



Village of Casselman



Waste Recycling Strategy

FINAL REPORT

September 2011

Project No. 163446550



Stantec



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August 2011

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Village of Casselman

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Table of Contents

1.0 INTRODUCTION	1.1
2.0 OVERVIEW OF THE PLANNING PROCESS.....	2.1
3.0 STATED PROBLEM	3.1
4.0 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.....	5.2
5.3 PROMOTION AND EDUCATION	5.3
5.4 CURRENT WASTE GENERATION AND DIVERSION	5.3
5.5 PROGRAM COSTS.....	5.5
5.6 POTENTIAL WASTE DIVERSION.....	5.6
5.7 ANTICIPATED FUTURE WASTE MANAGEMENT NEEDS.....	5.8
6.0 REVIEW AND EVALUATION OF WASTE MANAGEMENT OPTIONS.....	6.1
6.1 WASTE REDUCTION & REUSE OPTIONS	6.2
6.1.1 Per Capita Waste Reduction Target Setting.....	6.4
6.1.2 Grasscycling	6.5
6.1.3 Re-use Programming	6.6
6.1.4 Developing Green Procurement Policies.....	6.7
6.2 WASTE DIVERSION OPTIONS	6.8
6.2.1 Establish Waste Diversion Depot Program.....	6.8
6.2.2 Clear Garbage Bag Program.....	6.10
6.2.3 Enhanced and Sustained Advertising, Promotion & Education.....	6.12
6.2.4 At-Source Composting	6.13
6.2.5 Public Open Space & Special Events Recycling Program.....	6.14
6.2.6 Improved Municipal Facility Recycling.....	6.15
6.2.7 Organic Waste Collection & Processing Option.....	6.16
6.3 WASTE COLLECTION OPTIONS	6.18
6.3.1 Bi-Weekly (Every Other Week) Garbage Collection (With a Weekly Organics Program).....	6.18
7.0 RECOMMENDED PROGRAMMING AND INITIATIVES	7.1
7.1 EXISTING INITIATIVES	7.1
7.2 PRIORITY INITIATIVES	7.1
7.2.1 Zero Waste	7.1
7.2.2 Green Procurement Policies	7.1
7.2.3 Enhanced Promotion and Education Program.....	7.2
7.2.4 Reuse Programs and Waste Exchange Events.....	7.2
7.2.6 Full Blue/Clear Bag Recycling Collection Program.....	7.3

Table of Contents

7.3	FUTURE PLANNING.....	7.3
7.3.1	Waste Diversion Depot	7.3
7.3.3	Curbside Source Separated Organics Collection Program	7.4
<hr/>		
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

Table of Contents

LIST OF FIGURES

Figure 5.1: Location of Casselman	5.1
Figure 6.1 The Waste Hierarchy.....	6.3

LIST OF TABLES

Table 5.1: Materials Accepted in Casselman's Recycling Programs	5.3
Table 5.2: Casselman Waste Generated, Diverted, and Disposed (2010)	5.4
Table 5.3: Casselman Waste Generated and Diverted through Blue Box	5.5
Table 5.4: Comparison of Casselman's Blue Box Diversion Rate with WDO Grouping	5.5
Table 5.5: Casselman (2009-2010) Costs for Curbside Recycling, Collection, & Processing ..	5.6
Table 5.6: Comparison of Net Recycling Costs	5.6
Table 5.7: Current and Potential Diversion of Blue Box Materials	5.7
Table 5.8: Current and Potential Diversion of Blue Box and Organics Waste Materials	5.1
Table 5.9: Anticipated Future Waste Generation Rates and Available Blue Box Materials	5.8
Table 6.1: Program Option & Opportunities Assessment Factors	6.1
Table 6.2: Establish a Per Capita Waste Reduction Target.....	6.4
Table 6.3: Grasscycling	6.5
Table 6.4: Develop a Re-Use Centre, Re-Use Programs & Re-Use Partnering Initiatives.....	6.6
Table 6.5: Implement a Green Procurement Policy	6.7
Table 6.6: Enhance Existing Waste Diversion Depot Program.....	6.9
Table 6.7: Clear Garbage Bag Program.....	6.11
Table 6.8: Enhanced and Sustained Advertising, Education & Promotion.....	6.13
Table 6.9: At-Source Composting	6.14
Table 6.10: Public Open Space & Special Events Recycling Program	6.15
Table 6.11: Improved Administrative & Other Facility Recycling	6.16
Table 6.12: Organic Waste Collection and Processing	6.17
Table 6.13: Bi-Weekly Garbage Collection.....	6.19

LIST OF APPENDICES

Appendix A: Waste Reduction Tips
Appendix B: Backyard Composting Instructions
Appendix C: Burlington, VA - Purchasing Policy

1.0 Introduction

This Waste Recycling Strategy (WRS) was initiated by the Village of Casselman (Casselman) to develop a plan to increase the efficiency and effectiveness of its waste management system and to maximize the amount of waste that it diverts from disposal. This plan should be updated every five years.

Although the focus of a WRS as outlined by the Continuous Improvement Fund's (CIF) *Guidebook for Creating a Municipal Waste Recycling Strategy* is the diversion of blue box material, Casselman recognizes the benefits of considering other 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 Casselman to identify potential blue box program improvements while ensuring that any changes recommended take into account the impacts on their waste management system as a whole and also reflect Casselman's unique community characteristics, circumstances and waste system dynamics.

This WRS was developed by Casselman using the Continuous Investment Fund's *Guidebook for Creating a Municipal Waste Recycling Strategy*.

2.0 Overview of the Planning Process

This WRS was prepared by Stantec Consulting Ltd. (Stantec) in collaboration with municipal staff from Casselman. The development of this WRS followed the following steps:

- 1) Stantec obtained background information concerning Casselman's current waste management system and after reviewing the information, a teleconference was held with municipal staff from Casselman to review the background information and develop a vision for the WRS;
- 2) Stantec assessed current waste management trends, practices, systems and future needs 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 waste tonnages for Casselman'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 Casselman's waste management system;
- 3) Based on program 'gaps' identified in Step 2, a list of waste 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 applicability to Casselman, and to identify those options that that might be the most logical and feasible for each to implement.
- 4) Based on the options review, a series of options were recommended and a reasonable implementation plan developed for the WRS.
- 5) A monitoring and reporting protocol was developed for the proposed waste diversion options to help ensure that the goals and objectives are achieved over the planning period; and,
- 6) Stantec developed a draft and final waste recycling strategy that reflects municipal needs.

3.0 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 diversion endeavors can vary greatly and depends on a municipality's size, geographic location, demographic characteristics, population and population growth, population density and economic activity. These factors influence the ability to site local waste management infrastructure (landfill, transfer stations, material recovery facilities (MRFs), organic waste processing facilities etc.), to utilize waste management infrastructure outside of the municipal jurisdiction as well as the ability to implement various waste collection and programming strategies.

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

- Casselman lacks a long-term contract for garbage collection and recycling collection and processing. The current contract with ABC Disposal Ltd. is renewable on an annual basis (the original contract was from 2008 to 2010). There is a six (6) month cancellation policy for either party which puts Casselman at some level of risk. Although this practice has been ongoing for many years, the risk still remains. Casselman needs to assess their options to secure long-term garbage collection and recycling collection and processing contracts.
- Local businesses have separate contracts for garbage collection that is independent of the municipal contract.
- Casselman's current waste diversion is approximately 29.9%. Casselman is interested in exploring various program initiatives/options that could contribute to an increased waste diversion rate. For example, Casselman does not currently provide services for the diversion of materials such as waste electrical and electronic equipment (WEEE), tires, scrap metal, white goods etc. There is a private business that has established a depot for WEEE in Casselman that Casselman could promote/utilize to mutual benefit. These materials are relatively easy to divert and if programs were implemented, they would assist Casselman with increasing their waste diversion rate.
- Casselman is in need of developing 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, Casselman will move closer to achieving best practices and associated increased Waste Diversion Ontario (WDO) funding.
- Casselman may benefit from pursuing partnerships, where feasible with other local municipalities. Sometimes economies of scale may be achieved which could lower the costs and increase the efficiency of more than one waste management system.

4.0 Goals and Objectives

Based on the above-mentioned key drivers, a number of goals and objectives were identified during the early stages of WRS development as follows:

- To improve the effectiveness and efficiency of Casselman's waste diversion system to sustain and optimize diversion and overall system performance.
- To increase residential participation in the blue box program; additional strategies to increase diversion over the longer term.
- To obtain long-term "best practices" contracts for garbage collection and recycling collection and processing.
- To identify opportunities for partnerships with other communities nearby to increase the efficiency and effectiveness of the 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.

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

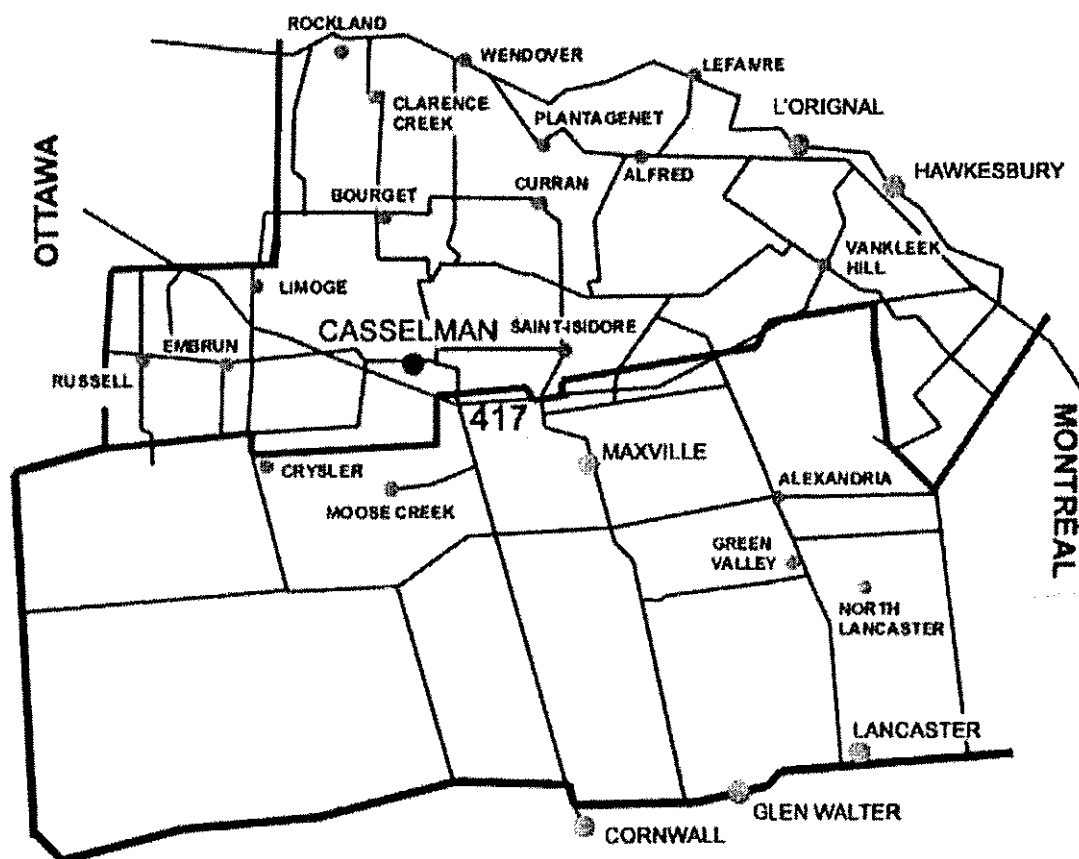
- To investigate various strategies available to increase voluntary participation rates in recycling programs, including enhanced communication strategies (English and French), for both the residential and business sector.
- To determine the most appropriate collection and processing contracts to pursue and ensure that best practices are reached.
- To investigate additional diversion programs including but not limited to organic waste collection and processing and waste electrical and electronic equipment (WEEE) diversion.
- 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 identify any opportunities for partnerships with other local municipalities or the private sector.

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

5.1 COMMUNITY CHARACTERISTICS

The Village of Casselman is located within the United Counties of Prescott and Russell, approximately 50 kilometres east of the City of Ottawa along King's Highway 417. The Village of Casselman is contained within the municipal boundaries of the Nation Municipality and has a total land area of 5.15 km². The following figure illustrates the location of Casselman in relation to Ottawa and other municipalities located in eastern Ontario.

Figure 5.1: Location of Casselman¹



¹ Figure taken from Village of Casselman Official Plan (2008).

In 2010, Casselman had a population of about 3,778. The municipality is home to approximately 1,468 households. Of these households, 1,095 are single-family residences and 373 are multi-family residences. There are no seasonal dwellings located in the municipality.²

5.2 EXISTING PROGRAMS AND SERVICES

Casselman provides waste management services to the residential sector and a portion of the commercial sector within its jurisdiction. Small businesses that produce less than five (5) bags of garbage per week are permitted to participate in Casselman's waste management programs. Larger businesses are assumed to receive services from a private contractor. The following services are provided by Casselman:

▪ Weekly collection of garbage.

Garbage collection is provided by a private contractor, ABC Disposal Ltd. ABC Disposal held a contract with Casselman which ran from March 11th, 2008 to December 31st, 2010. Casselman and ABC Disposal renewed their contract for 2011. The contract can be terminated by either party with (6) six months notice.³

The Village operates a full user-pay system with a two (2) bag limit per household per week. The two (2) bag limit was implemented in 2001. Any additional items a household places at the curb must be tagged. Garbage tags cost \$2.00 per tag and are available for sale at the Municipal Office. ABC Disposal receives 50% of the revenue from the sale of bag tags.

ABC Disposal will collect large items and appliances as part of garbage collection. All items must be tagged. Any appliances that may contain Freon must have the gases removed by a technician and have a sticker attached prior to being accepted for collection. Tires, automobile parts, and propane cylinders are not collected.

▪ Weekly collection of two-stream recycling.

Recycling collection is also provided by ABC Disposal Ltd. Casselman's recycling collection contract with ABC Disposal ran from March 11th, 2008 to December 31st, 2010. The contract has been renewed for 2011. The contract can be terminated by either party with (6) six months notice.⁴

The following materials are currently accepted in the two stream (fibres and commingle containers) recycling program:

² Population and household values based on 2006 census data and escalated based on residential building permits issued in the past 5 years that was provided by Casselman.

³ By-Law No.: 2008-231

⁴ By-Law No.: 2008-232

Table 5.1: Materials Accepted in Casselman's Recycling Programs

Containers	Papers
Aluminum Cans	Newsprint
Other Aluminum Packaging and Foil	Other Printed Paper
Steel Cans	Magazines/Catalogues
Clear and Coloured Glass	Phone Books
PET Bottles (#1)	Corrugated Cardboard
Other Bottles & Containers (#3,#5,#7)	Boxboard
LDPE/HDPE Film (#2, #4)	Gable Top Cartons
HDPE Containers (#2)	Tetra Pak Cartons
Tubs and Lids (#2, #4, #5)	
Thermoform PET (#1), Clamshells & Other Clear Plastic Containers	

Casselman provides blue boxes for sale at a cost of \$10.00. Residents are also permitted to utilize transparent bags or blue translucent bags in lieu of blue boxes.

- **In partnership with Nation Municipality, collection of HHW via a HHW collection day once every two (2) years.**

An HHW collection day was held in 2010 with Nation Municipality. The estimated cost for the day was \$10,000.⁵

5.3 PROMOTION AND EDUCATION⁶

In 2010, Casselman spent \$3,000 on promotion and education concerning its blue box program. (compared to \$500 in 2009). This amounts to spending about \$2.04 per household. Overall, the Village utilizes the following forms of promotion and education (P&E) to advertise their blue box recycling program:

- Media releases/events;
- Newsletters; and,
- Website/hotline.

5.4 CURRENT WASTE GENERATION AND DIVERSION

Currently, Casselman generates approximately 1,055 tonnes of residential solid waste per year. Of this waste, Casselman diverted approximately 315 tonnes, resulting in an overall residential diversion rate of approximately 29.9%.

⁵ Stantec Consulting Ltd. 2011. *2010 Annual Operations and Leachate Monitoring Report*.

⁶ 2010 DataCall submission.

The following materials were diverted from disposal in 2010:

- 303 tonnes of blue box recyclables⁷, and,
- 11.7 tonnes of HHW via the HHW collection day with Nation Municipality.

The following materials were disposed in 2010:

- 723.5 tonnes of residential garbage.
- 15.5 tonnes of blue box recycling residue⁷.

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

Table 5.2: Casselman Waste Generated, Diverted, and Disposed (2010)

Waste Category	Tonnage (2010)
Waste Diverted	
Blue Box Recyclables (curbside and depot)	303
HHW	11.7
Total Diverted	315
Waste Disposed	
Garbage (curbside and taken directly to landfill)	724
Blue Box Processing Residues	16
Total Disposed	740
Total Waste Generated	1055
Waste Diversion Rate	29.86%

Based on data gathered by WDO in 2009 (the last year for which data is publicly available), Casselman's GAP diversion rate was 26.97%. The average waste diversion rate for the *Small Urban* municipal grouping was 33.66% making Casselman's performance **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 Casselman for the 2010 year (without taking the additional forms of diversion into account), their diversion as noted above is actually around 29.9%. The main reason for the disparity in diversion rates is because WDO did not include Casselman's HHW diversion in their calculation.

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 (e.g. re-use of some bulky waste items like

⁷ WDO data states that 20% of Casselman's recyclables are considered as residue. Data from ABC Disposal Ltd. suggests a much more reasonable residue rate of about 5%. The 5% residue rate was used in calculations in this report.

furniture or recovery of some construction materials like drywall and shingles), it is also important to understand Casselman's blue box diversion rate in order to target recyclables more specifically.

In 2010, of the waste that was diverted from landfill, 303 tonnes (or 28.72% of the total waste) was diverted through the blue box recycling program.⁸ 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).⁹

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

Table 5.3: Casselman Waste Generated and Diverted through Blue Box

Residential Solid Waste Generated and Diverted through Blue Box		
Residential Waste Stream/Blue Box Material	Tonnes	Percent of Total Waste
Total waste generated	1,055	-
Papers (ONP, OMG, OCC, OBB and fine papers)	240	22.75%
Metals (aluminum, steel, mixed metal)	14	1.33%
Plastics (containers, film, tubs and lids)	19	1.80%
Glass	30	2.84%
Total Blue Box material currently diverted	303	28.72%

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

Table 5.4: Comparison of Casselman's Blue Box Diversion Rate with WDO Grouping

Average Blue Box Diversion Rate (2010)	
Casselman	28.72%
Municipal Grouping: Small Urban	22.0 %

5.5 PROGRAM COSTS

In 2010, Casselman spent \$52,479 on recycling collection. ABC Disposal Ltd. brings collected recyclables to the RARE Recyclage material recovery facility (MRF) located in Alexandria, ON. RARE is responsible for the marketing of blue box materials; Casselman does not receive revenues from the marketing of blue box materials. Casselman is responsible for paying tipping fees at the MRF; in 2010, Casselman spent \$20,645 on recycling processing.

For the years of 2009 and 2010, Casselman reported (to WDO) on average of \$76,422 to operate its blue box recycling program. These costs include contractor collection and

⁸ 2010 DataCall submission.

⁹ Based on breakout provided in the 2009 blue box datacall.

processing costs, cost of blue boxes, promotional material costs, and program administration costs.

Table 5.5: Casselman (2009-2010) Costs for Curbside Recycling, Collection, and Processing

Year	Calculated Blue Box Tonnes Marketed	Total Gross Costs	Gross Costs Per Tonne	Other Revenue	Total Net Cost	Net Cost Per Tonne
2009	304.1	\$74,816.91	\$246.03	\$240.00	\$74,576.91	\$245.24
2010	303.2	\$78,467.71	\$258.78	\$200.00	\$78,267.71	\$258.12

In 2010, the total net annual recycling cost for Casselman was \$78,267.71.¹⁰ This amounts to \$258 per tonne, or \$21 per capita. As the table below shows, net annual recycling costs for Casselman are **slightly above average** for its WDO municipal grouping.

Table 5.6: Comparison of Net Recycling Costs

Net Recycling Cost (per tonne per year) (2010)	
Casselman	\$258
Municipal Grouping: Small Urban	\$230

ABC Disposal is paid for garbage collection on a per dwelling unit per week basis (\$0.65 per dwelling unit from January 1, 2008 to December 31, 2010).¹¹ In addition to being responsible for paying ABC Disposal for collection of garbage, Casselman is also responsible for tipping fees at the landfill. In comparison for 2010, Casselman spent \$46,309 (\$63.96/tonne) on garbage collection and tipping fees cost \$43,526 (\$60.00/tonne).¹² Garbage is disposed at the Lafleche Environmental Landfill located in Moose Creek, Ontario. In 2011, Casselman spent \$89,835 on garbage collection and disposal which amounts to about \$124/tonne.

5.6 POTENTIAL WASTE DIVERSION

Casselman's current waste composition was estimated using data from Continuous Investment Fund's *Guidebook for Creating a Municipal Waste Recycling Strategy*.¹³

An estimated total of approximately 453 tonnes of blue box recyclable materials are available for diversion (assuming reasonable capture rates of 90% for paper, 90% for metals, 90% for plastics, and 95% for glass) of which approximately 136 tonnes are still currently in the garbage stream. Estimates of blue box material available for diversion are listed in the table below.

¹⁰ 2010 DataCall submission.

¹¹ Corporation of the Village of Casselman. 2008. *By-Law No.: 2008-231*.

¹² Stantec Consulting Ltd. 2011. *2010 Annual Operations and Leachate Monitoring Report*.

¹³ The representative data came from Essex-Windsor for Small Urban. Rural data was not representative of Casselman.

Table 5.7: Current and Potential Diversion of Blue Box Materials

Current and Potential Diversion			
Material	Total Available in Waste Stream (tonnes/year)	Currently Recycled (tonnes/year)	Potential Increase (tonnes/year)
Papers (ONP, OMG, OCC, OBB and fine papers)	288	240	48
Metals (aluminum, steel, mixed metal)	32	14	18
Plastics (containers, film, tubs and lids)	75	19	56
Glass	45	31	14
Total	439	303	136

By capturing this additional blue box material (i.e. an additional 136 tonnes per year) in the overall waste stream, Casselman could increase its blue box diversion rate by 11.5% for an overall potential blue box diversion rate from 29.9% to 41.4%.

In addition to blue box materials, if Casselman decides to implement an organics diversion program (for materials such as additional leaf & yard waste and food waste, tissues, etc.), additional increases in diversion would be appreciated. Assuming that 70% of residents participate in an organic waste separation program and that these materials account for about 30% of the material currently being placed in the garbage stream, an additional 152 tonnes of material could be diverted. If this tonnage was added to the additional tonnes of recyclable material that could be diverted, an overall diversion rate of approximately 59% could be reached. This potential diversion rate could be increased even further if Casselman considered other diversion programs such as WEEE, scrap metal, etc.

Based on the above noted increases in recycling and organics diversion, the amount of waste being landfilled per year would decrease from the current 724 tonnes/year by 288 tonnes per year (Table 5.8) for disposal of only 436 tonnes/year at landfill.

Table 5.8: Current and Potential Diversion of Blue Box and Organic Waste Materials

Current and Potential Diversion			
Material	Total Available in Waste Stream (tonnes/year)	Currently Recycled (tonnes/year)	Potential Increase (tonnes/year)
Blue Box Recyclable Materials	439	303	136
Organic Waste Materials	217	0	152*
Total	656	303	288

**assumes a participation rate by residents of 70%*

5.7 ANTICIPATED FUTURE WASTE MANAGEMENT NEEDS

Solid waste generation rates in Casselman are expected to grow by approximately 2.6% per year over that next 10 year planning period (based on projected population increases).¹⁴ The table below depicts the expected growth rates for solid waste generation and blue box material recovery (based on projected population growth rates). Blue box recovery rate assumes no new blue box diversion initiative or other waste reduction or diversion initiatives.

Table 5.98: Anticipated Future Waste Management Needs

Anticipated Future Solid Waste Generation Rates and Available Blue Box Material			
	2010	2015	2020
Population	3,778	4,287	4,864
Total Waste (tonnes)	1,055	1,206	1,378
Blue Box Material (tonnes)	303	349	401

¹⁴ Population increases calculated using building permits issues from 2006 to 2010.

6.0 Review and Evaluation of Waste Management Options

Casselman has already implemented some best practices in their waste management programming e.g. bag-limit/bag-tag programs, partnering with Nation municipality for HHW collection and a well funded P&E program. 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, Casselman 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, Casselman's future recycling initiatives should not be evaluated in isolation of the impacts to the rest of their waste management system nor should they be evaluated outside of the principles of the 3Rs hierarchy. As such, this review of waste management options includes discussion of various waste reduction & reuse options. Other diversion program options beyond blue box (e.g. organics, WEEE) are also presented in this section of the report.

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 Casselman's waste management system. While there may be more factors for Casselman to consider, the factors listed above provide some assessment and understanding of the impact of implementing various programming options. These factors included are presented in Table 6.1 below.

Table 6.1: Program Option & Opportunities Assessment Factors

Consideration	Application to Options
Short-term or Long-term Option	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Examples of implementation requirements may include: <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 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 Casselman 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

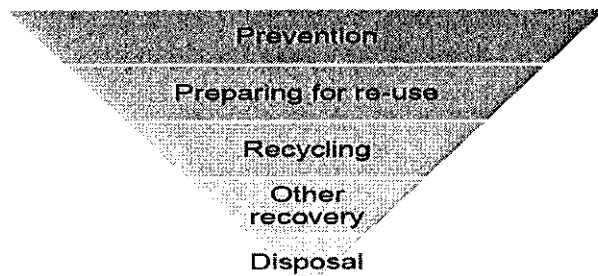
has the Ontario Ministry of the Environment (MOE) stated that the province's waste diversion framework should be guided by the vision of zero waste.¹⁵

Although a strong focus on waste reduction is fairly new in Ontario, there are other jurisdictions in Ontario and across North America that have implemented successful waste reduction programs that can be drawn from. 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 6.1, in most cases there are no predictable impacts e.g. from a waste reuse or reduction standpoint because there is little documented from these programs where they have been implemented elsewhere, that is, quantifiable results from program implementation.

¹⁵ "From Waste to Worth: The Role of Waste Diversion in the Green Economy", MOE, October 2009.

6.1.1 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 6.2: Establish a Per Capita Waste Reduction Target

Option: Establish a Per Capita Waste Reduction Target	
Short-term or Long-term Option	<ul style="list-style-type: none"> Implement in short-term, sustain over long-term.
Interaction with other System Components	<ul style="list-style-type: none"> Going forward, should be collaboratively developed with other promotion and education initiatives and zero-waste principles.
Potential Cost Implications	<ul style="list-style-type: none"> Minimal - integration with existing P&E initiatives.
Potential Change in Diversion	<ul style="list-style-type: none"> Even a 5% reduction in waste production for Casselman would yield a reduction of waste in the order of 37 tonnes per year and increase the waste diversion rate from 29.9% to 30.9%.
Potential for System Efficiencies and Improvements in Level of Service	<ul style="list-style-type: none"> Reduced waste volumes contribute to additional remaining disposal capacity.
Potential Processing or Disposal Capacity Requirements	<ul style="list-style-type: none"> Saves landfill capacity, has no impact on processing infrastructure capacity.
General Implementation Requirements	<ul style="list-style-type: none"> 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 municipally operated facilities as well.

Table 6.2: Establish a Per Capita Waste Reduction Target

Option: Establish a Per Capita Waste Reduction Target	
	<ul style="list-style-type: none"> Development of an initial and ultimate per capita waste reduction target.
General Implementation Timeframe	<ul style="list-style-type: none"> 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 municipal facility managers.
Community Acceptance	<ul style="list-style-type: none"> Should be well received with strong educational campaign and clear instructions (see Appendix A).
Ability to Adjust Option to Changes to the WDA	<ul style="list-style-type: none"> WDA does not currently legislate waste reduction – this option is highly adjustable to any new legislation that targets waste reduction.

6.1.2 Grasscycling

Grasscycling refers to leaving grass clippings on the lawn when mowing. Grasscycling eliminates the 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 lawn as clippings decomposed and release nutrients back into the soil.

If either municipality realizes any significant grass waste in either their garbage or leaf and yard waste stream this 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 6.3: Grasscycling

Option: Grasscycling	
Short-term or Long-term Option	<ul style="list-style-type: none"> Implement in short-term, sustain over long-term.
Interaction with other System Components	<ul style="list-style-type: none"> Going forward, should be collaboratively developed with other promotion and education initiative.
Potential Cost Implications	<ul style="list-style-type: none"> Minimal - integration with existing P&E initiatives.
Potential Change in Diversion	<ul style="list-style-type: none"> Minimal.
Potential for System Efficiencies and Improvements in Level of Service	<ul style="list-style-type: none"> Reduced waste volumes contribute to additional remaining disposal capacity.
Potential Processing or Disposal Capacity Requirements	<ul style="list-style-type: none"> Saves landfill capacity.
General Implementation Requirements	<ul style="list-style-type: none"> Determine how to best to incorporate the initiative into design, development and distribution of P&E materials and incorporate program messaging.
General Implementation Timeframe	<ul style="list-style-type: none"> 2 to 3 months (program and materials development)/ /integrated timing with existing P&E initiatives to be sustained long-term.
Community Acceptance	<ul style="list-style-type: none"> Should be well received with strong educational campaign and clear instructions.

Table 6.3: Grasscycling

Option: Grasscycling	
Ability to Adjust Option to Changes to the WDA	<ul style="list-style-type: none"> WDA does not currently legislate waste reduction – this option is highly adjustable to any new legislation that targets waste reduction.

6.1.3 Re-use Programming

Casselman could consider various forms of re-use programming. Re-use centres/depots/huts are a common way that communities can reduce waste production and extend landfill life. Potential items that could be targeted for re-use include appliances, furniture (e.g. couches, chairs, and tables), housewares (e.g. dishes, utensils, pots, pans), clothing, books, CDs, DVDs, and various construction and renovation items, novelty items, other.

Another very user-friendly re-use program implemented in other municipalities are *waste exchange events*. With waste exchange events, residents may leave items like furniture and any other reusable items at the curb (e.g., BBQs, tools, strollers, clothing, etc.) labeled “free” for anyone to pick up during selected times (events) of the year. Although these types of programs do not typically increase diversion rates significantly, they net some degree of environmental, social and potential economic benefit. They also offer a program option to those without their own vehicles or other means to bring larger items to a central facility/depot.

It is understood that textiles are collected at the church and resold. This program could be continually encouraged through Casselman’s promotion and educational initiatives.

Other local re-use initiatives may already exist, like those supported by organizations such as Habitat for Humanity or the Salvation Army. If not already, Casselman could identify, locate, and partner with these organizations to promote local re-use initiatives and promote these locations in waste management promotional and educational materials.

Casselman could consider waste exchange events like that described above as well as other tools like the addition of a link on their web page to an McNab/Braeside or Horton exclusive “waste exchange” or with links to other broader local and known ‘exchange sites’ for community information. Promotion should include specific items wanted for re-use purposes.

Table 6.4: 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	<ul style="list-style-type: none"> Implement in short-term, sustain over long-term. Waste exchange events can be implemented very short-term with leading promotion of the events.
Interaction with other System Components	<ul style="list-style-type: none"> Should be coordinated with other promotional and educational (P&E) programming initiatives.
Potential Cost Implications	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Diversion impact is minimal.

Table 6.4: 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	
Potential for System Efficiencies and Improvements in Level of Service	<ul style="list-style-type: none"> • Larger re-useable items like furniture, windows, doors, etc., do not suit landfill operations as they are difficult to compact and take up more landfill capacity than other residential garbage streams.
Potential Processing or Disposal Capacity Requirements	<ul style="list-style-type: none"> • Some potential for reduced landfill disposal capacity requirement. • Material handling requirements vary by programming.
General Implementation Requirements	<ul style="list-style-type: none"> • Research and identify local community re-use organizations e.g. Habitat for Humanity. • A centralized depot could be added for central collection of reusable materials. • 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	<ul style="list-style-type: none"> • 3 months best practices/information gathering; re-use organizations, feasibility of waste exchange and waste exchange events. • 2 months promotional materials design and development.
Community Acceptance	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • WDA does not currently legislate waste reuse – this option is highly adjustable to any new legislation that targets waste reuse initiatives.

6.1.4 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. If not already, both McNab/Braeside and Horton have the opportunity to undertake this initiative for all municipally operated facility procurement requirements.

Table 6.5: Implement a Green Procurement Policy

Option: Implement a Green Procurement Policy	
Short-term or Long-term Option	<ul style="list-style-type: none"> • Implement in short-term, sustain over long-term.
Interaction with other System Components	<ul style="list-style-type: none"> • Consistent with Zero Waste principles. • Needs to be collaborative effort between waste management and facility purchasing staff.

Table 6.5: Implement a Green Procurement Policy

Option: Implement a Green Procurement Policy	
Potential Cost Implications	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Minimal – but reduced non-recyclable packaging for disposal at facilities.
Potential for System Efficiencies and Improvements in Level of Service	<ul style="list-style-type: none"> • n/a
Potential Processing or Disposal Capacity Requirements	<ul style="list-style-type: none"> • Actual effect on reducing disposal capacity requirements is difficult to quantify.
General Implementation Requirements	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Staff resource availability.
Community Acceptance	<ul style="list-style-type: none"> • Should be well received but will require staff time/staff coordination to implement.
Ability to Adjust Option to Changes to the WDA	<ul style="list-style-type: none"> • 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

6.2.1 Establish Waste Diversion Depot Program

Casselman does not currently operate a waste diversion depot, although they do participate in a HHW collection event in coordination with Nation municipality once every two years. While it may not be feasible to set up depot operations at the landfill (access road, space for parking/unloading, security etc.), Casselman could discuss the potential for depot operations with Lafleche Environmental or other private sector operators or potentially in partnership with Nation municipality at one of their landfills. Casselman could consider establishing diversion depots for materials such as waste electrical and electronic equipment (WEEE) in partnership with the existing private sector operator in the industrial park, as well as other diversion initiatives e.g. tires, white goods/scrap metal, brush/leaf & yard waste, clean wood etc. Further, Casselman could consider establishing an HHW drop-off with new depot infrastructure which would make it much more likely that for residents would divert this material.

Casselman could accept these materials free of charge, which would fully support their diversion initiatives. Funding is available from organizations such as the Ontario Tires Stewardship (OTS) for tires and the Ontario Electronic Stewardship (OES) for WEEE to assist in covering costs. Full information concerning levels of funding can be found on each organization's website.

Other similar sized municipalities in Ontario currently offer residents the opportunity to divert the above-mentioned materials. For example, the Township of Horton which is located approximately 150 km west of Casselman currently operates diversion depots at their landfill site for all of the above mentioned materials. Although Horton is slightly smaller than Casselman (in 2010, Horton had an estimated population of 2,498, compared to Casselman which has a population of about 3,778), in 2010, they diverted an estimated 90.1 tonnes of material via their depot diversion program.

Casselman could also consider accepting construction and demolition materials in a depot program. Many communities 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.

It is understood that textiles are collected at the church and resold. This program could be continually encouraged through Casselman's promotion and educational initiatives.

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 6.6: Enhance Existing Waste Diversion Depot Program

Option: Enhance Existing Waste Diversion Depot Program	
Short-term or Long-term Option	<ul style="list-style-type: none"> Implement in short-term, sustain over long-term.
Interaction with other System Components	<ul style="list-style-type: none"> Materials handling, collection and recovery would be evaluated relative to any identified/recommended program change.
Potential Cost Implications	<ul style="list-style-type: none"> 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. Funding would be available from organizations such as the Ontario Tire Stewardship and the Ontario Electronic Stewardship.
Potential Change in Diversion	<ul style="list-style-type: none"> Horton currently diverts about 10% of its total waste stream via diversion depots for WEEE, tires, and scrap metal. It is likely that Casselman could appreciate similar successes once a program is implemented and sustained.
Potential for System Efficiencies and Improvements in Level of Service	<ul style="list-style-type: none"> Potentially maintain or lower costs but increase diversion.
Potential Processing or Disposal	<ul style="list-style-type: none"> Existing facility(s) capacity to manage materials may be limited.

Table 6.6: Enhance Existing Waste Diversion Depot Program

Option: Enhance Existing Waste Diversion Depot Program	
Capacity Requirements	
General Implementation Requirements	<ul style="list-style-type: none"> • Review of municipal best practices in handling, transportation and end-markets. • Cost-benefit assessment of enhanced programming for each material type.
General Implementation Timeframe	<ul style="list-style-type: none"> • 3 months, best practices review and cost-benefit assessment. • Contract/arrangement dependent, dependent on existing infrastructure capacity.
Ability to Adjust Option to Changes to the WDA	<ul style="list-style-type: none"> • This option is flexible to changes in the WDA and would complement any new designated wastes under the WDA.

6.2.2 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 (like Guelph's program) was compliant-based, that is, it allowed no Municipal Hazardous or Special Waste (MHSW) or recyclables (in the case of Guelph no organics either) 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 mitigates privacy issues if any, but still allow for monitoring of the contents of the bag by the curbside collection contractor.

Casselman 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 Casselman already has bag limits in place (2 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 Casselman'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 6.7: Clear Garbage Bag Program

Option: Clear Garbage Bag Program	
Short-term or Long-term Option	<ul style="list-style-type: none"> • Could be implemented in short-term, sustain over long-term.
Interaction with other System Components	<ul style="list-style-type: none"> • Change in mechanism for compliance/monitoring by curbside collection staff. • 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	<ul style="list-style-type: none"> • Pilot study if undertaken. • Associated promotion and education campaign. • Loss of revenue from bag-tags. • Potential reduced costs associated with administration of bag-tag program but could be administrative costs for sale of clear bags. • 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	<ul style="list-style-type: none"> • Could drive up current blue box diversion rates - assist in increase from current blue box diversion rate of 29.9% to 41.1% •
Potential for System Efficiencies and Improvements in Level of Service	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Would reduce landfill disposal capacity requirements and increase recyclable materials processing capacity requirements.
General Implementation Requirements	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • This option is flexible to changes in the WDA. • This is a WDO 'best practice' – potential increased funding

6.2.3 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.¹⁶
- Promote cooperative ventures (e.g. WEEE, other depot programs, waste reduction etc.).

In 2010, Casselman spent \$2.04 per household for promotion and education of its waste diversion program (this is up from spending only about \$0.35 in 2009 – therefore a two year average of \$1.19 per household). 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 report¹⁷. Based on the amount noted P&E spending per household, Casselman is generally on track with KPMG guidelines. That being said, it is difficult to take the \$1.00 per household has a ‘golden’ number as Casselman 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.

Casselman 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 promotion and education should be undertaken in both English and French to ensure the entire community is targeted. 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).

¹⁶ Adapted from: KPMG, 2007. Blue Box Program Enhancement and Best Practices Assessment Project (Final Report Volume I – July 31, 2007).

¹⁷ *Blue Box Program Enhancement & Best Practices Assessment Project Report*, KPMG, R.W. Beck, 2007

Table 6.8: Enhanced and Sustained Advertising, Education & Promotion

Option: Enhanced and Sustained Advertising, Education & Promotion	
Short-term or Long-term Option	<ul style="list-style-type: none"> Implement in short-term, sustain over long-term.
Interaction with other System Components	<ul style="list-style-type: none"> All existing and new program initiatives should be integrated together as much as possible for cost-saving purposes.
Potential Cost Implications	<ul style="list-style-type: none"> Sustained funding for routine annual implementation of a communication strategy, funding for larger one-time program changes.
Potential Change in Diversion	<ul style="list-style-type: none"> 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 may not be applicable to Casselman, the potential increase in diversion associated with new P&E initiatives is likely high.
Potential for System Efficiencies and Improvements in Level of Service	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Reduce disposal capacity requirements.
General Implementation Requirements	<ul style="list-style-type: none"> Development of a "strategy/communications plan" based on the preferred options selected from the WRS to be implemented.
General Implementation Timeframe	<ul style="list-style-type: none"> If Casselman introduces further change to its programming (e.g., the clear garbage bag program, 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	<ul style="list-style-type: none"> Improved/increased promotional and educational activity to support waste diversion programs will likely be welcomed by residents.
Ability to Adjust Option to Changes to the WDA	<ul style="list-style-type: none"> 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.

6.2.4 At-Source Composting

Currently, Casselman does not provide residents with the opportunity to purchase backyard composters. Casselman could 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.

In addition, there may be an opportunity to increase diversion with a renewed education and promotion campaign to promote the benefits of backyard composting as well as educate residents about how to properly use their backyard composter (see **Appendix B**). Further,

Casselman could consider developing a reward program or some means to encourage residents to keep doing backyard composting.

Table 6.9: At-Source Composting

Option: At-Source Composting	
Short-term or Long-term Option	<ul style="list-style-type: none"> Implement in short-term, sustain over long-term.
Interaction with other System Components	<ul style="list-style-type: none"> Potential reduction in quantities of garbage. Potential decrease in odours associated with landfilling operation.
Potential Cost Implications	<ul style="list-style-type: none"> According to Ont. Reg. 101/94 composters must be provided at cost or less.
Potential Change in Diversion	<ul style="list-style-type: none"> Can divert approximately 1.13 kg/household/week¹⁸
Potential for System Efficiencies and Improvements in Level of Service	<ul style="list-style-type: none"> This is an improved level of service particularly if composters are subsidized.
Potential Processing or Capacity Requirements	<ul style="list-style-type: none"> Reduced disposal capacity requirements.
General Implementation Requirements	<ul style="list-style-type: none"> Promotion and Education. Distribution of backyard composters to residents/some central location(s) where residents can purchase composters.
General Implementation Timeframe	<ul style="list-style-type: none"> Immediate P&E
Community Acceptance	<ul style="list-style-type: none"> Would very likely be accepted by some residents.
Ability to Adjust Option to Changes to the WDA	<ul style="list-style-type: none"> This option is flexible to changes in the WDA.

6.2.5 Public Open Space & Special Events Recycling Program

Open space recycling programs seeks 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.

According to the 2010 WDO datacall, Casselman does not currently provide public open space recycling.

The Continuous Improvement Fund (CIF) has recently funded projects to identify a series of best practices in open space recycling so that CIF could define 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 use of clear and consistent signage, proper bin design and placement and good communications between collectors and facility managers.

¹⁸ JG Press Inc. 1999. Backyard Composting Evaluated in New York City. Available: <http://www.environmental-expert.com/resultteacharticle.aspx?cid=6042&codi=217>

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) to ensure that appropriate recycling initiatives are in place at these events. There may an opportunity for Casselman 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 6.10: Public Open Space & Special Events Recycling Program

Option: Public Open Space & Special Events Recycling Program	
Short-term or Long-term Option	<ul style="list-style-type: none"> Implement in short-term, sustain over long-term.
Interaction with other System Components	<ul style="list-style-type: none"> Adds incremental recyclable tonnage to the system, requires coordination between waste management and parks, recreational area staff.
Potential Cost Implications	<ul style="list-style-type: none"> Would need to be assessed but could be incorporated into routine recycling collection program.
Potential Change in Diversion	<ul style="list-style-type: none"> Open space dependent (total number of parks, size of each and use). Estimated at 2kg/capita¹⁹.
Potential for System Efficiencies and Improvements in Level of Service	<ul style="list-style-type: none"> Consistency in messaging (at home and in the community) regarding Casselman's recycling program (both currently accept the same materials).
Potential Processing or Disposal Capacity Requirements	<ul style="list-style-type: none"> Minor reduction in disposal capacity requirements.
General Implementation Requirements	<ul style="list-style-type: none"> Discussion, coordination interdepartmentally within Casselman Development of specific messaging/signage (consistent with curbside program).
General Implementation Timeframe	<ul style="list-style-type: none"> Procurement and distribution of containers for separation of recyclables from garbage
Community Acceptance	<ul style="list-style-type: none"> Most residents would likely support more opportunities to divert waste away from home.
Ability to Adjust Option to Changes to the WDA	<ul style="list-style-type: none"> This option is flexible to changes in the WDA.

6.2.6 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

¹⁹ 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.

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.

Casselman may have some municipal facility recycling programs in place and could consider assessing the current performance of waste diversion programs at those facilities (e.g. through waste audits) and determine mechanisms to improve performance (if any).

Table 6.11: Improved Administrative & Other Facility Recycling

Option: Improved Administrative & Other Facility Recycling	
Short-term or Long-term Option	<ul style="list-style-type: none"> Implement in short-term, sustain over long-term.
Interaction with other System Components	<ul style="list-style-type: none"> 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 collected. Impact to MRF – increased tonnage for transfer to MRF.
Potential Cost Implications	<ul style="list-style-type: none"> Increased collection cost for recycling, decreased collection cost for garbage Increased processing costs for recycling. Reduced disposal costs long-term. Costs for containers, signage and P&E materials.
Potential Change in Diversion	<ul style="list-style-type: none"> Unknown but potentially high.
Potential for System Efficiencies and Improvements in Level of Service	<ul style="list-style-type: none"> Potential for consistent messaging of recycling program in all sectors/multiple-use P&E materials.
Potential Processing or Disposal Capacity Requirements	<ul style="list-style-type: none"> Reduction in disposal capacity requirements.
General Implementation Requirements	<ul style="list-style-type: none"> Could be new/additional containers procurement, P&E and signage distribution, coordination with housekeeping/facility staff.
General Implementation Timeframe	<ul style="list-style-type: none"> If required, container procurement and distribution, in concert with P&E development for other program options implemented - 3- 4 months.
Community Acceptance	<ul style="list-style-type: none"> Would likely have a high level of acceptance. Would need to be supported with proper containers and P&E tools, signage etc.
Ability to Adjust Option to Changes to the WDA	<ul style="list-style-type: none"> This option is flexible to changes and partly a function of potential changes in the WDA.

6.2.7 Organic Waste Collection & Processing Option

As presented in Section 5.6, if Casselman implemented a Source Separated Organics (SSO) collection program and collected 70% of the available material, approximately 152 tonnes of organic material could be diverted from landfill. It is estimated that in combination with maximized diversion of recycling that the additional implementation of an SSO program could

help Casselman achieve a diversion rate of 59% without taking into account additional diversion initiatives such as tires, and scrap metal diversion.

Casselman has two options with respect to processing of SSO. The first option is to identify and investigate opportunities for SSO to be received at an organic waste processing facility, commonly referred to as Centralized Composting Facilities (CCFs) within a reasonable haul distance. CCF's would need to be 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. Organic processing facilities closest to Casselman include Orgaworld in Ottawa and Lafleche Environmental in Moose Creek.

The second option is to install an appropriately sized composter, potentially 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.

Casselman 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. This program options could also provide the opportunity to divert commercial organic waste (e.g. Tim Horton's, McDonald's, other restaurants) that while collected independently, can represent a substantial amount of divertable waste in the community. Curbside collection options would need to be assessed in concert with a further assessment of composting options.

Table 6.12: Organic Waste Collection and Processing

Option: Organic Waste Collection and Processing	
Short-term or Long-term Option	<ul style="list-style-type: none"> • Could be implemented in the short-term.
Interaction with other System Components	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Would need TBD in association with assessment of the options however current processing fees in Eastern Ontario range in the approximate order of \$125/tonne • Curbside collection cost increases for service and green bin procurement and maintenance. • Disposal cost reductions in long-term.
Potential Change in Diversion	<ul style="list-style-type: none"> • Assuming a 70% participation rate in an organics program, Casselman's waste diversion rate could be increased to 59% (assuming that waste

Table 6.12: Organic Waste Collection and Processing

Option: Organic Waste Collection and Processing	
	recycling diversion initiatives are also implemented).
Potential for System Efficiencies and Improvements in Level of Service	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Casselman requires about 152 tonnes of processing capacity per year. Potential reduction in disposal capacity of 152 tonnes.
General Implementation Requirements	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Receiving facility(s) dependent or installation dependent.
Community Acceptance	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> This option is flexible to changes in the WDA. Potential changes could include the designation of 'branded' organics for diversion.

6.3 WASTE COLLECTION OPTIONS

As Casselman already provides for recycling collection as frequent as garbage collection (a WDO best practice) there are few options for improvements in waste collection. That said, if Casselman decides to pursue SSO collection, they could move to providing for garbage collection on a bi-weekly basis. This option is discussed below. Any new collection contract, be it for 'status quo' service or new services should be written utilizing various known best practices for recycling collection RFP/contract development as found on the Continuous Improvement Fund (CIF) website in the Municipal Blue Box Contracts Database. RFP development that utilizes this database is eligible for CIF funding. Funding details are also provided at www.cif.ca.

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

If Casselman 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 6.13: Bi-Weekly Garbage Collection

Option: Bi-Weekly Garbage Collection	
Short-term or Long-term Option	<ul style="list-style-type: none"> • Could be implemented in the short-term or the long-term but not recommended without an organics separation program.
Interaction with other System Components	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 3 to 4% of total waste stream based on other municipal experience.
Potential for System Efficiencies and Improvements in Level of Service	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Would reduce landfill disposal capacity requirements.
General Implementation Requirements	<ul style="list-style-type: none"> • P&E material development and distribution/notification. •
General Implementation Timeframe	<ul style="list-style-type: none"> • Adequate notification of program change to residents/calendar development and distribution.
Community Acceptance	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • This option is flexible to changes in the WDA. • This option is identified as 'best practice' by WDO.

7.0 Recommended Programming and Initiatives

The following are recommended initiatives for the Village of Casselman 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. More easily implemented programs are also identified as priorities while programs with greater potential cost constraints and/or are constrained by current contracting arrangements are identified as potential future initiatives. It is not intended that Casselman necessarily implement all programs concurrently but that some be considered in the short-term and some not be precluded in the longer term.

7.1 EXISTING INITIATIVES

Casselman has successfully integrated some best practices into their currently waste management system. They have implemented a waste diversion program for household hazardous waste in partnership with Nation Municipality.

7.2 PRIORITY INITIATIVES

7.2.1 Zero Waste

Zero Waste focuses on reducing the environmental footprint by minimizing the amount of waste that must be landfilled through reduction, reuse, recycling, redesign, composting, and other actions. By committing to promoting, facilitating and modeling Zero Waste strategies as part of the WRS, Casselman would demonstrate its commitment to protecting the environment through the promotion of this target. Notwithstanding that Zero Waste cannot necessarily be achieved in the immediate future, the concept/philosophy can be formally adopted and can pervade waste management reduction, reuse and recycling promotion and educational campaigns as well as policy initiatives undertaken by the Village.

7.2.2 Green Procurement Policies

The adaption of green procurement policies provides Casselman with the ability to reduce the environmental impacts of its operations and promote environmental stewardship by integrating environmental performance considerations in the procurement process including planning, acquisition, use and disposal. Green procurement also requires an understanding of the environmental aspects and potential impacts and costs, associated with the life cycle assessment of goods and services being acquired. An excellent example of an environmentally preferable purchasing policy from the City of Burlington, Vermont is attached (**Appendix C**).

7.2.3 Enhanced Promotion and Education Program

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. While a number of promotional and educational initiatives are already in place to support current programs, the existing program should be expanded to focus on current reduction and reuse initiatives as well as for the introduction of new programs to ensure that the community is aware of all possible avenues for the reduction and diversion of waste

P&E products do not need to be limited media releases and newsletter, items such as calendars, brochures, flyers/mail drops, fridge magnets, Oops 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. Casselman 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.

7.2.4 Reuse Programs and Waste Exchange Events

Reuse initiatives could include promotion of the use of community programs like the clothing drive through the local church community and partnering with local charitable organization that could provide collection of gently used household goods and clothing. Enhanced P&E is required to support this type of initiative and may include website links to community partners.

Curbside waste exchange events are also an option and are easy to implement. This program allows residents to set out reusable household items at the curb on prescribed days during the year (usually weekends). Materials are marked “free” for anyone to take a reuse at their discretion. Proper ongoing communication of these events (acceptable materials and dates the program is promoted) is paramount to the success of this program

7.2.5 Backyard Composting

Casselman could support an enhanced at-source (backyard) composting program for residents. Consideration could be given to either selling backyard composters directly to residents through

a truckload sale or more conveniently to subsidize the cost of composters purchased at local retail locations through a rebate program. Success hinges on proper use of backyard composters and proper instructions regarding the use of backyard composters should be supported through the P&E programs. Instructions are provided in **Appendix B**.

7.2.6 Full Blue/Clear Bag Recycling Collection Program

Casselman, 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 Casselman 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, Casselman 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 Village.

7.3 FUTURE PLANNING

7.3.1 Waste Diversion Depot

Waste diversion depots provide residents with the opportunity to divert a wide-range of material from landfill including, waste electronics and electrical equipment (WEEE), household hazardous waste (HHW), tires, white goods/scrap metal, leaf & yard waste, and blue box materials.

Casselman should investigate and promote partnerships with local private sector operators such as Convex and Lafleche Environmental for the management of certain materials. These materials should be accept free of charge, as funding is available from organizations such as the Ontario Tires Stewardship (OTS) for tires and the Ontario Electronic Stewardship (OES) for WEEE to assist in covering costs. This infrastructure would make it much more likely that residents would divert these types of material which would fully support Casselman's diversion initiatives.

7.3.2 Clear Bag Collection Program

Consideration should be given to the development of a program for collection of garbage in clear bags. Notwithstanding the existing bag limits in place the blue box program diversion rates for Casselman could be improved. The clear bag program allows for the contractor to

examine the contents of the garbage bag and determine whether or not recyclable material content is unacceptably high, that is, there are blue box materials in the garbage stream that could have/should have been sorted from the garbage. This is an enforcement based program where if the recyclable materials content of the clear bag is deemed to high the bag is left at the curb for re-sorting by the resident. This program should be supported with a 'sticker program' that alerts the resident to the reason why the materials were left behind. Usually this program is supported by a pilot study to gauge community acceptability. This program is best supported through the provision of additional blue boxes (free of charge) to residents prior to implementation or a shift to bag-based recycling collection system. This initiative results in greater annual WDO funding

7.3.3 Curbside Source Separated Organics Collection Program

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 Casselman's future disposal management practices, that is, an organics program should be weighed against future costs Casselman might have to bear for transfer and disposal of waste outside its jurisdiction. Implementing an organics program could also provide the opportunity as it has for many other municipalities to decrease the frequency of garbage collection e.g. to a bi-weekly collection cycle as the amount of waste set out with a well-developed organics program drastically increases.

8.0 Conclusions

The following are key conclusions drawn from the review of Casselman's current programs.

1. Casselman's GAP waste diversion rate is below average (29.9%) compared to the average of 33.66% for municipalities in Casselman'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 through new program initiatives not just for recycling but for waste reduction and reuse.
3. Partnerships with local private sector operators and neighbouring municipalities should be explored in order to provide residents with waste reuse and diversion options.
4. Because of the nature of some of the initiatives identified above, Casselman is eligible for funding support from CIF and should access as much funding as possible to improve their recycling programs.
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 Casselman'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

Casselman does not have a regular waste auditing program in place. Regular auditing of waste program performance, through observations of curbside behaviour (e.g. number of set-outs) and the collection and sorting of a representative sample of waste material, is the primary means of determining 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, Casselman 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 at RFN.

9.3 PLAN REVIEW

It is recommended that Casselman 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 Casselman complete 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,

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Waste Recycling Strategy

Village of Casselman – Final Report

Appendix A: Waste Reduction Tips

Appendix A: Waste Reduction tips

Waste reduction at home²⁰

- 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

²⁰ City of Guelph Solid Waste Services Waste Reduction Tips at www.guelph.ca

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Village of Casselman – Final Report

Appendix B: Backyard Composting Instructions

Appendix B: Backyard Composting Instructions

Backyard Composting²¹

Backyard composting reduces the amount of organic waste requiring collection and processing, and returns important organic matter and nutrients to the soil, improving soil structure and water retention capabilities.

Getting Started

The secret to backyard composting is all in the recipe! All you need is a 50:50 ratio between 'brown' and 'green' materials, a little patience and some help from the sun.

Brown materials are carbon based. They include dried grass and plants, leaves, sawdust, wood chips, straw, dried bread, shredded newspaper and coffee filters.

Green materials are nitrogen based. They include fruit and vegetable peels and cores, coffee grounds, tea bags, eggshells and garden waste.

To set up your backyard composter:

1. Choose an area with good drainage, loosen soil underneath so earthworms can move up
2. Put down about 4 inches of **brown** material for good air circulation
3. Add 2-3 inches of **green** material and spread evenly
4. Cover **green** material with 4 inches of **brown** to reduce fruit flies, odours and other pests
5. Repeat steps 3 and 4 until your composter bin is full
6. Keep mixture about as moist as a wrung-out sponge
7. Mix often – the more you mix, the quicker the compost!



Do not put in diseased plants, pet manure or litter, meat, fish, dairy products, etc.

When your compost is finished, it will be very dark and crumbly with a distinctive earthy smell. Use it on flower beds, houseplants and starter boxes, vegetable gardens, around trees or shrubs and as a lawn dressing when sifted.

²¹ City of Guelph Solid Waste Services Backyard Composting at www.guelph.ca

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Village of Casselman – Final Report

Appendix C: Burlington, VA – Purchasing Policy

APPENDIX C
ENVIRONMENTALLY PREFERABLE PURCHASING POLICY
City of Burlington, Vermont
(Adopted by City Administration June 18, 2009)

1.0 STATEMENT OF POLICY

It is the policy of the City of Burlington to:

- require purchase of products and services that minimize environmental and health impacts, toxics, pollution, and hazards to worker and community safety and to the larger global community to the greatest extent practicable; however

It is not the intent of this policy to require a department, buyer or contractor to take any action that conflict with local, state or federal requirements or to procure products that do not perform adequately for their intended use, exclude adequate competition, or are not available at a reasonable price in a reasonable period of time.

2.0 PURPOSE

This Policy is adopted in order to meet the following goals, which are not limited to:

- minimizing health risks to City staff and residents,
- minimizing the City's contribution to global climate change,
- improving air quality,
- protecting the quality of ground and surface waters, and
- minimizing the City's consumption of resources.

Further, this Policy is adopted in order to:

- purchase products that include recycled content in order to support strong recycling markets,
- institute practices that reduce waste by increasing product efficiency and effectiveness, use products that are durable and long-lasting, and reduce materials that are landfilled,
- purchase products and institute practices that conserve energy and water, use agricultural fibers and residues, reduce greenhouse gas emissions, use unbleached or chlorine free manufacturing processes, and use recycled wood and wood from sustainably harvested forests,

Waste Recycling Strategy
Village of Casselman – Final Report

- purchase energy from renewable or green sources in preference to fossil fuels,
- purchase products that are free of mercury and lead and eliminate the use of other persistent bioaccumulative toxic chemicals where possible,
- increase the use and availability of environmentally preferable products, services and distribution systems that protect human health and the environment,
- support emerging and established manufacturers and vendors that reduce environmental and human health impacts in their services and production and distribution systems, and
- create a model for successfully purchasing environmentally preferable products and services that encourages other buyers and consumers in our community to adopt similar goals.

3.0 SPECIFICATIONS

3.1 Source Reduction

- The City of Burlington shall institute practices that reduce waste and result in the purchase of fewer products whenever practicable and cost-effective, but without reducing safety or workplace quality.
- The City of Burlington shall purchase remanufactured products (i.e. for equipment and vehicles) whenever practicable, but without reducing safety, quality or effectiveness.
- The City of Burlington shall require all equipment bought after the adoption of this policy to be specified and delivered so it is compatible with source reduction goals as referred to in this section (3.1), whenever practicable.
- All buyers shall consider short-term and long-term costs in comparing product alternatives, when feasible. This includes evaluation of total costs expected during the time a product is owned, including, but not limited to, acquisition, extended warranties, operation, supplies, maintenance, disposal costs and expected lifetime compared to other alternatives.
- Products that are durable, long lasting, reusable, refillable, recyclable or otherwise create less waste shall be selected whenever possible. The city shall avoid purchasing single use plastic water bottles for city catered events.
- The City of Burlington requires vendors to minimize packaging to the greatest extent practicable.
- Packaging that is reusable, recyclable or compostable shall be selected when suitable uses and programs exist. The City of Burlington shall not purchase any polystyrene foam food

Waste Recycling Strategy

Village of Casselman – Final Report

packaging and 50% by volume of the food packaging purchased by the City shall be recyclable or degradable.

- Vendors shall be required whenever possible to take back and reuse pallets and packaging materials.
- Suppliers of electronic equipment shall be required to take back equipment for reuse or environmentally safe recycling when the City of Burlington discards or replaces such equipment, unless the City deems it worthwhile to send the equipment to a non-profit organization for reuse.
- All documents shall be printed and copied on both sides to reduce the use and purchase of paper, unless needed to be single sided as per legal requirements.

3.2 Toxics Reduction and Pollution Prevention

No product or service purchased by the City of Burlington shall contain, emit, or create the following in its use, to the extent practicable:

- carcinogens and reproductive toxins,
- persistent bioaccumulative toxicants, including lead, mercury, dioxins and furans for example,
- compounds toxic to humans or aquatic life, corrosive to the skin or eyes, or that are skin sensitizers, and
- substances that contribute to the production of photochemical smog, tropospheric ozone production, or poor indoor air quality.

All cleaning or disinfecting products (i.e. for janitorial or automotive use) shall at a minimum meet Green Seal Standards for environmental preferability and performance, whenever practical.

Purchasing products containing persistent, bioaccumulative and toxic chemicals (PBTs) shall be avoided, where alternatives exist.

The use of chlorofluorocarbon-containing refrigerants, solvents and other products known to contribute to the depletion of the ozone layer shall be phased out and new purchases shall not contain them.

**Waste Recycling Strategy
Village of Casselman – Final Report**

When maintaining buildings, the City of Burlington shall use products with the lowest amount of volatile organic compounds (VOCs), highest recycled content, and low or no formaldehyde when purchasing materials such as paint, carpeting, flooring, adhesives, furniture and casework.

The City of Burlington shall reduce or eliminate its use of products that contribute to the formation of dioxins and furans. Purchases shall be consistent with the City's resolution to eliminate anthropogenic sources of dioxin pollution. This includes, but is not limited to:

- Purchasing paper, paper products, and janitorial paper products that are unbleached or that are processed without chlorine or chlorine derivatives, whenever possible, and
- Prohibiting purchase of products that contain or are packaged in polyvinyl chloride (PVC) such as, but not limited to, office binders, furniture, carpeting/flooring, other building materials and supplies, and medical supplies whenever practicable.

The City of Burlington shall purchase products and equipment with no lead, cadmium or mercury whenever possible. For products that must contain lead or mercury because no suitable alternative exists, the City of Burlington shall give preference to those products with the lowest quantities of these metals available and to vendors with established lead, cadmium and mercury recovery programs.

When replacing vehicles, the City of Burlington shall lease or purchase only the most fuel-efficient models available that are suitable for each task and through carsharing and carpooling, shall minimize the number of vehicles purchased.

To the extent practicable, the City shall use renewably-derived fuels or fuels that are cleaner and less-polluting than gasoline and conventional diesel fuel, including biodiesel, natural gas and electricity.

The purchase of all pentachlorophenol, arsenic and creosote treated wood by the City of Burlington is prohibited.

The City shall avoid purchasing products containing brominated flame retardants (BFRs) wherever possible. In particular, the BFRs "penta" and "octa" will be targeted for phaseout.

3.3 Recycled Content Products

All products purchased for which the United States Environmental Protection Agency (U.S. EPA) has established minimum recycled content standard guidelines shall contain the highest postconsumer content practicable, but no less than the minimum recycled content standards established by the U.S. EPA Guidelines.

Waste Recycling Strategy

Village of Casselman – Final Report

Copiers and printers purchased shall be compatible with the use of recycled content and remanufactured products.

The city shall continue to recycle asphalt and concrete that is removed for streets and sidewalks and will use materials containing recycled asphalt and concrete for constructing roads and sidewalks when such materials are available and appropriate for the projects at hand.

The City of Burlington shall specify and purchase recycled content transportation products, including signs, cones, parking stop, delineators, and barricades.

A 10% price preference may be given to recycled content products based on the lowest bid or price quoted by the suppliers offering the competing non-recycled content products.

All pre-printed recycled content papers intended for distribution that are purchased or produced shall contain a statement that the paper has recycled content. Whenever feasible, the statement should indicate the percentage of postconsumer recycled content it contains.

3.4 Energy and Water Savings

New and replacement equipment for lighting, heating, ventilation, refrigeration and air conditioning systems, water consuming fixtures and process equipment and all such components shall meet or exceed Federal Energy Management Program (FEMP) recommended levels, whenever practicable.

All products purchased by the City of Burlington and for which the U. S. EPA Energy Star certification is available shall meet Energy Star certification, when practicable. When Energy Star labels are not available, products shall meet or exceed the FEMP recommended levels.

When energy is purchased, renewable or green sources are preferred. These include solar power or photovoltaics, wind power, geothermal, and hydroelectric energy sources and do not include fossil fuels (coal, oil or natural gas).

Demand water heaters shall be purchased whenever practicable. Where renewable forms of energy are unavailable or not practicable, natural gas shall be used in lieu of electricity for space heating and water heating.

Energy Star and power-saving features for copiers, computers, monitors, printers and other office equipment shall be enabled during the initial installation and shall remain enabled unless these features conflict with the manufacturer's recommended operation and maintenance of the equipment.

3.5 Green Building - Construction and Renovations

All new construction and major renovations** of over 5,000 square feet undertaken by the City of Burlington after January 1, 2010 shall be certified LEED™ Rating System.

**Major renovation: Exterior walls and ceilings are updated and/or change of the HVAC and lighting equipment.

3.6 Landscaping

All landscape renovations, construction and maintenance by the City of Burlington, including workers and contractors providing landscaping services for the City of Burlington, shall employ sustainable landscape management techniques for design, construction and maintenance whenever possible, including, but not limited to, integrated pest management, grasscycling, drip irrigation, composting, and procurement and use of mulch and compost that give preference to those produced from regionally generated plant debris and/or food waste programs.

When available, the City shall purchase landscaping equipment that is not dependent on the use of fossil fuels.

Plants should be selected to minimize waste by choosing species for purchase that are appropriate to the microclimate, species that can grow to their natural size in the space allotted them, and perennials rather than annuals for color.

Hardscapes and landscape structures constructed of recycled content materials are encouraged.

The City of Burlington shall limit the amount of impervious surfaces in the landscape, wherever practicable. Permeable substitutes, such as permeable asphalt or pavers, are encouraged for walkways, patios and driveways.

3.7 Forest Conservation

To the greatest extent practicable, the City of Burlington shall not procure wood products such as lumber and paper that originate from forests harvested in an environmentally unsustainable manner. When possible, the City of Burlington shall give preference to wood and wood products that are certified to be sustainably harvested by a comprehensive, performance-based certification system. The certification system shall include independent third-party audits, with standards equivalent to, or stricter than, those of the Forest Stewardship Council certification.

3.8 Agricultural Bio-Based Products

Vehicle and equipment fuels made from non-wood, plant-based contents such as vegetable oils are encouraged whenever practicable.

Waste Recycling Strategy

Village of Casselman – Final Report

Paper, paper products and construction products made from non-wood, plant-based contents such as agricultural crops and residues are to be purchased and used whenever practicable.

4.0 PRIORITIES

The health and safety of people who live and work in Burlington is of utmost importance and takes precedence over all other City policies. All policies and practices shall be protective of the health of children, the elderly and other vulnerable populations, and the greater global community.

The City of Burlington has made significant investments in developing a successful recycling system and recognizes that recycled content products are essential to the continuing viability of that recycling system and for the foundation of an environmentally sound production system. Therefore, to the greatest extent practicable, recycled content shall be included in products that also meet other environmental specifications, such as chlorine free or bio-based.

Nothing contained in this policy shall be construed as requiring a department, buyer or contractor to procure products that do not perform adequately for their intended use, exclude adequate competition, or are not available at a reasonable price in a reasonable period of time.

Nothing contained in this policy shall be construed as requiring the City of Burlington, department, buyer or contractor to take any action that conflicts with local, state or federal requirements.

5.0 IMPLEMENTATION

Department heads shall implement this policy in coordination with other appropriate City of Burlington personnel.

Implementation of this policy will be phased based on available resources and City priorities.

The Burlington Sustainability Action Team shall advise the departments heads regarding environmentally preferable products that comply with this policy. Recommendations will include input of applicable environmental staff. Whenever possible, the City will use existing eco-labels and standards to make purchasing decisions.

Successful bidders shall certify in writing that the environmental attributes claimed in formal competitive bids are accurate.

Vendors, contractors and grantees shall comply with applicable sections of this policy for products and services provided to the City of Burlington, where practicable. In particular, vendors, contractors and grantees providing written materials to the City shall do so on recycled content paper meeting minimum standards of the U.S. EPA Guidelines and labeled as such and vendors, contractors and grantees shall be prohibited from using pentachlorophenol, arsenic, and creosote treated wood.

**Waste Recycling Strategy
Village of Casselman – Final Report**

If the buyer making the selection from competitive bids or the requesting department seek to purchase products that do not meet the environmentally preferable purchasing criteria in this Policy, the buyer shall provide a written justification to the department head with a copy forwarded to the Mayor or its designee explaining why the requirements of this policy should not apply, e.g., the product is not technically practical, economically feasible, or available within the timeframe required.

All future vendor contracts shall be negotiated in light of the requirements of this policy. If a vendor that is under contract to the City of Burlington is no longer able to provide a product that meets the City's environmentally preferable specifications, it shall notify the appropriate city representative and provide written justification for why compliance is not practical. Prior written consent from an authorized City representative shall be required before substituting any alternative product to any City employee.

The Information Technology staff shall be responsible for setting duplexing as the default on each workstation for all capable printers. This includes printing from network connected or stand-alone personal computer printers that are capable of duplexing.

Training of buyers and other relevant city staff, vendors, contractors and grantees shall include instruction on the requirements of this Environmentally Preferable Purchasing Policy.

6.0 PROGRAM EVALUATION

The Mayor or its designee shall evaluate the success of this Policy's implementation by providing a biannual report to the City Council. The report shall relate progress in meeting the goals and objectives of this Policy and note any barriers encountered, recommendations for resolution, and/or description of assistance needed to continuously improve staff's ability to meet this Policy's objectives for the procurement of environmentally preferable products and services.

7.0 DEFINITIONS

"Agricultural Bio-Based Products" means commercial or industrial products (other than food or feed) that utilize agricultural crops or residues but does not include products made from forestry materials.

"Bay Area Green Business Program" is a partnership of governments and businesses that certifies the environmental performance of government agencies and businesses.

"Bay-Friendly Landscaping" means working with the natural ecosystems of the San Francisco Bay Area to foster soil health, to reduce runoff and pollution, prevent and reuse plant waste, and conserve water and other natural resources. Bay-Friendly Landscaping practices are described in the Bay-

**Waste Recycling Strategy
Village of Casselman – Final Report**

“LEED™ Rating System” means the Leadership in Energy & Environmental Design system developed by the U.S. Green Building Council designed for rating new and existing commercial, institutional, and high-rise residential buildings.

“Organic Pest Management” prohibits the use and application of toxic chemical pesticides and strives to prevent pest problems through the application of natural, organic horticultural and maintenance practices. All pest control products shall be in keeping with, but not limited to, those products on the approved list of California Certified Organic Foods (CCOF).

“Persistent Bioaccumulative Toxins” (PBTs) are chemicals and/or pollutants that remain in the environment for a long time (persist) without breaking down, accumulate in the environment and build up in the tissues of humans, fish, and animals (bioaccumulative), and are toxic (causing cancer and other health problems) to living organisms, including humans.

“Postconsumer Material” means a finished material which would normally be disposed of as a solid waste, having reached its intended end-use and completed its life cycle as a consumer item, and does not include manufacturing or converting wastes.

“Practical” and “Practicable” mean whenever possible and compatible with local, state and federal law, without reducing safety, quality, or effectiveness and where the product or service is available at a reasonable cost in a reasonable period of time. For energy and water consuming devices, a reasonable cost shall mean that the product has a life-cycle cost that is reasonably similar to the life-cycle costs of other similar products.

“Preconsumer Material” means material or by-products generated after manufacture of a product is completed but before the product reaches the end-use consumer. Preconsumer material does not include mill and manufacturing trim, scrap, or broke which is generated at a manufacturing site and commonly reused on-site in the same or another manufacturing process.

“Recovered Material” means fragments of products or finished products of a manufacturing process, which has converted a resource into a commodity of real economic value, and includes preconsumer and postconsumer material but does not include excess resources of the manufacturing process.

“Recycled Content” means the percentage of recovered material, including preconsumer and postconsumer materials, in a product.

“Recycled Content Standard” means the minimum level of recovered material and/or postconsumer material necessary for products to qualify as “recycled products.”

“Recycled Product” means a product that meets the City of Burlington recycled content policy objectives for postconsumer and recovered material.

Waste Recycling Strategy

Village of Casselman – Final Report

“Remanufactured Product” means any product diverted from the supply of discarded materials by refurbishing and marketing said product without substantial change to its original form.

“Reused Product” means any product designed to be used many times for the same or other purposes without additional processing except for specific requirements such as cleaning, painting or minor repairs.

“Source Reduction” refers to products that result in a net reduction in the generation of waste compared to their previous or alternate version and includes durable, reusable and remanufactured products; products with no, or reduced, toxic constituents; and products marketed with no, or reduced, packaging.

“U.S. EPA Guidelines” means the Comprehensive Procurement Guidelines established by the U.S. Environmental Protection Agency for federal agency purchases as of May 2002 and any subsequent versions adopted.

8.0 EFFECTIVE DATES

8.1 This policy shall take effect on July1, 2009.

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