

City of Woodstock
Draft
Waste Diversion Plan

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Prepared with assistance from
Waste Diversion Ontario

Submitted by:

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Glossary of Terms

AMO: Association of Municipalities of Ontario

Bag Tag: A clearly identifiable sticker approved for sale by resolution of the Council of the Municipality and used to indicate that a fee has been paid.

Blue Box: A plastic container, often blue in colour, for conveying acceptable recyclable materials.

Bi-Weekly Collection: The collection of curbside set out material one day every two weeks.

Biodegradable: The ability of an item to breakdown rapidly under natural conditions and processes.

Capture rate: The total quantity of a waste that is diverted for recycling as a percentage of the total quantity of that waste generated.

C of A: A certificate of approval outlining licence operating parameters of a waste management facility.

C&D: Construction and Demolition Wastes that are derived from construction and demolition processes and of sufficient size, volume or weight that would make it unsuitable for its disposal in curbside waste bags or blue box containers. Often included in the definition of IC&I waste.

CCF: Central Composting Facility

CIF: Continuous Improvement Fund

Enviro-Depot: A designated location within a municipality whereby divertible material (Blue Box, organics, scrap metal, clean lumber, etc.) can be dropped off into segregated bins acting as centralized collection points to be transferred to alternative locations for further processing.

EPR: Extended Producer Responsibility is a framework to work towards the goal of zero waste. EPR means that product manufacturers are responsible for the full life cycle costs associated with their products including the environmental costs of production and managing the product at the end of its life, whether that be for reuse, for recycling, or safe disposal.

Garbage: black/green bag of waste set at the curb for disposal in the landfill.

GAP: Generally Accepted Principles

Green Bin: Residential diversion of organic wastes including food waste, non-recyclable paper and sometimes including diapers, sanitary products and pet waste. Term often used interchangeably with SSO.

HDPE: High density polyethylene bottles and jugs commonly used for containing detergents.

hshld: household

HHW: Household Hazardous Waste

IC&I: Industrial, Commercial & Institutional. Means waste derived from industrial processes or commercial or institutional activities.

Kg: Refers to the metric weight measurement of Kilogram.

Markets: Persons, corporations, organizations or partnerships willing to purchase or accept in exchange for a fee, recyclable material processed through or at a recycling facility.

MHSW: Municipal Hazardous or Special Waste. Includes the following materials that are considered hazardous waste materials generated from the municipal sector (paints, solvents, adhesives, pesticides, acids/bases, aerosols, fuels and batteries). Sometimes referred to as Household Hazardous Waste (HHW).

MOE: The provincial Ministry of the Environment responsible for provincial regulations governing waste management practises.

MR: Multi-Residential buildings which contain multiple self-contained residential dwelling units (typically greater than 6 units).

MRF: Material Recovery Facility. This is a facility where recyclable materials from the Blue Box are sorted prior to sending to market.

OBB: Old boxboard (post-consumer).

OCC: Old corrugated cardboard (post-consumer).

OES: *Ontario Electronic Stewardship* is the Industry Funding Organization (IFO) for Waste Electrical and Electronic Equipment. Companies that are designated as stewards for Waste Electrical and Electronic Equipment can discharge their legal obligations under the Waste Diversion Act by registering, reporting and paying fees to OES.

Organic Waste: Wastes including food waste, non-recyclable paper streams and leaf and yard wastes. Some or all of these wastes can be diverted away from landfill disposal to composting.

P&E: Promotion and Education materials prepared and distributed by a municipality to help promote the proper participation in waste management and waste diversion programs.

PAYT/User Pay: Pay as You Throw, a municipal form of user pay whereby residents pay for the amount of waste material an individual householder sends to a disposal site or sets out at a curb for collection. Bag tags are a common mechanism for PAYT.

PET: Polyethylene terephthalate; a see through plastic bottle or container commonly used for carbonated beverages and water.

SF: A residential single family detached housing unit.

Stewards: Businesses that produce or import products that are sold to consumers that include packaging and/or end of product life wastes.

SSO: Source Separated Organics. This includes residential organic waste such as food waste and non-recyclable paper that is segregated for composting or other organic waste processing. Some municipalities have widened the definition of SSO to include diapers, sanitary products and pet waste.

Tonne: 1,000 kilograms. This is equivalent to approximately 2,200 pounds.

tpy: tonnes per year

UBC: Used beverage containers (post-consumer).

Waste: Represents the refuse or residual remaining after the implementation of reduction, reuse, recycling and composting.

Waste Diversion rate: Waste diversion rate is the percentage of waste diverted from landfill through means of diversion programs (Blue Box, composting, etc). Waste diversion rate is determined by dividing the total quantity of waste diverted by the total amount diverted and disposed.

Waste Recycling Strategy: Is used to plan effective and efficient recycling programs by forecasting waste and recyclable material generation, planning how to optimize recycling of identified materials and implementing and monitoring the plan to improve overall Blue Box capture rates and performance.

WDA: *Waste Diversion Act*

WDO: Waste Diversion Ontario (WDO) which is a non-crown corporation created under the Waste Diversion Act (WDA) on June 27, 2002. WDO was established to develop, implement and operate waste diversion programs for a wide range of materials (Blue Box Waste, Used Tires, Used Oil Material, Waste Electrical and Electronic Equipment and Municipal Hazardous or Special Waste) under the WDA.

WEEE: Waste Electrical and Electronics Equipment. This includes any broken or unwanted electrical or electronic appliances including computers, phones and other items that have been discarded by their original user.

Zero Waste: the philosophy of taking a cradle-to-cradle approach to managing waste where "industry has to redesign products and processes to reduce waste before it is made, as well as designing products for greater reuse."

Executive Summary

1.0 Introduction

2cg Inc. was retained by the City of Woodstock (City) to develop a Waste Diversion Plan (Plan) that included a Waste Recycling Strategy.

The City collects garbage, Blue Box materials and limited leaf and yard waste from the residential sector and a limited part of the industrial, commercial and institutional (IC&I) sector. Garbage is disposed at the County owned and operated Salford landfill site (Landfill), situated in the Township of South-West Oxford. It has an estimated capacity of 20-25 years. In 2008 the City converted its 7 stream Blue Box program to a 2 stream (i.e. fibre, containers) program and converted its materials recovery facility (MRF) to transfer these unsorted materials.

The City also has programs for collecting bulky items and fall leaves. They operate a drop-off area at the public works yard where residents can drop off a variety of wastes including leaf and yard wastes, used oil drop-off and Blue Box recyclables.

The goals of this Waste Diversion Plan are:

- To achieve the Provincial waste diversion goal of 60%;
- To address best practices as set out by Waste Diversion Ontario (WDO) for Blue Box collection as embodied in a Waste Recycling Strategy; and
- To strive to work towards a waste diversion goal of 70%.

2.0 Current Disposal and Diversion

Residential waste (i.e. curbside collection of waste and Blue Box) is well documented.

Table ES1 depicts the overall waste collected, received, disposed and diverted from 2007-2009.

Garbage generation has decreased and Blue Box capture has increased since 2007. This may in part be due to the simplification of the Blue Box program in 2008 (i.e. from 7 stream to 2 stream). The capture of leaf and yard waste has declined marginally. The capture rate of MHSW spiked significantly in 2009 relative to 2007 and 2008 and may represent anomalous data (e.g. a significant amount of MHSW tallied by County consisted of automobile batteries). This has influenced the waste diversion rate in 2009.

Table ES1 Waste Disposal and Diversion Managed by the City (2007-2009)

	2007	2008	2009	Average
Estimated Single Family Households	11,901	12,028	12,606	12,178
Estimated Multi-residential Households	4,132	4,176	4,369	4,226
Households	**16,033**	**16,204**	**16,975**	**16,404**
Population	**36,775**	**37,168**	**39,000**	**37,648**
Disposal	tonnes/year			
Curbside Garbage Collection	6,283	6,274	5,718	**6,092**
Diversion				
Blue Box[1]	2,611	2,764	2,991	2,789
Leaf & Yard Waste[1]	3,893	3,673	3,770	3,779
Backyard Composting[2]	200	200	200	200
MSHW[3]	20	14	244	93
Scrap Metal[1]	30	35	40	35
Residential Deposit Return[3]	192	205	215	204
Total Residential Waste Diverted	**6,946**	**6,891**	**7,460**	**7,099**
Total Residential Waste Generated	**13,229**	**13,165**	**13,178**	**13,191**
Residential Waste Generated kg/capita/year	**360**	**354**	**338**	**351**
Diversion Rate (%)	**53**	**52**	**57**	**54**

1. Data verified by City
2. Backyard composter sales 4,000 total x 50kg/unit
3. Prorated from Oxford 2007, 2008, 2009 Datacalls.

Currently about 13,191 tonnes/year of waste are managed by the City. The current diversion rate, based on available data, is about 54%. This is a high rate relative to other similar municipalities. Current waste diversion comes primarily from leaf and yard Waste and Blue Box programs.

Table ES2 depicts the annual costs of waste management as managed by the City (2007-2009).

Table ES2 Waste Collection and Processing Costs

Waste Activity	2007	2008	2009
Garbage Collection	$554,614	$597,518	$595,625
Garbage Tipping Fees	$389,546	$388,988	$354,516
Blue Box Program	$766,005	$762,047	$462,000
Curbside Leaf and Yard Waste Collection	$122,508	$102,748	$106,500
James Street Public Works Yard Depot	$64,946	$53,558	$80,600
Backyard Composting	$0	$2,724	$4,200
MHSW	$4,638	$4,234	$9,760
Administration/Overhead Charges	$350,048	$333,740	$353,550
Total	**$2,252,305**	**$2,245,557**	**$1,966,751**
Total Tonnes Managed	**13,229**	**13,165**	**13,178**
Cost/tonne	**$170**	**$171**	**$149**
Total Households	**16,033**	**16,204**	**16,975**
Cost/Household (All)	**$140**	**$139**	**$116**
Population	**36,775**	**37,168**	**39,000**
Cost/Capita	**$61**	**$60**	**$50**

Using representative waste composition audit data and applying these percentages to the average waste collection data for the City from 2007-2009 Table ES3 depicts residential waste diversion and capture.

Overall the capture rate of Blue Box materials is about **62%** and for organic waste about **75%** with the balance presently being landfilled. Overall it is estimated that about **68%** of wastes for which there are diversion programs are being captured.

Table ES3 Overview of Current Waste Diversion (2007-2009)

Residential Waste Stream and Waste Diversion	Tonnes Diverted	% of Total Waste	Total Generated	Capture Rate
Average Total Waste Generated	**13,191**	**100%**		
Waste Diversion				
Blue Box (Based on Rural Regional Waste Composition)				
Papers (ONP, OMG, OCC, OBB and fine papers)	1,993	15.1%	2,902	68.7%
Metals (aluminum, steel, mixed metal)	251	1.9%	264	95.2%
Plastics (containers, film, tubs and lids)	293	2.2%	791	37.0%
Glass	251	1.9%	528	47.6%
Blue Box Subtotal	**2,789**	**21.1%**	**4,485**	**62.2%**
Leaf & Yard Wastes and Backyard Composting	**3,979**	**30.2%**	**5,276**	**75.4%**
Other Diversion (e.g. MHSW, scrap metal, deposit return)	**332**	**2.5%**	**660**	**50.3%**
Total material diverted	**7,099**	**53.8%**	**10,421**	**68.1%**

1. Estimate. Exact data unavailable
2. From WDO Datacall

3.0 Waste Diversion Plan

The focus of this Plan is on maximizing well established programs already in place.

Embedded within this Plan is a Waste Recycling Strategy for Blue Box waste. A Waste Recycling Strategy is required by WDO as part of best practices and can help the City maximize Blue Box funding. The CIF Guidebook for completing a Waste Recycling Strategy was used for this purpose. Some of the tables in this Guidebook were used to help with waste diversion planning of all waste streams.

Table ES4 depicts the additional diversion required to meet various potential waste diversion milestones.

Table ES4 Additional Waste Diversion Required to Meet Waste Diversion Milestones

Possible Waste Diversion Milestones	Additional Diversion	Total Diversion	Total Landfill
%	tonnes/year		
53.8	0	7,099	6,092
55	156	7,255	5,936
60	815	7,914	5,276
65	1,475	8,574	4,617
70	2,134	9,233	3,957
75	2,794	9,893	3,298

Table ES5 depicts the additional diversion required on a household level to meet various potential waste diversion milestones.

Table ES5 Additional Households Waste Diversion Required to Meet Waste Diversion Milestones

Possible Waste Diversion Milestones	Additional Diversion		
%	kg/hshld/year	kg/hshld/week	pounds/hshld/week
53.8	0	0.0	0.0
55	10	0.2	0.4
60	50	1.0	2.1
65	90	1.7	3.8
70	130	2.5	5.5
75	170	3.3	7.2

It is clear that there are well established and mature waste diversion programs in the City. To achieve diversion beyond 55%, initiatives such as curbside bag limits, curbside material bans, expanding the existing leaf and yard waste program to include SSO and establishing a centralized Enviro-Depot (i.e. drop-off depot where residents can take leaf and yard waste, Blue Box waste, construction and demolition wastes, electronic waste etc.) can be considered.

The key factors to encourage waste diversion are:

- Waste diversion capacity (e.g. Blue Boxes, Green Bins, Enviro-Depot);

- Convenience/accessibility to waste diversion systems; and
- Understanding and awareness of waste diversion systems within the City and County.

Four alternative Systems have been developed and are as follows:

- System 1: Status Quo;
- System 2: Enhanced Capture of Blue Box Wastes;
- System 3: Reduce Weekly Waste Bag /Container and Addition of Enviro-Depot; and
- System 4: Green Bin Collection for Source Separated Organics and further Reduction of Bag/Container Limits.

These Systems have been developed sequentially. Each System adds on to the previous System and results in increased waste diversion.

System 1 (Status Quo) includes all the elements of the current waste diversion program.

Table ES6 depicts System 2 programs and estimated costs.

Table ES6 Programs and Estimated Costs for System 2

Programs	Estimated Costs	Comments
Upgrade Promotions and Education Program	$10,000 to upgrade $10,000 annual costs to maintain	New costs to the City
Provide Free or Low Cost Blue Boxes to Residents	$5,000	City already distributed new Blue Boxes in 2008. 50% funding may be available from WDO's Continuous Improvement Fund.
Provide Recycling Carts for Multi-Residential Buildings	$25,000	50% funding from WDO's Continuous Improvement Fund Also includes creation of a database and provision of P&E materials

Table ES7 depicts System 3 programs and estimated costs.

Table ES7 Programs and Estimated Costs for System 3

Programs	Estimated Costs	Comments
Changes to Waste Collection		
Set 2 Bag/Container Limit for Garbage	$5,000	Develop P&E program specific to this change
Implement Clear Bags for Garbage	$5,000	Develop P&E program specific to this change
Develop an Enviro-Depot		
Capital Costs	$ 500,000- $1,200,000	Depends on extent of site development Rough estimate
Annual Operating Costs	$50,000-$125,000	Rough estimate for staff costs only Does not include tipping fees

Table ES8 depicts System 4 programs and estimated costs.

Table ES8 Programs and Estimated Costs for System 4

Programs	Estimated Costs	Comments
Changes to Waste Collection		
Set 1 Bag/Container Limit for Garbage	$5,000	Develop P&E program specific to this change
Changes to Organic Waste Collection		
Backyard Composters	$60,000	1,000 composters at $60/composter
Green Bin Program	Capital Costs $825,000-$1,000,000 Annual Operating Costs $$600,000-$700,000	For weekly collection of green bin waste from single family households

Table ES9 sets out the four Systems and resultant estimated waste diversion rates. System 1 represents current waste diversion. Systems 2-4 include additional estimated tonnes of waste diversion that would result by implementing each System.

Table ES9 Summary of Waste Management System Diversion Rates

	System 1	System 2	System 3	System 4
	Status Quo	Existing System with Enhanced Capture and Diversion	Reduce Weekly Bag/Container Limit for Waste and Addition of an Enviro-Depot	Green Bin Program and further Reduction of Bag/Container Limits for Garbage
	tonnes/year			
Waste diverted	7,099	351	738	1,732
	%			
Impact on Waste Diversion Rate		2.7	5.6	13.1
Waste Diversion Rate	54	56	59	67

The Systems presented offer the City the opportunity to achieve an overall waste diversion rate of up to **67%.** It will be up to the City to decide what waste diversion rate they would like to achieve.

4.0 Conclusion and Recommendations

To help refine future City waste generation and waste diversion estimates it is recommended that the following data be collected:

- City determine amount of leaf and yard waste collected and received is from IC&I sector;
- City determine if any leaf and yard waste collected and received is from neighbouring municipalities;
- City estimate amount of garbage and Blue Box waste collected from the IC&I sector; and
- Weigh all outbound vehicles carrying leaf and yard waste and garbage to the Landfill.

It is recommended that the City implement at least up to System 3. This will allow the City to achieve a waste diversion rate of 60% and meet the Provincial target. It is recommended that more detailed costing be undertaken specifically as it relates to the development of an Enviro-Depot.

If the City wishes to strive for 70% waste diversion rate it is recommended that System 4 be implemented. If this is the case it is recommended that more detailed costing be undertaken specifically as it relates to the development of a green bin program.

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1.0 Introduction

2cg Inc. was retained by the City of Woodstock (City) to develop a Waste Diversion Plan (Plan) that included a Waste Recycling Strategy.

The City is situated in southwestern Ontario along the 401 corridor approximately 50 km east of the City of London, within the County of Oxford (County). The City, with a population of about 39,000 is the largest of the eight municipalities in the County.

The City collects garbage, Blue Box materials and limited leaf and yard waste from the residential sector and a limited part of the industrial, commercial and institutional (IC&I) sector. Garbage is disposed at the County owned and operated Salford landfill site (Landfill), situated in the Township of South-West Oxford. It has an estimated capacity of 20-25 years. In 2008 the City converted its 7 stream Blue Box program to a 2 stream (i.e. fibre, containers) program and converted its materials recovery facility (MRF) to transfer these unsorted materials.

The City also has programs for collecting bulky items and fall leaves. They operate drop-off areas at the James Street public works yard depot where residents can drop off a variety of wastes including leaf and yard wastes, used oil and Blue Box recyclables.

The recently constructed Toyota Corporation automotive assembly plant and supporting businesses have stimulated population and development growth in the City.

The City initiated this Plan to evaluate its current waste diversion programs and help plan for future waste diversion programs. The Plan focuses on wastes managed by the City (i.e. residential and limited IC&I).

1.1 Documents used to Develop the Plan

There are a number of key Provincial and other documents that played a critical role in the development of this Plan.

Ontario's 60% Waste Diversion Goal – A Discussion Paper
In 2004, the Minister of the Environment announced a 60% waste diversion goal by 2008 for the Province of Ontario. The Ministry of the Environment's (MOE) June 2004 document, "Ontario's 60% Waste Diversion Goal – A Discussion Paper," outlined some of its goals with regard to diversion targets and how to reach them (MOE, 2004).

Policy Statement on Waste Management Planning: Best Practices for Waste Managers
In June 2007, the MOE released a "Policy Statement on Waste Management Planning: Best Practices for Waste Managers" (MOE, 2007). The MOE maintains its 60% waste diversion target but without a target year. As well, it proposes to compel all municipalities to prepare a Municipal Waste Management Plan. According to this document the scope of municipal waste management plans includes residential wastes and industrial commercial and institutional (IC&I) and construction and demolition (C&D) waste collected by the municipality.

Figure 1, The Waste Value Chain, highlights the Province's waste management philosophy. This philosophy essentially rearticulates the 3Rs hierarchy of Reduce, Re-use and Recycle.

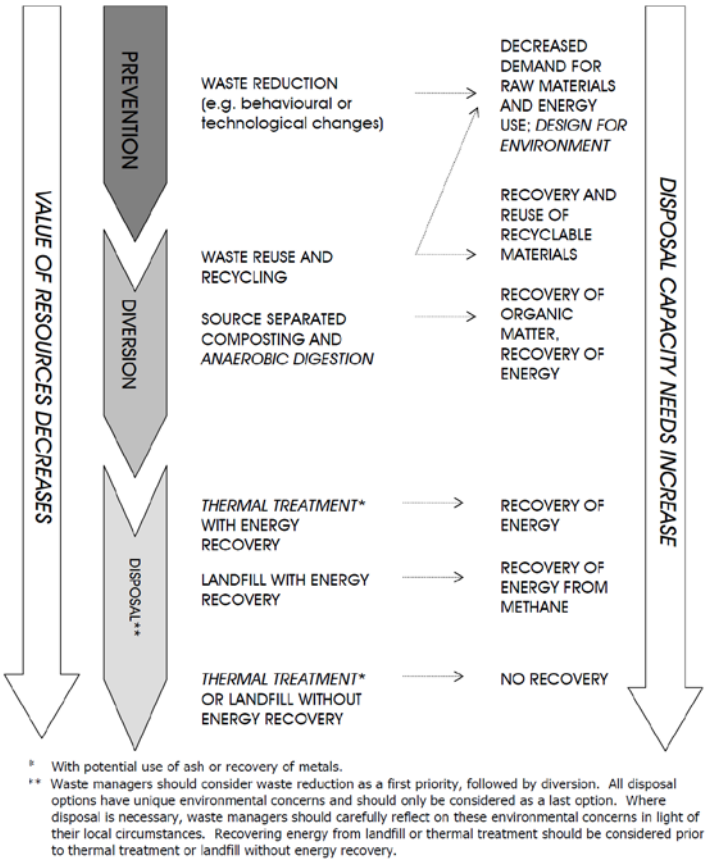


Figure 1. The Waste Value Chain

Toward a Zero Waste Future: Review of Ontario's Waste Diversion Act, 2002

In 2002, the Ontario government passed the *Waste Diversion Act, 2002*. The WDA is Ontario's main legislation to "promote the reduction, reuse and recycling of waste for the development, implementation and operation of waste diversion programs." To date, four program plans have been approved by the Minister, the Blue Box Program Plan (BBPP), Municipal Hazardous & Special Waste (MHSW), Waste Electronics & Electrical Equipment (WEEE) plans and a Used Tires Diversion Program.

The document "Toward a Zero Waste Future: Review of Ontario's Waste Diversion Act, 2002" (MOE, 2008) highlights some of the Province's thinking with regard to waste management in Ontario.

The document proposes two key principles as being central to Ontario's future waste management system:

Zero Waste philosophy means taking a cradle-to-cradle approach to managing waste

where "industry has to redesign products and processes to reduce waste before it is made, as well as designing products for greater reuse."

Extended Producer Responsibility (EPR) is a framework to work towards the goal of zero waste. EPR means that product manufacturers are responsible for the full life cycle costs associated with their products including the environmental costs of production and managing the product at the end of its life, whether that be for reuse, for recycling, or safe disposal.

From Waste to Worth: The Role of Waste Diversion in the Green Economy
The document "From Waste to Worth: The Role of Waste Diversion in the Green Economy" (MOE, 2009) is the follow up document that encompasses and summarizes public consultation efforts related to the *Waste Diversion Act, 2002* review.

Key proposed changes to Ontario's waste diversion framework include:

- Outcomes-based individual producer responsibility;
- More clarity for the concept of diversion;
- Development of a long-term schedule for diversion;
- Development of effective oversight;
- Support producer responsibility; and
- Transitioning existing programs.

As of November 2010 no decision had been made by the Provincial government on these proposed changes to the *Waste Diversion Act, 2002*.

Guidebook for Creating a Municipal Waste Recycling Strategy
The City receives partial funding to operate a Blue Box collection and processing program from Waste Diversion Ontario (WDO). This funding comes from stewards (i.e. manufacturers and first importers) that create the packaging waste that ends up in the Blue Box. Each year the City must complete a data call and provide the WDO with data on its Blue Box program. The WDO aims to have municipalities improve the capture rate and reduce costs of their Blue Box program. The WDO promotes a number of Best Practices to meet these ends. The WDO through its Continuous Improvement Fund (CIF) provides funding to municipalities to complete a Waste Recycling Strategy. This Plan was partially funded by the CIF and their "Guidebook for Creating a Municipal Waste Recycling Strategy" (CIF, 2010) was used to help prepare this Plan. The Waste Recycling Strategy is embedded in this Plan.

Blue Box Program Enhancement and Best Practices Assessment Project
A Blue Box best practices project was commissioned by the WDO and resulted in the "*Blue Box Program Enhancement and Best Practices Assessment Project*" (KPMG, 2007). Best Practices were defined as "waste system practices that affect Blue Box recycling programs and that result in the attainment of provincial and municipal Blue Box material diversion goals in the most cost-effective way possible." The report summarizes best practices gleaned from research undertaken of various recycling programs. This document was used to help shape the Waste Recycling Strategy aspect of this Plan.

1.2 Roles

There are a number of roles played by various levels of government and the private sector.

1.2.1 Role of Province

The Province's key role is to set policy with regard to waste management and waste diversion. Key Provincial documents were described in Section 1.1.

1.2.2 Role of the City and County

The City and the County have specific waste management responsibilities.

The City is responsible for the following waste management duties:

Disposal

- Curbside waste collection and transfer to the Landfill.

Diversion

- Curbside Blue Box collection and transfer to processing facilities;
- Curbside collection of bulky wastes and fall leaves;
- Operation of a recycling depot at the James Street Public Works Yard;
- Participating in other County waste diversion programs; and
- Promotion of waste diversion programs.

Planning

- Waste diversion planning to reduce overall wastes entering the County landfill site;
- Developing new waste diversion programs; and
- Provision of annual waste management data to the County.

1.2.3 Role of the County

The County is responsible for the following waste management duties:

Disposal

- Manage and operate Landfill including small vehicle transfer facility;
- Administration of waste bag tag and bag limit program; and
- Educate residents and businesses within the County on current waste management programs and future initiatives.

Diversion

- Organize Blue Box processing services for most municipalities in the County, excluding the City and the Township of South-West Oxford (SWOX);
- Manage leaf and yard waste composting, construction and demolition waste C&D) and other waste diversion at the Landfill;
- Manage and operate diversion programs for municipal household special waste (MHSW), tires and waste electronic and electrical equipment program (WEEE);
- Administration of County-wide promotion and education program; and
- Completion of annual Waste Diversion Ontario (WDO) Blue Box Datacall.

Planning

- Undertake County-wide waste management planning which could include an Integrated Waste Management Plan.

1.2.4 Role of the Stewards

Waste Diversion Ontario (WDO) was established to develop, implement and partially fund, through funding from stewards, various waste diversion programs including the Blue Box, used tires, MHSW and WEEE. Stewards are defined as businesses that produce or import products that are sold to consumers that include packaging and/or end of product life wastes. Their full or partial funding of programs is referred to as EPR.

The following are waste diversion programs which receive partial or full Steward funding:

Blue Box

The Blue Box Program Plan was approved by the Minister of the Environment in December 2003 and commenced in February 2004, to assist municipalities with the cost associated with managing Blue Box recyclables (collection, processing and promotion programs). Stewardship Ontario is the Industry Funding Organization (IFO) established to administer funds collected from the stewards. Programs with greater diversion and lower costs receive greater funding from WDO.

The CIF was established by WDO, the Association of Municipalities of Ontario, Stewardship Ontario and the City of Toronto in January 2008. The CIF, whose mandate ends in 2011, provides grants and loans to municipalities to execute projects that will increase the efficiency of Blue Box recycling and help boost system effectiveness including projects that will:

- Identify and implement best practices;
- Examine and test emerging technologies;
- Employ innovative solutions to increase blue box materials marketed; and
- Promote gains in cost-effectiveness that can be implemented province-wide.

Municipalities that develop a Waste Recycling Strategy can increase (or maintain) the portion of their annual WDO funding, which is linked with this best practice measure.

Municipal Hazardous Special Waste
The first phase of the MHSW Program Plan was implemented in July 2008. Stewardship Ontario is the IFO established to administer funds collected from the stewards. The next phase was implemented in July 2010. However, the Provincial government rescinded this funding structure (i.e. Eco fees) due to a public outcry. A new plan will be developed and submitted to WDO in December 2010 for review and comment.

Waste Electrical and Electronic Equipment Program
The first phase of the WEEE Plan was approved by the Minister of the Environment in July 2008 and commenced in April 2009 while the second phase was approved in August 2009 and commenced in April 2010. Ontario Electronic Stewardship is the IFO established to develop a diversion program for WEEE. The program offers payment rates intended to cover the majority of costs associated with collection, recycling and promotion of waste electronic equipment.

Used Tire Program
The Used Tires Program Plan was implemented in September 2009. Ontario Tire Stewardship (OTS) is the Industry Funding Organization established to develop a diversion program for Used Tires. Companies that are designated as stewards for used tires can discharge their legal obligations under the Waste Diversion Act by registering, reporting and paying fees to OTS. Tires classified as clean collected tires (residential) are eligible to be collected at municipal waste disposal sites at no charge and the municipal site (the collector) receives full funding from OTS to cover the cost of removing the tires from the central disposal site for recycling.

1.3 Scope of Waste Diversion Plan

The goals of this Plan are:

- To achieve the Provincial waste diversion goal of 60%;
- To address best practices as set out by Waste Diversion Ontario (WDO) for Blue Box collection as embodied in a Waste Recycling Strategy; and
- To strive to work towards a waste diversion goal of 70%.

The City recognizes that additional waste diversion can come from:

- Developing a better understanding of current waste flows;
- Reducing the amount of wastes managed;
- Strengthening existing waste diversion programs; and
- Identifying and developing new waste diversion programs.

To meet the diversion goal, current and future initiatives that make up the waste diversion system must be able to divert a significant quantity of waste from disposal in a sustainable manner.

This Plan focuses on developing initiatives that could capture additional quantities of wastes under the City's control. Since there may be potential opportunities to create

better economies of scale for future diversion initiatives, consideration is given to attracting IC&I recyclables (currently not under City control) to these initiatives.

This Plan was developed by:

- Reviewing the existing waste management system;
- Reviewing current waste disposal and diversion;
- Reviewing waste composition and diversion potential;
- Consulting with the public (survey, open house/public information centre);
- Identifying future waste diversion initiatives;
- Developing alternative waste diversion systems (i.e. a number of waste diversion initiatives);
- Evaluating alternative waste diversion systems; and
- Recommending a waste diversion system.

Each is discussed in greater detail in the following sections.

2.0 Existing Waste Management System

To develop the Plan a good understanding of the City's existing waste management system is required. The City and County are in a two tier municipal system with both having specific waste management roles (see Sections 1.2.2 and 1.2.3). The City and County provide its residents with a number of waste management services using both public and private contractors.

The City's existing waste management system consists of:

- Waste Management by-law;
- Weekly residential curbside garbage collection;
- User Pay/Bag tag system for curbside garbage (County administered);
- Limited multi-residential/institutional garbage collection;
- Twice per week central business district commercial garbage collection;
- Twice per week collection from downtown refuse containers;
- Bulk waste (i.e. large item) curbside pick-up;
- Bi-weekly two stream residential Blue Box collection;
- Weekly recycling and cardboard collection of central business;
- Blue Box recycling transfer facility (with assistance from contracted forces);
- Fall leaf collection;
- Seasonal brush collection;
- Christmas tree collection;
- Yard waste drop off depot;
- Drop off events for other recyclable wastes;
- Backyard Composter program;
- Drop off of waste and recyclables at the Landfill;
- Other programs including MHSW and WEEE administered by the County; and

- Promotion and Education (P&E) program.

The City's waste management program is primarily undertaken with City forces. The following sections describe this waste management system.

2.1 Waste Management By-law

The Property Maintenance Chapter 731 by-law sets out requirements for the management of wastes by single family residences, multi-residential buildings and the IC&I sector in the City. This requires residents to set out both garbage and recycling containers. As well, it requires the separation of recyclables from waste and gives the City the power to refuse collection of improperly sorted garbage.

County by-law 5160-2010 sets the fees for waste collection (i.e. bag tags). County by-law 4954-2008 allowed the County to establish, maintain and operate facilities to provide for the management, transfer and disposal of solid waste and recyclable materials. Mixed loads of waste (i.e. with recyclables in them) are treated and charged as garbage when received at the Landfill.

2.2 Waste Disposal

2.2.1 Curbside Collection

Single Family
Garbage is collected weekly (Photo 2.1) by City forces from single family households. There are no limits to the number of bags that can be placed at the curb.

Photo 2.1 Curbside Collection of Garbage and Blue Box Waste

The City participates in the County's User Pay program. Under the County Bag Tag By-law (5160-2010), households pay $1.50/bag (Effective May 2010) and based on the following:

- One bag tag for each garbage bag (up to 76 x 96 cm) or each rigid

container (up to 128 litres) and each such bag or container must weigh less than 20 kg;
- Two bag tags for each rigid container with a volume between 129 and 240 litres and this container must also weigh less than 20 kg; and
- Three bag tags for each rigid container with a volume between 241 and 360 litres.

The County retains all revenue from municipal bag tag sales. The revenue from bag tags is designed to pay for collection and disposal. A tax levy pays for waste diversion programs.

City By-Law Enforcement Officers investigate any complaints that are received with respect to curbside bag tags/limits/roadside dumping and the City responds to municipal curbside inquiries.

There is no limit on the number of garbage bags/containers that can be placed at the curb. However, the City has the power to not collect garbage if there is no Blue Box material set out for collection. To this point garbage collection has never been refused.

All garbage is transferred and tipped at the Landfill.

Multi-residential
Multi-residential buildings are allowed to place an unlimited number of bags (with tags) at the curb for collection provided that the owner of the property supplies sufficient recycling containers for that property. The City conducts the majority of collection of multi-residential units although there is some private contractor collection. Wastes are transferred and tipped at the Landfill. The City does not separately track waste disposal from this sector.

Multi-residential waste collection can also be undertaken by private sector contractors that make arrangements directly with building owners/property managers. Waste is taken to landfills (Canada and US) and possibly energy from waste facilities (US) for final disposal.

IC&I
The City offers twice per week collection of waste from the downtown core provided that the owner of the property supplies sufficient bag tags on the containers.

Other IC&I properties are allowed to place unlimited bags per week at the curb for City collection provided that the owner of the property supplies sufficient bag tags on the containers. The City does not separately track waste disposal from this sector.

Private contractors conduct waste collection from the larger industrial, institutional sectors (hospital, automotive). Wastes collected by private contractors can be tipped at the County landfill or have the option of alternative disposal at landfills (Canada and US) and possibly energy from waste facilities (US) for final disposal. The City does not track or receive data regarding waste disposal from these IC&I facilities.

2.2.2 Bulk Item Collection

Single Family
Bulk items are collected from the curb throughout the year on a prescribed schedule.

Acceptable items include mattresses, box springs, furniture, couches, chairs, tables, desks, dressers, armoires, chests, headboards, carpet rolls and underlay, plastic laundry tubs, floor lamps, pool filters, pool covers and water softeners. Items are limited to 40kg.

This material is transferred to the Landfill for disposal.

Multi-residential
Residents in multi-residential properties can set out the same bulk items, subject to receiving permission from their landlord or condominium corporation.

2.3 Waste Diversion

2.3.1 Blue Box

Single Family
Blue Box recyclables are collected bi-weekly (Photo 2.2) by City forces from single family households. The City offers a two stream (fibres, containers) recycling collection program to its residents. There are no limits to the amount of recyclables that can be placed at the curb.

Photo 2.2 Blue Box Collection

Recyclables are delivered to the converted (2008) City Blue Box transfer facility, where material is loaded onto larger vehicles and transferred to third party processing at Canada Fibres (in Toronto and Hamilton).

Table 2.1 depicts acceptable Blue Box materials as well as recycling instructions.

Table 2.1 Acceptable Blue Box Materials and Recycling Instructions

Blue Box- Paper	Blue Box-Containers
Newspapers Flyers Boxboard (cracker, cereal, boxes) Fine paper Envelopes Magazines Telephone Books Cardboard (flattened and bundled no larger than 75X75X20 cm) Soft Cover Books	Metal food & beverage cans Glass jars and bottles #1 to #6 plastics (with some exceptions) Aluminum pie plates and foil Tetra Pak and aseptic containers Empty paint cans Empty aerosol cans
Instructions	
Cardboard bundled and placed on top or beside blue box. Or placed loose into a separate blue box. Do not use plastic shopping bags.	Place rinsed and loose into blue box. Do not use clear plastic bags.
Set-out Requirements	
Boxes must be to curbside by 7:00am on collection day Boxes must be within 1 meter (3 feet) of the travelled portion of the road	

Multi-residential

Multi-residential buildings (apartment and condominiums) have the option to recycle the same material as single family residences. There are approximately 4,600 multi-residential units in the City in approximately 103 buildings. Approximately 2,500 units in about 50 buildings have access to recycling. They use recycling carts (Photo 2.3) that are wheeled to the curb on collection day.

The City has been working through CIF funding to improve its multi-residential recycling program through the addition of new recycling carts and P&E materials.

Photo 2.3 Multi residential Recyclables Collection

Ontario Regulation 103/94 prescribes industrial, commercial and institutional source separation programs, including for multi-residential buildings.

They are required to have source separation programs in place for:

- Newsprint;
- Aluminium food or beverage cans (including cans made primarily of aluminium);
- Steel food or beverage cans (including cans made primarily of steel);
- Glass bottles and jars for food or beverages;
- Polyethylene terephthalate (PET) bottles for food or beverages (including bottles made primarily of polyethylene terephthalate); and
- The categories of waste that are collected or accepted by the Blue Box waste management system, if any, of the municipality where the building is located.

Although Provincial enforcement has increased in recent years not all multi-residential buildings are in compliance with these requirements.

IC&I

IC&I facilities have the option to receive curbside collection from City forces or private contractors. Presently, recycling collection conducted by City forces includes the hospital, most elementary schools, seniors homes, the downtown core and some commercial/industrial establishments (truck stop, Purina Foods, Firestone) within the City limits. The City offers weekly recycling service (primarily fibres) in the downtown core.

IC&I recyclables collection can also be undertaken by private sector contractors that make arrangements directly with IC&I owners/property managers. Recyclables are likely taken to one of a number of materials recovery facilities (MRFs) in south-western Ontario.

Source separation programs for prescribed recyclables are mandatory for businesses and institutions that exceed the following thresholds:

- Retail Shopping Establishments and Complexes Total floor space > 10,000 m^2;
- Large Construction and Demolition Projects Total floor space > 2,000 m^2;
- Office Buildings Total floor space > 10,000 m^2;
- Restaurants >$3,000,000 gross sales;
- Hotels and Motels >75 Units;
- Hospitals Class A, B or F Hospital;
- Educational Institutions >350 enrolment; and
- Large Manufacturing Establishments >16,000 hours of employment/month.

According to Ontario Regulation 102/94 these businesses must undertake/update an annual Waste Audit and Waste Reduction Work Plan.

Furthermore, Ontario Regulation 103/94 prescribes industrial, commercial and institutional source separation programs.

Although Provincial enforcement has increased in recent years many businesses are not in compliance with these requirements.

2.3.2 Leaf and Yard Waste

Single Family
The City has seasonal collection of brush, fall leaves and Christmas trees. The fall leaves are raked by residents to the curb where they are vacuumed up by a collection vehicle.

Residents also have the year round opportunity to drop off leaf and yard waste at the James Street Public Works Yard depot (Photo 2.4). The City recently expanded operations at this depot (2009) to manage the additional volumes of inbound material.

Photo 2.4 Leaf and Yard Waste Drop Off Area

Leaf and yard waste is transferred to the County composting site at the Landfill.

The City has a backyard composting program and to date it is estimated that there are 4,000 backyard composters in the City.

Multi-residential
Multi-residential buildings (apartment and condominiums) have the option to divert leaf and yard wastes in the same way as single family residences.

IC&I
There is no leaf and yard waste collection for the IC&I sector.

2.3.3 James Street Public Works Yard Depot

In addition to leaf and yard waste other wastes including waste oil can be dropped at this depot. The depot is open to all residents and the IC&I at all times. This results in residents and businesses not always following drop-off rultes (e.g. containers not emptied, dropping off other hazardous materials).

Photo 2.5 MHSW Drop-off Event in Woodstock

This depot is also the location of periodic drop-off events for bulk items, C&D wastes and MHSW (Photo 2.5). The first drop-off event was held in August 2010 and at least two events are expected to be held annually.

These drop-off events are intended to be a diversion event as much as a disposal event. In the past the City collected C&D wastes at the curb with other wastes. This practice continued until the County banned C&D wastes from the mixed waste stream. The bulk item depot is intended to provide residents with the opportunity to divert their various C&D wastes.

2.3.4 Salford Waste Disposal Site

The residential, IC&I and Construction and Demolition (C&D) sectors can take waste directly to the Salford Waste Disposal Site (Landfill).

The County accepts and diverts the following materials:

- White metal (appliances);
- Scrap metal;
- Propane tanks (included with scrap metal);
- Clean drywall (recycled);
- Clean wood;
- Agricultural Bale Wrap;
- Brush and stumps;
- Leaves and grass clippings;
- Tires;
- MHSW; and
- WEEE.

A number of tipping fees apply to waste delivered to the Landfill with a clear incentive to segregate recyclable materials from the disposal waste stream.

The following tipping fees are charged:

- Garbage and garbage mixed with recyclable waste- $62.06/tonne;
- Scrap metal- $62.06/tonne;
- C&D wastes- $45.00/tonne for separated loads and $60.00 for mixed loads; and
- Tires, clean brush, agriculture bale wrap, MSHW and WEEE- No charge.

It should be noted that mixed loads (loads consisting of both garbage and C&D waste) are treated as garbage and subject to a load surcharge, as outlined in By-Law No. 4954-2008 based on the normal garbage tipping fee of $62.06/metric tonne, as follows:

- First offence, 2 times the disposal fee for the load;
- Second offence, 3 times the disposal fee for the load; and
- Third offence, 5 times the disposal fee for the load.

2.3.5 Municipal Household Special Waste (MHSW)

The County hosts a permanent MHSW and WEEE depot at the Landfill available to all County residents. The City provides the staff, equipment and location for the events held in the City.

The County also hosts a number of residential special collection events throughout the County, including Woodstock, for scrap metal, white goods, MHSW and WEEE.

2.4 Promotion and Education

The City provides its residents with considerable P&E materials. This includes a detailed calendar prepared and provided to residents annually. As well the City has a Go Green website http://www.gogreenwoodstock.ca/ that describes various waste diversion and other green activities.

3.0 Current Disposal and Diversion

3.1 Weight Based Data

The waste generated in the City comes from three sectors:

- Residential (Single family and Multi-Residential);
- Institutional, Commercial and Industrial (IC&I); and
- Construction and Demolition (C&D) activities.

Residential waste (i.e. curbside collection of waste and Blue Box) is well documented.

Table 3.1 depicts the overall waste collected, received, disposed and diverted from 2007-2009. Waste data was received from both the City and the County.

Garbage generation has decreased and Blue Box capture has increased since 2007. This may in part be due to the simplification of the Blue Box program in 2008 (i.e. from 7 stream to 2 stream). The capture of leaf and yard waste has declined marginally. The capture rate of MHSW spiked significantly in 2009 relative to 2007 and 2008 and may represent anomalous data (e.g. a significant amount of MHSW tallied by County consisted of automobile batteries). This has influenced the waste diversion rate in 2009.

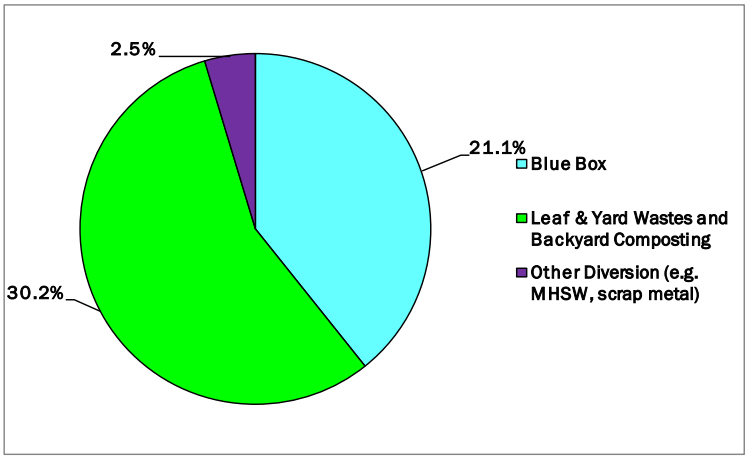
Table 3.1 Waste Disposal and Diversion Managed by the City (2007-2009)

	2007	2008	2009	Average
Estimated Single Family Households	11,901	12,028	12,606	12,178
Estimated Multi-residential Households	4,132	4,176	4,369	4,226
Households	**16,033**	**16,204**	**16,975**	**16,404**
Population	**36,775**	**37,168**	**39,000**	**37,648**
Disposal	tonnes/year			
Curbside Garbage Collection	6,283	6,274	5,718	**6,092**
Diversion				
Blue Box[1]	2,611	2,764	2,991	2,789
Leaf & Yard Waste[1]	3,893	3,673	3,770	3,779
Backyard Composting[2]	200	200	200	200
MSHW[3]	20	14	244	93
Scrap Metal[1]	30	35	40	35
Residential Deposit Return[3]	192	205	215	204
Total Residential Waste Diverted	**6,946**	**6,891**	**7,460**	**7,099**
Total Residential Waste Generated	**13,229**	**13,165**	**13,178**	**13,191**
Residential Waste Generated kg/capita/year	**360**	**354**	**338**	**351**
Diversion Rate (%)	**53**	**52**	**57**	**54**

1. Data verified by City
2. Backyard composter sales 4,000 total x 50kg/unit
3. Prorated from Oxford 2007, 2008, 2009 Datacalls.

Figure 3.1 presents an overview of how different wastes contribute to waste diversion.

Figure 3.1 Overview of Current Waste Diversion



It is clear that leaf and yard waste and then Blue Box waste diversion contribute the most to overall waste diversion in the City.

On this basis the average (2007-2009) waste diversion rate appears to be about 54% and perhaps overestimated. This is high for similar municipalities (see Table 5.2) with similar programs, compared to Oxford County (except for unverified 2009 data) and even those municipalities with a green bin program (i.e. food waste collection and composting) and could be due to:

- Simplified Blue Box collection program;
- The vacuum curbside collection of leaf and yard wastes;
- Possibly anomalous MHSW tonnage data for 2009;
- Inclusion of IC&I garbage and recyclables in data; and
- IC&I access to James Street Public Works depot.

3.2 Current System Costs

Table 3.2 depicts the annual costs of waste management as managed by the City (2007-2009).

Table 3.2 Waste Collection and Processing Costs

Waste Activity	2007	2008	2009
Garbage Collection	$554,614	$597,518	$595,625
Garbage Tipping Fees	$389,546	$388,988	$354,516
Blue Box Program	$766,005	$762,047	$462,000
Curbside Leaf and Yard Waste Collection	$122,508	$102,748	$106,500
James Street Public Works Yard Depot	$64,946	$53,558	$80,600
Backyard Composting	$0	$2,724	$4,200
MHSW	$4,638	$4,234	$9,760
Administration/Overhead Charges	$350,048	$333,740	$353,550
Total	**$2,252,305**	**$2,245,557**	**$1,966,751**
Total Tonnes Managed	**13,229**	**13,165**	**13,178**
Cost/tonne	**$170**	**$171**	**$149**
Total Households	**16,033**	**16,204**	**16,975**
Cost/Household (All)	**$140**	**$139**	**$116**
Population	**36,775**	**37,168**	**39,000**
Cost/Capita	**$61**	**$60**	**$50**

In 2009 it cost the City approximately $2 million to manage 13,718 tonnes of residential and other wastes. This is a reduction of about $300,000 from previous years and reflects the conversion to the two stream system and transfer facility for Blue Box program. On a per capita basis, residents of the City pay about $50/year for waste management services.

3.3 Population Build Out

According to Hemson, 2008 the population of Woodstock is expected to increase by about 20% from 2008-2018. This will result in the generation of additional wastes in the City. Current and future programs should be adaptable to accommodate population growth.

4.0 Waste Composition and Diversion Potential

To identify future diversion initiatives it is critical to understand the effectiveness of current diversion programs as well as the composition and quantities of wastes presently being disposed. Future diversion initiatives will involve capturing wastes that are currently landfilled at the Landfill and will focus on waste streams with the largest available quantities.

4.1 Comparison with Provincial Averages

Table 4.1 presents an overview of Ontario waste generation, diversion and disposal as calculated from the Statistics Canada report *Waste Management Industry Survey: Business and Government Sectors- 2006* (Statistics Canada, 2008).

Table 4.1 Overview of Ontario's (2006) Waste Generation, Diversion and Disposal

	Residential	IC&I	Total
	kg/capita		
Diversion	119	70	189
Disposal	292	530	822
Total	411	600	1,011
Diversion Rate (%)	29	12	19
Average Diversion Rate (%) (2007-2009)	54		

In Ontario about 41% of waste is generated by the residential sector with the balance generated by the IC&I sector. About 63% of the waste diverted is done so by the residential sector with the balance diverted by the IC&I sector. On average about 35% of waste disposed in landfill is done so by the residential sector with the balance disposed by the IC&I sector.

As noted in Section 3 and again in Table 4.2 the City of Woodstock's average annual waste generation rate is estimated to be 350 kg/capita which is lower than the Ontario residential average of 411 kg/capita and less than the Ontario overall average of 1,011 kg/capita. Furthermore, the City's estimated residential diversion rate of 54% is considerably higher than the provincial residential average.

On this basis Table 4.2 depicts an estimate of waste generation, diversion and disposal using residential data from the City of Woodstock and Statistics Canada, 2008 data for the IC&I sector.

Table 4.2 Overview of Woodstock's (2007-2009) Waste Generation, Diversion and Disposal

	Residential	IC&I[1]	Total
	kg/capita		
Diversion	189	70	259
Disposal	162	530	692
Total	350	600	950
Diversion Rate (%)	54	12	27

1. Used data from Statistics Canada to estimate (Statistics Canada, 2008)

Using available data from the City and extrapolating Statistics Canada data, approximately 37% of waste is generated by the City's residential sector with the balance generated by the IC&I sector. About 73% of waste diverted is done so by the residential sector with the balance diverted by the IC&I sector. About 23% of waste disposed is done so by the residential sector with the balance disposed by the IC&I sector.

There is little IC&I data available. It is therefore assumed that the City meets the Provincial average in terms of waste generation, diversion and disposal. There is nothing to suggest from available data that the IC&I is above or below average in terms of waste diversion. Mindful that IC&I data is estimated using the Provincial average, Woodstock has an overall waste diversion rate of 27% (residential and IC&I) and this is higher than the Provincial average of 19%.

The Provincial waste diversion goal is 60%. To achieve this goal for all wastes about 570 kg/capita (i.e. 60% * 950 =570 kg/capita/year) would need to be diverted annually. This is almost twice as much as what is currently diverted and would entail diverting another 311 kg/capita annually (i.e. 570-189-70=311) (See Table 4.2).

It should be noted that the intent of this Plan is to include waste collected by the municipality.

The MOE's "Policy Statement on Waste Management Planning: Best Practices for Waste Managers" notes that any planning is to include residential wastes and industrial commercial and institutional (IC&I) and construction and demolition (C&D) waste collected by the municipality (MOE, 2007). The City collects essentially residential wastes with small amounts of IC&I wastes. It is therefore the residential waste stream that is the focus of this Plan.

On the basis of available data and mindful that the current residential waste diversion rate is likely overestimated a further 21 kg/capita would need to be diverted annually.

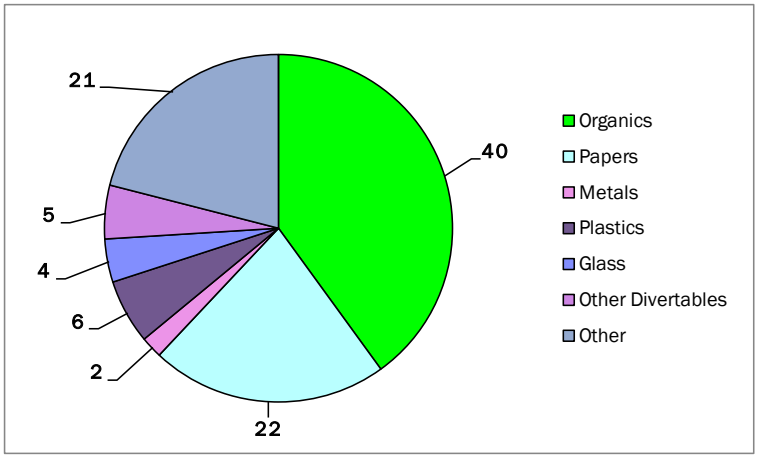
4.2 Waste Composition

4.2.1 Residential Waste Composition

A number of residential waste audits have been undertaken by Stewardship Ontario. Using the results from similarly sized municipalities the waste composition for residential waste in the City was estimated. Figure 4.1 depicts the estimated residential waste composition using modified Ontario Small Urban and Rural data (CIF, 2010).

There is an estimated 40% of the waste stream that is organic waste (i.e. food waste and leaf and yard waste). The City does not have a green bin collection program (i.e. for food waste) and could potentially increase its diversion rate by capturing a portion of these wastes.

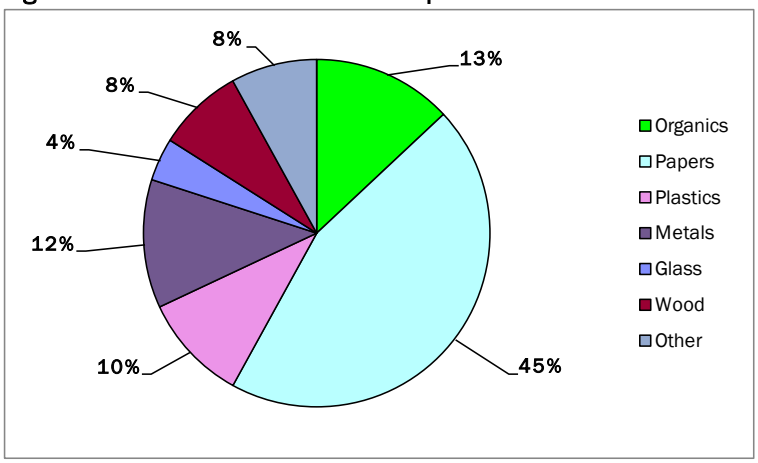
Figure 4.1 Estimated Residential Waste Composition (Small Urban and Rural)



4.2.2 IC&I Waste Composition

IC&I waste composition was estimated in RIS International, 2005. Figure 4.2 depicts the estimated IC&I waste composition.

Figure 4.2 Estimated IC&I Waste Composition



The City collects wastes from the downtown core but material is not tracked separately as it is blended with residential routes on the same collection vehicle. The City has not formally attempted to attract commercial sector recycling customers beyond the downtown core. There is no data available about the IC&I sector in the City in terms of waste generation and waste diversion beyond the fact that the downtown core receives collection for waste and basic recyclable material.

It is clear that waste streams such as papers, organics, plastics and metals are key wastes that can be diverted in this sector. The 3Rs Regulations, made under the Environmental Protection Act, in 1994 were made among other things to promote waste diversion among the IC&I generators in the Province.

The Regulations that pertain directly to the IC&I sector include:

- Ontario Regulation 102/94: Waste Audits and Water Reduction Work plans;
- Ontario Regulation 103/94: Industrial, Commercial and Institutional Source Separation Programs; and
- Ontario Regulation 104/94: Packaging Audits and Packaging Reduction Work plans.

Not all of the IC&I sector is subject to these Regulations.

Table 4.4 depicts the various thresholds at which these Regulations come into effect. The regulations target mostly larger IC&I generators.

These regulations require these generators to carry out waste audits and develop waste reduction work plans and prescribe source separation requirements. The regulations prescribe source separation requirements for business of different sizes.

The enforcement of these regulations has in general been very poor. In fact many businesses were not even aware of these regulations. However, in recent years the Ministry of the Environment (MOE) has dedicated new enforcement officers to carry out an ongoing enforcement effort across the Province.

In general there are some businesses that are proactive and follow these regulations and undertake other initiatives to voluntarily work towards minimizing their environmental impact.

Other businesses will follow these regulations if they have been visited by the MOE and issued a letter to comply with these regulations.

In the City the 3Rs regulations only apply to larger facilities. Additional initiatives would need to be implemented to stimulate further waste diversion in the IC&I sector.

According to (MOE, 2007) the scope of municipal waste management plans need only address IC&I and C&D waste collected by the municipality.

Table 4.4 Generators Designated Under Ontario's 3 R's Regulations (O.Reg 102/94; 103/94 and 104/94)

IC&I Category	Requirements to Carry Out Source Separation and Develop Waste Reduction Plans Under Ontario 3Rs Regulations
Hospitals	Applies to any public hospital classified as group A, B or F. Does not apply to nursing homes or homes for the aged.
Hotels and motels	Applies to hotels or motels with more than 75 units and located in a local municipality that has a population of at least 5,000.
Office Buildings	Designated if it has at least 10,000 square metres of floor space for use as offices and located in a municipality that has a population of at least 5,000.
Restaurants	Restaurants are designated if gross sales for all restaurants operated by the owner in Ontario were $3 million or more in any of the two preceding calendar years. Applies to owner's restaurants in municipalities that have a population of at least 5,000. If the restaurant is in a designated retail shopping establishment or complex, office building, hotel or motel, hospital or campus the owner of the designated establishment is responsible for implementing a source separation program.
Retail Shopping Establishments	Designated if it has at least 10,000 square metres of floor space and located in a municipality that has a population of at least 5,000. For example a department store in a mall can ensure compliance by participating in the program operated by the owner of the mall.
Retail Shopping Complexes	Designated if it has at least 10,000 square metres of floor space of establishments (parking not included) and located in a municipality that has a population of at least 5,000. The owner may allow tenants to implement their own program but it must meet the regulations.
Educational Institutions	Applies to operator of an educational institution with more than 350 person enrolled.
Large Manufacturing Establishments	Does not apply if during the two preceding calendar years there was no calendar month in which the hours worked by the persons employed at the site exceeded 16,000 hours and the owner is able to demonstrate this fact.
Large Demolition Projects	A demolition projects must implement a program if is consists of more than one or more buildings under demolition with a total floor space of at least 2,000 square metres. Indoor parking is included in the floor space calculation. The person responsible is the general contractor for the project.
Multi-Unit Residential Buildings	The building must implement a source separation program if the building contains six or more dwelling units and is located within a local municipality that has a population of at least 5,000. It does not include institutions that provide medical care or prisons. Owners must include materials collected in the local municipal Blue Box recycling program.
Large Construction Projects	A construction project must implement a program if is consists of more than one or more buildings under

4.3 Residential Capture Rates and Available Wastes

The capture rate is the total quantity of a waste that is diverted for recycling as a percentage of the total quantity of that waste generated.

$$\text{Capture Rate [\%]} = \frac{\text{Waste Diverted}}{\text{Waste Generated}} \times 100$$

A capture rate can be used as a measure of the success of a recycling and/or reuse program. A higher capture rate is indicative of less reusable or recyclable waste being sent to landfill.

Using representative waste composition audit data from the CIF guidebook (CIF, 2010) for a *Rural Regional* municipality and applying these percentages to the average waste collection data for the City from 2007-2009 Table 4.5 depicts residential waste diversion and capture.

Overall the capture rate of Blue Box materials is about **62%** and for organic waste about **75%** with the balance presently being landfilled. Overall it is estimated that about **68%** of wastes for which there are diversion programs are being captured.

Table 4.5 Overview of Current Waste Diversion (2007-2009)

Residential Waste Stream and Waste Diversion	Tonnes Diverted[1]	% of Total Waste	Total Generated	Capture Rate
Average Total Waste Generated			**13,191**	
Waste Diversion				
Blue Box (Based on Rural Regional Waste Composition)				
Papers (ONP, OMG, OCC, OBB and fine papers)	2,105	16.0%	2,902	72.6%
Metals (aluminum, steel, mixed metal)	139	1.1%	264	52.6%
Plastics (containers, film, tubs and lids)	293	2.2%	791	37.0%
Glass	251	1.9%	528	47.6%
Blue Box Subtotal	**2,789**	**21.1%**	**4,485**	**62.2%**
Leaf & Yard Wastes and Backyard Composting	**3,979**	**30.2%**	**5,276**	**75.4%**
Other Diversion (e.g. MHSW, scrap metal, deposit return)	**332**	**2.5%**	**660**	**50.3%**
Total material diverted	**7,099**	**53.8%**	**10,421**	**68.1%**

1. Estimate. Exact data unavailable

A closer analysis of Blue Box, Organic Waste (i.e. leaf and yard waste, food waste) and other diversion (e.g. MHSW, backyard composting) diversion was undertaken to help identify challenges and opportunities regarding waste diversion.

4.4 Blue Box Assessment

According to the WDO 2009 Datacall (WDO, 2010) the average capture for Blue Box waste in Ontario is 177 kg/hshld/year.

WDO compares municipal performance in a number of municipal groupings. As noted the City is included in the *Rural Regional* grouping as part of Oxford County, along with 13 other municipalities. The target capture rate for the Rural Regional grouping is **75%**. The target capture rate for the Small Urban (i.e. small cities) grouping is **80%** and this is a useful target moving forward. Table 4.5 depicts the City's average Blue Box capture rate of about 62%, which is below this target. In particular, plastics and glass appear to have low capture rates (across the Province glass capture in the Blue Box has reduced due to LCBO deposit return).

Figure 4.3 compares the City's average capture rate (2007-2009) with the average of the *Rural Regional* grouping using 2008 WDO Datacall GAP data (WDO, 2009) and the 2009 Provincial average. The City has a relatively high capture rate when compared to these municipalities and a slightly lower rate than the overall average Provincial rate.

Figure 4.3 Capture of Blue Box Materials (Fibre, Plastic, Aluminum, Steel, Glass).

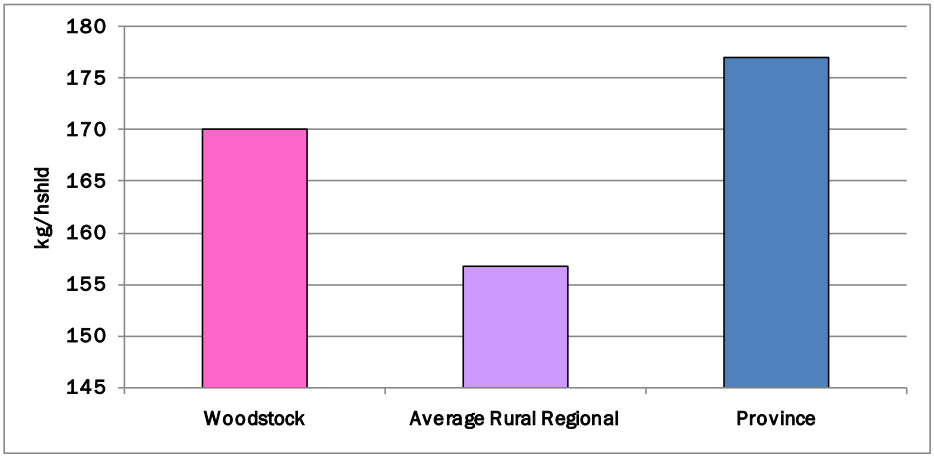


Figure 4.4 compares the City's capture of fibre, plastic, aluminum, steel and glass compared to the average for the *Rural Regional* grouping (expressed as a percentage). It is clear that the capture of fibre is slightly above average while the capture of plastic and glass is above average and the capture of aluminum and steel is below average.

Figure 4.4 Comparison of Blue Capture- Woodstock vs. Rural Regional Group

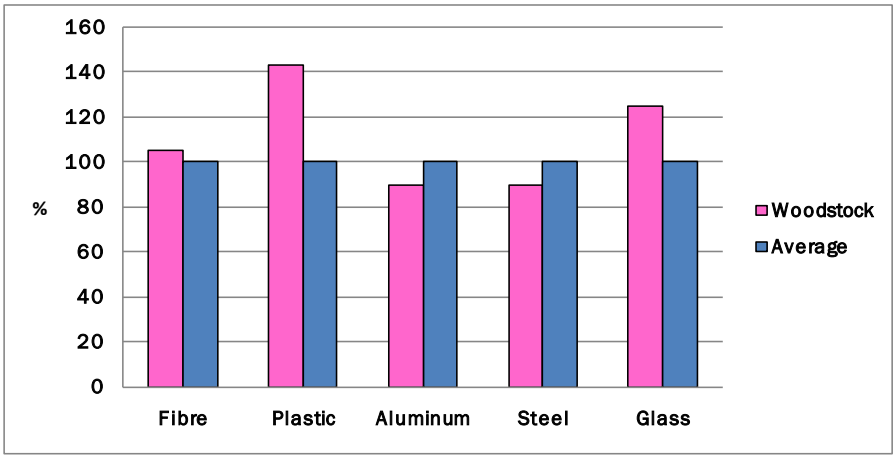


Figure 4.5a and 4.5b depict the proportion of these materials captured in Woodstock versus the *Rural Regional* grouping.

Figure 4.5a Proportion of Various Streams in Blue Box- Woodstock

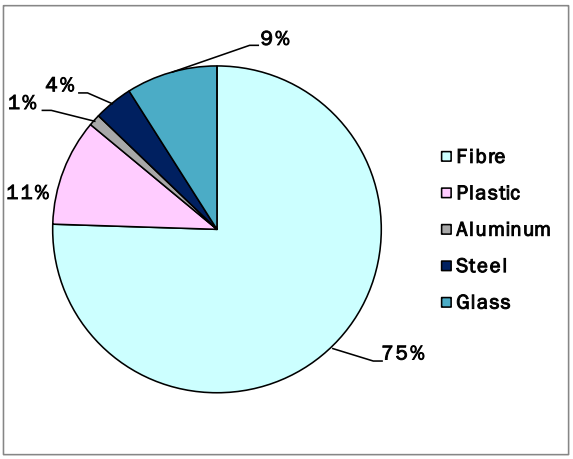


Figure 4.5b Proportion of Various Streams in Blue Box- Rural Regional Group

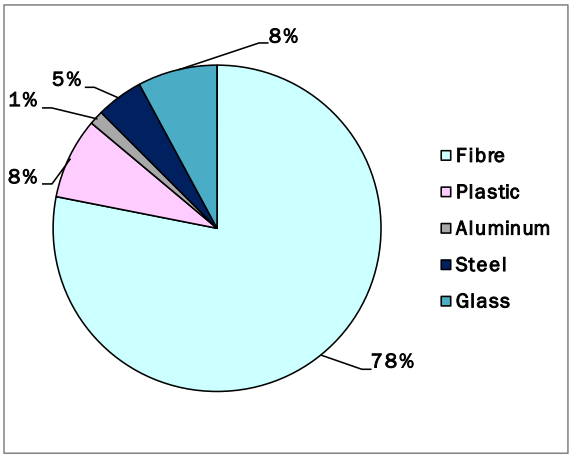


Table 4.7 (Section 4.7) depicts the estimated additional quantities of waste that would need to be diverted to capture **80%** of Blue Box wastes.

In conclusion, to capture **80%** of Blue Box wastes would require the additional capture of about 800 tonnes/year or about 66 kg/hshld. (i.e. single family households). This would contribute an additional **6.1** percentage points to overall waste diversion.

4.5 Organic Waste Assessment

WDO Datacall results for 2009 were analyzed (WDO, 2010). Table 4.6 depicts the tonnes of leaf and yard waste and source separated organic waste (SSO) (i.e. food waste, non recyclable paper, other items) collected and the number of households with access to this service. On this basis an average Ontario home with access to leaf and yard waste collection and/or green bin collection diverts about 123 kg of leaf and yard waste and 157 kg of SSO annually or up to about 280 kg/hshld if they have access to both services.

The Waste Diversion Ontario *Highlights of the 2009 Tonnage Datacall Organic Waste Diversion* (WDO, 2010) indicates that about 243 kg was collected from serviced (i.e. including households with depot service only) households.

Table 4.6 Overview of Curbside Organic Waste Diversion in Ontario (2009)

	Tonnes	Households	kg/household
Leaf and Yard Waste	387,791	3,143,978	123.3
Source Separated Organic Waste	346,876	2,205,528	157.3
			280.6

On that basis it is clear that annual organic waste collection of 240-280 kg/hshld is achievable on an annual basis for a municipality that has access to leaf and yard waste, collection and a green bin program for food waste and non-recyclable paper. It should be noted that the City currently collects more than 300 kg/hshld of just leaf and yard waste. As noted previously it is likely that this includes some IC&I leaf and yard wastes and perhaps some leaf and yard waste from neighbouring municipalities.

The City could capture more organic waste by implementing a Green Bin program and/or ramping up its Backyard Composter program.

As noted in Table 4.5 the current capture rate of organic waste in the City is about 75%.

A target of 90% capture rate is ambitious. On that basis an additional 770 tonnes/year or about 63 kg/hshld/year (i.e. single family households) would need to be collected. As noted in Table 4.8 this would contribute an additional 5.4 percentage points to overall waste diversion.

4.6 Other Diversion

In this Plan thus far Other Diversion included a baseline assessment of the following:

- MHSW;
- Scrap metal;
- Residential Bottle Return; and
- Backyard Composting.

As noted in Section 2.3.3 the City has also recently started collecting C&D wastes at periodic bulky item depots.

The completed Plan also considers WEEE, C&D, tires and other reusable goods (e.g. bulky goods, textiles, reusables). WDO Datacall results for 2009 (WDO, 2010) provides data on a number of other waste streams.

MHSW
Approximately 11.9 million Ontario residents have access to WEEE recycling programs and a total of 17,096 tonnes were collected. This results in an average of 1.45kg/hshld (i.e. all households).

WEEE
WDO Datacall results for 2009 were analyzed (WDO, 2010). Approximately 4.13 million Ontario households have access to WEEE recycling programs and a total of 23,014 tonnes were collected. This results in an average of 5.6kg/hshld (i.e. all households).

Other Wastes
WDO Datacall results for 2009 were analyzed (WDO, 2010). WDO's list of other wastes includes: scrap metal, wood, drywall, brick and concrete, other C&D recyclables, tires, bulky goods, textiles and reusables. Approximately 4.57 million households have access to this type of recycling and a total of 116,000 tonnes were collected. This results in an average of 25kg/hshld (i.e. all households).

4.7 Summary

Table 4.7 presents an overall summary of current and potential waste diversion in Woodstock. It is clear that while diversion is reasonable there is room for improvement.

Table 4.7 Overview of Current and Possible Future Waste Diversion

Waste/Resource Material	Composition (from sample audit)	Total Residential Waste Generated (2009)	Divertable Material in Waste Stream	Target Capture Rate	Material Available for Diversion	Material Currently Diverted	Material Remaining in waste Stream (tonnes)	Material Remaining in Waste Stream for Diversion (% of total waste stream)
	%	tonnes	tonnes	%	tonnes	tonnes	tonnes	%
Blue Box Materials								
Papers (ONP, OMG, OCC, OBB and fine papers)	22		2,902		2,322	2,105	216	1.6%
Metals (aluminum, steel, mixed metal)	2		264	80	211	139	72	0.5%
Plastics (containers, film, tubs and lids)	6	13,191	791		633	293	340	2.6%
Glass	4		528		422	251	171	1.3%
Blue Box Subtotal	**34**		**4,485**		**3,588**	**2,789**	**799**	**6.1%**
Organic Waste	**40**		**5,276**	90	**4,749**	**3,979**	**770**	**5.8%**
Other Diversion	**5**		**660**	75	**495**	**332**	**163**	**1.2%**
Total Materials	**108**	**13,191**	**9,761**		**8,337**	**7,099**	**1,732**	**11.9%**
Current Diversion Rate								**53.8%**
Additional Diversion Rate								**13.1%**
Potential Future Diversion Rate								**67.0%**

As previously noted the average diversion rate is about 54%.

Achieving a Blue Box capture rate of **80%** would result in an additional **6.1** percentage points of waste diversion. Achieving organics waste capture of **90%** would result in

another 5.8% of additional diversion. Achieving other diversion capture of 75% would result in another 1.2% of additional diversion.

On the basis of the foregoing analysis and to achieve up to 67% waste diversion the following needs to be considered and/or improved:

- Improved weight data collection for waste and leaf and yard waste;
- Improved capture of Blue Box waste;
- Bag/container limits for garbage;
- Mandatory recycling by-law and/or curbside material bans;
- Establishment of a permanent Enviro-Depot;
- Enhance Backyard composter program;
- Establish Green Bin program; and
- Improve other waste diversion including MHSW, WEEE, tires, C&D wastes and other reusable wastes.

This is discussed in greater detail in Section 7.

5.0 Comparison with Other Municipalities

The City is included in the *Rural Regional* grouping, reflecting its tie to the upper tier structure of the County.

Table 5.1 presents a comparison with these municipalities using 2008 WDO Datacall GAP (generally agreed principles) data (WDO, 2009) (Note: This is the most recent fully summarized data, the 2009 GAP data is expected in 2011). The GAP analysis accounts for wastes diverted minus assumed levels of contamination in the diverted waste streams. GAP waste diversion rates are typically lower than municipally calculated diversion rates.

Results for waste generated, waste diverted and waste disposed are presented in descending fashion (i.e. from high to low).

Table 5.1 Municipal Comparison (2008 WDO Datacall)

Municipality	Total Residential Waste Generated	Rank	Total Residential Waste Diverted	Rank	Total Residential Waste Disposed	Rank
	kg/capita	Descending	kg/capita	Descending	kg/capita	Descending
Oxford County (2008 WDO Datacall)	**292**	**13**	**127**	**7**	**165**	**13**
Quinte Waste Solutions	333	10	144	5	190	12
City of Kingston	393	4	168	3	225	9
City of Kawartha Lakes	355	6	145	4	209	11
Wellington County	255	14	102	11	152	14
City of Sudbury	510	2	202	1	308	2
Northumberland County	348	8	133	6	214	10
Municipality of Chatham-Kent	514	1	180	2	333	1
County of Peterborough	350	7	121	8	229	6
City of North Bay	372	5	115	9	256	4
Bluewater Recycling Association	325	11	97	13	228	7
District Municipality of Muskoka	339	9	98	12	242	5
County of Norfok	401	3	107	10	294	3
Bruce Area Solid Waste Recycling	296	12	70	14	226	8
Average	**363**		**129**		**234**	
City of Woodstock (2007-2009)	**350**		**189**		**162**	

From this analysis it is clear that the City, as a lower tier program within the upper tier structure of Oxford County, generates an average amount of waste but that it diverts a relatively high amount and disposes a relatively low amount of waste in comparison to all programs within the grouping. On average the *Rural Regional* grouping has a waste diversion rate of 35% compared to the City's estimated 54% waste diversion rate.

The City diverts a relatively high amount of material through its leaf and yard waste and Blue Box program with an average rate of 180kg/capita (Oxford County 127kg/capita). It should be noted that the leaf and yard waste material is the largest contributing factor toward the overall diversion rate for the City.

Table 5.2 depicts the waste management programs of some of these municipalities.

Waste diversion rates ranged from 30-44%. The City of Kingston is the only municipality in this Rural Regional grouping that has a full green bin program. It was initiated in 2009 so additional diversion is not reflected in the above table. It is expected that Kingston's waste diversion rate is now greater than 50%.

Table 5.2 Municipal Program Comparison- Rural Regional Grouping (WDO, 2009)

Municipality	Disposal	Diversion					
	Waste	Blue Box	Organics	Municipal Household Special Waste	Waste Electrical and Electronics Equipment	Other	Diversion Rate
Oxford County	Weekly collection All bag/container subject to $1.50 tag Waste can also be dropped off at landfill (tipping fee)	Bi-weekly collection (Most of County)	Leaf and yard waste drop off depots	Permanent depot at Oxford County Landfill Special event days	Permanent depot at Oxford County Landfill	Special event days for White Goods and Scrap metal	44 (reporting 57% in 2009 Datacall)
Quinte Waste Solutions	Some municipalities Weekly collection Some municipalities take directly to landfill Some municipalities use bag tags, some use clear bag	Biweekly or Weekly collection	Leaf and yard waste collection (spring and fall) in some urban areas Leaf and yard waste drop off depots Encourages backyard composting	Annual Collection Days (depot)	-	White goods require tag. Some collection and some delivery by resident to dedicated location	43
City of Kingston	Weekly collection 2 bag/container "free" Additional bags/containers $2.00	Weekly collection Alternate between fibre and containers	Weekly collection of green bin waste (Started in 2009 and not included in diversion total). Annual fall leaf collection Drop off depot for leaf and yard waste Encourages backyard composting	Permanent depot at Kingston Area Recycling Centre	-	Large items can be dropped off at a number of private waste disposal facilities for a fee	43
County of Northumberland	Weekly collection All bags must be tagged ($2.75) (3 bag limit)	Weekly collection	Leaf and yard waste varies by municipality Encourages backyard composting	Annual Collection Days (depot)	Annual Collection Days (depot)	Large items can be dropped off at landfill (County distributes free vouchers)	38
Bluewater Recycling Association	Biweekly or Weekly collection Many municipalities require that all bags must be tagged (minimum $1.50)	Biweekly or Weekly collection	Some municipalities offer curbside seasonal leaf and yard waste collection Encourages backyard composting	Variety of municipal depots and private sector depots	Permanent depot at Bluewater Recycling Depot and depots/annual collection days in other municipalities	Other items vary by municipality	30

* Used 2008 GAP as 2009 GAP data not yet published. 2009 data used throughout most of this Plan..

The City was also compared to the *Small Urban* grouping (i.e. small Ontario cities). Table 5.3 presents a comparison with these municipalities using 2008 WDO Datacall GAP (generally agreed principles) data (WDO, 2009) (Note: This is the most recent fully summarized data, the 2009 GAP data is expected later in 2010). The GAP analysis accounts for wastes diverted minus assumed levels of contamination in the diverted waste streams. GAP waste diversion rates are typically lower than municipally calculated diversion rates.

Results for waste generated, waste diverted and waste disposed are presented in descending fashion (i.e. from high to low).

Table 5.3 Municipal Comparison (2008 WDO Datacall)

Municipality	Total Residential Waste Generated	Rank	Total Residential Waste Diverted	Rank	Total Residential Waste Disposed	Rank
	kg/capita	Descending	kg/capita	Descending	kg/capita	Descending
City of Brockville	354	5	147	4	207	4
City of Cornwall	431	2	105	6	326	1
Town of Orangeville	403	3	202	1	202	5
City of Owen Sound	433	1	179	3	254	2
City of Stratford	369	4	182	2	188	6
City of St Thomas	350	6	127	5	223	3
	390		**157**		**233**	
City of Woodstock (2007-2009)	**351**		**189**		**162**	

From this analysis it is clear that the City generates a slightly below average amount of waste but that it diverts a relatively high amount and disposes a relatively low amount of waste in comparison to all programs within the grouping. On average the *Small Urban* grouping has a waste diversion rate of 34% compared to the City's estimated 54% waste diversion rate.

Table 5.4 depicts the waste management programs of some of these municipalities.

Waste diversion rates ranged from 24-50%. The City of Cornwall, which does not appear to have a bag limit, tellingly had the worst diversion rate of these communities. The City of St. Thomas is the only municipality in this grouping that has a full green bin program.

Table 5.4 Municipal Program Comparison- Small Urban Grouping (WDO, 2009)

Municipality	Disposal	Diversion					
	Waste	Blue Box	Organics	Municipal Household Special Waste	Waste Electrical and Electronics Equipment	Other	Diversion Rate
City of Brockville	Weekly collection 1 bag/container "free" Additional bag/containers $2.50 Waste can also be dropped off at transfer station (tipping fee) Large Items collected ($10 tags)	Weekly collection Collection of Fibre and Containers on alternating weeks	Leaf and yard waste drop off depot	Annual Collection Day (depot) Hardware store drop-off (2)	Year round drop off depot	Metal & Appliance Drop-off (fee)	42
City of Cornwall	Weekly collection Do not appear to have bag limit Waste can also be dropped off at landfill (fees)	Weekly collection Collection of Fibre and Containers on alternating weeks	Leaf and yard waste collection (spring and fall) Encourages backyard composting	Monthly collection day (April-November, depot)	Monthly collection day (April-November, depot)	White goods collection discouraged. Must purchase $25 tag	24
Town of Orangeville	Weekly collection 1 bag/container "free" Additional bags/containers $2.00 Waste can also be dropped off at transfer facility (fees) Large Items collected ($15 tags)	Weekly collection "Free" Blue Boxes	Bi-weekly leaf and yard waste collection (spring to late fall) Encourages backyard composting	Annual Collection Days (depot)	Annual Collection Days (depot)	Metal Items collected ($15 tags)	50
City of Owen Sound	Bi weekly collection (4 bag/container limit) Weekly downtown core (3 bag/container limit) All bags/containers subject to $2 tag	Bi-weekly collection Monthly collection for cardboard Blue Boxes can be purchased	Leaf and yard waste drop off at composting facility Encourages backyard composting	Annual Collection Days (8 Saturdays between April and October, depot)	Habitat for Humanity certified collection point	Not applicable	41
City of Stratford	Weekly collection All bags/containers subject to minimum $2.25 tag Waste can also be dropped off at landfill subject to minimum $2.50 cost Large Items collected ($10 tags)	Bi-weekly collection Blue Boxes can be purchased	Scheduled leaf and yard waste collection throughout year (late April to early January) Encourages backyard composting	Annual Collection Weeks (week in Spring; week in Fall, depot)	Accepted at landfill for recycling (fee)	White goods collection ($22-$40 tag)	49
City of St Thomas	Weekly collection 2 bags/containers "free" Additional bag/containers $1.75 Waste can also be dropped off at transfer station for $1.75/bag Large Items can be taken to transfer facility (fee)	Bi-weekly collection Blue Boxes can be purchased at the Transfer Station	Bi-weekly collection Green cart program for food waste, non recyclable paper and leaf and yard waste	Accepted at transfer station (fee, material limitations)	Accepted at transfer station	MHSW accepted at transfer station	36

Some of the municipalities assessed in Table 5.2 and Table 5.4 have similar waste management programs when compared to the City. Some but not all operate a full "User Pay" program whereby all garbage bags put at the curb are "tagged."

Based on the data provided, it appears as if the City's waste management program has a residential diversion rate comparable to that achieved by an elite few of the 'best performing' municipal programs in Ontario. For example, in 2008 the municipality with the highest reported residential diversion rate as determined through the GAP calculation in the WDO Datacall (WDO, 2009) Simcoe County (54%), followed by York Region (53%), Halton Region (51%), the City of Peterborough (51%) and Durham Region (49%). All of these 'best performing' municipalities have supporting green bin collection programs.

It should be noted that the 2009 datacall (WDO, 2010) depicts County data as reporting a waste diversion rate of 57% as compared to 44% in 2008. This has not been verified by undertaking a GAP analysis.

To help refine future City waste generation and waste diversion estimates it is recommended that the following data be collected:

- City determine amount of leaf and yard waste collected and received is from IC&I sector;
- City determine if any leaf and yard waste collected and received is from neighbouring municipalities;
- City estimate amount of garbage and Blue Box waste collected from the IC&I sector; and
- Weigh all outbound vehicles carrying leaf and yard waste and garbage to the Landfill.

Key learnings from other municipalities in terms of increasing residential curbside waste diversion include the following:

1. Reduce allowable waste volumes

This can be accomplished by reducing the number of bags that can be placed at the curb for collection and/or through altering collection cycle (i.e. bi-weekly waste collection).

The City's existing user pay program is well established. Setting a bag limit should have a positive impact on waste diversion.

2. Increase allowable waste diversion volumes

If the amount of waste that can be placed at the curb is restricted this needs to be matched with an increase in allowable waste diversion volumes.

For the Blue Box this could include:

- Weekly collection; and

- Provision of “free” or low cost Blue Boxes to residents and offer larger Blue Boxes to capture more materials.

Organic waste makes up around 40% of the residential waste stream. To approach 60% waste diversion it would be necessary to have some sort of organic waste diversion program that includes the diversion of food waste.

This could include:

- Ban leaf and yard waste in garbage;
- Expand backyard composter program (mandated); and
- Implement green bin program for food waste.

3. Implement a Green Bin Program

Typically, organic waste contributes close to 40% of the residential waste stream. The growing success of the leaf and yard waste program is indicative of the diversion potential of organics and shows a willingness of participation from residents. To approach higher waste diversion the next step would be to establish a green bin program to collect food waste and non recyclable paper (often referred to as source separated organics or SSO).

4. Segregate Construction and Demolition Wastes

Construction and Demolition wastes can be a considerable part of the waste stream. Most of these wastes are recyclable and do not require landfilling. Oxford County has initiated a plan to divert these wastes from the Landfill.

This could include:

- Ban the C&D wastes in garbage; and
- Segregate and recycle all C&D wastes.

The City has begun to divert C&D wastes.

5. Establish an Enviro-Depot

Providing City residents with a centralized drop-off area for Blue Box recyclables, leaf and yard waste, MHSW, WEEE, C&D wastes, tires and other reusable goods (e.g. Goodwill Industries) can help boost waste diversion.

Many of these items are poorly diverted by residents because recycling is not convenient. The James Street Public Works Yard depot works well for leaf and yard wastes. An expanded Enviro-Depot would take this to the next level.

6.0 Public Consultation

Public consultation included the following:

- Notification of Plan development on City web-site with ability to provide input;
- On-line waste management survey; and
- Open House/Public Information Centre.

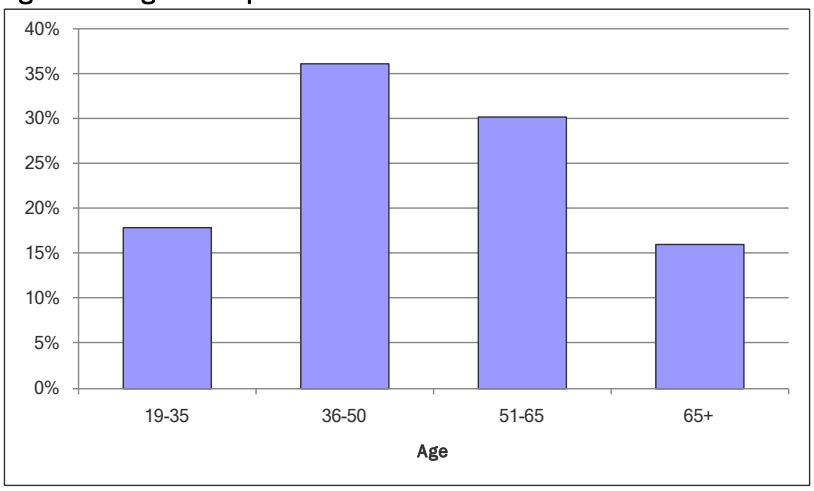
6.1 Survey Results

The City conducted a survey to obtain information on resident's opinions and attitudes regarding the current waste management services and additional waste management services that could be considered for the future. The survey was conducted online and was available in print at the City office. The survey was conducted from October 2010 to January 2011. A total of 28 questions were asked ranging from current habits to opinions of future waste management. One hundred seventy-two surveys were completed. A copy of the survey and summarized results are included in Appendix 1.

6.1.1 Demographics

Figure 6.1 shows ages of survey respondents. The largest group of respondents were between 36-50 years old (ca. 37%).

Figure 6.1 Age of Respondents



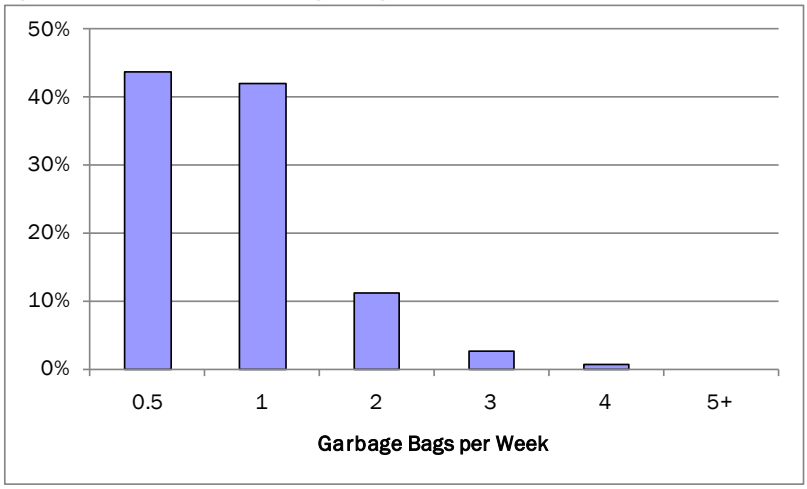
Of the respondents, 60% were female and 40% were male.

The largest group of respondents, about 91%, were residents of a house. Approximately 7% were residents of a townhouse or condominium while the remaining 2% lived in apartments.

6.1.2 Waste and Recycling Habits

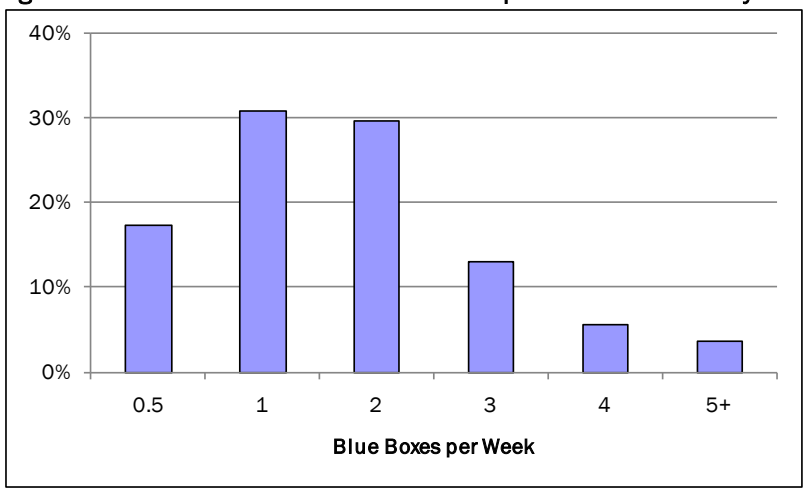
Respondents were asked how many full green/black garbage bag equivalents their household generates per week. Figure 6.2 depicts the results. About 80% of respondents indicated they put out 0.5 – 1 bag of garbage per week.

Figure 6.2 Number of Garbage Bags Generated per Household Weekly



Respondents were asked how many full Blue Box equivalents their household generates per week. Figure 6.3 depicts the results. About 60% of respondents generate one or two Blue Boxes of recyclables per week.

Figure 6.3 Number of Blue Boxes Generated per Household Weekly



Approximately 89% of respondents put their recycling at the curb on each collection day.

Figure 6.4 shows recycling rates for paper. More than 90% of respondents indicated that they recycled all paper types.

Figure 6.4 Recycling Rates for Paper

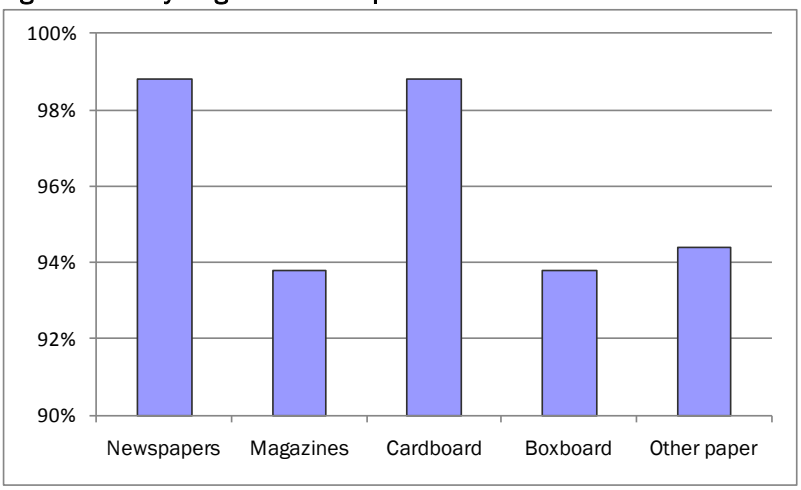
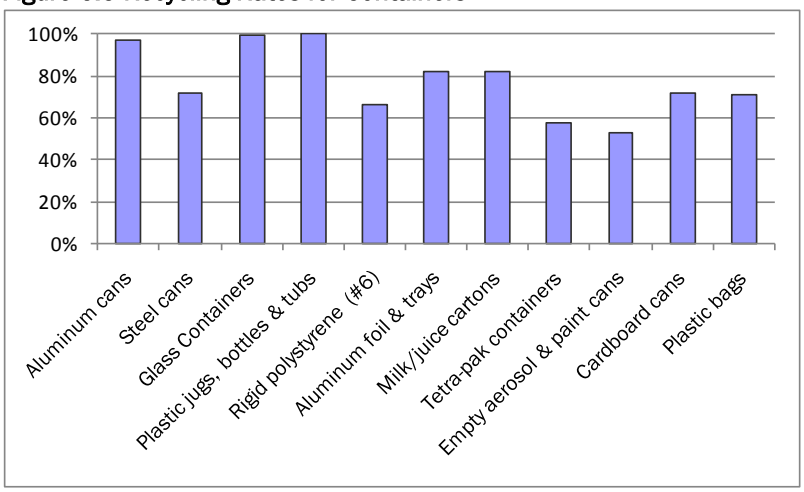


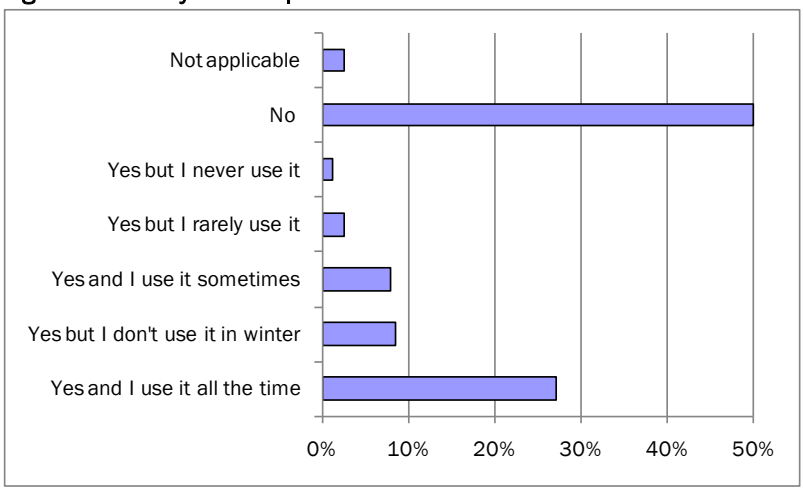
Figure 6.5 shows recycling rates for containers. The lowest capture rates were for tetra-pak containers (58%) and empty aerosol and paint cans (54%).

Figure 6.5 Recycling Rates for Containers



Respondents were asked if they own a backyard composter. Figure 6.6 depicts the results. Approximately 48% own a composter. About half of these respondents use it regularly.

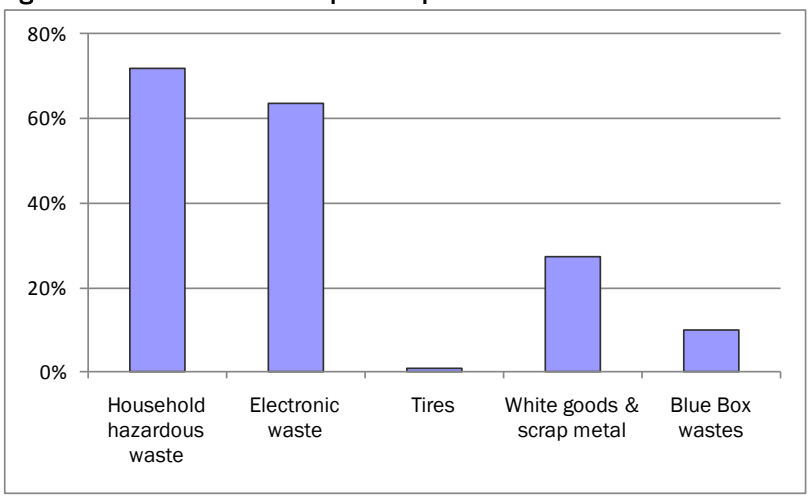
Figure 6.6 Backyard Composters



The City collects brush at the curb 3 times per year. Approximately 36% of respondents put brush at the curb 1-3 times per year.

The City and County hold several drop-off depot events each year. Municipal household special waste (MHSW), electronic waste (E-waste), tires, white goods, scrap metal and Blue Box wastes are accepted at these events. Figure 6.7 depicts the percentage of respondents who have utilized the drop off depot events in the last year.

Figure 6.7 Items taken to Drop Off Depot Events in the Last Year

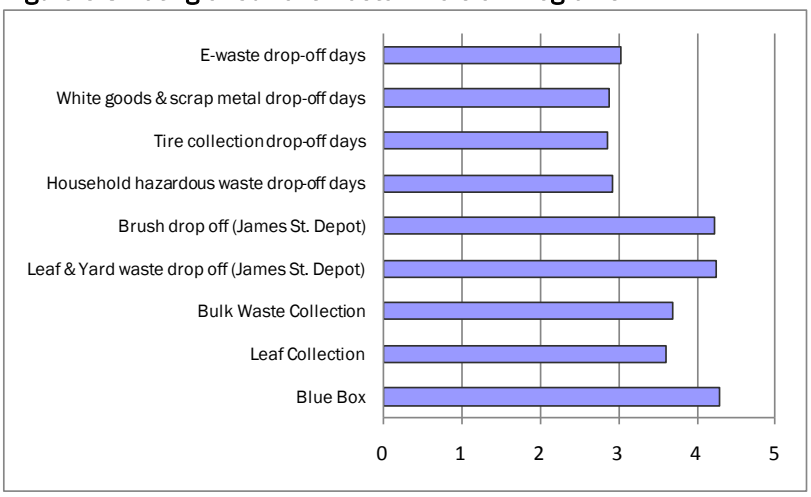


Approximately 79% of respondents were unaware that the City has a depot where you can drop off Blue Box wastes.

In the last year, approximately 73% of respondents placed a bulk item (i.e. large waste item) at the curb for City collection.

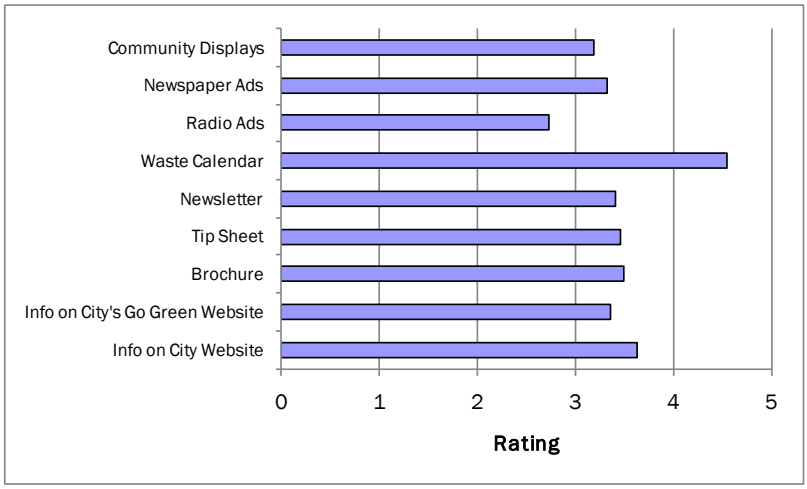
Respondents were asked to rate current City waste diversion programs on a scale from 1 (lowest) to 5 (highest). Figure 6.8 depicts the results. Blue Box, leaf & yard waste drop off and brush drop off at James Street depot had the highest ratings. Drop off days for hazardous waste, white goods/scrap metal and tires had the lowest ratings.

Figure 6.8 Rating of Current Waste Diversion Programs



Respondents were asked to rate the City's methods of communicating waste diversion program information to the public on a scale from 1 (lowest) to 5 (highest). Figure 6.9 depicts the results. The highest ranked methods included the waste calendar, information on the City website, brochure and tip sheet. The lowest ranked method was radio ads.

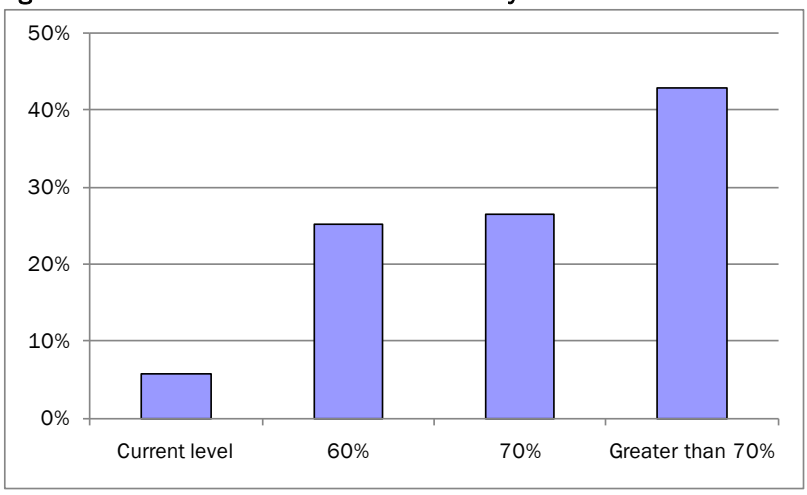
Figure 6.9 Methods for Communication Waste Diversion Program Information to the Public



6.1.2 Future Waste Diversion Programs

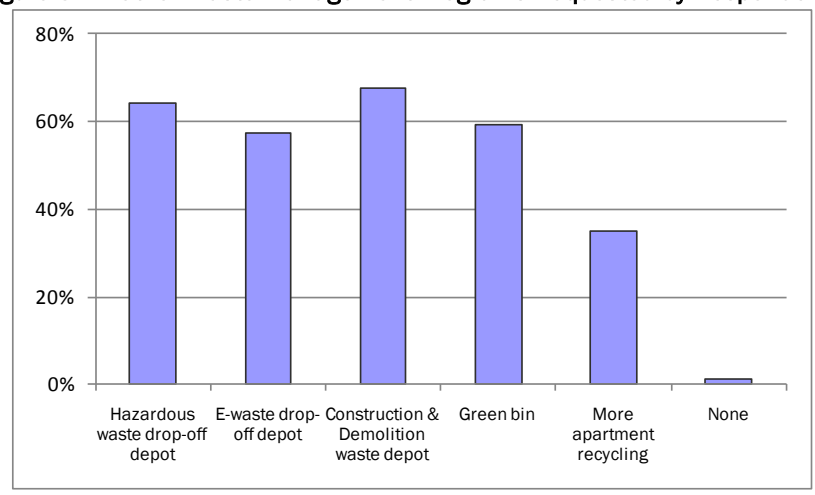
The Provincial waste diversion goal is 60%. Figure 6.10 depicts the diversion rates that respondents would like to see Woodstock strive for in the future. About 85% would like to see waste diversion of at least 60%.

Figure 6.10 Future Diversion Goals for the City of Woodstock



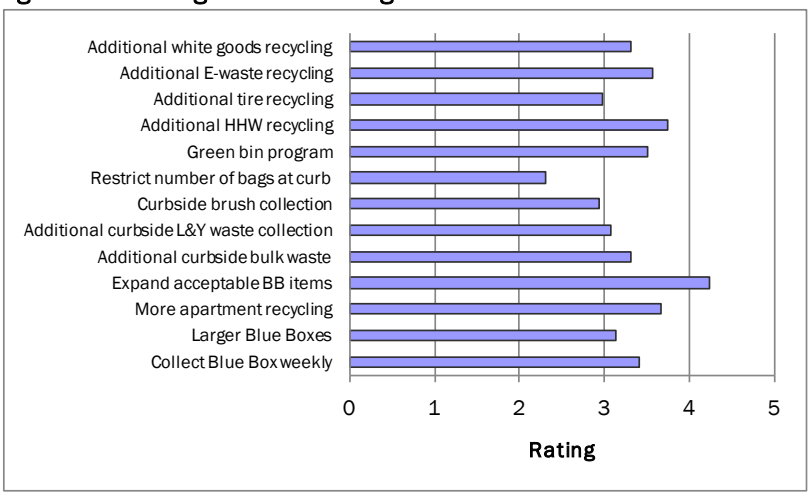
Respondents were asked what other waste management programs they would like to see in Woodstock. Figure 6.11 depicts the results.

Figure 6.11 Other Waste Management Programs Requested by Respondents



Respondents were asked to rate possible programs that could help them increase waste diversion on a scale from 1 (lowest) to 5 (highest). Figure 6.12 depicts the results. The highest rated programs included expanding acceptable Blue Box items and additional opportunities to recycle household hazardous waste. The lowest rated program was restricting number of garbage bags at the curb.

Figure 6.12 Rating of Possible Programs to Increase Waste Diversion



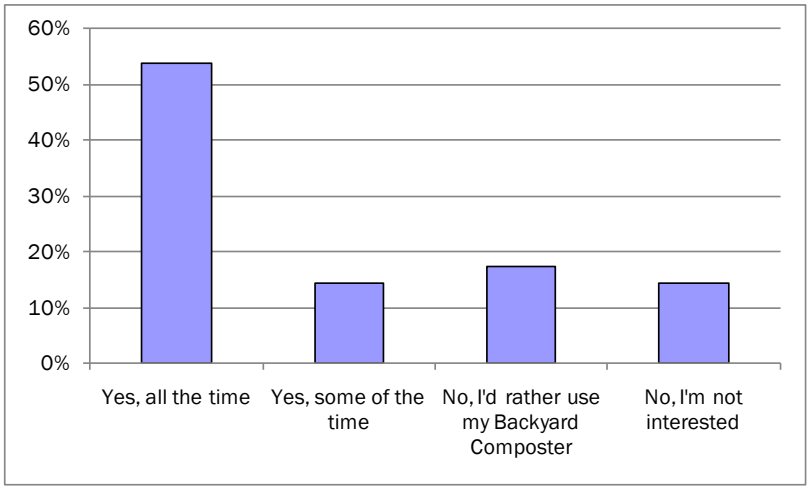
Approximately 53% of respondents would like to see collection of leaf and yard waste in the spring.

Approximately 69% of respondents think Woodstock should get more people involved in backyard composting.

Approximately 74% of respondents think Woodstock should consider implementing a Green Bin program.

Figure 6.13 depicts the participation in a potential Green Bin program. Almost 70% of respondents would participate in a Green Bin program.

Figure 6.13 Participation in a Potential Green Bin Program



If deemed cost effective, approximately 92% of respondents would like to see the Enviro-depot developed. Respondents would use the depot monthly (32%), bi-weekly (18%), weekly (17%), twice a year (13%), every two months (12%), yearly (2%) and never (6%).

Waste diversion typically costs more than disposing wastes in landfill. Approximately 54% of respondents were not willing to pay more than current waste management costs to fund enhanced waste diversion programs. Approximately 35% were willing to pay up to 10% more, about 7% were willing to pay up to 25% more and remainder of respondents were willing to pay up to 50% more.

6.1.3 Comments

Respondents were given the opportunity to make general comments on what else the City could do to improve waste diversion and help improve Woodstock's waste diversion rate. A summary of main comments is provided.

Green Bin
The most frequent request made by respondents is that a Green Bin program be implemented. Some have a backyard composter but would still use the program, especially in the winter months.

Bi-weekly Collection
The second most frequent request made by respondents is weekly recycling collection. Since the conversion to the new 2-stream recycling program in 2009, which includes new items that are now recyclable, many people are finding it difficult to store 2 weeks worth of recyclables. Many would prefer weekly recycling collection and bi-weekly garbage collection.

Drop-off Days and Recycling Depot
Many respondents expressed concerns about the drop-off depot days. Many found the Saturday drop-offs restrictive and inconvenient. All would like to see more drop-off days (e.g. monthly).

A number of respondents would like to see the development of the Enviro-depot, including a permanent drop-off location for MHSW, WEEE, white goods and bulk material. One respondent suggested using volunteers from local groups (e.g. Scouts) or high schools to run weekly recycling depots, which would reduce the amount of tax dollars needed to run the depots as well as counting toward students' volunteer hours.

Curbside Collection
Curbside leaf and yard waste/brush collection and the curbside bulk program were major concerns among respondents.

Respondents would like to see leaf and yard waste collection be extended in the fall and an additional collection in the spring. Public promotion of when leaf and yard waste collection occurs was requested by all respondents that addressed this issue.

Many respondents find the bulk curbside program ineffective and very restrictive. The once yearly collection/Spring cleanup seemed to be very popular and many would like to see this program reinstated. An issue with the current program seems to be that items are left at the curb all year and detract from the overall look of the city.

One respondent suggested that the Spring cleanup gave people the "sharing" opportunity and many of the cleanup items were taken and reused. Also bringing back the "Paint Swap" program and allowing people to take re-usable items from the depot appears to be a popular suggestion.

Ideas for Diversion
Styrofoam (polystyrene) and numbered plant pots (also largely polystyrene) were the materials that were most frequently mentioned for inclusion in the Blue Box program.

Taxes
Many respondents commented on the high property taxes in Woodstock. They feel that taxes should not be increased to pay for a better waste diversion program but should be better distributed. Mention was also made of the new 2-stream recycling system and that increased revenue from this program should be used to fund any new diversion programs.

Education
As the survey shows, almost 80% of respondents were unaware that the City has a depot where Blue Box recyclables can be dropped off. Better promotion of the depot should be a priority. Additional promotion of the recycling program and depot days were requested.

Several respondents also suggested better information was needed for leaf and yard waste collection (i.e. what week collection occurs in which neighbourhood).

6.2 Open House/Public Information Centre

The draft Plan was posted to the City's website for approximately one month for public comment.

In conjunction with this an Open House/Public Information Centre (meeting) was held on 12 April 2011. It was advertised through various means including a Council meeting and newspaper advertising.

Approximately ten people attended the meeting. This included the general public (5); Council (1) and City staff (4).

A presentation was prepared and delivered at this meeting. It presented an overview of the draft Plan and solicited input from meeting attendees.

There appeared to be interest to try and move the City to a 60% waste diversion rate. In particular there was interest expressed in expanding the City's backyard composting program as well as the development of the Enviro-Depot.

7.0 Waste Diversion Plan

Prior to making changes to the current waste management system, it is essential to ensure Council and public support is established. New programs may require additional

contribution from the municipal budget (taxes, user fees). A diversion program is only effective it if is used by the members it is intended to serve.

Currently about 13,191 tonnes/year of waste are managed by the City. The current diversion rate is estimated to be about 54%. Current waste diversion comes primarily from Leaf and Yard Waste and Blue Box programs.

As noted in Section 1.3 the goals of this Waste Diversion Plan are:

- To achieve the Provincial waste diversion goal of 60%;
- To address best practices as set out by Waste Diversion Ontario (WDO) for Blue Box collection as embodied in a Waste Recycling Strategy; and
- To strive to work towards a waste diversion goal of 70%.

The focus of this Plan is on maximizing well established programs already in place.

Embedded within this Plan is a Waste Recycling Strategy for Blue Box waste. A Waste Recycling Strategy is required by WDO as part of best practices and can help the City maximize Blue Box funding. The CIF Guidebook for completing a Waste Recycling Strategy was used for this purpose. Some of the tables in this Guidebook were used to help with waste diversion planning of all waste streams.

Table 7.1 depicts the additional diversion required to meet various potential waste diversion milestones.

Table 7.1 Additional Waste Diversion Required to Meet Waste Diversion Milestones

Possible Waste Diversion Milestones	Additional Diversion	Total Diversion	Total Landfill
%	tonnes/year		
53.8	0	7,099	6,092
55	156	7,255	5,936
60	815	7,914	5,276
65	1,475	8,574	4,617
70	2,134	9,233	3,957
75	2,794	9,893	3,298

Table 7.2 depicts the additional diversion required on a household level to meet various waste diversion milestones.

Table 7.2 Additional Household Waste Diversion Required to Meet Waste Diversion Milestones

Possible Waste Diversion Milestones	Additional Diversion		
%	kg/hshld/year	kg/hshld/week	pounds/hshld/week
53.8	0	0.0	0.0
55	10	0.2	0.4
60	50	1.0	2.1
65	90	1.7	3.8
70	130	2.5	5.5
75	170	3.3	7.2

Based on the analysis in the preceding Sections it is clear that there are well established and mature waste diversion programs in the City. To achieve diversion beyond 55%, initiatives such as curbside bag limits, curbside material bans, expanding the existing leaf and yard waste program to include SSO and establishing a centralized Enviro-Depot can be considered.

The key factors to encourage waste diversion are:

- Waste diversion capacity (e.g. Blue Boxes, Green Bins, Enviro-Depot);
- Convenience/accessibility to waste diversion systems; and
- Understanding and awareness of waste diversion systems within the City and County.

Table 7.3 summarizes a number of residential best practices that could be incorporated into future waste diversion programs.

Table 7.4 depicts an evaluation of Waste Recycling Strategy Options. It is adapted from the CIF Guidebook for creating a municipal Waste Recycling Strategy and it is an effective tool for the future management of recyclables and other divertible material for the City. This table lists several of the most common best practises for managing recyclables but can also be used when examining overall diversion systems.

Table 7.3 Table of Residential Best Practices and Assessment of Applicability

	Overview	Potential impact on waste diversion	Cost to implement	Potential for City of Woodstock
General				
Promotion and Education program	Municipalities clearly promote and educate residents on waste management and waste diversion goals	Low-Medium	Low	In addition to the County's P&E, the City could enhance its local P&E.
Incentive Programs	Some municipalities provide incentives to residents that are high waste diverters (e.g. City of Hamilton "Gold Box")	Low	Low	Create Community Champions. The City could reward its high performers. This could encourage others to divert more waste
Garbage				
Bi-weekly garbage collection	Reduces available waste volumes residents can place at the curb. Needs to be coupled with additional waste diversion opportunities	Medium	Low	Good potential Would help City reduce waste going to landfill Needs to be partnered with additional waste diversion opportunities (SSO)
Full User Pay	Applies a user fee for each bag of waste placed at the curb	Medium	Low	The City already has Full User Pay system and increase rate ($1.50/tag) with requirements for extra tags on heavy bags (2 tags on 130 L, 3 tags for 240L) County administered program.
Use of Clear Bags	Residents would need to use clear bags for garbage	Medium	Low	Good potential Would require careful implementation. Would need to address resident privacy concerns.
Blue Box				

	Overview	Potential impact on waste diversion	Cost to implement	Potential for City of Woodstock
Mandatory Recycling	By law mandating recycling. Requires enforcement from municipal staff	Medium	Medium	The City could support the County user pay program with this implementation. The key to success is enforcement (by-law officer) and supporting illegal dumping by-law.
Curbside bans or Mandatory source separation	By law mandating recycling. Requires enforcement	Medium	Medium	This is similar to mandatory recycling. The key to success is enforcement.
Weekly Collection of Blue Box	Blue Box would be collected weekly	Medium	Medium	This would give residents additional recycling capacity and could result in additional capture of these wastes. This could be coupled with bi-weekly garbage collection only if SSO program in place.
Develop Central Enviro Depot	Allow for the receipt of additional materials in one location(HHW, WEEE, tires, Drywall, L&Y, etc)	Low-Medium	Medium-High	City residents already have access to the James Street Public Works depot. The City could develop its own Enviro Depot and promote system to encourage participation.
Improved Recycling at Multi-Residential buildings	Allow for capture of more recyclables from Multi-Residential buildings	Low	Medium	City has received funding to make improvements for Multi-Residential buildings.
Green Cart				
Expand to SSO/ Green Cart Collection	Currently only seasonal Leaf and Yard waste collection. Source Separated Organics is not diverted by the City or County.	Medium	Medium-High	The City would need to review the current municipal collection structure/costs to include collection of all organic wastes placed at the curb for collection.
Ban food waste and leaf and yard wastes in garbage	Wastes (garbage) placed at curb that includes organic waste would not be collected	Medium	Low	This would be done in conjunction with the SSO program to capture more organic waste.

	Overview	Potential impact on waste diversion	Cost to implement	Potential for City of Woodstock
Re-launch Awareness of Backyard Composting	Promote backyard composter sales and support the program at local events.	Low	Low	The City could encourage backyard composting through community truck load sales of composters at cost or lower. This could result in a reduction of wastes collected.

Table 7.4 Overview of Recycling Plan Options for City of Woodstock

Suitable? Y/N	Description of Options/Best Practices (For more information: *More information: Blue Box Program Enhancement and Best Practices Assessment Project Final Report, Volume 1)*	Criteria (Score out of 5)						Total Criteria Score	Score x/100
		% Waste Diverted	Proven Results	Reliable Market/ End Use	Economically Feasible	Accessible to Public	Ease of implementation		
Promotion and Outreach									
	Public Education and Promotion Program	1-3%	4	4	4	5	5	22	88
	Training of Key Program Staff	1-3%	4	4	5	4	5	22	88
Collection									
	Optimization of Collection Operations	0%	4	4	2	5	2	17	68
	Bag Limits	3-5%	4	Na	4	4	3	15	75
	Enhancement of Recycling Depots (Enviro-Depot)	3-5%	4	4	3	5	3	19	76
	Provision of Free Blue Boxes	1-3%	4	4	3	5	5	21	84
	Collection Frequency	3-5%	4	4	2	5	3	18	72
	Broaden materials categories for Blue Box	1-3%	2	3	2	5	2	14	56
Transfer and Processing									
	Optimization of Processing Operations-(task completed 09)	0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Partnerships									
	Multi-Municipal Collection and Processing of Recyclables Oxford upper tier-not preferred	3-5%	4	4	4	5	4	21	84
	Standardized Service Levels and Collaborative Haulage Contracting	3-5%	4	4	4	5	4	21	84

Suitable? Y/N	Description of Options/Best Practices (For more information: *More information: Blue Box Program Enhancement and Best Practices Assessment Project Final Report, Volume 1)*	Criteria (Score out of 5)						Total Criteria Score	Score x/100
		% Waste Diverted	Proven Results	Reliable Market/ End Use	Economically Feasible	Accessible to Public	Ease of implementation		
	Intra-Municipal Committee (Already exists)	0%	4	N/A	5	3	5	17	85
Additional Research									
	Assess Tools and Methods to Maximize Diversion	1-3%	3	4	3	5	5	20	80
Administration									
	Following Generally Accepted Principles for Effective Procurement and Contract Management	0%	4	Na	5	4	4	17	85
Other Options									

Table 7.5 depicts common best practices in the IC&I sector to increase overall diversion from disposal.

Table 7.5 Table of IC&I Best Practices and Assessment of Applicability

	Overview	Potential impact on waste diversion	Cost to implement	Potential for the City
General				
Promotion and Education program	Municipality promote and educate IC&I sector on waste management and waste diversion goals	Low-medium	Low	The City could add to County promotion and enhance its current P&E.
Mandatory Waste Audits and Recycling Plans	By-law mandating waste audits and recycling plans for all IC&I establishments that meet Provincial thresholds (i.e. O. Reg. 102/94). Requires enforcement	Medium	Medium	Enforcement officer.
Garbage				
Limit Curbside Collection of IC&I Waste	Downtown core is collected twice per week as part of municipal residential collection. The City could reduce collection frequency.	Low	Low	Anticipated as a low potential as overall amounts collected are likely relatively low in comparison to total residential waste?
Blue Box				
Curbside bans or mandatory source separation	By-law mandating recycling. Requires enforcement	Medium	Medium	The key to success is enforcement-by-law officer.
Green Cart				
Ban food waste and leaf and yard wastes in garbage	Wastes (garbage) placed at curb that includes organic waste would not be collected if a green cart program implemented.	Medium	High	This would help the City capture more organic waste.

These foregoing best practices were used to help identify ways to strengthen current and identify possible new diversion programs, which were then used to develop a number of alternative waste management systems (Systems) for the City.

Four alternative Systems have been developed and are as follows:

- System 1: Status Quo;
- System 2: Enhanced Capture of Blue Box Wastes;
- System 3: Reduce Weekly Waste Bag /Container and Addition of Enviro-Depot; and
- System 4: Green Bin Collection for Source Separated Organics and further Reduction of Bag/Container Limits.

These Systems have been developed sequentially. Each System adds on to the previous System and results in increased waste diversion.

7.1 System 1- Status Quo

System 1 is the existing system or Status Quo and includes the following components:

The City's existing waste management system consists of:

- Waste Management by-law;
- Weekly residential curbside garbage collection;
- User Pay/Bag tag system for curbside garbage (County administered);
- Limited multi-residential/institutional garbage collection;
- Twice per week central business district commercial garbage collection;
- Twice per week collection from downtown refuse containers;
- Bulk waste (i.e. large item) curbside pick-up;
- Bi-weekly two stream residential Blue Box collection;
- Weekly recycling and cardboard collection of central business;
- Blue Box recycling transfer facility (with assistance from contracted forces);
- Fall leaf collection;
- Seasonal brush collection;
- Christmas tree collection;
- Yard waste drop off depot;
- Drop off events for other recyclable wastes;
- Backyard Composter program;
- Drop off of waste and recyclables at the Landfill;
- Other programs including MHSW and WEEE administered by the County; and
- Promotion and Education (P&E) program.

The estimated waste diversion rate for this system is **54%.**

7.2 System 2- Enhanced Capture of Blue Box Wastes

This System is based on maximizing waste diversion of the City's existing waste management system. The focus is on implementing low cost best practices initiatives.

This System focuses on the following:

- All components of System 1;
- Upgraded Promotions and Education program; and
- Improved capture of Blue Box waste to 70%.

When implemented, this system will result in a waste diversion rate of approximately 56%.

1. Upgraded Promotions and Education Program

Current P&E is adequate in terms of how to dispose of and divert wastes. It provides education through instruction but does not promote the City's waste management program. It does not speak to the City's current goals or vision with regard to waste diversion.

Additional waste diversion could be stimulated through the development of an enhanced and sustained P&E program. This would include an overhaul and redevelopment of existing P&E materials. The objective would be to promote the City's waste management program more effectively. This would include specific information for both single family and multi-residential households.

New P&E material should spell out the City's commitment to waste diversion and include a "Call to Action" letting residents and the IC&I sector know how they can participate and contribute to meeting the City's waste diversion goals. This would also include specific information and instructions on how to participate.

Revised P&E would include additional materials posted to the City's web site but the City should endeavour to reach residents through other means including print ads and through the use of social media.

2. Enforcement of By-law

The City has a Waste Management By-law with a mandatory recycling requirement. Additional enforcement of this by-law could result in additional waste diversion into existing programs.

3. Enhanced Capture of Blue Box waste

The current capture rate of Blue Box material is approximately 62%. To incrementally move the capture of recyclables to 75% (i.e. WDO target for *Rural Regional* grouping) a preliminary capture rate target of 65% has been set. As noted in Table 7.4 there are a number of best practice initiatives that can be used to improve the Blue Box capture rate including:

- Upgrade P&E materials (described above);
- Ensure relevant training of key program staff;
- Provision of additional free or low cost Blue Boxes to households as required; and
- Provision of additional recycling infrastructure to multi-residential buildings (currently underway).

Staff training to optimize Blue Box programs is readily available at a low cost to the City. Relevant City staff should be encouraged to attend this training on an ongoing basis.

The provision of additional recycling capacity (i.e. Blue Box) to each single family residence was undertaken in 2008 and improved recycling infrastructure (i.e. carts, P&E information) at each multi-residential building was started in 2010. The provision of additional recycling capacity should make it more convenient for residents to recycle.

Table 7.6 depicts estimated cost implications to implement System 2.

Table 7.6 Cost Implications for System 2

Programs	Estimated Costs	Comments
Upgrade Promotions and Education Program	$10,000 to upgrade $10,000 annual costs to maintain	New costs to the City
Provide Free or Low Cost Blue Boxes to Residents	$5,000	City already distributed new Blue Boxes in 2008. 50% funding may be available from WDO's Continuous Improvement Fund.
Provide Recycling Carts for Multi-Residential Buildings	$25,000	50% funding from WDO's Continuous Improvement Fund Also includes creation of a database and provision of P&E materials

7.3 System 3- Reduce Weekly Waste Bag /Container and Addition of Enviro-Depot

After the implementation of System 2 initiatives the capture rate of Blue Box material will be approximately 70%, for organic waste (i.e. leaf and yard waste, backyard composting) about 75% and for other wastes about 50%.

To move the capture of recyclables to 75% a number of changes need to be implemented. It is also possible to capture additional recyclable wastes through the development of an Enviro-Depot.

These changes focus on making waste disposal more restrictive and at the same time making waste diversion more convenient.

This System focuses on the following:

- All components of System 1 and 2;
- Changes to waste collection could include;
  - Introduce material bans;
  - Two bag/container per week limit; and
  - Clear bags
- Establishing an Enviro-Depot;
  Improved capture of Blue Box to 75%; and
- Improved capture of other diversion (e.g. MHSW, WEEE, Tires etc) to 75%.

When implemented, this system will result in a waste diversion rate of approximately 59%.

7.3.1 Changes to Waste Collection

There are a number of changes that could be made that would impact waste collection including:

1. Introduce curbside material bans

Another approach to promoting waste diversion is implementing curbside material bans (e.g. Blue Box recyclables, MHSW, WEEE, tires etc.). The types of recyclables covered and extent of municipal enforcement would need to be defined.

There would need to be enforcement at the curb by the City's curbside collection crew (and possible follow-up by by-law enforcement officers) with supporting P&E stickers affixed to improper bags.

2. Set 2 Bag/Container Limit for Garbage

This initiative involves reducing waste disposal capacity. The goal is to drive additional Blue Box and other recyclable wastes out of the garbage stream. Instituting bag/container limits may require a phased approach to allow residents time to adapt. Care must be taken to ensure high quality waste diversion that minimizes contamination. For instance, contamination of the Blue Box stream would result in additional charges from the processing contractor.

Table 7.7 depicts suggested bag limit level for various Blue Box recycling programs as outlined in the KPMG Best Practice document (KPMG, 2007) and referenced in the CIF Waste Recycling Guidebook (CIF, 2010):

Table 7.7 Best Practice Guideline for Bag Limits

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

A more aggressive approach is proposed here because of the City's already high waste diversion rate.

Currently, the City does not have a formal system in place to restrict the number of bags residents can place at the curbside. Over 80% of survey respondents (see Appendix 1 for full report) indicated that they put 0.5-1 bags of garbage to the curb per week.

3. Clear Bags for Garbage

Mandate the use of clear garbage bags for garbage (Photo 7.1) collected by the City. This can be used to help support a recycling by-law and/or material bans.

Photo 7.1 Clear Bags for Garbage

There are a number of municipalities across Canada that uses this approach. Ontario municipalities that use clear bags for garbage include: the City of Guelph, Town of Goderich. Three waste regions in Nova Scotia use clear bags for garbage. Numerous smaller municipalities across the country use clear bags for garbage.

This would require a phase in period and considerable P&E. There will be concerns over privacy issues that will need to be addressed.

7.3.2 Enviro-Depot

The City could establish its own Enviro-Depot to allow residents to drop-off various wastes which can be diverted. The City has purchased land adjacent to the James Street Public Works Yard where such a facility could be located (Photo 7.2).

Photo 7.2 Possible Location of Enviro-Depot

It would provide residents with an improved location to bring recyclables not collected at curb as well as an overflow for recyclables collected at the curb. The Enviro-Depot would be open all year round. The specific opening times would be determined by the City but there should be access on at least a weekly basis.

An Enviro-Depot could allow the following waste types:

- Blue Box;
- Leaf and yard wastes;
- Large (bulky items);
- White goods (appliances);
- C&D wastes including clean wood, drywall, metal, shingles, other fully segregated building materials;
- Municipal household special waste (MHSW); and
- Electronics and electrical equipment (WEEE).

Most of these wastes can be directed away from landfill. There are existing markets for most of these wastes.

It may be prudent to work with a non-profit group such as Goodwill Industries to set up an attended donation centre to receive large (bulk items) such as furniture but also other durable goods and clothing. Similarly it may be prudent to work with a non-profit group such as Habitat for Humanity to collect salvageable building materials.

The Enviro-Depot could also be used for a garbage drop-off site.

It is anticipated that for many materials there would be no fee levied. There may be fees for some white goods, construction and demolition wastes and possibly MHSW.

Table 7.8 and 7.9 depict a summary of some Ontario municipalities that have Recycling Depots.

Enviro-Depots vary in size starting at a minimum of 1 ha. Capital costs obviously are a function of the extent and sophistication of development at the site. The City of London recently developed an existing Enviro-Depot for approximately $1 million and this can serve as a very rough guide.

In terms of operating costs an estimate based on data in Table 7.9 would be approximately $2.50 per household. On that basis the annual operating cost for the City would be $40,000. The municipalities described in Table 7.9 are larger than the City. It is likely that the City's costs would be higher than $40,000.

In terms of capture rate a reasonable estimate is 50-100kg per household. For the City this would mean an estimated 800-1,600 tonnes/year received at the facility. Currently much of the City's leaf and yard waste is delivered by residents to the James Street Public Works depot. This would now be received at the Enviro-Depot. Given the estimated amount of leaf and yard waste currently diverted the above estimate will be low.

Table 7.8 Overview of Recycling Depots in Ontario Municipalities

Municipality	Number	Size (ha)	Materials Accepted	Comments
City of Hamilton	3	-	• Recyclables (Blue Box wastes, yard waste, C&D wastes, white goods, scrap metal, tires) • MHSW • WEEE • Re-usable goods • Garbage	
City of London	4	1-1.5	• Recyclables (Blue Box wastes, yard waste, C&D wastes, white goods, scrap metal, propane tanks, fluorescent tubes & compact fluorescent light bulbs, tires) • MHSW • WEEE • Re-usable goods • Garbage	Not all materials accepted at each depot
Town of Markham	4	-	• Recyclables (Blue Box wastes, yard waste, white goods, scrap metal, fluorescent tubes & compact fluorescent light bulbs tires) • WEEE (only cell phones) • Re-usable goods	Not all materials accepted at each depot
Region of Peel	5	10-20	• Recyclables (Blue Box wastes, empty aerosol and paint cans yard waste, C&D wastes, white goods, scrap metal, tires) • MHSW • WEEE • Re-usable goods • Garbage	Not all materials accepted at each depot
City of Stratford	1	<1	• Recyclables (Blue Box wastes, yard waste, scrap metal excluding appliances) • MHSW (annual depots) • WEEE	Located at City Landfill

Table 7.9 Summary of Municipal Recycling Depots

Municipality	Households	Capital Cost	Operating Cost	Operating Cost	Wastes Diverted	Wastes Diverted	Comments
	#	$	$/year	$/hshld/year	tonnes/year	kg/hshld	
Region of Peel	395,000	$3,500,000 -10,000,00	$950,000-- $3,000,000	$2.40-$6.30	20,500	52	Higher capital and operating costs include waste (garbage) disposal/ transfer systems.
City of London	160,000	$1,000,000	$400,000	$2.50	16,000	100	Capital costs for newest depot includes: approvals, service roads, site servicing, earthworks, fencing, lighting, retaining wall, stormwater management pond, and attendant's building. Operating costs are the costs to the City. Private contractor that operates depots able to levy fees for C&D wastes.
City of Hamilton	210,000	-	-	-	9,000	43	
City of Stratford	13,500	-	-	-	1,400	100	

Table 7.10 depicts estimated cost implications to implement System 3.

Table 7.10 Cost implications for System 3

Programs	Estimated Costs	Comments
Changes to Waste Collection		
Set 2 Bag/Container Limit for Garbage	$5,000	Develop P&E program specific to this change
Implement Clear Bags for Garbage	$5,000	Develop P&E program specific to this change
Develop an Enviro-Depot		
Capital Costs	$ 500,000- $1,200,000	Depends on extent of site development Rough estimate
Annual Operating Costs	$50,000-$125,000	Rough estimate for staff costs only Does not include tipping fees

7.4 System 4- Green Bin Program and further Reduction of Bag/Container Limits

After the implementation of System 3 initiatives the capture rate of Blue Box material will be approximately 75%, for organic waste (i.e. leaf and yard waste, backyard composting) about 75% and for other wastes about 75%.

To move the capture of recyclables to 80% (i.e. WDO target for *Small Urban* grouping) a number of changes need to be implemented.

These changes focus on making waste disposal more restrictive and at the same time making waste diversion more convenient.

This System focuses on the following:

- **All components of System 1, 2 and 3;**
- **Changes to waste collection could include;**
  - One bag/container per week limit;
- **Improvements to Organic Waste collection could include:**
  - Upgrade backyard composter program; and
  - Establish Green Bin program
- **Improved capture of Blue Box to 80%; and**
- **Improved capture of Organic Waste to 90%.**

When implemented, this system will result in a waste diversion rate of approximately **67%.**

7.4.1 Changes to Waste Collection

1. Set 1 Bag/Container Limit for Garbage

This initiative involves reducing waste disposal capacity. The goal is to drive additional Blue Box, organic wastes and other recyclable wastes out of the garbage stream. This would be the second phase of reducing bag limits. Care must be taken to ensure high quality waste diversion that minimizes contamination. For instance, contamination of the Blue Box stream would result in additional charges from the processing contractor.

7.4.2 Changes to Organic Waste Collection

1. Enhance Backyard Composting

There are currently 4,000 backyard composters in the City that have been distributed over a number of years. It has been estimated that they result in the diversion of 200 tonnes of organic wastes per year.

A program could be implemented to reinvigorate this program. This could include a P&E program that encourages backyard composting and includes regular training workshops.

A goal could also be set to increase the number of backyard composters in the City by 25% to 5,000. A number of backyard composter sales could be organized. The City could elect to subsidize these backyard composters.

There is a participation threshold for single family households that will use a backyard composter. It is estimated at about 30% of these households will actively use backyard composters.

2. Implement Green Bin Program

To be able to achieve 60% residential waste diversion organic wastes need to be diverted. Residents currently have some opportunity to divert leaf and yard wastes and food wastes through current programs. This program would target remaining organic wastes. It should be noted that diverting organic wastes confers additional benefits (through greenhouse gas avoidance).

A green bin program could be used to capture additional organic wastes. Currently about 2 million Ontario households have access to green bin programs. Residents segregate food waste and non recyclable paper from the waste stream and place it in a green bin. The green bin is emptied on a weekly basis. Many municipalities also allow residents to top up the green bin with leaf and yard waste.

For this System the City would deliver a green bin (and P&E materials) to each single family household. The City should also consider including multi-residential buildings in

a green bin program. Larger carts would be used to collect this green bin waste. Green bin waste would be collected weekly. The green bin waste can be transferred to a third party composting or anaerobic digestion facility. Alternately, the City may elect to develop its own organic waste processing facility.

Table 7.11 presents some collection and processing information on green bin programs in the Province.

Table 7.11 Collection and Processing Information for Green Bin Programs in Ontario

Municipality/ Single Family Households	Container Size (litres)	Collection Details			Processing Details		
		SSO	Garbage	Leaf/Yard Top Up	Technology	Owner	Location
Municipalities allowing plastic bags, sanitary products and pet waste							
Toronto 510,000	46 litre	Weekly	Weekly	No	Tunnel	Orgaworld	London
					Tunnel	Universal	Niagara
					Anaerobic Digester	Toronto	Dufferin-Toronto
					Tunnel	LaFleche	Moose Creek
					Drum Technology	Skip Ambrose (Curtis Auto Wreckers)	Whitby
					New Anaerobic Digester Facility	Toronto	Disco Transfer Site-Toronto
York Region of 294,000	46 litre	Weekly	Bi-Weekly for some programs	Yes	Tunnel	Orgaworld	London
					Tunnel	Universal	Niagara
Municipalities not allowing plastic bags or sanitary products							
Barrie 49,000	46 litre	Weekly	Weekly	No	Cover	All Treat	Arthur
Durham 183,000	46 litre	Weekly	Bi-Weekly	No	Channel	Miller Waste	Pickering
Guelph 36,000	Currently bagged based. Likely switching to cart in Spring 2011	Weekly	Weekly	NA	Tunnel	Guelph	Guelph

Municipality/ Single Family Households	Container Size (litres)	Collection Details			Processing Details		
		SSO	Garbage	Leaf/Yard Top Up	Technology	Owner	Location
Hamilton 200,000	46 litre for downtown & 120 litre for residential.	Weekly	Weekly	Yes	Tunnel	Hamilton	Hamilton
Halton Region 167,000	46 litre & 360 litre for townhouses	Weekly	Bi-Weekly	No	Tunnel	Hamilton	Hamilton
Kingston 50,000	46 litre for downtown residential 80 litre for all subdivision	Weekly	Weekly	Yes	Cover	Norterra	Kingston
Niagara Region 164,000	46 litre & some 80 litre- need to confirm areas	Weekly	Weekly	Yes	Cover	IMS	Thorold
Ottawa 366,000	80 litre for majority & 46 litre based on requests.	Bi-Weekly in Winter Weekly Spring to Fall	Weekly	Yes	Tunnel	Orgaworld	Ottawa
Peel Region 300,000	46 litre	Weekly	Weekly	Yes	Tunnel	Peel Region	Brampton
					Tunnel	Peel Region	Caledon
Simcoe County 112,510	46 litre	Weekly	Weekly	No	Tunnel	Hamilton	Hamilton
City of St. Thomas 16,000	240 litre	Bi-Weekly	Weekly	Yes	Tunnel	Orgaworld	London
Waterloo 190,000	46 litre	Weekly	Weekly	No	Tunnel	Hamilton	Hamilton

Typical green bin programs include the weekly collection of source separated organic (SSO) waste. It is estimated that the City would generate about 2,000 tonnes of SSO annually. For this relatively small amount it does not make sense to develop a composting facility. The closest composting facility is about ½ hour away in London (Orgaworld).

A green bin program scenario was developed for the City that includes:

- Weekly collection of SSO (food waste and non-recyclable paper only); and
- Direct haul transfer to composting facility in London.

There are significant costs that would be incurred if the City were to implement a green bin program.

This would include:

- Capital costs for the purchase of trucks;
- Capital costs for purchase of containers;
- Operating costs to collect and transfer (direct haul) organic waste to a third party compost facility; and
- Tipping at a third party composting facility.

Table 7.12 presents estimated costs.

Table 7.12 Estimated Capital and operating Costs

	Costs	Comments
Capital Costs	$525,000-700,000 $300,000	3-4 new side loading collection vehicles, Green bins
Annual Operating Costs	$600,000-$700,000/year $250-$280/tonne $51-$57/household	Includes weekly collection, direct haul transfer to London and tipping.

Some of the costs associated with implementing a green bin program could be offset by implementing bi-weekly garbage collection. Co-collection of wastes (e.g. garbage and green bin) could also be considered. The bi-weekly collection of green bin wastes would reduce this cost.

Table 7.13 depicts estimated cost implications to implement System 4.

Table 7.13 Cost implications for System 4

Programs	Estimated Costs	Comments
Changes to Waste Collection		
Set 1 Bag/Container Limit for Garbage	$5,000	Develop P&E program specific to this change
Changes to Organic Waste Collection		
Backyard Composters	$60,000	1,000 composters at $60/composter
Green Bin Program	Capital Costs $825,000-$1,000,000 Annual Operating Costs $$600,000-$700,000	For weekly collection of green bin waste from single family households

7.5 Summary

Table 7.14 sets out the four Systems and resultant estimated waste diversion rates.

Table 7.14 Summary of Waste Management System Diversion Rates

	System 1	System 2	System 3	System 4
	Status Quo	Existing System with Enhanced Capture and Diversion	Reduce Weekly Bag/Container Limit for Waste and Addition of an Enviro-Depot	Green Bin Program and further Reduction of Bag/Container Limits for Garbage
	tonnes/year			
Waste diverted	7,099	351	738	1,732
	%			
Impact on Waste Diversion Rate		2.7	5.6	13.1
Waste Diversion Rate	54	56	59	67

The Systems presented offer the City the opportunity to achieve an overall waste diversion rate of up to **67%.** It will be up to the City to decide what waste diversion rate they would like to achieve.

It is up to the City to determine which system it would like to proceed with. This decision will be a function of desired waste diversion balanced with desired service provision and costs. This will clearly need to balance overall environmental performance (i.e. waste diversion) with cost.

8.0 Monitoring and Reporting

The monitoring and reporting of the City's waste diversion is considered a fundamental best practice (especially for Blue Box) and should be a key component of the implementation of this Plan (which includes a Waste Recycling Strategy).

Once implementation of the Plan begins, the performance of the Plan will be monitored and measured against the baseline established for the current system. Once the results are measured, they will be reported to Council and the public. The **recommended** approach for monitoring the Municipality's Strategy is outlined in Table 8.1.

Table 8.1 Monitoring of Plan Implementation

Monitoring Topic	Monitoring Tool	Frequency
Measurement of Waste Diversion by materials captured.	Documented total weight data as outlined in this Plan and compare it to the target capture and waste diversion rates.	Annual summary
Diversion rate (Blue Box, Leaf and Yard Waste, other materials)	Document Diversion Rate Formula: Materials diversion ÷ Total waste generated * 100%	Annual summary
Program participation (Curbside)	Document Curbside Set-out/Participation Studies to determine frequency of curbside set out, number of boxes, fullness of boxes, type of boxes used. Document participation in other programs including the Enviro-Depot.	Once every 1-2 years.
Customer satisfaction	Customer survey (e.g., telephone); tracking calls/complaints received to the municipal office	Every 3 years
Opportunities for improvement	Customer survey (e.g., telephone); tracking calls/complaints received to the municipal office	On-going
Planning activities	Describe what initiatives have been fully or partially implemented, what will be done in the future	Annually

Monitoring Topic	Monitoring Tool	Frequency
Review of Recycling Strategy	A periodic review of the Recycling Plan to monitor and report on progress, to ensure that the selected initiatives are being implemented, and to move forward with continuous improvement	Annual for current initiatives Every 3-5 years to re-evaluate and refine list of initiatives

9.0 Conclusions and Recommendations

As noted in Section 5.0 to help refine future City waste generation and waste diversion estimates it is **recommended** that the following data be collected:

- City determine amount of leaf and yard waste collected and received is from IC&I sector;
- City determine if any leaf and yard waste collected and received is from neighbouring municipalities;
- City estimate amount of garbage and Blue Box waste collected from the IC&I sector; and
- Weigh all outbound vehicles carrying leaf and yard waste and garbage to the Landfill.

It is **recommended** that the City implement at least up to System 3. This will allow the City to achieve a waste diversion rate of 60% and meet the Provincial target. It is **recommended** that more detailed costing be undertaken specifically as it relates to the development of an Enviro-Depot.

If the City wishes to strive for 70% waste diversion rate it is **recommended** that System 4 be implemented. If this is the case it is **recommended** that more detailed costing be undertaken specifically as it relates to the development of a green bin program.

10.0 References

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Appendix 1
Copy of Online Survey

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Woodstock Waste Diversion Survey

1. Introduction

The City of Woodstock is developing a Waste Diversion Plan and a Waste Recycling Strategy. We would like to hear from you about your current waste management habits, level of satisfaction with waste diversion programs and get some ideas about what you would like to see in the future. Please take a few minutes and fill out this anonymous survey. Unless otherwise noted there is only one response required per question. Thanks!

When you are finished the survey click "Done" to ensure your responses are submitted for tabulation.

1. My age is between:

◯ 19-35 ◯ 36-50 ◯ 51-65 ◯ 65+

2. I am:

◯ female ◯ male

3. I am a:

◯ Resident of a house ◯ Resident of a town house or condominium ◯ Resident of an apartment

4. My garbage & recycling is collected on the following day:

◯ Monday route ◯ Tuesday route ◯ Wednesday route ◯ Thursday route ◯ Friday route ◯ Not applicable

2. Current Waste Diversion Habits

We would like to hear about your current waste management habits to help us continually improve our current programs and add new programs, as necessary.

5. On average our household generates the equivalent of this many full green/black garbage bags per week:

◯ 0.5 ◯ 1 ◯ 2 ◯ 3 ◯ 4 ◯ 5+

6. On average our household generates the equivalent of this many full Blue Boxes per week:

◯ 0.5 ◯ 1 ◯ 2 ◯ 3 ◯ 4 ◯ 5+

7. How often do you put your recycling at the curb?

◯ Never ◯ Each collection day ◯ Monthly ◯ Every two months ◯ Not applicable

Woodstock Waste Diversion Survey

8. If you live in an apartment how often do you take your recycling to the apartment's recycling area?

- ◯ Daily
- ◯ Twice per week
- ◯ Weekly
- ◯ Every two weeks
- ◯ Monthly
- ◯ Never, my apartment does not have recycling
- ◯ Never
- ◯ Not applicable

9. What types of paper do you currently recycle? (select as many answers that apply)

- ☐ Newspapers
- ☐ Magazines
- ☐ Cardboard
- ☐ Boxboard
- ☐ Other paper (e.g. gift wrap, paper bags, egg cartons)

10. What types of containers do you currently recycle? (select as many answers that apply)

- ☐ Aluminum cans
- ☐ Steel cans
- ☐ Glass containers
- ☐ Plastic jugs, bottles and tubs
- ☐ Rigid polystyrene (#6)
- ☐ Aluminum foil and trays
- ☐ Milk/Juice cartons
- ☐ Tetra-pak containers (e.g. juice boxes)
- ☐ Empty aerosol and paint cans
- ☐ Cardboard cans (e.g. frozen juice containers)
- ☐ Plastic bags

11. Do you own a backyard composter?

- ◯ Yes and I use it all the time
- ◯ Yes but I do not use it in winter
- ◯ Yes and I use it sometimes
- ◯ Yes but I rarely use it
- ◯ Yes but I never use it
- ◯ No
- ◯ Not applicable

12. The City collects brush at the curbside 3 times per year. How many times does your household put brush at the curb for collection?

- ◯ 0
- ◯ 1
- ◯ 2
- ◯ 3
- ◯ Not applicable

13. In the last year I have taken the following waste to a drop off depot event held by the City or County (select as many answers that apply):

- ☐ Household hazardous waste
- ☐ Electronic waste
- ☐ Tires
- ☐ White goods and scrap metal
- ☐ Blue Box waste

14. Did you know that the City currently has a depot where you can drop off Blue Box wastes?

- ◯ Yes
- ◯ No

15. In the last year I have placed a bulk item (i.e. large waste item) at the curb for City collection:

◯ Yes ◯ No ◯ Not applicable

3. Rating Current Waste Diversion

Please rate current waste diversion opportunities in terms of convenience.

16. Please rate the following current waste diversion programs from 1 (lowest) to 5 (highest) in terms of their convenience:

	1	2	3	4	5
Blue box	◯	◯	◯	◯	◯
Leaf collection	◯	◯	◯	◯	◯
Bulk waste collection	◯	◯	◯	◯	◯
Leaf and yard waste drop off at James Street Depot	◯	◯	◯	◯	◯
Brush drop off at James Street Depot	◯	◯	◯	◯	◯
Household hazardous waste drop-off days	◯	◯	◯	◯	◯
Tire collection drop-off days	◯	◯	◯	◯	◯
White goods and scrap metal drop off days	◯	◯	◯	◯	◯
E-waste drop-off days	◯	◯	◯	◯	◯

4. Future Waste Diversion

17. Our current waste diversion (away from landfill) is estimated to be about 40%. The Provincial goal is 60%. In the future I would like the City to strive for the waste diversion goal:

◯ Current level (no change) ◯ 50% ◯ 60% ◯ 70% ◯ Greater than 70%

18. What other waste management programs would you like to see in Woodstock? (select as many answers that apply)

☐ Hazardous waste drop-off depot ☐ E-waste drop-off depot ☐ Construction and demolition waste depot ☐ Green cart to collect food waste for composting ☐ More apartment recycling ☐ None

Woodstock Waste Diversion Survey

19. Please rate the following possible programs from 1 (lowest) to 5 (highest) that could help you increase waste diversion:

	1	2	3	4	5
Collect Blue Box weekly	◯	◯	◯	◯	◯
Larger Blue Boxes	◯	◯	◯	◯	◯
More apartment recycling	◯	◯	◯	◯	◯
Expand acceptable Blue Box items	◯	◯	◯	◯	◯
Additional opportunities for curbside bulk waste collection	◯	◯	◯	◯	◯
Additional curbside leaf and yard waste collection	◯	◯	◯	◯	◯
Curbside brush collection	◯	◯	◯	◯	◯
Restrict the number of bags that can be placed at the curb for garbage collection	◯	◯	◯	◯	◯
Green bin program (curbside collection of food scraps for composting)	◯	◯	◯	◯	◯
Additional opportunities to recycle household hazardous wastes	◯	◯	◯	◯	◯
Additional opportunities to recycle tires	◯	◯	◯	◯	◯
Additional opportunities to recycle e-waste	◯	◯	◯	◯	◯
Additional opportunities to recycle white goods	◯	◯	◯	◯	◯

5. Diversion of Organic Waste

To achieve the Provincial goal of 60% waste diversion it will be necessary to divert organic wastes including leaf and yard wastes and food wastes away from landfill.

The City currently collects leaves in the fall and receives leaf and yard waste including brush at its James Street public works yard drop-off depot.

Backyard Composting is an easy way for residents to divert food wastes. The City currently offers low cost Backyard Composters for sale. There are approximately 4,000 Backyard Composters in Woodstock.

In Ontario over 2 million households have access to Green Bin programs, which result in the curbside collection of food waste for composting. This tends to result in higher household participation as compared to Back Yard Composting because it is perceived as being more convenient and requires little management.

20. I think Woodstock should expand curbside collection of leaf and yard waste:

◯ Yes, I would like to also see collection in the Spring ◯ No, the current system is fine ◯ Not applicable

Woodstock Waste Diversion Survey

21. I think Woodstock should try to get more people involved in Backyard Composting:

- ◯ Yes
- ◯ No

22. I think Woodstock should consider implementing a Green Bin program:

- ◯ Yes
- ◯ No

23. I would consider participating in a Green Bin program:

- ◯ Yes, all the time
- ◯ Yes, some of the time
- ◯ No, I'd rather use my Backyard Composter
- ◯ No, I am not interested

6. Recycling Depot

The City has recently purchased a tract of land adjacent to the James Street Public Works Yard.

The City is considering turning this into a full recycling depot for Blue Box waste, leaf and yard waste, household hazardous waste, e-waste, construction and demolition wastes, tires and white goods.

This Recycling Depot would be in addition to current curbside and other waste diversion services.

The Recycling Depot could be open as often as weekly.

24. If it is deemed cost effective I would like to see this Recycling Depot developed:

- ◯ Yes
- ◯ No

25. I would likely visit and use the new Recycling Depot:

- ◯ Weekly
- ◯ Every two weeks
- ◯ Monthly
- ◯ Every two months
- ◯ Twice a year
- ◯ Yearly
- ◯ Never

7. Communicating Waste Diversion

Currently the City has a number of ways that it communicates waste management and waste diversion information to you. There are a variety of other methods that can also be used.