

Waste Diversion Strategy

**Working Together
Toward a
Sustainable
Residential Waste
Management
System**



**Aurora
East Gwillimbury
Georgina
King
Markham
Newmarket
Richmond Hill
Vaughan
Whitchurch-Stouffville
York Region**



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Executive Summary

York Region and its 9 local municipalities have developed a strategy to manage the reusable, recyclable and organic material that remains in the residential waste stream. The development of the Waste Diversion Strategy (Strategy) was completed by the Inter-municipal Waste Diversion Committee. The Committee consisted of member representatives from each of the 9 local municipalities and York Region.

In 2005 the municipalities in York Region diverted approximately 34% of the residential waste from disposal. The Committee's objectives were to design a waste diversion system that will divert approximately 65% of the residential waste stream from disposal in the short term and increase this rate to over 70% in the 10-year planning horizon of the Strategy. To meet these objectives, the following waste diversion components were proposed for consideration as part of the potential waste diversion system:

Option	Description	Diversion Potential
Source Separated Organics Diversion	Diversion of household compostable wastes excluding yard waste. Requires specialized containers, collection and processing.	30%
Optimized Blue Box Diversion	Weekly collection; addition of new materials; using bags and alternative collection containers; and/or collecting from local schools.	8%
Improved Yard Waste Diversion	Improved collection service across all municipalities to a minimum of biweekly collection (April – November).	5%
Use of Community Environmental Centres	Location of convenient and accessible depots to receive reusable and recyclable materials and waste that cannot be set out for curb side collection.	5%
Use of Mandatory By-laws	Development of by-laws by the Region and local municipalities to mandate recycling and/or restrict collection of waste containing recyclables.	5%
Use of Bag Limits & Financial Incentives	Restriction of the number of bags of garbage set out for collection. Often combined with financial incentives such as bag tags that require payment for any additional amounts set out.	5%
Enhanced Communication and Public Outreach	Expanded and cooperative promotion and education efforts by both levels of government using multi-media and public engagement techniques and tools.	3%
Construction & Demolition Diversion	Diversion of reusable and recyclable waste from residential and/or commercial renovation & construction.	2.5%
Textiles Diversion	Engagement of not-for-profit organizations such as Goodwill Industries to divert clothing and other goods via a collection or drop-off program.	2%
Expansion of Regional Processing Infrastructure	Expansion/upgrading of the Region's MRF (explain acronym) and development of new Community Environmental Centres and/or composting facilities to meet local municipal needs in a timely manner.	N/A
Expanded Advocacy Efforts by the Region	Lobbying of organizations/governments responsible for policy decisions such as "over packaging".	N/A

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The Committee evaluated 11 potential waste diversion initiatives based on their waste diversion potential, cost, past performance and reliable end use for material. Once the evaluation was complete, the Committee agreed to 7 priority and 4 future initiatives as follows:

Priority Initiatives:

- Source Separated Organics
- Optimized Blue Box
- Community Environmental Centres
- Bag Limits/Financial Incentive
- Enhanced Promotion & Education and Public Outreach
- Diversion of Textiles
- Infrastructure Development

Future Considerations:

- Bi-weekly Yard Waste Collection
- Mandatory Recycling By-law
- Advocacy
- Small Quantity ICI Waste Generators

These waste diversion components are inter-connected in a variety of ways to create a potential waste diversion system that could be used to reduce the amount of waste going to disposal. The Committee has also committed to continued research of new initiatives and technologies that may arise in the future to assist the local municipalities and York Region to maximize the diversion of waste from disposal.

The implementation of the Strategy's initiatives will require the development of new infrastructure and enhancement of existing infrastructure to manage increased tonnage and new materials such as food waste.

Infrastructure enhancements include:

- Increasing capacity of York Region's Material Recovery Facility;
- Siting and construction of Community Environmental Centres;
- Capacity to compost organic food waste; and
- Additional yard waste composting capacity.

The cost of implementing the priority initiatives over the Strategy's 10-year planning period is estimated to be approximately \$11.5 million to \$20 million or \$48.00 to \$83.00 per household annually for operating and \$20-\$30 million for capital costs.

Next Steps

The draft Waste Diversion Strategy will be reviewed by the 10 municipal councils between May and June, 2006 and subsequently released for public consultation and comment. Based on the results of the public consultation, a final report will be presented to the local municipal Councils in the fall of 2006. Once approved, the Inter-municipal

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Waste Diversion Committee will conduct the required research and studies to develop a detailed implementation plan for the Strategy components.



1. Introduction

1.1 Background

In the past, York Region has expended a large amount of time and money attempting to locate new landfill capacity. The most recent effort was the Provincial Interim Waste Authority's Greater Toronto Area (GTA) based Environmental Assessment (EA) process that cost an excess of \$100 million. This caused significant social disruption and was terminated before any new disposal capacity was approved. In response to the closing of landfill sites such as the Keele Valley Landfill Site and the inability to develop new local disposal capacity, York Region, along with other GTA municipalities, have chosen to export their residual waste to landfill in the State of Michigan.

The growing opposition by the State of Michigan to the import of waste from Canadian municipalities could lead to the future closure of the Canada-United States border to waste shipments. As a result, the exportation of residual wastes is not considered a viable long-term solution. In response, the Region and its local municipalities want to find a local waste management solution that is economically, environmentally, socially and politically acceptable and sustainable. In April 2005, the Region initiated a joint EA in partnership with Durham Region to identify a long-term solution for the management of residual waste that is not recycled or diverted through waste reduction and diversion programs.

At the October 2005 meeting of Regional Solid Waste Management Committee, concerns were raised regarding the goal of 60% diversion originally proposed in the EA terms of reference was too conservative and would potentially limit the Region's flexibility in defining the outcome of the EA process. Furthermore, the Region's original waste management strategy is more than eight years old and in many ways no longer reflective of the current situation facing the Region and local municipalities. Recent improvements to the local Blue Box program, and efforts to implement new programs such as the diversion of source separated organics underscore the need to coordinate collection, processing and budgetary planning efforts across both the municipal and regional levels of government. Development of an effective waste diversion strategy, therefore, requires the support and involvement of all ten local municipalities.

The development of a municipally supported waste diversion strategy to manage the reusable, recyclable and compostable segments of residential waste would help to determine what diversion level the Region could expect to achieve during the timeframe recommended within the EA. Furthermore, it would also set the context for a long term region-wide waste diversion system.

Therefore, in January 2006, Regional Council requested that staff prepare an updated Waste Diversion Strategy for public consultation and finalize it by the end of summer, 2006. The scope of the Waste Diversion Strategy focuses on recommendations to divert residential curb side waste from disposal. IC&I (Industrial, Commercial and Institutional) waste is an integral part of the wastes handled by the Region and local

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municipalities. Therefore, while the tonnages and diversion targets discussed in this document refer only to residential waste, it should be noted that IC&I material is managed through the Region's transfer stations; collection in Business Improvement Areas (BIAs); and through the collection of commercial multi-residential buildings. The management of small quantities of IC&I waste must therefore be considered, in particular, when considering diversion options such as the development of Regional infrastructure.

1.2 Development of the Document

In January of 2006, the 10 local governments, including The Town of Aurora, Town of East Gwillimbury, Town of Georgina, Township of King, Town of Markham, Town of Newmarket, Town of Richmond Hill, City of Vaughan, Town of Whitchurch-Stouffville and York Region, committed to participate in the development of a new Residential Waste Diversion Strategy. Waste management representatives from each of the 10 municipalities formed the Inter-municipal Waste Diversion Committee to participate in and oversee the development of a new Waste Diversion Strategy.

Upon commencement of the project, individual discussions were held with each municipality to assess their current waste diversion activities, community characteristics and priorities. Municipalities were also asked to provide input on options to improve current waste diversion programs and potential waste diversion initiatives including issues and barriers to their implementation. Staff were also asked to provide insight into a diversion target that their local Councils would likely support within the Strategy's 10 year timeframe.

Once this information was collected and evaluated, the Committee convened a series of 4 workshops to review and evaluate a list of potential diversion initiatives and their associated barriers, costs, and requirements for implementation (Table 1 below outlines the list of diversion initiatives reviewed by the Committee). The list of diversion initiatives was developed based on the knowledge and expertise of the group and successful initiatives and strategies implemented by other municipalities that would build upon existing programs and address specific waste diversion needs of the community. Once the Committee carefully considered the list of waste diversion options, the initiatives were either de-listed or categorized into priority initiatives and future considerations which could be implemented in medium and long term planning horizons. Next, staff assigned diversion potential and general cost estimates to the options. The working group then worked with this list of initiatives and crafted diversion targets and priority and future objectives to create an effective, long-range strategy to decrease the amount of waste York Region manages through disposal.

Section 4 of this document outlines in more detail the initiatives recommended by the Inter-municipal Waste Diversion Strategy Committee as part of the proposed Waste Diversion Strategy.



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Table 1: Waste Diversion Options

Option	Description	Diversion Potential
Source Separated Organics Diversion	Diversion of household compostable wastes excluding yard waste. Requires specialized containers, collection and processing.	30%
Optimized Blue Box Diversion	Weekly collection; addition of new materials; using bags and alternative collection containers; and/or collecting from local schools.	8%
Improved Yard Waste Diversion	Improved collection service across all municipalities to a minimum of biweekly collection (April – November).	5%
Use of Community Environmental Centres	Location of convenient and accessible depots to receive reusable and recyclable materials and waste that cannot be set out for curbside collection.	5%
Use of Mandatory By-laws	Development of by-laws by the Region and local municipalities to mandate recycling and/or restrict collection of waste containing recyclables.	5%
Use of Bag Limits & Financial Incentives	Restriction of the number of bags of garbage set out for collection. Often combined with financial incentives such as bag tags that require payment for any additional amounts set out.	5%
Enhanced Communication and Public Outreach	Expanded and cooperative promotion and education efforts by both levels of government using multi-media and public engagement techniques and tools.	3%
Construction & Demolition Diversion	Diversion of reusable and recyclable waste from residential and/or commercial renovation & construction.	2.5%
Textiles Diversion	Engagement of not-for-profit organizations such as Goodwill Industries to divert clothing and other goods via a collection or drop off program.	2%
Expansion of Regional Processing Infrastructure	Expansion/upgrading of the Region's MRF and development of new Community Environmental Centres and/or composting facilities to meet local municipal needs in a timely manner.	N/A
Expanded Advocacy Efforts by the Region	Lobbying of organizations/governments responsible for policy decisions such as “over packaging”.	N/A



1.3 Overview of the Existing Waste Management System

Waste management services are a shared responsibility between the Region of York and the 9 local municipalities of Aurora, East Gwillimbury, Georgina, King, Markham, Newmarket, Richmond Hill, Vaughan and Whitchurch-Stouffville.

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Where applicable, the local municipalities are responsible for the delivery of the following waste management services within their respective communities:

- Collection of garbage
- Collection of Blue Box materials
- Collection of yard waste materials
- Collection of bulky items and white goods
- Collection of Source Separated Organics
- Waste management policies and enforcement
- Promotion and Education
- Recycling depots
- Public space recycling
- Provision of recycling containers

York Region is responsible for the delivery of following waste management services:

- Processing and marketing of Blue Box materials
- Transfer and disposal of residual waste
- Transfer and marketing of yard waste
- Transfer and marketing of Source Separated Organics
- Design, construction and operation of Community Environmental Centres
- Waste management policies and enforcement
- Promotion and Education
- Operation of Household Special Waste depots
- Operation of municipal waste transfer, white goods Blue Box recycling drop-off facilities
- Operation of residential electronics drop-off facilities
- Operation of reusable goods diversion events

The level of waste management collection services and programs vary according to each municipality. Appendix B illustrates the municipal collection programs and the corresponding collection frequencies provided in each of the 10 local municipalities.

The following information provides a brief description of each municipality.

Aurora

The Town of Aurora is currently the fifth largest of the 9 municipalities in York Region with approximately 48,000 residents. Aurora is located in the heart of York Region, approximately 30 minutes north of the City of Toronto. Aurora's most distinctive features are its charming rolling hills and woodlots, which are formed by the Oak Ridges Moraine.

The Town of Aurora is planning to implement the 3-stream waste collection program in 2007. The Solid Waste Management staff is dedicated to providing superior service to help residents and businesses reduce their production of waste.



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Town of East Gwillimbury



The Town of East Gwillimbury is located in the northern part of York Region and spans an area of 238 square kilometres. It is a community balanced with the assets of both an urban and rural area. The Town consists of a number of growing urban areas and villages including Holland Landing, Queensville, Mount Albert, River Drive Park, and Sharon. These urban areas are separated from each other by farms, forests, countryside residences and recreational areas which all add to the overall character of the Town.

Early settlement of the area dates back to the late 1700's. The focus of development within East Gwillimbury has continued to be within its 5 major urban centres.

East Gwillimbury's Engineering Department administers the Town's waste management program and the curbside collection of materials is carried out by a private contractor. To keep the public informed of the waste management rules and regulations, the department also prepares an annually waste management program schedule that is mailed to each resident.

Town of Georgina

The Town of Georgina has been a leader in waste management in York Region and throughout the GTA. In 1997 Council introduced a user pay system with every bag requiring a garbage tag. As a result there was a tremendous increase in material being diverted to the blue box program. In 2003 the program was altered slightly allowing 1 free bag at the curb with additional bags requiring tags but the revised program of 1 free bag and weekly blue box collection still produces a diversion rate that falls only behind those municipalities which have introduced Source Separated Organics (SSO) in diverting waste. Council have been reserving \$125,000 for the past 3 years to purchase SSO bins in 2007 in anticipation of implementing an SSO program.

In 2005 the Town increased yard waste collection from 5 pick-ups per year (2 in spring and 3 in fall) to 9 collections throughout the year.

Township of King

Internationally recognized for its prized cattle, lush vegetation and equestrian farms, King Township is located approximately 30 minutes north of Toronto, stretching from Bathurst Street to just east of Highway 50. Villages included in the Township are Nobleton, King City, Schomberg, Kettleby, Laskay, Pottageville, Ansnorveldt and Snowball. Almost 70% of the Township of King is situated in the protected area of the Oak Ridges Moraine.

In 2002, the Council of the Township of King established an Environmental Advisory Committee (KEAC). Comprised of members of the community from diverse backgrounds, the Committee is appointed by Council to act as an advisory body and resource group for Council and staff on protecting and maintaining the environment.

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One of the areas of interest for KEAC is investigating initiatives to reduce the amount of waste the municipality sends for disposal.

The Environmental Advisory Committee and King staff also organizes an annual environmental education fair open to the public. The event provides a forum for encouraging environmental awareness, education and interest. The event includes key-note speakers, displays from environmental organizations and interactive activities for children, promotion of pesticide free lawn care methods and the sale of composters and blue boxes.

Town of Markham

Markham has been a waste management leader since the opening of its first recycling depot in 1972. It rolled out its Blue Box program in 1988, its curbside leaf and yard waste collection in 1990, and its home composting program in 1993. By 1998, Markham was diverting 40% of its waste from landfill.

Markham recently launched "Mission Green"; its plan to divert 70% of its waste from landfill. To reach the 70% goal, Markham has introduced a 3-stream collection system that includes weekly collection of commingled recyclables and organics, and bi-weekly collection of residual waste. Markham's 3-bag limit for garbage has also been reduced from 3 bags per household per week to 3 bags per household every two weeks. The 3-Stream collection program was phased in starting in 2004 and was expanded town-wide in July 2005. Markham is now diverting 65% of its waste from landfill and exceeded 74% in November 2005.

Markham's future plans include expanding the 3-stream collection system to all Town facilities, multi-residential buildings, parks and special events with an eventual goal of 'Zero-Waste'.

Town of Newmarket

The Town of Newmarket has received the Bronze Award from the Recycling Council of Ontario Waste Minimization Awards for Municipalities that divert a significant percentage of municipal waste from disposal. The Bronze Award is for Municipalities generating between 216-280 kg per capita, a 20% reduction from the estimated provincial average. The Town of Newmarket has received this award in 1999, 2001, 2002, 2003, 2004 and 2005. These diversion rates reflect a municipality whose citizens have a keen interest in recycling and also reflect the benefits of the initiatives implemented to date including bag limits, rear yard composting and our "CURBSIDE GIVE AWAY DAYS" program, which permits residents to place reusable items at the curb on the last Saturday of April, June, August and October, for pickup for reuse by other residents.

The Town of Newmarket will continue to promote and educate the public to reduce, re-use and recycle.



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Town of Richmond Hill



The Town of Richmond Hill offers a variety of waste management programs to residents. Since January 2004, there has been a 5 item limit for waste. An item consists of a bag or can of garbage, a bundle of material, roll of carpet, piece of furniture or similar large item. Weight and size restrictions apply to all items except furniture. A separate collection for large items is not offered. Options available to residents for the disposal of excess wastes are limited. They can purchase municipal "Garbage Tags" at most municipal facilities for \$2 each or deliver their excess materials to the Regional transfer station in Georgina. Untagged wastes in excess of 5 items will not be collected. The contractor affixes a "Courtesy Sticker" to items refused in order to inform the residents of the collection requirements.

Blue boxes are picked up at the curb every other week. In response to the opening of the Regional MRF in July 2005, the program was modified from a curbside 5 sort to fully commingled collection. Residents are provided one free blue box per residence and can purchase additional Super-size (22 gal) boxes for \$7 each. Appliances and other large metal items are collected, by appointment, on a monthly basis and are diverted to a scrap metal dealer. There is no charge to residents for this program. There are 17 collections per year for leaf and yard waste, grass clippings excluded. Collections are scheduled every other week in spring and fall, plus monthly in the drier, summer months.

The Town offers subsidized back yard composters to residents including how-to compost seminars in the spring and fall. A comprehensive waste management calendar has been distributed to residents annually since 1989, which they have come to rely on as a definitive source of information. The Town also distributes 2 newsletters a year to update and inform residents about new programs, collection issues and events.

In the near future, several further programs will come to fruition. Blue box collection will move to a weekly basis in September 2006. This is expected to increase the capture rate of recyclable materials by making collection more convenient for residents. At the same time, the waste collection limit will decrease to 4 items per week. The Green Bin will be introduced in April 2007, for weekly collection. Residual waste, continuing with the 4 item limit per collection will commence on an every other week basis.

The Town is also working with the Region to establish a Community Environmental Centre (CEC) adjacent to the Operations Centre. This will increase options for residents to reduce, reuse, recycle and dispose of small quantities using a one-stop approach. A CEC will also engage residents on a more personal basis, and will be a further opportunity for education.

City of Vaughan

The City of Vaughan is located in the southwest corner of York Region just above the City of Toronto. Vaughan has experienced significant development over the last 2 decades resulting in rapid growth throughout the City's five communities. The

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communities of Vaughan include, Kleinburg, Maple, Woodbridge, Thornhill, Concord and the former Town of Vaughan.

The City has embarked on a major initiative called "Greening Vaughan" to address the issues of waste disposal and to meet the provincial waste reduction target of 60% by the year 2008. "Greening Vaughan" is a waste management plan that focuses on enhancing and/or introducing opportunities and programs to divert waste from disposal. The 3 phases of this program will be launched over period of two years. The primary components of the plan include an improved recycling collection program and a separate household organic collection program.

"Greening Vaughan was launched in September 2005. Phase 1 focuses on the enhancement of the City's recycling program to increase the collection frequency of Blue Box materials from every other week to weekly and expanding the list of materials that can be collected. The increased recycling opportunities are accompanied by a 4 item garbage limit. Based on the first four months of Phase 1 (September to December 2005), the City has increased the amount of recyclable material collected curbside by 55%.

Phases 2 and 3 of the plan include the introduction of a source separated organics collection program and a reduction in the limit and frequency of garbage/residual waste that will be collected. A paid garbage tag will also be required for every item over a 3 item limit. Implementation of these phases is expected to be completed by the fall of 2007.

Town of Whitchurch-Stouffville

The Town of Whitchurch-Stouffville is located in the east central York Region, 24 kilometres north of Metropolitan Toronto. Comprised of smaller communities, Whitchurch-Stouffville offers a unique country environment in the Greater Toronto Area. The landscape of Whitchurch-Stouffville consists of fertile rolling farmland, scenic ravines, kettle lakes and forested highlands. Complementing this are major equestrian activities, thoroughbred horse farms, century farms and homes, modern subdivisions, golf courses and picturesque conservation areas.

York Region

York Region has programs in place for the collection and management of Household Hazardous Waste; electronics; reusable goods; transfer and disposal of residual waste; and the processing and marketing of "Blue Box" recyclables, yard waste and source separated organics. Between 2004 and 2005 York Region secured long term source separated organics and yard waste processing capacity to allow local municipalities to begin implementation of 3 stream collection systems. Full implementation of the household source separated organic programs is expected to be completed by 2008. In July 2005, the Region opened its new state of the art \$39 million Waste Management Centre located in East Gwillimbury. This new facility, which includes a single stream Blue Box material recovery facility, enables local municipalities to collection fully co-mingled Blue Box recyclables and significantly reducing local



collection costs. The Region's current Blue Box program allows residents to recycle approximately 25 items, including #1 to #7 rigid, household plastic containers, steel and glass beverage containers, aluminium, empty paint cans, and milk cartons. The Region has also been partnering with Goodwill Industries since 2004 to divert reusable goods and textiles through special collection events.



2. Waste Generation and Diversion

2.1 Population Growth

As of December 31, 2005, York Region's population is estimated to be 918,383¹. The population and number of households by municipality are illustrated below in Table 2.

Table 2: 2005 Estimated Population

Municipality	Estimated Number of Households 2005		Population 2005	Population 2011	Population 2021
	Single Family	Apartments			
Aurora	14,049	1,383	49,097		
East Gwillimbury	6,536	365	22,379		
Georgina	13,842	1,280	45,087		
King	6,191	270	20,181		
Markham	66,587	8,933	268,559		
Newmarket	20,005	4,106	77,114		
Richmond Hill	42,459	8,469	169,299		
Vaughan	62,326	5,681	241,383		
Whitchurch-Stouffville	7,237	1,000	25,284		
York Region	239,232	31,487	918,383	1,060,000	1,300,00

The population in York Region is expected to increase by approximately 150,000 people by the year 2011. This represents an increase of approximately 16% or, 3% on an annual basis.

2.2 Waste Generation

¹ York Region Planning Department

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According to a Statistics Canada survey in 2002, the residential waste generation rate in Ontario was 363 kg/person/year, of which approximately one fifth was recycled or diverted. The average waste generation rate over the past four years has been on an upward trend increasing at a rate of 2.4% since 2002. In 2005, the 9 local municipalities that make up York Region generated approximately 340 kg/person of waste of which 114 kg/person of waste was managed through recycling programs and 226 kg/person was exported for disposal. The total tonnage collected and received by the Region from each of the local municipalities in 2005 is listed below in Table 3.

Table 3: 2005 Waste Tonnages

2005 Waste Management Tonnages				
Municipality	Collected	Diverted	Total Tonnage	Diversion Rate (%)
Aurora	12,934	6,237	19,171	33%
East Gwillimbury	5,661	3,117	8,778	36%
Georgina	13,074	5,630	18,704	30%
King	5,286	2,129	7,415	29%
Markham	38,895	41,113	80,008	51%
Newmarket	17,715	10,947	28,662	38%
Richmond Hill	38,990	14,838	53,828	28%
Vaughan	66,824	17,026	83,850	20%
Whitchurch-Stouffville	6,618	2,927	9,545	31%
Total	205,997	103,964	309,961	34%

2.3 Waste Composition

Various municipal waste audits² completed over the last few years in York Region demonstrate a residential waste composition similar to the type and volume of waste generated in the majority of Ontario municipalities. Table 4 below shows the approximate composition by weight of the residential garbage stream based on the waste audits and Figure 1 illustrates the percentage of materials by weight. The Newmarket waste audit was completed outside the yard waste season. Therefore, the yard waste figure reported in the table below may not accurately reflect the amount of material actually set out for collection as part of the garbage stream.

² City of Vaughan, 2002; Town of Newmarket, 2002; Town of Markham, 2004; King Township, 2005



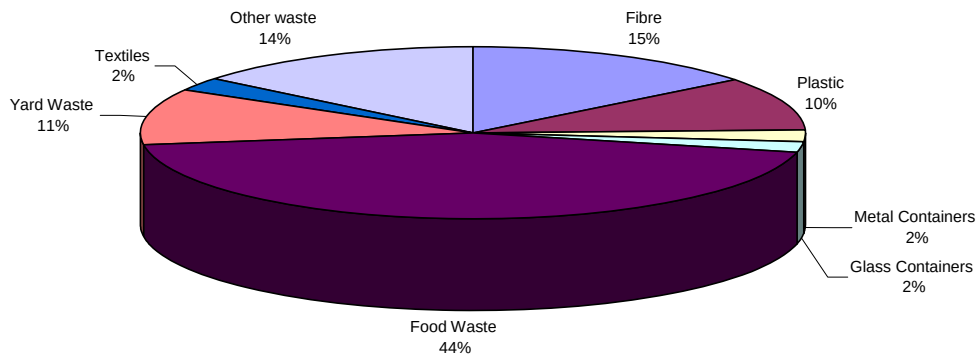
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Table 4: Residual Waste Composition

Garbage Waste Stream	Weight	Waste Composition
Category	(kg/hh/yr)	(%)
Fibre	79.39	15%
Plastic	53.83	10%
Metal Containers	11.74	2%
Glass Containers	10.86	2%
Food Waste	241.36	44%
Yard Waste	57.31	11%
Textiles	13.27	2%
Other waste	77.36	14%
Total Recyclables	169.10	31%
Total Organics	298.67	55%
Total Waste	545.13	100%

Figure 1: Waste Composition by Weight



3. Waste Management Planning Influences

Ontario has, in the past, been a leader in waste management policies starting with the introduction of a comprehensive curbside recycling program in the late 1980's, and following the passing of the 3Rs Regulations, the Waste Diversion Act and most recently establishing the Waste Diversion Ontario in 2002. Many of Ontario's innovative approaches to waste diversion were driven by a future landfill capacity crisis which started in the mid 1980's.

In addition to local Council and community pressures, municipal waste management programs in Ontario are governed and influenced by the following provincial regulations, policies and organizations:

3.1 Regulatory Requirements for Waste Diversion in Ontario

The Ontario 3Rs Regulations include 4 regulations of which Regulation 101/94 applies to the recycling and composting of municipal wastes. The 3Rs Regulation require all Ontario municipalities of greater than 5,000 households to recycle 5 core "Blue Box" materials (including newsprint, glass, steel, aluminum and PET) plus an additional two materials from a longer list of recyclables. The recyclables collection service must be at the same service level as garbage collection, but can be at half the frequency (e.g. a weekly curbside garbage collection service can collect recyclables every other week).

Ontario Regulation 101/94 also requires municipalities to implement the following composting programs:

- Municipalities with over 5,000 people must provide residents with a program allowing them to compost household organic waste themselves (e.g., in the backyard). The regulation requires municipalities to provide the composting bins at cost or less, to promote the program and to offer residents information on proper composting procedures.
- Municipalities with over 50,000 people must provide residents a service that allows them to source separate and divert leaf and yard waste from disposal. The municipality must divert the materials received through the system they operate, whether curbside collection or depots.
- Municipalities with 5,000 to 50,000 people whose systems result in source separated leaf and yard waste, for example, as a result of special fall leaf collections, must divert the wastes from disposal.

3.2 Ontario Waste Diversion Act

On June 27, 2003, Bill 90 was proclaimed as the Ontario Waste Diversion Act, an act to promote the reduction, reuse and recycling of waste. It also established Waste Diversion Ontario, a permanent long term organization to develop, implement and fund waste diversion programs.

This legislation sets the framework for the development of cost-effective, sustainable municipal waste diversion programs in Ontario, and will help ease the financial burden



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for municipalities. The Act allows for the implementation of the “shared responsibility” model that has been recommended through consultation with the public and private sectors. The model accounts for a shared financial responsibility between municipalities and industry stewards in creating a waste diversion system that will help Ontario meet its waste diversion objectives.



The Waste Diversion Ontario (WDO) was created under the Waste Diversion Act (WDA) and is a non-crowned corporation. WDO was established to develop, implement, and operate waste diversion programs for a wide range of materials. On June 10, 2004 the Ministry of the Environment released a discussion paper which advocated a waste diversion rate of 60% by 2008 from the residential, industrial, commercial, institutional, construction and demolition sectors. The paper is currently under consultation.

To date the Minister of the Environment has designated blue box waste, used tires, used oils, waste electronic and electrical equipment and household hazardous waste. Potential future designations include fast food and convenience food packaging, litter, food waste, pharmaceuticals and fluorescent tubes. Once the Minister designates a material through a regulation under the WDA, the Minister requests WDO to work cooperatively with industries that produce and distribute products that result in designated materials to establish diversion programs for these materials.

3.3 Stewardship Ontario

Created in October 2002, Stewardship Ontario is the new Industry Funding Organization for Blue Box materials. The Stewardship Ontario Blue Box Program Plan was developed by Stewardship Ontario and was accepted by the Ontario Minister of Environment in December, 2003. Under this Plan, industry partners representing the grocery, soft drink, packaging, and consumer product industries committed to fund 50% of the net municipal recycling cost. Ninety percent (90%) of this money is to be allocated directly to municipalities based on a funding formula that was developed by the WDO, and the remaining 10% of the funds will be available to support projects to improve recycling system efficiency. The funding applies only to materials collected from the residential sector. There is a single funding formula developed for all municipal recycling programs in the province. The total funding allocation is proportional to each municipality based on the tonnage of each material stream and a series of municipal characteristics which include:

- Types of materials;
- Population density;
- Scale factor; and
- Maximum and minimum capacity.

Municipalities began receiving funding in 2004. In 2004, York Region's 9 local municipalities received \$1,817,792 in funding for the collection and processing of materials diverted through its Blue Box program.

4. Recommendations for the Implementation of a Waste Diversion Strategy

4.1 Diversion Targets

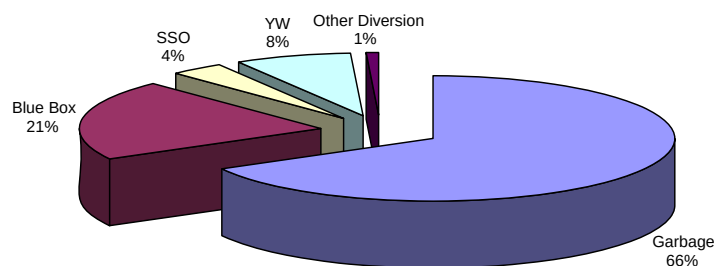
York Region and its 9 municipalities currently divert approximately 110,160 tonnes³ of waste from disposal which is roughly 34% of the residential waste stream. The Inter-municipal Waste Diversion Committee agreed to implement 7 priority waste diversion initiatives over the next 10 years to divert at a minimum, an additional 97,200 tonnes of waste annually by the end of the 10 year planning period. The group's objective is to reach a short term waste diversion target of 65% and strive to increase the target to 70% or greater over the Strategy's planning horizon.

The group has also identified additional waste diversion initiatives that were not given priority for implementation but included in the Strategy for future consideration. Circumstances that will trigger further study and potential implementation of the additional initiatives are as follows:

- 1) The priority initiatives do not reach the waste diversion target of 65% within the 10 year Waste Diversion Strategy implementation period; and/or
- 2) Implementation of the priority initiatives is completed before the 10 year planning horizon is reached.

Figures 2 to 4 below illustrate the diversion rates of the current waste management system, the potential diversion rates for the preferred waste management system and the potential diversion rate of a future waste management system that include those initiatives designated for future consideration.

Figure 2: Current System



³ Figures represent tonnages delivered to Regional Facilities and include curbside and drop off deliveries



Figure 3: Preferred System – Priority Initiatives

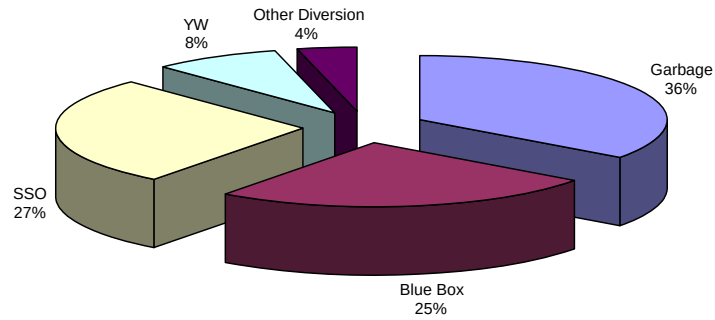
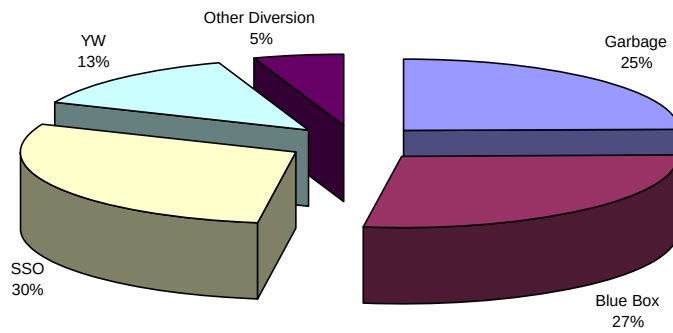


Figure 4: Future Initiatives



4.2 Overview of the Preferred Waste Diversion Components

The Inter-municipal Waste Diversion Strategy Committee agreed to and recommended a priority list of waste diversion programs and initiatives for implementation that will increase the amount of waste diverted from disposal to 65%. In addition to the priority initiatives, the group outlined additional waste diversion initiatives that did not achieve group consensus as a priority component of the Waste Diversion Strategy but were added to the list as potential initiatives for future consideration.

A diversion component was not considered to form part of a potential waste diversion system unless it met the following criteria:

- The initiative has the potential to divert at least 1% of the waste stream;
- The initiative has been proven to achieve results;
- There is a reliable market/end use for materials diverted through the initiative;
- The capital and operating cost to implement the program is not prohibitive.

Each of the system components was analyzed individually to develop a list of priority and future initiatives to maximize the diversion of waste from disposal. It should be noted that all of the individual components are interrelated and are evaluated from the perspective of a fully integrated waste management system. The group proposed the following waste diversion components for consideration as part of the preferred waste diversion system to meet the waste diversion target:

Priority Initiatives

- Source Separated Organics
- Optimized Blue Box
- Community Environmental Centres
- Bag limits/financial incentive
- Enhanced Promotion & Education and Public Outreach
- Diversion of Textiles
- Infrastructure development

Future Considerations

- Bi-weekly yard waste collection
- Mandatory Recycling By-law
- Advocacy
- Small quantity ICI waste generators
- Continued research into new initiatives and technologies to reach beyond the projected 65% diversion target

Source Separated Organics

A source separated organics program includes the collection of household compostable material such as food waste, pet waste, diapers and soiled paper



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products. Like recyclables, household organics are source separated from regular garbage and put into a special bag or container. The organics are then collected at the curb to be composted at a central composting facility.



Source separated organics diversion has been under discussion for several years within the Region and plans are underway in most municipalities to roll out collection programs. Capital cost of implementation was identified as a concern for some of the smaller municipalities. It was recommended that the strategy identify the need for these municipalities and the Region to explore financing options to overcome this barrier.



Waste composition studies show that food waste makes up approximately 30% of the residential waste stream. Based on capturing a minimum 70% of available material, this program would divert approximately 68,040 tonnes of material from disposal. The costs to offer collection of source separated organic waste can range from \$60 to \$100 per tonne and the costs to process or compost the material will range from \$80 to \$150 per tonne depending on the composting technology selected. Implementing a source separated organic program must also consider the initial start up costs coupled with the annualized operating cost of the service. For example, the cost to roll out a source separated organic collection program to 57,000 houses in the Town of Markham was approximately \$1,200,000 for the purchase and delivery of containers and \$260,000 for promotion and education materials for a total of roughly \$26.00/household.

Optimized Blue Box

There are two types of residential recycling programs in the region to collect Blue Box materials - curbside collection and drop off depots.

All single family residences (e.g. residences receiving curbside garbage collection) within the region have access to curbside collection of recyclable materials through the municipal Blue Box collection program. Some multi-family buildings also receive a collection program for recyclable materials using large wheeled blue bins for the onsite storage of materials.

Optimization of the existing blue box program includes a number of alternatives ranging from the addition of new materials to the use of alternative collection containers such as bags, carts, containers with lids, etc. and where applicable, increasing the local collection frequency from every other week to weekly collection. Some of the issues raised regarding implementation of this initiative included the cost to move to weekly collection and debagging recyclables, constraints of existing waste collection contracts and the need to ensure new materials have stable long term markets before added to the recycling program.



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It was recommended that prior to future program changes, further consideration and research should be completed to examine the timing of municipal contracts, end markets for new materials, alternative collection methodologies and creative solutions to overcoming the cost of providing weekly blue box collection.

Optimizing the Blue Box program is anticipated to divert an additional 15,600 tonnes of material from disposal and require capital investments of over \$2 million and have an annual operating cost of approximately \$950,000 - \$1,400,000 or \$3.80-\$5.90 per household.

Community Environmental Centres

The development of a network of strategically located Community Environmental Centres by the Region to provide drop-off recycling and reuse opportunities to residents in addition to those provided by curbside programs was reaffirmed by the group as a priority for implementation. The group also identified the need for these centres to reflect the siting and operational preferences of the local community and to explore creating opportunities to service small commercial waste generators.

The implementation of Community Environmental Centres has been targeted to potentially divert approximately 3,000 tonnes of recyclable materials from disposal. The capital costs to develop the Centres will depend on the location, type and size of facility required. The operating costs of the Centres will also depend on the size and type of facility and could range from \$125 to \$235 per tonne or \$1.50 to \$2.90 per household.



Bag limits/financial incentive

In recent years many communities in Ontario have implemented systems that limit the number of bags/items that can be set out for collection as garbage and/or initiated some type of financial incentive that imposes a fee for each item of garbage placed at the curb.

Members of the group raised a concern that if a program were to include financial incentives, it would have to be implemented in such a way that residents could not “buy” their way out of participating in diversion programs.



Many of the municipalities in York Region already have some form of user pay and/or bag limit system in place. Consideration was given to working

towards a uniform standard across the local municipalities. The group consensus was, however, that while bag limits have value, they should be implemented as part of a larger initiative such as the introduction of source separated organics collection or bi-weekly garbage collection. The ability to collect large or bulky items, provide



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temporary relief during specific times of the year (e.g., Christmas or Passover) was also identified as a concern. The group made a further recommendation to convene a sub committee that would consider the most appropriate and effective mix of bag limits and financial incentives that could be coordinated among the local municipalities. Continued discussion by the group on this issue in the future was recommended.



The cost of implementing this program may involve additional communication materials and thereafter would mostly be absorbed by existing communications budgets. The program is estimated to divert approximately 16,200 tonnes of material from disposal. One time implementation costs are estimated to be approximately \$2.00/household. Ongoing costs are not, however, significant making this option the lowest cost options to divert significant additional tonnage throughout the Region.

Enhanced Communication and Public Outreach

Communication strategies are an integral component of any successful waste management system. Public education is key to the achievement of waste diversion goals and operation of the waste management system as a whole. Delivering effective education and outreach programs can be expensive. Many of the 9 Municipalities in the Region do not have the resources to develop and launch comprehensive education and community outreach programs. There is also a risk that working in isolation will repeat work that others have already done. In addition, the same work may be occurring in neighbouring regions or elsewhere in the Province. There are likely to be significant advantages from economies of scale if Municipalities work together to develop promotion and education programs for common projects.

Both the Local Municipalities and Region produce solid waste management promotion and education materials. The objectives of the Promotion and Education programs are to:

- Promote participation in waste diversion programs;
- Encourage proper participation in recycling collection programs; and
- Encourage compliance with Regional material bans.

The level of promotion and education materials and campaigns vary according to each municipality. Activities include:

- Staffing at public events and speaking engagements;
- Advertisements and articles in newspapers;
- Newsletters;
- School education program;
- A waste management program calendar;
- Brochures for various waste diversion programs (backyard composting, grasscycling, disposal bans, etc.); and
- Web sites featuring program information, tips and facts.

The Inter-municipal Waste Diversion Committee supported increased cooperative efforts amongst the ten municipalities to deliver consistent messaging and initiatives,

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both in design and implementation while allowing enough flexibility for municipalities to reflect the individuality of their community. The need for the Region to provide continued support to the smaller municipalities with their promotional efforts was also recommended.



As a component of this initiative, the minimum level of promotion and education required to deliver an effective program would be determined for each municipality. This program could include targeted promotion and education material sent to residents advising them of what can be diverted and an outreach component that would provide presentations in schools, local service clubs, displays at malls, identify peer leaders in the community, develop model neighbourhoods, etc. Another component of the program would include social research to assess barriers to participation in waste diversion programs and develop tools to overcome the barriers.

A comprehensive communication and outreach program achieves the following:

- Facilitates progress in achieving the waste diversion target by engaging and encouraging the public to incorporate waste diversion initiatives in daily practices;
- Builds awareness by educating and informing residents and businesses in advance about changes to existing services and new services that will become available;
- Obtains input and feedback from residents and businesses regarding the development of the system and service specific issues;
- Provides the answers to commonly asked questions; and
- Potentially reduces the number of inquiries following implementation of new initiatives.

The cost of an effective communications and public outreach program ranges from approximately \$3.00 - \$5.00 per household a year. A program of this nature can help to increase the diversion of materials from disposal by 3-5%.

Diversion of Textiles

Textiles and reusable goods diversion by not-for-profit charities such as Goodwill Industries was also discussed as a priority initiative. Textiles can include items such as clothing, curtains, towels, blankets, sheets, table cloths, and other fabric items.

Promoting existing services offered by not-for-profit organizations and assisting them to implement a region-wide program to capture textiles was identified as a viable and economic solution to capture this portion of the waste stream. It was recommended that municipalities continue to work with these groups to determine how best to deliver an effective program.



The cost to implement this initiative would include staff time to coordinate with not-for-profit organizations regarding logistics and promotion of the program. A



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comprehensive program will divert approximately 6,000 tonnes of material from disposal.



Infrastructure development

Staff also considered the implications of population growth in York Region and managing the additional diversion tonnage. It was recognized that the ability of the local municipalities to roll out new collection programs is reliant upon the Region's ability to develop the necessary supporting processing and/or diversion infrastructure in a timely manner. Therefore, it was recommended that the strategy reflect the need for the Region to examine projected facility needs and coordinate its delivery to meet proposed future program and collection contract changes. Section 5 of this document discusses infrastructure requirements in more detail.



Waste Diversion Initiatives For Future Consideration

Enhanced Yard Waste Collection

Improving yard waste collection locally to a minimum service standard of bi-weekly collection was also explored. The frequency of yard waste collection differs amongst the municipalities of York Region. Collection frequencies range from weekly to every two weeks during the yard waste season, while others collect on a less regular basis. A typical municipal yard waste program may include grass, leaf and brush materials.

Collection of leaf and yard waste every other week from April to November could divert approximately 10 to 15% of the waste stream. The main issue regarding the implementation of this initiative was the potential cost increase that could be associated with the enhancement of this service, particularly in rural areas. The group recommended that further study is required and that a sub-committee be established to explore the most effective approach to implement this initiative.



Waste composition studies show that leaf and yard waste makes up approximately 17% of the residential waste stream. In 2005, approximately 23,000 tonnes of yard waste collected in York Region and composted. Based on the performance of other municipal yard waste diversion programs that collect material every other week from spring through fall, an improved yard waste collection program in York Region could divert an additional 14,600 tonnes of residential material from disposal. The cost to collect leaf and yard waste ranges from \$70 to \$120 per tonne and the cost to compost the material ranges is approximately \$60 per tonne. Total annual cost per household is approximately \$6.00 to \$10.00.



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Mandatory By-laws and Enforcement

The use of mandatory by-laws by the Region and/or local municipalities to require local residents to recycle was discussed briefly. The consensus was that these by-laws are costly and difficult to enforce and research has shown that by-laws have minimal success in improving diversion rates. Further examination of this utility at some point in the future was recommended.

Several municipalities in York Region have policies in place requiring residents to participate in their recycling program. Region wide enforcement and promotion and education could range from \$200,000 - \$400,000 depending on the level of program. While difficult to quantify, a mandatory recycling by-law could divert no more than 6,000 tonnes of materials from disposal.

Advocacy

There are some elements of waste management that are outside of the control of municipalities, but have a significant impact on the amount and type of waste that municipalities receive and process. These elements are controlled by other levels of government, and by producers and manufacturers.

Examples of such elements include:

- Beverage container deposit legislation is within the jurisdiction of the Province of Ontario. Ontario is the only province in Canada that does not have a deposit system on beverage containers to encourage recycling.
- Packaging legislation is a provincial responsibility but has been addressed at a national level. The National Packaging Protocol was adopted by the CCME in 1990. It is a voluntary covenant which has been credited with significantly reducing the amount and weight of product packaging.
- Provinces such as British Columbia have implemented Product Stewardship programs based on Extended Producer Responsibility. Their aim is to place the onus for end of life product management on the producer and consumers of a product and not the general taxpayer or local government.

While municipalities do not have direct control of such elements of waste management, it is within the ability of municipalities to advocate for responsible and effective provincial and federal waste management regulations and policies. To that end, municipalities should be proactive and contact the appropriate departments and agencies to press for action that will reduce waste and increase waste diversion.

Therefore, the group agreed that a future consideration of the Waste Diversion Strategy should direct the Region to take an active role in lobbying manufacturers and senior levels of government on issues such as over packaging and extended producer responsibility.



Small Quantity Waste Generators

The group identified potential diversion opportunities if the municipalities were to provide a service for recyclable materials to small generators in the industrial, commercial and institutional (IC&I) sectors. Although most IC&I waste is not under the control of the municipalities, some of the group members were of the opinion that municipalities should take a lead role and establish opportunities to divert waste from all sectors that generate waste within York's borders. The group determined that while a motherhood approach should be taken to maximize diversion from all sectors within its municipal boundaries, further research is required to determine the potential number of facilities, tonnages, types of programs and costs that would be connected to this type of initiative before giving it further consideration.



Continued Research

The aim of the Waste Diversion Strategy is to maximize the amount of waste diverted from disposal today and into the future in an environmental and financially responsible manner. Therefore, the Inter-municipal Waste Diversion Committee recommended that it continue to research new initiatives and technologies that may arise in the future to assist the local municipalities and Region in maximizing the diversion of waste from disposal.

4.3 Implementation and Monitoring

For the purpose of implementing the Strategy as outlined in this document, it is necessary to consider variable start-dates for the initiatives that were evaluated. Staff applied a phased approach to implementation with two basic stages. Many initiatives were agreed to that could essentially be started right away, while several others would be better to initiate in 5 to 8 years, after the infrastructure has been developed or intermediate steps and studies have been taken. Table 5 below illustrates the implementation priority for each of the waste diversion initiatives. It is important to plan for a highly flexible implementation schedule in order to respond to changes over time such as adjusted market conditions or innovations in technology. Due to the constant change of circumstances and priorities, the Strategy initiatives deferred for future implementation will be reviewed again for suitability prior to their launch. Once the Waste Management Strategy has been approved by Council, the Inter-municipal Waste Diversion Committee will develop an implementation plan. The implementation schedule will be flexible enough to reflect the:

- Outcome of required studies;
- Financial priorities and available funding;
- Availability of staff and contractors; and
- Availability of infrastructure.



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Table 5: Implementation Priority

Option	Comments	Timing
Source Separated Organics Diversion	Most municipalities are committed to implementation within next 3 years. Cost could be prohibitive – funding options may be required for smaller municipalities. Implementation must take into account revising current collection contracts.	Immediate Implementation
Optimized Blue Box Diversion	Cost could be prohibitive – funding options may be required for smaller municipalities. Must consider constraints/timing of current/future collection contracts. Must ensure secure markets before adding material to program. Studies should be undertaken to determine best methods of collection e.g. bags vs. boxes, type of container, etc.	Immediate Implementation
Enhanced Communications and Public Outreach	Requires cooperative effort with similar messages and design but allows for individual municipal character and pride. Smaller municipalities may require assistance.	Immediate Implementation
Textiles Diversion	Could involve coordinating collection by charities or simply promoting existing efforts.	Immediate Implementation
Use of Community Environmental Centres	Design of CEC needs to be flexible to meet site requirements and needs of the community. Locating sites for CECs could be problematic.	Immediate Implementation
Expansion of Regional Processing Infrastructure	Timing must plan 10-15 years out – inline with population growth. Consider Regionally owned SSO facility. Infrastructure development must occur in time for municipalities to roll out collection programs. Infrastructure does not necessarily have to be in York, could utilize other facilities in Ontario. Strategy should recommend further study into types and level of risk regarding York owned vs. others, preferred types of facility, etc.	Immediate Implementation
Improved Yard Waste Diversion	Cost could be prohibitive to some municipalities. May not be an issue in rural areas. Establish sub-committee to further examine impacts/issues/opportunities.	For Future Consideration
Use of Mandatory Recycling By-laws	Difficult to enforce and justify costs of enforcement. Represents another tool to drive diversion. Establish a sub-committee to examine.	For Future Consideration



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Table 5: Continued

Option	Comments	Timing
Use of Bag Limits & Financial Incentives	Could be implemented at the same time as SSO. Consider decreasing frequency of garbage collection to achieve same effect. System should not allow for residents to buy their way out of recycling. Create sub-committee to examine harmonization of bag limits/financial incentives. Initiative must include options for spring cleanup, bulky items, etc.	For Future Consideration
Expanded Advocacy Efforts by the Region	Region needs to more active in lobbying for extended producer responsibility.	For Future Consideration
Construction & Demolition Diversion	Not a significant part of the municipally collected waste stream. Could be managed through CEC's.	Dropped From Further Consideration

The implementation and performance of the waste diversion programs will be monitored by the Inter-municipal Waste Diversion Committee which is made up of Municipal Waste Management Department representatives from the 9 local municipalities and York Region.

This group's role will be to:

- Review the effectiveness of the Waste Diversion Strategy;
- Recommend changes to the Strategy as required to maximize diversion of waste from disposal;
- Identify potential joint projects that require Regional and/or inter-municipal coordination;
- Report results back to their respective Municipalities.

This group will meet at a minimum of 2 days a year to review progress towards implementation of the Strategy, and receive reports on the effectiveness of the programs delivered. This Strategy will be formally reviewed every three years however, the Inter-municipal Waste Diversion Committee will be expected to report annually to their respective Council's on its achievements for the past year and to recommend actions for the following year.

The waste that cannot be eliminated or diverted through composting or recycling is referred to as "residual waste," and ultimately requires disposal. The current development of the York/Durham Residual Waste Study will address the long-term disposal needs of the Region and aims to minimize social, environmental and financial impacts and risks.



4.4 Further Studies

Once the Strategy receives public feedback and has been endorsed by Council, the Region and Local Municipalities will be in a position to review, in more detail, the timing, operational and cost implications of each initiative. Further efforts will be required to examine implementing enhanced communication and outreach strategies, bag limits and financial incentive programs, and processing requirements associated with adding new materials to the Blue Box program. Additional studies will also need to be undertaken regarding the processing of source separated organics to determine the cost and risk assessment of a Region owned composting facility vs. transfer of material to a private or neighbouring municipal facility.



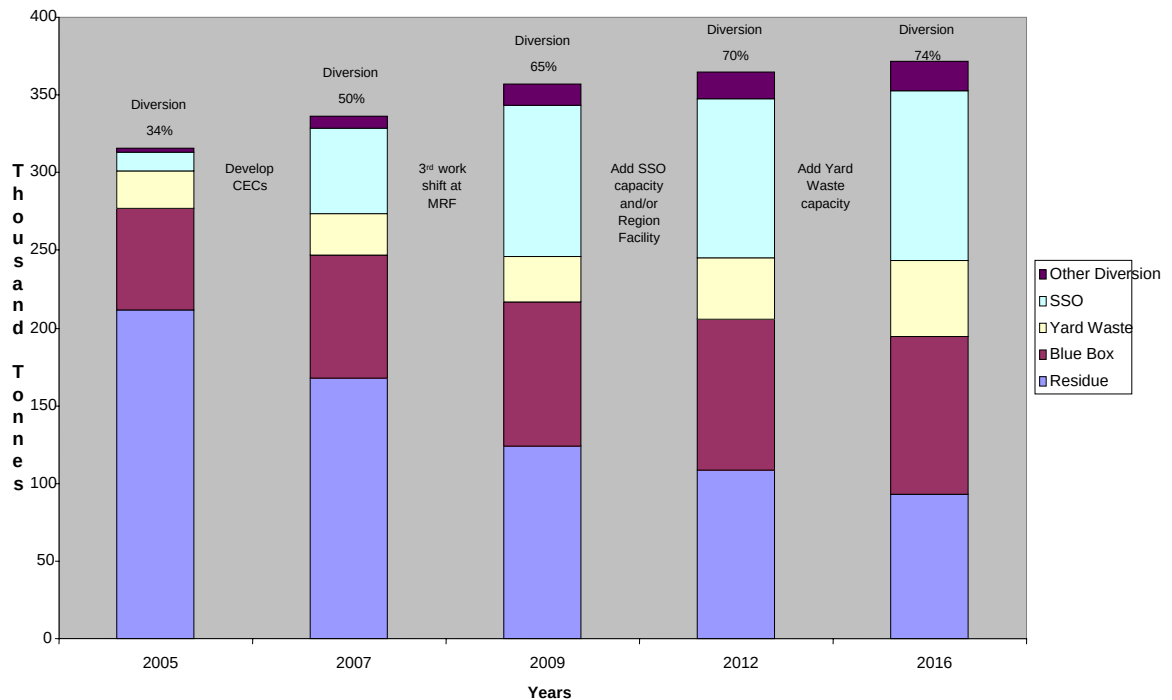
5. Infrastructure

Implementation of the Waste Diversion Strategy will require new infrastructure and enhancement of existing infrastructure as diversion tonnages increase due to increased participation, the addition of new materials and population growth. Development of waste management program infrastructure could take 2 to 10 years depending on the type of facility and the associated planning and environmental requirements. Projected material tonnages and the associated infrastructure requirements are illustrated in Figure 5. The following new infrastructure will be necessary for the Waste Diversion Strategy to reach its full potential:

- Enhancement of York Region's Material Recovery Facility;
- Organic food waste composting facility;
- Yard waste composting facility; and
- Community Environmental Centres

In addition to the infrastructure requirement listed above, it should also be noted that facilities such as Community Environmental Centres could be used to provide waste management services to small businesses. Historically this market segment tends to be ignored by the waste haulers and therefore, does not have access to cost effective private waste diversion services.

Figure 5: Residential Diversion Tonnage and Infrastructure Requirements



Material Recovery Facility

Processing of Blue Box material is managed in York Region's new Material Recovery Facility located in East Gwillimbury. The facility is designed to operate with a maximum of 3 shifts of employees and is estimated to process a maximum of 120,000 tonnes of material. Currently, the facility is operating 2 work shifts and is expecting to add a third work shift by 2008 which will accommodate the additional tonnage estimated to be collected through the optimization of the Blue Box program. Additional studies will have to be completed to determine what additional enhancements to the Facility will be required to manage new types of Blue Box material.



Composting Facilities

The Strategy estimates that roughly 90,000 tonnes of organic materials, including food and yard waste will need to be captured from the residential waste stream in order to meet the diversion targets. Currently, the Region has established approximately 60,000 tonnes of capacity to process and compost organic material. Additional capacity will be required by about 2009. In order to secure the future capacity requirements, the Region should assess the benefits, costs and risk associated with contracting out processing organics opposed to developing a Region owned solution.



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If an in-house solution is deemed preferable, the capital costs to construct an in-vessel composting facility range from \$18 to \$30 million. The cost to construct an in-vessel composting facility will be dependant on the processing technology selected. While in-vessel composting facilities can also process yard waste, studies will also be required to assess the feasibility of composting yard waste separate from food waste using a less expensive open windrow system. These systems consist of a simple concrete or gravel pad on which the yard waste is left to compost in the open air. These facilities are considerably less expensive to construct than in-vessel systems ranging from \$500,000 to \$1 million. Composting yard waste separate from food waste means that an in-vessel facility to process food waste and other organic material could be designed to handle less tonnage and therefore, will result in decreased cost.

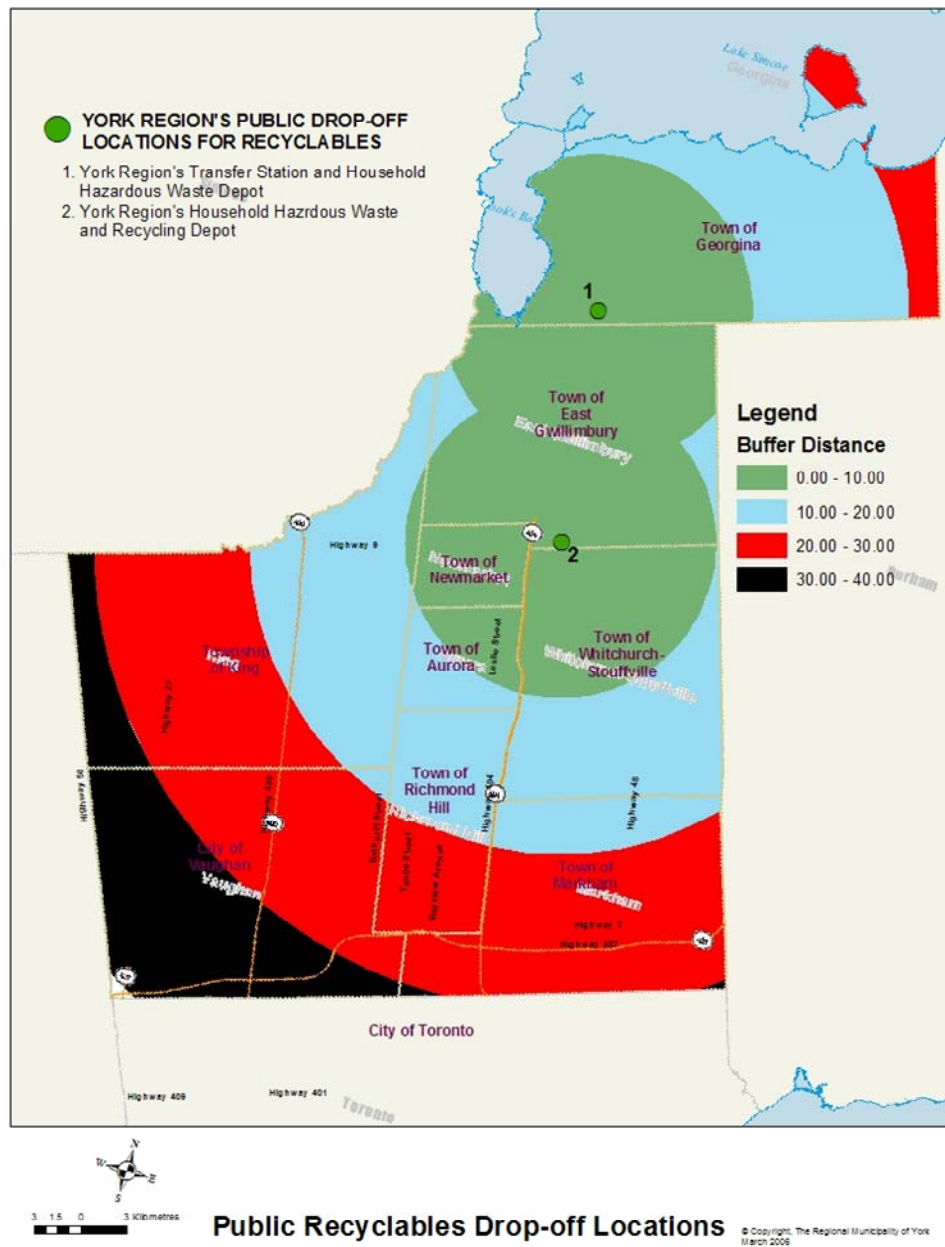


Community Environmental Centres

Public surveys completed in York Region suggest that a network of Community Environmental Centres will provide an effective opportunity for residents to divert waste materials from disposal if centres are located so that travel time to a facility is under 20 minutes. It is anticipated that a minimum of 3 Community Environmental Centres would be required to provide an appropriate level of service. The cost to implement Community Environmental Centres is approximately \$1.4 million in construction costs and \$125 to \$235 per tonne in annual operating cost per facility. The following figures illustrate the current location of current facilities in York Region for the community to drop off recyclable, household hazardous waste and yard waste materials.

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Figure 6: Public Drop-off Locations for Recyclable Material



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Figure 7: Public Drop-off Locations for Household Hazardous Waste

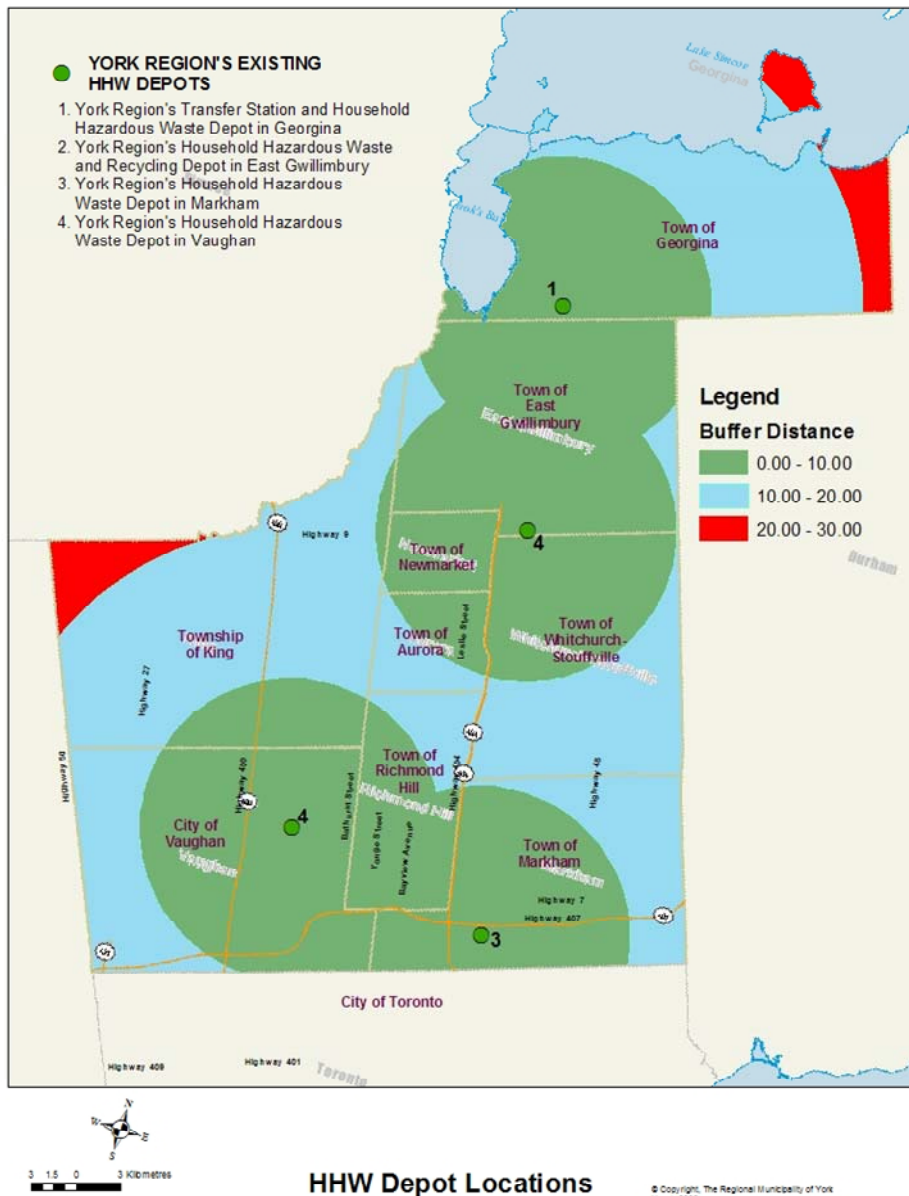
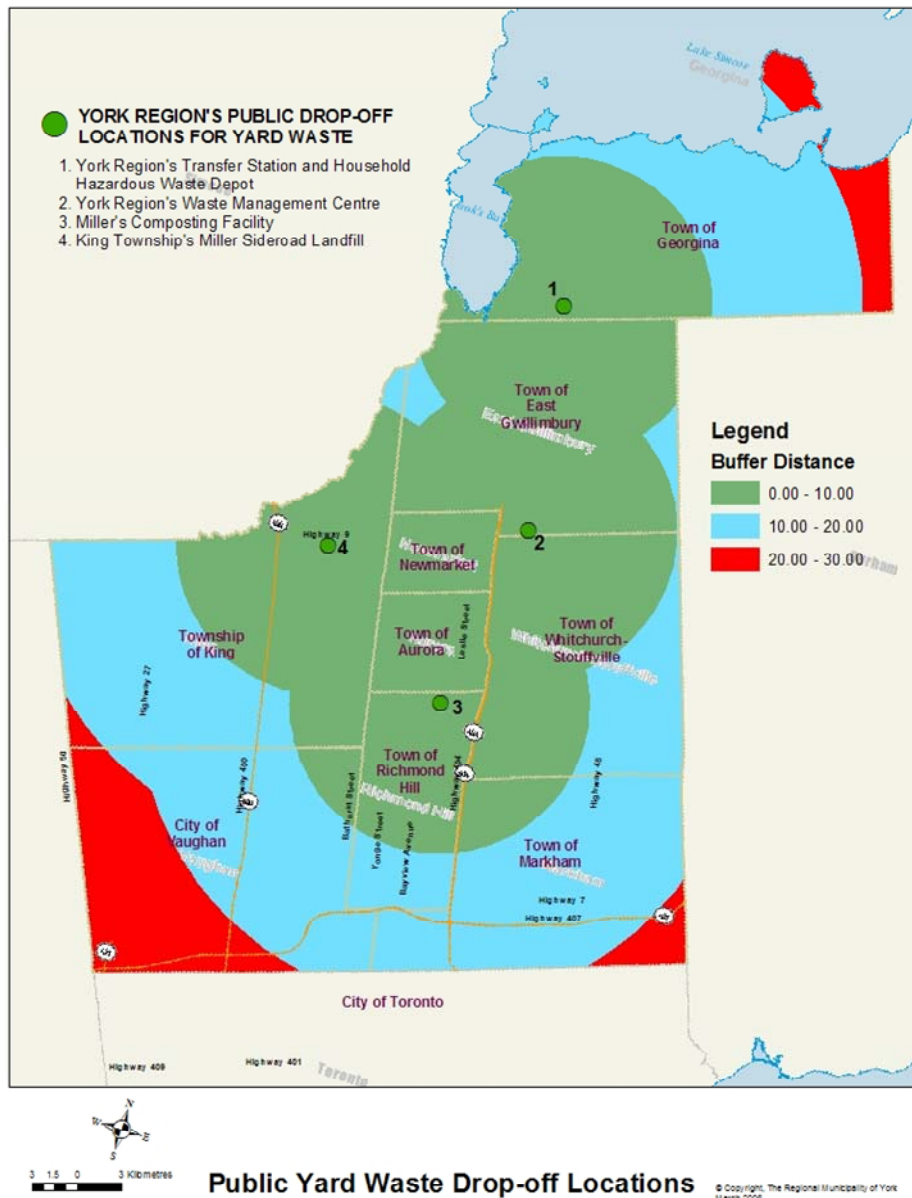


Figure 8: Public Drop-off Locations for Yard Waste



6. Cost

Feedback will be sought from the public and municipal councils on the overall package of new initiatives, and the concept of adopting a long-term strategic plan for a waste diversion system. If the public and respective Councils agree to the priority list of new diversion initiatives, further work will be required by the various municipal staff to develop detailed cost/benefit analyses, implementation schedules, and budget



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estimates for each of the approved initiatives. These more details evaluations of the various initiatives will, in most instances, need to be submitted to the appropriate municipal Councils for final endorsement before implementation can proceed.



The table below identifies the approximate tonnages that can be diverted through each of the waste diversion initiatives and the associated operating costs. The approximate annual operating cost of the priority initiatives is \$13 million to \$23 million or \$54.00 to \$95.00 per household. In addition to annual operating costs, the capital cost required to develop Community Environmental Centres and new and additional capacity for recyclable and organic material will be approximately \$20-\$30 million over the Strategy's planning period.

Table 6: Program Initiative Tonnage and Cost

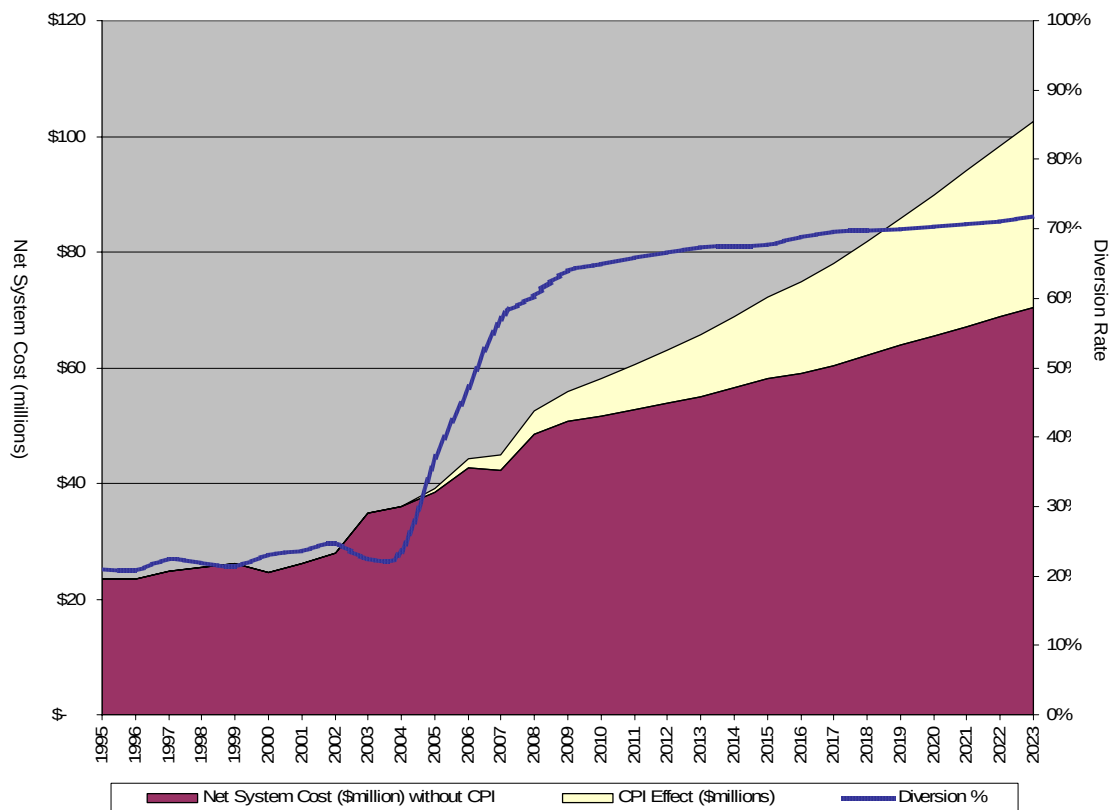
Option	Timing	Diverted Tonnage	Annual Operating Cost
Source Separated Organics Diversion	Immediate Implementation	68,000	\$9,520,000 - \$17,000,000 \$39-\$70/hh
Optimized Blue Box Diversion	Immediate Implementation	15,600	\$950,000 - \$1,400,000 \$3.80-\$5.90/hh
Enhanced Communications and Public Outreach	Immediate Implementation	3-5% increase in tonnage of operating diversion programs	\$720,000-\$1,200,000 \$3-\$5/hh
Textiles Diversion	Immediate Implementation	5,832	N/A
Use of Community Environmental Centres	Immediate Implementation	3,000	\$375,000-\$705,000 \$1.50-\$2.90/hh
Expansion of Regional Processing Infrastructure	Immediate Implementation	N/A	Included in the cost to optimize Blue Box
Improved Yard Waste Diversion	For Future Consideration	14,600	\$1,600,000-\$2,600,000 \$6-\$10/hh
Use of Mandatory Recycling By-laws	For Future Consideration	6,000	\$200,000-\$400,000 \$0.40-\$1.60/hh

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Option	Timing	Diverted Tonnage	Annual Operating Cost
Use of Bag Limits & Financial Incentives	For Future Consideration	16,200	N/A
Expanded Advocacy Efforts by the Region	For Future Consideration	N/A	N/A

The following figure illustrates the estimated total waste management system cost including disposal vs. the projected diversion target.

Figure 9: Total System Cost vs. Diversion Target



7. Funding Opportunities



The cost to implement the Waste Diversion Strategy initiatives was identified by many of the small municipalities as a major barrier to implementation. A number of opportunities were suggested to overcome possible financial issues. These included loans from York Region to the municipalities and funding from provincial and federal programs. The major government funding programs available to assist regions and municipalities develop and implement waste diversion programs and infrastructure is listed below:

- **Green Municipal Enabling Funds:**
The Federation of Canadian Municipalities has established the \$100 million Green Municipal Investment Fund (GMIF) and the \$25 million Green Municipal Enabling Fund (GMEF), which are designed to encourage advances in environmental technology and innovation. The expectation is that knowledge and experience gained with support from GMIF/GMEF in best practice and innovative environmental projects will be applied nationally to program and infrastructure projects.
- **Canada Strategic Infrastructure Fund:**
The Federal Government has allocated \$4 billion for regions and municipalities seeking to invest in infrastructure projects that promote effective urban development and use innovative technologies and practices to minimize green house gas emissions pollutants.

8. Summary

York Region and its 9 local municipalities have initiated a study of waste diversion options. This study examines options to further reduce the waste stream sent to final disposal. The local municipalities and York Region working together, continuously strive to increase the diversion of waste from disposal. Implementation of the various diversion programs and initiatives discussed in this report will meet and exceed the waste diversion target proposed by the Ontario Ministry of the Environment. The new initiatives are designed to increase participation and diversion rates to beyond 60%.

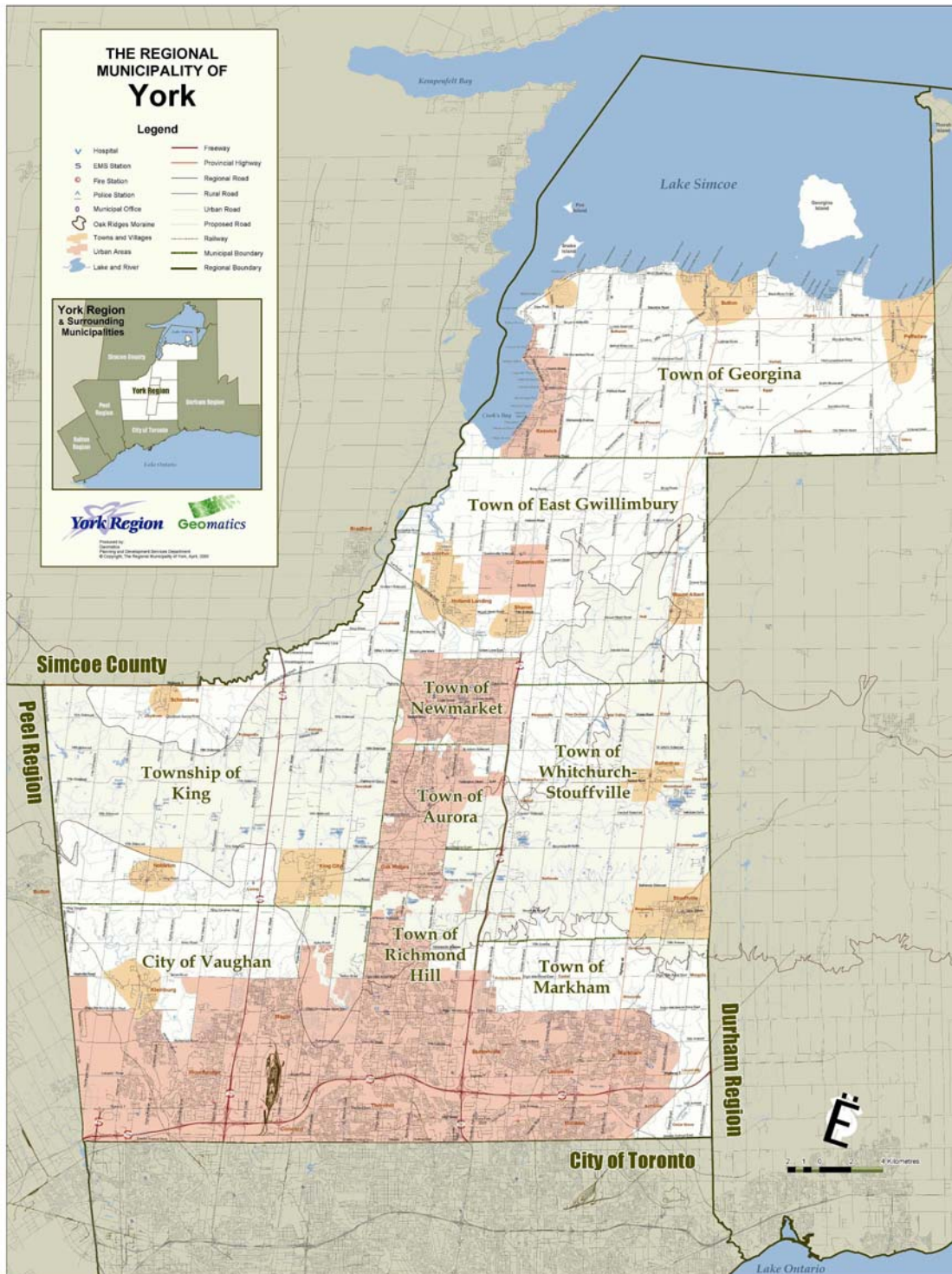
The diversion initiatives identified in this document with the possible exception of Community Environmental Centres, do not require Environmental Assessment Act approval and therefore implementation of the recommendations can begin as soon as staff and financial resources permit. The intent once the Strategy has received public consultation and been endorsed by the respective Councils is to begin developing potential diversion and costs estimates in more detail for each of the proposed initiatives so that approval to begin implementation can be sought.

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Appendix A

Map of York Region and Local Municipalities





Appendix B

**Existing Municipal Programs and Frequency of
Collection as of May 2006**



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	Aurora	East Gwillimbury	Georgina	King	Richmond Hill	Markham	Newmarket	Vaughan	Whitchurch-Stouffville	York Region
Waste Management										
Garbage	Once/week	Once/week	Once/week	Once/week	Once/week	Every other week	Once/week	Once/week	Once/week	Transfer & disposal
Blue Box	Every other week	Every other week	Once/week	Every other week	Once/week	Once/week	Every other week	Once/week	Every other week	Processes material
Bag limits	3	4	No	3	4 (2006)	3 bags without tags, additional bags must be tagged	3	4	5	NA
Financial Incentives	No	No	1 free bag all others \$1/bag	3 free bags then \$1/bag up to a maximum of 6 bags total	\$1/bag over 3 to max of six total.	No (free bag tags must be affixed to bags in addition to the 3 allowed without tags)	3 free bags, \$2.20 a tag for additional bags, no limit on tags	\$2/item over 4	3 free bags then \$2/bag up to a limit of 5 in total	NA
Yard Waste	Once/month from April to August	Once/month in October & November	Once/month from April to November	Three/spring & three/fall	Twice/month during spring & fall and once/month during summer	Every other week April to November	Once a month in Jul, Aug, Sep - twice a month in May, Jun, Oct, Nov.	Once/week in spring & fall, every other week during summer	Once/month May to November	Processes material
Promotion & Education	Waste Calendar; Website; Recycling guide	Waste management calendar; brochure; website	Waste management reference guide; website	Waste collection schedule; website	Engineering and Public Works calendar; website; brochures	Waste collection schedule; Apartment recycling guide; brochures; newsletters; website; school presentations; display; newspaper articles; branding	Waste & recycling calendar; website, notices and ads in local newspaper	Garbage & recycling calendar; brochures; newsletters; door hangers; website; mobile signs; displays; newspaper articles; branding; door to door outreach	Waste collection schedule; website	Brochures; displays; video; website
Source Separated Organics	No	2007	No	2009	2007	Once/week	2007	2007	2007	Processes material