Solid Waste Management Strategy

County of Simcoe

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Stantec

Solid Waste Management Strategy

June 2010

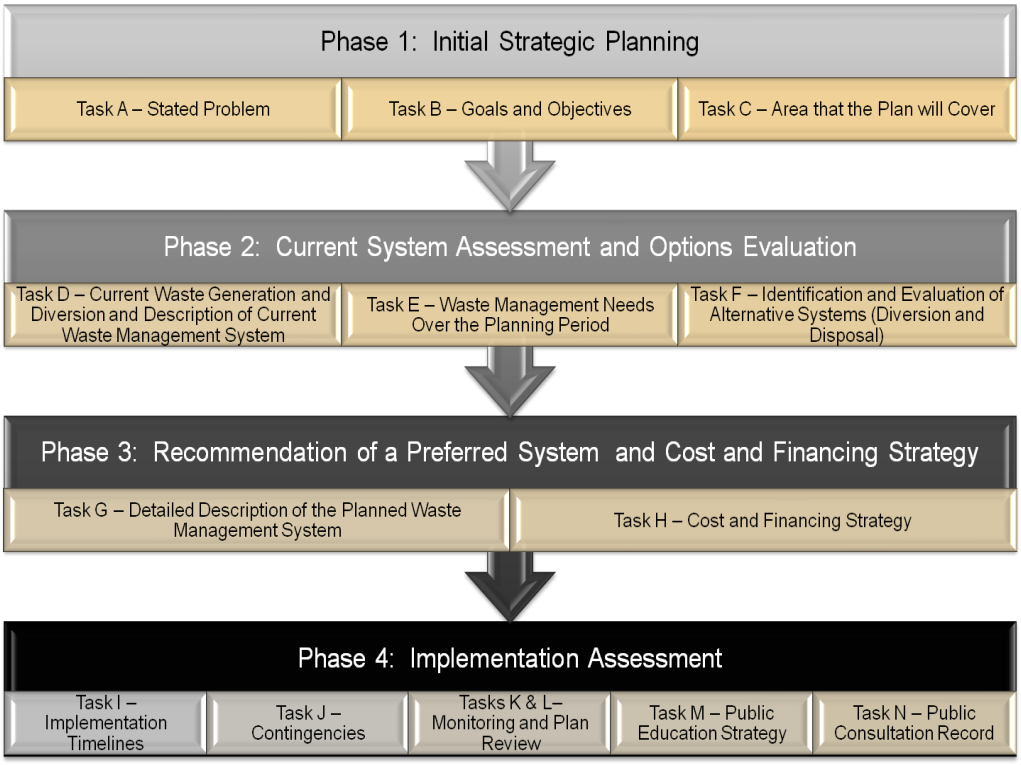
Special points of interest:

- Simcoe County has a diversion rate of 57%. (WDO GAP).
- Each resident generates 392 kilograms of waste very year.
- Residents generated approximately 115,000 tonnes of waste in 2009.
- Simcoe has about 7 years of waste disposal capacity left if diversion stays the same and the population grows..
- The Strategy must address the needs of over 320,000 residents in 16 municipalities in an area approximately 4,800 km^2.

Executive Summary

In 2009, the County of Simcoe began a process to develop a Solid Waste Management Strategy for the next 20 years. The Strategy is necessary to provide short and long term disposal options and make further improvements to the County's waste diversion programs. The Strategy considered existing policies and directions in the County, defined a vision for the future, reviews the County's current waste management system, and explores a combination of techniques and programs for integration into the future waste management system. Strategies were developed to manage the County's municipal waste streams in a manner that is appropriate based on local needs and circumstances and considerate of potential economic, environmental, and social implications. The Strategy identifies potential solutions and makes recommendations, establishes a planning framework and strategic direction for the foreseeable future.

Development of the Strategy occurred over four phases:



For more information:

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Prepared by Stantec Consulting Ltd. on behalf of Simcoe County.

About the Strategy

In 2009, Simcoe County managed over 100,000 tonnes of residential waste collected at depots and at the curb.

Purpose:

- To provide direction for the County's waste management system.
- To make progress towards zero waste.
- To address processing and garbage disposal needs for the next twenty years.

Results:

- The selection of a long-term waste management system.
- A recommended approach to implement the system.

The Strategy **is intended** to:

- Identify programs and approaches to improve diversion
- Determine if the County should build recycling or composting facilities or ship materials to an outside processor
- Select the best approach to collect and transfer waste to support the waste system
- Address garbage disposal (and potentially processing) requirements and approaches for the short and long-term

The Strategy **was not intended** to identify specific processing or disposal technologies.

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Problems….

- Lack of secure, cost effective long-term processing capacity for recyclables and organics
- Need to improve effectiveness and efficiency of current diversion programs
- Need for additional strategies to incrementally improve diversion
- Need to maximize use of existing disposal capacity
- Lack of disposal capacity over the long-term

"While having achieved significant progress on waste diversion, Simcoe County lacks the necessary infrastructure to sustain and further improve diversion performance to make progress towards Zero Waste. While Simcoe County has existing assets in the form of approved landfill capacity, they may be insufficient to address its disposal needs in the near term. Simcoe County also appears to lack sufficient long-term capacity to manage the residual waste remaining after diversion, particularly given the potential growth and demand for waste services over the next 20 years."

Guiding Principles Used in the Strategy

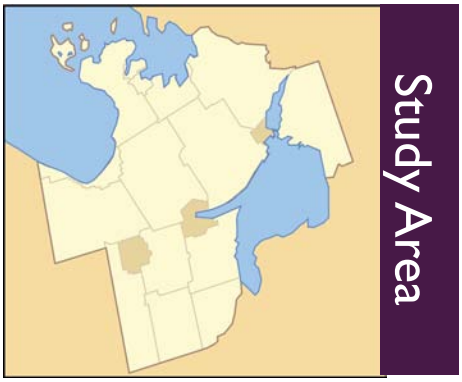
Simcoe County collects recyclables in two streams - fibres and containers.

- The general principles of Zero Waste;
- Principles for waste management planning as set out by the Province of Ontario in the "Policy Statement on Waste Management Planning (June 2007)";
- Triple bottom line/sustainable approach, considering environmental, economic and social factors in the decision making process; and,
- Waste management hierarchy (otherwise referred to as the "Waste Value Chain") where waste avoidance, reduction, reuse and other diversion programs have the priority over disposal.

Current Solid Waste System

The County provides a comprehensive waste management program with the following components and facilities:

- Three active landfills disposing of regular garbage with approximately 7 years combined capacity remaining
- One landfill accepting inert materials with significant remaining capacity
- Four transfer stations/ depots
- Enhanced blue box program
- Drop-off depots
- One small Material Recovery Facility (MRF)
- Majority of recyclables processed outside of County
- Green bin organics collection program
- Organic material processed in City of Hamilton composting facility
- Progressive waste policies (one-bag limit) for garbage
- Household Hazardous Waste and Waste Electronics Services
- Diversion of various materials at depots (scrap metal, wood, drywall, shingles, leaf & yard waste, tires, white goods)
- Achieving diversion success,



The Study area is the entire County of Simcoe including all 16 municipalities excluding the cities of Barrie and Orillia.

Current Solid Waste System Performance

The two primary residential waste management programs are the drop-off depot program located at various landfills/transfer stations and the curbside collection program which includes the following:

- Garbage – weekly collection, one bag limit;
- Blue Box recycling – weekly collection, containers and fibres;
- Kitchen Organics – weekly collection, co-collected with garbage;
- Leaf and Yard Waste – in some municipalities;
- Bulky Waste – in some municipalities;
- Scrap Metal – in some municipalities; and
- Brush / Christmas Trees – in some municipalities.

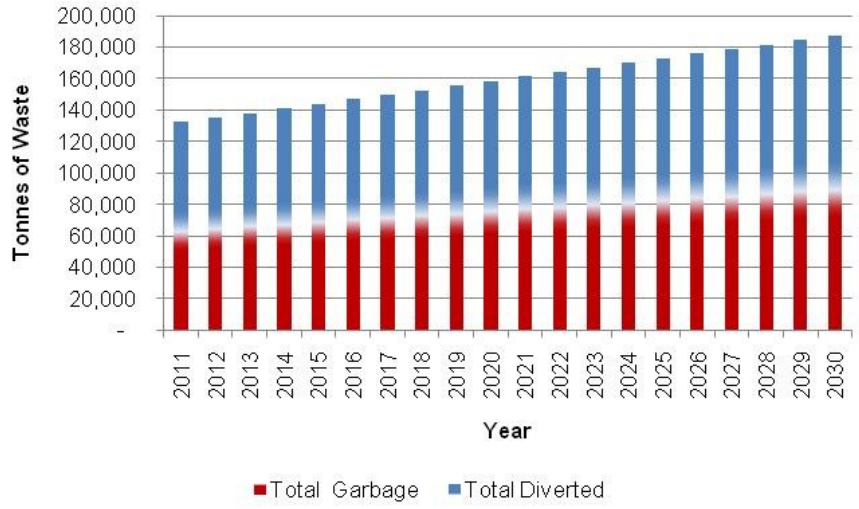
In 2008, the County implemented a source separated organics diversion program.

There are two main waste producing sectors in the County: 90% of waste managed by the County in 2009 was residential (including single family, multi-family and seasonal) and 10% was from Industrial, Commercial & Institutional (IC&I) facilities produced by Industries, Commercial facilities such as stores and restaurants, and Institutions such as schools, hospitals, long-term care facilities.

In 2009, residents generated approximately 115,000 tonnes of waste, the majority of which was handled by the County's curbside collection and drop-off depot programs. The remainder consisted of materials that were diverted in other ways (backyard composting, grasscycling, garburators and the residential component of the LCBO deposit/return and stewardship program). In 2009, Simcoe managed approximately 12,000 tonnes of IC&I waste through curbside collection and drop-off depots.

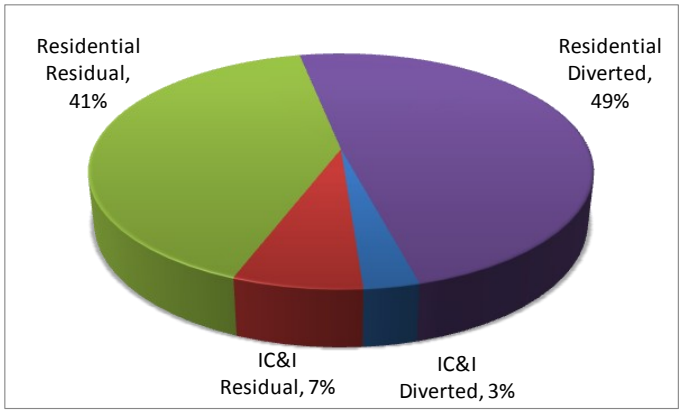
If there is no change in waste generation, as of 2030 based on projected residential population growth, over 180,000 tonnes of waste per year could require management.

Status Quo: Estimated Tonnes of Waste Diverted and Disposed (2011-2030)



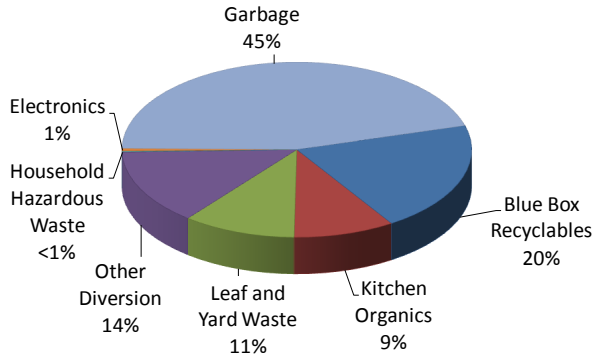
- In 2009 the residential waste generation rate was 392 kg/person/year.
- The residential diversion rate for waste handled by the County was approximately 55%.
- The residential diversion rate with other diverted materials from the WDO GAP analysis included was approximately 57%
- The overall County diversion rate for residential and IC&I waste was approximately 52%

The figure below illustrates the proportion of total waste managed by the County in 2009.



Composition of Residential and Industrial, Commercial & Institutional Waste

The composition of curbside waste was based on the results of single family waste audits. The composition of depot waste was based on similar studies done by other municipalities since no audits have been completed for this stream.

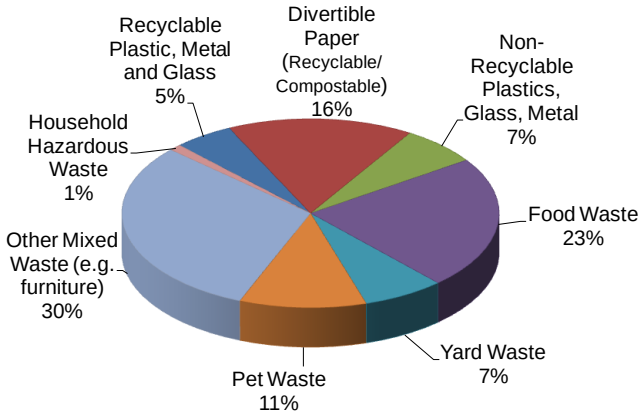


Composition of Residential Waste Managed (2009)

In 2009, the County disposed of 51,933 tonnes of residential garbage or approximately 45% of the total residential waste collected curbside and at depots.

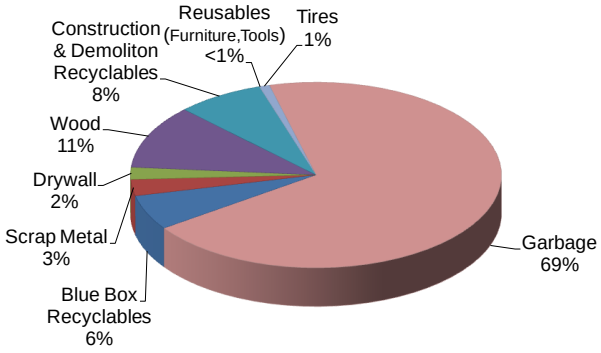
Evident in the figure to the right, there remains a great deal of potentially divertible material in the waste stream which is being sent to landfill.

The category comprising the greatest proportion of waste is "other mixed waste" which includes materials such as diapers, sanitary products, textiles, carpeting, furniture mattresses and other large bulky items.



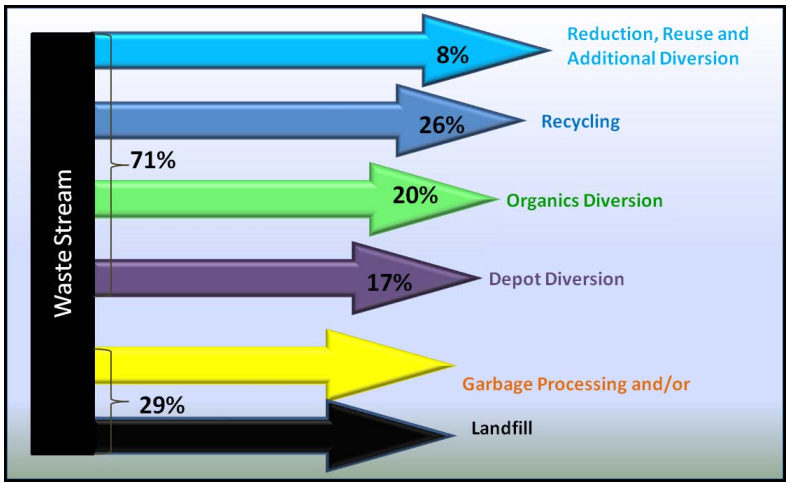
Estimated Composition of Residential Garbage Sent to Landfill

In 2009, the County managed approximately 12,000 tonnes of Industrial, Commercial & Institutional (IC&I) waste via curbside collection and drop-off depot programs. The IC&I sector diversion rate decreased from 39% in 2008 to 31% in 2009.



Relative Composition of Industrial, Commercial & Institutional Waste Managed (2009)

The Recommended Solid Waste Management Strategy (SWMS)



The priority for materials management in the recommended solid waste management system is based on the movement of materials generated by residents and the IC&I sector that participate in County programs, through the diversion components of the system, as illustrated.

Recommendations: Diversion initiatives

- Enhance current reduction and re-use programs
- Establish a per capita waste reduction target
- Develop re-use centres, re-use programs and re-use partnering initiatives e.g. waste exchange events
- Implement a green procurement strategy for County facilities
- Endorse Extended Producer Responsibility and waste minimization legislation
- Enhance existing waste diversion depot programs e.g. textiles, wood
- Implement a clear garbage bag program
- Bi-weekly garbage collection
- Increase recycling container capacity (carts, larger blue boxes, blue bags)
- Enhance and sustain advertising, promotion and education
- Establish a public open space recycling program (in parks, on streets etc)
- Establish a special events recycling program for vendors or organizations typically using municipal facilities such as parks, arenas
- Examine the diversion of IC&I sector materials (expanded diversion for schools, hospitals, long-term care facilities etc.)
- Establish a mandatory diversion by-law both curbside and at depots

The combination of new diversion programs and provincial initiatives should continue to move the County towards Zero Waste.

Every 5% decrease in residential waste generation would remove approximately 6,000 tonnes of waste from the County system.

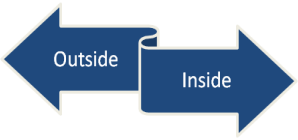
Recommendations: Recycling

Processing capacity is needed for 25,000 to 35,000 tonnes per year of County recyclables in the short-term and up to 50,000 tonnes per year in the longer term.

Short-Term

Process recyclables outside the County

- Requires upgrading of transfer capabilities
- Flexible option should changes to regulations remove responsibility for managing recyclables from municipalities
- Only option for short-term



Process recyclables within the County

- Develop a new Material Recovery Facility (MRF)
- Potential for economies of scale if material from Barrie and Orillia is included
- More flexible to respond to increases in types and amounts of materials and market changes

Long-Term

There is potential for significant changes to Blue Box recycling in the Province based on the proposed changes to the Waste Diversion Act. The decision to build a new MRF should be made in 2012/2013 when the proposed changes are known.

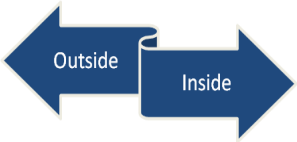
Recommendations: Organics

Currently, the County's organics are processed at the City of Hamilton's Central Composting Facility (CCF). The County will generate up to 25,000 tonnes per year of household organics with another 10,000 tonnes per year of yard waste. Two options for processing were analyzed; 1) securing long-term processing capacity outside Simcoe County and 2) developing processing within the County. Both options have the potential to add more materials to the green bin, which could add approximately 4% to the diversion rate.

Short-Term

Export and secure processing capacity outside the County

- Some risk that additional capacity may not be available if diversion increases occur in the County
- Requires additional haulage of material; results in higher emissions from transport
- Less control over program for County



Develop processing capacity within the County

- Requires development of a new processing facility
- Could reduce transfer/haul costs
- Potential for partnering with Barrie and Orillia
- More flexible to respond to increases in types and amounts of materials

Long-Term

Recommendations: Collection

Collection options examined included 1) a review of existing collection contracts including contract terms, durations, separation of collection from processing and contract areas and 2) alternative collection options.

Recommended Collection Approaches	Description
Coordinate the end-date of the current collection contracts	Currently County has 5 different contracts with different end dates. County should negotiate an extension to current contracts so they all end at the same time.
Develop and issue a Request for Proposals (RFP) for collection services	The next collection contract should run for a five-year term from mid 2012 to mid 2017, with weekly recycling and weekly co-collection of garbage and organics.
Transition to a uniform level of service	Currently residents receive different levels of service for collection of leaf and yard waste, bulky materials, metal and Christmas trees. County should look at providing a common minimum level of collection for leaf & yard waste and Christmas trees.
Consider single-stream recycling	County could seek pricing options in the new Request for Proposals for collection and processing.
Consider bi-weekly garbage collection	County could consider different collection options, if it is possible to expand the organics stream to process additional materials (e.g. pet waste, diapers).

Collection and transfer are linked. Transfer is a way of improving collection efficiency within the County and is necessary to move waste outside the County.

Recommendations: Transfer

The review of transfer options considered both the current performance of the County's transfer system and the identification of new transfer operations that may be required to support potential processing and/or disposal elements of the waste management system. The recommendation for transfer was based partly on the processing and/or disposal options chosen.

Existing Transfer Capabilities

- Use 40 yd^3 bins to haul organics from the three landfills to the City of Hamilton
- The majority of divertible materials are collected/transferred by private sector contractors.

Recommended Transfer

For SWMS, it is recommended that the County:

- continue current transfer approach for organics
- develop transfer capacity for recyclables
- develop transfer capacity for garbage.

Potential use of "Transtor" units should be considered.

Recommendations: Short-term Garbage Disposal

As we work towards Zero Waste, we need to plan for garbage disposal and/or processing capacity for both the short-term and long-term. Only two options are regarded as viable in the short-term, the other longer-term options will take time and effort to implement.

1. Modifications to current operating landfills

- Current operating landfills have already been largely remediated and effective practices put in place to conserve landfill capacity.
- May be some additional measures to enhance operations (e.g. grinding bulky wastes, increased enforcement of separation of materials at the landfill/transfer sites)

2. Use of garbage disposal facilities outside the County

- Includes municipal and/or private sector landfills
- Potential to export to existing Energy-from-Waste (incinerator) or other processing facilities.

Recommendations: Long-term Garbage Disposal

1. Continue use of existing operating landfills (Sites 2, 10, 11 and 13). Examine potential for expansion of Sites 10 and 11.
2. Secure approval of Design and Operations plans for Sites 9 and 12. Only develop if landfill capacity is required late in the planning period.
3. Continue to export to facilities outside the County, preferably to processing facilities.
4. Consider partnerships to implement garbage processing. Includes a range of technologies like "dirty MRF", mechanical/biological treatment, conventional and emerging energy from waste approaches.

Energy from waste facilities come in a variety of shapes and sizes.

Projected SWMS Diversion Performance

Projected diversion performance for the recommended Strategy was estimated based on projected waste composition and population increases and assumptions for the potential recovery rates for various materials that can be diverted by the recommended Strategy. Recovery rates are the percentage of each material generated, that would be placed in the blue box or green bin, or dropped off for diversion at one of the County's depots.

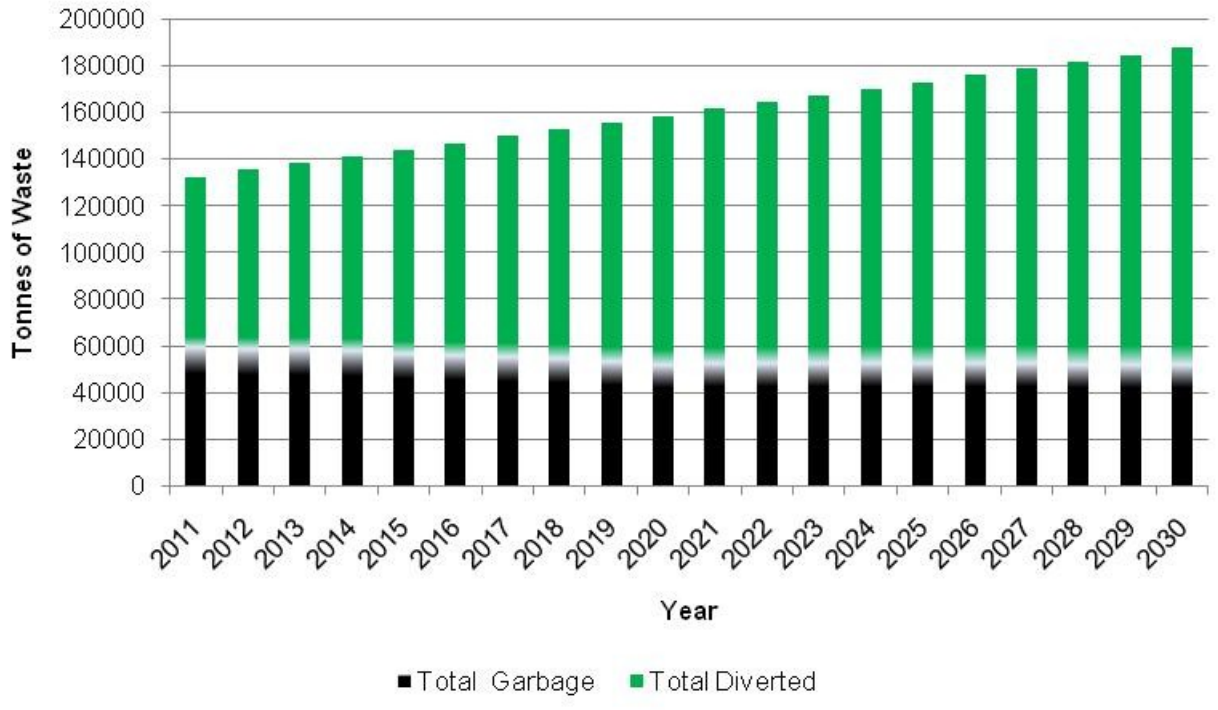
A reasonable diversion rate target for the recommended Strategy would be 71% diversion by 2020, when all components of the SWMS would be in place. To achieve this target, 80 to 90% of all households would have to divert all possible materials 80 to 90% of the time.

A maximum diversion rate for the recommended Strategy would be 77% diversion by 2030. This would require 90 to 98% of all households to divert all possible materials 90 to 98% of the time.

Based on an increase in diversion to 71 to 77%, the estimated annual quantity of garbage would decrease to approximately 52,000 tonnes in 2030. Overall, the Strategy would divert an additional 400,000 to 500,000 tonnes of garbage from disposal over the next 20-years.

Getting beyond 77% diversion will be difficult. Mixed waste processing could add another four to five percent to the diversion rate (similar to what happens in Halifax). Energy from Waste doesn't increase diversion, but can reduce the volume of the remaining garbage by up to 90%.

Recommended SWMS: Estimated Tonnes of Waste Diverted and Disposed (2011-2030)



Strategy Cost Projections

There are some key options for which Council decisions are required, that can change the potential costs and financing approach for the Strategy. The effect of these decisions on long-term costs was assessed. The table below outlines the strategies for which cash flow analyses were developed.

		Strategy Version						
		Status Quo	1	2	3	4	5	6
Financing	Full user pay		✓			✓	✓	✓
	One-bag limit			✓				
	Higher cost bag tags				✓			
Processing	Long-term Export	✓	✓	✓	✓			
	County Energy-from-Waste (EFW) facility					✓		
	Partnership Energy-from-Waste (EFW) facility						✓	
	Alternative facility							✓
Landfill Capacity	Full by 2017	✓						
	Full by late 2025		✓	✓	✓			
	Lasts beyond 2030					✓	✓	✓

The following table itemizes the net system costs per household for each strategy analyzed as part of the cash flow analysis. Estimates show that implementing the Strategy should generally cost in the same range as the Status Quo, varying from around $35/hhld less to $16/hhld more.

Average Annual Costs over the 20 year Planning Period Per Household	Strategy						
Net System Costs	Status Quo	1	2	3	4	5	6
Administration	$9	$9	$9	$9	$9	$9	$9
General Diversion, Promotion & Education	$2	$8	$11	$7	$8	$8	$8
Garbage Collection	$74	$48	$48	$48	$48	$48	$48
Blue Box Recycling	$47	$33	$33	$33	$33	$33	$33
Organics Collection & Processing	$42	$64	$64	$64	$64	$64	$64
Garbage Haul & Disposal, Transfer/Depots	$140	$116	$115	$116	$153	$124	$168
Total	$314	$278	$279	$277	$315	$286	$330

Comparing the recommended Strategy to the Status Quo costs indicates:
Diversion, promotion & education costs will increase to reflect the increased emphasis on waste avoidance and diversion over disposal.
Garbage collection costs are expected to decrease due to decreased waste tonnages and reduction in specialized collection programs.
Net recycling collection and processing costs are expected to decrease based on the County processing its own materials and retaining revenues.
Organics collection and processing costs are expected to increase due to the increased tonnage being processed.
Garbage haul and disposal costs may decrease or increase over the planning period compared to the Status Quo, depending on if export and/or processing is included.

Strategy Financing

There are a few key general sources of financing that are used to recover the costs of the County's current waste management system, which are not specific to any one waste management program component, and thus can be used to allocate and recover net program costs from the taxpayer either directly (e.g. tipping fees) or indirectly (e.g. through property taxes).

- Bag tag revenues
- Tipping fee revenues
- The waste levy
- The County levy
- The waste management reserve

Examples of the types of diversion programs which require funding in the County.

Container Limits and Bag Tags

The recommended Strategy includes the potential to:

- move to a full user pay approach,
- increase the cost of the bag tags, in order to encourage waste diversion and minimize curbside garbage, and
- consideration of a firm one-bag limit.

Comparison of these three scenarios indicates that a system that includes full user pay is somewhat more advantaged than the other two approaches in that:

- The additional costs for this option are lower than for a firm one-bag limit.
- The effect on the system related to this option may be easier for both residents and the County to adjust to. This option provides a convenient outlet for residents to dispose of the occasional extra bag of waste, potentially discouraging illegal dumping or other practices.
- Those that dispose of more waste, would proportionately cover more of the cost of the waste management system.

Implementation of a firm one-bag limit is likely to result in increased use of the landfills and transfer stations for small material quantities and/or increased incidence of residence disposing of waste 'on-property'. Implementation of an increased rate for extra tags, while relatively cost effective and easy, does not recover the cost of garbage collection and the increased cost of disposal from those that actually dispose of more material.

Tipping Fees

There are four areas of potential change for consideration:

- Change minimum charge from $5 to $10 per load.
- Remove tipping fee for dropping off metals at the depots and eliminate curbside metals collection (may reduce revenues).
- Implement a disposal ban of divertible materials, through an increase in the charge for mixed loads of materials that contain 5% of more of divertible materials (could affect revenues, increasing fines but potentially decreasing revenues from disposal of mixed waste).
- Change tipping fees for garbage, so that the same fee is set for regular waste at both landfills and transfer stations.

Implementation Schedule

The recommended Strategy sets a direction for the County to follow over the next 20 years. However, along this path to full SWMS implementation that leads towards Zero Waste, there will be a number of key decisions that would be made by County Council. Some of the more significant decisions required by Council to implement the SWMS are provided below. A detailed implementation schedule, discussion regarding key issues that must be addressed during implementation and contingency planning is provided in the SWMS for all of the recommended system components.

2010

2011
- Set per-capita waste reduction target
- Decision on curbside garbage restrictions, either change in bag tag price, full user pay or 1 bag limit
- Decision on Uniform Collection Service for new 2012 collection contract
- Decision to issue and award RFP for Garbage Export (short-term)

2012
- Decision to issue and award RFP for organics processing capacity (CCF)
- Determine and arrange for short-term transfer requirements
- Implement mandatory diversion by-law

2013
- Decision to issue and award RFP to develop recyclables processing capacity (MRF)
- Open new Reuse Centres

2014
- Decision to seek partnership(s) for Residual Garbage Processing
- Full implementation of open space and event recycling across entire County

2015
- Consider clear garbage bags and/or bi-weekly garbage collection for 2017 collection contract

Overview of Implementation Considerations

Diversion Initiatives	• Promotion and education should be based on development of a communications plan that adopts a community-based social marketing approach. • Is it recommended that the County implement a program of progressively more stringent restrictions on curbside garbage over the first 10 years of the Strategy, to support use of the County's diversion system. Initially, the move to further restrictions on curbside garbage would involve increasing the cost of bag tags, moving to a fixed one-bag limit for garbage, or moving to a full user-pay program within a 2 to 3 year timeframe (concurrent with the new collection contract). • Pending the success of the new diversion system, other program options for consideration later in the implementation plan would include the use of clear bags for garbage and/or bi-weekly collection of garbage. • It is clear that coupled with increased diversion programs, further restrictions in curbside garbage set-outs will be necessary to increase diversion rates and reduce waste generation rates in the County.
Recycling	• In the short-term, separate the contractual arrangements for collection and processing. • A separate processing Request for Proposals (RFP) should be developed and issued. The RFP should be for at least a 3 year term, with options to renew for an additional 1 to 2 years. • In the short-term, continue to export recyclables to an out-of-County MRF while determining if the development of an in-County MRF is feasible. • It would take around 4 to 5 years to contract for, receive approvals and develop a new MRF. If the County decides to develop a MRF in 2012/2013, it could be developed for 2017.
Organics	• Many composting technologies can be constructed in a modular fashion and can support processing of additional tonnage if desired. • A Request for Expression of Interest (REOI) or Request for Qualifications (RFQ) process may benefit the County to assess the options of siting a composting facility. • Any facility constructed in the County should be able to accommodate additional materials (e.g. pet waste and diapers). • It would take around 5 years to contract for, receive approvals and develop a new composting facility. If the County decides to proceed with a composting facility in 2012, it could be developed for 2017.
Collection	• Any change to the type of container used (blue box, bag or cart) must be evaluated with consideration to costs. • Sufficient time must be given for the development and award of a collection contract. Additionally, contractors require adequate time to purchase vehicles and prepare for collection (e.g. developing routes). • The new collection contract should be developed with consideration of the estimates developed for this strategy for the number of collection vehicles in order to ensure an adequate fleet size. • A full promotion and education campaign will need to be developed and put in place prior to the shift to a new, uniform level of collection service in 2012.
Transfer	• The County should review available space at the operating landfills to determine if there are suitable areas to develop Transtor units. • The County needs to complete procurement processes for recyclables processing and garbage export, to determine the short-term transfer needs.
Garbage disposal	• Assess remaining capacity of current operating landfills. • Implement options to extend life of current operating landfills (e.g. grinding Construction & Demolition materials). • Issue RFQ/RFP seeking pricing and terms for short-term export of garbage outside County. • Partnership options may be identified in the short-term, and should be reviewed through a formal process (e.g. REOI). • Implementation of recommended long-term disposal options would generally be scheduled beyond Year 5.

Monitoring and Plan Review

The monitoring of system performance is an important aspect of ensuring the proper functioning of the overall waste management system and ensuring strategy goals are achieved.

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

- costs,
- recovery and residue rates, and
- tonnes of material collected and marketed.

The data collected:

- may be collected daily, monthly or annually,
- will be used in reports to ensure the performance of the system is communicated to interested parties and,
- is needed to track progress in implementing the SWMS.

Primarily, the reporting of monitoring activities should be presented in an annual report on the Strategy which should;

- provide an overview of the proposed objectives for the year and how the County reached these goals;
- include a list of issues that arose during the year and how these issues were mitigated, and;
- include a section on the plan for implementation in the following year.

In order to accommodate a reasonable cycle of contracts and council elections, the recommended schedule for review is:

	Review 1	Review 2	Review 3	Review 4	Review 5
Year for Plan Review	2015	2019	2023	2027	2030

As part of the Strategy review, adjustments would be made to:

- **Per capita waste reduction targets**
  - observed through both annual tonnage records and curbside waste audits.
  - adjusted to reflect Provincial/ National trends, new initiatives planned to assist County residents with waste reduction and reuse, and any reasonably understood trends in packaging such as shifts away from certain packaging approaches.
- **Waste diversion targets**
  - adjusted based on program performance in the preceding years and planned diversion initiatives at the County and Provincial levels.
  - reflect overall trends in material generation, such as a shift away from various types of recyclable packaging materials.

The Strategy review should also report on trends associated with the consumption of landfill airspace generally tracked on an annual basis. The need for pursuing garbage processing and/or development of Landfill Sites 9 or 12 will be determined through the success of the County in minimizing the consumption of landfill airspace at the current operating landfills (Sites 10, 11, 13).

This exercise should be repeated every four years and will ensure that the Strategy remains relevant and evolves with the County's needs over time.

Public Education Strategy

While the County provides sufficient information to residents in their current Promotion and Education activities, information alone will not encourage residents to change their behaviour and increase diversion rates. In order to effectively implement the initiatives set out in the recommended Strategy, a new Promotion and Education strategy is required which will focus on motivating behavioral changes. The following six key media types will be used Promotion and Education programs:

- Print Media - includes waste collection calendars, various brochures and pamphlets, newsletters, door hangers, oops stickers, stickers/posters/ magnets, progress reports, and inserts into water/tax bills
- Hotlines
- Website
- Radio and Television
- Presentations
- Other products and tools - displays at malls, fairs, community centres, parades, mobile education unit

Communications Plan

A communications plan is a vital component of the SWMS, ensuring a coordinated approach to implement the reduction, diversion, and disposal initiatives.

Effective plans contain four primary elements:

- Design
- Funding
- Deployment
- Monitoring and evaluation

Once a campaign is designed and funded, a variety of strategies will be used, such as social networking sites e.g. Facebook.

Sustained programs with year-round exposure are identified as a best practice, and are preferable to one-time 'blitzes'.

A communications plan should be developed on an annual or campaign specific basis and monitored through indicators such as increases in recovery or tonnage collected.

The curbside collection calendar can be found on the County's website which provides information about waste management programs.

www.simcoe.ca

Public Consultation on the SWMS

Waste management issues affect all residents of Simcoe County. Having a say in the shaping of a waste management strategy is critical to public acceptance and effective implementation of this strategy.

The consultation process included several avenues for the public, municipalities and other interested parties to obtain information and provide comments on the Strategy since late November 2009. These included:

- The formation of the Solid Waste Management Strategy Steering Committee and the regular meetings of this committee which are open to public attendance.
- Posting of information on the County's website including public notices, copies of completed Task Technical Memos and associated presentations made to the Waste Management Steering Committee and Council, and the panels displayed at the open houses.

- Media releases issued at regular intervals in the preparation of the Strategy to inform the public of the progress that has been made.
- Notices in local newspapers , advertisements on local radio stations, and in the Managing Your Waste newsletter.
- The creation of an on-line comment form and workbook to solicit feedback.
- Public meetings held in February and May 2010.

The feedback from these sessions and meetings have been incorporated into the Strategy and documented in the Record of Consultation.

Summary

With the Status Quo, net costs could escalate due to the closure of operating landfills, increase in disposal costs and generation of less revenue (from recycling, organics, etc). The Status Quo system would not further enhance diversion, which when combined with an increasing population, means greater quantities of garbage to dispose of. Given the limited disposal options within the County, costly and dwindling disposal capacity outside the County, an alternate system which can divert and manage more material more efficiently and cost-effectively warrants careful consideration. The preferred system has integrated the concepts of Zero Waste, will enhance diversion programs, will allow the County more control over recycling and organics collection and processing and will ensure that the County has garbage disposal capacity for the next 20 years.

The table below provides a comparison between the Status Quo and the SWMS Preferred System.

	Status Quo System	SWMS Preferred System
Diversion Rate (County System)	55%	71 to 77%
Reduction, Re-use and other Diversion	No new programs after 2010	Full suite of new diversion initiatives
Curbside Collection	1 Bag limit for garbage, $2 for extra bags	Increase restrictions on curbside garbage
	Varying level of service for leaf & yard waste	Common minimum level of service throughout County
	Bulky item collection	No bulky item collection
	Metals collection	Phase out at curbside, remove tipping fee at depots
Depot Collection	Existing depot services	Enhanced depot services
Recyclable Processing Capability	Majority exported outside County	Potential construction of a new MRF, more control and flexibility over processing
Organic Processing Capability	Must export outside County	Construct a new composting facility, more control and flexibility over processing
Garbage Disposal	Operating Landfills will be at capacity in approximately 7 years	Garbage export and/or processing could extend life of operating landfills by 8 or more years
Recovery Rates of Divertible Materials	Same	Increased
Average Annual Net cost per Household	$314	$277 to $330 depending on choice of long term disposal
Estimated amount of garbage requiring disposal by 2030	89,200 tonnes annually	51,860 tonnes annually
Total amount of garbage requiring disposal over the next 20 years (2011 to 2030)	1,522,000 tonnes	1,085,000 tonnes

Glossary

Acronym	Definition
AMO	Association of Municipalities of Ontario
BBPP	Blue Box Program Plan
C of A	Certificate of Approval
C&D	Construction & Demolition
CCF	Central Composting Facility
CIF	Continuous Improvement Fund
C:N	Carbon : Nitrogen
CPI	Consumer Price Index
D & O	Design and Operate
DBO	Design, Build, Operate
DBOO	Design, Build, Own, Operate
E&E Fund	Effectiveness and Efficiency Fund
EA	Environmental Assessment
EAA	*Environmental Assessment Act*
EFW	Energy-from-Waste
EPA	*Environmental Protection Act*
EPP	Environmentally Preferred Purchasing
EPR	Extended Producer Responsibility
FTE	Full Time Employee
GAP	Generally Accepted Principles
GTA	Greater Toronto Area
hhld	Household
HHW	Household Hazardous Waste
IC&I	Industrial, Commercial & Institutional
MHSW	Municipal Hazardous or Special Waste
MNR	Ministry of Natural Resources
MOE	Ministry of the Environment
MPMP	Municipal Performance Measurement Program
MRF	Material Recovery Facility
NPV	Net Present Value
OBB	Old Boxboard
OCC	Old Corrugated Cardboard
OES	Ontario Electronic Stewardship
OP	Official Plan

Acronym	Definition
OTS	Ontario Tire Stewardship
OU	Odour Unit
P&E	Promotion and Education
Q&A	Question and Answer
REOI	Request for Expression of Interest
RFP	Request for Proposal
RFQ	Request for Qualifications
SS	Source Separated
SSO	Source Separated Organics
SWMS	Solid Waste Management Strategy
TBD	To Be Determined
tpy	tonnes per year
U.S.	United States
WDA	*Waste Diversion Act*
WDO	Waste Diversion Ontario
WEEE	Waste Electrical and Electronic Equipment
WSI	Waste Services, Inc.
WTE	Waste To Energy

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APPENDICES

1.0 Introduction

The County of Simcoe (the County) is located in South-Central Ontario, and is comprised of 16 member municipalities including: Adjala-Tosorontio, Bradford West Gwillimbury, Clearview, Collingwood, Essa, Innisfil, Midland, New Tecumseth, Oro-Medonte, Penetanguishene, Ramara, Severn, Springwater, Tay, Tiny and Wasaga Beach. As of 2009, approximately123,000 households were receiving waste services from the County with these households dispersed over an area of 4,840 square kilometres. The majority of the population is located in settlement areas, with the remainder scattered through rural areas that make up the bulk of the land area within the County. The County is experiencing significant population growth, and as a result, increased demand for municipal services such as waste management.

The County assumed responsibility for waste from the member municipalities in 1990, along with existing approved landfill and waste disposal facilities and a number of proposed disposal facilities that were in various stages of *Environmental Assessment* and/or *Environmental Protection Act* approvals. Since that time, the County has established a number of programs that have significantly increased waste diversion. While the County has made significant progress in diversion system improvements, it has been some time (over 10 years) since a comprehensive review and planning exercise has been undertaken for the entire solid waste management system.

1.1 PURPOSE AND SCOPE OF THE SOLID WASTE MANAGEMENT STRATEGY

On August 14, 2009 the County retained Stantec, to work with the County Staff and Elected Officials, the Waste Management Strategy Steering Committee and other stakeholders, to develop an integrated Solid Waste Management Strategy (SWMS) that will establish a long-term approach to manage the municipal waste stream.

The purpose of the SWMS is to provide direction for the County's waste management system through recommendations to improve current waste diversion programs, to make progress towards zero waste and to address processing and disposal needs for the next twenty years.

1.2 STUDY PROCESS

Four phases, each with a series of tasks, were established for the purpose of completing the Strategy (Table 1-1). Technical Memos were completed for each of the tasks and presented to the Solid Waste Management Steering Committee for discussion and review. Two rounds of public consultation were held, in February and in May 2010, to gather public feedback at critical points in the development of the Strategy. Further information on the public consultation process is provided in Section 15.0.

Table 1-1 SWMS Study Process

Phase 1: Initial Strategic Planning		
Task A – Stated Problem	Task B – Goals and Objectives	Task C – Area that the Plan will Cover

↓

Phase 2: Current System Assessment and Options Evaluation		
Task D – Current Waste Generation and Diversion and Description of Current Waste Management System	Task E – Waste Management Needs Over the Planning Period	Task F – Identification and Evaluation of Alternative Systems (Diversion and Disposal)

↓

Phase 3: Recommendation of a Preferred System and Cost and Financing Strategy	
Task G – Detailed Description of the Planned Waste Management System	Task H – Cost and Financing Strategy

↓

Phase 4: Implementation Assessment				
Task I – Implementation Timelines	Task J – Contingencies	Tasks K & L – Monitoring and Plan Review	Task M – Public Education Strategy	Task N – Public Consultation Record

The outcome of all phases of the work was documented in a series of Technical Memorandums and/or draft reports that were issued over the course of Study. Generally, the content of these documents has been used to develop and issue this Draft SWMS Report. The content of these documents was updated as necessary based on: discussions with the Waste Management Strategy Steering Committee and County Staff; input received during the consultative process followed during the SWMS; and, new information (e.g. final year-end 2009 tonnage information and new waste audit data). Table 1-2 below, provides an overview of how the outcome of the phases of this work and the documents issued to-date, have been drawn upon and updated in the development of this Draft Report.

Table 1-2 Overview of Study Documents

Draft Study Document	Date of Issuance	Update	Section of this Draft SWMS Report
Phase 1: Task A, B & C, Draft Technical Memo	November 16, 2009	December 16, 2009	Sections 1.3, 1.4, 1.5, 1.6
Phase 2: Task D, Current System Description, Draft Technical Memo	December 14, 2009	January 12, 2010	Sections 2 and 3
Phase 2: Task E, Current System Performance and Waste Projections, Draft Technical Memo	December 14, 2009	January 13, 2010 June 11, 2010: Contents updated based on year-end 2009 waste data	Section 4

Draft Study Document	Date of Issuance	Update	Section of this Draft SWMS Report
Phase 2: Task F: Diversion and Disposal Options, Draft Technical Memo	January 13, 2010	NA	Formed basis for the options that were evaluated, resulting in the recommended Strategy components in Sections 5 through 10.
Phase 2: Draft Task F Report, Diversion and Disposal Options, Evaluation and Projected System Performance	March 22, 2010	June 11, 2010: diversion performance information updated	Included additional options identified through consultation, and included evaluation of the options, resulting in the recommended Strategy components presented in Sections 5 through 10. Also presented preliminary system performance (tonnages and diversion rates).
Phase 3 & 4: Task G, I, J, Description and Implementation Plan for the Recommended SWMS, Draft Technical Memo	April 23, 2010	NA	Presented recommended SWMS components, implementation timelines and contingency plans. Presented in Sections 5 through 10.
Phase 3 & 4: Tasks K & L, Monitoring and Plan Review, Draft Technical Memo	April 30, 2010	NA	Section 14
Phase 3 & 4: Task M, Public Education Strategy, Draft Technical Memo	April 22, 2010	NA	Section 12
Phase 3 & 4: Task H – Cost and Financing Strategy, Draft Technical Memo	May 25, 2010	June 11, 2010	Section 13
Phase 3 & 4: Task N, Public Consultation Record First: Record of Consultation, Diversion and Disposal Second: Record of Consultation, The Preferred System	First: February 22, 2010 Second: May 20, 2010	NA	Section 15

1.3 STATED PROBLEM

Review of the current system indicated the following key areas that reflect the 'problems' associated with the current solid waste management system, or in other words the factors that drove the need to review the County's waste management programs:

- lack of secure long-term processing capacity for recyclable and organic materials;
- need for improvements to the effectiveness and efficiency of the County's overall waste diversion system, in order to sustain diversion performance;
- need to develop additional strategies to increase diversion over the longer term;

- desire to maximize the use of existing approved disposal capacity in the County, recognizing this capacity as a finite resource that has value to the broader community; and,
- lack of disposal capacity necessary to manage residual wastes over the longer term.

The following problem statement was formulated in order to encapsulate the waste management issues that the Strategy addresses:

While having achieved significant progress on waste diversion, Simcoe County lacks the necessary infrastructure to sustain and further improve diversion performance to make progress towards Zero Waste. While Simcoe County has existing assets in the form of approved landfill capacity, they may be insufficient to address its disposal needs in the near term. Simcoe County also appears to lack sufficient long-term capacity to manage the residual waste remaining after diversion, particularly given the potential growth and demand for waste services over the next 20 years.

1.4 VISION STATEMENT

The Vision for the long-term solid waste management system that would arise from implementing the recommended SWMS is a system where:

a. *the County continues to be a leader in diversion performance;*

b. *increases in the County's diversion rate keep pace with growth and paired with provincial Extended Producer Responsibility (EPR) programs, reduce the demand for disposal of residual waste;*

c. *the County has secure, cost effective, long-term capacity to process the diverted materials for which it is responsible;*

d. *the County makes best use of its available, fully permitted landfill capacity;*

e. *the County has secured sufficient long-term capacity to process and/or dispose of the residual wastes left after diversion, for which it is responsible; and*

f. *The system has the necessary flexibility to align with potential changes to the Waste Diversion Act and the overall waste management system in the Province.*

1.5 GOALS AND OBJECTIVES

In addition to striving to reach beyond the overall Provincial target of 60% diversion for Municipal Solid Waste (MSW) and the recent target of 70% diversion of recyclables set by the Minister of the Environment for the Blue Box Program Plan, other preliminary goals and objectives were identified for consideration by the County.

These draft goals and objectives were based on the adoption of the following guiding principles:

- the principles for waste management planning as set out by the Province of Ontario in the "*Policy Statement on Waste Management Planning (June 2007)"*;
- a 'triple bottom line'/sustainable approach which refers to the consideration of environmental, economic and social factors in the decision making process;

- a waste management hierarchy (otherwise referred to as the "Waste Value Chain") aligned with that adopted by other progressive jurisdictions; and,
- the general principles of Zero Waste.

These guiding principles are discussed further below.

1.5.1 Provincial Policy Statement

The Provincial policy statement on waste management planning sets out a series of principles that should be considered in the waste management planning process, as follows:

a. Environmental protection is a shared responsibility.
b. Integrated waste management systems that reflect local circumstances are in place.
c. Diversion of materials from final disposal is maximized in consideration of the provincial 60% diversion target, including the creation of incentives where appropriate.
d. Public and private sectors cooperate, where possible, to realize cost savings and maximize efficiencies.
e. Waste management choices consider economic, social and environmental costs.
f. Investment in infrastructure is made to accommodate growth.
g. Waste is managed as close to the source of generation as possible.
h. Producer responsibility is incorporated into waste reduction and management.
i. Decision-making is open and transparent.
j. Informed citizens support waste management choices and participate in waste management programs.
k. Maximum value from waste is recovered from the waste stream.
l. Innovative waste management technologies and approaches are incorporated as appropriate to local circumstances to achieve sustainable solutions.

These principles formed the primary framework for the development of the Strategy, supplemented by emphasizing the focus on three key areas (sustainability, the waste hierarchy and zero waste).

1.5.2 Sustainability

The principle of sustainability, or more appropriately 'sustainable development' is often integrated in some fashion into the general principles applied to waste management planning. For example, the general principle of sustainability as applied to waste management decision making is set out in "principle e." of the Provincial Policy Statement on waste management planning by making it explicit that waste management choices *"consider economic, social and environmental costs."*

The definition of sustainable development that is most commonly used is based on that adopted by the World Commission on Environment and Development (WCED) in 1987, commonly referred to as the Brundtland definition:

> ***"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."***

Sustainable development generally means ensuring that well-being is at least maintained over time. The principle of fairness within and between present and future generations should be taken into account in the use of environmental, economic, and social resources. Putting these needs into practice requires living within the limits of the natural environment.

There is a strong relationship between meeting human needs now and into the future, and living within the limits of the environment. Figure 1-1 represents society and economic activity, which are constructs of people, at the centre of concern for sustainable development. Both are constrained by the natural systems of the Earth.

Figure 1-1 The Relationship between the Environment, Society and the Economy

The generation of waste is generally counterintuitive to the concept of environmental responsibility, which acknowledges the importance of living within the limits of Earth's resources.

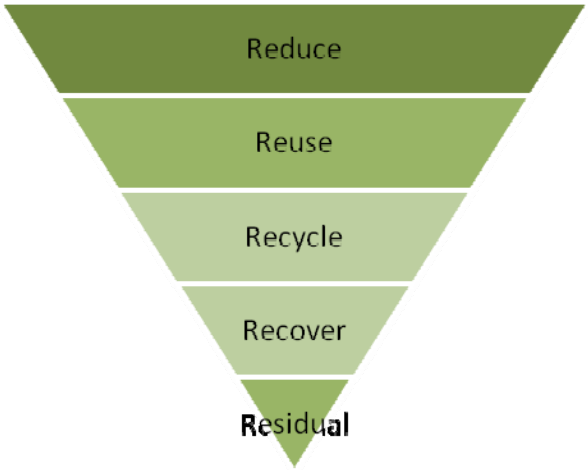
By adopting the general principles of Zero Waste and by taking into account the use of environmental, economic and social resources by various waste management options, the SWMS generally addressed the principle of Sustainable Development.

1.5.3 The Waste Hierarchy

The waste hierarchy or value chain places priority on preventing waste generation, maximizing diversion of the waste that is generated and minimizing disposal with preference to disposal methods that allow for recovery of energy.

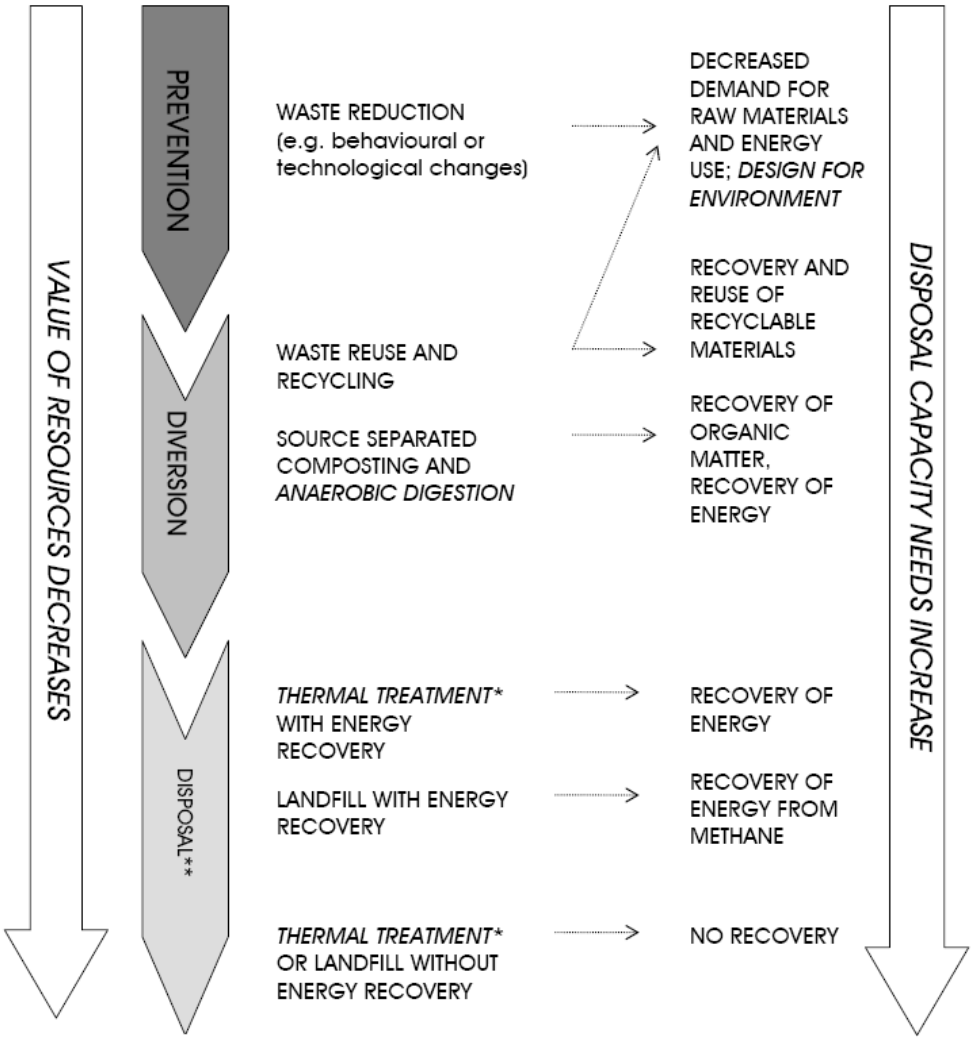
There are many versions of the waste hierarchy in general circulation as set out in governmental and non-governmental policy statements developed for jurisdictions world-wide. Generally, each version presents certain nuances that reflect certain regional or national differences. Put simply, the hierarchy generally appears as set out in Figure 1-2.

Figure 1-2 The Waste Hierarchy



The waste value chain set out by the Province of Ontario as part of the "*Policy Statement on Waste Management Planning (June 2007)"* is more complex, as set out in Figure 1-3.

Figure 1-3 The Waste Value Chain



* With potential use of ash or recovery of metals.

** Waste managers should consider waste reduction as a first priority, followed by diversion. All disposal options have unique environmental concerns and should only be considered as a last option. Where disposal is necessary, waste managers should carefully reflect on these environmental concerns in light of their local circumstances. Recovering energy from landfill or thermal treatment should be considered prior to thermal treatment or landfill without energy recovery.

Development of the SWMS took into account the waste hierarchy as set out in the Provincial Policy paper, placing priority on the development of reasonable measures to prevent and divert waste from disposal, and to recover value from the remainder of the waste stream.

1.5.4 Zero Waste

Just as with sustainability and the waste hierarchy, there are variations in the description as to what Zero Waste is. Some descriptions of Zero Waste clearly incorporate the principles of sustainability and the waste hierarchy as described above, and others are primarily focused on the concept of extended producer responsibility (EPR), environmentally preferred purchasing (EPP), and waste avoidance.

The zero waste International Alliance defines zero waste as:

> ***"A goal that is both pragmatic and visionary, to guide people to emulate sustainable natural cycles, where all discarded materials are resources for others to use. Zero waste means designing and managing products and processes to reduce the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing zero waste will eliminate all discharges to land, water and air that may be a threat to planetary, human, animal or plant health."***

The Federation of Canadian Municipalities defines "Zero Waste Communities" as:

> ***"A community that has made a long-term commitment to reducing waste through measures such as extended producer responsibility programs, economic instruments to encourage waste reduction, green procurement and product design that includes end-of-life management."***

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

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

All descriptions of the philosophy of Zero Waste generally have in common the following:

a. Recognition of the need to shift to EPR where the manufacturers of products and packaging become responsible for the full life-cycle of their products and to EPP where purchasers of goods and services make environmentally responsible choices.

b. Recognition that municipal governments have a role to play, but cannot be wholly responsible for achieving Zero Waste, given that EPR is largely in the hands of the producers of materials and Federal and/or Provincial regulators.

c. That the ultimate goal of a zero waste approach is to reduce and eventually eliminate the need for waste disposal. The long-term objective of a zero waste approach is to eliminate materials from the waste stream.

d. Recognition that both landfills and Energy from Waste (EFW) facilities will continue to play a role in residuals management while zero waste practices work towards decreasing the amount of residuals requiring disposal.

Many Zero Waste policy documents, take the approach that Zero Waste is a path or a road, along which society can progress towards a goal of minimizing the waste requiring disposal. Actual progress made along this path by communities that have adopted Zero Waste has varied, and in many cases the means used to measure progress have also varied.

Table 1-3 below, provides a brief summary of various Zero Waste jurisdictions, goals that have been set and progress made towards these goals. Note: to the extent possible, progress towards diversion is noted based on the definition used in the SWMS, being the proportion of total waste generated (and managed by the municipality) that is diverted from disposal.

Table 1-3 Zero Waste Goals from Various Jurisdictions

Jurisdiction	Waste Diversion Goal	Date Set	Current Achievement
City of Toronto	60% by 2006 80% by 2008 100% by 2010	Initially set in 2001. Reset goal to 70% in 2007	44% in 2009
Greater Vancouver	70% by 2015	2008	55% in 2008
Regional District of Nanaimo	Zero Waste in the Long Term 75% by 2010	2004	29% Residential Diversion in 2008.
Capital Regional District (Victoria)	60% by 2012 80% by 2020	n/a	Working towards region-wide source separated organics program.
Province of Nova Scotia	300 kilograms of waste per person per year by 2015	2007	430 kilograms of waste per person per year (2008)40.7 % diversion reported by Stats Can for 2006.
Halifax	82%	1997	60% in 2010
Seattle	100%	1998, updated in 2004 and 2007	Diverted 52% of residential waste in 2004.
Portland, Oregon	75% by 2015	2006	62% in 2008
Edmonton	90% by 2012	2007	60% diversion in 2008 (including mixed waste processing).

Jurisdiction	Waste Diversion Goal	Date Set	Current Achievement
Markham	70% by 2007	2004	73% in 2009 (collected tonnage)
Austin, Texas	75% of waste from incinerators and landfills by 2020 90% (i.e., Zero Waste) of waste from incinerators and landfills by 2040	2008	n/a

This is just a brief overview of the progress that has been made by some communities, but it is evident that significant additional progress remains to be made over the longer term by most jurisdictions in order to achieve their Zero Waste targets.

It has been directed by County Council that the Strategy process consider and incorporate the principles of Zero Waste. The four common principles, identified as a) through d) above, were incorporated into the SWMS.

1.5.5 SWMS Goals and Objectives

Goals and objectives were developed and presented for discussion with the Waste Management Strategy Steering Committee. These goals and objectives, as set out below, were received by the Solid Waste Management Strategy Steering Committee and forwarded to County Council for approval through recommendation WSS 006-09.

Goal	Objectives
#1) Assist County residents in avoiding the generation of waste.	Support the concept of Extended Producer Responsibility (EPR), understanding that this moves the responsibility for waste at least partially away from the County. Determine reasonable approaches that the County can implement within its own operations to avoid waste generation. Ensure that the diversion options developed for the County consider the potential results of the review of the *Waste Diversion Act* (WDA), and planning for provincially mandated EPR. Implement policies and programs that encourage a decrease in the per capita waste generation rate.
#2) Sustain and improve performance of the County's diversion system.	Secure long-term capacity for processing recyclables and organics. Increase diversion within the first five years of the Strategy. Achieve incremental diversion sufficient to keep pace with population growth in the County over the planning period.
#3) Better management of existing approved and permitted	Ensure that existing approved landfill capacity in the County is available for at least the next 10 years.

Goal	Objectives
disposal capacity in the County.	
#4) Reduce the environmental effects of managing the waste generated in the County.	From a Life Cycle Analysis perspective, considering the direct and indirect effects of managing waste (including greenhouse gases, other emissions to air, emissions to water, energy and resource consumption) reduce the environmental footprint of the waste management system. Reduce the consumption of landfill airspace over the planning period, through a combination of decreased waste generation, increased diversion and other programs/practices that result in increasing the density of the residual waste disposed.
#5) Implement a sustainable waste management system that balances socio-economic factors with the need to reduce the environmental impacts of waste management while addressing the long-term needs of County residents.	Pursue partnerships and cooperative endeavours with other municipalities and the private sector where reasonable, to secure processing and/or disposal capacity Pursue diversion system options in which the incremental increase in diversion performance is balanced with the potential increase in system costs such that the percentage increase in waste diverted is numerically no less than ½ of the potential increase in system costs (i.e., if the incremental increase in diversion for a program is projected as being 5%, the overall increase in the cost of the waste management system should be no more than 10%) Ensure that there is sufficient long-term residual waste disposal capacity available to meet the County's needs

1.6 SOLID WASTE PLANNING HORIZONS

The SWMS, initiated in 2010, is intended to address a 20-year timeframe, or the period from 2011 to 2030. This planning horizon is appropriate because:

1. The County has no current processing infrastructure (e.g. recycling, composting) in place. Potential new infrastructure recommended in the SWMS could reach the end of its useful life within 20 years. This could trigger an opportunity for substantial program change.

2. A 20 year period is appropriate for consideration of centralized infrastructure (capital) as significant capital investments are normally amortized over 10 to 20 year periods.

3. The Province recently released its "Policy Statement on Waste Management Planning" which recommended at minimum, that municipal waste management plans should cover a 20 to 25-year planning period. No significant change to the provincial approach for the development of municipal solid waste strategies is anticipated for some time.

4. While waste management technology is constantly evolving through continuous improvement there are no significant waste management technology 'evolutions' anticipated to occur in the 20 year planning period. Should any 'evolution' occur, it could be addressed through the regularly scheduled updates to the Strategy (occurring at least every five years).

5. The only planning obstacle is the recent announcements by the Province regarding potential changes to the *Waste Diversion Act*, and pending legislation that may fundamentally shift responsibility for diversion of waste to producers of certain materials (including blue box materials, C&D waste and others), known as full Extended Producer Responsibility (EPR). While this legislation, if implemented, will impact the County's waste management system there is no clear timing related to this initiative and it should not preclude the County from the benefits of a much needed planning process.

Notwithstanding these factors, all good long-range strategic planning processes have specific review periods (e.g., every five years) and usually identify the need for plan reviews/updates to occur with certain triggers or key events. Key events may include, but are not necessarily limited to, major facility events (e.g., opening and closing of landfills or transfer stations, facility modifications), changes in economic conditions affecting population growth or industrial development, changes in provincial or federal regulations or policy and any other major development that could affect/alter the plan. Further details regarding the proposed SWMS review process can be found in Section 14.2.

2.0 Background Information

The following three sections provide an overview of the geographic, demographic and economic features of the County. This information is required in order to anticipate the quantity and types of waste that will be generated in the future as well as to plan efficient collection and transfer systems. Detailed background information was initially provided in the Draft Task D Technical Memo. Where necessary, information presented in this section was updated to reflect the most recent 2009 data. Readers seeking additional detail should review the Task D Technical Memo for more information which is located in Appendix 1.

2.1 GEOGRAPHIC FEATURES OF THE COUNTY

The County is located in South-Central Ontario, and is comprised of 16 member municipalities. The County is 4,840 km^2 in size and covers an area from Lake Simcoe to Nottawasaga Bay. The separated Cities of Orillia and Barrie and CFB Borden are located within the County boundaries. Simcoe County is approximately 130 km north of Toronto and is well connected to southern and northern Ontario via Highway 400.

The 16 member municipalities are connected by 850 km of roads, 1,700 lane kilometres, more than 180 bridges and other structures. The County also has the largest holding of municipally owned forests in Ontario with 12,545 ha of forests.

Simcoe County is one of the most geologically diverse areas in Ontario, containing a wide array of prominent physiographic features. The County contains 68 provincially significant Areas of Natural and Scientific Interest, and at least 64 species of plants and animals considered to be vulnerable, threatened, or endangered in Ontario and/or Canada. The County contains features which have received international recognition for their environmental significance: Minesing Wetland, Matchedash Bay and the Niagara Escarpment. The County has extensive shoreline areas, as it borders the major water bodies of Georgian Bay, Lake Simcoe, Lake Couchiching, the Trent-Severn Waterway and several small lakes.

2.2 DEMOGRAPHIC

As of 2009, the population of Simcoe County was approximately 322,120 with 123,365 households (approximately 120,043 single family and 3,322 multi-family). There are approximately 13,972[1] seasonal residences located within the County.

The average population density per square kilometre is approximately 69.62, reflecting the larger rural areas of the County. The County is anticipating an increase in population growth based on its proximity to the Greater Toronto Area. The population of the County is expected to grow from the population reported in the 2006 census, by 61% to 439,500 in 2031. In addition to its residents, the County also receives over eight million visitors every year. The population of the County is not evenly dispersed, with varying population densities between municipalities. Those municipalities identified as being predominantly rural in nature include Adjala-Tosorontio, Clearview, and Oro-Medonte. More 'Urban' areas include Collingwood,

[1] Excel Spreadsheet: 2009 Environmental Budget, Collect Rough

Midland, Penetanguishene, and Wasaga Beach. Some municipalities have both urban and rural characteristics such as Bradford-West Gwillimbury, Essa, Innisfil, New Tecumseth, and Springwater. The remainder of the municipalities, Ramara, Severn, Tay, and Tiny, have been classified as rural/seasonal.

Based on the population projections in the County's Official Plan and the influx of seasonal visitors, the County's municipal services will be subject to increasing pressures over time. The Official Plan projects that the population of Simcoe County (excluding Barrie and Orillia) will increase from 272,200 in 2006 to 439,500 in 2031[2]. Using this information, it was determined that the population is expected to increase by approximately 6,692 persons per year if growth is applied equally from 2006 to 2031. After consulting with the County Planning Department, it was decided that it would be reasonable to apply an equal growth rate for our purposes. Table 2-1 presents the population projections year-by-year from 2011 to 2030.

Table 2-1 County of Simcoe Population Projections 2009-2029 (Excluding Barrie and Orillia)

Year	Population
2011	305,660
2012	312,352
2013	319,044
2014	325,736
2015	332,428
2016	339,120
2017	345,812
2018	352,504
2019	359,196
2020	365,888
2021	372,580
2022	379,272
2023	385,964
2024	392,656
2025	399,348
2026	406,040
2027	412,732
2028	419,424
2029	426,116
2030	432,808

For waste management planning purposes, population growth and density will have significant impacts as waste management infrastructure (collection, processing and disposal) needs to be carefully planned to accommodate long term growth. The County will need to ensure there is sufficient capacity and facilities are sized accordingly for the anticipated increase in population. Population density also plays a significant role in the collection of waste. Given that the population density is fairly low at 69.62 individuals per square kilometre, collection services can be costly to provide as collection vehicles must travel greater distances between stops to collect materials. The future population of Simcoe and population densities were key factors to account for when establishing Simcoe's future waste management system.

[2] StatsCan 2006 Census

2.3 ECONOMIC

The Simcoe area has a diverse economic base that includes agriculture, resource-based industries, small and large manufacturing operations, research and creative industries, and a strong service sector. Major individual employers include Honda Canada, which employs more than 4,000 people; CFB Borden, which employs approximately 3,250 military members and 1,500 civilians, and Casino Rama, which employs approximately 3,700 people. Based on the 2006 Census, 281,375 persons were employed in the County of Simcoe. Table 2-2 provides a breakdown of the number of individuals employed in each sector as of 2006. As the information is provided through Statistics Canada, it is not known if the individuals are employed within Simcoe County or if his/her place of work is outside of the County.

Table 2-2 Occupation of Simcoe County Residents, 2006

Occupation	Simcoe County
Total experienced labour force 15 years and over	140,655
Management occupations	14,215
Business, finance and administration occupations	21,230
Natural and applied sciences and related occupations	5,450
Health occupations	7,500
Occupations in social science, education, government service and religion	10,070
Occupations in art, culture, recreation and sport	2,995
Sales and service occupations	35,995
Trades, transport and equipment operators and related occupations	26,353
Occupations unique to primary industry	5,295
Occupations unique to processing, manufacturing and utilities	11,370

Source: Statistics Canada, 2006 Census

3.0 Current Solid Waste Management System

The following section provides an overview of the County's current waste management system. The County's waste management system was initially described in the Draft Task D Technical Memo. Information presented in this section was updated to reflect the data for the full 12-months of 2009 (previous documents used information from November 2008 to October 2009).

Since it assumed responsibility for waste from its member municipalities on January 23, 1990 (as per By-law No. 3854), the County has implemented a number of programs to increase diversion from the County's landfills. Through programs provided via curbside collection and those at the various landfills and transfer stations, the County achieved a diversion rate of approximately 47% in 2008[3] and 57% in 2009 (for both the County's programs and additional diversion outside the County system, unaudited at the time of preparation of this report). Table 3-1 provides a brief summary of the County's waste management system illustrating how it has changed over the past four years (2006 to 2009). Additional 2009 performance details are provided in Section 4.0.

The County of Simcoe offers a range of waste management services. Most single-family residents receive curbside collection of garbage, recyclables, and organics. In addition, optional collection services for bulky waste, leaf and yard waste, brush, and metal items are offered at specified dates in certain municipalities. The County has recently (September 2008) increased its diversion efforts by offering a source-separated organics program, increasing the number of recyclable materials accepted, and decreasing the garbage bag limit. Some multi-residential units also receive the same services as single-family dwellings. The commercial sector receives limited collection services. Further detail regarding collection services is provided in Section 3.2.

While the County currently disposes of all residual waste within its municipal boundaries, processing capacity for recyclables and organics is lacking within the County and most of these curbside collected materials are exported for processing.

The County currently has a number of waste management facilities (landfills, transfer stations/depots etc.) spread across the County. Details regarding these facilities are available in Section 3.4.

[3] 2008 WDO GAP
** Not including Site 23, New Tecumseth which only accepts MHSW.

Table 3-1 Overview of the County's Waste Management System

	Simcoe County Waste System Overview				
		2006	2007	2008	2009
Facilities	Operating Landfill Sites:	8	6	6	4
	Transfer Stations:	1	3	3	4 *
	Stump Dumps:		3	2	3
	Landfill Sites under Development:		4	4	3
	Composting Facilities:	6	5	5	5
	Inactive Landfill Sites:		26	26	28
	Household Hazardous Waste Depot Events (# per year)	15	15	15	15
	Total Garbage Managed at County Facilities (tonnes)	77,089	72,835	63,681	57,539**
	Total Divertible Material Managed at County Facilities (tonnes)	38,159	49,636	56,289	69,028**
Collection Programs	Curbside Garbage Collection (Households Serviced)	115,000	124,851	120,923	121,518
	Curbside Recycling Collection (Households Serviced)	118,000	128,319	126,603	122,887
	Curbside Source Separated Organics Collection (Households Serviced)	3,951	4,018	108,788	112,510
	Total Curbside Garbage Collected (tonnes)	51,000	52,580	48,714	38,625**
	Total Curbside Recycling Collected (tonnes)	20,000	23,154	24,954	22,701**
	Total Curbside Source Separated Organics Collected (tonnes)	356	353	3, 560	11,548**
	Total Curbside Special Collections (includes leaf and yard waste and Scrap Metal) (tonnes)	4,000	4,423	5,872	6,176**

* Not including Site 23, New Tecumseth which only accepts MHSW

** These tonnages take into account both residential and IC&I material managed by County facilities in 2009. They do not take into account residues lost to disposal (recycling, organics, and special collections) but represent the tonnage of material by waste stream that was actually managed at the curbside and depots. For these reasons, the tonnages listed in the table should not be used to estimate waste diversion rates and care should be taken when comparing these numbers to other numbers mentioned in this report.

3.1 WASTE MANAGEMENT BY-LAW

The County's waste management authority was established under By-law No. 3854. By-law No. 5764, a By-law for establishing and maintaining a system for collection, processing, marketing, transfer and/or

disposal of garbage, organics, recyclables and other optional waste materials and for operating and maintaining waste management facilities in the County of Simcoe, was passed in early 2009. The By-law establishes the following:

- Delegation of authority to appropriate County staff;
- The role of the Director of Environmental Services;
- Limits, size specifications, and other restrictions for collection services of garbage, recycling, and organics; and
- Hours, fees, prohibitions, special arrangements and operation of waste management facilities.

3.2 CURBSIDE COLLECTION SERVICES

3.2.1 General Overview

The County offers curbside collection services to all eligible serviced units for organics, recycling, and garbage. Collection services for leaf and yard waste, brush, metal items and bulky items varies by municipality. The County defines a "serviced unit" as all single-family units and all multi-family units (up to and including five units per one piece of property) in the collection area and commercial and multi-family (in excess of five units per one piece of property) in the collection area provided that these units have been approved by the County for waste collection services.

Collection is not provided to the commercial sector unless collection services were provided to the business prior to the approval of Resolution CS-118-07 (i.e. 'grandfathered' in). Quantities of garbage and recyclable materials placed at the curb for collection must be in amounts normally generated at a residential dwelling unit. Organics are not approved for collection from commercial sector generators.

The County is divided into four collection areas, north, south, east and west, based on the current collection contracts. Table 3-2 provides a summary of the contractors, contract period and the services they provide. These contracts were awarded on different dates and, accordingly, end on different dates. Three of the contracts will end on July 2, 2011, while the other two will end on July 3, 2010 and October 1, 2011. Table 3-3 indicates the number of units receiving garbage, recyclables and organics collection in each of the collection areas. Further details can be found in the Draft Task D Technical Memo.

Table 3-2 Summary of Waste Collection & Processing Contracts

Contractor	Materials Collected	Area Serviced	Contract Start Date	Contract End Date
Mid-Ontario Disposal	Garbage, recyclable, and organic materials and optional items	**West Simcoe:** Town of Collingwood Township of Clearview Township of Springwater Town of Wasaga Beach	July 1, 2005	July 3, 2010
Miller Waste Systems	Recyclable materials	**North Simcoe:** Town of Midland Town of Penetanguishene Township of Tay Township of Tiny	January 1, 2007	July 2, 2011

Contractor	Materials Collected	Area Serviced	Contract Start Date	Contract End Date
WSI	Garbage, recyclable, and organic materials and optional items	**South Simcoe:** Township of Adjala Tosorontio Town of Bradford West Gwillimbury Township of Essa Town of Innisfil Town of New Tecumseth	October 1, 2006	October 1, 2011
Moreau Enterprises Ltd.	Garbage, organic materials and options items	**North Simcoe:** Town of Midland Town of Penetanguishene Township of Tay Township of Tiny	June 5, 2006	July2, 2011
Mid-Ontario Disposal	Garbage, recyclable materials, organic materials and optional items	**East Simcoe:** Township of Oro Medonte Township of Ramara Township of Severn	July 1, 2006	July 2, 2011

Table 3-3 Estimated Serviced Units for Waste Collection in Simcoe County, 2010

Collection Area	Garbage & Optional Materials	Organics	Recycling
	Total Units	Total Units	Total Units
North Simcoe	25,915	24,458	26,408
South Simcoe	42,382	40,340	44,565
East Simcoe	22,263	20,142	22,406
West Simcoe	34,291	29,484	34,940
Total	**124,851**	**114,424**	**128,319**

Source: Excel Spreadsheet: 2010 Environmental Budget

3.2.2 Garbage Collection

Garbage collection is provided to all eligible single-family dwellings as well as some multi-family dwellings and commercial locations. The container limits for garbage were reduced to one in September 2008, with the exception of some predominantly seasonal units which are not eligible for organics collection and some IC&I locations.

Garbage tags for additional bags over the one bag limit, can be purchased at 165 locations within the County at a cost of $2.00 per tag, and tags must be purchased in sheets of five. Garbage tags are not available in Adjala-Tosorontio. For collection days following Victoria Day, Thanksgiving, and Christmas, two bags of garbage are permitted without the requirement of bag tags.

3.2.3 Blue Box Recycling

Ontario Regulation 101/94 requires municipalities with a population greater than 5,000 with a waste collection and disposal service to offer recycling services to its residents. The County operates a two-stream weekly recycling program that has progressively improved over the years. In 2008, the County

added spiral wound containers, tetra pack containers, gable top containers, and empty aerosol cans to its list of blue box acceptable items. In addition, the County collects the majority of recyclable material that can be recovered and marketed in Ontario, including:

- glass bottles and jars;
- empty paint cans;
- food and beverage cans;
- plastic bottles, jugs, tubs and lids marked #1, #2, #4, #5, and #7;
- aluminum plates and foil;
- paper packaging (corrugated cardboard, boxboard, kraft paper, molded pulp); and,
- printed paper (newsprint, mixed fine paper, magazines, phone books, books)

Plastics # 3 and 6 are not accepted in the program as these materials do not have stable long-term North American markets.

The County currently owns and operates a small Material Recovery Facility (MRF) located at 1700 Golflink Road in Tiny Township. This MRF only accepts recyclables collected in the North Simcoe contract area. The plant currently only processes paper fibre. Co-mingled containers are transferred to an external MRF for processing. The County of Simcoe has limited recycling processing capacity located within its geographical boundaries. Recyclables from the East, South and West Simcoe collection contract areas are all shipped to external MRFs for processing.

There is no limit to the amount of recyclables that can be placed at the curb. However, there is one exception; old corrugated cardboard (OCC) is limited to three 75 cm x 75 cm x 20 cm flattened and tied bundles. The contractor is permitted to collect OCC that is flattened but not bundled, provided it is within the volume limits. At the contractor's discretion, any additional cardboard over the specified limit is to be collected provided it is not trade waste. Commercial and multi-family dwellings may use 60 or 90 gallon wheeled carts for recyclables. In general recyclables cannot be placed in clear plastic bags, but if collection is delayed due to an extenuating circumstance (e.g., collection did not occur on the scheduled date, collection is cancelled, etc.), clear bags are acceptable for recyclable materials. The contractor is required to remove the recyclables from the bags prior to delivery to the waste management facility.

3.2.3.1 Recycling System Performance

The County's recycling program costs were compared to the costs of other similar recycling programs within the province, based on Waste Diversion Ontario (WDO) data collected as part of the Datacall for 2005 through 2008. The WDO annually collects recycling program information from municipalities in Ontario and this permits a reasonable "apples to apples" comparison from a cost performance stand-point.

Each municipality is categorized according to the municipality's size and type of recycling program offered. The County of Simcoe is included with the "Urban Regional" program category. In 2008, six municipalities were included in the same category as the County, including the Regional Municipality of Durham, Essex-Windsor Solid Waste Authority, Regional Municipality of Niagara, City of Ottawa, and the Regional Municipality of Waterloo. Table 3-4 illustrates the County's performance for annual recycling program cost per household and per tonne marketed as well as annual collection costs per household in comparison with

the performance of the Urban Regional group. The County tends to have higher costs than Urban Regional municipalities but lower to mid-range costs compared to other municipalities within the Rural Regional category.

Table 3-4 WDO Program Performance Data for Urban Regional Municipalities, 2005-2008

Year	Minimum	Maximum	Median	Simcoe
Net Annual Residential Recycling Program Cost per Household				
2005	$18.14	$29.66	$22.44	$29.70
2006	$16.53	$36.50	$30.70	$36.50
2007	$14.12	$42.56	$24.98	$42.56
2008	$18.70	$41.30	$23.90	$41.30
Net Annual Residential Recycling Program Cost per Tonne Marketed				
2005	$82.30	$167.80	$116.90	$167.80
2006	$94.30	$194.30	$132.70	$194.30
2007	$82.00	$241.50	$124.50	$241.50
2008	$97.6	$212.70	$127.50	$212.70
Total Annual Collection Costs per Household				
2005	$19.10	$32.10	$26.70	$32.10
2006	$22.70	$33.70	$29.30	$33.70
2007	$24.20	$35.70	$30.00	$35.70
2008	$23.90	$36.00	$32.30	$36.00
Total Annual Recycling Materials Marketed per Household (kg)				
2005	176.10	238.80	190.20	176.70
2006	175.20	248.00	198.30	187.90
2007	172.30	247.10	183.90	176.20
2008	171.53	245.48	191.77	194.20

When examining blue box program costs for similar jurisdictions in 2008, Simcoe had the highest net cost per tonne ($212.70) compared to the other five urban regional municipal programs in Ontario. However, in comparison with the 14 rural regional municipal programs in Ontario, Simcoe's net costs per tonne (2008$) were below the average ($295 in 2008). Simcoe's gross program costs per tonne were in line with the average for urban regional municipalities, however, revenues lagged behind given that the County does not directly process or receive revenues for the majority of its own recyclable materials. Given that past and projected system performance indicates that in the order of 25,000 tonnes per year of residential recyclables may be managed by the County's program, it appears reasonable to examine developing MRF capacity within the County, thus reducing transfer/haul costs and allowing for the County to better control processing costs.

Further information regarding recycling performance in each of the four collection areas (i.e., North, South, East, and West Simcoe) is available in the Draft Task D Technical Memo. Updated 2009 performance information is provided in Section 4.0.

3.2.4 Organics

In September 2008, the County rolled out its organics program. In staff report CS 09-0754, the success of the green bin program was highlighted as initial results indicated the green bin program would meet or exceed the original target of 11,000 tonnes of organics to be diverted from landfill annually. Over the first six months of the program, 6,120 tonnes of organic material were collected. Participation in the organics program was measured over a two week period in November 2008, February 2009, April 2009, and again in July 2009.

Table 3-5 presents the results of the participation study.

Table 3-5 Organics Participation Results

November 2008	February 2009	April 2009	July 2009
64%	65%	66%	74%

Materials acceptable for green bin collection include spoiled foods, coffee grounds and filters, tea bags, cooking oil, egg shells, meat and bones, and some soiled paper products. During its roll-out, the County delivered green bins to all eligible residents. Eligible residents are those that currently receive year round garbage collection, small multi-family dwellings (five units or less) that currently receive garbage collection services, and multi-family dwellings with their own driveways and that currently receive garbage collection services from the County. During the roll-out each eligible residential unit received a 13 gallon wheeled green cart, a 1.9 gallon mini-bin and other brochures and materials. Residents are to use the 13 gallon green cart to place organics at the curb. The County allows residents to use certified compostable bags in the organic bins.

The County collects organic material on a weekly basis. Since the County lacks the capacity to process organics, this material is transferred to Hamilton's Central Composting Facility (CCF) operated by AIM Environmental Group. The CCF is located at 1579 Burlington Street East, Hamilton Ontario. Beginning in September 2008, the County commenced its five year contract to send organics to the CCF. The County is responsible for hauling the materials to the CCF. AIM Environmental Group is responsible for the costs associated with the disposal of residue and marketing of compost, however they retain all revenues associated with the marketing of compost. Further information regarding the composting process and the costs associated with the County contract with AIM Environmental Group is available in the Draft Task D Technical Memo. Updated 2009 performance information is provided in Section 4.0.

3.2.5 Leaf and Yard Waste and Christmas Tree Collection

Leaf and yard waste, brush, and Christmas trees are collected by the County's contractors however this service varies from municipality to municipality. In summary:

- Four municipalities do not receive collection.
- Three municipalities receive only Christmas tree collection on one day per year.
- Four municipalities receive both leaf and yard and Christmas tree collection on more than one day per year.

[4] County of Simcoe. 2009. CS 09-075 Six Month Update of the Organics and Expanded Recycling Programs.

- Two municipalities receive only leaf and yard waste collection on one or more days per year.
- Two municipalities receive leaf and yard, brush and Christmas tree collection.

Leaf, yard and brush materials are taken to one of four County owned and operated outdoor windrow composting facilities. Sites 1 (Alliston), 10 (Nottawasaga), 24 (North Simcoe Transfer Station), or 15 (Wasaga) have the facilities necessary to compost leaf, yard, and brush waste. [5] The resulting compost meets or exceeds legislative requirements. Additional detail is available in the Draft Task D Technical Memo.

3.2.6 Metal and Bulky Item Collection

Curbside collection of bulky and/or scrap metal items is provided in nine Simcoe municipalities under current contracts. In most of the areas with collection, there is a limit of five items for each of bulky items and metal items. However, in Severn Township the combined limit for bulky and metal items is five items in total, including one appliance only.

Acceptable metal items include washers, dryers, hot water tanks, dishwashers, bed frames, and BBQs. Furniture, mattresses, box springs, and carpet (rolled to 90 cm x 90 cm) are also acceptable items. Metal storage sheds and swing sets are accepted, however these items must first be dismantled. Other unacceptable metal items, such as CFC bearing appliances, bulky items, bicycles without wheels removed and automotive parts, are to have a refusal sticker placed on them. Any items containing Freon, such as fridges, freezers, air conditioners, water coolers and dehumidifiers, must first be tagged by a licensed Freon removal technician before they will be collected. Performance data regarding the metal and bulky item collection service is provided in Section 4.0.

3.3 DEPOT/TRANSFER STATIONS

3.3.1 General Overview

The County of Simcoe currently operates four transfer stations. This includes Mara (Site 7), West Gwillimbury (Site 16), Matchedash (Site 8), and North Simcoe (Site 24). All of the transfer stations accept garbage but at a higher cost. Garbage disposed at a transfer station has a tipping fee of $155.00/tonne as opposed to $115.00/tonne if taken to a landfill site (approximately 30% higher than the cost at a landfill). The majority of materials managed at the depots/transfer facilities are brought to these facilities by the public and IC&I sector.

The County operates “Diversion Days” held at the closed Adjala-Tosorontio Transfer Station. The program is only available for Adjala-Tosorontio residents and allows the drop-off of re-useable items that are clean, intact, and in good condition. Items accepted for diversion include: furniture, appliances, housewares, electronics and recyclable materials (e.g., scrap metal), wood, drywall, cardboard, tires, brush, flower pots and trays, propane BBQ tanks, and ink-jet cartridges.

[5] Excel Spreadsheet, Proposed Budget - 2010 Environmental Budget, General Est.

3.3.2 Municipal Hazardous or Special Waste (MHSW) Program

On July 1, 2008, the County expanded its MHSW program to allow residents to drop off low risk materials during all regular operating hours at the Nottawasaga Landfill and the North Simcoe Transfer Station. In July, 2009, the Oro Landfill was added. There is no charge for residents to take the identified materials to the Landfills or Transfer Station.

The County also currently operates Depot Event Days at the Nottawasaga, North Simcoe, New Tecumseth and Oro facilities, where all household hazardous wastes are collected. Higher risk household hazardous wastes can be taken to the Depot. Items identified as high risk include: fertilizers, solvents, pesticides (fungicides, herbicides, and insecticides), household cleaners, pool chemicals, mercury, gasoline, thermostats, pharmaceuticals, sharps and syringes and other unknowns (liquids and chemicals).

The County also has agreements in place with the Cities of Barrie and Orillia for residents to use their MHSW Depots. The Barrie depot is available to all residents of the County and the Orillia depot serves the surrounding municipalities of Oro-Medonte, Severn, and Ramara. Information regarding the depot events are summarized in the Draft Task D Technical Memo.

3.3.3 Electronics Program

In January 2008, the County began a pilot project at the North Simcoe Transfer Station, Nottawasaga Landfill, and the Oro Landfill to divert waste electronics. During its first year, the pilot program diverted approximately 174 tonnes of electronic waste. Televisions, computers, computer monitors, game consoles, fax machines, cell phones, computer peripherals and printers, etc., were accepted during the pilot. The Waste Electronic and Electrical Equipment (WEEE) was accepted at the regular garbage tipping fee.

On July 8, 2008, the WEEE program, through the *Waste Diversion Act,* was approved and required product stewards to pay fees which are used to fund the program. Phase 1 of the program was initiated on April 1, 2009 and addressed desktop and portable computers, computer peripherals, monitors, printers, fax machines and televisions. Phase 2 materials, including phones, cameras and audiovisual equipment, are scheduled for funding beginning in 2010, however since April 2009 the County has already collected these materials free of charge at all waste management facilities. In 2009, 721 tonnes of WEEE was diverted.

3.3.4 Tire Program

The County's Tire Stewardship Program was implemented on September 1, 2009. Through the *Waste Diversion Act*, industry supported funding is provided to municipalities to manage used tires. The program is provided by the Ontario Tire Stewardship and is applicable to the following tire types:

- On road passenger/light truck tires, including tires designed for under 10,000 lbs gross vehicle weight with codes on the sidewall of P (passenger), LT (light truck), and T (temporary).
- Motorcycle, ATV and medium truck tires (commercial, RV, bus which comply with CMVSS No. 119).
- Off Road Tires including golf cart, forklift, bobcat and skid steer tires, free rolling farm tires, agricultural drive.
- Small, medium, large and giant off road tires and solid industrial tires.

Overall, 561 tonnes of tires were diverted from the residential sector and 107 tonnes of tires were diverted from the IC&I sector in 2009.

3.3.5 Other Materials

In addition to the above mentioned items, the County also collects and diverts materials such as drywall, shingles, wood chips and brush chips, leaf & yard waste, wet cell batteries, and propane tanks through operations at its transfer/depot stations.

3.4 LANDFILL DISPOSAL

3.4.1 Operating Landfill Sites

As of January 2009, the County of Simcoe operated six landfills: Collingwood (Site 2), Nottawasaga (Site 10), Oro (Site 11), Tosorontio (Site 13), Elmvale/Flos (Site 5) and Matchedash (Site 8). On November 30, 2009, the Elmvale/Flos (Site 5) was closed as it had reached capacity. Also in 2009, the Matchedash landfill (Site 8) ceased landfilling operations, although it continues to operate as a depot/transfer facility. There are 28 closed municipal waste landfill sites located throughout the County. Sections 3.4.1.1 through 3.4.1.4 provide additional information regarding the landfills that will continue operating from 2010 onwards.

As of November 2009, the remaining capacities at the four operating landfills was as follows:

Landfill	Remaining Capacity
Site 2 - Collingwood (non-putrescible waste only)	444,620 m^3
Site 10 - Nottawasaga	165,200 m^3
Site 11 - Oro	431,590 m^3
Site 13 - Tosorontio	127,300 m^3
TOTAL (excluding Collingwood)	724,090 m^3 (as of November 2009)

Around 60,000 tonnes of material were disposed in County landfills in 2009, of which approximately 50,000 (consisting of curbside collected garbage and some waste hauled directly to the sites) was disposed of in Sites 10, 11 and 13. The annual usage of landfill capacity in 2009 at Site 10, 11 and 13 for waste and daily/interim cover excluding final cover was 79,120 m^3.

Note: the above table indicates the remaining capacity at the County's landfills as of November 2009. It has been estimated that the actual remaining capacity as of January 1, 2010 was approximately 700,000 m^3, and this assumption was brought forward into the Strategy.

3.4.1.1 Collingwood (Site 2)

The Collingwood Landfill (Site 2) was opened in 1973 and is 44.6 ha in size. Currently, waste is disposed of in 9.0 ha of active fill area while a 14.4 ha footprint is approved for waste disposal in the Site's Certificate of Approval (C of A). The site receives approximately 7,000 to 8,000 tonnes of commercial, non-hazardous industrial and municipal waste per year, excluding putrescible waste. Non-putrescible waste from across

the County is accepted at the Collingwood Landfill. Note: The County currently transfers the non-putrescible portion of the waste stream from Sites 10 and 13 to Site 2.

3.4.1.2 Nottawasaga (Site 10)

The Nottawasaga Landfill is located on the west half of Lot 30, Concession 1 in the former Township of Nottawasaga. When it first opened in 1968, the landfill was owned and operated by the Township of Nottawasaga. The Landfill is now owned and operated by the County of Simcoe under C of A A252501 issued on September 25, 1980. Waste from the entire County is permitted to be disposed of within the Landfill up to the approved capacity limit of 741,000 m^3. The entire site is 40.5 ha, with an approved landfill footprint of 11.2 ha.

3.4.1.3 Tosorontio (Site 13)

Site 13, or the Tosorontio Landfill is an 11 ha site located on Lot 17, Concession 4, Township of Adjala-Tosorontio. Under C of A A253201 dated April 29, 1980, 4.0 ha of the facility is licensed for waste disposal. Waste from the County of Simcoe is permitted to be accepted at this site.

3.4.1.4 Oro (Site 11)

Site 11, or the Oro Landfill is la 20.2 ha site located in Part of West Half of East Half of Lot 10, Concession 6, Oro-Medonte Township. Under C of A A252701 dated 1972, 16.8 ha of the facility is licensed for waste disposal. The County of Simcoe is the owner and operator of the site.

3.4.2 Approved Potential Landfill Capacity

The following three landfill sites represent “approved” landfill capacity that has not been developed and thus were not in operation in the County as of 2010.

3.4.2.1 Site 9 – Medonte Landfill Site

The Medonte Landfill Site is located on a 40.5 hectare parcel of land in Severn Township. Under C of A A252043, 8.1 hectares are licensed for waste disposal. An updated Design and Operations Report was submitted to the Ministry of the Environment in 2005. Despite inquiries to the Ministry of the Environment from the County, to-date staff has not received comments from the Ministry on this report. It is noted that the design for Site 9 requires the development of an engineered liner and containment system. The Site cannot be used without a Ministry of the Environment approved Design and Operations Report. The available capacity at Site 9 is approximately 150,000 m^3.

3.4.2.2 Site 12 – Sunnidale

The Sunnidale landfill site is located on a 40.5 hectare parcel of land in the Township of Springwater. Under C of A A252082 24 hectares are licensed for waste disposal. While approvals are in place for Site 12, it cannot be utilized without a Ministry of the Environment approved Design and Operations Report. It is noted that the design for Site 12 requires the development of an engineered liner and containment system. The available capacity at Site 12 is approximately 802,000 m^3.

3.4.2.3 Site 42 – Georgian Triangle

The Georgian Triangle landfill site is located in the Township of Clearview. Site 42 received Environmental Assessment approval without a Joint Board Hearing. Site 42 will require issuance of a Certificate of Approval and a Ministry of the Environment approved Design and Operations Report, as well as a gull study due to its proximity to the Collingwood airport, prior to operation. Potential disposal capacity at Site 42 is 1,362,000 cubic metres.

3.5 SITE 41 – NORTH SIMCOE LANDFILL

In 1986, following a site selection process, the North Simcoe Landfill was selected as the preferred location to site a new landfill. Located in the Township of Tiny, Site 41 was licensed under C of A A620278 as a 21 hectare waste disposal site with a capacity of 1,400,000 cubic metres in 1998. After much debate over the development of Site 41 into a landfill, in September 2009 resolution 2009-244 was approved by County Council “THAT construction and all future development of the North Simcoe Landfill Site (Site 41) be discontinued”.

Accordingly during the SWMS Site 41 was not considered an option for landfill disposal, although initially the site was acknowledged as a property that could potentially be used for some other purpose.

During the course of the SWMS development and as documented in the Draft SWMS reports, it was recommended that a siting process be applied should any new waste management facilities be required for the long-term waste management system. There was no assumption that Site 41 would play any role in the recommended Strategy.

In May 2010 the County of Simcoe Council requested the Ministry of the Environment revoke the C of A. As requested, the MOE revoked the C of A on May 25, 2010. Council also directed staff to prepare a report to Council regarding the final disposition of the lands, enact a by-law to return Site 41 to its original zoning, and lastly to ensure waste management is not permitted as a future land use on the parcel of land.

4.0 Current Diversion Performance

Information regarding diversion performance was initially presented in the Draft Task E Technical Memo (Appendix 2). The Draft Task E Technical Memo presented the 2009 performance data based on November 2008 to October 2009 data. This section presents updated information based on the reported data from the County's full 2009 operating year (i.e., January to December 2009). Adjustments were also made to the 2009 data based on the County's review of scale house records, etc. undertaken during preparation of the 2009 WDO datacall submission.

4.1 METHODOLOGY

Data used to describe the performance of the current waste management system and develop initial waste projections for the 20 year planning period is based on County records for the year 2009.

The projected waste management needs of the County over the 20 year planning period (2011-2030) were determined in two steps:

- First, the performance of the current waste management system was analyzed, including the performance of the curbside collection program and the drop-off depot program. This was accomplished by obtaining current residential and IC&I waste generation data from the County and analyzing the data to determine performance (i.e., current diversion rates, capture rates etc.).

- Second, based on the system's current performance, per capita waste generation estimates were determined and waste generation projections were established to project the amount and composition of waste the County will need to manage during the 20 year planning period. These projections were developed assuming that the status quo system does not change (constant diversion rate; no new diversion initiatives etc.).

4.2 CURRENT SYSTEM PERFORMANCE (RESIDENTIAL)

The performance of the County's current residential waste management system was analyzed by assessing the: Curbside Collection Program; and, Drop-off Depot Program.

4.2.1 Residential Waste Generated

Waste generation refers to the weight of materials and products that enter the waste stream before recycling, composting, landfilling, or combustion takes place. In 2009, the residential sector of the County generated approximately 121,550[6] tonnes of solid waste. This number takes into account:

[6] This number is slightly different than that reported in the 2009 WDO datacall submission. The difference can be accounted for mainly due to the fact that the County marketed more blue box recyclables in 2009 than they actually collected. Our calculations took into account blue box materials collected minus residues, not blue box materials marketed that may have been generated in 2008.

- residential waste generated curbside (i.e., garbage, blue box recycling, green bin composting);
- residential waste brought to County drop-off depots; and,
- other forms of waste diversion including backyard composting, grasscycling, diversion via residential reuse events, and the residential component of the deposit, return and stewardship program.

Of the 121,550 tonnes of residential waste generated, the County's waste management system only actually managed 114,588 tonnes of this material via its curbside collection and drop-off depot programs. The other 6,962 tonnes consisted of materials that do not enter the County's waste management system and include materials handled via backyard composting, grasscycling, re-use events, and the residential component of the LCBO deposit/return and stewardship program. As these materials never enter the County's waste management system, they were not considered throughout the remainder of this section.

Table 4-1 presents the quantities of residential waste managed through Simcoe's waste management system at the curbside and at the drop-off depots in 2009. It should be noted that the tonnages presented in Table 4-1 take into account residues in the diverted materials streams that were disposed. For example, although 11,548 tonnes of kitchen organics were collected, 855 tonnes of residue were disposed. The 855 tonnes disposed was added to the residual waste tonnage. As noted in the table, approximately 67% of residential waste was managed at the curbside and 33% was managed at the depots.

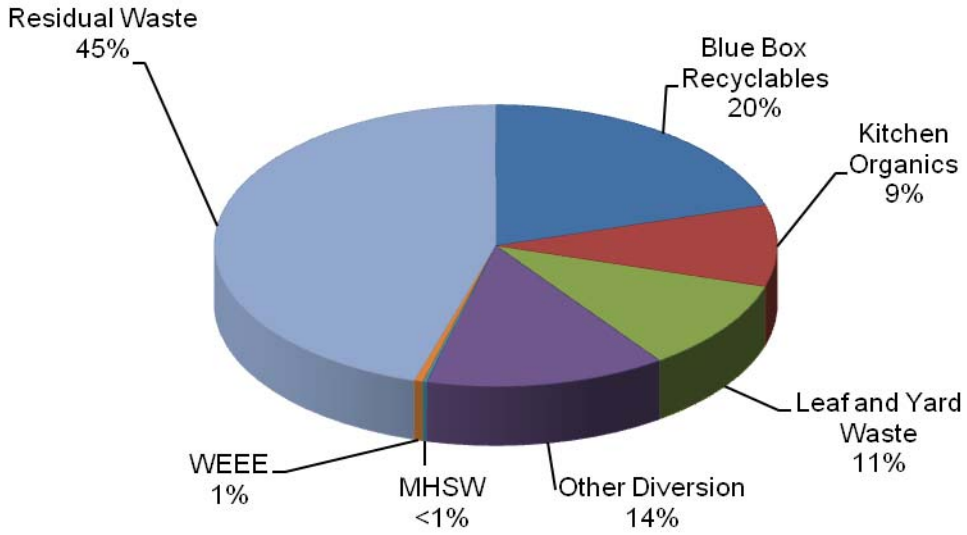
Table 4-1 Quantities of Residential Waste Managed through Simcoe County's Waste Management System at Curbside and at Drop-off Depots (2009)

Program Element	Quantity Managed at Curbside (tonnes)	Quantity Managed at Drop-off Depots[7] (tonnes)	Total (tonnes)
Blue Box Recyclables	22,214	1,107	23,320
Kitchen Organics	10,693	8	10,702
Leaf and Yard Waste[8]	5,693	6,282	11,974
Other Diversion[9]	184	15,651	15,835
MHSW	-	246	246
WEEE	-	577	577
Residual Waste	37,842	14,090	51,933
Total Quantity	76,626	37,962	114,588
Total % of Waste	67%	33%	100%

Figure 4-1 presents the relative composition of total residential waste managed via curbside and depot programs. This includes both materials disposed and diverted.

[7] It should be noted that two of the drop-off depots (Mara, Matchedash) are not equipped with scales and therefore tonnage values may not be accurate for these sites.
[8] Includes leaf and yard waste, brush and Christmas Trees
[9] Other diversion includes scrap metal, construction and renovation materials (shingles, drywall, wood, and other C&D), reusable items, and tires.

Figure 4-1 Breakdown of Total Residential Waste Managed by the County at the Curbside and at Drop-Off Depots (2009)



The composition of the total residential waste stream was determined in the following manner.

- The composition of curbside waste was based on that observed during the 2006 single family waste audit conducted in the County, but was adjusted slightly to reflect decreases in glass and increases in organics observed during the winter portion of the single family waste audit completed in February 2010. The 2006 waste audit involved the collection of curbside waste materials from 100 single family homes, representative of the County's demographic, located in different areas of the County over a total of eight weeks (2 weeks each in the Summer, Fall, Winter, and Spring) and sorting the waste into specifc material categories. The same sample of homes and the same methodology was used during the winter single family waste audit completed in 2010. These types of waste audits are conducted regularly in municipalities throughout Ontario and provide a representitive and accurate snapshop of curbside waste generation and characteriziation for a specific geographic region. The percentage composition was applied to the total tonnes of residential curbside waste produced in 2009 (76,626 tonnes) to determine the 2009 curbside total waste composition.
- For residential waste received at County drop-off depots, total waste composition was determined in a different manner. Total waste stream composition was determined in two steps: first, by determining the composition of the residual waste stream (garbage) and second by determining the composition of the diverted material stream.
- As the composition of residential residual waste brought to County depots has never been determined (i.e., no audits have ever been completed) its composition had to be estimated based upon other available data sources. The composition of the residual waste stream was determined by using the composition of residual waste brought to drop-off depots by rural residents in Wellington County from a report entitled "Evaluation of Service Alternatives To Transfer Station Operations In Wellington County" by RIS International Ltd., 2004. The percent composition of residential residual waste from Wellington County depots was applied to the residential tonnes of garbage brought to Simcoe County depots in 2009. The Wellington County report was used as very few other studies have actually been performed on the garbage stream of residential waste brought to drop-off depots. Moreover, rural residents of Wellington County are thought to have similar demographic qualities to residents of Simcoe County.
- The composition of the residential diverted material stream brought to drop-off depots was determined based upon actual residential material received at County drop-off depots in 2009. This data was provided to us by the County.

4.2.2 Estimated Residential Waste Diverted

4.2.2.1 Curbside

As displayed in Table 4-1, 76,626 tonnes of residential solid waste was managed at the curbside in 2009. Of this waste, 38,784 tonnes, or 50.6%, was diverted from disposal via blue box recycling, green bin composting, and other diversion programs including the scrap metal and leaf and yard waste programs. Figure 4-2 presents the composition of diverted materials managed at the curbside. Paper makes up the largest proportion of diverted materials (39%) followed closely by kitchen organics (29%).

Figure 4-2 Composition of Residential Waste Diverted at Curbside (2009)

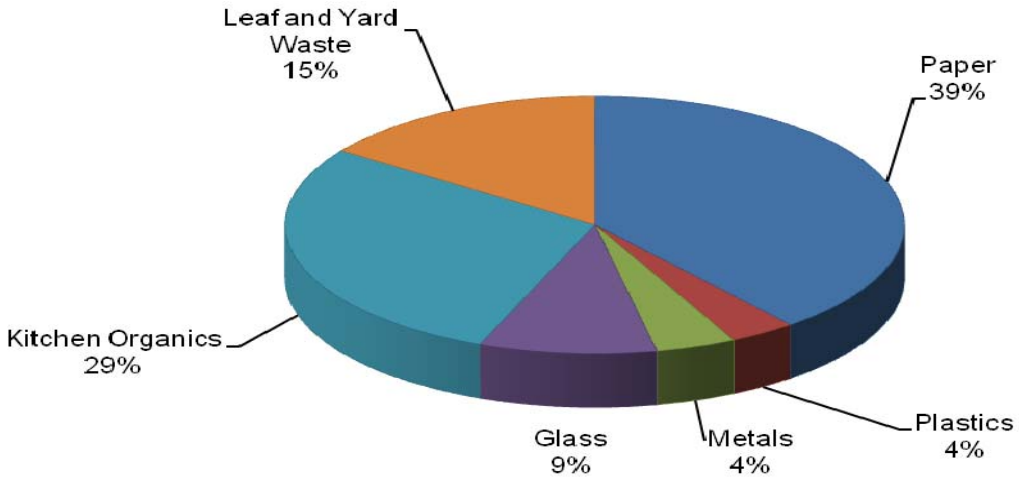


Table 4-2 presents estimated recovery rates for the major material type's generated curbside that can be diverted. Recovery rates are the proportion of materials diverted from disposal divided by the total amount of material acceptable in the diversion program. Note: Table 4-2 only provides recovery rates for the portion of the residential waste stream in divertable material categories. It does not include residential 'other' wastes that cannot be diverted through the County's programs.

Table 4-2 Residential Tonnage Produced, Diverted and Recovery Rates for Materials Generated at Curbside (2009)

Material Type	Estimated Tonnes Generated	Tonnes Diverted	Estimated Recovery Rate
Paper	22,231	14,591	75%
Plastics	6,049	1,302	59%
Metals	2,616	1,555	76%
Co-mingled Materials	n/a	1,494	n/a
Glass	4,448	3,455	87%
Kitchen Organics	22,480	10,693	48%
Leaf and Yard Waste	6,126	5,693	93%

Table 4-3 presents the estimated capture rates for residential recyclable and organic materials collected curbside in 2009. The capture rate is the proportion of the divertible material collected out of the total amount of material available for collection (produced or generated). Further details regarding the methodology for calculating capture rates is available in the Draft Task E Technical Memo.

Table 4-3 Estimated Capture Rates for Residential Materials Accepted in the Curbside Diversion Program (2009)

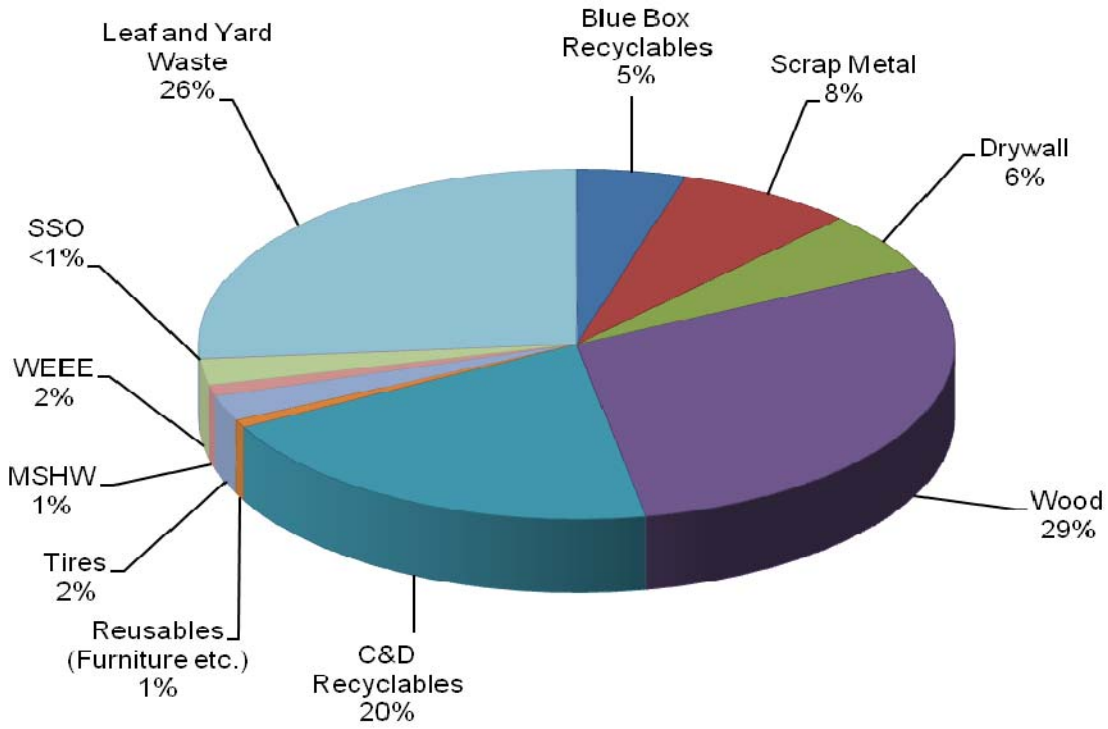
Material Category	Estimated Capture Rate (%)
PAPER	
Newspaper – Dailies and Weeklies	89.5%
Newspaper - Other	83.4%
Telephone Books / Directories	75.5%
Magazines & Catalogues	82.6%
Mixed Fine Paper	32.8%
Books	52.7%
PAPER PACKAGING	
Corrugated	88.9%
Kraft Paper	17.7%
Boxboard / Cores	58.4%
Molded Pulp	37.5%
Composite Cans	unknown
Gable Top Cartons	unknown
Aseptic Containers	unknown
PLASTICS	
PET Beverage Bottles	74.8%
PET Other Bottles & Jars	44.4%
HDPE Beverage Bottles	69.7%
HDPE Other Bottles & Jugs	54.4%
Other Bottles, Jars & Jugs	34.1%
Wide Mouth Tubs & Lids	27.7%
METALS	
Aluminum Food & Beverage Cans	82.5%
Aluminum Foil & Foil Trays	11.9%
Steel Food & Beverage Cans	72.1%
Steel Aerosol Cans	Unknown
Steel Paint Cans	26.1%
GLASS	
Alcoholic Beverage Glass Clear	86.6%
Alcoholic Beverage Glass Coloured	92.7%

Material Category	Estimated Capture Rate (%)
Food and Beverage Glass Clear	85.4%
Food and Beverage Glass Coloured	91.9%
ORGANICS	
Food Waste	47.6%
Yard Waste	92.9%

4.2.2.2 Residential Use of Drop-off Depots

As indicated in Table 4-1, it is estimated that 37,962 tonnes of residential solid waste was received at County depots in 2009. Of this waste, 23,871 tonnes, or 63%, was diverted from disposal. Materials diverted from disposal included blue box recyclables, scrap metal, drywall, wood, C&D recyclables (e.g., shingles), reusables (e.g., furniture, etc.), tires, MSHW, WEEE, source separated organics, and leaf and yard waste. Figure 4-3 presents the composition of residential materials diverted at the County depots in 2009.

Figure 4-3 Relative Composition of Residential Waste Diverted at Depots (2009)



4.2.3 Other Residential Diversion

As mentioned previously, in addition to residential materials diverted at the curbside and at drop-off depots, other forms of residential waste diversion are also often used to measure residential diversion rates. For example, when WDO calculates the GAP diversion rate for communities in Ontario, it also considers backyard composting, grasscycling, municipality run reuse events, and the residential component of the deposit, return and stewardship program as forms of waste diversion. **However, the County's waste management system does not actually manage these materials and these are not included in the estimated diversion rates assumed for the County's program.**

For information purposes, Table 4-4 presents the tonnes of material diverted via these other forms of diversion as presented in the 2009 WDO Datacall. If these materials were considered in the diversion calculations, it would increase the estimated residential diversion rate for 2009 by 2.6%.

Table 4-4 Tonnes of Waste Diverted Via 'Other' Residential Diversion Programs (2009)

Diversion Program	Tonnes Diverted
Backyard Composting	3,445
Grasscycling	1403
Reuse Events	340
Deposit, Return, and Stewardship Program	1,775
Total	**6,962**

4.2.3.1 Summary of Residential Waste Diverted at Curbside and Drop-off Depots

Overall, it is estimated that the County diverted 62,654 tonnes of residential solid waste in 2009 resulting in an overall residential at-source waste diversion rate of approximately 54.7%. If the other forms of diversion mentioned in Section 4.2.3 are considered in the diversion calculation, the residential at-source waste diversion rate would increase by 2.6% to approximately 57.3%. This diversion rate is comparable to that achieved by the 'best performing' municipal programs in Ontario.

4.2.4 Residential Waste Disposed

In 2009, the County of Simcoe disposed of a total of 51,933 tonnes of residential garbage (or approximately 45% of the total residential waste generated at curbside and at County drop-off depots). This waste was disposed at various landfills throughout the County. The estimated composition of the post-diversion residual waste (i.e., garbage) was determined to identify the types of materials currently being lost to disposal, so as to identify material types that could potentially be captured by future diversion initiatives.

The estimated composition of the residential garbage stream was determined using the following methodology. As discussed previously, the composition of the total curbside waste stream was determined based on the results of the 2006 curbside residential waste audit (with slight adjustments made to reflect the decrease in glass and increase in organic material observed during the winter 2010 audit). In order to determine the composition of the residential curbside garbage stream, the capture rates calculated for 2009 were applied to the total material generated curbside to determine the estimated amount of each material

type diverted from disposal. This amount of material diverted was then subtracted from the total material generated to determine the approximate amount of each material type currently being sent to disposal.

The methodology for determining the composition of the residential garbage brought to drop-off depots was much simpler as the estimated composition of the residual waste stream was calculated directly based on the Wellington County study. The values estimated for curbside and drop-off depots were then combined to determine the estimated overall composition of the residential post-diversion residual waste stream.

Figure 4-4 presents the estimated composition of the residual garbage requiring disposal (from both curbside collection and drop-off depots) in 2009. Although it is likely that the waste composition of the residual waste stream will change over time as a result of changes in material packaging, provincial or federal waste management legislation (e.g. standardized packaging, minimum content legislation for packaging) and future but unknown potential waste diversion opportunities, etc., it is not possible or reasonable to project how the composition will change over the 20 year planning period. Therefore, it is assumed that the estimated composition displayed in Figure 4-4 would remain constant over the 20 year planning period.

Figure 4-4 Estimated Composition of Residential Residual Waste Sent to Landfill (2009)

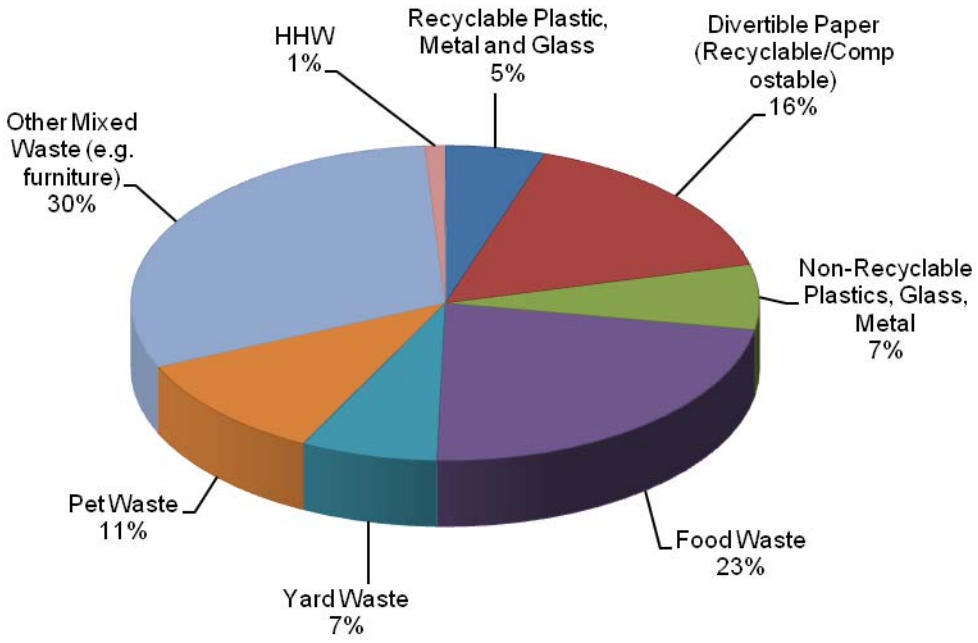


Table 4-5 identifies the estimated composition of the 2009 residual garbage disposed by tonnage.

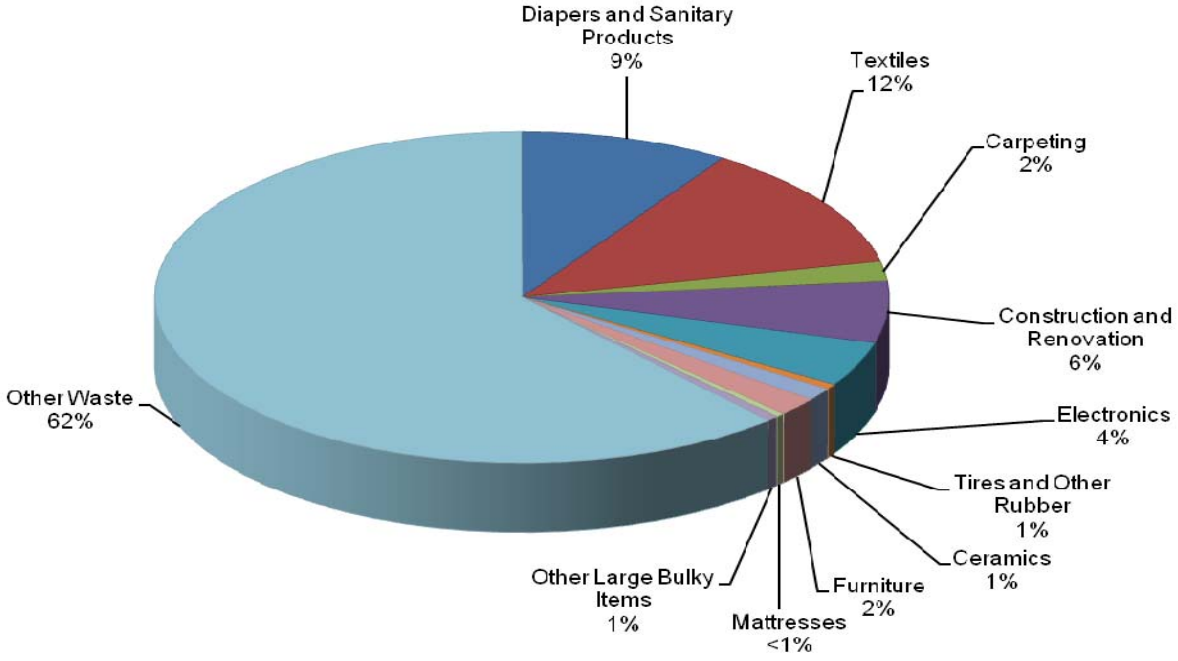
Table 4-5 Estimated Composition of Post-Diversion Residual Waste Requiring Disposal by Tonnage (2009)

Material Type	Estimated Tonnes
Recyclable Plastic, Metal and Glass	2,659
Divertible Paper (Recyclable/Compostable)	8,271
Non-Recyclable Plastics, Glass, Metal	3,467
Food Waste	11,787
Yard Waste	3,651
Pet Waste	5,651
Other Mixed Waste (e.g. furniture)	15,903
HHW	544
Total	**51,933**

As displayed in Figure 4-4 and Table 4-5 the majority of materials going to disposal in the County fall under the 'Other Mixed Waste' (also known as Other Materials) category. The 'Other Materials' category includes materials such as diapers and sanitary products, textiles, carpeting, furniture, mattresses, and other large bulky items. It also includes 'Other Waste' that doesn't fall into any other material category.

Much of the waste brought to the depots by the residential sector was classified under the 'Other Waste' category as detailed residual waste composition data of residential waste brought to depots is not available. Unfortunately this means that it is impossible to determine how much potentially divertible material is present in the 'Other Waste' category. Figure 4-5 presents an estimated breakdown of the material types that make up the 'Other Mixed Waste' category for residential residual waste being sent to landfill.

Figure 4-5 Estimated Composition of Residential Residual 'Other Materials' Category Landfill (2009)



4.2.5 Status Quo: Projected Waste Generation (Residential)

Projected waste generation for the Residential sector for the current County system (status quo) was determined based on per capita waste generation rates for 2009, diversion performance for 2009 and population projections for the County.

In 2009, residents produced a total 114,588 tonnes of solid waste that required management by the County (this includes both curbside and drop-off depot material). To project residential waste generation over the 20 year planning period, a constant per capita waste generation rate between 2011 and 2030 was applied to the population projections. In 2009, the per capita residential waste generation rate was 392 kg/person and this number was used throughout the planning period to determine the amount of waste requiring management by the County.

Although a constant per capita waste generation rate was used throughout the 20 year planning period, trends in Ontario (and elsewhere) suggest that per capita waste generation rates are increasing. According to Statistics Canada, per capita waste generation increased in all provinces between 2004 and 2006; this increase was 2.74% for Ontario.[10] That said, based on the data that we have observed, waste generation in the County of Simcoe decreased from 399 kg/person in 2008 to 392 kg/person in 2009. Although this is too short of a time-frame to suggest a trend, it is interesting to note that is goes against the general trend in Ontario.

[10] Statistics Canada, 2006.

In order to complete initial estimates regarding how much waste would be disposed and diverted over the 20 year planning period, it was assumed that the waste diversion rate for the County's system would remain steady at the status quo 54.7%.

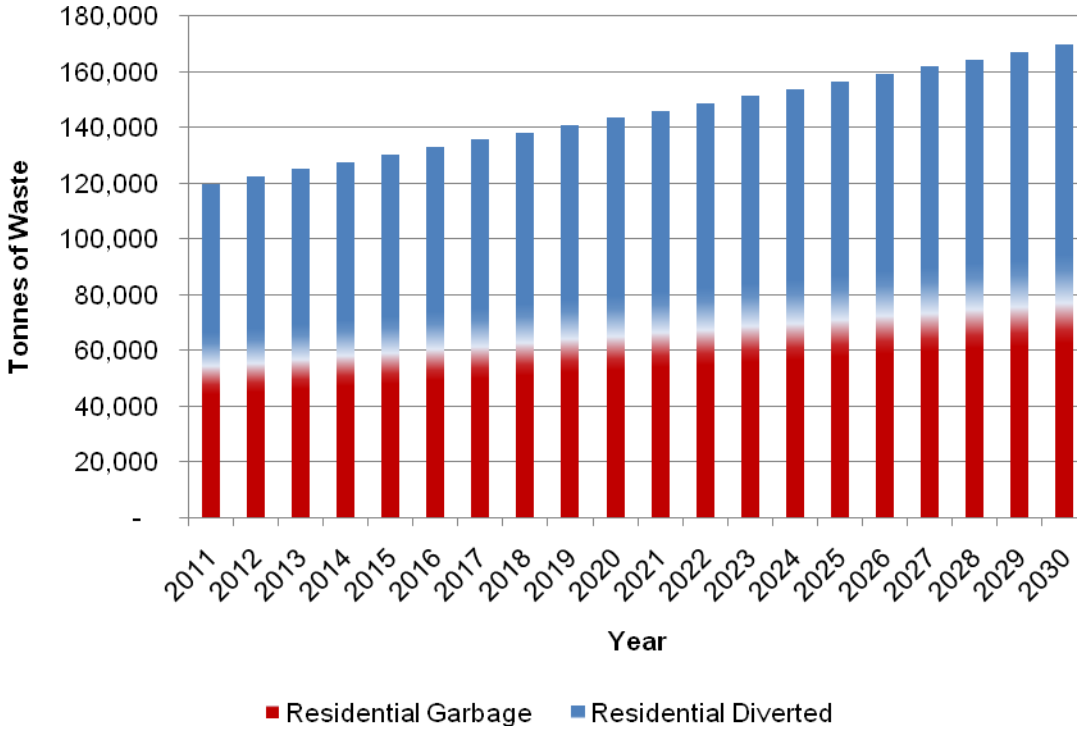
Table 4-6 presents our initial estimates of the projected amount of waste requiring management year by year over the 20 year planning period, should there be no change to the County's waste management system (i.e., under the status quo).

Table 4-6 Status Quo: Projected Residential Waste Quantities (2011-2030)

Year	Total Estimated Residential Waste Requiring Management (generated tonnes)	Estimated Residential Waste Diverted (tonnes)	Estimated Residential Waste Disposed (tonnes)
2011	119,835	65,524	54,311
2012	122,459	66,959	55,500
2013	125,082	68,393	56,689
2014	127,706	69,828	57,878
2015	130,329	71,262	59,067
2016	132,953	72,697	60,256
2017	135,577	74,131	61,445
2018	138,200	75,566	62,634
2019	140,824	77,001	63,823
2020	143,448	78,435	65,012
2021	146,071	79,870	66,201
2022	148,695	81,304	67,390
2023	151,318	82,739	68,580
2024	153,942	84,173	69,769
2025	156,566	85,608	70,958
2026	159,189	87,043	72,147
2027	161,813	88,477	73,336
2028	164,436	89,912	74,525
2029	167,060	91,346	75,714
2030	169,684	92,781	76,903
Total	**2,895,187**	**1,583,049**	**1,312,138**

Figure 4-6 illustrates the estimated total amount of residential waste diverted and disposed over the 20 year planning period under the status quo.

Figure 4-6 Status Quo: Estimated Total Amount of Residential Waste Diverted and Disposed (2011-2030)



As indicated in Figure 4-6, the total amount of residential waste managed by the County increases based on the estimated increase in population over the planning period should the per capita waste generation rate remain steady at 392 kg/year.

If the diversion rate and per capita waste generation remain steady at 2009 levels, the County will be responsible for disposing of over 76,903 tonnes of residential garbage by the year 2030. This is a substantial increase from the amount disposed in 2009 (approximately 51,933 tonnes). In order for the County to maintain or lower the amount of residential solid waste it sends to disposal, the proposed new SWMS will have to result in a decrease of per capita waste production and/or an increase in diversion rate to offset the projected increase in population.

4.3 CURRENT SYSTEM - IC&I

4.3.1 IC&I Waste Generated

In addition to residential waste, the County also manages a proportion of the industrial, commercial and institutional (IC&I) waste produced within the County.

Curbside collection of waste materials is provided to a small number of IC&I properties located within the County. IC&I waste collected at the curbside includes garbage and recycling, but not organics. The

majority of IC&I properties are not serviced curbside by the County, and are assumed to receive waste management services from private contractors.

In addition to curbside collection, IC&I producers are also permitted to drop waste materials off at drop-off depots (landfills/transfer stations) located throughout the County.

In 2009, the County of Simcoe managed approximately 11,979 tonnes of IC&I waste via curbside collection and drop-off depot programs. This tonnage of waste is assumed to be a small fraction of the total amount of waste produced by the IC&I sector as the majority of IC&I waste producers utilize private contractors to manage their waste. That being said, it is a useful exercise to estimate the total amount of waste produced by the IC&I sector to assess the amount of waste potentially available to be managed by the County's waste management system in the future.

In order to estimate the actual amount of waste produced by the IC&I sector, the following methodology was used. The Simcoe County community profile on the Statistics Canada website was consulted to determine the estimated number of employees working in various industry sectors[11]. The estimated amount of waste produced per employee per industry sector was derived by averaging the findings of two recent studies which discussed IC&I sector waste management in Ontario municipalities[12].

By multiplying the number of employees per industry sector by the waste produced per employee per industry sector, it was estimated that the County's IC&I sector produces approximately 108,285 tonnes of IC&I waste. It should be noted that this total tonnage does not include the construction industry sector as neither of the studies which we reviewed were able to present reasonable waste generation values for the construction industry. In other words, there may be additional IC&I waste not being accounted for using our method of estimation, as we do not consider the construction sector in our calculations.

Table 4-7 presents the estimated IC&I waste generated per industry sector in the County.

Table 4-7 Estimated Tonnage of Waste Produced by Various Industry Sectors in Simcoe County

Industry Sector	Estimated Tonnes of IC&I Waste Generated per Industry Sector
Agriculture and other resource-based industries	2,192
Construction	Unknown
Manufacturing	17,934
Wholesale trade	6,531
Retail trade	29,566
Finance and real estate	1,980

[11] Statistics Canada provides the community profile for Simcoe County as a whole (including Barrie and Orillia). In order to determine data for the County excluding Barrie and Orillia, the community profiles for Barrie and Orillia were consulted and their employment numbers were subtracted from the Simcoe County total.

[12] "IC&I Waste Characterization Report IC&I 3Rs Strategy Project", June 5, 2007, City of Ottawa, Genivar and Jacques Whitford and "Analysis of City of Owen Sound Waste Audit/Recycling Plan for IC&I Premises", City of Owen Sound, Kelleher Environmental, MOE, OWMA, November 24, 2008

Industry Sector	Estimated Tonnes of IC&I Waste Generated per Industry Sector
Health care and social services	8,483
Educational services	4,262
Business services	9,323
Other services	28,013
Total	**108,285**

Table 4-8 provides a summary of the actual amount of IC&I waste managed by the County in 2008 and 2009. It should be noted that the tonnages listed also include some portion of material from municipal operations (but not curbside collection), as the County groups waste received from municipal operations under IC&I in their records. As can be readily observed, the County only manages a very small fraction of the estimated total amount of waste produced by the IC&I sector (approximately 11%).

Table 4-8 Summary of IC&I Waste Managed at Curbside and Drop-off Depots by Simcoe County (2008 and 2009)

Material Stream	Curbside Tonnes (2008)	Depot Tonnes (2008)	Curbside Tonnes (2009)	Depot Tonnes 2009)
Garbage	1,441	5,768	2795	5,510
Divertibles	712	3,819	486	3,189
Total	2,153	9,587	3280	8,699
Grand Total	11,741 (2008)		11,979 (2009)	

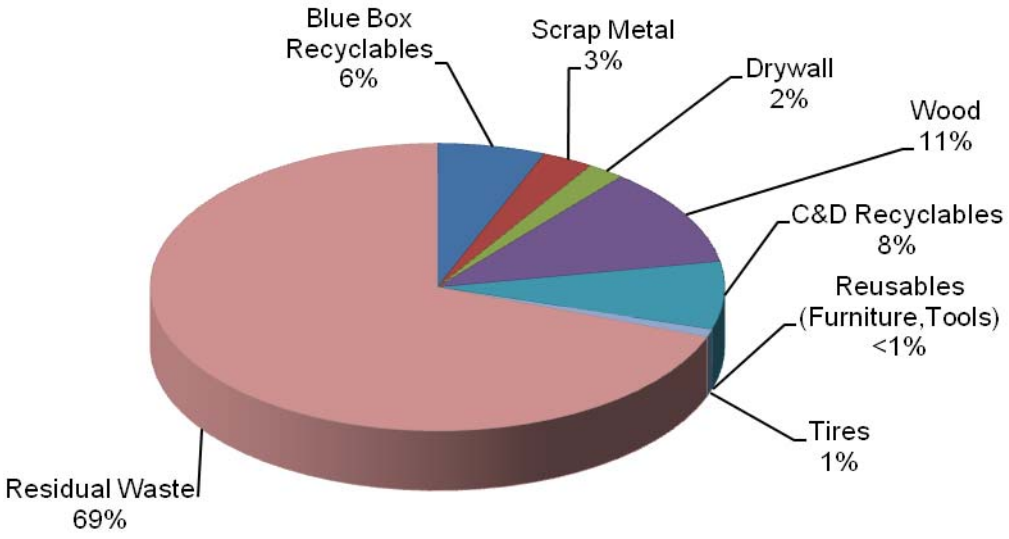
As noted in Table 4-8, in 2009 it is estimated that, the County managed approximately 11,979 tonnes of IC&I waste compared to 11,741 tonnes in 2008. Table 4-9 presents the tonnes of IC&I waste by material type managed by the County at the curbside and at drop-off depots.

Table 4-9 Tonnes of IC&I Waste by Material Type Managed by the County (2009)

Material Category	IC&I Tonnes Managed by County at Curbside and Drop-off Depots
Blue Box Recyclables	729
Scrap Metal	342
Drywall	252
Wood	1,331
C&D Recyclables	913
Reusables (Furniture,Tools)	0
Tires	107
Residual Waste	8,305
Total	**11,979**

Figure 4-7 presents the relative composition of IC&I waste managed by the County at the curbside and at drop off depots.

Figure 4-7 Relative Composition of IC&I Waste Managed at the Curbside and at Drop-off Depots (2009)



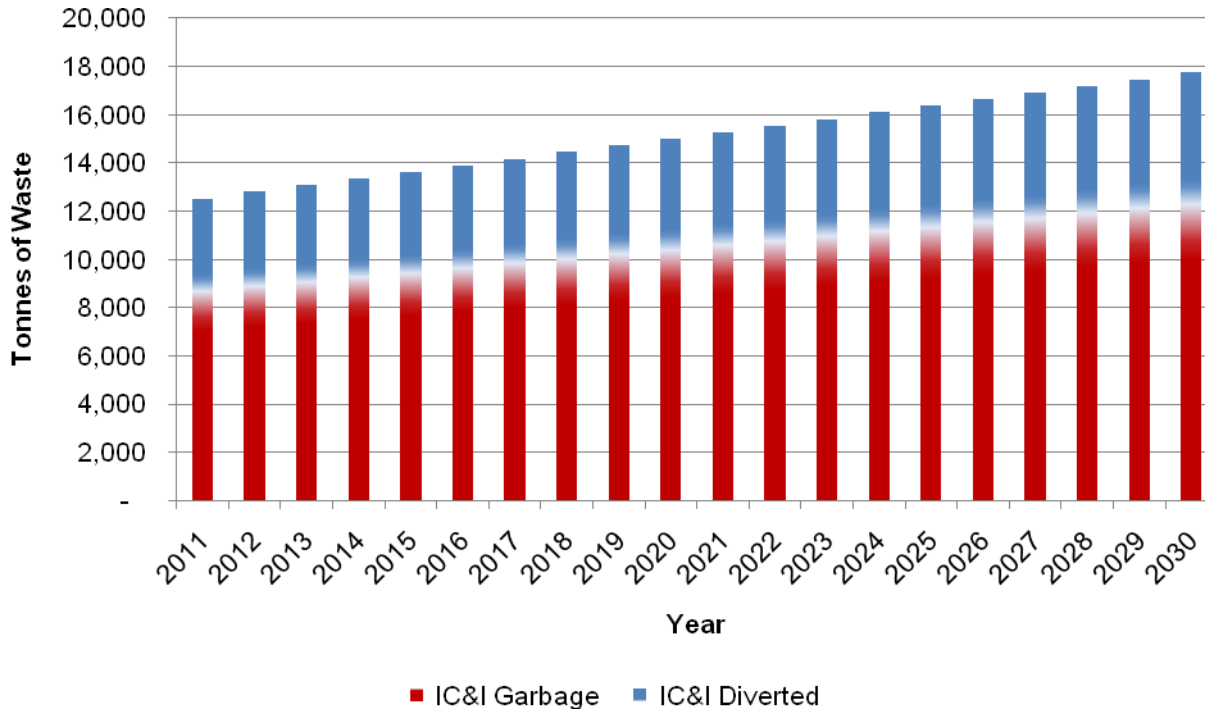
4.3.2 IC&I Waste Projections

Due to the uncertainty surrounding the amount of IC&I waste that the County manages on a yearly basis (the County only manages approximately 11% of the total estimated quantity of IC&I waste), it is fairly difficult to produce accurate projections concerning the amount of material that will require management over the 20 year planning period.

That being said, as the proportion of IC&I waste compared to the total waste managed by the County is fairly small, the amount of IC&I waste requiring management over the planning period should not have a significant impact on the County's waste management system, unless a larger proportion of the IC&I sector begins utilizing the County's system. There is some potential that if there is a closure of the border to the shipment of waste to the U.S., an increased quantity of IC&I waste may require disposal in Ontario and could be directed to municipal landfills such as those in the County.

In order to develop projections for the planning period, it was assumed that the amount of IC&I waste managed by the County would increase steadily with increases in population over the planning period. It was also assumed that the IC&I sector diversion rate would remain steady at approximately 30.7%. Figure 4-8 presents the estimated quantities of IC&I waste to be managed over the 20 year planning period.

Figure 4-8 Status Quo: Estimated Total Amount of IC&I Waste Diverted and Garbage Disposed (2011-2030)



4.4 CURRENT SYSTEM PERFORMANCE SUMMARY

Overall the County managed 126,567 tonnes of solid waste in 2009 (this number takes into account residential and IC&I materials). Of this waste, it is estimated that the County diverted 66,329 tonnes of waste resulting in an overall diversion rate (combined residential and IC&I waste) of 52.4% for the County's programs. It should be noted that this calculation does not take into account the other residential diversion initiatives used in the GAP diversion calculation (i.e., grasscycling, backyard composting). Therefore, caution must be taken when comparing this diversion rate to diversion rates presented in other documents. Table 4-10 summarises the tonnes of waste produced and estimated diversion rates for 2009, for both the residential and IC&I sectors.

Table 4-10 Current System Performance Summary (2009)

Waste Stream	Residential Waste (tonnes)	Residential Waste (including GAP) (tonnes)	IC&I Waste (tonnes)	Total Waste – IC&I and Residential (not including GAP) (tonnes)
Waste Disposed	51,933	51,933	8,305	60,238
Waste Diverted	62,655	69,617	3,675	66,329
Total	114,588	121,550	11,979	126,568
Diversion Rate	54.7%	57.3%	30.7%	52.4%

Figure 4-9 displays the overall make-up of waste managed by the County by sector in 2009.

Figure 4-9 Proportion of Total Waste Managed by the County (2009)

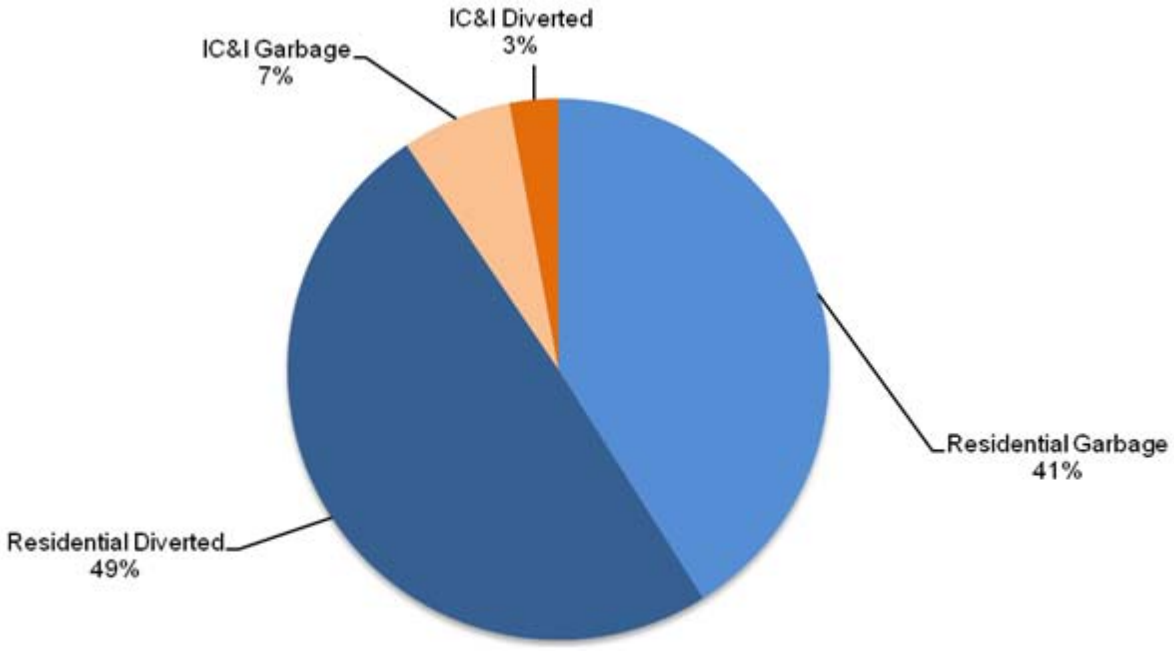
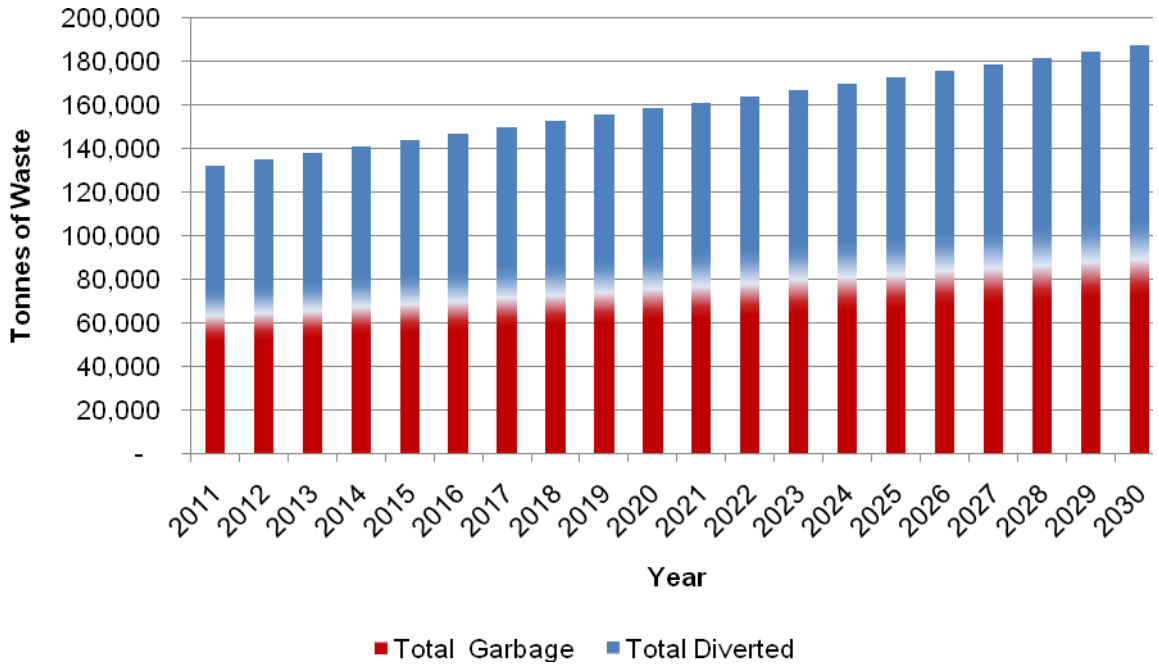


Figure 4-10 presents the combined total of the estimated quantities of IC&I and residential waste that would be managed over the 20 year planning period under the Status Quo, based on the projections for each sector provided earlier in this document. Should there be no change in waste generation or diversion rates, the potential quantity of residual waste requiring disposal is projected to increase from approximately 60,000 tpy to 89,000 tpy.

The greatest uncertainty is associated with the waste projections for the IC&I sector. However, given that the County is located in relatively good proximity to private sector waste management facilities (processing plants, transfer stations, disposal sites) located in Southern Ontario, it is unlikely that the County would manage more than 10 to 20% of the IC&I waste stream.

Figure 4-10 Status Quo: Estimated Total Amount of IC&I and Residential Waste Diverted and Disposed (2011-2030)



4.5 PRELIMINARY 2010 WASTE AUDIT DATA

Currently, the County is in the process of completing single family residential waste audits to update the results from the last round of audits completed in 2006. These waste audits involve the curbside collection of garbage, recycling, and green bin organics from 100 single family homes, representative of the County's demographics (generally the same streets and houses used in 2006 are being audited in 2010). A total of 8 weeks' worth of data will be collected; 2-week waste audits will be completed in the winter, spring, summer, and fall. To date, the winter and spring waste audits have been completed and the results of these audits were compared to the winter and spring waste audits completed in 2006.

It should be noted that winter and spring waste audits do not provide an accurate depiction of the County's residential curbside waste profile as waste quantities and characterization tends to vary significantly depending on the season. That being said, it is useful to discuss some of the general differences observed when comparing the 2006 waste audit to the 2010 waste audit.

Overall, the results of the 2010 winter and spring waste audit were comparable to the data obtained during the 2006 winter and spring waste audits. Capture rates for recyclable materials showed a fairly significant increase across the board (see Table below). Capture rates for organic materials could not be compared as the green bin program was not in place in 2006. Overall, the curbside waste diversion rate was approximately 51% during the 2010 winter and spring waste audits compared to approximately 35% during the 2006 winter and spring waste audits (care should be taken when comparing these two numbers however, as the green bin program was not in place in 2006).

Some fairly significant differences were observed in overall total waste (garbage, recycling, and organics) characterization and generation. The following list discusses some of these observations:

- Total waste generation decreased (from 10.86 kg/hhld/wk to 9.45 kg/hhld/wk a 13% decrease).
- Decrease in recyclable paper products generated (by approximately 6% of the total generated waste).
- Increase in non-recyclable plastic products generated (by approximately 3% of the total generated waste).
- No change in recyclable metal products generated.
- Decrease in recyclable glass products generated (by approximately 3% of the total generated waste).
- Increase in compostable food waste generated (by approximately 4% of the total generated waste).

Although there are changes to the total waste characterization, it must be realized that definitive conclusions regarding the shift from 2006 to 2010 cannot be reached until the remaining seasonal waste audits (summer and fall) are completed.

The following table (Table 4-11) presents the capture rates observed during the 2010 winter and spring waste audits in comparison to the capture rates observed during the 2006 winter and spring waste audits.

Table 4-11 Preliminary 2010 Audit Data

Material Category	2010 Spring and Winter Curbside Capture Rates (Recycling)	2006 Spring and Winter Curbside Capture Rates (Recycling)
1. PAPER		
Newspaper – Dailys and Weeklys	88.17%	88.78%
Newspaper - Other	89.98%	84.74%
Telephone Books / Directories	12.16%	77.36%
Magazines & Catalogues	89.81%	84.38%
Mixed Fine Paper	56.97%	32.34%
Books	82.92%	43.19%
2. PAPER PACKAGING		
Corrugated	96.15%	87.71%
Kraft Paper	19.27%	18.32%
Boxboard / Cores	76.30%	57.94%
Molded Pulp	65.18%	50.81%
Composite Cans	53.24%	Not Accepted
Gable Top Cartons	82.95%	Not Accepted
Aseptic Containers	67.25%	Not Accepted
3. PLASTICS		
PET Beverage Bottles	88.96%	84.61%
PET Other Bottles & Jars	81.78%	48.81%
HDPE Beverage Bottles	91.48%	72.17%
HDPE Other Bottles & Jugs	85.57%	61.51%
Other Bottles, Jars & Jugs	59.78%	36.87%
Wide Mouth Tubs & Lids	63.11%	27.90%
4. METALS		
Aluminum Food & Beverage Cans	90.93%	83.91%
Aluminum Foil & Foil Trays	25.21%	12.82%

Material Category	2010 Spring and Winter Curbside Capture Rates (Recycling)	2006 Spring and Winter Curbside Capture Rates (Recycling)
Steel Food & Beverage Cans	85.17%	72.16%
Steel Aerosol Cans	59.98%	Not Accepted
Steel Paint Cans	100.00%	13.28%
5. GLASS		
Alcoholic Beverage Glass Clear	73.39%	83.32%
Alcoholic Beverage Glass Coloured	74.40%	88.25%
Food and Beverage Glass Clear	90.47%	81.52%
Food and Beverage Glass Coloured	94.34%	88.54%

According to the winter and spring 2010 waste audit, if all potentially divertible materials were captured in the current curbside recycling or organics programs (100% capture rates across the board), the County could achieve a 72% diversion rate. However, there are no programs that achieve 100% capture rates. Achievement of diversion rates of 70% or higher, requires other diversion initiatives to focus on the other waste materials that are not handled at the curbside, like the County's depot diversion programs.

5.0 General Waste Diversion

The content in this section of the SWMS reflects the various general waste diversion initiatives identified in the Draft Task F Report, as adjusted based on the outcome of consultation in February 2010. The content of this section also reflects the initiatives presented in the Draft Task G, I, and J Technical Memo, adjusted based on the outcome of consultation in May 2010.

5.1 INTRODUCTION

The County has implemented a number of successful reduction, reuse and diversion initiatives however additional initiatives are required to move beyond the current diversion rate. Since the County had already implemented a highly effective diversion program, the focus of the SWMS was to identify additional and/or enhanced diversion methods. A wide range of additional or enhanced diversion initiatives were identified, evaluated and recommended for the solid waste management system in the Draft Task F Report.

The recommendations reflect best practices in the context of achieving a higher than 60% residential diversion rate. In keeping with a Zero Waste philosophy, best practices that reflect Zero Waste principles such as EPR and EPP as well as approaches to encourage reductions in waste generation were considered. The recommendations presented in this section were evaluated individually and in combination to identify the potential to greatly reduce the need for waste disposal.

5.2 OPTIONS CONSIDERED

A number of diversion initiatives are recommended for the solid waste management system, for implementation within the first five years of the strategy. These initiatives were developed and refined based on the results of public consultation and discussions held with the Steering Committee. The initiatives considered included:

- Enhancing current reduction and reuse programs;
- Establishing a per capita waste reduction target;
- Developing re-use centre(s), re-use program(s) and re-use partnering initiatives;
- Implementing a green procurement strategy;
- Promoting waste minimization legislation and programs;
- Enhancing the existing waste diversion depot program;
- Implementing a clear garbage bag program;
- Increasing recycling container capacity;
- Bi-weekly (every other week) garbage collection;
- Enhancing and sustaining advertising, promotion, and education;
- Establishing a public open space recycling program;
- Establishing a special events recycling program;
- Examining the diversion of IC&I sector materials; and,
- Establishing a mandatory diversion by-law (for curbside and depot diversion)

These options as a group were assumed to be applicable to any integrated waste management system developed by the County. Based on consultation with the public and discussions with the Steering Committee, It was determined that all of these options should be brought forward and recommended for inclusion in the SWMS.

5.3 DIVERSION INITIATIVES (REDUCTION, REUSE AND GENERAL)

The following subsections provide a more detailed overview of each diversion initiative including specific recommendations concerning implementation.

5.3.1 Enhance Current Reduction and Reuse Programs

Enhancement of current reduction and reuse programs are aimed at modifying consumer attitudes, behaviour and modified curbside set-out practices. Target audiences include residents, community groups, schools and other stakeholders. Enhancement of the existing waste reduction programs also included assessment of an evolution of the current approach of restricting curbside garbage set-outs such as:

- An increase in the cost of the additional bag tags, so as to allow residents some flexibility for additional set-outs as necessary but to discourage their use on a regular basis; or,
- Transition to a fixed one-bag limit for curbside garbage, similar to the approach used in Adjala-Tosorontio where residents are not permitted to purchase tags for extra bags of waste; or,
- Consideration of a transition to a full user pay program for which residents would be required to purchase tags or special bags for all materials set out at the curb. The revenues from the sale of tags or special bags would be used to offset the cost of curbside collection and disposal, reducing the cost passed on through property taxes.

Other potential approaches to address the need for restrictions on curbside garbage could include a move to bi-weekly garbage collection and/or the use of clear garbage bags as discussed later in this report, within the term of the next collection contract starting approximately in Year 6.

Table 5-1 provides a summary of the implications and requirements associated with the recommended enhancements to existing waste reduction programs.

Table 5-1 Enhance Existing Waste Reduction Programs

Enhance Existing Waste Reduction Programs	
Short-term or Long-term Option	• Implement in short-term, sustain over long-term.
Interaction with other System Components	• Consistent with Zero Waste principles. • Changes to the approach used to limit curbside garbage set-outs, will increase use of curbside diversion systems. Sufficient collection and processing capacity needs to be available to manage additional materials that would be diverted. • Adjustments/additions to P&E that address reduction and reuse should be collaboratively developed with other P&E initiatives related to other program components. For example, P&E on recycling and materials that should not be placed in the Blue Box could be linked to advice on how to avoid non-recyclable packaging.

Enhance Existing Waste Reduction Programs	
Potential Cost Implications	• Additional P&E would be required to support changes to limit curbside waste set-outs. There could also be a temporary increase in illegal dumping that could require increased enforcement, most likely only short-term. Should container tag rates be increased, some increase in revenues would be likely, potentially offsetting other cost increases. • Incremental changes to the P&E budget would occur with the integration of waste reduction P&E into existing materials (e.g., existing brochures or the Calendar). • Municipalities achieving 60% recovery levels in their blue box program on average spend $1.00 per household/annum and this is identified as a general spending guide in the KPMG report[13]. However, upon examining recent promotion budget requirements in the County and the range of additional diversion activities recommended, an allocation of $7 to $8 per household for each of the first five years of the Strategy would seem reasonable. This likely represents the maximum order of magnitude estimate for a sustained, targeted waste reduction P&E program that could also support other waste reduction initiatives outlined in this section.
Potential Change in Diversion	• While there is no mechanism to predict impact, by default the % of waste diverted increases with reductions in disposal. • New curbside waste restrictions, could add between 3 to 4% to the County's diversion rate.
Potential for System Efficiencies and Improvements in Level of Service	• Approaches used to restrict curbside garbage set-outs are often viewed as a reduction in service, and need to be coupled with some form of positive increase in diversion service and/or diversion promotion. • Increased use of curbside and depot programs would increase system efficiencies for diversion.
Potential Processing or Disposal Capacity Requirements	• No substantial nor quantifiable impact on processing or disposal capacity requirements
General Implementation Requirements	• Examine 2010 waste audit results to determine overall waste generation rates, differences in waste generation rates between communities and potential target materials. • Finalize approach that would be used to restrict curbside garbage set-outs over the short term, and reflect in the new collection contracts (mid-2012). • Review of existing programs and review of municipal best practices for waste reduction programming and promotion, community liaison activity.
Ability to Adjust Option to Changes to the WDA	• WDA does not currently legislate waste reduction – this option is highly adjustable to any new legislation that targets waste reduction.

[13] B*lue Box Program Enhancement & Best Practices Assessment Project Report, KPMG, R.W. Beck, 2007*

5.3.1.1 Recommendations for this Initiative

It is recommended that:

- Within Year 1 of the SWMS, enhanced promotion and education initiatives both generally and for specific target sectors should be implemented. Details regarding enhanced promotion and education initiatives are described in Section 12.0.
- Within Years 2 or 3, at the beginning of the next collection contract, further restrictions on curbside garbage set-outs should be implemented. These restriction include either: increasing the cost of the tags for additional containers of garbage from $2 to perhaps $4 per tag, moving to a fixed one-container limit for garbage (similar to the approach used in Adjala-Tosorontio), or a transition to a full user pay program for which residents would be required to purchase tags or special bags for all materials set out at the curb.

Restrictions on Curbside Garbage

Successful full user-pay systems have been implemented in several municipalities across Ontario, including Oxford County, Wellington County, and the City of Belleville. These municipalities have implemented full user-pay systems without a container limit.

The typical evolution leading to a successful full user-pay system includes:

- First, implementing a bag / container limit (Simcoe County has already done this)
- Second, implementing a partial user pay system and decreasing container limit (Simcoe County has already done this).
- Third, implementing a full user-pay system.

One of the biggest obstacles surrounding a move to a full user-pay system includes negative public reactions and controversy surrounding the change. Previous experience by other municipalities has shown that controversy after implementation of such a program is controlled by how well the program has been designed and how effective communication strategies have been. Generally, municipalities have less controversy after implementation if they:

- Use good communication methods to inform the public in advance and provide good support after implementation;
- Provide certain length of amnesty period after implementation (for example 4 weeks) where reminder notices are provided to locations that do not comply with new program;
- Work with their collection staff on how to respond appropriately to non-compliance;
- Link the roll-out of new program to the provision of new diversion service(s), to reduce perception of decrease in overall level of service;
- Have good plans to deal with illegal dumping, and start tracking ‘before’ and ‘after’ to provide reliable documentation to Council in regards to the real increase in illegal dumping. In the case of Simcoe County, this would involve working with the area municipalities to track illegal dumping activities;
- Have a procedure to address special circumstances, for example, group homes, small residential homes for the aged, daycare centres etc.;
- Have in place, long and short form by-laws that allow for effective by-law enforcement when needed (usually use letters first, to encourage voluntary compliance); and,
- Have addressed all of the sectors that use the municipalities waste collection service, to ensure equity in how each sector is treated.

A full internal and external education campaign (see Section 12.0) would be required to support a move to a full user-pay system, in order to address concerns regarding program funding (i.e., what happens with the fees) and illegal dumping. With the administration of a comprehensive promotion and education program, the County should be able to implement a successful full user-pay system leading to further increases in waste diversion.

One of the advantages of a full-user pay approach or an increase in the cost of tags for extra containers, is that they both provide flexibility to residents, allowing them an opportunity to place extra materials at the curb, should they need to do so. One concern regarding a firm one-bag limit, is that this approach would not provide flexibility, and as a result more residents may manage waste on their own properties through back-yard burn barrels or other means, that have an environmental impact (e.g., burn barrels have been noted by the US EPA as being the largest human source of dioxins and furans).

5.3.2 Establish a Per Capita Waste Reduction Target

This initiative involves a shift in thinking toward a more sophisticated approach to adopting the principles of the "Waste Value Chain" in that a specific, measurable waste reduction target would be set, monitored and appropriately supported. Establishing such a target supports the intention of the County to move towards Zero Waste and would form one of the key foci in a Zero Waste campaign.

Detailed reliable and recent waste audit data can identify particular material types to be targeted for reduction. As opposed to promoting what is 'included' in the stream (e.g., recycling, composting), the promotion of what should be excluded in the waste stream would be the focus (e.g., single use and disposal items, plastic film and non-recyclable packaging) through consumer attitude and behavioural changes. Beyond the environmental and social benefits of this initiative, it serves as a means to help locally offset the trend of increased per capita waste generation across Ontario.

Table 5-2 provides a summary of the implications and requirements associated with the recommended establishment of a per capita waste reduction target.

Table 5-2 Establish a Per Capita Waste Reduction Target

Establish a Per Capita Waste Reduction Target	
Short-term or Long-term Option	• Implement in short-term, sustain over long-term.
Interaction with other System Components	• Consistent with Zero Waste Principles. • Going forward, should be collaboratively developed with other promotion and education initiatives.
Potential Cost Implications	• Minimal with integration with existing P&E initiatives. • Could be the 'guiding principle' or overlying objective for all waste reduction based P&E activity (e.g., integrated with option 1).
Potential Change in Diversion	• Focus is not on changing diversion rates. • Every 5% decrease in residential waste generation would remove approximately 5,000 tonnes of waste from the County system

Establish a Per Capita Waste Reduction Target	
Potential for System Efficiencies and Improvements in Level of Service	• Reduced waste volumes extend existing disposal capacity. • For example, at a 60% current diversion rate, a 10% reduction in waste generation would amount to approximately 4,800 tonnes of saved landfill capacity for the County (based on 2008 WDO datacall results).
Potential Processing or Disposal Capacity Requirements	• Saves landfill capacity, has no impact on processing infrastructure capacity.
General Implementation Requirements	• Review 2010 waste audit results to examine overall waste generation rates, differences between local municipalities and to determine target materials for educational campaigns. • Administration of design, development and distribution of P&E materials, to be determined as best suited to program messaging. • Waste audit/consumer review for targeted items. • Development of an initial and ultimate per capita waste reduction target.
Ability to Adjust Option to Changes to the WDA	• WDA does not currently legislate waste reduction – this option is highly adjustable to any new legislation that targets waste reduction.

5.3.2.1 Recommendations for this Initiative

It is recommended that within Year 1 of the Strategy implementation, a reasonable target for per capita waste reduction should be set. A reasonable target would be in the order of a 1% per year reduction in the waste generated by County residents. A full promotion and education campaign would be required around the setting of this target, identifying clear actions that residents can take to avoid waste generation.

Annual monitoring of waste tonnages will determine if there is a continued decrease in waste generation rates within the County over the first few years of Strategy implementation. Based on the success of this initiative within the first few years, the per capita waste reduction target could be increased, or a change in approach on promotion and education around this activity may be necessary.

5.3.3 Develop a Re-Use Centre, Re-Use Programs & Re-Use Partnering Initiatives

Several re-use options already exist in the County involving organizations like Habitat for Humanity, the Salvation Army, and others. These organizations divert materials from landfill through donation and re-sale. This initiative would involve the identification of specific community stakeholders, potential partnerships, tools (e.g. web based waste exchange site(s) and links) and re-use program initiatives that would be specifically suited to the County based on their own community resource dynamics.

One example of a very user-friendly re-use program implemented in other municipalities is *waste exchange events*. With this program residents may leave items like furniture and any other reusable items at the curb (e.g., BBQs, tools, strollers, etc.) labelled “free” for anyone to pick up during selected times (events) of the year. One issue with such programs is the potential for bulky materials to be left at the curb after the event. The County will also evaluate the option of constructing its own re-use centre in concert with centralized

processing facilities and/or smaller re-use centres strategically located at existing County facilities (operating landfills and/or transfer/depot locations that have space available).

Table 5-3 provides a summary of the implications and requirements associated with the recommended development of a re-use centre(s), re-use programs and re-use partnering initiatives.

Table 5-3 Develop a Re-Use Centre(s), Re-Use Programs & Re-Use Partnering Initiatives

Develop a Re-Use Centre(s), Re-Use Programs & Re-Use Partnering Initiatives	
Short-term or Long-term Option	• Implement in short-term, sustain over long-term. Waste exchange events can be implemented very short-term with leading promotion of the events. • Re-use Centre(s) may be part of a longer term strategy or developed in concert with any decision to construct centralized processing facilities.
Interaction with other System Components	• Consistent with Zero Waste Principles. • Should be assessed in concert with consideration of the construction of centralized processing facilities.
Potential Cost Implications	• Cost implications range from small increases (P&E for waste exchange events, web based waste exchange site development) to larger cost increases (construction of re-use centres).
Potential Change in Diversion	• Would add less than 1% addition to current diversion rates. • As an example Wellington County operates three reuse centres for an annual diversion of just under 40 tonnes per year.
Potential for System Efficiencies and Improvements in Level of Service	• Larger re-useable items such as furniture, windows, doors etc. do not suit waste transfer stations and landfill operations. • Removes need to manage bulky, hard to compact materials and improves waste compaction. • May improve load weights for transfer.
Potential Processing or Disposal Capacity Requirements	• Some potential for landfill disposal capacity savings. • Minimal processing requirements.
General Implementation Requirements	• Evaluate other municipal best practices, programs for re-use and related P&E practices. • Evaluate best practices in re-use centre development (i.e., materials received, public/private or partnership operation of facilities, size of facility, construction and operation costs, tonnage diverted).
Ability to Adjust Option to Changes to the WDA	• WDA does not currently legislate waste reuse – this option is highly adjustable to any new legislation that targets waste reuse initiatives.

5.3.3.1 Recommendations for this Initiative

It is recommended that:

- Within Year 1 of the Strategy implementation, the County should review and identify existing re-use options within the County and develop a promotional campaign to make the public more aware of these options.

- Within Years 2 and 3, the County should develop and implement pilot "Re-use" events in key supporting communities (i.e., community swap meet), and monitor the success of these options.
- Within Years 2 and 3, a review of the capacity at the existing landfill sites and/or transfer stations should be completed to determine if there is sufficient space to develop one or more small footprint re-use centres. Also within this period, it should be determined if there is interest from one or more community organizations to be involved in the operation of such a centre(s). Should this be feasible, one or more re-use centres could be implemented by Year 5 of the Strategy.

5.3.4 Implement a Green Procurement Policy

Consistent with a Zero-Waste philosophy, green purchasing decisions typically focus on Environmentally Preferable Purchasing (EPP) which includes purchasing products that are sustainable, are made with the fewest non-renewable resources, are the least harmful to the environment, produce the least waste, and, that are produced as locally as possible. Green Procurement Policies that focus on EPP, are intended not only to reduce the environmental footprint of municipal operations, but are intended to encourage product producers to use alternative sources of raw materials, to consider the products life-cycle, and generally on sustainable practices and material life-cycles.

Table 5-4 provides a summary of the implications and requirements associated with the recommended implementation of a green procurement policy.

Table 5-4 Implement a Green Procurement Policy

Implement a Green Procurement Policy	
Short-term or Long-term Option	• Implement in short-term, sustain over long-term.
Interaction with other System Components	• Consistent with Zero Waste principles. • Needs to be collaborative effort between Environmental Services Department and County Purchasing staff.
Potential Cost Implications	• Staff time to develop research, develop policy and P&E/dependent on methods of promotion.
Potential Change in Diversion	• Minimal change in overall diversion but would reduce garbage sent to disposal from municipal facilities.
Potential for System Efficiencies and Improvements in Level of Service	• n/a
Potential Processing or Disposal Capacity Requirements	• Minimal as waste from City facilities is only a small portion of total waste disposed.
General Implementation Requirements	• Research, liaise with other municipalities. • Develop policy and promote the program on a long-term basis.
Ability to Adjust Option to Changes to the WDA	• WDA does not currently legislate waste reduction – this option is highly adjustable to any new legislation that targets waste reduction.

5.3.4.1 Recommendations for this Initiative

It is recommended that within Year 1 of the SWMS an internal County committee consisting of representatives of key departments should be formed to address green procurement. Initially, efforts should be made to document green procurement approaches that have already been put in place within the

County. Research into additional initiatives would be undertaken and recommendations brought into a comprehensive green procurement strategy.

Within Years 2 and 3 approval for the green procurement strategy should be sought from Council and discussions should take place with local municipalities to determine if there is interest in any joint green procurement initiatives (particularly those that could lower unit costs for various key purchases).

5.3.5 Endorse EPR and Waste Minimization Legislation

Extended Producer Responsibility (EPR) is the second key concept behind Zero Waste, along with EPP. Beyond programs identified in this section over which the County can exert direct control over the waste stream, further efforts to prevent and minimize waste through EPR can be directed at waste minimization legislation and programs at Federal and Provincial levels. For example, the Region of Peel has taken steps to lobby the Provincial Ministry of the Environment to expand and enforce Waste Diversion Ontario initiatives and to work with packaging producers to design products amenable to recycling. The Region of Peel is also encouraging citizen participation in lobbying efforts for their "No-plastics" Campaign.

Table 5-5 provides a summary of the implications and requirements associated with the endorsement of EPR and waste minimization legislation.

Table 5-5 Endorse EPR and Waste Minimization Legislation

Endorse EPR and Waste Minimization Legislation	
Short-term or Long-term Option	• Implement in short-term, sustain over long-term.
Interaction with other System Components	• Consistent with Zero Waste Principles.
Potential Cost Implications	• Staff and/or Council member time.
Potential Change in Diversion	• Seeks to affect packaging/products to reduce overall waste generation and to ensure that packages and products have a beneficial end use.
Potential for System Efficiencies and Improvements in Level of Service	• n/a
Potential Processing or Disposal Capacity Requirements	• Actual effect on reducing disposal capacity requirements is difficult to quantify.
General Implementation Requirements	• Participate at provincial/federal levels – boards, workshops, through comment on proposed policy/regulatory change.
Ability to Adjust Option to Changes to the WDA	• WDA does not currently legislate waste reduction – this option is highly adjustable to any new legislation that targets waste reduction.

5.3.5.1 Recommendations for this Initiative

It is recommended that within Years 1 and 2 of the SWMS, County staff should continue to review and comment on proposed initiatives by the Province for increased EPR and waste minimization both as an individual municipality and through organizations such as Association of Municipalities of Ontario (AMO). It is anticipated that sometime in 2010, the Province will pass enabling legislation to amend the WDA;

however, implementation of key recommended changes would then be undertaken through regulations proposed under the WDA, and under other current Provincial legislation (e.g., the *Environmental Protection Act*). These regulations will likely be posted for review and comment, and Simcoe County should participate in these review processes both collectively as part of AMO and separately for issues/concerns that may be specific to the County. The timelines for change to the WDA are subject to a decision by Provincial Cabinet, and are subject to change.

For initiatives that clearly offer great benefit to the County's waste management system, the County could pass resolutions of endorsement and/or positions that could then be formally disseminated to other municipalities, therefore taking a leadership approach on various proposals as warranted.

5.3.6 Enhance Existing Waste Diversion Depot Program

The County's existing diversion depot facilities are very well operated. They accept and manage a broad range of waste materials for recycling and are designed in a manner that strongly encourages diversion of materials from landfill. There is some incremental room for improvement in the delivery of service by staff and in the level of service provided as follows:

- Most bulky construction and demolition (C&D) items for which there are available markets (e.g. shingles, drywall, scrap metal, wood) are diverted through the depots. However, at some County facilities many household bulky items are placed along with regular bagged waste by residents in the appropriate designated areas or disposed of. Sufficient space is available at most of the landfill and transfer facilities to separate the bulky wastes from bagged garbage. This would allow landfill staff to screen the bulky materials to remove materials that are largely wood or metal for recycling/reuse and would allow for the remaining bulky materials to be redirected for management to the Collingwood landfill where they could be chipped/shredded prior to disposal.
- Textiles are a material stream that is not addressed through any County diversion program. Textile collection through bins owned and maintained by charitable organizations does occur throughout the County. However, it would be reasonable to provide direct diversion options to residents who use the County's depots to also divert textiles, which make up approximately 2.5% of the total residential waste stream. The placement of bins for textile drop-off could be arranged with existing non-profit service providers that operate in the County.
- Pending the level of use of the depots, increased staffing requirements could be needed to ensure effective public use of the depots, particularly on busy days (e.g., Saturdays) to provide increased monitoring of the waste drop-off locations and increased separation of divertible materials.
- Should any new centralized facilities for transfer and/or processing of recyclables or organics be developed, an additional depot(s) could also be provided at such sites.

Table 5-6 provides a summary of the implications and requirements associated with the recommended enhancement of the existing waste diversion depot program.

Table 5-6 Enhance Existing Waste Diversion Depot Program

Enhance Existing Waste Diversion Depot Program	
Short-term or Long-term Option	• Implement in short-term, sustain over long-term.
Interaction with other System Components	• Existing contracts/arrangements for materials handling: collection and recovery (e.g., drywall, wood etc.) would need to be evaluated relative to any identified/recommended program change/expansion.

Enhance Existing Waste Diversion Depot Program	
Potential Cost Implications	• Goal would be to maintain or reduce costs associated with various existing programs, costs associated with added materials at County facilities would be determined as part of further evaluation of this option. • Potential to reduce landfill revenues from tip fees, and thus potential for higher net operating costs for disposal.
Potential Change in Diversion	• Based on the potential to divert additional bulky goods and/or textiles through the depot system, an additional 1 to 2% diversion could be achieved beyond 2009 rates.
Potential for System Efficiencies and Improvements in Level of Service	• Potentially maintain or lower costs but increase diversion.
Potential Processing or Disposal Capacity Requirements	• Existing facility(s) capacity to manage additional materials may be limited.
General Implementation Requirements	• Review of municipal best practices in handling, transportation and end-markets. • Cost-benefit assessment of enhanced programming for each material type.
Ability to Adjust Option to Changes to the WDA	• This option is flexible to changes in the WDA and would compliment any new designated wastes under the WDA.

5.3.6.1 Recommendations for this Initiative

In regards to enhancing existing waste diversion depots, the following is recommended:

- Within Years 1 and 2, develop bulky waste drop-off areas at the landfill and transfer facilities that have sufficient space, in order to separate all of the bulky wastes from bagged garbage. Landfill staff would then be able to screen the bulky materials to remove materials that are largely wood or metal for recycling/reuse and redirect the remaining bulky materials (at most sites) for management to the Collingwood landfill where they could be chipped/shredded prior to disposal.
- Within Years 1 and 2, make arrangements for the placement of bins for textile drop-off with existing non-profit service providers that operate in the County.
- Within Year 1, review operations at the County landfills and transfer stations to ensure that staffing levels continue to be adequate to operate the depots, to monitor the use of the waste drop-off locations, and to ensure separation of divertible materials.
- Should any new centralized facilities for transfer and/or processing of recyclables or organics be developed over the course of the Strategy implementation, additional depot(s) could be provided at such sites.

5.3.7 Clear Garbage Bag Program

The use of a see-through (clear) bag for garbage has been implemented in some municipalities for a number of years (e.g., in Guelph since 2003). A recent study (E&E Fund Project #312) in Madoc Township and the Municipality of Centre Hastings showed favourable results from the implementation of a clear bag program. The program increased the blue box diversion rate from 33% to 45%, and increased recycling tonnage by 9%.

Risks associated with the privacy of residents have been identified with clear garbage bag programs, and in previous investigations regarding this option. Implementation of a clear bag option could either involve curbside set outs of just the clear bag at the curb and/or residents could be permitted to set out clear bags within a solid container. This would mitigate the more significant privacy issues, but still allow for monitoring of the contents of the bag by the curbside collection contractor.

Table 5-7 provides a summary of the implications and requirements associated with the recommended clear garbage bag program.

Table 5-7 Clear Garbage Bag Program

Clear Garbage Bag Program	
Short-term or Long-term Option	• Implement in short-term, sustain over long-term.
Interaction with other System Components	• Impact to collection program from a compliance/monitoring stand-point as it increases the ability of the collection contractor to enforce compliance. • Potential impact to collection contract dependent on current contract arrangements. • Impact to MRF with increased blue box materials. • Impact to organic waste processing with added organic waste. • Reduced need for disposal capacity.
Potential Cost Implications	• Associated promotion and education campaign. • Potential increase in recyclable and organic waste processing fees with increased tonnage. • Potential increase in per tonne recyclable and organic waste collection fees with increased tonnage. • Potential impact to collection contract(s). • Potential to reduce landfill revenues from tip fees, and thus potential for higher net operating costs for disposal. • Increased revenue from sale of recyclables.
Potential Change in Diversion	• Could add between 3 to 5% to the overall diversion rate.
Potential for System Efficiencies and Improvements in Level of Service	• Would work well with another option of moving to bi-weekly garbage collection by further reducing tonnage required for collection.
Potential Processing or Disposal Capacity Requirements	• Would reduce landfill disposal capacity requirements. • A 9% increase in blue box tonnage represents approximately 2000 tonnes of saved landfill capacity on an annual basis.
General Implementation Requirements	• Most municipalities undertake a pilot study to gauge their own community's acceptance of this type of program change. • This would allow the County to gather useful feedback to assist in County-wide implementation and to assess the potential impacts (e.g., waste reduction and increased recovery) on a County-wide basis.
Ability to Adjust Option to Changes to the WDA	• This option is flexible to changes in the WDA.

5.3.7.1 Recommendations for this Initiative

Clear garbage bags are a means of further restricting garbage collection, and allowing for curbside enforcement of mandatory diversion by-laws which have been included as an additional measure to encourage diversion (see Section 5.3.14). Implementing a clear garbage bag program could be regarded as an alternative to increasing tag fees, a firm one-bag limit, or full-user pay as discussed in Section 5.3.1. It could also be undertaken as an additional change to collection services, beginning in approximately Year 7 of the Strategy based on the success (or lack thereof) of the overall diversion initiatives.

Deferring the immediate decision to move to clear bags, would allow for additional documentation and/or study regarding the privacy issues. This option does present a viable mechanism to both increase recyclable materials capture at the curb and decrease waste for disposal at landfill. Upon further investigation, should the use of clear bags be feasible, and if full user pay were also included in the County's system, then the County could retail 'approved' clear bags in lieu of garbage tags.

5.3.8 Increase Recycling Container Capacity

The use of either larger blue box containers, carts or the use of blue transparent bags (widely available on the market) to increase curbside recycling set out capacity can encourage increased diversion. Programs (in other jurisdictions) have been developed based on the notion that increased container capacity reduces overflow that occurs by default to the garbage stream when the blue box is full. Consideration of a cart-based program would only be appropriate if the County entertains a potential shift to automated collection of single-stream recyclables in the future. The option of using blue transparent bags, while increasing the potential capacity for blue box materials in the home requires consideration of additional processing steps/mechanisms to manage the bags when the materials are received for processing. Clear bags can be used to manage two-streams of recyclable materials or single stream materials. Currently, the County allows the use of clear bags to provide additional capacity for blue box materials following a collection interruption.

Table 5-8 provides a summary of the implications and requirements associated with the recommended increase in recycling container capacity.

Table 5-8 Increase Recycling Container Capacity

Increase Recycling Container Capacity	
Short-term or Long-term Option	• Short-term from a WDO best practices perspective.
Interaction with other System Components	• Impact to collection program/potential impact to collection contract dependent on current contract arrangements. • Impact to MRF with increased blue box materials. • Reduced need for disposal capacity.

Increase Recycling Container Capacity	
Potential Cost Implications	• Potential increase in processing and collection fees with increased recyclable tonnage. • Potential increase in promotion and education costs. • Capital cost of larger blue box containers $7/container County (or individual resident) = $7/container (125,000 x 2 x $7 = $1,750,000). • Capital cost of carts $30 to $50 per unit. Distribution of one to two carts to all 125,000 residential households would cost approximately $7,500,000 to $12,500,000. • Blue bag program – bag costs are comparable to regular garbage bag costs
Potential Change in Diversion	• Could add up to 2% to the diversion rate.
Potential for System Efficiencies and Improvements in Level of Service	• Increased container capacity prevents overflow to garbage bag, compliments clear garbage bag and/or bi-weekly collection of garbage.
Potential Processing or Disposal Capacity Requirements	• Requires processing of additional recyclable materials. • Reduces disposal capacity requirements.
General Implementation Requirements	• Review of 2010 waste audit results to assess blue box capacity issues that may or may not exist as demonstrated with set-out/capture rate data. • P&E for program. • Procurement/acquisition and distribution of containers.
Ability to Adjust Option to Changes to the WDA	• This option is flexible to changes in the WDA, e.g. added recyclable material requirements, increased targets for capture of blue box materials

5.3.8.1 Recommendations for this Initiative

As of March 2010, there is no clear evidence that residents in the County are experiencing consistent issues with a lack of capacity in their current blue box containers. The following is recommended:

- For the remainder of the curbside audits and/or as an independent study undertaken during the same periods throughout 2010, information on the number of blue box containers and the amount of capacity used (e.g., ½ full, full) should be collected. Based on that information, it will be clear if there is good rationale to increase capacity for curbside set-outs of recyclables.
- Larger blue boxes would be the most flexible option, as the use of larger containers would not require either specialized collection services or processing equipment.
- The use of recycling carts does not appear warranted, unless based on the collection review there is a possibility that automated collection of single-stream recyclables would make sense in the system.
- The use of clear recycling bags would impose limitations on seeking export capacity for processing recyclables or would require greater capital investment and operating costs at a County MRF. This option does not appear reasonable at this time.

5.3.9 Bi-Weekly (Every Other Week) Garbage Collection

The current organics program does not allow for the source separation of all the potentially odorous materials that are in the waste stream (e.g. pet wastes, diapers, and other sanitary products). These items cannot be included in the current organics program because the composting technology used to treat the

organic materials at the Hamilton CCF is not capable of handling these materials. Management of these types of organic materials through composting, is technically challenging and requires more specialized in-vessel approaches. Approvals and permitting for these types of CCF facilities is more complex.

In order to mitigate public concern regarding household impacts, a move to bi-weekly garbage collection should not be made until some or all of these odourous materials can be moved from the garbage stream into the organics stream which would continue to be collected weekly.

As identified in Section 7.3.2, it is recommended that a CCF be developed within the County by approximately Year 7 of the SWMS. The potential to move to bi-weekly garbage collection should be assessed concurrently but will be limited by the choice of organic processing option, and the capability of the system to include these other materials when the CCF is developed. As described in more detail in Section 7.3.2, if it becomes feasible to expand the organics stream to process additional materials (e.g., pet wastes and diapers), then bi-weekly garbage collection would be a viable option. However, bi-weekly garbage collection will only reasonably be available for consideration in the collection contract after next (beginning in approximately Year 7 of the SWMS).

A move to bi-weekly garbage collection can lead to decreased collection costs due to decreased collection frequency. Cost savings associated with bi-weekly collection reflect the concept that half the fleet would be needed for collection of 'garbage' only, with 'half' of all households collected on one week and 'half' the next. The logistics for bi-weekly waste collection also become more reasonable with some consolidation of collection contracts. Modeling of collection services in the County indicates that there may be some savings associated with a move to bi-weekly collection from the current collection approach however the actual savings would need confirmation through modelling reflecting future collection conditions (i.e., tonnages, household counts, etc.).

In regards to diversion, residents are more likely to properly sort organics and recycling for collection if they have the most frequent and convenient collection cycle available (particularly effective with organics). Reducing the frequency of garbage collection and/or increasing the frequency of blue box collection have been demonstrated to have a positive effect on recovery rates for recyclable material. The most effective program in the province with respect to tonnage diversion provides weekly collection of recyclables and household organics, with bi-weekly collection of garbage (and an effective garbage bag limit). The County has already increased the collection frequency for recycling to a weekly basis for all municipalities.

Risks associated with this option, include increased contamination rates in the recyclables and organics streams, communications challenges to ensure that residents are aware of and use the appropriate schedule for set-outs, and addressing winter collection cancellation problems/challenges.

Table 5-9 provides a summary of the implications and requirements associated with the recommended move to bi-weekly garbage collection.

Table 5-9 Bi-Weekly Garbage Collection

Bi-Weekly Garbage Collection	
Short-term or Long-term Option	• Short-term from a WDO best practices standpoint.
Interaction with other System Components	• Potential impact to future new collection contract(s). • Impact to MRF with increased blue box materials. • Impact to organic waste processing with increased organic materials. • Reduced need for disposal capacity.
Potential Cost Implications	• TBD with further exploration of the option. • Associated P&E campaign. • Potential increase in recyclable and organic waste processing fees with increased tonnage. • Potential increase in per tonne recyclable and organic waste collection fees with increased tonnage. • Potential decrease in garbage collection fees due to reduction in collection frequency. • Potential for increase in revenue from sale of recyclables, either directly reducing net costs to the County for a County-owned MRF or reducing contract costs for the recycling system.
Potential Change in Diversion	• Could add between 3 to 4% to the diversion rate.
Potential for System Efficiencies and Improvements in Level of Service	• Would work well with the further option to move to a clear garbage bag by further reducing tonnage required for collection.
Potential Processing or Disposal Capacity Requirements	• Would reduce landfill disposal capacity requirements.
General Implementation Requirements	• P&E material development and distribution/notification
Ability to Adjust Option to Changes to the WDA	• This option is flexible to changes in the WDA.

5.3.9.1 Recommendations for this Initiative

The potential to move to bi-weekly garbage collection in a form that would be more accepted by the public is limited by the choice of organic processing option, and the capability of the system to include expanded organic streams (pet waste and diapers). It appears that the most viable longer term option for composting would be to develop capacity for composting within the County. A range of technologies could process organics as identified; however, some of these are more suitable for composting an expanded organics stream (e.g., in-vessel, tunnel) than others. As noted previously, composting an expanded organic material stream is more challenging and technically complex. In regards to shorter term export options, there are few facilities capable of managing an expanded organics stream.

It would likely take between 3 to 5 years for the processing technology for organics to be finalized, procurement completed and for new organics processing capacity to be available. Therefore, the option to move to bi-weekly waste collection should be re-examined in Year 3, and should it be reasonable, provisions can be established in the collection contract after next (beginning in approximately Year 7 of the SWMS) to move to such an approach.

5.3.10 Enhanced and Sustained Advertising, Promotion & Education

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

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

Detailed recommendations on enhanced promotion and education to support the recommended solid waste management system are provided in Section 12.0.

Prior to the major shift in recycling and organics programming in 2008, the County spent approximately $0.44 per household per year (2007) on their blue box promotion and education program. Municipalities like Simcoe County that are achieving around 60% recovery levels on average spend in the order of $1.00 per household and this is identified as a general spending guide in the KPMG report.[14] Simcoe County spent $2.19/hhld in 2008 to promote their recycling program in accordance with major program changes that occurred that year. Total costs for 2008 organics and recycling program changes and for the delivery of existing services were $6.25/hhld for all promotional and educational activities required to support the change in diversion programs in the County. For 2009, in the order of $270,000 or $2.20/hhld was budgeted for advertising/printing. For 2010, a budget of $170,000 has been identified or $1.36/hhld. Sustained funding over the first few years of the Strategy implementation will likely require a budget of $7 to $8 per household per year to address the comprehensive suite of planned diversion programs.

Table 5-10 provides a summary of the implications and requirements associated with the recommended enhanced and sustained advertising, education, and promotion program.

Table 5-10 Enhanced and Sustained Advertising, Education & Promotion

Enhanced and Sustained Advertising, Education & Promotion	
Short-term or Long-term Option	• Implement in short-term, sustain over long-term.
Interaction with other System Components	• All existing and new program initiatives (like waste reduction) should be integrated together as much as possible for cost-saving purposes and as the result of a newly developed broad-based comprehensive communications plan (post strategy).
Potential Cost Implications	• Sustained funding of between $7 to $8 /hhld/year
Potential Change in Diversion	• A study cited in the KPMG report indicates that increasing the per household expenditure up to $1 per year could yield an increase of 1% in the recycling rate for communities with already high diversion rates (like Simcoe County).

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

Enhanced and Sustained Advertising, Education & Promotion	
Potential for System Efficiencies and Improvements in Level of Service	• Potentially higher revenues from reduced contamination of recyclables. • Set-out of only those materials accepted in the programs. • Proper set-out of materials at the curb for increased collection efficiencies. • Lower residue rates at processing facilities.
Potential Processing or Capacity Requirements	• Reduce disposal capacity requirements.
General Implementation Requirements	• Development of a new communications plan post-strategy that results from the County's agreed upon strategy implementation plan. • If the County introduces further change to its programming (e.g., the use of larger blue boxes, clear garbage bag etc.) there will be large scale P&E development required to support those program changes which will result in sustained awareness/education of residents during program transition. • This option is meant to be addressed during normal, status-quo operations to maintain high levels of education amongst residents on a continual basis.
Ability to Adjust Option to Changes to the WDA	• This option is flexible to changes in the WDA.

5.3.10.1 Recommendations for this Initiative

The County should sustain funding levels, averaging approximately $7 to $8 per household per year for promotion & education and additional diversion initiatives. Over the first five years of implementation, the level of P&E funding per household may need to be temporarily increased in certain years to include focused campaigns for key program changes. Over the long-term the same funding levels will be needed to assist in sustaining diversion performance. A dedicated staff position related to Promotion & Education (i.e., coordinator) is needed to support the continued focus on waste reduction and diversion P&E campaigns. Further details are provided in Section 12.0.

5.3.11 Public Open Space Recycling Program

Open space recycling programs seek to capture additional recyclable materials from residential sources that are typically lost to disposal. These programs have their challenges but a series of best practices have been developed for program implementation. Stantec (*Open Space Recycling Better Practices Review*, CIF Project #159/202) has identified program inhibitors to be cost and contamination of the recycling stream but also identified various best practices that could help overcome these obstacles including: the use of clear and consistent signage, proper bin design and placement; and, good communications between collectors and facility managers.

It should be noted that responsibility for managing public space waste is largely a local municipal matter, and such a program would require cooperative efforts between local municipalities and the County.

Table 5-11 provides a summary of the implications and requirements associated with the recommended public open space recycling program.

Table 5-11 Public Open Space Recycling Program

Public Open Space Recycling Program	
Short-term or Long-term Option	• Implement in short-term, sustain over long-term.
Interaction with other System Components	• Adds incremental recyclable tonnage to the system, requires coordination between waste management and municipal staff.
Potential Cost Implications	• To be assessed specific to Simcoe County.
Potential Change in Diversion	• Pilot study results would yield this data. • Open space dependent (total number of parks, size of each and use).
Potential for System Efficiencies and Improvements in Level of Service	• Consistency in messaging (at home and in the community) regarding the County's recycling program.
Potential Processing or Disposal Capacity Requirements	• Minor reduction in disposal capacity requirements.
General Implementation Requirements	• Discuss with local municipalities to determine participants and feasibility/pilot program. • Most municipalities undertake a pilot study to assess the best method of materials containment, collection methods and messaging. • York Region piloted numerous containers in two parks (Summer 2009) including public opinion surveys. The pilot study lasted four months (excluding bin ordering and delivery). • This project could be easily phased in one municipality at a time.
Ability to Adjust Option to Changes to the WDA	• This option is flexible to changes in the WDA.

5.3.11.1 Recommendations for this Initiative

As of June 2010, full documentation on the range of current public space diversion activities implemented by the County and the local municipalities, was not available. As a first step, it is recommended that in Year 1 or 2 of the implementation period that an investigation be completed to determine current level of public space diversion and the need for expansion of current efforts.

Should development of a County-wide public open space diversion program appear reasonable, the next step would be to pilot approaches in partnership with one or more of the local municipalities in Years 3 and 4. Pilot approaches should consider the following:

- The range of container options available in the marketplace;
- The types of locations that are most suitable for locating such containers, including the level of public traffic and the types of 'use' of the area in which they could be located;
- The volume of current waste materials generated in these areas and the general composition of these materials.
- The available level of staffing support to ensure that containers are maintained and emptied.

By Year 5 of the SWMS, full roll-out of a public open space recycling program across the County should be complete.

5.3.12 Special Events Recycling Program

This type of program targets vendors or organizations, typically using municipal facilities like parks or, arenas for festivals or special localized events. This program compliments an open space recycling program. In most municipalities event organizers are required to get a permit for these events and this provides an opportunity to ensure that event organizers approach waste management in a fashion consistent with the municipal waste management program. Permitting could require that recycling and composting are mandated but should be supported with promotional and educational materials designed for event planners and facility users. Various mechanisms for collection could be explored and employed but in all cases weights of material diverted should be recorded.

It is recognized that the County does not regulate special events and this program would need to be implemented in cooperation with the local municipalities. Special events recycling is generally only feasible if there is a high involvement of volunteers, attending diversion stations, informing attendees of the correct sorting methods and removing and often sorting materials to remove any contaminants.

Table 5-12 provides a summary of the implications and requirements associated with the recommended special events recycling program.

Table 5-12 Special Events Recycling Program

Special Events Recycling Program	
Short- term or Long-term Option	• Implement in short-term, sustain over long-term.
Interaction with other System Components	• Interacts well with an open space recycling program, adds incremental recycling tonnage to the system.
Potential Cost Implications	• n/a
Potential Change in Diversion	• Type/nature of event dependent.
Potential for System Efficiencies and Improvements in Level of Service	• Consistency in messaging (at home and in the community) regarding the County's recycling program.
Potential Processing or Disposal Capacity Requirements	• Reduced requirements for disposal capacity.
General Implementation Requirements	• Discuss with local municipalities to determine participants and feasibility/pilot program. • Implement a permitting system if not in place, or amend existing permits to mandate recycling (and composting if desirable) at all events. • Include provision of containers and collection and processing arrangements (typically coordinated with a private sector hauler).
Ability to Adjust Option to Changes to the WDA	• This option is flexible to changes in the WDA.

5.3.12.1 Recommendations for this Initiative

As a first step, it is recommended that in Year 1 or 2 of the implementation period that an investigation be completed to determine current level of special event diversion and the need for expansion of current efforts. Should development of a County-wide special event diversion program appear reasonable, the next step would be to pilot approaches in partnership with one or more of the local municipalities in Years 3 and 4. By Year 5 of the SWMS, full roll-out of such a program across all participating area municipalities within the County should be complete.

5.3.13 Examine Diversion of IC&I Sector Materials

Although the majority of IC&I waste is not managed by the County, an opportunity exists to harmonize municipal waste management approaches and plans with those in other sectors. It is estimated that the IC&I sector generated approximately 108,000 tonnes of waste in 2009, of which approximately 12,000 tonnes were managed by the County. The IC&I sector is currently able to use County landfill sites for disposal of commercial waste, and all recycling depot programs (excluding municipal special/hazardous waste depots).

Collection is not provided to the commercial sector unless collection services were provided to the business prior to the approval of Resolution CS-118-07 (i.e. they were 'grandfathered' in). Quantities of garbage and recyclable materials placed at the curb for collection must be in amounts normally generated at a residential dwelling unit. Organics are not approved for collection from commercial sector generators.

Generally it is commercial buildings in the traditional 'downtown areas' that are allowed to use curbside garbage collection. As a result of the "grandfathering" of IC&I collection, service levels and bag limits are inconsistent and vary by municipality. Certainly, at a minimum it is reasonable for the County to consider providing a uniform level of service to the commercial sector with the curbside program, which could involve either an increase or decrease in the level of service provided such that there is consistency across the County. This would also involve a move to a more consistent method of cost recovery that reflects access to and use of such services (see Section 13.0).

Over the SWMS planning period, the County generally will not be involved in managing all materials generated by the IC&I sector. The results of the current WDA review indicate the strong potential for individual producers (Extended Producer Responsibility) to be fully responsible for meeting waste diversion requirements for both the residential and the IC&I sectors. There would be a significant risk associated with expansion of IC&I services by the County to address materials generated by that sector, in that the County has no authority in respect to IC&I wastes and cannot ensure consistent flow of IC&I materials through the County's programs. For example, records indicate that fluctuations in IC&I tonnages that flow through the County's diversion depots are largely unpredictable from year to year.

Recommendations for additional programming for the IC&I sector include:

- Expanded diversion services for certain IC&I sub-sectors, such as schools, hospitals, and long-term care facilities with whom the County could directly enter into lower risk contracts to support and manage diversion of their materials;
- Investigate provision of uniform collection service for divertible materials only (recycling collection and perhaps organics) and associated cost recovery methods; and

- Provision of a certain amount of processing capacity for IC&I materials at any processing facilities developed within the County. The actual type and quantity of capacity that could be available would be defined at a later date.

Table 5-13 provides a summary of the implications and requirements associated with the recommended examination of the diversion of IC&I sector materials.

Table 5-13 Examine Diversion of IC&I Sector Materials

Examine Diversion of IC&I Sector Materials	
Short-term or Long-term Option	• Implement in short-term, sustain over long-term.
Interaction with other System Components	• Creates some opportunity for consistency in messaging (at home and in the community) regarding the County's recycling program (and potentially organics). • In the case of centralized facilities it offers the opportunity for economies of scale. • May be strategic from a future producer responsibility standpoint.
Potential Cost Implications	• Could create partnership opportunities to result in cost-savings. • Potential future funding dependent on MOE policy related to producer responsibility and the IC&I sector.
Potential Change in Diversion	• Could have beneficial diversion impacts for the IC&I sector.
Potential for System Efficiencies and Improvements in Level of Service	• Potential for consistent messaging of County's recycling program, potential for recyclable or organic materials processing efficiencies – economies of scale.
Potential Processing or Disposal Capacity Requirements	• Reduction in disposal capacity requirements.
General Implementation Requirements	• In the context of developing centralized processing infrastructure to liaise with stakeholders to assess the benefit of a centralized infrastructure to support IC&I sector waste diversion initiatives (e.g. expected participation, processing capacity requirements, facility design variations and cost-benefit). • Prior to the design of any centralized facility assess available material quantities and types, participation, processing capacity requirements and cost-benefit to the County. • No impact on design or construction timeline if facility design variations are planned in advance.
Ability to Adjust Option to Changes to the WDA	• This option is flexible to changes and is partly a function of potential changes in the WDA.

5.3.13.1 Recommendations for this Initiative

It is recommended that within Years 1 and 2, the County should complete investigations and expand diversion services for certain IC&I sub-sectors, such as hospitals and long-term care facilities. The County is already pursuing programs for schools which should be in place for Year 1 of the SWMS. Details regarding the school program are outlined in the Section 12.2.

It is recommended that a uniform level of collection service be implemented with the next collection contract that will begin in Year 2 (2012) of the SWMS. The focus would be on provision of curbside diversion services for the IC&I sector setting common eligibility requirements for recycling, and potentially organics.

In regards to recycling, it is recommended that IC&I properties/units, located within any municipality, that would set out generally at the same frequency and quantity of recyclable materials as the residential sector, should be eligible to use the curbside recycling program. Further investigation is needed to determine the number of additional commercial units that could use the service. It will also be necessary to discuss this change with the area municipalities.

Organics collection is recommended for key IC&I sectors with common and manageable organics materials. County staff have been contacted by some commercial organics generators, however, a full investigation to confirm the number of potential serviced units and the range of organics that could be available, is needed. Participating units could include florists, nurseries, restaurants and other commercial enterprises that generate food or vegetative residues in appropriate quantities so as to be able to use a weekly curbside collection service.

If the County continues any form of curbside garbage service for the IC&I sector on a uniform basis, garbage restrictions should be applied that are consistent to those applied to the residential sector. In regards to a common maximum container allowance, it should be made consistent with that applied to the residential sector (i.e., one container). If the County chooses to move to full user pay, the common level of service could be to simply allow the commercial sector to purchase and use the same tags. The tag fee should be set at a sufficient value to discourage any commercial properties from choosing to move from private containerized to municipal curbside service. Additional investigations to identify the potential number of IC&I units that may choose to use a County garbage collection option, and the tonnages that could be involved, will be necessary to determine the disposal implications of continuing any form of garbage collection service to this sector.

During development of the Draft SWMS, several townships/towns passed resolutions in support of collection services for the IC&I sector. The Township of Oro Medonte indicated they would like regular waste collection services to local offices and municipal buildings. The Town of Midland supported the resolution passed by Oro Medonte Council as did Clearview Township. Clearview also requested that IC&I waste pick-up, commercial green waste pick-up, and pick-up for separated waste from parks, etc. be included. The Town of Penetanguishene passed a resolution regarding waste collection at municipal facilities and the expansion of waste diversion services to multi-residential and commercial properties. The effect that provision of a unified level of garbage collection to IC&I facilities coupled with curbside recycling and perhaps a separate IC&I organics collection program still has to be determined.

Should the County proceed to develop in-County processing capacity (for recycling or organics), the capacity identified for the purpose of procuring a facility, could have certain provisions for processing of a reasonable quantity of IC&I materials (for example, up to 10 or 15% of the input tonnages).

As part of the development of a mandatory diversion by-law (see Section 5.3.14) in Years 3 or 4, (in the form of an amendment to the current by-law) a ban would be implemented on disposal of IC&I waste containing any divertible materials at County landfills. The preferred form of this ‘ban’ would essentially

take the form of an increase in the rate for disposal of mixed waste of up to five times the fee for normal waste, to discourage mixed waste disposal and promote the use of depot diversion programs. This would be an evolution of the current approach applied by the County. Currently in an effort to encourage waste generators to separate recoverable materials, the County currently applies a reduced tipping fee of one-half of the basic tipping fee to divertible materials delivered to waste management sites for recovery. Loads which contain divertible materials but are not sorted appropriately for diversion are currently charged double the basic tipping fee. The contractors are bound to the County's "Mixed Waste Policy" and are responsible for any surcharges resulting from the policy.

5.3.14 Mandatory Diversion By-law (Curbside and Depot Diversion)

The County's waste management authority was established under By-law No. 3854. The By-law does not require mandatory participation in diversion programs for the residents and IC&I sector that use either the curbside programs or other programs offered by the County. Some municipalities that currently have a mandatory diversion by-law in effect include the Cities of Guelph and Owen Sound.

The County could amend its current by-law to stipulate that residents and designated IC&I sectors that use the County's programs, must source separate specified recyclable and organic materials from the waste stream or prohibit them from discarding the specified materials in the garbage, i.e., universal diversion program that would apply both at the curb and at County facilities.

The advantages of such a mandatory diversion by-law are that:

- It would create a level playing field for all residents and the participating IC&I sector;
- It would raise awareness of diversion;
- Programs and markets are available for a broad range of materials that can be banned from disposal; and,

The disadvantages of such a by-law are that:

- In order to be effective a degree of enforcement is necessary. At the curb, this would be difficult for the curbside contractors to impose and additional resources in the form of By-law enforcement by County and/or local municipal By-law officers would be needed.
- At the landfill and transfer stations, a 'ban' on the disposal of divertible materials brought to the landfill by residents or the IC&I sector, would require increased inspection of loads by County staff. This can be difficult depending on how the material is hauled to the sites, and may require development of an inspection area that would be used when necessary to inspect loads to determine if the quantity of materials in a load exceeds the mandatory limit (i.e., more than 5% of the load).

In order to be successful, and to allow for changes in behaviour, a phased in approach may be necessary first targeting the easy to divert materials (e.g., paper fibres, glass, metals, yard waste, wood waste, tires) and increasing over time to address the full spectrum of materials that can be diverted by the County programs.

5.4 IMPLEMENTATION PLAN – DIVERSION

Recommendations for each of the diversion options listed have been identified and discussed above. It is assumed that these initiatives would be revisited during the regular review of the SWMS and would be

updated at Year 5 of the Strategy implementation as appropriate, to reflect the success of each initiative and/or modifications that were made to address issues that arose during implementation.

Consultation with the public and discussions with the Steering Committee, indicated that there was strong support for all of the general diversion options that involved adding or enhancing diversion services such as improvements to depots, enhanced promotion and education programs, open space and event recycling, and providing some enhanced IC&I diversion services. Support varied for measures intended to restrict curbside garbage (e.g., full-user pay), but generally a small majority of those that responded in writing on the measures proposed were supportive of some form of increased garbage restrictions.

It is clear that in developing the implementation plan for the Strategy an appropriate balance between service improvements, methods to discourage garbage generation and set-outs, and program costs will have to be achieved.

The following list provides an overview of the considerations to be taken into account when implementing the general diversion initiatives:

1. Promotion and education should be based on development of a communications plan that adopts a community-based social marketing approach (the current communications plan does so). A sweeping campaign could be developed that encompasses all program initiatives identified in this section and in concert with the promotion of other waste management programs or program changes. A new P&E coordinator position within the County is recommended to support these P&E initiatives. Details on the current and recommended P&E programs can be found in Section 12.0.

2. Recommended timelines for program implementation are based on the results of public consultation and Steering Committee discussions. Relative to other waste management programming these programs are not particularly costly to implement depending on the extent of the programming elected (e.g. reuse centre construction options). Given the current staffing complement in the County, and the amount of staff time that would be necessary to proceed with both the reduction, reuse, and diversion options, additional staff would be needed. Given the size and scope of the County, a new position responsible for waste policy and planning would be recommended.

3. It is recommended that the County implement a program of progressively more stringent restrictions on curbside garbage over the first 10 years of the Strategy, to support use of the County's diversion system. Initially, the move to further restrictions on curbside garbage would involve increasing the cost of bag tags, moving to a fixed one-bag limit for garbage, or moving to a full user-pay program within a 2 to 3 year timeframe (concurrent with the timing of a new collection contract). This would allow for progressive decreases in the amount of garbage disposed and would provide the County with time to assess other program options and impacts.

Pending the success of the new diversion system, other program options for consideration later in the implementation plan would include the use of clear bags for garbage and/or bi-weekly collection of garbage. It is clear that coupled with increased diversion programs, further restrictions in curbside garbage set-outs will be necessary to increase diversion rates and reduce waste generation rates in the County. The

following table (Table 5-14) provides an outline of the detailed implementation plan and schedule for the general diversion components of the recommended SWMS. An attempt has been made to provide sufficient detail regarding the key action items and timeframes that would apply during the first five years of implementation.

5.4.1 Contingency Plan - Diversion

Generally, there is minimal need to develop a contingency plan related to the general diversion initiatives as the overall proposed diversion program has “built in” contingencies through the inclusion of a variety of system components that are all intended to address the need for increased diversion in the County. Essentially a number of initiatives that ‘overlap’ in regards to the waste stream, have been proposed such that the success in achieving an overall higher diversion target is not based on the success of each individual program.

In regards to the risk associated with the markets for divertible items, certainly the economic downturn in 2008/2009 has indicated that the market can be soft for certain materials when there is an issue with the performance of the overall economy. Ultimately, should there be a circumstance where the market for a key divertible material disappears, then the system does have the built-in failsafe of including municipal disposal space (should it be needed) and temporary solutions such as storage, which could be considered if such an occurrence appears to be temporary.

Table 5-14 Detailed Implementation Schedule - Diversion

Initiative	Year 1				Year 2				Year 3				Year 4				Year 5				Ongoing
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Enhance Current Reduction and Reuse Programs																					
P&E initiatives to promote reduction and reuse																					
Complete Communications Plan																					
Expand use of New Mobile Education Unit																					
Roll-out New P&E to Promote Zero Waste																					
Ad Campaign to Target Seasonal Waste Generators																					
Implement Other Promotion and Education initiatives																					
Restrictions on curbside garbage set-outs																					
Develop Fee Structure for "Full User Pay" and Get Council Authorization for Implementation																					
Develop Arrangements With Local Retailers for Sale of New Tags																					
Promotion of New User Pay Program, Ensure Clearly Indicate How Fees Will Be Applied Against the Waste Budget																					
Roll-out "Grace Period" for Residents to Adjust																					
Complete Full User Pay Implementation																					
Establish a Per Capita Waste Reduction Target																					
Review 2010 Waste Audit Results and Determine Realistic Target Based on Waste Profiles																					
Seek Council Endorsement of Target, Initiate P&E Campaign to Focus on Waste Reduction Behaviors																					
Develop Re-Use Centres, Programs and Partnering Initiatives																					
Review, identify, and promote existing re-use options																					
Complete Review of All Re-Use Activities in the County																					
Develop and Promote Re-use Guide																					
Develop and implement pilot re-use events in key supporting communities																					
Identify Local Municipal Partners																					
Develop and Implement Pilot Re-Use Event(s)																					
Assess Performance and Determine if Program Should Be Expanded in Year 3																					
Potential Year 3 Expansion																					
Permanent re-use centre(s) at County facilities																					
Assess Space Available at all County Waste Facilities																					

Initiative	Year 1				Year 2				Year 3				Year 4				Year 5				Ongoing
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Develop Conceptual Design(s) and Tender Construction Where Viable																					
Issue Request for Expressions of Interest to Seek Community Partners for Operation of Re-use Centre(s)																					
Complete Construction and Contractual Arrangements for Operation																					
Open and Operate New Re-use Centre(s)																					
Implement Green Procurement Policy for County Facilities																					
Green procurement committee formed, Current initiatives Assessed																					
Develop Enhanced Green Procurement Policy																					
Seek Council Approval of Enhanced Policy and Implement																					
Endorse Extended Producer Responsibility and Waste Minimization Legislation																					
Participate in Review of Enabling Legislation Likely Proposed By MOE in Late 2010 to Implement Recommended Changes to the Waste Diversion Act																					
Actively Participate in Municipal Organizations to Endorse EPR in a Form that Best Reflects Municipal Interests																					
Enhance Existing Waste Diversion Depot Program																					
Develop Separate Bulky Goods Drop-Off Areas																					
Install and Maintain Textile Drop-off Bins at Existing Facilities																					
Review Operations and Staffing Levels																					
Complete Best Practices Review and Cost-Benefit Assessment of Developing New Depot at New Centralized Facility																					
Develop Additional Depots at any New Diversion or Centralized Facilities																					
Clear Garbage Bag Program																					
Consider Based on Existing Diversion Program Performance																					
Complete Pilot Study																					
County-Wide Promotion in Advance of Program Implementation																					
Implement Clear Bag Program																					
Increase Recycling Container Capacity																					
Review Results of 2010 Waste Audit and Determine Viability of Increasing Recycling Container Capacity																					
Produce and Release Tender Document for Fabrication and Distribution of Containers																					

Initiative	Year 1				Year 2				Year 3				Year 4				Year 5				Ongoing
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
County-Wide Promotion and Education Concerning New Containers																					
Implement Usage of Larger Recycling Containers																					
Bi-Weekly Garbage Collection																					
Determine Feasibility of Expansion of Organics Program																					
Develop Provisions for Bi-Weekly Garbage Collection for Collection Contract after next																					
County-Wide Promotion and Education Concerning Move to Bi-Weekly Collection																					
Enhanced Advertising, Promotion, and Education																					
Hire a Dedicated Promotion and Education Coordinator																					
Increase Promotion and Education Funding Levels and Develop and Implement Annual Communications Plans																					
Public Open Space Recycling Program																					
Investigation of Current Activities, Determine Need for Expansion																					
Pilot Expansion in One or More Municipalities																					
Implement Across County																					
Special Events Recycling Program																					
Investigation of Current Activities, Determine Need for Expansion																					
Pilot Expansion in One or More Municipalities																					
Implement Across County																					
Examine Diversion of IC&I Materials																					
Expand Diversion Services for Target IC&I Generators (Hospitals etc.)																					
Investigate and then Potentially Implement Uniform Level of Curbside Diversion Service for IC&I Generators																					
Ban Disposal of IC&I Materials at County Facilities by Means of Mandatory Diversion By-law																					
Provision of Processing Capacity for IC&I Materials at Facilities Developed within the County																					
Mandatory Diversion By-law																					
Investigation of successful by-laws in Ontario municipalities																					
Mandatory Diversion Target: Easy to Divert Materials (Paper Fibres, Glass, Metals etc.)																					
Expand By-law to Target All Divertible Materials																					

6.0 RECYCLING

6.1 INTRODUCTION

Simcoe County's current recycling system collects a wide variety of recyclable containers and fibres, including:

Fibres

- Corrugated cardboard boxes (OCC)
- Boxboard:
  - cereal boxes
  - paper egg cartons
  - cracker and shoe boxes
  - cartons
  - tissue boxes
  - toilet paper and towel tubes
- Paper:
  - newspaper and inserts
  - magazines
  - catalogues
  - phone books
  - coloured and white paper
  - computer paper
  - books (remove hardcovers)
  - mail and envelopes

Containers

- Glass bottles and jars
- Food and beverage cans (aluminum and ferrous)
- Empty aerosol and paint cans
- Aluminum plates and foils
- Spiral wound containers (frozen juice, etc.)
- Gable top containers
- Tetra Pak containers
- Plastic bottles, jugs, tubs and lids with # 1,2,4,5 or 7

Due to its large size and the type of recycling program offered, the County is grouped under the "Urban Regional" program category by Waste Diversion Ontario. In 2009, five municipalities were included in the same category as the County, including the Regional Municipality of Durham, Essex-Windsor Solid Waste Authority, Regional Municipality of Niagara, City of Ottawa, and the Regional Municipality of Waterloo.

One of WDO's recommendations to the Minister of the Environment under the Blue Box Plan Review was "To establish a process lead by WDO and including consultation with Stewardship Ontario, stewards, municipalities, service providers and end markets to select Blue Box materials to be collected in all municipalities based on specific criteria ...". In his letter, received August 14th 2009, the Minister subsequently directed WDO to review and report back with recommendations on "Moving to greater consistency of materials collected across Ontario" by February 28, 2010. WDO issued a Draft Discussion paper on this issue November 17, 2009 and comments are now being considered.

Although the list of common materials recommended in WDO's draft will not impact Simcoe County's collection system (since the County already collects all of the recommended recyclable materials in its current program), the list will impact other municipal programs and Material Recovery Facilities (MRFs) where these materials might be processed.

Currently, recyclables are processed under contract by the contractors who provide collection in three of the four collection zones. With the exception of the North Simcoe contract area, the contractors are responsible for arranging for processing and they keep the revenues from the sale of recyclables. A comparison of other recycling programs in the "urban regional" category shows that Simcoe County had the highest net cost per tonne in 2008 ($213/tonne). However, when compared to rural regional municipalities (e.g., Northumberland, Quinte, Kingston, etc.) , where the County is more appropriately grouped, Simcoe's 2008 net cost per tonne of $213 was better than the average net cost for this group of municipalities ($294/tonne).

6.2 OPTIONS CONSIDERED

Two major variations in recycling approaches, based on the potential processing options, were developed and presented for consultation in the Draft Task F Report (March 22, 2010). Processing either outside or within the County are both reasonable alternatives for which adequate information was available to fully consider the implications to the County. Generally, the public supported processing recyclables both within and outside the County with a minor trend to preferring processing within the County. There was also general support for processing recyclables from both Barrie and Orillia and support for including more materials in the blue box program. The Strategy considered the options of processing recyclables within and outside the County in the short and long-term, the feasibility of including additional recycling streams and the potential for a move to single-stream recycling. Implications related to transfer requirements for recyclables were also reviewed.

6.3 RECOMMENDED RECYCLING APPROACHES AND TECHNOLOGIES

The recommended recycling approaches and technologies can be divided into short term and longer-term options. In regards to the proposed timeframe indicated for the shorter term and longer term options, this timeframe is explicitly tied into the timelines associated with the current and new collection contracts. The current collection contracts for each of the four collection zones currently have various expiration dates, varying from July 2011 to July 2012. In order to adjust the method used to contract recycling services in a consistent fashion across the County, these contracts have to be aligned in regards to expiration dates, most likely to July 2012.

The RFP for the new collection contract would have to be released early in 2011, with the new contract taking effect as of July 2012 (Year 2 of the Strategy). For this new contract it is recommended that the County contract processing of recyclables separately, in order to control the management of its markets and to secure a share of the recycling revenues. It would not be possible to have any in-County processing capacity (with the exception of North Simcoe) in place for the new contract. The collection contract would likely have a five-year timeframe, as this is a reasonable timeline for amortization of capital equipment, etc. This would allow for the consideration and implementation of an in-County MRF, should this be deemed reasonable.

The development of a new MRF within the County was identified as being advantaged over export in the Draft Task F Report (March 22, 2010). However, there is significant uncertainty in regards to how the Blue Box Program Plan (BBPP) will evolve over the next five years, and negotiations are required with Barrie and Orillia to determine if a larger MRF with greater economies of scale is feasible. Therefore, it is recommended that for the short-term (5 or 6 years) the County should focus on export of recyclables to an

out of County MRF for the recyclables generated in the East, West and South Simcoe contract areas. This mitigates the immediate risk and need for immediate capital investment. The operations of the North Simcoe MRF should be assessed to determine if it should continue its current operations or if recyclables from this contract area should also be transferred for processing outside the County.

During the short-term materials processed and the form of processing may limit some of Simcoe's options for change in the recycling program. For instance, recyclables collected in a single stream can only be processed at a MRF designed to process single stream recyclables. Five of the MRFs canvassed during the Study are able to process single stream recyclables, while three process dual stream recyclables. It should be noted that a single stream MRF is also capable of processing recyclables collected in two-streams (fibre and containers). The form of processing will also impact how recyclables would be transferred to these MRFs, with additional resources (i.e., multiple bays) being required to transfer dual stream materials.

Overall, any shift to single stream recycling in the short-term, if export capacity for this approach was available, would also have to consider:

- that as long as the County continues to collect recyclables curbside using a two box system (i.e., not using carts or bags), recyclables could be sent to a single stream MRF out of County for processing in the short term. If required, the County could then easily "move back" to a dual stream system in the longer term; and,
- supporting a single stream processing option at the North Simcoe MRF would be very difficult, and thus in the short-term all of the materials from North Simcoe would have to be exported.

No definitive benefit was determined in regards to collection costs if the County were to move from its current dual stream recycling program to single stream recycling. A decision to ship recyclables to an out of County single stream MRF in the short-term should be made primarily on the associated net processing costs.

A stable contract with an out of County MRF should lead to reduced net recycling costs compared to the current system. While the focus in the Strategy is export of recyclables in the short-term, it is possible that stable longer term options may be available and could potentially pose a reasonable option for the longer term processing of the County's recyclables.

The following table (Table 6-1) provides a summary of the implications of the recommended approach for processing recyclables in the short-term.

Table 6-1 Short-Term: Processing Recyclables Outside of Simcoe County

Short-Term: Processing Recyclables Outside of Simcoe County	
Short-term or Long-term Option	• Implement in short-term • May sustain this arrangement over the long-term if stable long-term arrangements are available and if it appears unreasonable for the County to develop its own MRF.
Interaction with other System Components	• Potential effect on collection system if single stream processing option available. • Requires upgrading of transfer facilities or development of a new facility (see Section 9.0).

Short-Term: Processing Recyclables Outside of Simcoe County	
Potential Cost Implications	• Estimated average gross cost of $88/tonne, not including potential for revenue sharing
Potential Change in Diversion	• Minimal in regards to actual processing option. • May see increase in diversion performance if move to single stream system.
Potential for System Efficiencies and Improvements in Level of Service	• Could reduce recycling system costs. • Should address issues related to variable capture rates and marketed tonnages of materials such as aluminum.
Potential Processing or Disposal Capacity Requirements	• County requires at minimum 25,000 tonnes of processing capacity (short-term) and longer term capacity ranging up to 35,000 to 40,000 tonnes.
General Implementation Requirements	• Will require potential improvements to transfer system. • New collection tender/contracts. • Processing tender/RFP/contracts.
Ability to Adjust Option to Changes to the WDA	• Flexibility to adjust to potential changes to the WDA and the Blue Box Program Plan (BBPB) would have to be addressed in contractual arrangements made by the County • Generally a more flexible option (i.e. less capital investment) than development of processing capacity within the County

6.3.1 Longer-Term: Develop Recyclables Processing Capacity within the County (new MRF)

There is a risk associated with the development of processing capacity in the short term within the County, given the uncertainties associated with the proposed changes to the WDA and the provincial Blue Box Program Plan. It is uncertain in the longer term, what role municipal processing facility may play in the provincial recycling system.

Once BBPP direction is known and discussions have been held with Barrie and Orillia to formalize any interest in having their recyclables processed at a Simcoe County MRF, the County should determine if there is sufficient rationale to develop an in-County MRF, and to determine the size/scale of such a facility. This decision would need to be made by Year 2 of implementation in order to allow sufficient time for siting/procurement etc, to take place and to develop a new facility that would be in operation by Year 7 of the SWMS.

If the decision is made to proceed with an in-County MRF, there is not sufficient reason to consider moving to a single stream recycling system for the following reasons:

- A review of collection costs showed no single stream collection advantages. There was no significant cost advantage through single stream based on the projected fleet requirements for this approach. In addition from a cost standpoint, the additional cost of providing carts to all households served would be substantial.
- Although there would be some cost advantage in transferring single stream recyclables over dual stream recyclables, processing costs for a single stream MRF are considerably higher than an equivalent dual stream MRF.
- Single stream recycling systems typically result in higher contamination levels and therefore higher residue rates (thereby increasing disposal costs).

- There is a greater possibility of cross contamination and lower revenues in marketing products from a single stream MRF.

The recommendation for Simcoe County would therefore be to consider a dual stream MRF over a single stream MRF as a long term in-County processing system.

During the review of the recommendations for recycling, a question arose as to the feasibility of implementing a "partial" MRF at a central processing site rather than developing a "full" long-term MRF. Conceptually, limited processing, such as primary contaminant removal and/or consolidation (e.g. light baling of the co-mingled material stream) could take place at a "partial" MRF prior to transfer of the fibre and container streams either to out-of-County markets or MRFs. At this point, limited processing at a "partial" MRF does not appear reasonable for the following reasons:

- A dual stream recycling system is recommended for the County, where most of the focus for major contamination sorting would continue to rest with the curbside collection operator;
- Most potential fibre markets (e.g. Canada Fibres) and out of County MRFs would have their own processing systems already in place to sort and upgrade delivered recyclables, so that implementing any partial sorting operation would be an unnecessary duplication of effort.

Some method of material consolidation for the fibre and container streams may be warranted at a central Simcoe County transfer facility, depending on the location and specifications of the selected out of County end markets or MRFs.

Table 6-2 provides a summary of the implications of the potential approach for processing recyclables in the longer-term, should it be reasonable to develop an in-County MRF.

Table 6-2 Longer-Term: Develop Recyclables Processing Capacity within the County (new MRF)

Longer-Term: Develop Recyclables Processing Capacity within the County (new MRF)	
Short-term or Long-term Option	• Implement in short-term, sustain over long-term.
Interaction with other System Components	• Potential effect on collection system if single stream processing option available. • May require changes to municipal transfer system.
Potential Cost Implications	• TBD, potential for lower unit processing costs under arrangements made directly by the County. • Potential for economies of scale if processing capacity is also provided for Barrie and Orillia
Potential Change in Diversion	• Minimal in regards to actual processing option. • May see increase in diversion performance if move to single stream system, and/or if new collection contracts include higher level of enforcement on waste.
Potential for System Efficiencies and Improvements in Level of Service	• Could reduce recycling system costs. • Should address issues related to variable capture rates and marketed tonnages of materials such as aluminum.

Longer-Term: Develop Recyclables Processing Capacity within the County (new MRF)	
Potential Processing or Disposal Capacity Requirements	• County requires at minimum 25,000 tonnes of processing capacity (short-term) and longer term capacity ranging from 35,000 to 40,000 tonnes. • The possibility of a larger MRF to accommodate Barrie and Orillia's will be reviewed.
General Implementation Requirements	• Would likely require improvements to the County transfer system. • New collection tender/contracts. • Design/ build/operate RFP and contracts.
Ability to Adjust Option to Changes to the WDA	• Recyclables collected under an updated/amended BBPP in accordance with proposed WDA changes will still require processing. Potential role for new processing facility under changed system to be determined. • Generally a less flexible option (i.e.,, more capital investment) than the use of processing capacity outside the County, should the changes to the WDA and BBPP remove responsibility for managing recyclables from the municipal sector. This option does have more flexibility in regards to adding new materials.

Approximately 25,000 tonnes per year of blue box recyclables are presently managed by the County's program. This quantity may increase to up to 50,000 tonnes over the next 20 years. With the potential addition of Barrie and Orillia recyclables, this tonnage could increase to 60,000 to 70,000 tonnes over the next 20 years.

A Simcoe only MRF would require a building of approximately 4,750 m^2 (~ 51,000 ft^2) while a 6,100 m^2 (~ 65,600 ft^2) MRF would be needed to provide additional processing capacity for Barrie and Orillia. A representative site of about 15-20 ha would be required to accommodate a stand-alone MRF facility, allowing sufficient space for employee and guest parking, vehicle roadways, weigh scales and scale house, sufficient vehicle queuing at the weigh scales, etc.

Table 6-3 provides a description of the key aspects of the new MRF that could be developed within the County.

Table 6-3 New MRF Design Aspects

Aspect	Details
Technology	• Likely to include optical sorting technology for some of the plastics and aseptic cartons
Location	• Central to collection zones
Scale	• From 10 to 20 tonnes/hr design capacity depending on Barrie & Orillia participation
Expandability	• Provision to accept source separated recyclables and design for future expansion (extra fibre and container sorting capability, additional optical sorting, etc.)
Services/Utilities	• Depends on level of technology, size of baler
Material Receipt	• Dual weigh scales and scale house, provision for two day's tipping floor storage capacity

Aspect	Details
Odour and Dust Control	• To be determined
Facility Components	• Enclosed receiving area for recyclable loads • Pre-sort area for removal of oversized items and major contaminants • Sorting area, involving multiple sorting lines and a combination of manual and mechanical sorting techniques • Baler and material storage areas • Loading docks and loading areas for shipment of materials to market • Offices, meeting room(s), education/viewing room(s) and staff facilities
Approvals	
Air and Noise Section 9	• Required for the construction of any plant, structure or equipment that may discharge a contaminant from the air including exhaust fans from industrial operations etc.
Waste Disposal Site Section 27	• Requires that anyone establishing, operating or extending a waste disposal site must submit an application for and obtain a Certificate of Approval to do so
Site Plan Approval	• Required by the municipality – review of site layout and design, site servicing
Building Permit	• Usually secured by the facility constructor and required from the municipality prior to commencement of construction
Official Plan/Zoning Amendments	• An example of applicable zoning for a MRF is “industrial”. Often sites need to be rezoned (via zoning and sometimes Official Plan amendments) through the local municipality

6.4 IMPLEMENTATION – RECYCLING

The following considerations should be taken into account when implementing the recommended recycling approaches and technologies:

1. Examination of the County’s current recycling costs, indicate that it would be reasonable to separate the contractual arrangements for collection and processing. The next RFP for collection would include responsibility for curbside collection of recyclables and haul of these materials to a location designated by the County and/or transfer location identified by the Contractor. The contract could include provisions for haul of the materials to the processing location designated by the County.

2. A separate processing RFP should be developed and issued to both municipal and private sector entities that have indicated interest in accepting County materials. The RFP should require provision of capacity for at least a 3 year term, with options to renew for an additional one to two years.

3. In regards to the short-term transfer and haul of recyclables, there are two options: 1) the County could develop the transfer capacity for this material stream and retain responsibility for transfer/haul or 2) the contractor could be requested to provide a unit price for transfer/haul from its own site.

The first option would require some investment by the County but would provide added security for these arrangements, the second option would limit the need for investment but would provide less security and some higher degree of variability in annual costs for this service depending on the contract.

4. Development of a new MRF could take in the order of five years for the completion of procurement (RFP) to design/build/operate a new facility through to commissioning of a new facility. A decision on a new MRF should be made in Year 2 (2012) regarding the County pursuing a new MRF in order for it to be available when the next collection contract begins in 2017.

Table 6-4 provides an outline of the detailed implementation plan and schedule for the recycling component of the recommended Strategy. Details are provided regarding key action items and timeframes that would apply during the first five years of implementation.

6.5 CONTINGENCY PLAN - RECYCLING

1. Given the inherent risks involved in setting up new contracts and potential infrastructure to enhance recycling in the County, contingency actions should be taken wherever possible to mitigate these risks. One of these actions in the short term should be to ensure that any out of County processing contract obligate the processor to identify contingency arrangements in the event of any unscheduled disruption in MRF operation. In this scenario, the contracted MRF would be responsible for sending Simcoe's recyclables to a designated MRF for processing at no additional cost to the County, thereby providing continuous contracted processing service to the County.

2. Prior to implementation of any additional services or changes in service, the County should proceed with a risk assessment, to identify all potential risks, the level of the risk and the associated steps and responsible parties for providing contingencies to mitigate the risk. Examples might include late delivery of new or replacement collection vehicles to a potential collection contractor or delays in receiving necessary zoning or siting approvals for a new MRF. Consideration of such problems in advance and developing alternative measures should they be necessary will minimize the risks involved.

3. In order to build a buffer regarding the potential volatility of materials markets, it is suggested that the County could treat revenue from the sale of recyclables (whether from an in County or out of county MRF) as a "sinking fund" that will expand in times of strong market prices and contract in times of poorer market prices. The downturn of markets in late 2009 showed the potential low end of the spectrum in market prices. Any municipality that developed a budget with the expectation of set market sales would have suffered during this period. These revenue projections should be very conservative and care should be taken in including these estimates in an annual budget.

Table 6-4 Detailed Implementation Schedule - Recycling

Initiative	Year 1				Year 2				Year 3				Year 4				Year 5				Ongoing
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Processing of Recyclables Outside of Simcoe County					→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	
Release New Collection RFP with Provisions for Curbside Collection and Hauling to Outside Facility; Alternatively the County Could Retain Responsibility for Transfer																					
Review RFP, Determine Preferred Bidder, Award Contract																					
New Collection Contract (including recycling) Starts																					
Release Processing RFP that Contains Provisions for 3 Year Term with Option to Renew for Additional 1 or 2 Years																					
Review Processing RFP, Determine Preferred Bidder, Award Contract																					
New Processing Contract Begins																					
Potential Upgrades to Existing Transfer Facilities (RFP Release, Evaluation, Commissioning)																					
Develop Recyclables Processing Capacity Within the County (new MRF)					→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	
Discuss Feasibility of Developing MRF with Barrie and Orillia																					
Develop RFP, Evaluate Bidders, Award Contract																					
Complete MRF Siting																					
Complete MRF Approvals and Permitting																					
Building and Commissioning of MRF																					

7.0 ORGANICS

7.1 INTRODUCTION

The County's organics are currently processed at the City of Hamilton's Central Composting Facility (CCF). The City of Hamilton has identified issues with their CCF processing capacity (2009)[15] and may require use of additional capacity at its CCF for its own materials in the future. In that event, the County may need to secure another processing option outside of its current contract. Implementing an in-County CCF would take approximately five years to complete siting, procurement, approvals and facility development.

7.2 OPTIONS CONSIDERED

There are two major variations in organics processing approaches described in detail in the Draft Task F Report (March 22, 2010). Processing organics either outside or within the County are both reasonable alternatives, for which adequate information was available to fully consider the implications to the County. Based on public consultation, there was generally support for considering processing organics both within and outside the County, although there was a trend towards preferring processing within the County. There were also very clear comments about carefully considering costs and contractual arrangements, as well as general support for adding more organics to the program (e.g., pet waste, diapers). Some respondents also preferred a more decentralized model with multiple facilities. The Strategy considered processing within and outside the County and identified the feasibility of including additional organics streams. The concept of decentralized processing was reviewed, however, this was found to be less viable given the nature of the potential organics that could be included in the program, and is expected to be less cost effective.

7.3 RECOMMENDED ORGANICS APPROACHES AND TECHNOLOGIES

The recommended organics approaches and technologies can be divided into short-term and longer-term options. The Draft Task F Report (March 22, 2010) provided a high-level overview of each approach and the recommendations concerning each approach. In regards to the proposed timeframe indicated for the shorter term and longer term options, this timeframe is also explicitly tied into the timelines associated with the current and new collection contracts. As discussed in more detail in Section 3.2, the current collection contracts for each of the four collection zones have various expiration dates, varying from July 2011 to July 2012. In order to adjust the method used to contract organics collection services and make adjustments to the uniform level of collection service in a consistent fashion across the County, these contracts have to be aligned in regards to expiration dates, most likely to July 2012. The new collection contract, would have to be released very early in 2011 and would take effect as of July 2012 (Year 2 of the Strategy). It would not be possible to have an in-County Centralized Composting Facility (CCF) in place for the new contract.

[15] City of Hamilton, Report to Public Works Committee, Green Cart and Leaf and Yard Waste Program Changes (PW08126a) - (City Wide), January 2009.

The collection contract would likely have a five-year timeframe, as this is a reasonable timeline for amortization of capital equipment etc. This would allow for five years (from Year 2 to 7) of the Strategy, for the consideration and implementation of an in-County CCF.

7.3.1 Short-Term: Processing Organics Outside of Simcoe County

For the short-term (up to five years or more) export of organics to an out of County CCF would be required, given that it could take up to five years or more to develop an in-County facility. Discussions should take place with the City of Hamilton to determine if the current processing arrangements would suffice for this period, or if alternative options need to be secured.

If an alternative option is required, the County would have to issue a request for quotations or RFP to secure other processing capacity at least one year prior to the current expiration date for the processing contract with Hamilton.

7.3.2 Longer-Term: Develop Organics Processing Capacity within the County (new CCF)

It is recommended that the County further assess the construction of a centralized composting facility within its jurisdiction. This would be facilitated through a Request for Expression of Interest (REOI) or Request for Qualifications (RFQ) process and an assessment of preliminary cost information that could be requested from prospective operators for a centralized facility. Information gathered could be used to assess both the development of a facility and to assess this against transfer outside the County's jurisdiction for processing.

An REOI/RFQ process could also be a tool to gather information on any economies of scale that may be realized by integrating additional tonnage (e.g., Barrie and Orillia) into the system. Pending the outcome of the REOI/RFQ process, negotiations are required with Barrie and Orillia to determine if a larger CCF with greater economies of scale is feasible.

The REOI/RFQ could also gather information from vendors on the feasibility of expanding the source separated organics program to include pet wastes, diapers and other sanitary paper products, including the potential cost and operating implications associated with managing these materials. There is some increased complexity and risk associated with permitting and development of a CCF that can process these materials.

Overall it is recommended that:

- An REOI or RFQ should be issued in Year 1 (2011) of the SWMS, in order to flesh out the options to develop an in-County CCF, including applicable technologies, economies of scale if processing materials from Barrie and Orillia are included and the potential to add additional organic materials to the program.
- Pending the outcome of the REOI or RFQ, negotiations would then be held with Barrie and Orillia to formalize their interest in having their organics processed at a Simcoe County CCF.
- Pending the outcome of the REOI or RFQ, an RFP process to develop a new CCF and facility siting would need to take place in Years 2 and 3 of the SWMS, allowing for award of a contract in Year 3 or 4 and facility development by approximately Years 5 and 6.

Generally, the recommended approach assumes that the County may continue to separately operate its existing leaf and yard waste composting areas in the short and long term, as this is generally a low-cost operation and as there is no immediate need to secure additional capacity for this material. However, there are two considerations that could adjust this assumption. First, the County secures minimal revenue for its compost product, and there could be advantages of having this material processed and marketed through a CCF if there are better markets for this generally higher nutrient material. Secondly, some of the CCF technologies require the use of bulking agents/amendments in the form of carbon rich materials in order to reach a preferred carbon:nitrogen ratio for composting. Some or all of the County's leaf and yard materials may be needed to meet the needs of a new CCF.

These recommendations are consistent with the general feedback received from the public during consultation. Generally there was support for considering processing organics both within and outside the County, although there was a trend towards preferring processing within the County. There were also very clear comments about carefully considering costs and contractual arrangements, as well as support for adding more organics to the program (e.g., pet waste, diapers).

Various processing technology options exist for the County including aerated static pile composting such as the 'GORE' system, enclosed agitated bed composting, in-vessel, channel/tunnel composting and anaerobic digestion. These technology types range in cost but are all effective means to compost organic waste with some also having the benefit of generating green energy. Appendix 3 contains additional information regarding composting technologies.

An open windrow process would not be recommended to the County as the preferred option. Although such facilities have lower capital and operating costs, it is difficult to properly manage household or kitchen organics through this type of process and the potential for odour and for vector (e.g., bugs, birds, animals) attraction are high.

Any of the other technologies (aerated static pile, enclosed agitated bed, in-vessel, and anaerobic digestion) are suitable for the County's organic waste feedstock and processing capacity requirements and all of these technologies are currently utilized in Ontario.

In regards to the capacity of the facility, it would include:

- In the order of 18,000 to 25,000 (household organics, depending on program expansion to include additional materials) to 28,000 – 35,000 tonnes (including yard waste) from the County of Simcoe. Overall, the organic stream (household and yard waste) could potentially increase up to 40,000 tpy over the 20-year period for the Strategy.
- Pending the outcome of discussions with Barrie and Orillia some or all of their curbside organics stream may be available for processing at a County facility. Currently Barrie reports collection of 2,500 tonnes/year[16] or more of SSO, while Orillia reports 1,900 tonnes/year[17] of combined SSO and leaf and yard waste. However, longer term projections regarding the quantity of SSO that could be generated by both communities are not yet available.
- Potentially a certain capacity for processing of IC&I materials, reasonably around 10% or more of the potential CCF capacity.

[16] *WDO datacall, 2008*
[17] *2008 Solid Waste Management Annual Report, City of Orillia, March, 2009*

As noted in the Draft Task F Report (March 22, 2010), there is the potential for increased risk to the County in the consideration of providing organics processing capacity for other municipal materials or IC&I materials over which it would have no control. Appropriate contract arrangements to address related issues, e.g. contamination, would be required to mitigate these issues.

7.3.3 Conceptual Details – New CCF

Table 7-1 presents the conceptual details for a new organic waste CCF in Simcoe County.

Table 7-1 Conceptual Details for an in-County CCF

Component	Description
Site Location	Site considerations should include provision for adequate separation between the facility, adjacent land uses, especially sensitive land uses, and sensitive environmental features, compliance with local zoning by-laws and ensuring convenient access to transportation routes. A buffer distance should be at minimum of 250 meters from the nearest sensitive receptor and adjacent land uses of particular concern include residential developments, schools, places of worship, as well as environmentally sensitive areas such as wetlands. Any outdoor operations, including curing piles, should be located a minimum of 100 metres from any water well or surface water bodies.
Site Size	Site sizes for existing composting facilities in Ontario range between 8 - 28 hectares and are dependent on space required to accommodate screening and windrow curing and storage areas, stormwater management ponds, buildings, roads, scale house, queuing area, set back requirement for industrial zoning and additional landscape buffer and visual screening – these requirements vary largely based on outdoor windrow processing/curing requirements, stormwater management requirements, biofilter size requirements and varying building size requirements based on technology and tonnage.
Site Features	
Berms	Berms are common at CCFs to provide visual screening, noise, litter, odour buffers from the site.
Stormwater management system	Site stormwater management systems are required that typically include stormwater management ponds, swales, culverts and ditches to direct/contain storm flow – in rural areas stormwater may be managed through mechanisms like field spray applications and in urban applications the same features are required but water can be directed into municipal storm water management systems. Also in rural applications on site water (pond) storage is sometimes required for fire control purposes.
Surface/drainage management	Clean run-off from the site can be directed through swales, drainage strips and in urban applications can be directed to municipal stormwater management systems or rural applications can be redirected to stormwater management ponds. Surface water is also commonly managed through discharge through overland dispersion and/or to surface infiltration areas on the site.
Leachate management	In urban applications leachate from the building e.g., tipping floor can be directed into the sanitary sewer system as can leachate from curing pads, (although not cost effective and not ideal for waste water

Component	Description
	treatment plants). On-site treatment facilities can be utilized including on on-site leachate collection ponds. Stormceptors have also been utilized to manage surface run off from curing pads during storm events.
Site Servicing – utilities	CCFs require potable water supply either from municipal watermain or well, and can require non-potable water supply for moisture addition to compost during processing that can be supplied in conjunction with appropriately designed stormwater collection systems (e.g., ponds or cisterns). CCFs also require electrical connection – its good practice to have a backup generator for power failure events to prevent either process interruption and to prevent fan/ventilation system interruption which could create odour impacts.
Parking lots, fencing, site security, landscaping etc	These features are required of any industrial site both from an MOE and a municipal approvals perspective. Landscaping is usually contracted to professional landscape developers in conjunction with a design/build contract.
Approvals & Permitting	
Ontario Water Resources Act Section 53	Required approval for industrial sewage works.
Air and Noise Section 9	Required for the construction of any plant, structure or equipment that may discharge a contaminant from the air including exhaust fans from industrial operations etc.
Waste Disposal Site Section 27	Requires that anyone establishing, operating or extending a waste disposal site must submit an application for and obtain a Certificate of Approval to do so.
Site Plan Approval	Required by the municipality – review of site layout and design, site servicing and sanitary and stormwater management systems.
Building Permit	Usually secured by the facility constructor and required from the municipality prior to commencement of construction
Official Plan/Zoning Amendments	An example of applicable zoning for a CCF is “industrial”. Often sites need to be rezoned (via zoning and sometimes Official Plan amendments) through the local municipality from a current ‘agricultural’ designation.
Ministry of Natural Resources	Review by Ministry of Natural Resources is required if the development might interfere/impact environmentally sensitive areas like provincially significant wetlands.
Conservation Authority	Required/triggered with building permit/site plan approval process where a facility is located within a floodplain/designated area by the Conservation Authority in the watershed.
Department of Fisheries and Oceans	Required if the development is adjacent to/could impact fish/water animal habitat.
Approval Support Requirements	
Design and Operations Report	A Design & Operations (D&O) Report is required to support the application for a waste disposal site Certificate of Approval. The D&O describes details of site plan/location zoning, adjacent land use, stormwater management, buffers, waste types, quantities, the composting process, air and leachate management, finished compost marketing, monitoring and control programs for noise, odour, litter

Component	Description
	and dust, fire, emergencies, contingency plans, reporting and other details including decommissioning/closure.
Hydrogeological Assessment	Hydrogeological assessments are typically required if the composting operation is located outdoors on a natural base, and are also recommended if the facility is located outdoors on asphalt pads as this does not preclude the potential for ground water contamination.
Odour Impact Assessment	Includes dispersion modeling to determine the potential for off-site odour impact related to the operation of the facility – modeling can be designed for odour criteria e.g. 1 Odour Unit (OU), 3 OU etc but the MOE current requirement is 1 OU.
Drainage Study	Drainage studies are usually required to address surface and subsurface drainage requirements.
Traffic Study	Required in cases where the adjacent residents, businesses may be adversely affected by increased/potentially excessive traffic volumes associated with the site.
Noise Assessment	Required if sensitive receptors (e.g. residents, schools etc.) are located within 500 metres of the site
Public Consultation	Required in concert with submission of the application for a Certificate of Approval for a waste disposal site, required in concert with municipal zoning/Official Plan amendments.
General Facility Design & Operation	
Pre-processing/Receiving Phase 	Requires tipping floor sizing to accommodate the receipt of trucks, loader operation, storage for up to 3 days (e.g. 240 tonnes for a 20,000 tpy CCF). Pre-processing equipment can include receiving hoppers/metering conveyors, sort stations, magnet separator, shredder, mixer. As this is the most odourous phase of composting – this part of the facility is usually complimented with high air exchange rates, high speed doors and air is discharged into a bioscrubber. Material is received and mixed with amendment (usually wood chips) to maintain required Carbon:Nitrogen (C:N) ratios. Materials are inspected for contaminants which in some cases can be manually removed in this phase. Magnets are employed to remove bottle caps, batteries and the like and shredding of material may be employed to decrease particle size and increase surface area for microbial activity.
High Rate Composting Phases 	The high rate composting phase takes approximately four weeks (technology dependent) and the building features include in most cases a series of tunnels or channels to house and manage/mix compost (one example of channel size = 10' x 8' x 300'), a system for moisture addition (e.g. misting system), high air exchange/ventilation system and discharge of air to a bioscrubber. Regardless of technology (e.g., static pile aerated,

Component	Description
	agitated bed etc.) in virtually all cases these technologies use automated controls to control and monitor C:N ratio, oxygen, moisture (45-55%), temperature (required minimum of 55^{o} for three days), and pH.
Curing/Finishing Compost 	Usually a minimum of eight weeks for outdoor curing, indoor curing minimum four weeks (technology dependent) and can in some cases take up to six months. During the finishing phase material can be windrowed inside or outside of a building. Material is screened (for contaminants), piled in a windrow fashion and turned (e.g. with a turning unit or a loader) if required. Materials are maturation tested and tested to ensure guideline parameters for finished compost are met. Outside storage capacity for finished compost needs to be sufficient to accommodate timelines for removal from the site (e.g. usually spring through fall).
General Costs	Based on other known composting facility capital costing estimates it is estimated that a CCF for the County would cost in the range of $169/tonne of the higher technology in-vessel approaches suitable for processing an expanded organics stream including diapers and pet waste.

7.4 IMPLEMENTATION - COMPOSTING

The following considerations should be taken into account when implementing the recommended composting approach:

1. Should the County elect to site a CCF in the County, siting and site design should be reflective of the anticipated, *Guideline for Composting Facilities and Compost Use in Ontario*, released in 2009.

2. A REOI or RFQ process may benefit the County to assess the options of siting a facility in the County, the addition of other municipal tonnage to a facility and comparing the siting a County facility to export for processing.

3. Should the County elect to site a facility within their jurisdiction, a DBO contract is recommended, such that the County would own and control the operation of the facility.

4. Many composting technologies can be constructed in a modular fashion and can support processing of additional tonnage if desired.

5. Any facility constructed in the County should have the potential to accommodate additional organics materials (e.g., pet waste and diapers) based on a more technical design and operation. The potential to expand the organic material stream is less likely over the short-term, with the

exception of pet waste that can be accepted by both the Lafleche and Orgaworld composting facility in London. The Orgaworld facility is the only export CCF currently identified that can accept both pet waste and diapers.

6. There are various composting technologies available to the County. Virtually all of those described in the Draft Task F Report (March 22, 1010) would likely to be identified in submissions in response to a procurement process initiated by the County. It is strongly recommended that the County include a reasonable due diligence element to any procurement process, in particular, the 'lessons learned' from other processors, many of whom have experienced issues with off-site odour impacts and issues with many aspects of facility design.

The following table (Table 7-2) provides an outline of the detailed implementation plan and schedule for the composting component of the recommended Strategy. Details are provided regarding key action items and timeframes that would apply during the first five years of implementation.

7.5 CONTINGENCY PLAN - COMPOSTING

The contingencies that will have to be addressed in regards to composting include:

1. In the short-term, there is a risk in securing composting capacity for the full short-term period up to and including Year 6 of the SWMS. It is uncertain if Hamilton will be able to continue to provide composting capacity over the full period, and there are contingencies included in the existing contract to address this issue. Given the timeframe to site/permit/develop a new CCF, the County would have to ensure it has secure composting capacity until 2017. It may be advisable to issue an RFQ/RFP in Year 1 to identify alternatives (back-up capacity) for composting over the shorter-term, with some flexibility in timeframes as to when the County may choose to begin using this capacity.

2. There is a risk inherent in the RFP process to develop a new CCF in the County, as RFP processes are not always successful. When back-up capacity is secured for the short-term, it would be reasonable to establish some basis for this capacity to be available in the longer term. Longer term back-up capacity would also be useful to address any delays in facility implementation.

3. Issues can arise during the siting and approvals processes for CCFs which can delay facility development. This would be addressed in part by the County proceeding to complete facility siting, relatively early in the process, rather than requiring this of the processing contractor. In this fashion any delays associated with siting may not have a significant effect over the long-term schedule. In regards to approvals processes, sufficient time has been built into the schedule for the County-lead approvals process, again, to mitigate delays once a preferred contractor is identified. Overall, the best means to address delays in facility development is to follow an implementation schedule that provides sufficient time. It is essential that the County begins the process for a new CCF development no later than Year 2 of the Strategy implementation.

Table 7-2 Detailed Implementation Schedule - Composting

Initiative	Year 1				Year 2				Year 3				Year 4				Year 5				Ongoing
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Processing of Organics Outside of Simcoe County																					
Hold Discussions with Hamilton to Determine Processing Arrangements																					
Seek Alternative Short Term Capacity through RFQ/RFP if Hamilton not Viable Option																					
Develop Organics Processing Capacity within the County (new CCF)																					
Develop and Release REOI or RFQ																					
Pending Results of REOI or RFQ, Hold Discussions with Barrie and Orillia to Determine CCF Scale																					
Develop and DBO RFP, Evaluate Bidders, Award Contract																					
Complete CCF Siting																					
Complete CCF Approvals and Permitting																					
Building and Commissioning of CCF																					

8.0 COLLECTION

8.1 INTRODUCTION

The County already has a full scale collection program in place for garbage, household recyclables, and kitchen organics for all municipalities as well as leaf and yard waste and metal and bulky items in some municipalities. Since a full complement of services is already provided, waste diversion improvement is anticipated only through modification and improvements in these program components.

The current collection system was assessed in the Draft Task F Report (March 22, 1010) and was found to be an efficient system compared to other co-collection approaches. In addition, through the Draft Task F Report analysis, it was found that the approach taken by the County regarding contracting through four separate collection zones, is generally an efficient approach although there may be some savings associated with a move to a single County-wide contract. Options for collection generally focused on potential changes such as single stream recycling and implementation of a uniform level of service for collection.

8.2 OPTIONS CONSIDERED

The collection and transfer components of the waste management system play a supporting role to both the diversion and disposal components, by providing the means by which materials are moved from the generator to its appropriate processing or disposal location. Selection and/or refinement of the most appropriate collection and transfer system is highly dependent upon the identification of major system components such as the location/type of recycling plant. For example refinements to the collection system are possible based on single-stream recycling collection. However, if the use of external processing capacity is selected and if there is minimal available single-stream capacity (or if it is financially prohibitive), then single stream processing may be unreasonable and therefore such a modification to the collection program would not be possible. The Draft Task F Report (March 22, 2010) discussed the potential collection options associated with the potential system configurations including single stream recycling. The Draft Task F Report also included discussion regarding the potential to move towards a uniform level of waste collection service.

Results of the public consultation indicated the majority of survey respondents supported a move to a more uniform level of service for collection, including collection in areas with seasonal households. While there was some general support for single stream recycling, there was also a higher level of concern regarding a move to this type of system.

8.3 RECOMMENDED COLLECTION SYSTEM

8.3.1 Collection Services – Next Contract

It is recommended that the RFP issued for the next collection contract be largely based on the current collection scenario as:

- Modeling indicates that the current method of collection, consisting of weekly recycling collection of dual stream recyclables, and weekly co-collection of waste and organics, is generally equally

efficient as other collection scenarios involving single-stream recycling and bi-weekly waste collection.

- It is unlikely that the County can expand the organics stream by Year 2 of the SWMS, as existing external composting capacity that can accept an expanded stream of these materials is limited, and as new processing capacity within the County cannot be developed by that time.
- It is unlikely that the County could move towards single stream recycling as access to single stream processing capacity is unlikely and as in the longer term this does not seem viable for a County MRF.

As noted previously, and as described in detail in the Draft Task D Technical Memo, the County currently has five collection contracts, over four collection zones. Generally a single contractor provides all curbside collection services in each zone (collection of recyclables, organics, garbage and optional items), however in North Simcoe recycling is contracted separately from garbage and organics. Should collection service be provided by a single contractor, it facilitates certain collection efficiencies (e.g., spare vehicles, supervisory staff, maintenance and administrative facilities) and generally results in lower service costs.

8.3.2 Transition to Uniform Level of Collection Service

It is recommended that the County transition to a truly uniform level of collection service with the next collection contract. Specifically, the following is recommended:

- Re-examination of the definition of "eligible" serviced units as appropriate, in order that collection of garbage, organics and recyclables are provided where reasonable to areas with seasonal households. Essentially, the new collection RFP would identify an increased number of serviced units that would be provided with the full range of curbside collection services.
- Provision of a common minimum level of leaf and yard waste collection, providing collection services on one collection day in mid-spring and one or more collection days in the fall.
- Provision of Christmas tree collection across the County in areas with urban density, on one collection day in early January.
- Phasing out bulky goods collection, with the phasing in of enhanced depot services and new opportunities for re-use of materials. This would allow residents to refocus on diverting bulky goods, using more appropriate means of managing these materials.
- Phasing out of metals collection at the curbside, while concomitantly removing the tipping fee for drop-off of metals at the County's depots. This appears reasonable as minimal amount of metals are actually managed at the curb.

8.3.3 Single-Stream Recycling

Single stream recycling could be a viable option for the County in the future, however the merits would have to be assessed based on a full-system cost assessment arising out of the evaluation of future bids for both collection and processing services. Collection modeling currently indicates, little to no benefit in the form of reduced collection costs for single stream collection, which is to be expected given that the majority of the County is rural in nature and thus the cost for collection is driven more by the time required to move from stop to stop rather than the time required to collect material at the stop itself.

Given that the option of developing new MRF capacity within the County is recommended to be deferred in the near future until it is certain what the potential implications of the proposed WDA changes could be, the

only near term option for single-stream recycling would be through an existing single stream MRF located outside the County.

Should the County choose to look at its short-term options for single stream recycling the RFP for new collection services could seek pricing for single-stream collection as an option, and that simultaneously (or immediately prior) the County would seek pricing through a separate RFP for recycling processing capacity located outside the County including the single stream option. This would allow for an assessment of a near-term switch to single-stream recycling. Note however, that once this choice is made, it could be difficult for residents to switch back to a dual-stream approach in the long-term.

Should this not prove to be viable based on the received bids, this option could be re-examined should the County determine that it could proceed with an in-County MRF. However as noted in Section 6.0, currently, this does not appear to be a viable option as there would be limited to no savings in collection of material to offset potentially higher processing costs.

8.3.4 Bi-Weekly Garbage Collection

If it is possible to expand the organics stream to process additional materials (e.g., pet wastes and diapers) then bi-weekly garbage collection would be more viable, mitigating people's concerns regarding retention of odourous materials in the household. This option may only reasonably be available for consideration in the collection contract period after next – or in Year 7 (2017) of the SWMS implementation period.

For the next collection contract, the County could consider different collection system options, by seeking alternative bids for combined contracts for all three collection services that include:

- Weekly co-collection of organics and single stream recyclables with bi-weekly collection of garbage, and
- Alternating weekly collection of organics and fibre/containers (dual stream recycling) with bi-weekly collection of garbage.

Both of these options with bi-weekly garbage collection will provide additional incentive for residents to maximize weekly diversion of organics and recyclables at little or no additional cost over the current collection system. However, bi-weekly garbage collection service has the potential to be perceived as a reduction in the level of service provided to residents and based on the collection models examined to-date, may not achieve any savings in collection costs.

8.3.5 Implementation – Collection

The following needs to be considered regarding implementation of the collection system as part of the Strategy:

1. The use of blue boxes, bags or carts cannot be fully evaluated without consideration of the costs involved in each system. Any of these containers can be used to collect single stream materials. Bags will have a slight stop time savings over either carts or boxes, but have a container cost that will have to be borne by the public as well as some additional processing costs for bag removal. The cart lifters and higher contamination levels with either bags or carts must be also be considered before final decisions on container type are made.

2. Sufficient time must be given to implement appropriate procurement processes for collection. At least nine months are needed to: develop the collection RFP, to provide an adequate bid period (two or more months) and to provide sufficient time for evaluation and award. Collection contractors need approximately 12 months upon award to secure delivery of new collection vehicles, and to complete various supporting activities such as detailed collection routing.

3. The collection modeling completed in support of the financial analysis for the preferred system, identified estimates for the number of collection vehicles required to support garbage, recycling and organics collection. The results of the modeling process should be used to compare with the bids received for the new collection contract, to determine if the contractors are proposing sufficient resources for the collection system.

4. The shift to a new uniform level of collection service in 2012 will require significant promotion and education support. Furthermore, this could also correspond with the shift to the enhanced waste reduction options discussed in Section 5.3. Therefore leading up to the new contract, a full promotion and education campaign needs to be put in place. The start date of the new contract (mid-2012) does generally correlate with the peak period for waste generation. Additional resources will be needed to support the hot-line calls and other support needed to roll-out such a significant change in service during this period of time.

Table 8-1 provides an outline of the detailed implementation plan and schedule for the collection component of the recommended SWMS. Details are provided regarding key action items and timeframes that would apply during the first five years of implementation.

8.3.6 Contingency Plan – Collection

In regards to contingencies related to collection, generally issues with stoppage of service and other issues that arise in collection would be addressed through the terms and conditions of the next collection contract. Various provisions will be required to address contractor performance.

The risk to collection service should a processing option be changed or temporarily unavailable would be mitigated through the suggested transfer approach, where the County would separately operate the transfer system. Collection contractors would only have to be concerned with delivering materials to the County's transfer stations. The County would address the need to provide alternative processing or disposal capacity as needed.

Table 8-1 Detailed Implementation Schedule - Collection

Initiative	Year 1				Year 2				Year 3				Year 4				Year 5				Ongoing
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Collection Contract for (July 2012 to June 2017)																					
Release New Collection RFP for Waste, Organics and Recycling Collection																					
Review RFP, Determine Preferred Bidder, Award Contract																					
New Collection Contract Starts																					
Transition to Uniform Collection Service																					
Expand diversion service to Seasonal Units																					
Common minimum level of leaf and yard waste collection																					
Christmas tree collection in areas with urban density																					
Potential phasing out of bulky goods and phasing in of enhanced depot services																					
Phasing out of metals collection; remove tipping fee for drop-off of metals at depots																					
Next Collection Contract (July 2017 Start)																					
Release New Collection RFP for Waste, Organics and Recycling Collection																					
Review RFP, Determine Preferred Bidder, Award Contract																					
New Collection Contract Starts																					
Potential Shift to Bi-weekly Garbage Collection																					
Potential Shift to Single Stream Recycling																					

9.0 TRANSFER

9.1 INTRODUCTION

The County currently operates four landfill sites, each of which has allowances as reasonable for the transfer of specific material types (e.g., haul of non-putrescible waste to Collingwood, haul of collected organics to Hamilton). In addition the County operates four dedicated transfer facilities that accept a wide variety of waste materials including garbage, recyclables, leaf and yard waste, wood waste, electronics, drywall, etc. with these materials being hauled to other County facilities or to processors.

The current transfer capabilities within the County largely involve the use of 40 yd^3 bins. These bins are used to haul the organic stream from the three waste management facilities within the County that accept organics to the City of Hamilton for processing. The County currently operates a fleet of tri-axle trucks to haul both the organic bins for processing, and other wastes within the County. Other than the small quantity of recyclables managed in North Simcoe, and those accepted at the depots, the majority of divertible materials collected at the depots, are collected/transferred by private sector contractors.

The recommended transfer system considered both the current performance of the County's transfer system and the identification of new transfer operations that may be required to support potential processing and/or disposal elements of the recommended waste management system.

9.2 OPTIONS CONSIDERED

Two options were considered for transfer and discussed in detail in the Draft Task F Report:

1. Existing transfer capabilities including options for improvement and identify the optimal number of transfer locations; and,

2. Identification of new transfer facilities.

In regards to transfer, the public indicated a general preference towards improving existing depots/transfer stations, only developing new transfer facilities if needed and concerns about the types of materials that could be transferred in some cases with preference being expressed for "no export" of some or all materials. These findings were used to develop detailed recommendations for collection and transfer operations within the preferred system.

9.3 RECOMMENDED TRANSFER SYSTEM

The recommended transfer system can be divided into short term and longer-term options. The following table (Table 9-1) provides a high-level overview of each approach and the recommendations concerning each approach.

Table 9-1 Overview of Recommendations for Transfer

Transfer System Approach	Overview of Recommendations
Short-Term	
Expansion and Optimization of Existing Transfer Facilities	• Over the short-term, garbage, organics and recyclables will be transferred out of the County • In Year 1, complete assessment of current transfer locations in each of the four collection zones and their ability to expand operations to handle additional materials (i.e., recycling and garbage) and to expand the capacity for organics. Also identify opportunities to improve efficiencies and/or reduce costs. • If expansion is required, a move to an automated Transtor system for some or all of the material streams is recommended.
Longer-Term	
Assess Transfer Needs Based on Material Stream Handling	• Over the longer term (five years onwards), the requirements for transfer will likely decrease due to the processing of various material streams within the County (e.g., recycling and organics). • Over the longer term, continue to assess transfer needs and develop a system that meets transfer requirements in an efficient and cost effective manner.

The following subsections provide a more detailed overview of the recommended transfer system including specific recommendations concerning implementation.

9.3.1 Short-Term: Expansion and Optimization of Existing Transfer Facilities

Over the short term, up to at least Year 7 (2017) of Strategy implementation the following material streams would require transfer:

- In the order of 30,000 to 40,000 tonnes per year of garbage, most likely curbside collected garbage, transferred for disposal outside the County;
- In the order of 15,000 to 18,000 tonnes of curbside household organic materials (depending on program expansion to include additional materials), which are currently transferred using 40 yd^3 bins at the current transfer locations;
- In the order of 30,000 tonnes per year or more of curbside recyclables, from the East, South and West collection zones.

Of these material streams, the one that would most likely require infrastructure for continued transfer after Year 7 would be garbage, as continued export of some of the County's garbage is recommended for longer term disposal. There is strong potential that in-County processing (CCF) will be available for organics and there is some potential that in-County processing (MRF) will also be available for recyclables as of 2017.

Other considerations of note in regards to the transfer of materials in the short-term are:

- The current transfer system for organics is working well, and is cost effective. The organic materials do not require compaction, given that they are already dense, and handling these materials within the current operating landfills has been effective. Given the density and moisture content of the materials, care is taken to ensure that loads do not exceed the weight capacity for the transfer haul

rig and/or local road weight restrictions. The current transfer approach is also quite flexible to change in the longer term when in-County processing becomes available.

- In regards to recyclables, the County has the ability to seek pricing in their collection contracts for the collection contractor to haul recyclables from their own operations to the MRF designated by the County. This would reduce the need for the County to develop transfer infrastructure for this material which may not require transfer in the longer term. However, there are risks with this approach, in that without stringent reporting provisions the contractors could inappropriately handle the County's materials.
- Garbage is the only material stream for which it is highly likely that there will be longer term transfer needs. Therefore the development of a transfer approach that includes automation and compaction of garbage is reasonable. The only concern will be to determine how many locations would require installation of a transfer system, as without contract prices for export, it is uncertain as to what proportion of County garbage may actually be transferred in the longer term.

Other considerations regarding short-term transfer were included in the Draft Task F Report (March 22, 2010). It was generally found that:

- Collection system modeling indicated that for the South Simcoe area, transfer costs are slightly less expensive from a central site near Barrie than from Site 13 when it is assumed that all material streams will be transferred. Decisions on transfer cannot be made without considering associated impacts on local collection. The use of a central transfer site near Barrie would require all recyclables, organics and garbage to be hauled to the central site. This would either require all collection vehicles to travel to that location for offloading (with potential increases in the number of vehicles required) or some degree of transfer haul from existing transfer sites in each collection zone to the central site.
- After a review of transfer alternatives, the Transtor system was deemed most appropriate for use whether at a central location or at the four current locations within each of the four collection zones for a variety of materials. This system uses one or more hydraulic bins to receive and store material from incoming collection vehicles and when full, off-loads them into an open top transfer trailer at a lower level. Independently, Stewardship Ontario has studied transfer options for recycling and has determined that generally Transtor systems can be more cost effective than traditional transfer stations for smaller quantities of materials.

The County needs a relatively flexible transfer solution. Due to the uncertainties listed below final decisions on the transfer infrastructure cannot be made at this time as:

- The County may want to seek pricing for the shorter term in the next collection contract to determine if contracted capacity for transfer of recyclables is a cost effective approach in comparison with a County operated transfer system which has less inherent risks;
- Pricing for export options for garbage, may indicate that a smaller or larger proportion of the County's curbside garbage may be transferred in this period.

The concept of a decentralized transfer model, in which garbage and potentially recyclables and/or organics are managed through Transtor units located at one or more of the current transfer sites, seems to offer more flexibility and a much shorter implementation timeline than other options.

Under a decentralized model, a Transtor facility of up to 4,500 m² would be needed at one or more of landfill Sites 10, 11 and 13 and possibly Site 24 pending review of operations of the small North Simcoe MRF. Some additional study is needed to ensure that suitable areas are available at these locations. This would consider the time required for facility siting and 'green field' approval under the *Environmental Protection Act* (EPA) would be avoided. An amendment to the existing facilities Certificates of Approval

would be needed, however, the amendment process is generally significantly shorter than permitting of a new facility.

Development of a Transtor facility at one or more or the current transfer sites (Sites 10, 11, 13 and potentially 24) would generally require the following:

- securing a firm price for construction and installation (either through leasing or purchase);
- securing C of A amendments;
- site grading and site works (deck and access road construction);
- installation of the Transtor units; and,
- purchase or a contractual arrangement for appropriate transfer trailers for each material type. Any top load trailers can be used for hauling purposes.

Operation of a Transtor facility could be contracted or preferably undertaken by existing landfill staff that could be re-assigned from the landfill working face to operate the units when collection vehicles arrive at the sites. Overall, the benefits of a decentralized approach include:

- The ability to share existing site infrastructure such as access roads, scale houses etc.;
- The ability to share existing operating staff;
- That materials are immediately 'stored' either in the Transtor unit itself or transfer trailer. There is no need to maintain a building or to have staff on the site at all times in order to effectively manage materials; and,
- As mentioned previously, the ability to avoid a siting process and more complex approvals, therefore supporting a shorter implementation timeframe.

9.3.2 Longer-Term: Assess Transfer Needs Based on Material Stream Handling

The longer term transfer requirements are less clear. It is likely that in-County processing options should be available for organics and recyclables. It may be that pending facility siting, there would be a continuation of transfer activities for recycling and/or organics from one or more of the current locations (Sites 10, 11, 13 and potentially 24) to avoid costs associated with direct haul of collection vehicles to central locations. In regards to garbage transfer, the potential for longer term transfer will be contingent upon the access to reasonably priced export capacity.

At around Years 4 or 5 of the Strategy implementation, it will be more clear if and where in-County processing capacity would be, and it should also be more clear what the viability of longer term export of garbage would be. At that time, a determination would have to be made regarding the most suitable transfer infrastructure for the longer term.

9.3.3 Implementation - Transfer

Considerations regarding transfer options, have been discussed in some depth as noted above. Essentially key considerations and activities that will affect the scope of transfer options that would be implemented in the short-term include:

1. Determination as of suitable areas, both in dimension and in regards to soils capacity at each of Sites 10, 11, 13 and potentially 24. This will likely require follow-up through future engineering studies.

2. Completion of the procurement processes related to the next collection contract and export disposal capacity will be needed in order to make a final determination of the preferred transfer system for the short term.

3. In the period following selection of the preferred bidder(s) for collection and export garbage disposal capacity, there may not be sufficient time to develop the required infrastructure for transfer for all material streams. There are alternative options to manage all three material streams should this be the case (see contingencies).

Table 9-2 provides an outline of the detailed implementation plan and schedule for the transfer component of the recommended Strategy. Details are provided regarding key action items and timeframes that would apply during the first five years of implementation.

9.3.4 Contingency Plan - Transfer

The primary concern regarding transfer at this time, is the ability of the County to provide transfer capacity at the beginning of the next collection contract in Year 2 (2012) of the Strategy implementation. It may not be possible to develop the preferred infrastructure for transfer of organics, recyclables and garbage by that time.

However, there are reasonable contingency options:

- In regards to transfer of organics, it is likely that there would be no change to the current approach, therefore there would be no issue with transfer of organics in the new contract period.
- In regards to the transfer of recyclables, if it is clear that it would be better for the County to manage the transfer/haul of these materials, then a temporary measure through the use of transfer trailers or 40 yd^3 bins to haul uncompacted materials similar to the organics transfer methodology could be set up at sites 10, 11 and 13.
- In regards to the transfer of garbage, the County would likely delay making any shipments of garbage outside the County, until the required transfer infrastructure was in place. Disposal capacity at Sites 10, 11 and 13 would continue to be used for curbside garbage until the preferred transfer system was operational.

Table 9-2 Detailed Implementation Schedule - Transfer

Initiative	Year 1				Year 2				Year 3				Year 4				Year 5				Ongoing
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Final Determination of Short-term Transfer Requirements																					
Complete engineering review of Sites 10, 11, 13 and NS MRF to determine suitability for Transtor development																					
Collection RFP Review, Determine Preferred Bidder, Award Contract, determine if recyclables transfer in or out																					
Garbage Export RFP, Review submissions, Award Export Contract, determine quantity of garbage and sources of garbage for transfer																					
Determine the number and location of Transfer Units required																					
Develop Short-term Transfer System																					
Issue and award tender for transfer units and transfer trailers																					
Apply and obtain approvals for transfer facility development from the MOE																					
Site grading and other associated works																					
Transfer Unit Installation																					
New Transfer Operations Begin																					
Longer term Transfer System																					
Review potential longer term transfer requirements, based on status of processing capacity development and export capacity																					

10.0 GARBAGE DISPOSAL

10.1 INTRODUCTION

Given the growing population in the County and the decreasing capacity for disposal at its landfills both additional diversion and new garbage disposal options are needed in the SWMS. There are opportunities available to extend the lifespan of the currently operating landfills. However, at some point additional disposal capacity may be required; the options for future, long-term disposal are also discussed in this section.

10.2 OPTIONS CONSIDERED

10.2.1 Short-term Disposal

The Draft F Task Report (March 22, 2010) identified two major options that can reasonably be considered to provide short-term disposal beginning early in the planning period;

1. Continued operation of the current operating landfills (with or without additional operational adjustments); and/or

2. Export of residual garbage to disposal facilities located outside the County.

Both of these are reasonable alternatives for which adequate information was available to fully consider the implications to the County. These options are not mutually exclusive and thus were carried forward as a group. This approach would allow the County the ability to adjust the proportion of residual garbage disposed within or outside the County as part of the implementation plan.

This approach was consistent with public opinion, as there was general support for modifying the current landfill facilities to extend the life of the sites in comparison with the other landfill options. Opinion on export of garbage in the short-term was relatively evenly split, although there was more support for export to processing facilities (e.g., EFW) than to outside landfills. Landfill mining was suggested as an option, however this option was removed as an option upon examination of the potential for mining at the current operating sites; as there would be no value or capacity gained from mining.

10.2.2 Long-term Disposal

Other options, such as potential use of the partially approved capacity available at other County landfills were identified as long-term options. This is due to increased constraints/issues, and potentially longer timelines that would likely be required for implementation.

The long-term deposal options evaluated in the Draft F Report included:

- In County Garbage Disposal Capacity:
  - Development of Partially Permitted Sites (9, 12, and 42)
  - Expansion of Current Operating Sites
  - Landfill Mining (Sites 9 and 12)
  - New Landfill Facility

- Landfill Disposal Capacity Available Outside of the County
- Garbage Processing Facilities either Inside or Outside of the County

The review of options considered reasonable opportunities for partnerships with other municipalities and/or the private sector could arise for processing garbage within the planning period.

The long-term disposal options were relatively distinct and were somewhat exclusive although it was reasonable to combine a few of these options in system implementation. These options also have distinct considerations that could affect the viability of implementing them in the longer term.

In regards to long-term disposal, results of the public consultation process indicated more general support for the expansion of current operating landfills than for any other option, although generally public opinion was against landfilling. The least acceptable option to the public was the development of any new landfill site. Opinion on export was split, while processing of the residual garbage was the option that received the most overall support. In regards to processing, while there was a lot of support expressed for EFW, there was also a significant group that expressed concerns.

All of the long term disposal options were considered in the Strategy; and recommendations regarding those that would be reasonable during the planning period were developed based on the application of the evaluation criteria indentified in the Draft Task F Report. The long-term disposal system is based on a combination of those approaches that offer the most advantages to the County over the planning period.

For example, in the short-term as the County exports a portion of its waste stream, more capacity at the current operating landfills would be available over the long-term, this was an overall advantage for the option of waste export. In the long-term, development of new landfill capacity at a Greenfield landfill was found to be neutral. The combination of continuation of the current operating landfill, some waste export, potential partnerships for processing and potential use of Sites 9 and 12 on a contingency basis, was more advantaged. However, should any or all of these components of the long-term disposal system not be available, development of new landfill capacity could be considered.

10.3 RECOMMENDED GARBAGE DISPOSAL APPROACHES

10.3.1 Short-Term Approaches/Technologies

The short-term vision for garbage disposal in Simcoe County consists of two major approaches. These two approaches are continued use and modification of currently operating landfills and use of residual disposal facilities outside of the County. These two recommendations are discussed in detail below.

10.3.1.1 Modifications to Current Operating Landfills

The landfills currently operated in the County are run in an efficient manner and have appropriate equipment to ensure maximum compaction of the waste received on site. In order to further the life of the existing landfills, further enhancements of site operations would include:

- Separation and haul of all bulky wastes that cannot be diverted from all operating landfills and transfer stations to the Collingwood landfill site;

- Grinding of bulky wastes at the Collingwood landfill site to ensure sufficient capacity remains for bulky waste disposal at this site for the long-term;
- Increased enforcement of separation of materials at the landfills and transfer stations. This requires a review of staffing levels to ensure that sufficient staff support is available for enforcement.

It would also be reasonable to have the three operating sites assessed to determine if a vertical lift and/or an expansion of the disposal footprint can be engineered, in order to increase the overall landfill capacity at these sites. The environmental impacts at each of the existing landfills appear to fall within the regulatory requirements of the MOE and a potential expansion of landfill airspace for one or more of the sites that do not have footprint constraints may be feasible.

10.3.1.2 Use of Disposal Capacity Outside of the County

The second recommendation is the use of disposal capacity outside of Simcoe County. In the Draft Task F Report, a total of eight disposal facilities were evaluated to determine which option would be best suited to the County.

The amount of residual garbage that would be exported to facilities outside the County would be dependent on the source of the garbage (e.g., it would be reasonable to transfer curbside garbage outside the County as this could more easily be directed to transfer facilities) and the guaranteed pricing obtained through a competitive bidding process and/or the use of spot markets.

Overall it was determined that, the Greenlane Landfill, the Covanta EFW, the Modern Landfill, the Walker Landfill, the Twin Creeks Landfill and the Essex Windsor Landfill all rated approximately the same in the overall ranking for the best option for the short term management of Simcoe's residual garbage. This indicates that competitive bids for garbage export should be able to be secured through an RFQ/RFP process. Table 10-1 provides an overview of the use of residual disposal facilities outside of Simcoe County.

Table 10-1 Use of Residual Disposal Facilities Outside Simcoe County

Use of Residual Disposal Facilities Outside Simcoe County	
Short-term or Long-term Option	• Both short-term and long-term option.
Interaction with other System Components	• Would require development of transfer station(s) to consolidate and direct waste out of the County.
Potential Cost Implications	• Capital and operating costs for transfer station(s) to be determined based on volume of materials managed. • Tipping fees for use of external disposal capacity that may be higher than current fees/costs incurred by the County. • Potential to increase overall disposal costs for the County.
Potential Change in Diversion	• In the scenario where County residual garbage is directed to an EFW facility the metals recovered from EFW can be accounted for in diversion. • Could increase diversion by an additional 3% per year.

Use of Residual Disposal Facilities Outside Simcoe County	
Potential for System Efficiencies and Improvements in Level of Service	• Lessen waste being disposed in County landfills.
Potential Processing or Disposal Capacity Requirements	• Could increase landfill disposal capacity in the County by 3 to10 years or potentially longer, depending on the quantity of residual garbage exported.
General Implementation Requirements	• Approvals, design and development of transfer facility(ies) should current transfer capacity be insufficient. • Conduct due diligence of waste disposal facility(s) to be used. • Negotiate a contract for waste disposal capacity provider(s).
Ability to Adjust Option to Changes to the WDA	• This is a flexible waste disposal option. • Should changes to the WDA reduce quantities of residual garbage disposed it would simply reduce quantities of waste transferred out of the County. • May result in increased cost for disposal if a disposal levy and enforcement of disposal bans are imposed under WDA.

10.3.2 Longer-Term Approaches/Technologies

Over the 20-year planning period, it is expected that there would continue to be a portion of the waste stream that would remain as residual garbage requiring disposal. The potential quantity and composition of the long-term residual garbage stream that would require disposal, is expected to change to reflect the implementation of additional diversion options and changes in provincial policy.

The recommended approach for long-term garbage disposal includes: the continued use of current operating landfills; securing approved Design and Operations reports for the existing landfill Sites 9 and 12 with development delayed until the capacity is needed; continued long-term export of garbage for disposal; and, consideration of residual garbage processing. Each of these four recommendations is discussed in more detail below.

10.3.2.1 Continued Use of Existing Simcoe Landfill Sites

It is likely that efforts undertaken to preserve landfill capacity in the short-term at the existing operating MSW landfill sites (Landfills No. 10, 11, and 13) coupled with increased diversion, will ensure that some capacity at these sites is available for use in the long-term.

It will need to be determined through detailed engineering studies if any active County landfills can be expanded by up to 100,000 m^3 through an environmental screening process. Expansion of disposal capacity beyond 100,000 m^3 at any landfill would trigger an individual environmental assessment, which would involve a more prolonged and costly approvals process. The major constraints to expanding existing landfills are site and technical constraints along with the potential for public concern.

All of the active sites have leachate collection systems in place, with some reliance on natural attenuation for leachate produced prior to the installation of liner and collection systems for the sites. As a landfill site is expanded, additional leachate will be produced and the contaminating life of the landfill will be

increased. This would be a primary consideration in the engineering review needed to determine if an expansion of any of these sites is reasonable.

10.3.2.2 Development of Approved Landfill Capacity within Simcoe

It is recommended that the County complete the permitting process (e.g., approval of the required Design and Operations Reports) for Sites 9 and 12, in order that if this capacity is required in the longer term, it would be reasonably available.

Site 9 provides an opportunity to develop a landfill however, the maximum available capacity that can be developed, as it is approved, is approximately 247,900 m^3, which equates to just over two years disposal capacity for Simcoe at its present rate of residual garbage disposal.

Site 12 has the best potential to be developed, because of its potentially larger disposal capacity (877,000 m3), compared to Site 9 and because it has potentially fewer environmental or operational issues compared to other options. In addition, it is located in a relatively secluded area.

In both cases however, the County would not proceed to develop this capacity, unless it appears that based on regular Strategy updates and assessment of diversion rates, that this capacity may be needed in the longer term.

10.3.2.3 Long-Term Export of Garbage for Disposal

The Walker Landfill, the Twin Creeks Landfill and the Essex Windsor Landfill all had the same overall rating when assessed as part of the Draft Task F Report and could be considered as proven long term options for the management of Simcoe's residual garbage. However, based on total haul/disposal cost, Essex Windsor has the potential lowest cost ($58/tonne) and Walker has the shortest distance of travel from Simcoe to the disposal facility (200 km).

In approximately Year 5 of the SWMS, the County should consider issuing another RFQ or RFP to determine if there continues to be longer term options for export of residual garbage. Any changes in market conditions would be assessed at that time.

10.3.2.4 Consideration of Residual Garbage Processing Technologies

A residual garbage processing facility would be more viable if pursued jointly with other municipalities or with the private sector, given the estimated tonnage of garbage that is expected to be produced in the County over the planning period. Over the 20-year planning period, the quantity of residual garbage managed by the County each year is expected to decline from approximately 56,000 tonnes (residential and IC&I) to between 35,000 and 42,000 tonnes. Experience in other jurisdictions indicates that while this material could be processed through a variety of means, there would be insufficient annual tonnages to achieve any economies of scale.

Over the long-term there may be opportunities for the County to be part of developing a new waste processing facility through various partnership approaches. Various options could be available including

the County providing one or a combination of the following for a facility developed within a partnership arrangement:

- Land, should a reasonable option be developing a facility within the County;
- Guarantee of supply of residual garbage tonnage for a fixed disposal cost and fixed term;
- Financial resources for capital costs associated with facility development, if the County were to hold some financial interest in a facility;
- Staff resources, particularly if a reasonable approach is development of a facility within the County; and,
- Acquisition of environmental approvals, again, this would be more applicable if the County were to host a facility and/or share some form of ownership interest.

Processing approaches that could be considered would include:

- Conventional EFW approaches, such as mass burn combustion;
- Newer thermal technologies such as gasification, plasma arc gasification, and pyrolysis;
- Emerging thermal technologies such as gasplasma, thermal cracking, thermal oxidation, waste-to-fuels, disintegration, and steam reformation;
- Mechanical treatment to recover additional recyclables and potentially other materials such as solid recovered fuels, for example a 'dirty' MRF to process mixed waste; and,
- Biological treatment such as aerobic composting/treatment and anaerobic digestion.

Details regarding all of these technologies were provided in the Draft Task F Report (March 22, 2010) and are included as Appendix 4 of this report.

The types of technologies offered by conventional technology vendors, generally require more garbage in order to be feasible on a cost per tonne basis. The technologies offered by some of the new and emerging vendors such as Alter NRG, Plasco and Sota are promising but at this point in time, they cannot be considered proven technologies in Ontario for the management of exclusively municipal garbage, on a large scale. More time is required for various approaches to become proven. Also, additional time would allow other neighbouring jurisdictions to examine their own garbage disposal needs.

Simcoe should consider pursuing opportunities to develop either on its own, or in partnership with other municipalities, a facility which can be utilized to manage municipal residual garbage in the long term, especially if such a facility can be developed in Simcoe or in a neighbouring municipality, at a financially reasonable cost. Whichever companies are selected, they should be held to a high standard of performance. Table 10-2 outlines some of the key considerations that apply to garbage processing.

Table 10-2 Consideration of Residual Garbage Processing Technologies

Consideration of Residual Garbage Processing Technologies	
Short-term or Long-term Option	• Long-term option.
Interaction with other System Components	• None.

Consideration of Residual Garbage Processing Technologies	
Potential Cost Implications	• Generally greater than landfill disposal however, partnership approach could increase cost-effectiveness.
Potential Change in Diversion	• Some technologies (e.g., Mechanical/Biological treatment, many thermal approaches) allow for recovery of additional materials from the residual garbage stream.
Potential for System Efficiencies and Improvements in Level of Service	• Could create additional disposal capacity with a shared risk and cost with other(s).
Potential Processing or Disposal Capacity Requirements	• Varies depending on the technology and scale required.
General Implementation Requirements	• Research waste disposal technology(s). • Select partner(s). • Determine cost/risk sharing formula and develop agreement with partner(s). • Should a facility be located in Simcoe, there would be a need to select a preferred location. • Acquire applicable approvals to develop facility.
Ability to Adjust Option to Changes to the WDA	• This could be a less-flexible waste disposal option, depending on the type of waste supply agreements involved. • Disposal levy and increased enforcement of material bans may be imposed under WDA, which may also apply to processing facilities.

10.4 IMPLEMENTATION – GARBAGE DISPOSAL

The following implementation considerations should be considered when moving forward with the recommended garbage disposal plan:

1. During the short-term, annual landfill surveys should be continued in order to assess the remaining capacity at the current operating landfills. Continued compaction of the waste mass over time, coupled with increased diversion should continue to slow the rate of consumption of the existing airspace.

2. Continued haul of bulky non-putrescible wastes and potential grinding of this waste prior to disposal at the Collingwood landfill, should also contribute to saving landfill capacity. In Year 1 of the SWMS, the County should examine pricing for appropriate grinding systems and undertake a cost-benefit analysis to verify potential savings and the pay-back period for such equipment.

3. In Year 1 of the SWMS, County Council should be requested to reconsider its current position with respect to no waste import/export.

4. In Year 1 of the SWMS the County should issue an RFQ or RFP seeking pricing and terms for the short-term export of garbage to sites located outside the County. Selection of the preferred option(s) and determination of the actual quantity of curbside waste that would be hauled outside the County, would be contingent on the cost of haul and tipping fees being somewhat comparable to current landfill costs.

5. Implementation of the recommended long-term disposal options would generally be scheduled beyond Year 5 in the SWMS. Implementation of export options and/or processing, will require good procurement processes and contracts in order to ensure the long-term viability of the residual garbage disposal system as outlined above.

The following table (Table 10-3) provides an outline of the detailed implementation plan and schedule primarily for the short-term disposal component of the recommended Strategy. Details are provided regarding key action items and timeframes that would apply during the first five years of implementation.

10.5 CONTINGENCY PLANNING - GARBAGE DISPOSAL

The proposed disposal approach includes concurrent activities that in themselves provide contingencies for the County. At no time in the Strategy implementation period, should the County be dependent upon a single method or site for disposal.

- Short and long-term disposal capacity would be available at the existing operating landfills and through export. Should an issue prevent export, then the County has the ability to redirect waste to its own landfills and vice-versa. Export will reduce consumption of the County's landfill airspace in the event that some circumstance requires immediate access to landfill disposal (e.g., natural disaster) this capacity should be available at the County's sites.
- Short and long-term disposal capacity is not dependent on the development of a new processing facility. This is an option to be pursued should conditions be favourable to the County. Should any partnership initiative be pursued and fail, the County would have other disposal methods on which to depend.
- Finally, the County has two facilities, Sites 9 and 12 that could also be developed to provide landfill capacity, if necessary. By attaining approved Design and Operations documents for both sites, the County will have further insurance that it can, in a reasonably short time frame, develop the landfill space at these sites.

The SWMS does not include new landfill capacity within the recommended longer-term disposal approaches. Rather, it focuses on the continued use of the existing landfill sites, continued export of a portion of the waste stream and potential pursuit through partnerships of waste processing technologies. Completion of all approvals for Sites 9 and 12 which are both existing landfills that are not currently active, would provide some landfill disposal contingency should it be needed. It should be noted, that these recommendations are based on the assumption that export capacity would be available and partnership opportunities may also be available. It is also not a given that the County would receive approval from the MOE for the Design and Operations reports for Sites 9 and 12. Actual diversion performance under the SWMS will have to be confirmed over the short-term implementation period. Through regular review of the SWMS, the County may need to reconsider the longer-term disposal approach and the future role of landfill.

Table 10-3 Detailed Implementation Schedule – Garbage Disposal

Initiative	Year 1				Year 2				Year 3				Year 4				Year 5				Ongoing
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Modifications to Current Operating Landfills																					
Completion of Annual Landfill Surveys to Assess Remaining Capacity at Current Operating Landfills																					
Assess staffing levels, determine if additional staff needed to support separation of materials and enforcement of Mandatory Diversion By-law/Landfill Ban																					
Bid/Tender for Grinding System for Bulky Wastes																					
Install Grinding System at Collingwood Landfill																					
Garbage Export – Short Term																					
Review Council Position on Waste Import/Export																					
Develop and Issue RFP/RFQ for Short-Term Export of Garbage to Site Outside of County																					
Review submissions, Award Export Contract																					
Ensure Transfer Arrangements are in Place, Initiate Transfer of Curbside Collected Garbage																					
Complete Approvals (Design and Operations Plans) for Sites 9,12																					
Obtain MOE Approvals for D&O Report for Site 9																					
Complete D&O Report for Site 12, Obtain MOE Approvals																					
First Point of Consideration of Need to Develop Sites 9 or 12																					
Garbage Export – Long Term																					
Issue RFP or RFQ for Long-Term Export																					
Consideration of Residual Garbage Processing																					
Assess partnership options for Residual Garbage processing as they arise																					
Determine Progress Towards Diversion Targets																					
Potential Timeframe for Issuance of REOI/RFP for Processing based on options and diversion progress																					

11.0 PROJECTED SWMS PERFORMANCE

Potential SWMS performance was initially assessed and presented in the Draft Task F Report. Since that report was issued, 2009 tonnage and diversion estimates have been refined and additional information regarding waste generation and current material capture rates has been made available. This section presents updated assumptions regarding the potential waste diversion that could be achieved through the recommended SWMS and projections regarding the potential quantity and composition of the garbage stream that would require disposal over the planning period.

Projections for performance of the recommended SWMS were developed based on:

- Analysis of the County's current waste management system performance as discussed in Section 4.0.
- Improvements to diversion performance measured in other areas, that reflect the recommended diversion options as presented in Section 5.3;
- Assumptions regarding performance of WDO/EPR programs based on current information available regarding the proposed changes to the WDA; and,
- Potential new materials that could added to blue box and organics programs should processing capacity for these materials be available either within or outside the County.

The following subsections discuss the projected system performance over the planning period under this increased diversion scenario.

11.1 PROJECTED DIVERSION RATES

Two different projected diversion rates were developed: a reasonable waste diversion rate which would represent a shorter term target (e.g., target for year 10 of the SWMS) and a maximum diversion rate representing the target for year 20 of the SWMS. Note: these projections have been updated from those presented publicly in April/May 2010, based on new tonnage data and review/adjustment of the assumptions related to material recovery rates which increased diversion assumptions by 1%. Discussion with the Waste Management Strategy Steering Committee regarding the feasibility of proceeding with garbage processing under some form of partnership in the shorter term, resulted in the modeling of scenarios with and without garbage processing by 2017, which would also affect the overall diversion rate. Discussion regarding the review of the maximum diversion rate is provided in Section 11.3.

11.1.1 Projected Reasonable Diversion Rate

A reasonable projected diversion rate was estimated assuming that the following would occur within the first 10 years of implementing the SWMS:

- All proposed WDO/EPR programs would be implemented, and would achieve 70 to 80% recovery of targeted materials;

- Most potentially recoverable materials would be added to the recycling program. Recovery rates for low recovery materials (currently 30% or less) and new materials would increase up to 50%. Recovery rates for easier to recycle materials would increase up to 70 to 90%;
- All potential new materials would be added to the organics program. Recovery rates would increase to 75% for food, to 90% for yard materials, and to 50% for other materials (sanitary paper products, pet wastes, diapers);
- Residents in the County would significantly change behaviour, such that 80 to 90% of all households would divert the majority of all possible materials 80 to 90% of the time.

Based on those assumptions, it was determined that the County could increase its diversion rate to 71% within the first 10 years of the SWMS.

11.1.2 Projected Maximum Diversion Rate

A "maximum" diversion rate waste was estimated assuming:

- All proposed WDO/EPR programs are implemented, and achieve 80% recovery of targeted materials;
- All potential new materials are added to the recycling program and recovery rates increase for all materials to between 80 and 95%;
- All potential materials are added to the organics program and recovery rates increase for all materials to between 80% (e.g., food, diapers, sanitary paper products, other papers) and 99% (yard waste);
- This would require profound change in behaviour for all residents in the County, such that 90 to 98% of all households would divert all possible materials 90 to 98% of the time.

Based upon the assumptions listed above, it was determined that County could reach a maximum diversion rate of 77% towards the end of the 20-year SWMS implementation timeframe. The following table (Table 11-1) illustrates the breakdown of program performance that would be required to achieve this maximum diversion rate, comparing the recovery rates achieved in 2009 and those projected for 2030.

Table 11-1 Comparison of Status Quo and Maximum Diversion Rate Recovery Assumptions

Material Type	2009 Recovery Rate	Projected Maximum Recovery Rate (2030)	Change from 2009 Rates
Recycling Program			
Printed Paper	77%	89%	+12%
Paper Packaging	69%	86%	+17%
Plastic Packaging and Products	59%	84%	+25%
Metals	76%	87%	+11%
Glass	87%	90%	+3%
Organics Program	60%	84%	+24%

11.2 ESTIMATED GARBAGE PROJECTIONS FOR THE SWMS PLANNING PERIOD

Projections estimating the amount of remaining garbage (post-diversion waste) requiring disposal over the planning period were developed in order to determine the amount of disposal capacity that would be required by the County over the planning period. The projections were developed assuming:

- Population growth of 2.46% per annum (County of Simcoe Official Plan).
- Residential waste generation rate (2009) of 392 kg/capita.
- Commercial waste managed (2009) of 41 kg/capita.
- Achievement of 71% diversion by 2020 and potentially up to 77% by 2030.

The following table (Table 11-2) outlines the projected remaining garbage assuming that the per capita waste generation state remains steady at 2009 levels.

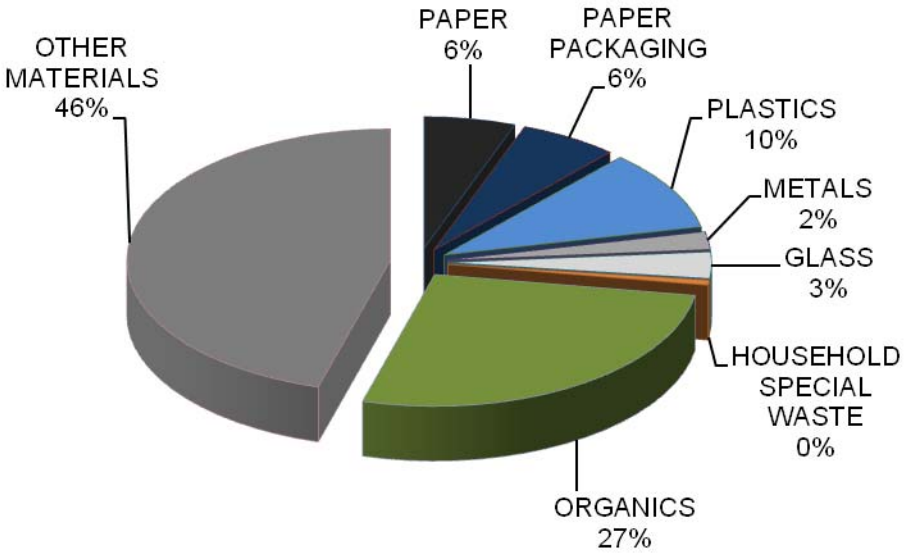
Table 11-2 SWMS Projected Remaining Garbage

Projected Diversion Rate	Estimated Annual Tonnes of Remaining Garbage as of 2011	Estimated Annual Tonnes of Remaining Garbage as of 2030	Estimated Total Tonnes of Garbage to Disposal 2011 to 2030
71% by 2020 77% by 2030	59,457	51,860	1,084,723

Should the County be successful in achieving a per capita waste reduction target of 1% per annum for both residential and IC&I waste, the estimated annual tonnes of garbage could decrease to 42,845 by 2030, with the estimated tonnes of garbage disposed over the planning period being reduced to 990,000 tonnes.

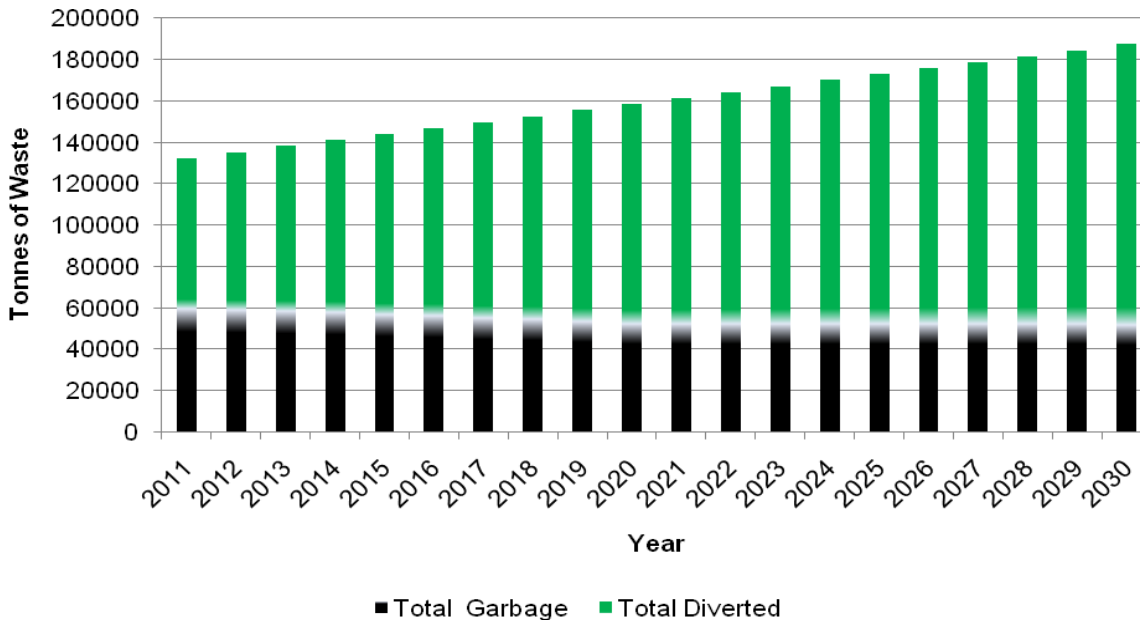
The following figure (Figure 11-1) illustrates the composition of the remaining garbage that would require disposal assuming 77% diversion (i.e., if the County reaches maximum waste diversion rate during the planning period). The figure includes non-captured recyclables and organics, as well as materials that cannot be diverted within the conceptual diversion system.

Figure 11-1 Waste Composition Assuming 77% Diversion



The following chart (Figure 11-2) illustrates the projected quantity of waste that will be managed by the County over the planning period assuming 71% diversion by 2020 and 77% diversion by 2030.

Figure 11-2 Projected Quantity of Waste over the Planning Period



11.3 REVIEW OF THE POTENTIAL MAXIMUM DIVERSION RATE

Following presentation and discussion by the Solid Waste Management Strategy Steering Committee regarding the Phase 3 and 4 Draft Technical Memorandums, it was requested that Stantec complete a review of the projected diversion rates and requirements necessary in order to achieve higher rates of diversion.

This review has been completed, based on an assessment of the revised waste composition information (updated based on 2009 year-end tonnages and the most recent curbside audit) and the current and projected capture rates for the materials that could be managed by the expanded diversion programs included in the SWMS. As discussed in Section 11.1.2, the potential achievement of 77% diversion, is based on a significant increase in diversion rates for all material streams. Essentially, this maximum rate is based on over 90% of all households, diverting all of the potentially divertible materials over 90% of the time. This is very much a stretch goal, and based on review of the performance of other programs, we do not anticipate there to be any real potential to move beyond 77% diversion based on assessment of the current waste stream. There is little to no room for diversion performance improvements beyond this level of diversion, through source separation programs. The projected diversion performance is higher than that currently being achieved by Zero Waste municipalities, as presented in Table 1-3.

Some additional diversion, could be achieved through the processing of the remaining garbage, through any of the processing technologies identified in the Draft Task F Report (March 22, 2010). This would only be a small incremental increase, based on review of the remaining garbage that would be left after 77% diversion through source separation. If processing were able to increase recovery of divertible materials left in the remaining garbage, such that 90 to 95% recovery of all recyclable and compostable materials was achieved (through for example mixed waste processing), this would only increase overall diversion by four to five percent.

While thermal treatment approaches (both conventional Energy-From-Waste and advanced technologies) are not regarded as contributing to ‘diversion’ (with the exception of metals recovered from solid residues), the weight of the remaining garbage could be reduced to 30% while the volume could be reduced to 10% of the incoming materials processed through these methods. This can result in significant reductions in landfill space requirements for disposal, as discussed in Section 13.

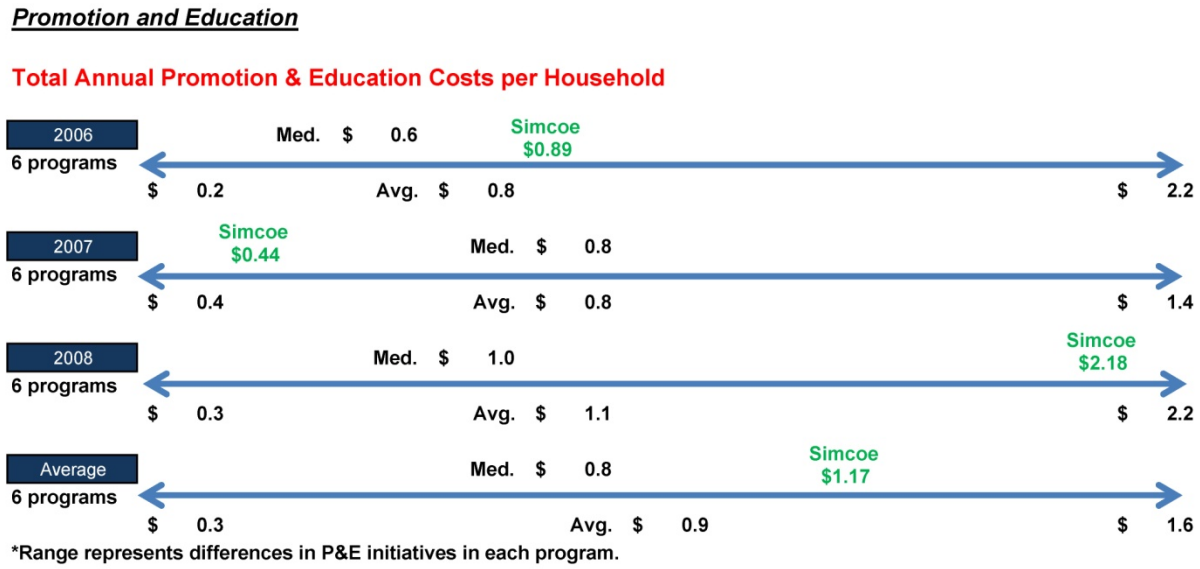
Achievement of reductions in the per capita quantity of waste generated, and the amount of garbage disposed, will be contingent upon a change in consumer behaviour by the residents of Simcoe County, supported by progressive societal changes. It was concluded, that although there was interest from many parties in the County setting a higher diversion target, any target set above 77 to 80% would be unrealistic and unreasonable has thus has not be identified or adopted for the SWMS.

12.0 PUBLIC EDUCATION STRATEGY

12.1 SIMCOE'S CURRENT PROMOTION & EDUCATION STRATEGY

The amount spent on promotion and education (P&E) by the County from 2006 to 2008 was examined using WDO data and was compared between the County and other municipalities within the same WDO grouping (Figure 12-1). An initial review indicates the County spent above average in 2006, but spent the least amount of money on P&E in 2007 within the Urban Regional Grouping. In 2008, the County greatly increased their P&E budget and had the highest P&E costs per household within their municipal grouping. This increase in spending coincides with the launch of the green bin and the associated increase in P&E and also coincides with significant improvement in diversion rates documented from 2008 to 2009.

Figure 12-1 Annual Promotion & Education Costs Per Household



The County of Simcoe currently uses a variety of methods to promote waste reduction, diversion and reuse. One of the main sources of information for residents is the annual Curbside Collection Calendar. The Calendar is a valuable resource for residents as it contains a number of important instructions such as appropriate bags that can be used in the green bin program, acceptable materials for each diversion program, garbage limits, and special collection days. There are also explanations regarding why garbage may have been left at the curb and tips to reduce pests and odours in the garbage and green bin. The Calendar is an effective means to relay a large quantity of information to residents in a format that is applicable throughout the year. Notably, the Calendar provides residents with contact information via phone, email or the County's website should they require additional information or clarification regarding waste management. Since 2008 the County has been providing a regular newsletter "Managing Your Waste" which is sent via either bulk or addressed mail to every resident in the County. The Managing

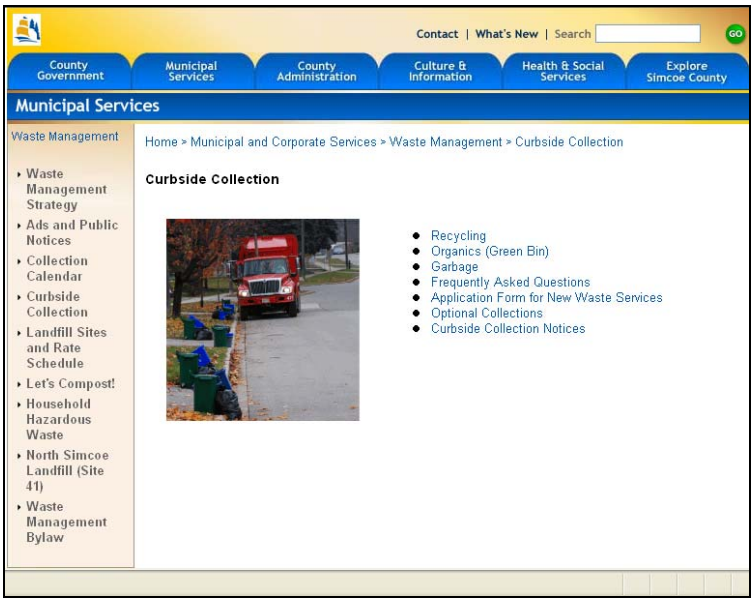
Your Waste newsletter provides an effective means of communicating new programs, program changes and issues identified, as well as conveying diversion statistics and the results of various initiatives.

The County's website also features the Curbside Collection Calendar along with more detailed information. A visit to the County's website provides residents with information regarding the following:

- The Solid Waste Management Strategy;
- Ads and Public Notices;
- Curbside Collection Details;
- Landfill Sites and Transfer Stations
- Rate Schedule;
- Composting Information;
- Information regarding the Household Hazardous Waste program;
- Site 41; and,
- The County's Waste Management By-law.

The following screenshot of the County's website illustrates some of the information that is available to the public (Figure 12-2).

Figure 12-2 Screenshot of the County's Website



The County places advertisements in newspapers to advise the public of upcoming special collection days and other changes in waste collection/disposal programming. All advertisements are also placed on the County's website.

As noted above, in 2008 the County spent considerably more on P&E than in the past to promote changes to the curbside collection program. A multitude of P&E initiatives were employed including, newsletters delivered via Canada Post, open houses, green bin start up kits, an additional curbside

collection calendar, media coverage, a mascot, newspaper and radio advertisements, the County's website, a school pilot program for organics and recycling in three public schools, parades, festivals and fall fair displays and games. The County also provided promotional items such as re-usable cloth bags, t-shirts, ball caps, sample compostable bags, and temporary tattoos.

Other promotional materials used by the County include: articles/columns in local newspapers, brochures/pamphlets, displays, magnets/stickers, media kits, media releases/events, newsletters, outdoor signage, newspaper and radio advertisements, reminder cards/notices, school tours/presentations, speaking engagements, hotline, open houses and fall fairs.

12.2 NEW P&E PROGRAMS FOR 2010

In September 2010, the County is planning on launching a new P&E initiative. In cooperation with local school boards, the County plans on launching an expanded recycling and organics program and education campaign. The school boards currently collect recyclables, but only a limited number of materials including aluminum cans, glass bottles, tetrapak, #1 and #2 plastics, white paper, newsprint, and old corrugated cardboard. The purpose of the new program is to ensure the consistency of recycling programs between home and school and therefore the County will collect all items from schools that are collected in the County's residential blue box and green bin programs. Additional support materials for the program will include the development of curriculum to reinforce waste reduction and diversion, ongoing provision of promotional materials, as well as a Mobile Education Unit (MEU), outlined below, and outreach to provide further educational opportunities. The County and school boards are developing a partnership agreement with a duration of five years with the potential to extend the program for a further two years.

Also in September 2010 the County plans on development of a MEU which will be constructed to promote waste reduction and diversion programs. The MEU will consist of a trailer that can easily be moved to schools, local fairs, and other events. There will be a number of interactive activities within the trailer such as a grocery store whereby participants are educated regarding which purchases are better choices in terms of packaging. Other educational concepts for the MEU include a video image of waste materials on a conveyor belt which participants would correctly drag and drop into the blue box, grey box, green bin or garbage as well as a three dimensional model home which would target divertible materials which are not commonly captured in different rooms of households.

12.3 RECOMMENDATIONS TO ENHANCE EXISTING P&E MATERIALS

The Curbside Collection Calendar is an effective means of communication. It is brightly coloured with many pictures which can quickly grab the reader's attention. The use of graphics and pictures is also useful for engaging a younger audience who may have a better association of which materials can be diverted and their correct placement in the blue box, grey box, or green bin. Overall, there are no major changes suggested to the Curbside Collection Calendar. One suggestion that may help residential participation rates in future pending amalgamation of collection contracts would be to include a waste collection map indicating the collection days for each area. This may help seasonal residents who are not accustomed to setting their waste out for collection within the County.

Waste management information on the County's website is easy to locate and navigate. However the website is not interactive and does not feature many graphics. The *Recycling Program Promotion and Education Workbook*[18] suggests a number of small changes that can improve waste management websites. Suggestions applicable to the County include:

- Obtain webpage visitor numbers from the host IT company to determine the most visited webpages and use this information to structurally redesign the website so that the most visited areas are more prominent.
- Ensure the website is appropriate for dial-up users (i.e., limit flash features).
- Include information other than just PDFs of P&E materials. For example, have a graphic image of waste set-out at the curb and have a mouse-over or link to each of the material types. Interactive graphics are known to better engage learners.
- Update the site with new information, such as diversion statistics. The excellent performance of the County's current diversion system is not promoted well on the site. The County and its residents need to understand and feel proud of their current efforts.
- Add graphics, pictures, cartoons and other materials (e.g., posters from a school contest) on the website for visual interest.

While these changes are not significant, they should result in a website that is more user-friendly. As well, providing updated waste diversion statistics to residents is an additional encouragement for ongoing participation in diversion programs.

12.4 PROPOSED SWMS P&E STRATEGY

While the County provides sufficient information to residents in their current P&E activities, information alone will not encourage residents to change their behaviours and increase diversion rates. In order to effectively implement the initiatives set out in the recommended Strategy, a new P&E strategy is required which will focus on motivating behavioural changes.

12.4.1 Range of Media Types

There are six key media types that are used in P&E programs, namely print, hotlines, websites (and other electronic media), radio/television, presentations, and other products and tools. As noted in Section 12.1, these methods have been generally employed by the County in current promotional initiatives. Some of the new initiatives that are recommended, will require very specific P&E methods while others are more general and a range of media types could be used.

12.4.1.1 Print Media

Print media can be one of the most cost effective means of promoting waste management plans. Large quantities of print materials can be produced quickly and disseminated in a variety of ways. Most commonly, print media includes waste collection calendars, various brochures and pamphlets, newsletters, door hangers, oops stickers, stickers/posters/magnets, progress reports, and inserts into water/tax bills.

[18] Association of Municipal Recycling Coordinators. 2007. *Recycling Program Promotion and Education Workbook.* Available on-line at: http://www.stewardshipontario.ca/bluebox/pdf/eefund/reports/68/PE_Workbook.pdf.

Although P&E should be focused on encouraging behavioural changes, some aspects of waste management are complex and P&E materials will need to be information based to provide details as to how to divert waste properly. In this instance, brochures, pamphlets, and the waste calendar can be useful tools. The Curbside Collection Calendar and Managing Your Waste newsletter currently in use by the County are examples of using print media to provide direction to residents for proper sorting of recyclables, garbage limits, and green bin restrictions. Door-to-door distribution of information for targeted promotional campaigns, are also beneficial as these documents will not be mixed up with "junk mail" and it also provides an opportunity for direct contact with residents. Inserts of brochures or pamphlets into water/tax bills or annual bag tag mail-outs may signify the importance of waste management and that there is a cost to providing the service.

Oops stickers are those that are left behind by collection staff when a resident has not complied with waste set out instructions. Oops stickers are an effective method of informing the resident as to why their materials were left behind rather than simply leaving waste on the curbside with no indication of why it was not collected. Stickers are generally low-cost but provide an opportunity to increase the effectiveness of diversion programs.

Advertisements in widely read newspapers are also a cost effective means of informing a large number of people about new program launches or reminders of how to sort waste properly. For example, newspaper ads can be focused and specifically target a material with a low capture rate. In Simcoe County, newspaper ads are used as reminders for special collection days (Figure 12-3). In addition to advertisements, staff can offer to be interviewed by reporters to have waste management issues highlighted in an article. An article in a newspaper can be an effective way of introducing new programs to a community. Effective media relations include press releases, editorial board sessions and provision of photo-opportunities. Consistent, regular and positive media attention is an excellent and lower cost means of attracting the interest of residents in the County's programs.

Figure 12-3 Example of Simcoe County Newspaper Ad

A newsletter such as Managing Your Waste or progress report, are useful tools to provide updates on programs and initiatives. Informing residents of their accomplishments may encourage even further diversion. A newsletter/progress report also provides an opportunity to target problem materials. The newsletter need not be dedicated specifically to waste; local municipalities and other community groups (e.g., service clubs, churches, associations, etc.) may already have newsletters and be open to allowing articles regarding waste management in their publication.

Stickers/magnets/posters are promotional items that are most often used to support a primary campaign as done by the County in 2008. The messages are generally short and catchy and grab an individual's attention. However, if not done properly these items will be recycled or thrown out. Although these types

of promotional items are not the main focus of P&E programs, they do form an integral part of any campaign. Best practices literature identifies consistent and repetitive messages as a key approach toward changing behaviours and habits.

12.4.2 Hotlines

A hotline is the phone number that residents can call if they have questions or concerns regarding waste management. Considering the County already has a hotline in place, there are some key training measures that can be undertaken to ensure the caller is satisfied with the information provided. These measures include[19]:

- Provide training for hotline staff, particularly on how to deal with difficult situations.
- Randomly testing staff to determine the currency and accuracy of the information they provide and their general attitude towards the caller (i.e., friendly).
- Keep staff current with all program developments.
- Prior to implementing a new program, the hotline staff should be asked to provide comment on promotional materials as the questions that they ask and issues they note may be more reflective of the types of issues that could be raised in the community.
- Provide staff with a list of frequently asked questions and answers (Q&A) that can easily be searched through to locate the caller's question. Ask for feedback on the Q&A, both for common questions that need to be anticipated, and also on the usefulness of the answers.
- Continue to update the list of frequently asked questions by having hotline staff provide a list of questions asked.
- Communicate key messages with hotline staff.
- Track the questions asked to determine if there is a lack of information regarding a particular aspect of a program.

12.4.3 Website

Websites are a critical point of contact with the public, as the majority of households have access to a computer. When visiting a website, users want to be able to locate information quickly. If an email address for additional information is provided, users will also expect a timely response. A key point is that a website is a different tool than the brochures, pamphlets, and other print items that are distributed to the public[19]. There are many features available on a website that can make for an interactive experience.

Other on-line social media are available that are suitable for educating the public regarding waste management. Myspace, Facebook, podcasts, various on-line forums, and blogs can be excellent tools for communication and are especially applicable to the younger demographic who are likely to access information on-line. Generally, social media are free or low cost and would only require staff time to update the webpage and provide responses. An example of the use of social media for waste management comes from the City of Houston, Texas. Houston uses Facebook to provide waste management information and also to respond to residents' questions and comments.[20]

[19] These measures were taken from: Association of Municipal Recycling Coordinators. 2007. *Recycling Program Promotion and Education Workbook.* Available on-line at: http://www.stewardshipontario.ca/bluebox/pdf/eefund/reports/68/PE_Workbook.pdf.
[20] The City of Houston's Facebook page is available at: http://www.facebook.com/pages/City-of-Houston-Solid-Waste-Management/140786392131

12.4.4 Radio and Television

Local radio and television stations can be a valuable source of information for the public. To be effective, radio and television ads need to be repeated often and have enough impact to encourage people to view them in their entirety. In a study completed for the City of Hamilton, residents recalled seeing television ads (52%) more than any other form of P&E[21]. Survey participants recalled radio ads at 7% (the third highest recall rate).

The County of Simcoe has used radio and television in the past to publicize important waste management events/issues. Radio stations located within Simcoe include Peak FM, 97.7 The Beach, Rock 95, Kool FM, and The Dock. The A Channel and Rogers Cable, on channels 10 and 53, offer some local programming. Potential programs that may be interested in reporting on waste management in the County include First Local, Simcoe Living, and Talk Local.

12.4.5 Presentations

Another effective method of communication is to have staff or other "program champions" deliver presentations to community groups or schools in order to meet with people where and when they are already meeting rather than holding a special meeting at a time and place when people may not attend. Although municipal meetings would involve residents attending the meeting at a designated place and time, it still provides an opportunity for residents to interact with staff. By meeting with smaller groups of residents, presenters can specifically tailor the presentation to meet the audience's needs. Any concerns and questions can be answered during the discussion period of the presentation.

"Program champions" can include individuals who are already active in promoting waste management within Simcoe County, volunteers, or even co-op students. By learning from other County residents, presentation attendees may be more receptive to key messages than if they were delivered by County staff.

12.4.6 Other Products and Tools

There are many opportunities to interact with the public that do not involve formal mail-outs or presentations. For example, displays can be set-up at malls, fairs, community centres, or in other areas that are frequented by residents. Staff available at the display could answer any questions, and promotional items could be distributed to garner public attention.

Parades show community spirit and involvement of a municipality would show that the waste program is part of the community. Creating waste diversion "characters" would help grab the attention of younger residents and portray waste management as "fun".

Use of the County's MEU will be a valuable tool for reaching County residents and will be particularly appealing to younger audiences, providing many educational opportunities.

[21] Informa and Ehl Harrison Consulting Inc. 2006. *Blue Box Recycling Public Opinion Survey: Benchmark Report.* Available on-line at: http://www.stewardshipontario.ca/bluebox/pdf/eefund/reports/125/125_phase1_report.pdf.

12.5 ENGENDERING BEHAVIOUR CHANGE

Effective promotion and education of waste reduction and reuse initiatives should be based on the development of a communications plan that adopts a community-based social marketing approach. Four behaviour change tools can be used, including tools that: appeal to the norms, prompts, commitments, and maintaining behaviour change.

Did you know? In the 2006 audit, aluminum plates and foils had the lowest diversion rate of all material types (12%)

Figure 12-4
Proper Set-out of Wastes

Figure 12-5
Improper Set-out of Wastes

Figure 12-6
Gold Box

Appealing to norms attempts to encourage residents to behave similarly to others in their neighbourhood. There are two types of norms, descriptive norms and injunctive norms.

Descriptive norms provide examples of what is commonly done. Descriptive norms reinforce that waste diversion through recycling and organics is normal and if a resident is not diverting waste, then he/she is not normal (see Figure 12-4 and Figure 12-5). Injunctive norms focus on what should, or should not be done and does not specifically target behaviours. For example, injunctive messages would focus on the benefits of recycling and environmental awareness. Simcoe could appeal to the norms by targeting specific material types that are not achieving a high level of diversion. In this way, if a resident is not targeting that material, then they would not be considered "normal".

Prompts remind individuals to recycle and place organics in the green bin. Reminders can be stickers, magnets or even the recycling or green bin itself. Other prompts can direct residents as to which materials belong in the proper receptacle. The City of Hamilton promotes recycling and provides a visual prompt to its residents through the Gold Box Program (see Figure 12-6). Through the Gold Box Program, residents who achieve a high level of diversion (determined through a waste audit of their waste set-out), receive a gold box for their recyclables. The gold box provides a visual cue to other residents that they too can receive a gold box if they divert their waste properly.

Commitments include pledges that residents can take to agree to take action towards waste diversion and reduction. By making a public statement about his/her intentions, then the person taking the pledge is more likely to follow through with their commitment. In Simcoe County, residents could take a "Zero Waste" pledge that could be posted on the County's website. Those taking the "Pledge" could be sent a special package of "tools" including prompts to help them modify their behaviour at home and at work.

While appealing to the norms, prompts, and commitments are useful to enacting a change, it is crucial to maintain the change in behaviour. Residents need to have feedback and reporting on how well they are doing and have the acknowledgement that their actions are making a difference. Simcoe County currently has one of the highest diversion rates in Ontario. This information

should be shared more with residents and celebrated. Media events, notices on the front page of the municipal website, regular reporting through graphics on the waste management webpage would all be useful means of providing this feedback.

12.6 COMMUNICATIONS PLAN

A communications plan is a vital component of the SWMS. The communications plan will ensure a coordinated approach for the implementation of the reduction, diversion and disposal initiatives. Without a communications plan, messages may be released to the public in a piecemeal fashion, which will not have as great of an effect as a coordinated outreach program. Effective communications plans contain four primary elements: design, funding, deployment, and monitoring and evaluation.[22]

The design of any promotional campaign should be based on the overall communications plan. Goals and objectives should be identified to ensure the approach taken is in concordance with the SWMS. Since each audience may have different requirements, it is important to consider the target audience. For example, adults and children may require very different messages with different formats for communicating the message. It is also important to consider who should be targeted. Studies have identified women as the main recyclers within a household,[5,23,24] and therefore, women should be one of the main targets for key messages. Not only is it important to target individuals to whom key messages should be directed, it's also important to consider targeting campaigns to specific areas of a house. The same studies identified above found that most recyclables were generated in the kitchen where there is easy access to recycling receptacles. Few recyclables are collected in other areas of a home, in part due to fact that recycling containers are generally not placed in bathrooms, bedrooms, livingrooms, etc. Tactics, timing and plans for monitoring and evaluating the success of the promotional campaign should also be considered during the design phase.

Funding is a necessary component of any promotional campaign; however the effective use of a budget is even more critical. The KPMG report (2007) found a correlation between an increase in spending and an increased level of recovery for recycling programs in Ontario. The KPMG report also found that in Ontario, eight well performing programs in 2005 that were achieving a 60% capture rate or higher, spent approximately $0.83 to $1.18 per household. In Section12.1, Simcoe's costs for the P&E programs in 2006, 2007, and 2008 were noted. Simcoe County was spending within and above the amounts identified in the KPMG report in 2006 and 2008, but was below in 2007, and achieved similar recycling capture rates.

Once a campaign is designed and funded, its deployment should use a mix of media including strategies such as radio or TV, calendars, websites, public relations, and other interactive methods such as those described in Sections 12.4.1through 12.4.6. Sustained programs, with year-round exposure are identified as a best practice and are preferable to campaigns that are a one-time blitz.

[22] KPMG, R.W. Beck. 2007. *Blue Box Program Enhancement and Best Practices Assessment Project – Volume 1*.
[23] Informa and Ehl Harrison Consulting Inc. 2006. *Blue Box Recycling Public Opinion Survey: Benchmark Report.* Available on-line at: http://www.stewardshipontario.ca/bluebox/pdf/eefund/reports/125/125_phase1_report.pdf.
[24] McConnell Weaver Communication Management. 2006. *Stewardship Ontario Effectiveness and Efficiency Fund Project 105: Enhanced Blue Box Recovery Strategy Communication Pla*n.

Following deployment of the campaign, the monitoring and evaluation plan developed in the design stage should be implemented. Assessing the success or failure of a campaign can lead to improvements in the next campaign and elimination of those elements that were not conducive to P&E. For example, to monitor the success of P&E programs spikes in capture rates or overall annual tonnages of recyclables collected should be examined.

The SWMS proposes a number of initiatives to be implemented during the first five years of the Strategy. Using the various P&E methods described above, suggested P&E approaches for the implementation of each initiative is described below in Table 12-1.

These suggested approaches would be confirmed through the development of communications plan(s) by the County on an annual or campaign specific basis. Generally the County could consider developing an annual Communications Plan in discussion with internal experts within the County, the timing of which would coincide with budget development. This would set the stage for the implementation of various promotion and education initiatives throughout the year. In some cases (e.g., roll out of a full “User Pay” garbage program), a specific communications plan for specific significant initiatives should be developed.

12.7 RESOURCES

As noted in Section 13, the annual budget allocation for additional diversion consists largely of funds for promotion and education, and should be in the order of $7 or more per household over the first five years of implementation.

In order to support the promotion and education program, dedicated staff resources will be needed. Currently, staff within the solid waste division collectively work on promotion and education initiatives, with the assistance of the County’s Communications Department. However, general solid waste staff workload is expected to increase, based on the range of activities required including procurement processes needed to implement the recommended system. A dedicated staff resource in the form of a “Promotion and Education Coordinator” will be essential for the successful implementation of the P&E activities. At times, the work of this coordinator would need to be supplemented by summer or co-op students or other temporary help, based on the specific campaigns that are being developed and implemented.

Table 12-1 Communications Plan

Recommendation	Year Implemented	Year of P&E Program	Target Audience of P&E	Suggested Promotional Activities																								
				Newspaper Articles	Brochures	Oops Stickers	Newsletters	Annual Calendar	Hotline	Stickers/Magnets/ Posters	Door Hanger	Speaking Engagements	Public Service Announcements	Mobile Education Unit	Information Meetings	Progress Reports	Website/Social Media	Door-to-door Delivery of Brochure	Tax and Water Bill Inserts	Person Contact for Violators	Event Displays	Parades	Media Advertisements	Outdoor Signs	Promotional Items	Media Releases	Mascot
Reduction and Reuse																												
P&E initiatives to promote reduction and reuse.	Year 1 and ongoing	Year 1 and sustained	General and targeted to schools, community groups, etc.	✓			✓	✓				✓	✓	✓		✓	✓			✓	✓				✓		✓
Towards Zero Waste	Year 1 and ongoing	Year 1 and sustained	General	✓			✓	✓				✓	✓	✓		✓	✓			✓	✓				✓		
Restrictions on curbside garbage set-outs.	Years 2 and 3 and ongoing	Year 3	General	✓		✓	✓	✓		✓			✓				✓			✓	✓		✓	✓			
Establish a Per Capita Waste Reduction Target.	Year 1 and ongoing	Year 1	General				✓	✓		✓						✓	✓						✓				✓
Develop Re-use Centres, Programs and Partnering Initiatives																												
Develop and implement pilot re-use events in key supporting communities.	Years 2 and 3 and ongoing	Years 2 and 3	Targeted to specific communities	✓			✓								✓		✓	✓					✓	✓		✓	
Promote any new permanent re-use centre(s) at County facilities.	Years 2 and 3 and ongoing	Only required if implemented	n/a																								
Implement a Green Procurement Policy for County Facilities																												
Green procurement development committee formed.	Year 1	Year 1	Advertise for interested individuals to sit on committee.				✓						✓										✓			✓	
Green procurement strategy approved and implemented.	Years 2 and 3 and ongoing	Year 3	General													✓											
Endorse Extended Producer Responsibility and waste minimization legislation.	Year 1 and ongoing	Year 1	General													✓										✓	
Additional Diversion																												
Enhance Existing Waste Diversion Depot Program																												
Promote separate bulky goods drop-off areas.	Years 1 and 2 and ongoing	Years 1 and 2	General				✓	✓									✓						✓	✓		✓	

Recommendation	Year Implemented	Year of P&E Program	Target Audience of P&E	Suggested Promotional Activities																						
				Newspaper Articles	Brochures	Oops Stickers	Newsletters	Annual Calendar	Hotline	Stickers/Magnets/ Posters	Door Hanger	Speaking Engagements	Public Service Announcements	Mobile Education Unit	Information Meetings	Progress Reports	Website/Social Media	Door-to-door Delivery of Brochure	Tax and Water Bill Inserts	Person Contact for Violators	Event Displays	Parades	Media Advertisements	Outdoor Signs	Promotional Items	Media Releases	Mascot
Promote New textile drop-off bins.	Years 1 and 2 and ongoing	Years 1 and 2	General																				✓		✓	
Promote additional depots at any new diversion or transfer facilities.	Years 4 and 5 and ongoing	Year 5	General				✓	✓									✓						✓	✓		✓	
Clear Garbage Bag Program	Years 4 and 5 and ongoing	Year 5	General	✓	✓	✓	✓				✓			✓			✓			✓	✓		✓	✓		✓	
Increase in Recycling Container Capacity (including delivery of new containers)	Year 2	Year 2	General				✓	✓															✓	✓		✓	
Bi-weekly Garbage Collection	Years 3 and 4 and ongoing	Year 4	General	✓		✓	✓	✓		✓						✓	✓	✓					✓	✓		✓	
Enhanced Advertising, Promotion and Education.	Year 3 and ongoing	Year 3	General	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Public Open Space Recycling Program																											
Pilot expansion in one or more municipalities.	Years 2 and 3	Years 2 and 3	Targeted to specific municipalities	✓								✓	✓		✓						✓		✓	✓		✓	
Implement across County.	Years 4 and 5 and ongoing	Years 4 and 5	General	✓				✓				✓	✓		✓	✓	✓				✓		✓	✓		✓	
Special Events Recycling Program																											
Pilot expansion in one or more municipalities.	Years 2 and 3	Years 2 and 3	Targeted to specific municipalities	✓								✓	✓		✓						✓		✓	✓		✓	
Implement across County.	Years 4 and 5 and ongoing	Years 4 and 5	General	✓				✓				✓	✓		✓	✓	✓				✓		✓	✓		✓	
Examine Diversion of IC&I Materials																											
Expand diversion services for target IC&I generators (schools, hospitals, etc.).	Years 1, 2 and 3 and ongoing	Years 1, 2, and 3	Targeted to IC&I												✓			✓									
Investigate and implement uniform level of curbside diversion service for IC&I generators.	Years 2 and 3 and ongoing	Years 2 and 3	Targeted to IC&I												✓			✓									
Mandatory Diversion By-law																											
Council approval	Years 2 and 3	Years 2 and	General	✓		✓	✓	✓		✓		✓			✓					✓	✓		✓	✓		✓	

Recommendation	Year Implemented	Year of P&E Program	Target Audience of P&E	Suggested Promotional Activities																						
				Newspaper Articles	Brochures	Oops Stickers	Newsletters	Annual Calendar	Hotline	Stickers/Magnets/ Posters	Door Hanger	Speaking Engagements	Public Service Announcements	Mobile Education Unit	Information Meetings	Progress Reports	Website/Social Media	Door-to-door Delivery of Brochure	Tax and Water Bill Inserts	Person Contact for Violators	Event Displays	Parades	Media Advertisements	Outdoor Signs	Promotional Items	Media Releases	Mascot
and phased implementation of by-law.	and ongoing	3																								
Recycling Approaches and Technologies																										
Potential shift to Single Stream recycling	Years 5 and 6	Year 6	General	✓		✓	✓			✓	✓	✓		✓	✓		✓		✓		✓	✓		✓	✓	✓	✓
Potential addition of recyclable materials	Maybe year 2 if new processor for short term contract can accommodate more material types	Year 2	General	✓			✓			✓		✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Composting																										
Potential addition of new organic materials	Year 5 and ongoing	Year 5	General	✓			✓			✓		✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Collection																										
Change in Service to Seasonal Households	Year 1 and ongoing	Year 1	Targeted to Seasonal Households			✓			✓			✓			✓		✓	✓	✓	✓	✓		✓	✓		✓	
Common minimum level of leaf and yard waste collection.	Year 1 and ongoing	Year 1	General	✓			✓			✓		✓	✓			✓	✓	✓	✓		✓	✓	✓	✓		✓	
Christmas tree collection in areas with urban density.	Year 1 and ongoing	Year 1	General	✓			✓			✓		✓	✓			✓	✓	✓	✓		✓	✓	✓	✓		✓	
Potential phasing out of bulky goods and phasing in of enhanced depot services.	Year 1 and ongoing	Year 1	General	✓			✓			✓		✓	✓			✓	✓	✓	✓		✓	✓	✓	✓		✓	
Phasing out of metals collection; remove tipping fee for drop-off of metals at depots.	Year 1 and ongoing	Year 1	General	✓			✓			✓		✓	✓			✓	✓	✓	✓		✓	✓	✓	✓		✓	

13.0 COST AND FINANCING STRATEGY

Over the course of the study, various Strategy documents including the Draft Task F Report (March 22, 2010), and the Draft Task G, I, J Technical Memo (April 25, 2010) , provided an overview of some of the component costs associated with the options considered in the development of the SWMS and the cost implications of the recommended strategy components.

In order to develop total system for the recommended SWMS costs, the following activities were undertaken and outlined in the Task H Technical Memo:

1. Updated cost estimates were developed for a number of system components including:

    a. Detailed estimates for the reduction, reuse and additional diversion components as discussed in Section 13.3.2. This included developing the estimates for both the added expense and the potential revenues, that could result from any of the three proposed options for restricting curbside waste (full user-pay, one bag restriction, increased bag tags costs for additional bags);

    b. Estimates for the haul and processing of recyclable materials in the short term were reviewed and adjusted where necessary, as were the longer-term estimates for the capital and operating costs for a new County MRF as presented in Section 13.3.3. Revenue projections were updated with more recent 'basket of goods' revenue data reported by similar municipalities in Ontario. Projected WDO revenues were also updated to represent 40% of net system costs.

    c. Estimates for the haul and processing of organic materials in the short term were reviewed and adjusted where necessary. Updated longer-term estimates for smaller (25,000 tpy County-only) and larger scale (50,000 tpy) composting facilities were developed. Both are presented in Section 13.3.4.

    d. Collection system modeling was completed, in order to develop projected collection costs for the next collection contract that would come into effect in mid-2012. The outcome of the modeling for a new County-wide collection contract and the resulting cost estimates for the recommended Uniform Level of Collection Service are presented in Section 13.3.5.

    e. Transfer costs were reviewed. Given the potential variations for transfer requirements in the short and long-term, general assumptions were developed for application in determining overall recycling, organics and garbage management costs.

    f. Potential disposal costs were reviewed, and reasonable cost estimates were developed for each of the recommended disposal options for the short and long-term as discussed in Section 10.0. This included development of updated cost estimates for garbage processing, taking into account the reported ranges of capital and operating costs for the

variety of technologies examined in the Draft Task F Report. For the purpose of developing some future cost projections that reflect the potential for the County to proceed independently with smaller-scale processing or to work in partnership with larger-scale processing, estimates were developed for one of the technologies (conventional combustion) to demonstrate the effect that either approach could have on the system.

2. The County's 2010 waste management budget and financing approach were reviewed and analyzed as presented in Section 13.1. The 2010 budget was used as the base for the majority of system cost projections. In addition, current information regarding the projected costs associated with the long-term closure and post-closure care costs for all of the closed landfills that are the County's responsibility were reviewed. The current method of financing the solid waste management budget was assessed, including the proportion of the budget funded from reserves, the Waste levy and the County levy. Current financing methods form the base for the comparison of financing options for the Strategy.

3. A reasonable method to evaluate cash flow and net present value of waste system costs was developed and applied. The results of this analysis are presented in Section 13.4. A number of waste management system scenarios were developed in order to undertake a comparison of the potential system costs that could result through the implementation of variable components of the Strategy. In addition, a baseline or 'status quo' scenario, reflecting the continuation of the current waste management system was developed and a version of the status quo with a new County-wide collection contract was subsequently developed, to provide a basis of comparing the recommended system from both a cash flow and a net present value (NPV) perspective.

4. Short and long-term financing options to address the net system costs were identified and discussed. The potential for generation and use of reserve funds and the potential use of reserves and other funding sources to finance capital costs and/or offset annual net system costs was reviewed, to identify reasonable methods of reducing the potential for variation in the annual waste management system costs recovered through the Waste and/or County Levy. The results of this financing review are discussed in Section 13.5.

13.1 CURRENT WASTE MANAGEMENT COSTS AND FINANCING APPROACH

13.1.1 Summary of Current Costs (2010 Budget)

Table 13-1 below, presents a summary of the 2010 operating budget for Solid Waste Management Services, as approved by Council. This budget is otherwise presented and/or discussed as the 'Collection' budget, and includes all costs and revenues that are used to determine the Waste Levy that is recovered from the local municipalities. It does not however include all operating costs for waste disposal, only the portion of these costs that is recovered through the Waste Levy.

In order to provide a basis for comparison of costs associated with individual waste management activities, the costs included in the operating budget were grouped in accordance with the notes following the table.

Table 13-1 2010 Solid Waste Management Services Budget - Operating Budget Summary (Collection)

Expenses	**2010 Budget**
General Administration (1)	$954,492
Promotion & Education (2)	$170,000
Garbage Collection (3)	$5,659,865
Recycling Collection, Haul & Processing (4)	$5,808,529
Organics Collection, Haul & Processing (5)	$3,203,193
Disposal Charge (for curbside collected garbage) (6)	$4,803,251
Debt Repayment (7)	$934,243
Sub-total	**$21,533,573**
Revenues	
Bag Tag Revenue (8)	($485,890)
Recycling (Material Sales, WDO funding) (9)	($2,106,400)
Misc. Revenue (10)	($6,750)
Sub-total	($2,599,040)
Net Cost (prior to Waste Levy)	**$18,934,533**
2010 Waste Levy	**($18,934,533)**

NOTES:
(1) General Administration includes: all non-facility based waste management salaries and staff support costs (supplies, general vehicle use) and a small transfer to reserves ($66,441)
(2) Promotion and Education includes: advertising, promotions and printing.
(3) Garbage Collection includes: the cost for garbage collection, bulky item collection, and litter bin collection.
(4) Recycling Collection, Haul and Processing includes: the cost of supplying blue boxes and carts, blue box collection, metal collection and the cost of operating the North Simcoe MRF.
(5) Organics Collection, Haul and Processing includes: leaf & yard waste collection costs, organics collection costs, organics haul costs and organics processing costs.
(6) Disposal Charge: is the application of a $115/tonne charge on the Waste Levy for each tonne of curbside waste estimated to be disposed in 2010 based on 2009 year-end tonnages. This charge is applied in-lieu of recovering actual net facility costs from the Waste Levy.
(7) Debt Retirement: is the repayment of reserve funds used to roll-out the organics program in 2008 and recovered over three years (2008 to 2010).
(8) Bag Tag Revenue: is the estimated revenue from the sale of bag tags sold across the County (except Adjala Tosorontio).
(9) Recycling Revenue: includes WDO grants ($1,775,400 estimated), estimated revenues from the sale of blue boxes and carts, and estimated material sales ($250,000) from the North Simcoe MRF.
(9) Misc. Revenue: includes revenues from the sale of organics containers.

Table 13-2 below, presents a summary of the 2010 operating budget for disposal. This budget is often presented as the 'Facilities' budget, and includes all costs and revenues associated with the operations that take place at the various landfills and transfer stations that are included in the County's current solid waste system. Included in this budget under revenues, is the 'disposal' component of the Waste Levy, which is essentially determined by applying a 'tipping fee' of $115/tonne to the estimated tonnes of curbside waste and organics managed at the sites as originating from the various municipalities.

Table 13-2 2010 Solid Waste Management Services Budget - Operating Budget Summary (Disposal Facilities - Landfills, Transfer Stations, Grinding, HHW, Fleet)

Expenses	
Administration	$3,336,411
Operating Landfills	$3,934,978
Transfer Stations	$3,506,318
Closed Landfills	$821,422
Grinder Operations	$126,119
HHW	$690,341
Fleet Operations	$889,802
Sub-total	$13,305,391
Revenues	
WDO Grants (HHW)	($500,000)
Rentals	($31,500)
Commercial tipping fees	($800,000)
Compost Sales	($22,000)
Residential tipping fees	($2,600,000)
Disposal Charge	($4,803,251)
Fines/Service Charges	($16,000)
Scrap Metal Sales	($100,000)
Sub-total	($8,872,751)
Net Cost (prior to cost recovery)	**$4,432,640**
Cost Recovery from 2010 Simcoe County Levy	**($4,432,640)**

The third component of the 2010 budget is the capital budget for the current solid waste management system. Currently, the County determines capital requirements on an annual basis for many system components. Long-term projections also exist for the closure and post-closure care requirements for both the closed and operating sites; however, it is not clear that these projections are necessarily included in the annual capital budget requirements. Table 13-3 presents an overview of the 2010 Capital Budget.

Table 13-3 2010 Solid Waste Management Services Budget - Capital Budget Summary

Expenses	**2010 Budget**
Collections	
Collections Program with Board of Education	$325,000
Mobile Education Unit	$75,000
Front Load Recycling Bins	$195,500
Sub-total	$595,500
Facilities	
Additions to Fleet & Equipment	$1,120,000
Site 8 Closure Plan & Transfer Station	$270,000
Site 52 New Diversion Areas	$150,000
South Simcoe Transfer Station CAZ	$1,500,000
Site 25 Pilot Dig & Dump Project	$490,000
Sub-total	$3,530,000
Total Capital Budget 2010	$4,125,500
Capital Funding	
Waste Management Reserve	($3,530,000)
Simcoe County Levy	($595,500)
Total Capital Funding 2010	($4,125,500)

In order to develop projections for the waste management system costs, the expenses and revenues associated with the 2010 operating budgets for collection and facilities were summarized. Table 13-4 presents the "Year 0" or 2010 expenses and revenues associated with the full waste management system, for each of the major system components.

Table 13-4 Total 2010 Operating Budget

Expenses	**Strategy Year 0**
General Administration	$954,492
Promotion & Education	$170,000
Garbage Collection	$5,659,865
Recycling Collection, Haul & Processing	$5,808,529
Organics Collection, Haul & Processing	$3,203,193
Landfill Administration and Fleet	$4,226,213
Operating Landfills	$3,934,978
Transfer (depots), HHW, Grinding	$4,322,778
Closed Landfills	$821,422
Waste Export (Transfer/Haul/Tipping Fees)	$0
Debt Repayment	$934,243
Sub-total	**$30,035,713**
Revenues	
Bag Tag Revenue	($485,890)
Recycling Revenues (WDO grants, material sales, blue box sales)	($2,206,400)
Organics (container sales, compost sales)	($28,750)
HHW and other WDO Program Revenues	($500,000)
Tipping Fee Revenues	($3,400,000)
Other (rentals, fines)	($47,500)
Sub-total	**($6,668,540)**
Net Cost (prior to Waste and County Levies)	**$23,367,173**
Recovery Via the Waste Levy (collection costs & a portion of disposal)	**($18,934,533)**
Recovery Via the County Levy (net facility costs)	**($4,432,640)**

13.2 CURRENT FINANCING MECHANISMS (2010 BUDGET)

13.2.1 Overview

There are a few key general sources of financing that are used to recover the costs of the County's current waste management system. General sources of financing are those potential revenue streams that are not specific to any one waste management program component, and thus can be used to allocate and recover net program costs from the taxpayer either directly (e.g., tipping fees) or indirectly (e.g., through property taxes).

These general financing sources do not include specific revenue streams that are associated with a key program, such as the WDO funding provided to support the blue box and HHW programs, or specific material revenues. These revenue sources can be generally regarded as means of reducing the net costs of the system that have to be financed through one or more of the general cost recovery mechanisms.

The general financing sources currently used by the County include:

1. Bag tag revenues: which are a revenue source that is not associated with any one specific cost component of the system.

2. Tipping fee revenues: are general a revenue source, in that while they are specifically collected in regards to the use of the County's disposal system (either landfills or transfer stations), the value of the tipping fees is not necessarily associated with the net cost of managing the material at the landfill or transfer station.

3. The Waste Levy: is a revenue source, used to allocate specific components of the waste stream to the local municipal 'users' of the County's waste management system. The waste levy has two key components. The 'disposal' portion in which a 'tipping fee' of $115/tonne is applied to the specific projected residential curbside garbage and organic material quantities managed in the County's system, on a municipal specific basis. The rest of the waste levy is determined by the allocation of municipal specific collection contract costs, revenue sources etc.; and thus varies between municipalities.

4. The County Levy: is a revenue sources that is used to address the operating facility costs that have not been specifically allocated through the waste levy as well as capital costs that have not been financed through debenture or reserves.

5. The Waste Management Reserve: is used as a source of financing for various capital costs, primarily smaller capital cost components which based on the asset life, would be unreasonable to debenture.

The following sections provide additional information regarding these key sources of financing for general waste management system costs.

13.2.2 Current Tipping Fee Structure

The current tipping fee structure was last updated as of September 1, 2009. It includes fees applied by weight at the six County facilities (four operating landfills, two transfer stations) with weight scales and fees that are applied by volume at the two County transfer facilities without scales. The fee schedule can be accessed through the County's website at http://www.simcoe.ca/ws_cos/groups/public/@pub/@cos/@corps/@wm/documents/web_content/wscos_004500.pdf.

The fee schedule also differentiates between the rates applied to some material types (primarily regular garbage) received at the operating landfills versus the transfer stations. A brief summary of some of the key per tonne fees that were subject to review are as follows:

- Regular garbage: $115/tonne landfills; $155/tonne transfer stations;
- Construction Demolition waste (shingles, drywall): $115/tonne at both landfills and transfer stations;
- Wood, brush, scrap metal and rubble: $55/tonne at both landfills and transfer stations; and,
- Leaf and yard waste: $35/tonne.

As of May 1, 2001 the County began charging differential tipping fees for the disposal of wood waste, brush, and metals under its "Mixed Waste Policy". Loads which contain recoverable material but are not sorted appropriately for diversion are charged twice the basic tipping fee. The contractors are bound to the County's "Mixed Waste Policy" and are responsible for any surcharges resulting from the policy. One area that will be subject to change as discussed in the Strategy, is the potential to change the mixed waste policy to in effect implement a ban on disposal of materials that could otherwise be diverted. Section 13.5 provides further discussion on potential changes to the mixed waste policy and tipping fees.

As noted in the tipping fee schedule, the County of Simcoe applies a minimum $5.00 charge for all vehicles entering a waste management site containing chargeable material. One subject for discussion for future financing is this minimum charge as there could be benefits associated with increasing this charge to $10 per vehicle, both from a financing standpoint and through increased operational efficiency at the operating landfills and transfer stations. Section 13.5 provides some additional discussion regarding this potential change to the system.

There is no charge for separated electronic waste, household hazardous waste, and tires. In addition, blue box recyclables (separated to cardboard, fibres, and containers), and residential loads of brush and yard waste to a maximum of 200 kilograms can be deposited at the appropriate area of the waste management facility for no charge. The Strategy also recommends that there should be no charge for separated metals. The potential ramifications of this recommendation are discussed in Section 13.5.

13.2.3 Current Container Limits and Bag Tags Approach

The following table (Table 13-5

Table 13-5) provides an overview of the current specifications for garbage, including the application of bag tags for additional containers above the current 1-bag limit.

Table 13-5 Collection Specifications for Garbage

Garbage	
Container	Rigid containers or bags
Maximum Capacity	77 L for containers Bags, 90 cm x 75 cm and 77 L
Maximum Weight	20 kg
Limit	1, additional garbage must have a tag affixed

Tags are not permitted in the Township of Adjala-Tosorontio as this community endeavours to encourage diversion.

Garbage tags can be purchased at 165 locations within the County at a cost of $2.00 per tag, and tags must be purchased in sheets of five. For collection days following Victoria Day, Thanksgiving, and Christmas, two bags of garbage are permitted without the requirement of bag tags.

Table 13-6 provides an overview of bag tag sales since 2005. After many years of declining sales, the sale of tags increased in the latter half of 2008 due to the implementation of the 'one-bag limit' per week. The budget for bag tags in 2009 was double that for 2008 (in the order of $2 per household), and sales of bag

tags exceeded the budget for the year. For 2010, the budget for bag tag sales was set to reflect 2009 sales.

Table 13-6 Bag Tag Sales, 2005 to 2010

Year	Bag Tag Sales
2005 Actual	$433,600
2006 Actual	$360,300
2007 Actual	$303,000
2008 Budget	$225,000
2008 Actual	$352,500
2009 Budget	$450,000
2009 Actual	$480,947
2010 Budget	$485, 900

The Strategy includes the potential to either move to a full user pay approach, or to increase the cost of the bag tags, in order to encourage waste diversion and minimize curbside garbage. Both options have the potential to increase the revenue from bag tag sales and would play a long-term role in system financing. The Strategy also includes consideration of a firm one-bag limit, which would result in discontinuing the bag tag sales and thus removing a revenue stream which would have to be offset by other revenue sources. Further discussion of these options and the potential effect of these options on projected system costs and revenues, is provided in Sections 13.4 and 13.5.

13.2.4 Development and Application of the Waste Levy

The Waste Levy is used to allocate specific components of the waste stream to the local municipal 'users' of the County's waste management system. The waste levy has two key components as noted previously.

- The 'disposal' portion is determined through application of the tipping fee for regular garbage at $115/tonne to the specific estimated residential garbage, organics, bulky wastes and optional waste material quantities collected by the County's system, on a municipal specific basis.

- The rest of the municipal specific waste levy is determined through the allocation of municipal specific costs and revenues as follows:
  - Administration fees are allocated based on the percentage of units (i.e., households) served;
  - Collection costs for waste, organics, recyclables and others are allocated based on specific contract costs for each contract area and the proportion of units served in each municipality;
  - Processing costs (organics and recycling) are allocated on the basis of projected tonnes generated by each municipality;
  - Revenues for bag tags are allocated based on estimated sales specific to each area municipality.

As a result, the applied Waste Levy is inconsistent on a per unit (household) basis, although with the exception of specialized collection services, the residents in each municipality generally receive the same level of service. On a per unit basis, the 2010 Waste Levy ranges from $139 (Collingwood) to $195 (Bradford West Gwillimbury) per unit served, with the average levy being approximately $170 per unit.

For consideration in regards to system financing, is the concept of moving to a more uniform per unit waste levy, which could be set at a value to cover both current operating costs, and to establish reserve funds.

There is no consistent method used to recover the Waste Levy from the taxpayers across the County. In some cases it is applied as a uniform charge per residential property, while in others it is folded in with the general levy and is recovered based on the set tax rates and property values across the entire tax base. Further discussion regarding development and application of the Waste Levy in the Strategy is included in Section 13.5.

13.2.5 Cost Recovery through the County Levy

In the 2010 budget, and potentially in future years if the method of developing and applying the Waste Levy does not change, a portion of the net operating cost and some of the capital costs may continue to be recovered through the County Levy. The County Levy is allocated and recovered from all taxpayers on the basis of property value.

Essentially, in the 2010 budget, and in the projected system costs discussed in Section 13.4, there is a portion of the disposal facility costs that would not be covered by the $115/tonne disposal fee component of the Waste Levy. This is particularly true of the projected future costs of the waste system where the proportion of waste disposal costs increases in relation to the rest of the system costs.

To avoid an escalation of the proportion of costs recovered through the County Levy, alternative means of financing the waste management system must be identified.

13.2.6 The Waste Management Contingency Reserve

Based on the approved 2010 budget, the opening balance of the waste management contingency reserve was $4,659,000. The projected contributions to the reserve in the operating budget were $66,000 and the projected draw from reserves to fund capital costs in 2010 was $3,530,000, leaving a year-end balance in the reserve of $1,196,000.

There is currently no framework for continued reserve fund contributions embedded in the budget setting process for waste management. As a result, the reserve does not appear to provide a sustainable source of future capital funding. Without the inclusion of financing mechanisms to provide regular contributions to reserves, there is the potential that projected capital costs for the Strategy, could quickly draw the funds to zero. Section 13.5 includes discussion regarding various mechanisms for regular reserve fund contributions, and discusses the benefits of the use of the reserves to fund future capital and to reduce the potential variability in annual financing requirements over the 20-year planning period.

13.3 RECOMMENDED SYSTEM COST COMPONENTS

13.3.1 Base Waste Management System Costs

As noted in the methodology section, the base for the estimated recommended system cost is the 2010 budget. Cost components that were established largely based on the 2010 budget included the following:

- General Administration Costs: which essentially includes the staff and other administration costs that are not specific to the operations of the disposal facilities. 2010 costs for general administration were carried forward and escalated at 3% per annum.
- Landfill Administration and Fleet Costs: essentially includes the staff and administration costs associated with the current disposal system, as well as the costs associated with the fleet of operating and transfer equipment used to manage the waste disposal system. These costs would be largely unaffected by the implementation of the Strategy, as it is assumed that the County would generally continue with the current level of operations at all of the existing landfills and transfer facilities, and that if and when a landfill closes, that transfer operations on the site would continue. 2010 costs for general administration were carried forward and escalated at 3% per annum.
- Operating Landfill Costs: include all of the operating costs for the four currently operating landfill sites (Sites 2, 10, 11 and 13) including the transfer operations and leaf and yard waste composting operations that occur on these sites as discussed in the Draft Task D Technical Memo. These costs are anticipated to remain largely the same with Strategy implementation, with minor adjustments to reflect the potential to cease operations of the landfill tipping face within some Strategy scenarios. The closure of the tipping face at any two of the landfills based on a decision to proceed with short and/or long-term export of a portion the County's waste was assumed to reduce operating landfill costs by 10%. Permanent or temporary closure of the landfill tipping faces at all of the operating landfill sites was assumed to reduce operating landfill costs by 15%.

  A couple of components were not included in the operating landfill costs. First, the additional costs associated with some of the recommended system components that could affect landfill operations, were included within the new budget line items for General Diversion discussed in Section 13.3.2. Second, the County currently reimburses some of the local municipalities for the value of the landfill disposal capacity that was assumed by the County upon the transfer of waste management jurisdiction. This cost is not included in the system cost estimates as it would not affect any system scenario.
- Transfer (Depots), HHW, Grinding Costs: includes all of the operations at the transfer stations located at Sites 7, 8, 16 and 52, includes HHW management and also includes the grinding operations that are undertaken in support of the overall disposal/transfer system. These costs are anticipated to remain largely the same with Strategy implementation. 2010 costs for these operations were carried forward and escalated at 3% per annum. The additional costs associated with some of the recommended system components that could affect operations at the transfer stations, are included within the new budget line items for General Diversion discussed in Section 13.3.2.
- Closed Landfill Costs: these costs are associated with fully closed landfill sites, where there are no other on-site activities and thus were not anticipated to vary significantly over time. The 2010 costs for closed landfills were carried forward and escalated at 3% per annum. The cost to maintain any current operating landfill that would be temporarily or permanently closed during the planning period were included within the operating landfill costs discussed above.

  Note: a review was undertaken of the schedule of projected closure and post-closure costs for all landfills for which the County is responsible. There may be some projected operating or capital costs that are not included in the budget for closed landfill costs. While this may be the case, it was also determined that inclusion or exclusion of any additional closure/post closure costs would not affect the comparison of Strategy Scenarios (presented in Section 13.4) and thus there were not included at this time.
- Debt Repayment: reflects the repayment of debt for costs used in support of the roll-out of the source separated organics collection program, in the amount of $934,243 repaid annually over three years beginning in 2008. This debt will be fully repaid as of the end of 2010.

13.3.2 General Diversion Including Promotion and Education

Cost estimates for the recommended general diversion components, which include all of the recommended reduction, reuse and general diversion initiatives, were developed based on review of current system cost

components and knowledge of operating and capital cost ranges associated with programs in other communities. Table 13-7 presents a summary of the estimated general diversion costs over the first six years of implementation. For many components, one-time-only operating or capital costs would be incurred (e.g., program development); while for others there would be an ongoing operating cost. Generally, the costs indicated for 2016 represent operating costs that would be carried over through the remainder of the planning period. For some diversion components (e.g., endorsing EPR) there are no specific costs outside use of existing staff time, and thus these recommended system components are not specifically noted in Table 13-7.

Note: there are certain costs that have not been included in the estimates at this time, as it is difficult to determine an actual value that would apply in the financial analysis. They include:

- An estimate of the value of the volunteer support that is currently provided in support of diversion initiatives such as the diversion events held in some municipalities. Volunteer support for a number of initiatives is key to successful implementation (e.g. special event recycling, re-use programs) but is difficult to quantify. The County will look at including mechanisms to acknowledge the level of volunteer support in annual reports and through other means (e.g. articles in the waste newsletter etc.).

- Enforcement of the enhanced waste by-law is likely to involve by-law enforcement support from the local municipalities, given that the planned staffing as included in Table 13-7 is for only two additional by-law enforcement positions at the County level. Following approval of the SWMS by County Council, and later approval of the proposed enhanced waste by-law, the County would proceed to have further discussion regarding local municipal by-law enforcement. It would be reasonable to consider some form of revenue sharing with the local municipalities to encourage increased local municipal participation.

Table 13-7 Summary: General Diversion Operating and Capital Cost Estimates (2010$)

Recommended System Component	2011	2012	2013	2014	2015	2016
Enhanced Promotion & Education Initiatives						
Operating Cost (incl. 1 FTE)	$338,000	$338,000	$338,000	$338,000	$338,000	$338,000
Full-User Pay						
Operating Cost (incl. 1 FTE)	$10,000	$116,000	$116,000	$116,000	$116,000	$116,000
One-Bag Limit						
Operating Cost (incl. 8 landfill FTE)	$10,000	$364,000	$364,000	$364,000	$364,000	$364,000
Capital Cost (3 new weigh scales)		$600,000				
Per Capita Waste Reduction Target						
Operating Cost (focused promotion)	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
Re-use Centres and Programs						
Operating Cost	$5,000	$15,000	$108,000	$201,000	$294,000	$294,000
Capital Cost (3 low-cost centres)		$150,000	$150,000	$150,000		
Enhance Waste Diversion Depots						
Operating Cost (2 landfill FTE)	$45,500	$91,000	$91,000	$91,000	$91,000	$91,000
Capital Cost (textile and bulky good diversion)	$300,000	$300,000				
Public Open Space Diversion						
Operating Cost (collection, processing)		$25,000	$25,000	$50,000	$50,000	$50,000
Capital Cost (containers)		$25,000		$25,000	$25,000	$25,000
Special Event Recycling Program						
Operating Cost (collection, processing)		$25,000	$25,000	$50,000	$50,000	$50,000
Capital Cost (containers)		$25,000		$25,000	$25,000	$25,000
Mandatory Diversion By-law						
Operating Cost (incl. 2 FTE for enforcement)		$156,000	$156,000	$156,000	$156,000	$156,000

13.3.3 Recycling

13.3.3.1 Short Term Recycling Costs

For 2011 and mid-way into 2012, the cost for recycling processing would be the same as that presented in the 2010 budget, escalated by approximately 3% per annum (CPI). For the new collection contract which would begin in mid-2012 and end in mid-2017, it is recommended that:

- The County issues an RFP for County-wide collection, seeking pricing for two-stream recycling collection for all four collection zones. The collection contract would not include the price of haul and processing. Estimated recycling collection costs are presented in Section 13.3.5.
- The County develops the required capacity to transfer recyclables from the south, east and west collection zones. Estimates for transfer costs were based on pricing provided for the leasing and operation of 'Transtor' units (two units per site), which would be located at each of the three operating landfill sites and possibly at the North Simcoe MRF if review indicates that it is more reasonable to export all recyclables in the short-term versus operating the MRF. The estimated cost of $58/tonne includes both transfer and haul costs to an outside MRF. Estimates were based on the projected tonnes of recyclables that would be managed in the short-term, considering the projected increase in diversion rates and material capture.
- The County contracts separately for recycling processing capacity required. Estimated processing costs were developed based on the prices quoted by various facilities in Ontario and previously presented in the Draft Task F Report. The average cost quoted of $88/tonne for processing in a MRF located in southern Ontario was used as the basis for the cost estimate. The Draft Task F Report also recommended that the County negotiate a revenue sharing arrangement for its recyclables. For the short-term, it was estimated that the County could negotiate revenue sharing agreement for a 60% share of the market value of its materials. The market value for the 'basket of goods' collected by the County was assumed to be approximately $119/tonne, which was the average reported value from 2006 to 2008 reported by similar municipalities in Ontario.
- Also in the short-term, it is possible that the results of the WDO review of the Blue Box Program Plan, could confirm that it would be reasonable for the County to develop its own recycling processing capacity either on its own, or under some form of partnership with Barrie and Orillia. A siting and procurement process would have to be initiated in 2012 to ensure that a new facility was available by mid-2017. To support the siting and procurement process, a total budget of $150,000 over three years was identified for consulting services.
- Revised estimates for WDO funding were also developed. The proposed recycling approach included in the Strategy and the development of the Strategy itself, should assist the County in achieving the best practices required to assure higher funding levels. Estimates for WDO funding in the order of 40% of net recycling program costs were developed, which would increase WDO funding from approximately $1.7 million in 2010 to $2.3 million in 2013 and higher values in subsequent years.

13.3.3.2 Long Term Recycling Costs

The system cost estimates for the recommended Strategy assume that the County would site and develop a two-stream MRF within the County that would begin operations as of 2017. A plant capacity of 50,000 tpy was assumed, which would accommodate the processing requirements of the County over the planning period, with a small amount of surplus capacity being available in the first few years of operations.

Detailed MRF costs for two-stream and single stream plants, and for various plant capacities were developed and presented in the Draft Task F Report. Table 13-8 provides a summary of the two-stream MRF cost estimates.

Table 13-8 Two-Stream MRF Cost Estimates

	75,000 tonnes/year		50,000 tonnes/year	
	CAPITAL	ANNUAL	CAPITAL	ANNUAL
EQUIPMENT COSTS				
Equipment Costs	$5,125,000	$663,711	$2,400,000	$310,811
Mobile Equipment Costs:	$305,000	$57,630	$250,000	$57,630
Other Equipment Related Costs:	$3,273,000	$513,874	$2,228,000	$513,874
Contingency (10%):	$870,300	$146,509	$487,800	$146,509
TOTAL EQUIPMENT COST:	**$9,573,300**	**$1,239,786**	**$5,365,800**	**$694,896**
BUILDING SIZE (m2):	6,152		5,196	
BUILDING COST:	**$5,536,842**	**$444,291**	**$4,676,215**	**$375,232**
TOTAL LABOUR COST	**51**	**$2,157,730**	**43**	**$1,835,150**
TOTAL VARIABLE OPERATING COSTS		**$1,326,690**		**$826,600**
TOTAL ANNUAL COST		**$5,827,547**		**$4,182,838**
COST/TONNE PROCESSED				
CAPITAL		**$31**		**$30**
OPERATING		**$46**		**$53**
TOTAL		**$78**		**$84**

The system cost projections assumed a cost of $84/tonne (2010$) to cover the capital and operating costs for a two-stream, 50,000 tpy MRF. It should be clearly understood that this represents a reasonable estimate for the purpose of projecting Strategy costs, but that these estimates are subject to change based on the outcome of the RFP process. System cost estimates also included an additional County staff person to provide on-site supervision at the facility.

The system cost estimates did not assume that the County would pursue single stream recycling. Based on the cost analysis presented in the Draft Task F Report and the Draft Tasks G, I, J Technical Memo, it does not seem feasible to assume that the County would pursue single stream. However, the County could seek pricing for both the longer term collection and the MRF contracts to determine if this seems feasible.

Likewise, although it is clear that there would be economies of scale for developing a larger MRF in partnership with Barrie and Orillia, at this time it is uncertain if such a partnership would come to fruition. Conservatively, it was assumed that the County would develop its own required capacity. Should a partnership come about, increased economies of scale should reduce the future system costs.

13.3.4 Organics

13.3.4.1 Short Term Organics Costs

From 2011 to mid-2017, it was assumed that the cost for organics haul and processing would be largely the same as that presented in the 2010 budget, escalated by 3% per annum (CPI) as follows:

- The County would either negotiate an extension to its current organics processing contract to carry it out to mid-2017 and/or would issue an RFP within the next couple of years to contract for the

required composting capacity. Current contract costs as of 2011 of approximately $100/tonne were assumed and escalated by 3% per annum (CPI). This contract cost is in-line with other known processing contract costs in Ontario for the same type of source separated organics stream (largely food waste with low contamination rates).

- The County would continue to use its current approach to transfer and haul of organics, as this system is working well and as the County has already made sufficient investment to support continuing this approach in the short term. 2010 operating costs of approximately $1.3 million per year, escalated by 3% per annum (CPI) were assumed.
- Also in the short-term, it was recommended that the County proceed to develop its own organics processing capacity either on its own or under some form of partnership with Barrie and Orillia. A siting and procurement process would have to be initiated in 2012 to ensure that a new facility was available by mid-2017. To support the siting and procurement process, a total budget of $150,000 over three years was identified for consulting services.

13.3.4.2 Long Term Organics Costs

The system cost estimates assume that the County would site and develop a CCF within the County that would begin operations as of 2017. A plant capacity of 25,000 tpy was assumed, which would accommodate the processing requirements of the County over the planning period, with a small amount of surplus capacity being available in the first few years of operations.

Cost estimates for various suitable types of composting facilities and facility sizes were presented in the Draft Task F Report. Since that time, updated cost estimates regarding the annual cost/tonne for in-vessel composting facilities that could manage the expanded organics stream in Simcoe County have been developed. The costs/tonne assume that capital costs would be debentured over a 20-year time frame.

Table 13-9 presents the range of estimated costs for CCF capacity at 25,000 and 50,000 tonnes per year. The types of facilities that were the basis for these estimates are suitable for processing the expanded organics stream that is proposed in the recommended Strategy, including pet wastes and diapers.

Table 13-9 Estimated Cost/Tonne/Year (Operating and Capital) (2010$)

Facility Type	25,000 tpy	50,000 tpy
Aerobic In-Vessel	$201	$146
Aerobic Tunnel	$125	$94
Anaerobic In-Vessel	$181	$121
Average	$169	$120

The system cost projections assumed a cost of $169/tonne (2010$) to cover the capital and operating costs for a 25,000 tpy CCF to compost the County's source separated organics including diapers and pet wastes. It should be clearly understood that this represents a reasonable estimate for the purpose of projecting Strategy costs, but that these estimates are subject to change based on the outcome of the RFP process. System cost estimates also included an additional County staff to provide on-site supervision at the facility.

Given the current experience in the County with marketing of leaf and yard compost, it was not assumed that significant revenues would be generated from compost sales. Rather it was assumed that finished compost would be generated at a ratio of 1:2 input tonnes, and sold to the landscape or soil market at a price of $15/tonne (2010$).

It is clear that there would be economies of scale for developing a larger CCF in partnership with Barrie and Orillia, but at this time it is uncertain if such a partnership is feasible. Conservatively, it was assumed that the County would develop its own required capacity. Should a partnership come about, increased economies of scale should reduce the future system costs.

13.3.5 Collection

From 2011 to mid-2012, it was assumed that the cost for collection would be based on the current collection contract and would be largely the same as that presented in the 2010 budget, escalated by 3% per annum (CPI). In regards to the new collection contract that would begin in mid-2012 updated assumptions have been developed since this was first presented on May 27, 2010. These revised assumptions include:

- The new contract would seek pricing for County-wide collection services, and for services within each current contract area, allowing the County to choose the lowest cost service option, but also allowing for uniform unit costs for collection across the County.
- The new collection contract would seek prices for collection and haul of materials to the three operating landfills (Sites 10, 11, 13) that would receive and/or transfer each material stream as necessary.
- The new collection contract would be based on the recommended Uniform Level of Collection Service including:
    - Co-collection of garbage and organics, with organics collection provided to the same seasonal units that receive garbage collection;
    - Collection of two-stream recyclables, with seasonal units also provided with recycling collection service;
    - Collection of Christmas trees on one annual collection day across the County; and,
    - Collection of leaf and yard waste on two to three annual collection days, across the County.
- Collection costs are based on purchase of new trucks (amortized over 7 years), maintenance and labour based on vehicle type, administration and other costs. A total of 8 spare trucks were assumed based on those regularly required for collection.
- The cost of collection would be escalated by 5.5% per annum, including 3% per annum to reflect adjustments for CPI and 2.5% per annum to reflect population growth which corresponds to the potential annual increase in the number of units served with collection.
- The base number of units served, reflects the highest residential unit assumption in the 2010 budget, but does not include commercial units. At this time, there is no clear idea of the potential number of commercial units that could be provided with any expanded curbside service. In regards to institutional generators, the cost estimates to provide collection services to the school boards are included elsewhere within the budget.

In order to determine the new collection contract costs, collection system modeling was undertaken. The system modeling takes into account the number of units that can typically be served within a 10 hour collection day, the on and off-route time, haul distances from collection routes to the material delivery location and the density of the homes within each collection area. Table 13-10 presents the results of the modeling exercise and the estimated per unit costs developed based on the modeling.

Table 13-10 Collection Modeling Results (includes haulage to Sites 10, 11 and 13) (2010$)

Total Number of Trucks Required for Garbage & Organics Co-collection	Total Number of Trucks Required for Two-Stream Recycling Collection	Total Trucks
38	42	80
Estimated Annual Co-collection Truck Cost (capital & operating)	**Estimated Annual Recycling Truck Cost (capital & operating)**	
$151,000	$131,000	
Potential Contract Cost Per Unit for Garbage & Organics Co-collection	**Potential Contract Cost Per Unit for Recycling Collection**	**Total Estimated Contract Cost Per Unit**
$47	$45	$92

For the recommended SWMS, the potential cost for leaf and yard and Christmas tree collection was developed based on review of the unit costs for these services in the current collection contracts.

Table 13-11 presents a summary of the Year 1 collection and unit collection costs applicable for collection of each material stream proposed for the new uniform level of collection service. Garbage and organics co-collection costs were allocated 60:40 based on the potential vehicle split.

Table 13-11 Cost Estimates - Proposed Uniform Level of Collection Service (2010$)

	Estimated Cost Year 1	Unit Cost Year 1
Garbage Collection	$3,546,000	$28.03
Organics Collection	$2,364,000	$18.69
Recyclables Collection	$5,667,000	$44.80
Xmas Tree Collection (once per year)	$65,000	$0.50
Leaf & Yard Collection (2 to 3 collection days per year)	$456,000	$3.50

For the alternative (Version 2) to the Status Quo where all aspects of the waste management system other than collection would remain the same, but collection would be based on a new County-wide collection contract, the cost of garbage, organics and recyclables collection was expected to reflect the assumptions in Table 13-10, while the cost of services such as Leaf and Yard collection, bulky and metal collection would reflect the prices in the current contracts.

13.3.6 Disposal

13.3.6.1 Short Term Disposal Costs

Based on the short term disposal recommendations, the short term disposal system costs assume that:

- Current disposal costs and elements would continue over the planning period as discussed in Section 13.3.1, with adjustments made as needed for new disposal elements, such as the previously noted adjustments to landfill operating costs through removal of the cost for tipping face operations as applicable.
- The County implements additional measures to separate and/or materials to reduce the consumption of landfill airspace at the current operating sites. Recommended activities include a review of grinder options to grind bulky items and provision of additional landfill staff on peak user days (weekends) in order to encourage/enforce material separation; and,
- The County exports a portion of its garbage stream in order save a portion of its current landfill capacity for a later date. The waste management system scenarios assume that in the short term approximately 43% of the curbside garbage generated in the County would be exported beginning in 2013. The estimated cost for export is assumed as $80/tonne, including the cost to transfer and haul garbage through leased Transtor units ($45) and a tipping fee of $35 per tonne, which is in the range of some of the lower cost estimates provided by various entities during the export survey undertaken during Task F. With the potential closure of two of the operating landfills in the short-term, the County may incur additional costs to haul garbage from the active transfer stations to Site 11. As it is very difficult to determine what range of costs could be incurred this provision has not been included in these estimates.
- Activities necessary to implement the long term disposal options such as partnership investigations and procurement support for garbage processing would take place in the short term.

Table 13-12 below, provides a summary of the estimated short term disposal components.

Table 13-12 Disposal Cost Estimates (2010$)

Disposal Component	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 Onwards
Modifications to Current Operating Landfills						
Assessment of Grinding Systems	$15,000					
Increased Staffing (1/4 an operators time over 8 sites, equivalent to 2 FTE)		$72,100	$72,100	$72,100	$72,100	$72,100
Export Outside of County						
Consultant Support - RFP and Due Diligence	$25,000					
Transfer (short term out of County) at $45/tonne based on lease for Transtor units, includes transfer and haul			$1,141,000	$1,130,000	$1,117,000	$1,103,000
Disposal Fee (approximately $35/tonne)			$887,000	$879,000	$869,000	$858,000
Design and Operations Approval, Site 9 and 12						
Consultant Support, D&O and MOE follow-up		$75,000	$25,000	$25,000		

Disposal Component	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 Onwards
Residual Waste Processing						
Consultant Support for Partnership Investigations, Due Diligence		$25,000				
Consultant Support, Procurement Process			$50,000	$50,000		

13.3.6.2 Long Term Disposal Costs

The disposal components noted above in Table 13-12, could all play a role in the long-term disposal system. In order to develop long-term system costs, it was assumed that:

- The measures implemented by the County in the short-term (enhanced diversion, improved operations of existing landfills and export) would reduce consumption of the landfill capacity at the current operating sites, and would allow the sites to continue operations over the long term.
- The County would continue to export its garbage stream over the long-term, should no partnership options for garbage processing become available. The estimated cost for export (transfer, haul, and disposal) was assumed as $80/tonne.
- While it is expected that the Design and Operations reports for Sites 9 and 12 would be approved in the short-term, no capacity at either site would be developed in the long-term.
- Should partnerships be reasonably available in the short-term, it may be possible for the County to implement garbage processing as early as 2017 and for processing to manage the majority of the garbage stream in the long term.

The Draft Task F Report presented information on the range of potential capital and operating costs associated with waste processing technologies, ranging from conventional combustion (Waste To Energy) through to mechanical processing. However, the costs for any processing technology can vary significantly based on economies of scale and design details, amongst others. Review of the costs presented in the Draft Task F Report, and the results of other recent work undertaken by Stantec to develop waste processing costs were used to develop estimates for the County that account for the variability in processing costs and economies of scale. Table 13-13 provides an overview of the outcome of this exercise, and presents the estimated per tonne cost developed for small scale (55,000 tpy) and larger scale (200,000 tpy) waste processing costs for a 'basic' EFW facility that meets all regulatory standards but which doesn't include the full range of architectural and/or other treatments. Table 13-13 also includes an average estimated cost for the range of alternative technologies that could offer a processing option, as well as estimated revenues from the sale of energy (8.5 cents/kWh) and recovered materials (metals at $200/tonne) associated with EFW.

Table 13-13 Processing, Estimated Unit Costs/Tonne (Capital and Operating)

Garbage Processing Option	Cost per Tonne
Estimated cost for a generic residual waste processing facility (based on average reported for wide range of technologies)	$253
Estimated cost for a small scale conventional EFW facility (55,000 tpy)	$218
Estimated County-share of a larger scale EFW facility (200,000 tpy)	$148
Revenues (Estimated for sale of both electricity and metals from EFW approaches)	-$79

It should be clearly understood that this represents a reasonable estimate for the purpose of projecting Strategy costs, but that these estimates are subject to change based on the outcome of future RFP processes and specific partnership options.

13.4 SYSTEM COST PROJECTIONS

13.4.1 Development of System Scenarios

While many of the waste management system components remain largely unchanged with the implementation of the Strategy (e.g., administration), there are a number of system components for which there will be a change over time in the SWMS that must be addressed in the system cost projections (e.g., additional diversion).

For two of these components, there are still a range of options for consideration that can have a significant effect on the system costs and or financing methods, as follows:

- In regards to the proposed methods of restricting curbside garbage, there are three different options (full user pay, firm one-bag limit, and increased tag costs) that each would affect system costs and revenues differently; and,
- In regards to long term disposal, the system may or may not include continued waste export or garbage processing. In addition, in regards to garbage processing, the County may be able to implement this through partnerships and enjoy some economies of scale, or it may consider implementing processing on its own. There is also a range of technologies available, with some being more cost effective than others, while achieving similar environmental performance.

Different waste management system scenarios were developed in order to undertake a comparison of the potential system costs that could result through the implementation of variable components of the recommended Strategy.

In addition, a baseline or 'status quo' scenario, reflecting the continuation of the current waste management system was developed, to provide a basis of comparing the recommended system from both a cash flow and a net present value (NPV) perspective. Two versions of the Status Quo scenario were developed and applied, the first assuming no changes to the current waste management system, and the second assuming that the County would implement more efficient County-wide collection contracts in the short and long term.

Table 13-14 summarizes the waste management scenarios for which cash flow analyses were developed.

Table 13-14 Waste Management System Scenarios

Scenario	Details and Implications
Status Quo	• Based on current system costs • Current landfill capacity used by approximately 2017 • Garbage is then exported
Status Quo Version 2	• All costs except collection based on current system costs • Collection assumes some level of service as current, but new County-wide collection contract in mid-2012 • Current landfill capacity used by approximately 2017 • Garbage is then exported
Strategy Version 1	• Full User Pay in 2013 at $2.50 per tag • Some additional operating costs incurred • Bag tag fees represent significant revenue source to finance system

Scenario	Details and Implications
	• 43% of curbside garbage exported beginning in 2013 • Current landfill capacity lasts to late 2025, all regular waste exported thereafter
Strategy Version 2	• One bag limit (no additional bags) in 2013 • Significant operating (8 FTE) and capital (scales) costs incurred as waste is redirected to landfills and transfer facilities • 43% of curbside garbage exported beginning in 2013 • Current landfill capacity lasts to late 2025, all regular waste exported thereafter
Strategy Version 3	• Cost of extra bags increased from $2 to $4 in 2013 • Minimal additional costs, some increase in revenue • 43% of curbside garbage exported beginning in 2013 • Current landfill capacity lasts to late 2025, all regular waste exported thereafter
Strategy Version 4	• Full User Pay in 2013 • Some additional operating costs incurred • Bag tag fees represent significant revenue source to finance system • 43% of curbside garbage exported from 2013 to 2017 • Small scale waste processing (55,000 tpy) implemented in County as of 2017 • Current landfill capacity lasts beyond end of the planning period
Strategy Version 5	• Full User Pay in 2013 • Some additional operating costs incurred • Bag tag fees represent significant revenue source to finance system • 43% of curbside garbage exported from 2013 to 2017 • Large scale waste processing (200,000 tpy) implemented via partnership as of 2017, reducing unit costs to the County • Current landfill capacity lasts beyond end of the planning period
Strategy Version 6	• Full User Pay in 2013 • Some additional operating costs incurred • Bag tag fees represent significant revenue source to finance system • 43% of curbside garbage exported from 2013 to 2017 • Higher cost alternative processing method implemented by the County either alone or in partnership • Current landfill capacity lasts beyond end of the planning period

Cash flow analysis was completed for all of the scenarios. The cash flow generally represents full budget projections for both operating and capital costs, over the 20 year planning period.

The following assumptions were applied in the cash flow analysis for all of the scenarios:

- All costs were based on 2010$, escalated by 3% CPI;
- All collection costs were escalated by an additional 2.5% per annum, reflecting annual population growth which translates in to increased number of units and/or tonnes;
- Bag tag revenues were projected to increase with the rate of population growth (2.5%). For status quo projections it was assumed that tag rate does not change over the planning period. For all Strategy projections the tag rates were escalated every five years. It was also assumed that 10 cents per tag would be retained by the retail outlets selling bag tags under a full user pay scenario;
- Tipping fee revenues were projected based on 2010 tipping fees, escalating at 2.5% per annum to reflect population growth and decreasing by 0.5% per annum to reflect increased diversion.

The following assumptions were applied in the cash flow analysis for the Status Quo scenario:

- Assumes that when capacity at current landfills accepting regular garbage is fully used, that all garbage managed by the County would be exported to outside landfill sites. This would reduce landfill operating costs (operation of working face) by 15%.

- Assumes that organics and recyclables would be exported out of the County under current arrangements. Costs for transfer escalated as appropriate depending on how they were allocated to various activities.
- Assumes that as of mid-way through 2018 when County landfills are full, regular garbage will be exported out of the County at $50/tonne (which is less than the average reported cost of $62/tonne for tipping fees (2009$) and Transtor transfer & haul costs of $45/tonne (2009$). The $50/tonne cost of export disposal is assumed as the County should be able to find options at less than average reported costs but would also have less bargaining capability as it would be largely without disposal capacity.
- The Status Quo Version 2 scenario assumed new collection costs for garbage, organics and recycling based on a County-wide contract but continuation of the current specialized services (bulky, metals, brush, leaf and yard waste collection) based on current contract costs.

The following assumptions were applied in the cash flow analysis for the various Strategy scenarios:

- In regards to capital expenses, most capital expenses are assumed as part of the per-tonne cost (e.g. haul, disposal, processing) that would be set as part of future contracts. The only separate capital costs noted are those specific to additional diversion, which extend only over the short-term while the Strategy is implemented. It is anticipated that these costs would be recovered either directly from the Waste Levy or from the County Levy (or they could be recovered via reserves).
- Bag tag revenue is projected to increase with the rate of population growth over the planning period (2.5% per annum). As of 2013, under full user pay (Strategy Version 1) it is assumed that approximately 45 weeks per year each household will set out 1 bag of waste (assumes that over 26 weeks would set out 1 bag per week, over 26 weeks would set out 1 bag 75% of the time). Bag tags are assumed to be retailed at a cost of $2.50 per tag.

  Under the One Bag limit (Strategy Version 2) the tags would be discontinued as of 2013. This would cause a shift in the system with more residents bringing waste directly to the landfills and/or transfer stations. Increased operating (staff) and capital costs (scales) were assumed as well as an increase in tipping fee revenues.

  With the implementation of increased bag (container) tags as of 2013 (Strategy Version 3), the cost of bag tags would double from $2 to $4, and it is expected that each household would purchase on average two bag tags per year. The cost of the bag tags would increase by $0.50 every five years.

Note: for the full user pay scenarios, it was assumed that the rate for the bag tags would be set at a rate ($2.50 per tag) that would recover all disposal and garbage collection costs and that would act to discourage set out of excessive quantities of waste. However the rate was not set to cover all waste management costs. It is critical that the funding of the waste management system not be set on a variable recovery mechanism like bag tag fees, as in any given year, should the public succeed in dramatically cutting waste quantities, the actual funding for the programs could be insufficient. Thus the bag tag rate was set with the understanding that at least a portion of the system costs (e.g. diversion) should continue to be recovered through the levy.

13.4.2 Results of Cash Flow and Net Present Value Analysis for System Scenarios

Table 13-15 presents the results of the cash flow over the 20 year planning period for all system scenarios including the status quo system. The status quo cash flow represents a static system where over the planning period no new initiatives would be implemented. As noted previously, the cash flow is essentially a budgeting exercise which projects the full system costs and revenues over the full 20 years. The figures presented in Table 13-15 are large, as they represent the sum of all costs and revenues projected to be

incurred from 2011 to 2030. The net present values (NPV) noted in the table, are a means of presenting the costs projected over 20 years in 2010 dollars. Essentially, the value of the NPV represents the amount of money the County would need to have in the bank at a 6% interest rate as of 2010, to cover all of the future net costs of waste management. Every year the some money would be paid out of the account for the system and every year the account would also earn interest. At the end of 20 years the full net costs of the system would be paid in full. Table 13-16 and Table 13-17 present the same cash flow and NPV information, but in a fashion with which it is easier to relate. Table 13-16 presents the information in the form of an annual average, which would be equivalent to the values that could appear in the annual waste management budget, mid-way in the planning period. Table 13-17 presents the information as a cost per household, which would be roughly representative of how the waste management system costs would affect County taxpayers.

Review of Table 13-15 indicates that:

- Under the Status Quo, waste management costs may escalate and reach a higher overall net cost than four of the six Strategy scenarios that were reviewed.
- Generally, implementation of the recommended Strategy in any variation appears to offer a system that is at least as cost effective as the current waste management programs, and perhaps better. The only exception would be if the cost of garbage processing is determined to be at the maximum of the annual range of costs for an advanced technology, whereupon the 20 year system costs are higher than both the Status Quo and Status Quo Version 2.
- General diversion costs are expected to increase with the implementation of the Strategy, reflecting the comprehensive suite of diversion initiatives that were considered.
- Garbage collection costs are projected to be reduced under the recommended Strategy, in part, due to decreased waste volumes and in part based on the proposed uniform level of collection service and collection model.
- Comparison of the Status Quo Version 2 to the SWMS scenarios, indicate that in part the cost differences are based on continuation of the status quo service level for municipal specific collection services and that the County would not have the benefit of either in-County recycling processing or the recommended short and long-term alternative methods of disposal.
- Net blue box recycling costs are projected to reduce under the recommended Strategy, as while the County would likely incur additional capital and operating costs for a County MRF, it would also retain full revenues from the sale of its materials, and likely higher WDO funding levels.
- Organics collection and processing costs are expected to increase, based on the increased tonnage of organics managed (doubling over the planning period) and based on the conservative cost estimates for capital and operating costs for a new County CCF.
- Garbage haul and disposal costs are expected to remain below the status quo with a balanced system of waste export beginning in the short-term, which will extend the life of the current operating sites. Garbage disposal costs generally could increase with waste processing (Version 4 and 6), but still remain within the range of the status quo system costs.
- A full user pay approach (Version 1) has the potential for lower net system costs, as well as potential to recover nearly 2/3 of net costs through user fees, compared to the other proposed approaches to reduce curbside garbage (Version 2 and 3).
- There is potential for economies of scale for the County if it works together in a partnership for larger scale garbage processing (Version 5) of about $80 million over the planning period, versus implementing its own smaller scale processing facility (Version 4).

Table 13-15 Comparison of System Cost Analysis (Cash Flow and NPV) for Status Quo and Recommended Strategy

Estimated Cash Flow over 20-Year Planning Period (millions)	Status Quo	Status Quo Version 2	Strategy Version 1	Strategy Version 2	Strategy Version 3	Strategy Version 4	Strategy Version 5	Strategy Version 6
Net System Costs								
Administration	$25	$25	$25	$25	$25	$25	$25	$25
General Diversion, Promotion & Education	$5	$5	$23	$30	$20	$23	$23	$23
Garbage Collection	$208	$146	$134	$134	$134	$134	$134	$134
Blue Box Recycling	$133	$122	$93	$93	$93	$93	$93	$93
Organics Collection & Processing	$117	$149	$178	$178	$178	$178	$178	$178
Garbage Haul & Disposal, Transfer/Depots	$393	$393	$325	$321	$325	$429	$348	$470
Total	**$880**	**$839**	**$778**	**$782**	**$775**	**$882**	**$802**	**$923**
Total Expenses	$1,071	$1,090	$1,059	$1,066	$1,056	$1,255	$1,174	$1,296
Total Revenues	($191)	($251)	($281)	($285)	($281)	($373)	($373)	($373)
Net Cost	**$880**	**$839**	**$778**	**$782**	**$775**	**$882**	**$802**	**$923**
Estimated Recovery via Fees (Bag Tags)	$13	$13	$429	$1	$31	$429	$429	$429
Estimated Recovery via Levy	$867	$826	$349	$781	$744	$453	$373	$494
Estimated NPV of Net System Costs (millions) (2010$)	**$452**	**$436**	**$414**	**$416**	**$412**	**$463**	**$426**	**$482**
Approximate Year Remaining Capacity (operating landfills, regular waste) would be Fully Used	2017	2017	2025	2025	2025	outside of planning period	outside of planning period	outside of planning period

Notes:
Numbers may not add correctly due to rounding.
The components of the Status Quo and Strategy Versions were presented in Table 13-14.

Table 13-16 Comparison of Average Annual System Costs for Status Quo and Recommended Strategy

Average Annual Costs over the 20 year Planning Period	Status Quo	Status Quo Version 2	Strategy Version 1	Strategy Version 2	Strategy Version 3	Strategy Version 4	Strategy Version 5	Strategy Version 6
Net System Costs								
Administration	$1,255,200	$1,255,200	$1,255,200	$1,270,550	$1,255,200	$1,255,200	$1,255,200	$1,255,200
General Diversion, Promotion & Education	$235,150	$235,150	$1,158,000	$1,505,250	$1,009,000	$1,158,000	$1,158,000	$1,158,000
Garbage Collection	$10,410,250	$7,275,000	$6,701,550	$6,701,550	$6,701,550	$6,701,550	$6,701,550	$6,701,550
Blue Box Recycling	$6,625,450	$6,088,900	$4,658,500	$4,658,500	$4,658,500	$4,658,500	$4,658,500	$4,658,500
Organics Collection & Processing	$5,851,800	$7,441,450	$8,899,750	$8,899,750	$8,899,750	$8,899,750	$8,899,750	$8,899,750
Garbage Haul & Disposal, Transfer/Depots	$19,630,450	$19,630,450	$16,235,650	$16,057,550	$16,235,650	$21,434,700	$17,417,200	$23,476,050
Total	$44,008,300	$41,926,150	$38,908,650	$39,093,150	$38,759,650	$44,107,700	$40,090,200	$46,149,050
Total Expenses	$53,542,900	$54,491,200	$52,970,550	$53,317,800	$52,821,550	$62,734,850	$58,717,350	$64,776,200
Total Revenues	($9,534,600)	($12,565,050)	($14,061,900)	($14,240,000)	($14,061,900)	($18,627,150)	($18,627,150)	($18,627,150)
Net Cost	**$44,008,300**	**$41,926,150**	**$38,908,650**	**$39,077,800**	**$38,759,650**	**$44,107,700**	**$40,090,200**	**$46,149,050**
Estimated Recovery via Fees (Bag Tags)	$636,100	$636,100	$21,455,150	$50,400	$1,540,800	$21,455,150	$21,455,150	$21,455,150
Estimated Recovery via Levy	$43,372,200	$41,290,050	$17,453,500	$39,027,400	$37,218,850	$22,652,550	$18,635,050	$24,693,900
Estimated Average Annual NPV of Net System Costs (2010$)	$22,600,300	$21,821,350	$20,696,850	$20,792,000	$20,620,500	$23,151,200	$21,322,450	$24,080,400
Approximate Year Remaining Capacity (operating landfills, regular waste) would be Fully Used	2017	2017	2025	2025	2025	outside of planning period	outside of planning period	outside of planning period

Notes:

Numbers may not add correctly due to rounding.

The components of the Status Quo and Strategy Versions were presented in Table 13-14.

Review of Table 13-16 indicates that:

- The average annual expenditures for waste management could be approximately half to one and a half million per year lower with the implementation of the recommended Strategy (difference between Status Quo, Status Quo Version 2 and Strategy Version 1 (full user pay scenario) expenses).
- The average annual revenues for waste management could be approximately $1.5 to $4.5 million higher with the implementation of the recommended Strategy (comparing the Status Quo and the Strategy Versions 1 through 3) given the additional revenues assumed within the SWMS for the sale of recyclables, sale of compost and increased funding for the Blue Box program.
- Average annual revenues associated with full user pay would be approximately $21 million per year under the proposed fee structure (difference between Strategy Version 1 and Version 2 revenues). This could be applied to the Levy, reducing it to $17.5 million per year.

Table 13-17 Comparison of Average Annual System Costs per Household for Status Quo and Recommended Strategy

Average Annual Costs over the 20 year Planning Period Per Household	Status Quo	Status Quo Version 2	Strategy Version 1	Strategy Version 2	Strategy Version 3	Strategy Version 4	Strategy Version 5	Strategy Version 6
Net System Costs								
Administration	$9	$9	$9	$9	$9	$9	$9	$9
General Diversion, Promotion & Education	$2	$2	$8	$11	$7	$8	$8	$8
Garbage Collection	$74	$52	$48	$48	$48	$48	$48	$48
Blue Box Recycling	$47	$43	$33	$33	$33	$33	$33	$33
Organics Collection & Processing	$42	$53	$64	$64	$64	$64	$64	$64
Garbage Haul & Disposal, Transfer/Depots	$140	$140	$116	$115	$116	$153	$124	$168
Total	$314	$299	$278	$279	$277	$315	$286	$330
Total Expenses	$382	$389	$378	$381	$377	$448	$419	$463
Total Revenues	($68)	($90)	($100)	($102)	($100)	($133)	($133)	($133)
Net Cost per Household	**$314**	**$299**	**$278**	**$279**	**$277**	**$315**	**$286**	**$330**
Estimated Annual Fees (Bag Tags) per Household	$5	$5	$153	$0	$11	$153	$153	$153
Estimated Annual Levy per Household	$310	$295	$125	$279	$266	$162	$133	$176

Notes:
Numbers may not add correctly due to rounding.
The components of the Status Quo and Strategy Versions were presented in Table 13-14.

Review of Table 13-17 indicates that:

- On a per household basis, four of the six of the versions of the recommended Strategy that were examined could result in less cost for waste management being borne by the residential taxpayer. The strategy scenarios with higher garbage processing costs (Version 5 and Version 6) result in comparable or slightly higher costs than the Status Quo. On a per household basis, three of the six versions of the recommended Strategy could result in somewhat less cost and three of the six versions could result in higher costs per household in comparison with Status Quo Version 2. Generally it would be reasonable to assume (given the uncertainty in projecting future costs) that the cost of waste management paid by the taxpayer should remain the same or slightly better over time with the implementation of the recommended Strategy. This is of particular interest in that during this period:
  - an additional 20% diversion is expected;
  - new long-term processing capacity would be provided for recyclables and organics; and,
  - alternative means of garbage disposal would be implemented.
- Version 6 represents a sensitivity analysis undertaken of the system costs should the County implement the higher cost alternative waste processing option (at $253/tonne). While under this scenario, the average expense borne by the taxpayer would be higher than under any of the versions of the recommended Strategy; it still averages at only $16/household higher than the Status Quo and $31/household higher than Status Quo Version 1.
- A full user pay approach as presented in Versions 1, 4, 5 and 6, would shift the net cost of waste management such that more of the net cost would be recovered through user fees than would be recovered from the Levy.

While the previous discussion regarding the end result of the cash flow analysis for the key Scenarios is useful in understanding the overall financial impacts of system change to the County of Simcoe, it does not necessarily provide an understanding of how the major cost components would change over time, in comparison to the current waste management system.

Table 13-18 provides a snap-shot, of the outcome of the cash flow analysis for Year 16 of the Strategy implementation (Version 1) in comparison to the Status Quo Version 2 in which only the collection costs have been adjusted to reflect a new County-wide collection contract.

Table 13-18 Cash Flow Comparison: Status Quo Version 2 to Strategy Version 1, Year 16

	Status Quo Version 2 Year 16	Strategy Version 1 Year 16	Year 16
Expenses			**Difference**
General Administration	$1,532,000	$1,532,000	$0
Promotion & Education	$273,000	$1,359,000	($1,086,000)
Garbage Collection	$9,120,000	$8,364,000	$756,000
Recycling Collection, Haul & Processing	$15,678,000	$15,834,000	($156,000)
Organics Collection, Haul & Processing	$8,884,000	$11,409,000	($2,525,000)
Landfill Administration and Fleet	$6,782,000	$6,898,000	($116,000)
Operating Landfills	$5,367,000	$5,367,000	$0
Transfer (depots), HHW, Grinding	$6,937,000	$6,937,000	$0

	Status Quo Version 2 Year 16	Strategy Version 1 Year 16	Year 16
Closed Landfills	$1,318,000	$1,318,000	$0
Waste Export (Transfer/Haul/Tipping Fees)	$11,864,000	$6,422,000	$5,442,000
Capital			$0
Sub-total	**$67,755,000**	**$65,440,000**	**$2,315,000**
Revenues			
Recycling Revenues (WDO grants, material sales, blue box sales)	($8,540,000)	($10,916,000)	$2,376,000
Organics (container sales, compost sales)	($46,000)	($348,000)	$302,000
HHW and other WDO Program Revenues	($1,178,000)	($1,178,000)	$0
Tipping Fee Revenues	($5,047,000)	($4,667,000)	($380,000)
Other (rentals, fines)	($76,000)	($76,000)	$0
Sub-total	**($14,887,000)**	**($17,185,000)**	**$2,298,000**
Net Cost (not including bag tags, prior to Waste and County Levies)	**$52,868,000**	**$48,255,000**	**$4,613,000**

Review of Table 13-18 indicates that with the implementation of the recommended Strategy, in this case with Full User Pay for garbage collection and assuming that the County would move to a new County-wide collection contract either as part of or separate from the SWMS:

- Diversion and promotion & education costs will increase compared to the current budget, to reflect the increased emphasis on waste avoidance and diversion over disposal.
- Garbage collection costs are expected to decrease, reflecting decreased waste tonnages and cessation of specialized collection services such as the bulky goods collection service.
- Recycling collection and processing costs are expected to remain relatively the same, with the current cost for haul and processing replaced by the cost of implementing and operating a new MRF within the County.
- Organics collection and processing costs are expected to increase over time, in part due to doubling the quantity of organic materials that are processed, and also in part based on the very conservative composting facility cost estimates that were developed for the Strategy.
- Landfill administration, fleet and operating landfill costs are expected to increase over time with the addition of new diversion services at these sites and due to the need for increased staffing support to encourage material separation and enforcement of proposed landfill bans.
- In regards to waste haul and disposal at sites outside the County, under the status quo system all of the garbage in the County with the exception of some bulky materials that could still be sent to Collingwood, would have to be exported as a result of the closure of the current operating landfills. In addition, the waste quantities over time under the status quo would increase significantly over time in comparison to the recommended Strategy, due to stagnation in diversion rates and the increased population in the County. Under the recommended Strategy, only a portion of the curbside garbage would be exported, but this combined with increased diversion would allow the current operating landfills to function until later in the planning period (2025).
- The recommended Strategy includes projected revenue streams for blue box materials, which would not be recovered by the County under the Status Quo or Status Quo Version 2 due to current processing arrangements. In addition, revised projections for WDO funding are included, based on the County recovering 40% of its net recycling costs based on its system performance.

In conclusion, based on current cost estimates there may be an overall financial benefit to implementation of the recommended Strategy, in addition to the environmental benefits associated with the proposed Zero Waste approach.

13.5 FINANCING THE RECOMMENDED SYSTEM

As noted in Section 13.2, there are a few key general sources of financing that are used to recover the costs of the County's current waste management system, which are not specific to any one waste management program component, and thus can be used to allocate and recover net program costs from the taxpayer either directly (e.g. tipping fees) or indirectly (e.g., through property taxes).

The general financing sources currently used by the County and that could play a role in financing the recommended system include:

- Bag tag revenues
- Tipping fee revenues
- The waste levy
- The County levy
- The waste management reserve.

The following sections provide additional discussion regarding these potential sources of financing and discuss some of the associated implications.

13.5.1 Tipping Fees

The cash flow analysis of presented in Section 13.4, assumed that the current tipping fee structure would remain in effect during the planning period. However, there are four areas of potential change for consideration:

- As noted in the tipping fee schedule, the County of Simcoe applies a minimum $5.00 charge for all vehicles entering a waste management site containing chargeable material. There could be benefits associated with increasing this charge to $10 per vehicle, both from a financing standpoint and through increased operational efficiency at the operating landfills and transfer stations. A $10 minimum charge would be more equivalent to the first increment in weights that can be registered on the scales operated by the County. A $10 minimum charge would allow for more efficient movement of small loads of garbage materials, but should be associated with better means of determining the actual potential range in weights of these loads for the County's records.

  It is difficult to predict the potential effect of moving to a $10 minimum charge, particularly as it is unclear which of the methods of restricting curbside garbage will be put into effect. Currently, bagged waste makes up under 400 tonnes of the total waste received at the landfills or transfer stations. Under a full user pay scenario, there may be little to no change in the residential traffic to the landfills or transfer stations, and thus while the minimum charge may shift from a weight based measure to a bag-based measure, there may b e little change to the overall revenue stream. Further work is required to define the potential changes in revenue streams based on the decision made by Council in 2011 regarding curbside garbage restrictions.

- The Strategy recommends that there should be no charge for separated metals dropped off at the landfills and transfer stations. This has the potential to decrease revenues to the system.

  Review of the potential decrease in revenues based on projected metal tonnages indicates that in the order of $100,000 or more of revenues from tipping fees would be removed from the system. However, the removal of the tipping fees is intended to encourage additional diversion, and thus may increase revenues from the sale of scrap metal.

- The Strategy recommends implementation of a 'Ban' on disposal of divertible materials, implemented through an increase in the charge for mixed loads of materials that contain 5% or more of materials that could be separated for diversion.

  Review of the potential increase in revenues given the rate of compliance in other jurisdictions with similar 'bans' indicates that revenues from fines could double from $50,000 per year to $100,000 or more. However, the overall generation of revenues from tipping fees may decrease by the same or a larger amount given that the intent of the ban is to shift materials from the garbage stream that is charged between $115 and $155 per tonne, to diversion which costs between $0 and $55 per tonne.

- It is not reasonable that the tipping fees at the landfills and transfer stations remain static over time. Nor is it necessarily reasonable to charge a differential rate for materials dropped off at a landfill versus a transfer station.

  Review of the current tipping fees charged at the landfills and transfer stations and by material, and the implications of regular rate increases over the 20-year planning period indicates that:

  - Based on the projected decrease in garbage quantities and increase in materials diverted, the overall profile of the tipping fee revenues over time is likely to shift, however the actual impact to overall revenues is hard to estimate.

  - Based on the 2010 operating budget (facilities) that addresses all operations at the County facilities, the net cost of operations (less non-tipping fee revenue sources) was around $133 per tonne for all of the materials managed. However the cost of the disposal operations alone is much less (around $60 to $70/tonne).

  - Moving to a uniform charge of $155 versus $115 per tonne for garbage brought to either landfills or transfer stations, is expected to have an average impact of around $500,000 per year in additional tipping fee revenues. The actual impact will depend on if garbage tonnages hauled to the sites decreases as anticipated.

  - Leaf and yard waste tipping fees currently make up around $200,000 of the total tipping fees for the sites. If tonnages escalate from 3,500 tonnes based on increased diversion, the tipping fee revenues for this portion of the material stream will increase.

  - Escalating tipping fees by a set rate (e.g. $10/tonne every five years) would result in an average increase in fees for garbage of around $200,000 per year over the planning period.

13.5.2 Container Limits and Bag Tags

The Strategy includes the potential to either move to a full user pay approach, or to increase the cost of the bag tags, in order to encourage waste diversion and minimize curbside garbage. Both options have the potential to increase the potential for bag tag sales to play a long-term role in system financing. The Strategy also includes consideration of a firm one-bag limit, which would result in discontinuing the bag tag sales and thus removing a revenue stream which would have to be offset by other revenue sources.

Comparison of these three scenarios indicates that a system that includes full user pay is somewhat more advantaged than the other two approaches in that:

- The additional costs for this option are lower than for a firm one-bag limit;
- The effect on the system related to this option may be easier for both residents and the County to adjust to. This option provides a convenient outlet for residents to dispose of the occasional extra bag of waste, potentially discouraging illegal dumping or other practices.
- Those that dispose of more waste, would proportionately cover more the cost of the waste management system, as presented in Table 13-17.

Implementation of a firm one-bag limit is likely to result in increased used of the landfills and transfer stations for small material quantities and/or increased incidence of residence disposing of waste 'on-property'.

Implementation of an increased rate for extra tags, while relatively cost effective and easy, does not recover the cost of garbage collection and the increased cost of disposal from those that actually dispose of more material.

13.5.3 The Waste Levy

As noted previously, the Waste Levy is used to allocate specific components of the waste stream to the local municipal 'users' of the County's waste management system. The waste levy has two key components as noted previously.

The 'disposal' portion is currently determined through application of the tipping fee for regular garbage at $115/tonne to the specific estimated residential garbage, organics, bulky wastes and optional waste material quantities collected by the County's system, on a municipal specific basis. The rest of the municipal specific waste levy is determined through the allocation of municipal specific costs and revenues.

As a result, the applied Waste Levy is inconsistent on a per unit (household) basis, although with the exception of specialized collection services, the residents in each municipality generally receive the same level of service. On a per unit basis, the 2010 Waste Levy ranges from $139 (Collingwood) to $195 (Bradford West Gwillimbury) per unit served, with the average levy being approximately $170 per unit.

The potential method used to determine the Waste Levy for the future system, should:

- Consider moving away from the current approach of calculating the 'disposal' portion of the levy, pending the approach chosen in regards to bag limits and user pay. Certainly, it would be reasonable to move away from this approach under a full use pay scenario.
- Consider moving to a more uniform per unit waste levy, which could be set at a value to cover both current operating costs, and to perhaps to establish reserve funds. A per unit waste levy is more

reasonable as there will be few to no municipal-specific variables (e.g., no municipal specific waste collection costs). A per unit waste levy could be set at a rate consistent for all units served by the County's system.

Should the County move to an approach where it moves to a uniform per unit waste levy that is set to cover the net cost of the waste management system, after other revenue sources, the average cost of the levy per household over the 20 year planning period would range from $125 to a maximum of $266 per household, depending on which method of restricting curbside garbage were selected and which long term disposal methods were used.

As noted previously, there is no consistent method used to recover the Waste Levy from the taxpayers across the County. Should the financing approach adopted by the County include full user pay (to cover the cost of garbage collection and disposal) and a uniform per-unit waste levy (for diversion) then all municipalities should be encouraged to implement a uniform charge to recover the levy and reflect the same approach as the County.

13.5.4 Cost Recovery through the County Levy

In the 2010 budget, and potentially in future years if the method of developing and applying the Waste Levy does not change, a portion of the cost for disposal may continue to be recovered through the County Levy.

Essentially, in the 2010 budget, and in the projected system costs discussed in Section 13.4, there may be a portion of the disposal facility costs that would not be covered by the disposal fee component of the Waste Levy, particularly as waste disposal costs increase as a proportion of overall waste system costs. In the longer term, it is reasonable to look at financing options that move all possible costs off of the County Levy and through some other means of waste financing, whether it is through the application of user fees (e.g., full user pay) and/or through a change in methodology to calculate the Waste Levy.

The simplest approach would be to calculate the Waste Levy based on the net system costs after other revenue sources (as discussed above), as a uniform method of calculating the levy across the County would be advisable under the new system which would largely eliminate local differences. This would reduce cost recovery through the County Levy to $0.

13.5.5 The Waste Management Contingency Reserve

As noted previously, there is currently no framework for continued reserve fund contributions embedded in the budget setting process for waste management. As a result, the reserve does not appear to provide a sustainable source of future capital funding. Without the inclusion of financing mechanisms to provide regular contributions to reserves, there is the potential that projected capital costs for the recommended Strategy, could quickly draw the funds to zero.

The various Strategy scenarios developed and presented in Section 13.4, assumed a per tonne cost for new facilities that included both capital and operating costs, as it is uncertain as to which ownership option the County may choose for new transfer and/or processing infrastructure. Should a mechanism be put into effect within the first few years of the Strategy, such as a per-unit waste levy that included a reserve fund contribution or setting aside a percentage of all user fees (bag tags) for reserve funds, a portion of the

capital costs for new facilities could be covered. In general, this would reduce the per-tonne costs assumed in the Strategy scenarios, thus reducing the longer term cost increases to the taxpayer.

Some additional analysis regarding the development of reserve funds has been completed, although once the method of curbside garbage restrictions has been determined in 2011, this should be refined. As an example, an alternative scenario for Strategy Version 1 was developed under which a contribution to reserves of 10% of the annual gross operating budget would be made. Over the 20-year planning period, this would result in an overall contribution to reserves of around $105 million. The average increase in the per household levy over the planning period, reflecting this contribution to reserves, would be $38 per household per year. Reserve funds of this magnitude could fund some or all of the capital costs for a new CCF ($20 to $30 million) or MRF ($10 to $15 million), or could contribute to the County's portion of a waste processing facility ($70 to $108 million).

Should the County use reserve funds to directly pay for new infrastructure, for example a new MRF, this would reduce the annual costs for some of the system components. For example, the cost of processing recyclables would decrease from around $84 per tonne to $53 per tonne.

It is recommended that as the SWMS is implemented, that means of establishing reserve funds to finance portions of the waste system be further examined.

14.0 SWMS MONITORING AND REVIEW

14.1 MONITORING

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

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

The monitoring of system performance is an important aspect of ensuring the proper functioning of the overall waste management system and ensuring strategy goals are achieved. That being said, it also assists the County with several other external reporting exercises including:

- Completing the annual WDO Datacall (tonnage and financial);
- Preparing annual reports for Cs of A, such as the annual reports prepared for each of the County's operating landfills;
- Reporting on the Municipal Performance Measurement Program (MPMP) as part of the preparation of the annual municipal Financial Information Return;
- Reporting internally for departments and Council; and
- Completing Statistics Canada biennial survey(s).

14.1.1 Key Performance Indicators and Monitoring Frequency

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

- Costs – gross and net cost/tonne (e.g., for recycling and organics programs as well as disposal costs) and cost/household;
- Recovery rates – recycling and organics;
- Residue rates – recycling and organics;
- Participation rates – in waste diversion programs (e.g. recycling);
- Promotion and education costs – cost/household per year;
- Tonnes of material marketed – kilograms/household/year by material type (e.g. compost, ONP, OCC);
- Tonnes of material collected – garbage, recycling, organics, and other wastes;
- Collection – passes/ truck/day or per hour, cost/household;

- Processing – tonnes/hour, kilograms/staff/hour, residue rates (for organics and recycling, particularly at any in-County processing facility); and,
- Marketing revenues (recycling and organics) – gross and net revenue/tonne/material.

The frequency of data collection should provide the County with an adequate amount of information to determine system performance on a regular basis and make improvements or adjustments to the system, if necessary. The frequency of data collection is influenced by a number of factors which must be taken into account. These factors include:

- Budget cycle (should be congruent with the budget cycle);
- Contract renewal/termination timing (some information should be collected on a monthly basis to confirm performance of contractors and to determine the imposition of penalties or incentives for performance);
- Seasonal variations (e.g., waste audits should be conducted over a number of seasons to account for variation);
- Political issues (e.g., may need to report more often, if required by Council); and,
- WDO Datacall submission deadlines.

Taking into consideration the factors listed above, the following subsections present the key performance indicators that are recommended to be monitored daily, monthly, and annually.

14.1.1.1 Daily

The following data should be collected during daily system operation:

- Tonnes collected (garbage, recycling, organics and all other waste streams). This would most likely be automated using scale house data management software at landfills/transfer stations. **It should be noted that an upgrade to the current data management software is recommended, to allow for more efficient tracking of the flow of materials into and out of County facilities.**
- Tonnes marketed (recycling).
- Number of trucks (all waste streams) in operation each collection day (usually fairly consistent so would only need to check on a periodic basis if no changes occur).
- Number of households (passes) for each collection day for each waste stream (usually fairly consistent so would only need to check on a periodic basis if no changes occur).
- Number of hours trucks (all waste streams) are in operation (usually fairly consistent so would only need to check on a periodic basis if no changes occur).
- Complaints, if any, that are received.
- Non-compliance of collection or processing contractors with the terms and provisions of their contracts.

14.1.1.2 Monthly

The following data should be collected monthly:

- Tonnes collected (all waste streams). This should be analyzed monthly in order to discern seasonal patterns. It is also a useful exercise to ensure that records are accurate to reduce level of effort at years-end (if problems are found).
- Tonnes marketed (recyclables and compost).
- Tonnes of residue sent to disposal (from recycling or organics processing).

- Cost for collection (for all material streams).
- Cost for processing (either through invoice for contracted services, or month-end accounting for municipally run MRF or CCF).
- Total staff hours required for processing per month.
- Four times per year, undertake quick curbside set-out / participation / compliance audits, involving scans of various neighborhoods across the County. This would generally allow for the identification of issues related to appropriate set-outs, overall participation rates in curbside programs and can be tied into various incentive programs (e.g., a gold box approach) that could be used to recognize good performance.
- Curbside waste audits undertaken roughly once every three years, to sort and measure per household waste generation rates, and the quantity and types of materials set out in the curbside material streams. The audits should be distributed once per season (spring, summer, fall, winter). The audits should generally take place the year after any program change to measure participation/compliance in the program and determine the success of the initiative.
- Review complaints and determine if there is any pattern and if complaint resolution appears successful.

14.1.1.3 Annually

The following data should be collected annually:

- Every two years, or more frequently if there are issues, undertake a time and motion study of one or more areas of an in-County MRF and/or CCF (if, and when developed). This is particularly useful if it is time to consider equipment upgrades and/or changes to processing contracts.
- Every two years, or more frequently if there are issues, undertake a time and motion study of curbside collection (all waste streams). This is particularly useful if it is time to consider a change in collection approach and/or changes in collection contract (e.g. change in recycling container; move to bi-weekly garbage collection).
- Total tonnes collected (all material streams).
- Total tonnes marketed, by material stream (recycling and compost).
- Total residue disposed from recycling and organics processing (and perhaps compositional analysis to see what is in the residue).
- Actual program costs for all components (collection, depot, transfer, P&E, processing etc.)
- Revenues per material stream (recycling, compost) and other revenue sources (e.g., from blue box sales).

14.1.2 Data Management

Based on background data collected in preparing this Strategy, it was determined that the current method of data management used by the County is not ideal and is not in line with best practices. Data is currently managed in a variety of forms maintained by different waste management staff. In particular, issues were identified with the ability to adequately track the movement of materials in and out of municipal facilities, due to the limitations of the current scale house software.

At minimum, replacement of the scale house data management software should be pursued. Software packages are available that allow for the tracking of many more categories of material streams and the potential location to which that material could be hauled. These software packages offer reporting programs that would allow for better organization and reporting of the data.

New waste scale software will allow for a more automated and effective data management system which will ensure that more accurate records are kept and key performance indicators can be obtained and evaluated more efficiently.

14.1.3 Reporting

It is recommended that the results of monitoring initiatives be reported on a regular basis to ensure the performance of the system is communicated to interested parties and make certain that the Strategy implementation timelines are adhered to.

Primarily, the reporting of monitoring activities should be provided in an annual report on the Strategy. This annual report should provide an overview of the applicable objectives for that year and documentation on how the County reached these goals. It should also include a list of issues that arose during the year and how these issues were mitigated. Finally, the report should include a section on the plan for SWMS implementation for the following year.

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

In addition to an annual report, the County should also ensure that all waste management related reports produced for Committee and Council, include a section on how the report contents relate to the implementation of the Strategy. This should apply to reports that relate directly and those that are only marginally related to the Strategy. This will assist County staff in adhering to the vision of the Strategy and also guarantee that all interested parties understand how each waste management report relates back to the strategic vision for waste management in the County.

This will be particularly critical when key decisions will be required a few years into Strategy implementation. When recommendations are brought back to Council for example, on the award of a contract to develop a new composting plant, it will be essential to make the connection between the need for the facility, and the Strategy approved by Council.

As an example, the City of Hamilton currently includes a section in all waste management reports that comments on how the report fits into their overall solid waste management master plan. This arrangement has assisted the City in ensuring the goals and objectives are met and provides a constant reminder to stakeholders of the waste management vision for the community.

14.1.4 Opportunities for Ongoing Citizen Feedback

Review of the Phase 3 and Phase 4 Draft Technical Memorandums, resulted in some discussion by the Solid Waste Management Strategy Steering Committee, of various mechanisms to continue to engage residents in the County during the SWMS implementation process. Stantec was requested to review options for ongoing Citizen feedback and suggestions. Given the proposed promotion and education

program presented in Section 11, reasonable options to provide opportunities for ongoing citizen feedback would include:

- Ensuring that the Annual Report provides a visually interesting and useful overview of the status of the SWMS including progress in achieving diversion targets. The report and key findings should be posted prominently on the County's website, and mechanisms for on-line comment and suggestions can be provided;
- Providing a brief summary of the Annual Report at public venues and sessions that will be taking place in overall support of the SWMS;
- Using various media to highlight the most important achievements in each year; and,
- Identifying key issues that arise, seeking comments and suggestions through personal contact and electronic media.

While there had been some discussion regarding the potential for another waste related committee, it has been our experience that such committees only engage a handful of ardent participants. The task before the County, is to broadly disseminate information regarding performance of the County and its Citizens in the implementation of the SWMS, which can best be addressed through the use of a variety of outreach methods as discussed above.

14.2 PLAN REVIEW

It is recommended that County conduct periodic reviews and updates to the Strategy at various times throughout the twenty year planning period. Detailed implementation timelines for each of the initiatives recommended for the County over the first five years of the planning period have been provided in previous sections of this report. Detailed timelines cannot realistically be developed beyond the five year planning horizon due to uncertainties and variables that cannot be accounted for at this time.

It is recommended that in 2015, (year five of the Strategy) the County should complete a comprehensive review and update to the recommended Strategy. This review should outline the goals and objectives met in the previous years and also outline issues that arose over that period that may have hindered the implementation of the Strategy. The Strategy document should then be updated to reflect the review completed and provide a detailed implementation timeline for the next four years of the planning period. The recommended schedule for the review of the SWMS is based on accommodating a reasonable cycle of contracts and the election cycle of council as follows;

- Review 1, 2015,
- Review 2, 2019,
- Review 3, 2023,
- Review 4, 2027,
- Review 5, 2030.

As part of the Strategy review, some the key targets that could be adjusted would be:

1. Per capita waste reduction targets could be adjusted to reflect the trends in waste generation observed through both annual tonnage records and curbside waste audits. They could also be adjusted to reflect Provincial/National trends, new initiatives planned to assist County residents with

waste reduction and reuse, and any reasonably understood trends in packaging such as shifts away from certain packaging approaches.

2. Waste diversion targets would likely be adjusted based on program performance in the preceding years and planned diversion initiatives at the County and Provincial levels. Diversion targets will also have to be adjusted to reflect overall trends in material generation, such as a shift away from various types of recyclable packaging materials.

The Strategy review should also report on trends associated with the consumption of landfill airspace that would generally be tracked on an annual basis. The need for pursuing garbage processing and/or development of Sites 9 or 12 will be determined through the success of the County in maintaining a downward trend in regards to the consumption of landfill airspace at the current operating landfills (Sites 10, 11, 13).

The review process will ensure that the Strategy remains relevant and evolves with the County's needs over time.

15.0 CONSULTATION ON THE SWMS

15.1 CONSULTATION OVERVIEW

Consultation on the SWMS included ongoing consultation opportunities that have been provided since late November 2009, consultation events on diversion and disposal options, and consultation events on the preferred waste management system.

The consultation process included several avenues for the public, municipalities and other interested parties to obtain information and provide comments on the Strategy. These included:

- The formation of the Solid Waste Management Strategy Steering Committee and holding of regular meetings of this committee which are open to public attendance.
- Posting of information on the County's website (http://www.simcoe.ca/municipalservices/wastemanagement/strategy/index.htm) including public notices, copies of completed Draft Task Technical Memos and associated presentations made to the Waste Management Steering Committee and Council, and the panels displayed at the open houses.
- Media releases issued at regular intervals in the preparation of the Strategy to inform the public of the progress that has been made.
- Notices in local newspapers, advertisements on local radio stations, and inclusion of information in the Managing Your Waste newsletter.
- The creation of an on-line comment form and workbooks to solicit feedback.
- A first round of public meetings held in February 2010.
- A second round of public meetings held in May 2010.
- Consultation with other stakeholders (First Nations, Metis Nation of Ontario, Orillia and Barrie) held in May 2010.

The results of the general consultation process, are provided in the records of consultation. The sections below discuss the consultation sessions that were held to support the Strategy development.

15.2 FEBRUARY CONSULTATION SESSIONS

The first round of consultation events were held on February 8, 9, and 10, 2010 in Alliston, Wasaga Beach, and Midland respectively. Notification of these public consultation sessions was issued through placement of notices in various newspapers, the County's website and through radio advertising.

The public consultation sessions were formally structured. Attendees were asked to sign-in when they arrived by providing their name and mailing address (optional). Once signed-in, people were provided with handouts, directed to a series of display boards, and were encouraged to ask questions of Project Team members from 4:30 p.m. to 7:00 p.m. At 7:00 p.m. the formal presentation and question and answer portion of the session began. The sessions were scheduled to end at 8:00 p.m. but were extended to accommodate further questions from the floor.

Attendees were encouraged to complete a workbook which they could either submit at the session, either in hardcopy or through two electronic kiosks, or return via mail, email, or fax. Postage paid envelopes were provided to attendees upon request. The display boards, handouts and presentation made at the session included information on the following:

- the purpose of the strategy and consultation sessions;
- the strategy process;
- the schedule for completing the Strategy;
- an overview of the current waste management system;
- key findings from the review of the current system;
- reduction and reuse diversion options;
- general diversion options;
- blue box recycling options;
- organics processing options;
- collection and transfer options;
- short-term garbage disposal options;
- long-term garbage disposal options; and,
- the proposed evaluation criteria that would be used to identify preferred options.

In total, 283 individuals were recorded as attending the sessions and 98 workbook submissions were received on or before the February 16, 2010 deadline. Full details regarding the results of the February consultation sessions are located in the Record of Consultation – Diversion and Disposal. The results of these sessions were reflected in the Draft Task F Report. A copy of the Record of Consultation, Diversion and Disposal, February 22, 2010 is located in Appendix 5.

15.3 MAY CONSULTATION SESSIONS

The second round of consultation events were held on May 3, 4, and 5, 2010 in Thornton, Midhurst, and Coldwater respectively. Notification of these public consultation sessions was issued through placement of notices in various newspapers, the County's website and newsletter, and through radio advertising.

The public consultation sessions were formally structured. Attendees were asked to sign-in when they arrived by providing their name and mailing address (optional). Once signed-in, people were provided with handouts, directed to a series of display boards, and were encouraged to ask questions of Project Team members from 4:30 p.m. to 6:00 p.m. At 6:00 p.m. the formal presentation and question and answer portion of the session began. The sessions were scheduled to end at 8:00 p.m., the first two sessions ended earlier and the last session ended significantly later, in all cases the Project Team remained available for individual questions.

Attendees were also encouraged to complete a workbook which they could either submit at the session, either in hardcopy or through two electronic kiosks, or return via mail, email, or fax. Postage paid envelopes were provided to attendees upon request. The display boards, handouts and presentation made at the session included information on the following:

- the purpose of the strategy and consultation sessions;
- incorporating Zero Waste into the Strategy;
- reduction and reuse diversion recommendations;
- general diversion recommendations;
- recycling approaches and technologies recommendations;
- composting technologies recommendations;
- collection recommendations;
- transfer recommendations;
- long-term and short-term disposal recommendations;
- waste projections for tonnes of waste to be managed;
- waste composition if a 76% diversion rate is achieved; and,
- the project schedule.

In total, 122 individuals were recorded as attending the sessions and 37 workbook submissions were received on or before the May 14, 2010 deadline. Full details regarding the outcome of the May consultation sessions are located in the Record of Consultation – The Preferred System. The results of these sessions were reflected in this Draft SWMS Report. A copy of the Record of Consultation, The Preferred System, May 2010 is located in Appendix 6.

15.4 CONSULTATION WITH OTHER STAKEHOLDERS

In addition to the public consultation session held on the evening of May 5, 2010, an afternoon session, was held from 11:00 a.m. until 2:00 p.m. in Coldwater, specifically for invited guests from the Cities of Orillia and Barrie, Chippewas of Rama First Nation, Beausoleil First Nation, and the Métis Nation of Ontario. The same information, presentation and handout materials were used ast this session as were used in the public consultation session held later that evening and as described above.

In total, there were nine attendees at the afternoon session, three of whom were from the Chippewas of Rama First Nation and six individuals from the City of Orillia. The session was formally structured; from 11:00 to 11:30 a.m. attendees were invited to review the display panels and interact with County Staff and Project Team members. At 11:30 a.m., a brief presentation was made, outlining the project's goals, objectives, schedule, and the recommended options. Following the presentation, there was a break for lunch at approximately 12:30 p.m. The meeting resumed at 1:00 p.m. and consisted of an informal question and answer period. Items raised in the question and answer period included:

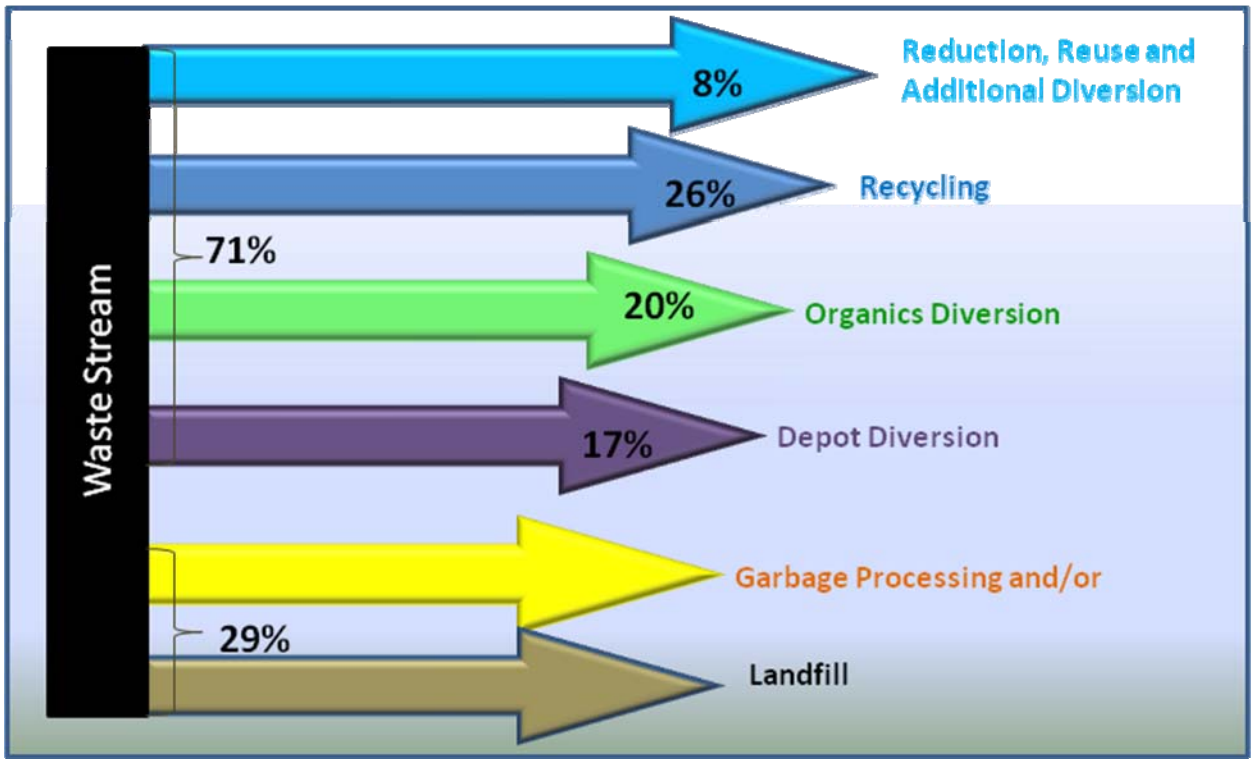
- Discussion regarding the export of waste and the County's contingency plans;
- Discussion regarding landfill mining and design of new landfills;
- Role of provincial and federal authorities;
- Mixed waste processing;
- Desire of Rama to pursue partnership options for garbage disposal;
- Interest of Orillia in organics processing partnership options.

16.0 SUMMARY AND CONCLUSIONS

16.1 OVERVIEW OF RECOMMENDED SYSTEM

The priority for materials management in the recommended solid waste management strategy is based on the movement of materials generated by residents and the IC&I sector that participate in County programs, through the diversion components of the system, as illustrated below for the shorter term (first ten years) of the Strategy (Figure 16-1).

Figure 16-1 Priority for Materials Management



The priority management practice in the recommended solid waste management strategy will be the reduction, reuse and other diversion programs that are expected to divert in the order of 8% or more of the total waste stream. Curbside recycling programs would manage in the order of 26% or more of the total waste stream handled by the County, with curbside organic programs managing in the order of 20% or more of the total waste stream. Depot diversion programs would manage in the order of 17% or more of the total waste stream. The remaining garbage, which would be comprised largely of materials that cannot be easily diverted, would make up approximately 29% or less of the total waste managed by the County.

It is expected that the County could increase the diversion rate for the County's programs to 71% within the first 10 years of the solid waste management strategy, and that that County could reach a maximum diversion rate of approximately 77% towards the end of the 20-year solid waste management strategy implementation timeframe.

Overall, it is expected that the total tonnes of remaining garbage requiring disposal will decline from approximately 60,000 tonnes per year to 52,000 tonnes per year over the planning period, and that the overall garbage disposal capacity requirements during the 20 year planning period will be approximately 1,100,000 tonnes.

16.1.1 Zero Waste

The concept of Zero Waste has been integrated into the overall Strategy through:

- Adoption of the principles of Zero Waste including a hierarchy that places the priority on avoiding waste and diversion over disposal of garbage.
- Support for Provincial efforts to implement/enhance Extended Producer Responsibility (EPR) programs in the Province.
- The combination of new diversion programs recommended in the Strategy including the development and support for per capita waste reduction targets, and green procurement including EPP.

In regards to diversion targets, many members of the public indicated that they wanted the County to establish a zero waste target or a "vision" of achieving Zero Waste. The Strategy sets reasonable, achievable targets for diversion over the planning period that reflect the success of current programs, the potential for additional diversion with new programs and the composition of waste managed by the County. The diversion targets of 71% by year 2020 and up to 77% by 2030, presented in the SWMS, reflect this approach.

16.2 IMPLEMENTATION SUMMARY

Table 16-1 provides a high-level overview of each of the recommended initiatives that form part of the recommended SWMS.

Table 16-1 Recommendations

Initiative	Overview of Recommendations
Diversion	
Enhance current reduction and reuse programs	• Within Year 1, enhance P&E initiatives Within Years 2 and 3, implement further restrictions on curbside garbage set-outs as identified in Section 5.3.1.
Establish a per capita waste reduction target	• Within Year 1, set a target for per capita waste reduction and develop full P&E program in support • Annually monitor waste tonnages over the first few years depending on success, the target could be increased or P&E modified.
Develop re-use centre(s), re-use program(s) and re-use partnering initiatives	• Within Year 1, review existing programs and promote their use. • Within Years 2 and 3, develop and implement pilot "re-use" events. • Within Years 2 and 3, determine if re-use centres could be set up at County facilities, determine if partnerships are viable, if possible, implement one or more re-use centres by year 5.
Implement a green procurement strategy	• Within Year 1, develop internal County committee. • Within Years 2 and 3, pursue approval and seek partnerships .

Initiative	Overview of Recommendations
Promote waste minimization legislation and programs	• Within Years 1 and 2, continue to review and comment on proposed initiatives by the province; comment as individual municipality and through organizations such as AMO. • If initiative(s) with significant benefits are identified pass resolutions to commit to initiative(s) and circulate to other municipalities.
Enhance existing waste diversion depot program	• Within Years 1 and 2, develop bulky waste drop-off areas at existing landfills and transfer stations that have sufficient space. Divertible materials could be removed and bulky wastes could be diverted to Collingwood landfill for grinding prior to disposal. • Within Years 1 and 2, arrange the placement of textile drop-off bins at operating landfills and transfer stations with existing non-profit service providers. • Within Year 1, review staffing levels at existing landfills and transfer stations to support effective use of the depots. • Consider establishing new depot(s) should any new centralized facilities for transfer and/or processing be developed.
Implement a clear garbage bag program	• Within the first five years, depending on implementation and success of other garbage restriction initiatives, a clear bag program could be implemented. • If not implemented within first five years, consider implementing a clear bag program during Years 5 to 10 as part of the transition to more restrictive approaches to manage curbside garbage.
Increase recycling container capacity	• Within Year 1, determine number of blue box containers set out and capacity used by residents to determine rationale for increasing capacity. • Based on assessment, the use of larger blue boxes appears to be the most flexible and appropriate method to increase capacity, if deemed necessary.
Bi-weekly (every other week) garbage collection	• Moving to bi-weekly garbage collection will be contingent upon ability to expand organics stream. • Option should be examined in Year 3, and if deemed appropriate, provisions can be established in the next collection contract (beginning in approximately Year 7).
Enhance and sustain advertising, promotion, and education	• Within the first 5 years, at minimum sustain current P&E funding levels and assess need for increased funding based on key program changes.
Establish a public open space recycling program	• Within Years 1 and 2, complete a study to determine current level of public space diversion and need for expansion. • In Years 3 and 4, if expansion is warranted, pilot approaches with local municipalities should be pursued. • By Year 5, after review of pilot programs, establish a County-wide open space recycling program.
Establish a special events recycling program	• Within Years 1 and 2, complete a study to determine current level of public space diversion and need for expansion. • In Years 3 and 4, if expansion is warranted, pilot approaches with local municipalities or event managers should be pursued. • By Year 5, after review of pilot programs, establish a County-wide special events recycling program.

Initiative	Overview of Recommendations
Examine the diversion of IC&I sector materials	• Within Years 1 and 2, complete investigations and expand diversion services for certain IC&I sub-sectors (e.g. schools, hospitals, long-term care facilities). • Determine uniform level of service for curbside diversion services for the IC&I sector. Define eligibility requirements and maximum container limits etc. • If in-County processing capacity for recycling and/or organics is pursued, certain provisions could be made for processing a quantity of IC&I materials (e.g., up to 10 or 15% of input tonnages). • As part of mandatory diversion by-law in Years 3 and 4, a ban could be implemented on disposal of IC&I waste at County landfills.
Establish a mandatory diversion by-law	• Within Years 3 or 4, the County could amend the current by-law to enforce source-separation of specified recyclable and organic materials or prohibit them from discarding these materials in the garbage (for both residential and IC&I sectors).
Recycling	
Short-term: Processing Recyclables Outside of Simcoe County	• Over the first five to six years, continue to export recyclables to an out of County MRF. • Separate the collection and processing contracts, such that the County would identify and designate a MRF that would process the County's materials. This could include processing the North Simcoe recyclables at the County's facility, and export of recyclables from the other contract areas to a facility(s) located outside the County. • The next collection RFP could include responsibility for curbside collection of recyclables and haul to a designated location. Alternatively, the County could retain responsibility for transfer/haul. • The processing RFP should consider provision of capacity for at least a three year term, with options to renew for an additional one to two years.
Longer-term: Develop Recyclables Processing Capacity within the County (new MRF)	• In Year 2, determine if there is sufficient rationale to develop an in-county MRF based upon changes to the Blue Box Program Plan and discussions with Orillia and Barrie • By Year 6, siting/procurement and commissioning of a new facility should be complete.
Organics	
Short-term: Processing Organics Outside of Simcoe County	• For up to Year 6 in the Strategy, export of organics to an out of County CCF.
Longer-term: Develop Organics Processing Capacity Within the County (new CCF)	• REOI/RFQ should be released in Year 1 • Pending outcome of REOI/RFQ, negotiations should be held with Barrie and Orillia to formalize potential interest in having their organics processed at the CCF. • In years two or three, based on the results of the REOI/RFQ, a facility siting and development of an RFP should take place. Design, Build, and Operate (DBO) is recommended. • By approximately Year 6, a new CCF should be developed and commissioned.

Initiative	Overview of Recommendations
Collection	
Coordinate the end-date of the current collection contracts	• In order to implement a consistent level of service across the County as well as various diversion system elements as discussed in Section 5.3, the County needs to negotiate an extension to the current collection contracts so that all contracts would terminate at a consistent end-date. • All contracts should be scheduled to terminate in July 2012, with a new contract therefore beginning mid-year in 2012.
Develop and issue next RFP for Collection Services	• The next collection contract should run for a five year term from mid-year 2012 to mid-year 2017. • Given that it is unlikely that either single stream recycling or bi-weekly waste collection could be implemented by 2012 (given the lack of availability for processing capacity) the current collection system in regards to weekly recycling collection and weekly co-collection of organics and waste should continue. • This contract time-frame would facilitate changes in collection services such as the enhanced waste reduction options discussed in Section 5.0 and implementing a uniform level of collection service in mid-2012.
Transition to Uniform Level of Collection Service	• In 2010, the County needs to determine if the proposed uniform level of collection service will be implemented. • This would be built into the new collection contract beginning mid-2012.
Consider Single-Stream Recycling	• Seek pricing for single stream collection upon issuing next collection RFP and concurrently seek pricing for single stream processing capacity located outside of the County. If deemed viable, pursue single-stream recycling. • If deemed not viable, re-examine to determine if viable as part of future recycling processing and collection system.
Consider Bi-Weekly Garbage Collection	• Consider for Year 7 (2017) or when the very next collection contract RFP would begin.
Garbage Disposal	
Short-term: Modifications to Current Operating Landfills	• Within Year 1, assess operations at the current landfill sites to determine if landfill capacity can be extended through enhanced operations such as grinding bulky wastes, and increased enforcement of material separation at landfills and transfer stations. • Within Year 1, complete cost/benefit analysis for grinding systems at Collingwood landfill to reduce volume of bulky wastes prior to disposal.
Short-term: Use of Disposal Capacity Outside of the County	• Within Year 1, City Council should be requested to reconsider current position with regards to no waste import/export. • Within Year 1, issue RFQ or RFP seeking pricing and terms for short-term export of garbage to sites located outside of the County.

Initiative	Overview of Recommendations
Longer-term: Continued Use of Existing Simcoe Landfill Sites	• It is likely that increased waste diversion and enhanced operations will preserve and extend landfill capacity over the longer term. • Additional efforts could be considered to further preserve/develop capacity at these sites, including engineering assessment in order to determine if the sites can be expanded either vertically (lift) or horizontally (footprint expansion).
Longer-term: Development of Approved Landfill Capacity within Simcoe	• Complete the permitting process for Sites 9 and 12 to obtain approval of the design and operation reports. Site 12 has the best potential to be developed. Development should only proceed if regular Strategy updates indicate that this capacity may be required.
Longer-term: Long-Term Export of Garbage for Disposal	• Continue using residual disposal facilities outside of the County for a portion of the remaining garbage. • During approximately Year 5, issue an RFP or RFQ to determine long-term options for export of residual garbage that is reasonably priced.
Longer-term: Consideration of Residual Garbage Processing Technologies	• Assess progress made towards diversion goals and available opportunities for partnerships in processing facility development. • On or before Year 5, consider formal process to pursue a new waste processing facility with a private or public partner.

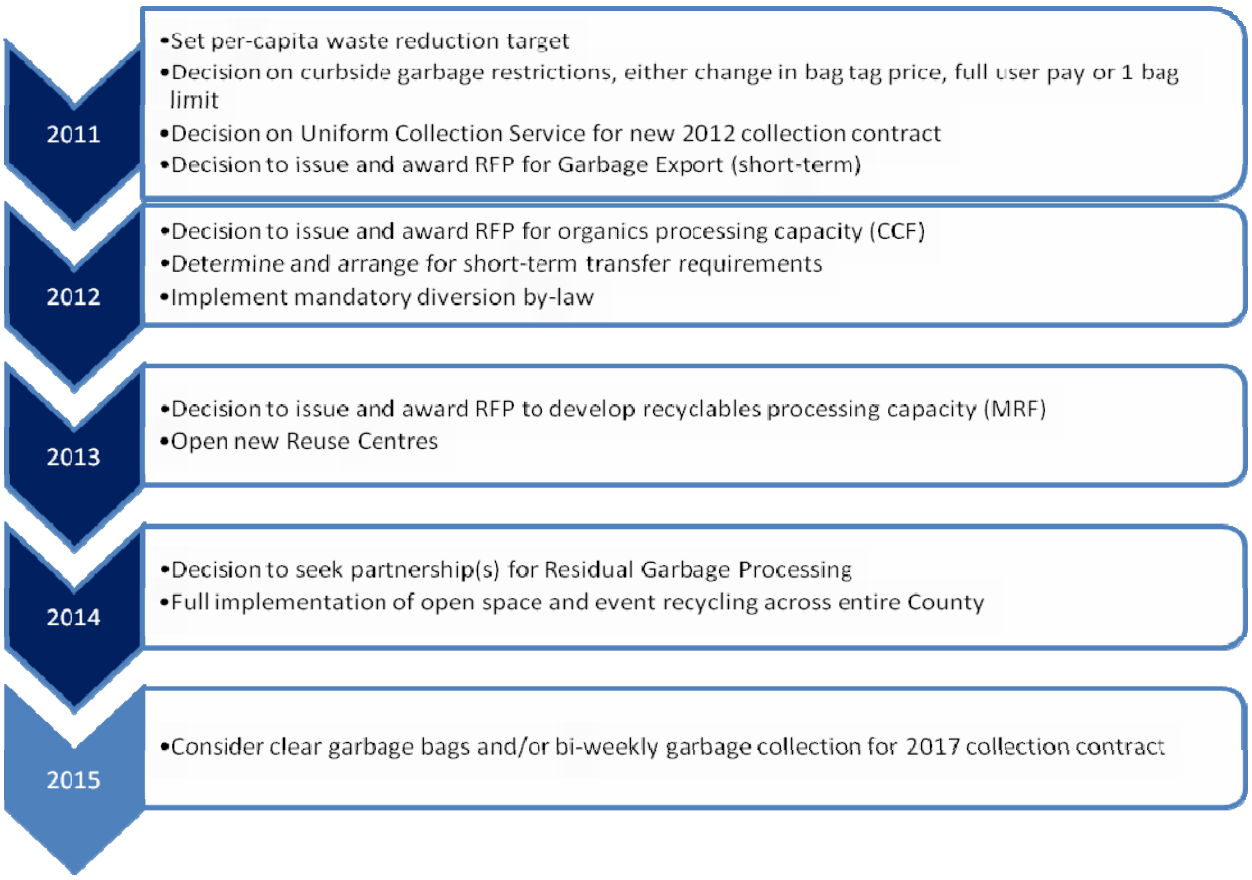
16.3 ROLE OF COUNTY COUNCIL

The recommended Strategy sets a direction for the County to follow over the next 20 years. However, along this path to full SWMS implementation, there will be a number of key decisions that would be made by County Council.

Some of the more significant decisions required by Council to implement the SWMS are noted below in Figure16-2, which identifies the key decisions that would be required of County Council over the first five years of the SWMS implementation.

Beyond making decisions regarding key elements of the Strategy, Council would receive regular reports regarding the progress made in implementing the Strategy. It is anticipated that the Waste Management Advisory Committee would also continue to play a role throughout the implementation process. Members of Council in the roles as local municipal representatives are also expected to play a role acting as a conduit to the local municipal governments on implementation items that would involve local participation such as enforcement of new by-law provisions, participation in special events and public open space diversion programs etc. Many members of Council are expected to continue acting as ‘ambassadors’ interacting with the public during the implementation of key components of the Strategy.

Figure 16-2 Key Decisions Required for SWMS Implementation



16.4 COST AND FINANCING

Six different Strategy Versions were developed as part of the financial summary. Table 16-2 provides an overview of the various scenarios that were reviewed.

Table 16-2 Overview of Implementation Scenarios

Scenario	Full User Pay	One Bag Limit	Higher Cost Bag Tags	Processing County EFW	Processing Partnership EFW	Processing Alternative Facility	Long-term Export
Status Quo & Version 2	-	-	-	-	-	-	Yes
Strategy Version 1	Yes	-	-	-	-	-	Yes
Strategy Version 2	-	Yes	-	-	-	-	Yes
Strategy Version 3	-	-	Yes	-	-	-	Yes
Strategy Version 4	Yes	-	-	Yes	-	-	-
Strategy Version 5	Yes	-	-	-	Yes	-	-
Strategy Version 6	Yes	-	-	-	-	Yes	-

Through the financial analysis, it was determined that:

- Status Quo net costs escalate due to the closure of operating landfills, increase in disposal costs and generation of less revenues (i.e., from recycling, composting, other).
- Implementation of the Strategy offers a waste management system at equal or less net cost considering both cash flow and net present value analysis of the various Strategy scenarios.
- Variations in approach to reduce curbside garbage (e.g. increase in bag tags, full user pay or firm one bag limit) cause some variation in net cost (minor), but a larger variation in how the future strategy would be financed.
- Variations in longer-term disposal approaches (export versus processing) results in higher variations in net cost.
- There is a potential to realize economies of scale through a partnership(s) (comparing Versions 4 and 5) to process garbage ($80 million over planning period).
- Full user pay allows for nearly 2/3 of the net system costs to be funded by direct user fees (i.e., bag tags), reducing the portion of the costs that is covered indirectly by the levy.
- Full user pay (Strategy Versions 1, 4, 5, 6) shifts more of the net cost of waste management to user fees versus the levy.

Under the Strategy, average costs per household:

- Increase for general diversion (varies based on option chosen to restrict curbside garbage).
- Decrease for garbage collection (based on decreased waste volumes and cessation of bulky goods collection).
- Decrease for blue box recycling (as the operating and capital for a new MRF is offset by recycling revenues).
- Increase for organics (based on new CCF, increased tonnes of organics).
- Decrease for garbage as diversion increases and operating landfill space is conserved (Strategy Versions 1, 2 and 3).
- Can increase for garbage depending on garbage processing option (Strategy Versions 4, 5 and 6) that may be available.

16.5 SUMMARY OF SWMS ADVANTAGES

Review of the various components of the SWMS, along with performance and cost projections, indicates that there are a number of advantages to the County adopting the recommended SWMS.

With the Status quo (no change to the waste system), net costs are expected to escalate over time, due to the closure of operating landfills, increase in disposal costs and generation of less revenue (from recycling, organics etc). The Status quo system would not further enhance diversion, which when combined with an increasing population, means greater quantities of garbage to dispose of. Given the limited disposal options within the County, costly and dwindling disposal capacity outside the County, an alternate system which can divert and manage more material more efficiently and cost-effectively warrants careful consideration.

The preferred Strategy has integrated the concepts of Zero Waste, will enhance diversion programs, will allow the County more control over recycling and organics collection and processing and will ensure that the County has garbage disposal capacity for the next 20 years.

Table 16-3 below, compares some of the key attributes for the Status Quo and recommended SWMS.

Table 16-3 Key Attributes of the Status Quo and Recommended SWMS

	Status Quo System	SWMS Recommended System
Diversion Rate (for County Programs)	55%	71 to 77%
Reduction, Re-use and other Diversion	No new programs after 2010	Full suite of new diversion initiatives
Curbside Collection	1 Bag limit for garbage, $2 for extra bags	Increase restrictions on curbside garbage
	Varying level of service for leaf & yard waste	Common minimum level of service throughout County
	Bulky item collection	No bulky item collection
	Metals collection	Phase out at curbside, remove tipping fee at depots
Depot Collection	Existing depot services	Enhanced depot services
Recyclable Processing Capability	Majority exported outside County	Potential construction of a new MRF, more control and flexibility over processing
Organic Processing Capability	Must export outside County	Construct a new CCF, more control and flexibility over processing
Garbage Disposal	Operating Landfills will be at capacity in approximately 7 years	Garbage export and/or processing could extend life of operating landfills by 8 or more years
Recovery Rates of Divertible Materials	Same	Increased
Average Annual Net cost per Household	$314	$277 to $330 depending on choice of long term disposal
Estimated amount of garbage requiring disposal by 2030	89,200 tonnes	51,860 tonnes
Total amount of garbage requiring disposal (2011 to 2030)	1,522,000 tonnes	1,085,000 tonnes