage collection. ▪ Impact to tonnages to be transferred to MRF with increased blue box materials. ▪ Reduced need for disposal capacity.
Potential Cost Implications	▪ Potential increased processing and collection costs with increased recyclable tonnage. ▪ Potential increased promotion and education costs. ▪ Capital cost of containers (larger blue box) potentially funded 50% by CIF ($7/container) Russell = $7/container (2 containers x $7 x 5219 homes = $36,533 plus routine long-term replacement. ▪ Cart-based program (e.g. with automated collection) –carts are more in the order of $30 a piece (2 x $30 x 5219 homes = $156,570plus routine long-term replacement. ▪ Blue bag program – bag costs for residents are comparable to regular garbage bag costs
Potential Change in Diversion	▪ 7%[19]if decide to go with blue carts – no specific study for larger containers or blue bags undertaken but diversion rates higher for those programs.
Potential for System Efficiencies and Improvements in Level of Service	▪ Increased container capacity prevents overflow to garbage bag, complements a clear garbage bag and a bag tag program.).
Potential Processing or Disposal Capacity Requirements	▪ Requires processing of increased quantities of recyclable materials. ▪ Reduces disposal capacity requirements.
General Implementation Requirements	▪ Based on estimated waste composition there is more blue box recyclables material that could be captured, that is, not lost to the garbage stream and a P&E program should be developed to promote this program if implemented and that targets key material losses. . ▪ Procurement/acquisition and distribution of containers/notification of bag distributors, local wholesalers/retailers. ▪ Need to assess the ability of processor to receive a full bag-based program at the MRF.
General Implementation	▪ Approximately 6 months for container procurement tender,

[19] Essex Windsor Solid Waste Authority, 2008. Cart Recycling Pilot Project E&E Project 262. Available at: http://www.stewardshipontario.ca/bluebox/pdf/eefund/262/262_report_w_appendices.pdf.

6.8 Option: Increase Recycling Container Capacity	
Timeframe	fabrication and distribution.
Community Acceptance	▪ A move to larger recycling bins is likely to be seen as an increase in level of services and therefore supported by the community. ▪ A blue bag program might be supported because of its convenience.
Ability to Adjust Option to Changes to the WDA	▪ This option is flexible to changes in the WDA ▪ This option is a WDO best practice – Russell Township could receive additional funding for larger containers or carts.

6.2.3 Clear Garbage Bag Program

The use of a see-through (clear) bag for garbage has been ongoing by some municipalities for a number of years (e.g. in Guelph since 2003). A recent study (E&E Fund Project #312) in Madoc Township and the Municipality of Centre Hastings showed very favourable results from the implementation of a clear bag program. The program was compliant-based, that is, it allowed no MHSW or recyclables in the clear bag and when these materials were found the bag was left at the curb and not accepted at landfill. The program increased the blue box diversion rate from 33% to 45%.

It should be noted that with the Centre Hastings project there were initial concerns by residents on the matter of privacy and with respect to the inability to use already purchased opaque bags. Results of the study included the recommendation to provide a bag exchange and to provide a long lead time to implementation and enforcement. The issue of privacy was found to be no longer a concern amongst those surveyed after program implementation. Implementation of a clear bag option could either involve curbside set outs of just the clear bag at the curb and/or residents could be permitted to set out clear bags within a solid container. This would mitigate privacy issues if any, but still allow for monitoring of the contents of the bag by the curbside collection contractor.

Russell could further assess the applicability of this option as a mechanism to both increase recyclable materials captured at the curb and decrease waste for disposal at landfill. Notwithstanding that Russell already has bag limits in place (1 bag limit) with a bag-tag program, the clear bag option could be assessed as an alternative to that program to increase blue box capture rates. The program could be evaluated if the current program doesn't provide enough incentive for all residents to reduce their garbage set-out, that is, they are content to bear the cost of the bag-tag program and the cost provides no incentive for them to divert all of their recyclables to the blue box.

It should be noted that the clear bags must be routinely available at all times. Surrounding municipalities are not participating in the program (so the bags may not be generally available at surrounding retail locations). This puts Russell's reliance on a local retailer or on municipal administration of bag sales which may or may not present a problem but needs to be considered relative to program implementation and on-going program sustainability. This type of initiative if

undertaken usually benefits from a well-developed pilot study that includes pre and post surveys of participants to gauge receptiveness and program challenges and successes.

Table 6-9 Clear Garbage Bag Program

Option: Clear Garbage Bag Program	
Short-term or Long-term Option	▪ Could be implemented in short-term, sustain over long-term.
Interaction with other System Components	▪ Impact to collection program from a compliance/monitoring stand-point as it increases the necessity for collections staff to enforce compliance. ▪ Impact to collection – additional recycling would need to be collected but less garbage would need to be collected. ▪ Impact to tonnes requiring transfer to a MRF with increased blue box materials. ▪ Reduced need for disposal capacity.
Potential Cost Implications	▪ Pilot study if undertaken. ▪ Associated promotion and education campaign. ▪ Potential increased recyclable transfer/processing costs with increased tonnage. ▪ The costs of clear bags are now comparable to conventional black/green garbage bags.
Potential Change in Diversion	▪ Could drive up current blue box diversion rates – assist in increase from current rate of 32.7% to 38%
Potential for System Efficiencies and Improvements in Level of Service	▪ The perception with the introduction of the clear bag program could be that the level of service for garbage is being reduced.
Potential Processing or Disposal Capacity Requirements	▪ Would reduce landfill disposal capacity requirements.
General Implementation Requirements	▪ Most municipalities undertake a pilot study to gauge their own community's acceptance of this type of program change. ▪ Would need to assess issue of retail availability/convenience of purchase for clear bags to ensure long-term sustainability of the program.
General Implementation Timeframe	▪ 6 months for pilot study (P&E in advance, bag procurement and distribution, phased in compliance, monitoring, auditing, pilot participant feedback, assessment). ▪ Community- wide 6-12 months if pilot successful.
Community Acceptance	❖ Others have reported concerns about privacy with this program. ❖ Community may not like the change in programming but should favour the reduced household costs – clear bags would cost less than bag tags.
Ability to Adjust Option to Changes to the WDA	▪ This option is flexible to changes in the WDA. ▪ This is a WDO 'best practice' – potential increased funding to both communities.

6.2.4 Enhanced and Sustained Advertising, Promotion & Education

To maintain or increase effectiveness and efficiency, all waste management initiatives need to be supported by a well-developed, comprehensive promotion & education (P&E) program.

The best P&E program is rooted in a current and regularly updated communications plan with identifiable goals and measures. Community-based social marketing approaches have shown good success in some communities. Similarly, programs based on local community research initiatives that make use of communications experts prove to be the most successful. A school based program that includes curriculum development and communications from the school to home environments could also play a role in an enhanced P&E program.

An effective P&E program is required to:

- Increase waste reduction and diversion rates;
- Establish and maintain new positive resident behaviours;
- Increase community involvement in diversion programs;
- Encourage proper sets outs of materials at the curb leading to increased collection efficiencies and decreased operator safety issues;
- Lower residue rates at processing facilities, resulting in higher recovery and lower costs.[20]

In 2010, according to the Datacall information, Russell spent $0.70 per household for promotion and education of its waste diversion program. Municipalities achieving around 60% recovery levels, on average, spend in the order of $1.00 per household and this is identified as a general spending guide in the KPMG report[21]. Based on the amount noted P&E spending per household, Russell is generally on track with KPMG guidelines. That being said, it is difficult to take the $1.00 per household as a 'golden' number as both Russell must bear the same P&E design, development and production costs associated with P&E material as any larger municipality and only benefit from the reduced cost of printing and distribution.

Russell may consider sustaining and/or increasing P&E funding over the long-term to assist in achieving diversion targets and to implement other various preferred options identified in this section. At minimum, Russell could incorporate waste reduction and reuse programming if adopted, into their P&E initiatives. In order to implement larger programming changes, additional funding will be necessary to support a broader campaign (e.g. clear bag program, organic waste collection program).

In order to assist with P&E material development and communication plans CIF has developed P&E material and communication plan templates designed for smaller municipalities (under 30,000 residents) that enable municipalities to meet the best practice requirements for P&E and to respond positively to the WDO Datacall question concerning P&E. Funding for various P&E initiatives is also available through CIF.

[20] Adapted from: KPMG, 2007. Blue Box Program Enhancement and Best Practices Assessment Project (Final Report Volume I – July 31, 2007).
[21] *Blue Box Program Enhancement & Best Practices Assessment Project Report, KPMG, R.W. Beck, 2007*

Table 6-10 Enhanced and Sustained Advertising, Education & Promotion

Option: Enhanced and Sustained Advertising, Education & Promotion	
Short-term or Long-term Option	▪ Implement in short-term, sustain over long-term.
Interaction with other System Components	▪ All existing and new program initiatives (like waste reduction) should be integrated together as much as possible for cost-saving purposes.
Potential Cost Implications	▪ Sustained funding for routine annual implementation of a communication strategy, funding for larger one-time program changes. ▪ Increase P&E spending to $1.00 per household/year would increase P&E spending by about $1,600 per year.
Potential Change in Diversion	▪ A study cited in the KPMG report indicates that increasing the per household expenditure up to $1 per year could yield an increase of 1% in the recycling rate for communities with already high diversion rates. While this is not applicable to Russell, the potential increase in diversion associated with these initiatives is likely high.
Potential for System Efficiencies and Improvements in Level of Service	▪ Reduced contamination of recyclables - set out of only those materials accepted in the programs – may yield lower costs for processing. ▪ Proper set out of materials at the curb for increased collection efficiencies. ▪ Set out of more recyclable materials resulting from understanding of all items that are recyclable.
Potential Processing or Capacity Requirements	▪ Reduce disposal capacity requirements.
General Implementation Requirements	▪ Development of a “strategy/communications plan” based on the preferred options selected from the WRS to be implemented.
General Implementation Timeframe	▪ If Russell introduces further change to its programming (e.g., the use of larger boxes, etc.) there will be larger P&E development required to support those program changes which will result in sustained awareness/education of residents during program transition. ▪ This option is meant to be addressed during normal, status-quo operations to maintain high levels of education amongst residents on a continual basis.
Community Acceptance	▪ Improved/increased promotional and educational activity to support waste diversion programs will likely be welcomed by residents from Russell
Ability to Adjust Option to Changes to the WDA	▪ This option is flexible to changes in the WDA. ▪ This option is a WDO best practice and could result in increased funding for both communities.

6.2.5 At-Source Composting

Based on available information, Russell does not provide residents with the opportunity to purchase backyard composters. Russell should consider providing backyard composters for sale and

potentially subsidizing the cost of these composters to increase the availability of them to residents. For example, the municipality could provide composters with a 50/50 cost sharing with residents.

Based on the 2010 landfill annual operations monitoring report Russell plans on promoting backyard composting in 2011. There may be an opportunity to increase diversion with a renewed education and promotion campaign to promote the benefits of backyard composting in both communities as well as educate residents about how to properly use their backyard composter.

Table 6-11 At-Source Composting

Option: At-Source Composting	
Short-term or Long-term Option	▪ Implement in short-term, sustain over long-term.
Interaction with other System Components	▪ Potential reduction in quantities of garbage. ▪ Potential decrease in odours associated with landfilling operation.
Potential Cost Implications	▪ According to Ont. Reg. 101/94 composters must be provided at cost or less.
Potential Change in Diversion	▪ Can divert approximately 1.13 kg/household/week[22]
Potential for System Efficiencies and Improvements in Level of Service	▪ May help residents in reaching garbage bag limits, if that option is selected.
Potential Processing or Capacity Requirements	▪ Reduced disposal capacity requirements.
General Implementation Requirements	▪ Promotion and Education. ▪ Distribution of backyard composters to residents at a subsidized cost.
General Implementation Timeframe	▪ Immediate P&E.
Community Acceptance	▪ Would likely be accepted by the community.
Ability to Adjust Option to Changes to the WDA	▪ This option is flexible to changes in the WDA.

6.2.6 Public Open Space & Special Events Recycling Program

Open space recycling programs seek to capture additional recyclable materials from residential sources that are typically lost to disposal. These programs have their challenges but a series of best practices have/are being developed for program implementation.

The Continuous Improvement Fund (CIF) has recently funded projects to identify a series of best practices in open space recycling for CIF to determine eligible funding criteria/parameters to support those programs. The *Sarnia Public Space Recycling Project* (CIF Project #152), 2009 cited an overall beverage container diversion rate of 77% with the application of best practices in the set up and maintenance of the program. Stantec (*Open Space Recycling Better Practices Review*, CIF Project #159/202) identified program inhibitors to be cost and contamination of the recycling stream but also identified various best practices that could help overcome these obstacles including the

[22] JG Press Inc. 1999. Backyard Composting Evaluated in New York City. Available: http://www.environmental-expert.com/resulteacharticle.aspx?cid=6042&codi=217

use of clear and consistent signage, proper bin design and placement and good communications between collectors and facility managers.

The overall feasibility and success of such a program is contingent on how well contamination in the recycling stream is managed both at the point of collection and in processing (e.g. tolerance for contamination by the recyclable materials processor). Material collected in public spaces is often highly contaminated if best practices are not employed to minimize it.

Special events recycling programs target vendors or organizations (typically those who use municipal facilities like parks and arenas for festivals or special localized events) and ensure that appropriate recycling initiatives are in place at these events. There may be opportunities for Russell to increase/expand programming in this area. The initial focus of a program expansion should be to capture beverage containers and other easy to recycle materials during special events or in open spaces.

Table 6-12 Public Open Space & Special Events Recycling Program

Option: Public Open Space & Special Events Recycling Program	
Short-term or Long-term Option	▪ Implement in short-term, sustain over long-term.
Interaction with other System Components	▪ Adds incremental recyclable tonnage to the system, requires coordination between waste management and parks, recreational area staff.
Potential Cost Implications	▪ Would need to be assessed but could be incorporated into routine recycling collection program.
Potential Change in Diversion	▪ Open space dependent (total number of parks, size of each and use). ▪ Estimated at 2kg/capita[23].
Potential for System Efficiencies and Improvements in Level of Service	▪ Consistency in messaging (at home and in the community) regarding Russell's recycling program (both currently accept the same materials).
Potential Processing or Disposal Capacity Requirements	▪ Minor reduction in disposal capacity requirements.
General Implementation Requirements	▪ Discussion, coordination interdepartmentally within both municipalities ▪ Development of specific messaging/signage (consistent with their own curbside program).
General Implementation Timeframe	▪ Procurement and distribution of containers for separation of recyclables from garbage
Community Acceptance	▪ Most residents would likely support more opportunities to divert waste away from home.
Ability to Adjust Option to Changes to the WDA	▪ This option is flexible to changes in the WDA.

[23] MGM Management, 2006. GTA Public Space and Schools Opportunities Analysis. Technical Memorandum #3. E&E Fund Project #105 – Enhanced Blue Box Recovery Project. Available at: http:/www.stewardshipontario.ca/bvluebox/eefund/reports/105/105_tech_memo_3.pdf.

6.2.7 Improved Municipal Facility Recycling

Although we are typically trained to separate waste in the home, many work, school, organizational, and recreational facilities do not provide the same opportunity for us to recycle or compost. There are a number of challenges associated with recycling at these locations including the proper set-up of recycling stations and containers, container type, convenience to the program user, understanding of the program (which can be very different from an employee or facility user's program at home), and facility owner and staff support for the program including key housekeeping staff.

Russell could consider assessing the current performance of waste diversion programs at municipal facilities (e.g., through waste audits) and look for ways to improve program performance (if any).

Table 6-13 Improved Administrative & Other Facility Recycling

Option: Improved Administrative & Other Facility Recycling	
Short-term or Long-term Option	▪ Implement in short-term, sustain over long-term.
Interaction with other System Components	▪ Creates opportunity for consistency in and reinforced messaging (at home and in the community) about recycling program. ▪ Reduced requirement for landfill capacity. ▪ Impact to collections – increased recyclable materials for collection. ▪ Impact to MRF – increased tonnage for transfer to MRF.
Potential Cost Implications	▪ Depending on tonnage could increase collection costs/require different collection day/cycle. ▪ Increased transfer costs for recyclables to MRF for processing. ▪ Reduced disposal costs long-term. ▪ Costs for containers, signage and P&E materials.
Potential Change in Diversion	▪ Unknown but potentially high.
Potential for System Efficiencies and Improvements in Level of Service	▪ Potential for consistent messaging of recycling program in all sectors/multiple-use P&E materials.
Potential Processing or Disposal Capacity Requirements	▪ Reduction in disposal capacity requirements.
General Implementation Requirements	▪ New/additional containers procurement, P&E and signage distribution, coordination with housekeeping/facility staff.
General Implementation Timeframe	▪ Container procurement and distribution, in concert with P&E development for other program options implemented - 3- 4 months.
Community Acceptance	▪ Would likely have a high level of acceptance Would be supported with proper containers and P&E tools, signage etc.
Ability to Adjust Option to Changes to the WDA	▪ This option is flexible to changes and partly a function of potential changes in the WDA.

6.2.8 Organic Waste Collection & Processing Option

The comparable waste composition data presented in Section 5.6 indicates that Russell could reasonably collect (with 70% participation in a curbside organic waste collection program) 1,697 tonnes per year of Source Separated Organic (SSO) waste.

It is estimated that in combination with maximized diversion of recycling that the additional implementation of an SSO program could help Russell achieve a diversion rate as high as 66% without taking into account additional diversion initiatives such as HHW, tires, and scrap metal diversion.

Russell has two options with respect to processing of SSO. The first option is to identify and investigate opportunities for SSO to be received at organic waste processing facilities, commonly referred to as Centralized Composting Facilities (CCFs) within a reasonable haul distance. CCFs would need to investigated relative to their requirements for materials receipt (e.g. loose or bagged), accepted contamination rates, materials to be included in the SSO stream, available processing capacity, restrictions of material delivery (hours, vehicle type), location, processing costs and the like. The two (2) most proximal CCFs to Russell Township are Orgaworld in Ottawa and Lafleche Environmental in Moose Creek.

The second option is to install an appropriately sized composter e.g. at the landfill. There are a number of small composter technology providers now with manufacturing and/or distribution rights in Canada. This would involve generating capital and operating costs, facility design parameters (appropriate technology), feedstock requirements, operational parameters (staffing, electrical, leachate management, amendment requirements etc.), site size requirements, timelines for installation and commissioning etc.

Russell could assess the relative advantages and disadvantages of each of these approaches to assess the feasibility of implementing a curbside organic waste collection program to achieve higher diversion targets. Curbside collection options would need to be assessed in concert with a further assessment of composting options.

Table 6-8 Organic Waste Collection and Processing

Option: Organic Waste Collection and Processing	
Short-term or Long-term Option	▪ Could be implemented in the short-term.
Interaction with other System Components	▪ Impact to curbside collection system – additional staff time for collection, collection cycle requirements, other including provincial trend toward green bin collection (containerized loose not bagged) program ▪ May be requirement for transfer. ▪ Potential for elimination of odour associated with landfilling operations. ▪ Potential for odour if not composted (on-site) properly. ▪ Reduced landfill capacity requirements.
Potential Cost Implications	▪ Would need TBD in association with assessment of all options, however current processing fees estimates in Ontario are in the approximate order of $125/tonne including haulage to the processing facility Curbside collection cost increases for service and green bin procurement and maintenance. Estimated cost for curbside green bins $30x5219 = $156,570 plus routine long-term replacement – this is based on retail cost – would be less if purchased in bulk. ▪ Disposal cost reductions in long-term.

Table 6-8 Organic Waste Collection and Processing

Option: Organic Waste Collection and Processing	
Potential Change in Diversion	▪ Assuming a 70% participation rate in an organics program and improved recyclable materials capture, could increase Russell's diversion rate to 66%.
Potential for System Efficiencies and Improvements in Level of Service	▪ Reduction of substantial waste to landfill, reduction of odourous waste to landfill. ▪ TBD in association with assessment of the options but could provide an opportunity for collection efficiencies e.g. co-collection. ▪ Could present the opportunity to move to a bi-weekly garbage collection program (see Section 6.3.1).
Potential Processing or Disposal Capacity Requirements	▪ Russell requires about 1,700 tonnes of processing capacity per year. Potential reduction in disposal capacity of 1,700 tonnes.
General Implementation Requirements	▪ Potential transfer arrangements necessary. ▪ For composter at landfill require training of operating personnel and new operating personnel, marketing or coordination of use of finished compost. ▪ Promotional and educational campaign to residents. ▪ Development of source separated organic waste curbside collection program. ▪ Procurement and distribution of green bins.
General Implementation Timeframe	▪ Receiving facility(s) dependent or installation dependent.
Community Acceptance	▪ Communities would likely see this endeavor as an increase in level of service. Increased cost may impede, however.
Ability to Adjust Option to Changes to the WDA	▪ This option is flexible to changes in the WDA. ▪ Potential changes anticipated include the designation of 'branded' organics for diversion.

6.3 COLLECTION OPTIONS

6.3.1 Bi-Weekly (Every Other Week) Garbage Collection (With a Weekly Organics Program)

If Russell does implement an organic waste collection and processing program as part of its long-term WRS then bi-weekly collection of garbage is viable. This reduced level of garbage collection provides very strong incentive for both increased use of blue boxes for recycling and for the use of green bins for organic waste separation. The collection frequency for organic waste should be no less than weekly to both promote green bin use but also to minimize potential for vermin and odours associated with storage. Reducing the frequency of garbage collection in conjunction with sustained weekly recycling collection and organics collection has been demonstrated in a number of other municipalities to have a positive effect on recovery rates for recyclable material and organics.

Bi-weekly garbage collection is not recommended for programs without an organic waste collection program. It is also not recommended that a weekly organic waste collection program be implemented simultaneous to implementing a bi-weekly garbage collection cycle, that is, a reduced

collection cycle for garbage be implemented at some point after residents, and facilities if appropriate, have acclimatized to proper sorting and set-out associated with the organic waste collection program.

Table 6-9 Bi-Weekly Garbage Collection

Option: Bi-Weekly Garbage Collection	
Short-term or Long-term Option	▪ Could be implemented in the short-term or the long-term but not recommended without an organics separation program.
Interaction with other System Components	▪ Addition of weekly organics collection and ultimate decrease in garbage collection frequency. ▪ Potential impact to MRF/transfer with increased blue box materials. ▪ Reduced need for disposal capacity.
Potential Cost Implications	▪ Associated P&E campaign. ▪ Potential increased recyclable and organic waste processing fees with increased tonnage. ▪ Potential increased per tonne recyclable and organic waste collection costs with increased tonnage. ▪ Decrease in garbage collection costs due to reduction garbage quantities and reduced collection frequency. ▪ Reduced disposal costs long-term.
Potential Change in Diversion	▪ 3 to 4% of total waste stream based on other municipal experience.
Potential for System Efficiencies and Improvements in Level of Service	▪ Would work well with clear garbage bag or user pay program and only with an organic waste collection program.
Potential Processing or Disposal Capacity Requirements	▪ Would reduce landfill disposal capacity requirements.
General Implementation Requirements	▪ P&E material development and distribution/notification.
General Implementation Timeframe	▪ Adequate notification of program change to residents/calendar development and distribution.
Community Acceptance	✓ Moving to bi-weekly garbage can sometime been seen as a decrease in level of service, but if accompanied after the roll-out of a green bin program, many residents will likely support the environmental initiative.
Ability to Adjust Option to Changes to the WDA	▪ This option is flexible to changes in the WDA. ▪ This option is identified as ‘best practice’ by WDO.

7.0 Preliminary Recommended Programming and Initiatives

The following are recommended initiatives for Russell to increase waste diversion through the implementation of various industry recognized best practices. The initiatives that are identified as priorities are those that will have the greatest impact on waste diversion and that in some cases would result in additional WDO funding (through WDO datacall reporting) and/or may also be eligible for CIF funding to assist with program implementation. The future planning section outlines the consultation process and timeframes for implementation.

7.1 CURRENTLY IMPLEMENTED INITIATIVES

Russell has successfully integrated some best practices into their currently waste management system. It has promoted waste reduction initiatives including waste exchange (curbside) days and grasscycling as well as diversion programs for specialty waste including cell phones and rechargeable batteries, HHW, tires, appliances, scrap metal, yard waste and Christmas trees. The current bag limit for garbage also supports the diversion of recyclables from the waste stream.

Although a clear bag program is an excellent idea for Municipalities that do not have bag limits or other diversion initiatives, with the current one bag limit program that Russell has implemented the idea of clear bags would be redundant, as this program has been successful in supporting diversion initiatives. It may be worth exploring in the future if a source separated organics collection program is implemented.

7.2 PRIORITY INITIATIVES

1. All effective waste management programs are supported by a well-developed, comprehensive promotion and education (P&E) program. The best P&E programs are rooted in a current and regularly updated communication plan with identifiable goals and measures.

   There is a need to promote programs in a way that explains the environmental benefits of the initiative and promotion should be used often through various media and forums. Russell's administration staff indicated that a number of promotional and educational initiatives are already in place to support current programs. But the existing program should be expanded to focus on current reduction and reuse initiatives such as the Curb Exchange Days as well as for the introduction of new programs, such as the school WEEE fundraising initiative to ensure that the community is aware of all possible avenues for reduction and diversion of waste.

   P&E products do not need to be limited to calendars and brochures, items such as fridge magnets, revised Ooops stickers and providing information on an up-to-date website, regarding various collection and diversion programs, have been proven to be effective communication tools as well. Presentations at meetings and at schools, displays at community meetings and signage in municipal areas will also greatly support the WRS.

   In order to assist with P&E material development and communication plans CIF has developed P&E material and communication plan templates designed for smaller municipalities (under

30,000 residents) that enable municipalities to meet the best practice requirements for P&E and to respond positively to the WDO Datacall question concerning P&E. Funding for various P&E initiatives is also available through CIF. Russell should access and make use of the web-based templates and investigate with CIF any opportunities for funding they may receive for new P&E initiatives.

2. Russell, in consultation with their current service provider, should consider moving to a full blue/clear bag collection system for curbside recycling. This type of collection program can reduce litter as materials are contained within the bags, is more convenient for residents as they do not need to return to the curb to collection containers and is viewed as an endless container as residents can place out multiple bags for collection. In terms of program costs, it is less expensive for Russell as compared to replacing and/or providing blue boxes to the community. This change can only be implemented if the processing facility can accommodate the handling of the materials.

   If there is opposition to moving the burden of costs to individual residents in terms of being required to purchase clear/blue bags, Russell should consider introducing larger recycling boxes to provide additional collection capacity for residents. CIF funding can be pursued to assist with purchase of larger blue boxes as the use of larger curbside blue boxes is considered an industry best practice. The additional diversion of recyclable materials will also result in additional annual WDO funding for the Township.

3. Russell should consider registering with the Ontario Electronic Stewardship (OES) to become an approved collector of Waste Electronic and Electrical Equipment (WEEE). OES-approved collection sites receive a weight-based financial incentive for the designated materials that they receive, sort and prepare for transport by an OES-approved service provider. Currently there is also an opportunity for and P&E incentive through OES which will provide up to $1,000 in branded OES promotional materials and/or funding for eligible collection sites. This would be a great opportunity to get additional funding to support the launch of this program. Funding will be available until March 31, 2012,

4. Russell should consider improvements and expansion to their current landfill depot to increase collection of divertible materials. This includes investigating the expansion and cost associated with diversion of construction and demolition materials. This material can be diverted by adding additional collection bins at the current landfill depot and processing of material at the landfill or haulage of the material to a private facility. A tipping fee would be charged to make this financially sustaining and would likely require the installation of a weigh scale.

   Russell should also consider the inclusion of a reuse area at the landfill. This could include such initiatives as a drop-off location for gently used household good and clothing, in partnership with local charities. This program has been effectively implemented in other municipalities (City of Guelph, Halton Region).

5. Russell should amend waste handling procedure for HHW depot to allow for bulk collection of paints in order to increase diversion of metal pails and to decrease costs for treatment of HHW.

All changes to procedures should be ratified with currently services providers to ensure that it meets all H&S requirements.

6. Russell should support an at-source (backyard) composting program for residents. Russell should consider either selling backyard composters directly to residents through a truckload sale or potentially subsidizing the cost of these composters purchased at local retail locations.

7. A curbside source separated organics collection program should be evaluated further. This initiative will drastically improve waste diversion and should be evaluated in the context of Russell's future disposal management practices, that is, an organics program should be weighed against future costs Russell might have to bear for transfer and disposal of waste outside its jurisdiction. Implementing an organics program would also impact on the frequency of collection of waste and recyclables.

7.3 FUTURE PLANNING

The above recommendations will be presented to Council, Committee and the public for review. Upon completion of the consultation period, staff will bring forward recommendation for initiatives with specific time-frame and budget for implementation. Easily implemented program will be first priority while programs with cost constraints will be considered over time. It is not the intention to implement all programs concurrently, but rather to integrate best practices into the review process of the WRS.

8.0 Conclusions

The following conclusions can be drawn from the review of the current program and implementation would further support the Waste Recycling Strategy process.

1. Russell's GAP waste diversion rate is slightly below average (27.1%) compared to the average of 29.7% for municipalities in Russell's WDO municipal grouping.

2. The opportunity exists to further decrease waste from landfill through improved participation in current diversion programs. Better promotion of current diversion initiatives and the implementation of a WEEE program would positively support the WRS.

3. Because of the nature of some of the initiatives identified above, Russell is eligible for funding support from CIP and should access as much funding as possible to improve their recycling programs.

4. A public consultation process should be undertaken to determine what types of diversion initiatives would be supported by the community.

5. A comprehensive four-season waste audit should be completed in order to better understand the waste streams and to identify target wastes for diversion.

9.0 Monitoring and Reporting

9.1 MONITORING

Proper monitoring and measuring of waste management system performance serves a number of functions, including the ability to:

- Adhere to currently accepted best practices;
- Identify issues with the system and effectively mitigate these issues;
- Adjust implementation schedules if issues arise;
- Assist in the selection and development of appropriate promotion and education initiatives; and,
- Identify opportunities for cost savings and increased effectiveness of the system.

The monitoring of system performance is an important aspect of ensuring the proper functioning of Russell's waste management system and ensuring goals as set out in this document are achieved. That being said it also helps with several other reporting exercises including:

- Completion of the annual WDO Datacall (tonnage and financial);
- Reporting on the Municipal Performance Measurement Program (MPMP) as part of the preparation of the annual municipal Financial Information Return;
- Reporting internally for departments and Council; and
- Completing Statistics Canada biennial survey(s) if applicable.

9.1.1 Waste Audits

Russell currently has a comparative waste evaluation completed on an annual basis which calculates wastes diverted through reported tonnages from their services providers. Although this does provide them with baseline data, Russell should undertake a more comprehensive study in order to better evaluate their current programs. Regular auditing of waste program performance, through observations of curbside behavior (e.g. number of set-outs) and the collection and sorting of a representative sample of waste material, is the primary means of determining comprehensive waste generation rates, participation in the municipal programs and the actual capture rate for diversion of various material streams.

It is recommended that at least one residential audit be conducted in the near term and follow-up audits be completed several years into implementation of this WRS. Audits should be conducted in accordance with WDO guidelines. Households selected for the audit should be the same households to be audited four times over the course of year (winter, spring, summer and fall) in order to capture the variations in seasonal generation of different waste streams. Garbage and recycling streams (and organics) would be collected, weighed and sorted.

This waste auditing practices provides the following key information:

- Participation and set-out data that can be used to support program decisions;
- Generation rates and capture rates used for planning purposes;
- Information which may be used to target specific education campaigns; and,
- Baseline data to monitor pilot programs and other system changes.

The information acquired during a waste audit is essential to support many of the planning, and policy decisions that would be required during implementation of the WRS.

9.1.2 Key Performance Indicators

A number of key system performance indicators should be monitored and/or measured on a regular basis to track system performance and the effectiveness of the recommended initiatives. Key performance indicators that should be tracked include:

- Costs – gross and net cost/tonne (for garbage, recycling, and organics if the program is implemented)
- Recovery rates – recycling (obtain from processor)
- Residue rates – recycling (obtain from processor)
- Participation rates – in waste diversion programs (via waste audits)
- Promotion and education costs – cost/household per year;
- Tonnes of material marketed – kilograms/household/year by material type (e.g. ONP, OCC – obtain from processor);
- Tonnes of material collected – garbage, recycling, and other wastes
- Marketing revenues – for recycling (obtain from processor).

9.2 REPORTING

It is recommended that the results of monitoring initiatives be reported on a regular basis internally and externally to outside stakeholders.

This can typically take the form of an annual report on the WRS. An annual report can provide an overview of the applicable objectives for that year and documentation on how goals were achieved. It should also include a list of issues that arose during the year and how these issues were mitigated. Finally, the report should include a section on future plans related to WRS implementation for the following year.

The annual reporting cycle should be viewed as an opportunity to communicate the success of WRS implementation not just with Council, but also with residents and other stakeholders. The annual report should be in a succinct form that clearly identifies successes over the previous year, general performance and also areas where collectively the municipality and residents may need to improve performance.

In addition to an annual report, Russell could also ensure that all waste management related reports produced for Committee and Council, include a section on how the report contents relate to the implementation of the Waste Recycling Strategy. This will assist staff in adhering to the vision of the Strategy and also guarantee that all interested parties understand how each waste management activity relates back to the vision for waste management within Russell Township.

9.3 PLAN REVIEW

It is recommended that Russell conduct periodic review and updates to the Strategy at various times throughout the planning period. It is recommended that in 2016, (year five of the WRS) that Russell completes a comprehensive review and update to the WRS. This review should outline the goals and objectives met in previous years and also outline issues that arose over that period that may have hindered WRS implementation. This document should then be updated to reflect the review completed and provide a detailed implementation plan for the next five years of the planning period.

Respectfully submitted,

STANTEC CONSULTING LTD.

Cathy Smith
Senior Solid Waste Management Planner
Suite 1 – 70 Southgate Drive
Guelph ON N1G 4P5
Ph: (519) 836-6966
cathy.smith@stantec.com

APPENDIX A
WASTE REDUCTION TIPS

Appendix A: Waste Reduction tips

Waste reduction at home[24]

- Before you replace something old with something new, attempt to have it repaired. This could save you some money as well as reduce waste.
- Use a refillable mug for coffee or other beverages on the go
- Purchase items in bulk whenever possible... bring your own containers to the bulk store if possible
- Buy products that will last; make durability, not price, your primary purchasing decision-making factor
- Instead of buying new toys or tools, try sharing with friends
- Re-upholster worn out furniture instead of buying new – often the frame will far outlast the upholstery
- Buy products made from recycled materials whenever possible – sometimes these products cost less, making the choice even easier
- When faced with two similar products of different brands, choose the product with the least amount of packaging
- Avoid purchasing disposable products – re-usable products are better for the environment, and will save you money in the long run
- Avoid buying single serving or over-packaged foods – there is always an alternative with less packaging (and likely more nutritious)
- Whenever possible choose products that are sold in re-fillable or recyclable containers
- Consider purchasing used goods before purchasing new; this is a great re-use and cost-saving option for the consumer
- Use your imagination! Thinking of new ways to reduce the amount of waste you produce can be fun and creative
- Try giving an item a “new life” by using it in an innovative way such as peanut butter jars for storing nuts and bolts or comic strips or colourful paper for gift wrap

[24] ***City*** *of Guelph Solid Waste Services Waste Reduction Tips at www.guelph.ca*

Stantec