County of Northumberland
Waste Management Master Plan
Final Report

February 2014

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Executive Summary

Stantec Consulting Ltd. (Stantec) has been retained by the County of Northumberland (County) to assist in the development of a long-term Waste Management Master Plan (Master Plan). The County's stated objectives for the development of the Master Plan are as follows.

- To review current waste management programs and propose alternative methods of practical and sustainable waste management service delivery, including a plan to meet or exceed the provincial waste diversion target of 60%; and
- To identify and review practical and sustainable residual waste disposal options.

The County's overall waste management system is well developed. Individual programs and services are operating effectively and most modern waste management processes are in place. What could be improved is an overall consolidated future vision for the entire waste management system. Creation of a Master Plan will address this situation by providing clear direction for the next 20 years. Implementation of the Master Plan can be staged over the short (0 to 5 years), medium (5 to 10 years) and longer term (10 to 20 years).

The ongoing process to expand the County's Brighton Landfill is not included within the scope of this assignment, but the status and magnitude of the landfill expansion has been considered when evaluating future landfill and/or residual waste disposal needs.

The following specific constraints were identified which may impact the program choices available to the County at certain points in time:

- The Materials Recycling Facility (MRF) has much greater processing capacity than needed to manage the County's residential recyclable materials. This additional capacity is used to process local private sector recyclable materials and blue box materials collected within the City of Kawartha Lakes.
- The County's only operating landfill, which is located north of the community of Brighton, will reach capacity in 2016 based on the current approval. Presuming provincial approvals are granted for a proposed expansion to this facility, the capacity would be extended to approximately 2024; and,
- The terms and conditions of the existing collection contract including expiry date, facility locations and capacities.

Based on a comprehensive review of the County's waste management programs and services, and the feedback received from the public and the Master Plan Advisory Committee, Stantec has generated the following conclusions:

1) The County now has a clear strategy for the operation of the Materials Recycling Facility (MRF) since a contractual arrangement has been confirmed with the City of Kawartha Lakes. Upgrades to the MRF and changes in local collection can now be implemented with the certainty of a processing partner in place;

2) Collection of Yard Waste/Brush at the curbside offers the greatest potential to increase diversion from landfill in the short term, and at a relatively low cost;

3) A transition to common service levels at the County's three (3) public drop off locations will assist in enhancing existing diversion programs, and simplify messaging to the community;

4) Collection of recyclables from all multi-residential dwellings will improve diversion from this growing housing sector in the County;

5) A more flexible collection program for small businesses in the downtown cores will better address specific needs in these areas;

6) Overall system costs are reasonable and the existing curbside collection contract is well designed and well managed;

7) There is limited potential to fund new programs or program enhancements from higher landfill and bag tag fees;

8) Implementation of a "Green Bin" food waste diversion program may take several years to properly plan but full implementation is feasible within a five-year period;

9) Alternative disposal technologies for residual wastes are not currently approved or available for County consideration (with the exception of the Algonquin Power incinerator in Brampton) but could be reconsidered as a mid or longer term program improvement option;

10) Pending the result of the Brighton Landfill Expansion Environmental Assessment (EA) approval process, the County requires a residual disposal strategy to be developed either in the 0-2 year short term if no expansion approval is obtained; or in the 4-6 year mid-term if the proposed landfill expansion is approved by the province. Waste export is the only feasible short-term option if the current EA is not approved;

11) The County's current promotion and education efforts need to be re-focused and specifically designed to advance the waste reduction goals of this Master Plan. The re-focused program should vary from year to year based on new program rollouts.

Existing funding can be redirected as needed with one-time funding available from new program budgets.

Stantec has developed recommendations for program improvement and change to be implemented by the County over the next 20 years. Master Plans often provide a very aggressive implementation schedule which places severe pressure on financial and staff resources in the short term. This approach can lead to unrealistic expectations and community disappointment when program rollouts are delayed. The following recommendations stagger opportunities for improvement over the planning horizon to allow staff to systematically develop detailed implementation plans while also spreading the financial impact of program changes over a more manageable time period.

The following list presents issues representing major change or of strategic importance. Other more minor issues are included within the body of the report. An integrated waste management system such as that operated in Northumberland County has many interdependencies. The following recommendations cannot necessarily be implemented in isolation and related activities are noted where applicable. Overall promotion and education needs to support this Master Plan as described in Conclusion 11 are considered to be included in relevant recommendations below.

A SHORT-TERM OPPORTUNITIES

A1 – Upgrade of the Materials Recycling Facility

Given that the County now has a longer term processing contract with the City of Kawartha Lakes (CKL), and the fact that material from CKL arrives sorted into separate container and paper fibre streams, it is recommended that the County upgrade aging equipment at the MRF in 2014/2015, and transition to a two stream collection program for recyclables by the next collection contract expiry date at the end of 2018.

A2 – Implement Yard Waste/Brush Curbside Diversion Program

Diversion of yard waste and brush from landfill is a straightforward and cost effective waste reduction strategy. It is recommended that the County implement seasonal collection in 2015 (April to November) and beyond through a single truck pilot program, and that all areas deemed to benefit from seasonal collection through the pilot program receive collection service during the next collection contract beginning in 2019.

A3 – Collect Recyclables from all Multi-Residential Dwellings

Most multi-residential dwellings (apartment buildings and condominiums) in the County do not receive any municipal collection services. While the County's bag tag garbage system does not work well for these types of dwellings, collection of recyclables can be readily implemented in a cost effective manner. This recommendation also serves to anticipate the likely shift in the County to construction of more multi-residential units in the future.

A4 – Upgrade Transfer Stations and Implement/Maintain Common Services and Fees

The three County transfer stations provide a ready-made opportunity for residents and business to cost-effectively divert additional materials from landfill. Upgrading the transfer stations to permit drop-off of a wide variety of materials such as dimensional lumber, wooden pallets, electronics and textiles is a very flexible and cost-effective method to address the challenges of a changing wastestream. Drop-off of blue box recyclables and other traditional materials can also be easily accommodated. Rebranding these facilities as “Community Recycling Centres” is also recommended.

As these drop-off programs are being developed, it would be beneficial to implement common services across all County facilities and maintain the recent policy change (April 2013) of common fees at all sites. It is also suggested that staff investigate opportunities to partner with not-for-profit organizations for the establishment of re-use facilities at the County’s landfill and/or Transfer Stations.

A5 – Develop a More Flexible Collection Program for Downtown Small Business

Some downtown small business owners have requested that the current policies be revisited to meet their needs, while still maintaining County policy regarding fee-for-service. Many municipalities offer special accommodations for downtown small business to reflect the challenges of operating in those locations. Possible changes may include more frequent collection and more bags allowed on each collection day.

A6 – Maintain Current Revenue Balance of User Fees and Property Tax Support

Future program spending increases cannot be fully funded from User Fees without creating unintended consequences. Increasing bag tag and landfill fees beyond what is considered reasonable by the community will lead to attempts by residents to dispose of waste through roadside dumping, inappropriate use of municipal garbage receptacles, excessive compaction, and waste disposal in private bulk bins. The County should also maximize other potential revenue sources such as grants, subsidies, and revenue from the sale of collected commodities.

A7 – Develop Collection and Processing Options for Green Bin Organics

Curbside collection of green bin organics has the potential to divert significant tonnage, but program implementation would be at a high cost. Processing facilities in Ontario have had many challenges in recent years and guaranteed long term processing capacity has historically been difficult to obtain from contracted providers. The County should work with its municipal neighbours in the near term to explore opportunities to jointly develop an organics processing facility locally, or solicit bids for contracted service. Collection approach and rollout strategy can be developed in the 1 – 3 years window. In the interim, the County could look into the feasibility of offering backyard composters to the general public at a subsidized rate to promote additional organic waste diversion in advance of a curbside collection program.

A8 – Develop Short Term Residual Disposal Strategy (if required)

If the proposed Brighton Landfill expansion is not approved by the Province of Ontario, the County will need to create a short term strategy to address its future disposal needs when the Brighton site closes in 2016 or 2017. Options in this scenario will be limited and with few options beyond export to another private or public sector landfill, or export to a waste-to-energy facility. It is recommended that this strategy be developed and finalized in 2014 and 2015 if required.

B MID- AND LONG-TERM OPPORTUNITIES

B1 – Revisit Opportunities to Utilize Alternative Disposal Technologies at Permitted Facilities

Aside from the Algonquin Power waste-to-energy facility in Brampton, there are no other commercial-scale facilities utilizing alternative disposal technologies currently operating in Ontario. Given that some technologies offer great promise, it is recommended that the County revisit this approach in the mid and longer term.

B2 – Full Implementation of Green Bin Organics Program

It is recommended that implementation of a collection and processing program for green bin organics be fully rolled out by 2019 after a thorough operational and financial planning process is complete.

B3 – Develop Detailed Residual Disposal Strategy

This recommended action is the same as recommendation A8, but is not required until a later date based on the premise that Brighton Landfill expansion is approved in the short term. Based on the public's desire to have the County manage their waste locally, the current residual disposal options are limited to: expanding an existing landfill; or developing a new landfill. Both of these options would require the County to go through a provincial Environmental Assessment EA process. This process would need to commence in the year 2016 or 2017. If at the time this EA is proceeding there are other viable waste disposal options available locally (e.g. waste-to-energy), the County should include these options in the EA for consideration.

B4 – Optimize Function and Diversion Potential of Transfer Stations

As packaging and technological trends change, the mix of materials suitable for diversion at the transfer stations will also change. County staff will be required to add and delete materials acceptable for diversion as trends change in order to maintain the long-term effectiveness of this strategy.

B5 – Transition to Two-Stream Curbside Sort for Recyclables

The County currently collects recyclables mixed in a blue bag. By separating paper fibres from containers in the collection vehicle, less sorting is required at the Materials Recycling Centre, residue is reduced, and cleaner materials can be sold to market for higher revenue.

B6 – Complete 5 Year Review Cycle for this Master Plan

The waste management industry continues to evolve at a rapid rate compared to most other municipal public works services. A 5-year review cycle for this Master Plan is considered appropriate given several program options has mid to long-term implementation recommendations.

Figure E-1 graphically presents the proposed timeline for new program implementation, along with expected diversion potential and cost. It is expected that the County will improve its waste diversion performance from 40% currently, to between 53% and 57% by 2019. Mid and longer term program implementation will permit the County to achieve the 60% waste diversion goal within the 20 year planning horizon.

FIGURE E-1

IMPLEMENTATION PLAN

COUNTY OF NORTHUMBERLAND WASTE MANAGEMENT MASTER PLAN

	2014	2015	2016	2017	2018	2019	2020	2021 - 2025	2026 - 2035
COUNTY COUNCIL APPROVAL OF MASTER PLAN	*					* Update Master Plan		*	Update Master Plan
RECYCLING FACILITY									
→ Confirm long-term processing capacity needs	*								
→ Upgrade equipment based on two-stream sort		up to $1 million capital	savings of $200K /yr		up to $1.5 million capital	savings of $500K /yr			
→ Incorporate two-stream sort into collections tender		500 - 1000 tonnes							
YARD WASTE/BRUSH DIVERSION									
→ Add seasonal service as pilot (single truck)		$200,000 annual							
→ Continue based on participation									
→ Incorporate into new collection tender		1000 - 2000 tonnes							
→ Commence new collection contract including seasonal yard waste									
RECYCLABLES COLLECTION AT APARTMENTS/CONDOS									
→ Phase in new service by 2019			$30,000/yr	$30,000/yr	$30,000/yr				
→ Include as base collection item in new collection contract			200 tonnes	200 tonnes	200 tonnes				
DIVERSION AT DEPOTS/TRANSFER STATIONS									
→ Confirm expanded diversion programs									
→ Service phase in		$50,000/yr	$50,000/yr	$50,000/yr	$50,000/yr				
→ Develop revised fee and service schedule		300 tonnes	300 tonnes	300 tonnes	300 tonnes				
ENHANCED SERVICE TO DOWNTOWNS									
→ Develop plan based on stakeholder need									
→ Provide enhanced service to meet need									
LANDFILL/RESIDUALS									
→ Develop short-term disposal strategy (no Brighton expansion)									
→ Develop disposal strategy (Brighton approved to 2024)									
GREEN BIN ORGANICS									
→ Plan for full program rollout:									
o Meet with possible municipal partners									
o Evaluate private processing capacity						conceptual 1000 - 5000 tonnes			
o Scope collection methods and costs									
o Approvals/design/construction processing facility									
o Procure containers/rollout promotion									
→ Commence new collection contract including green bin organics						$250,000 to $1 million/yr			
ANNUAL AND CUMULATIVE FINANCIAL IMPACT **- Annual Operating Additions**		$ 250,000	$ 80,000	$ 80,000	$ 80,000	$ 1,000,000			
- Annual Operating Savings		$ -	$ (200,000)	$ -	$ -	$ (500,000)			
- Cumulative Totals		$ 250,000	$ 130,000	$ 210,000	$ 290,000	$ 790,000			
PROJECTED WASTE DIVERSION POTENTIAL **- Annual Additions (tonnes)**		1800 - 3300	500	500	500	1000 - 5000			
- Cumulative Totals (tonnes)		1800 - 3300	2300 - 3800	2800 - 4300	3300 - 4800	4300 - 9800			
- Diversion Percentage	(40% assumed)	47%-53%	49%-55%	51%-57%	53%-59%	56%-75%			
COST PER HOUSEHOLD	($190 assumed)	$197 / yr	$194 / yr	$196 / yr	$198 / yr	$211 / yr			

1.0 Introduction

1.1 GENERAL

Stantec Consulting Ltd. (Stantec) has been retained by the County of Northumberland (County) to complete a long-term Waste Management Master Plan (Master Plan). The County's stated objectives for the development of a Master Plan are as follows:

- to review current waste management programs and propose alternative methods of practical and sustainable waste management service delivery, including a plan to meet the provincial waste diversion target of 60%; and
- to identify and review practical and sustainable residual waste disposal options.

The County's overall waste management system is well developed. Individual programs and services are operating effectively and most modern waste management processes are in place. What could be improved is an overall consolidated future vision for the entire waste management system. Creation of a Master Plan will address this situation by providing clear direction for the next 20 years. Implementation of the Master Plan will be phased over the short (0 to 5 years), medium (5 to 10 years) and longer term (10 to 20 years).

The ongoing process to expand the Brighton Landfill is not included within the scope of this assignment, but the status and magnitude of this landfill expansion was considered when evaluating future landfill and residual waste disposal needs.

The County and Stantec developed this Master Plan by following a prescribed sequence of activities as noted below.

1. Creation of a Master Plan Advisory Committee to provide ongoing guidance and feedback to County staff and Stantec. Advisory committee membership, terms of reference, and meeting agendas and minutes are provided in Appendix A.

2. Preparation of a Public Consultation and Communication Plan for development of the Master Plan, included in Appendix B.

3. Preparation of draft Interim Technical Reports for each major program or service area to document existing conditions and general opportunities for improvement.

4. Solicitation of feedback from the Advisory Committee and the public (including three Public Information Centres (PICs)) on the Technical Reports. Information presented at these three initial PICs is included in Appendix C along with a summary of feedback received.

5. Preparation of draft conclusions, recommendations, and implementation details incorporating comments from the initial three PICs.

6. Solicitation of feedback from the Advisory Committee and the public (including three additional PICs on the draft conclusions, recommendations, and implementation details). Information presented at this second round of consultation sessions is summarized in Appendix D along with a summary of feedback received.

7. Finalization of Master Plan for County Council approval.

8. Communication of approved Master Plan to the community.

This Final Report is organized into the following topic areas:

- Section 2 - Landfills and Transfer Stations
- Section 3 - Material Recovery Facility Operations
- Section 4 - Residual Waste Disposal Alternatives
- Section 5 - Curbside Collection Services
- Section 6 - MHSW and E-waste Diversion Programs
- Section 7 - Other Diversion Programs
- Section 8 - Service Level Equity for Multi-Unit Dwellings, Apartments, and Businesses
- Section 9 - Cost Recovery Mechanisms

The preceding sections are organized independently, and generally present information consistent with the following outline:

- Current Programs and Services
- Anticipated Future Needs
- Alternative Solutions to Meet Future Needs
- Conclusions
- Recommendations

Based on key results from these sections, a long-term implementation plan was developed reflecting dates and timing of required actions. In some cases there are technical matters that overlap between program areas. These inter-relationships will be noted in the relevant sections. Section 10 summarizes the complete list of Master Plan conclusions and recommendations while Section 11 presents a proposed implementation plan complete with estimated annual costs for implementation, and projections of tonnage to be diverted from landfill.

1.2 BACKGROUND

The County is responsible for collection of waste and recycling from approximately 33,500 permanent households, 2,600[1] seasonal households and 2,000 commercial locations from within the seven (7) municipalities that include:

- Township of Alnwick/Haldimand
- Municipality of Brighton
- Town of Cobourg
- Township of Cramahe
- Township of Hamilton
- Municipality of Port Hope
- Municipality of Trent Hills

Waste and recyclables generated within Ward 2 of the Municipality of Port Hope and Alderville First Nations within the Township of Alnwick/Haldimand are not collected by the County; however, the waste and recyclable materials are managed at the County's landfills and Material Recovery Facility. Specific program and service details are summarized in each of Sections 2 through 9.

Table 1-1 provides a summary of the current populations of the County by Municipality and the land area size.

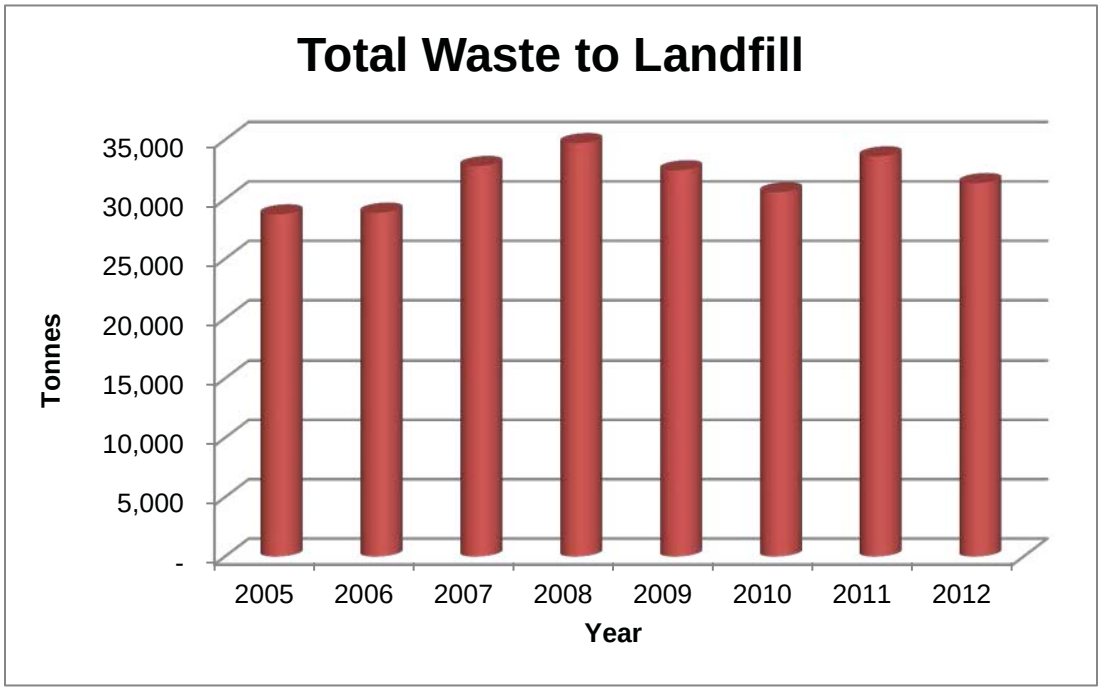
Table 1-1: Summary of Municipal Populations and Land Area, Northumberland County

Municipality	Population (2011 Census)	Land Area (km^2)
Northumberland County	82,126	1,905.34
Township of Alnwick/Haldimand	6,617	398.57
Alderville First Nation	469	12.60
Municipality of Brighton	10,928	222.76
Town of Cobourg	18,519	22.37
Township of Cramahe	6,073	201.98
Township of Hamilton	10,702	256.12
Municipality of Port Hope	16,214	279.03
Municipality of Trent Hills	12,604	511.90

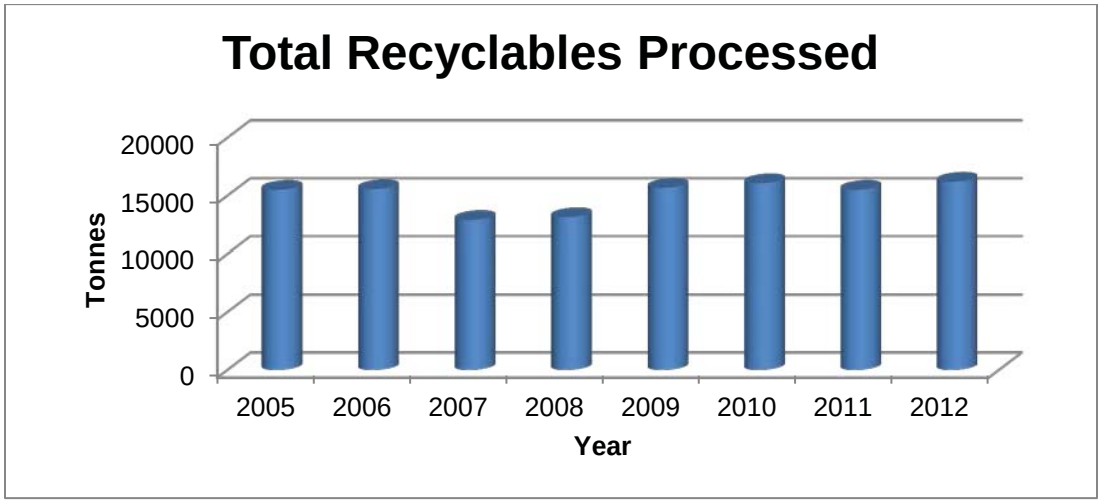
[1] County of Northumberland. Request for Proposal No. 09-10. Curbside Collection of Waste and Recyclables. March 2010.

1.3 HISTORICAL TONNAGE DATA

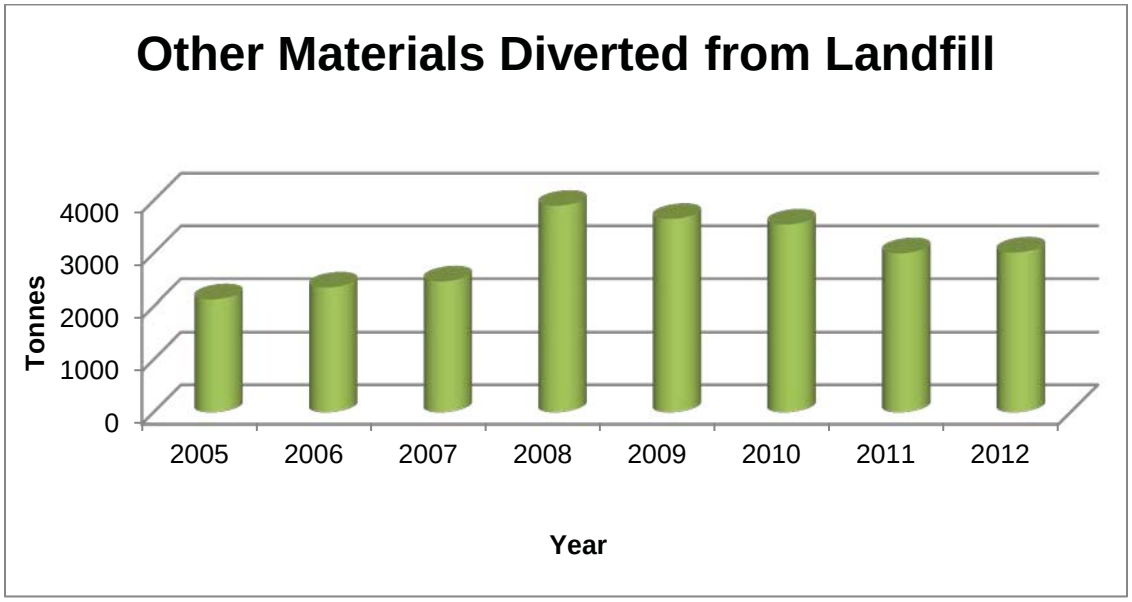
The County has provided Stantec with historical tonnage data from its various waste management services. The following graph shows the total waste sent to landfill since 2005 (combined Brighton and Seymour tonnages).



Similarly, the following graph represents the progress achieved in diverting recyclable materials from the wastestream.



Other materials diverted from the County's landfills such as yard waste, tires, household hazardous waste, and electronic waste are shown in the figure below.



1.4 WASTE DIVERSION STATISTICS

Using common methodology developed by Waste Diversion Ontario (WDO), the County has a residential waste diversion rate of 40.5% for 2011. Using other published data from WDO, Stantec compared the County's residential diversion rate to other surrounding municipalities of similar population for 2011 as shown below.

Table 1-2: 2011 Waste Diversion Statistics

Municipality	Population (2011)	Waste Tonnage per Capita	Residential Diversion Rate (%)
City of Peterborough	80,660	0.446	53.7
County of Wellington	75,713	0.241	41.2
County of Northumberland	82,126	0.320	40.5
City of Brantford	93,650	0.481	34.0
City of Kawartha Lakes	73,214	0.362	38.0
City of Sault Ste. Marie	75,188	0.426	38.7

Based on this comparison, the County is currently generating less waste on a per capita basis than most areas with a similar population size. In terms of waste diversion, the County is in the middle of the group.

Based on this diversion rate, Stantec will evaluate the County's various waste management practices in order to develop recommendations for reaching the provincial diversion target of 60%.

1.5 PROGRESS ACHIEVED DURING MASTER PLANNING PROCESS

1.5.1 Change of Seymour Landfill to Transfer Station

In April 2013, the Seymour Landfill reached its approved capacity and ceased operations as a landfill. The County had intended to increase the approved capacity for the site by 39,000 m^3 (approximately two years). However, based on application requirements, it was deemed not economically feasible to pursue this additional capacity. Going forward, the Seymour facility will operate exclusively as a waste transfer station.

1.5.2 Harmonization of Waste Disposal Tipping Fees at County Landfills

On April 1, 2013 the County harmonized the tipping fee for waste disposal at all County facilities. Prior to this date there were different levels of service and fees depending on geographic location. Stantec suggested in the draft Interim Technical Report (July 2012) that the County consider offering the same level of service and fees at all facilities in order to simplify communication of services to residents.

In 2012 the disposal rate at the Brighton and Seymour Landfills was $95/tonne; while a fee of $115/tonne was charged at the Bewdley Transfer Station. As of April 1, 2013, the waste disposal rate was standardized at $115/tonne at all County operated sites. This was the harmonized fee determined as reasonable by County staff based on the average waste tipping fees for neighbouring landfills.

1.5.3 City of Kawartha Lakes Processing Contract

The County recently entered into a formal long-term contract with the City of Kawartha Lakes (CKL) to process their recyclables at the County's MRF. In 2012 CKL delivered approximately 4,700 tonnes of fibre and 1,700 tonnes of co-mingled containers to the County's MRF from their dual-stream recycling program. The processing of these materials represents approximately 40% of the materials processed at the MRF and helps offset costs by charging a fee to CKL.

As part of this planning process, Stantec reviewed the existing operations of the MRF and recommended in the draft Interim Technical Report (July 2012) that if the County continues to operate as a Regional MRF, it would be necessary to secure long-term processing

arrangements with other partnering municipalities, or secure other sources of recyclable materials.

In October 2012, the County responded to a Request for Expressions of Interest (REOI) from CKL regarding their Integrated Waste Management Plan. The County expressed their interest in continuing to process CKL's recyclables materials at their MRF. As a result of this REOI submission, the County was invited to submit a detailed proposal.

In February 2013, the County submitted a detailed proposal to CKL. This proposal was formally accepted by CKL establishing a firm 5-year contract with a 2-year renewal option.

1.5.4 Fees for Scrap Metal and Leaf and Yard Waste

In September 2013, County Council approved the elimination of fees charged for the drop-off of scrap metal at all facilities. It also approved waiving the tipping fee for the first 100 kg of leaf and yard waste dropped off. These changes came into effect January 1, 2014.

2.0 Landfills and Transfer Stations

2.1 CURRENT PROGRAMS AND SERVICES

2.1.1 Landfills

The County currently operates one active landfill site and maintains eight closed landfills. The eight closed sites are monitored on a regular basis and an annual monitoring report is issued for each site. Given that monitoring and management of these closed sites is underway and reported annually, this forward-looking Master Plan will not include specific details pertaining to closed landfills.

The active landfill site is located north of the Community of Brighton (Brighton Landfill). The Seymour Landfill, located south of the Community of Campbellford, was a relatively small site with limited remaining approved capacity, and was closed on April 1, 2013 and converted to use as a transfer facility only.

The Brighton Landfill is a large site that has undergone several environmental upgrades in recent years including installation of base liner and leachate collection system under a portion of landfill. The County has undertaken and submitted an Individual Environmental Assessment to expand the capacity of the Brighton Landfill by approximately 500,000 m³ and is currently awaiting an approval decision from the Ministry of the Environment. Key operating and site life facts for the Brighton Landfill are noted below (Table 2-1).

Table 2-1: Brighton Landfill

Site Opened	1975
Remaining Capacity	210,000 m^3 (effective Dec. 2011; excludes proposed 500,000m^3 expansion)
Expected Closure Date	2016 without expansion
2010 Disposal Tonnage 2011 Disposal Tonnage 2012 Disposal Tonnage	22,000 tonnes 23,000 tonnes 23,000 tonnes
Services Offered	Landfill disposal Diversion drop-off for metal/white goods/drywall/tires Recycling drop-off for cardboard ONLY (no other blue box materials) Composting drop-off and processing for brush/leaves/grass

Facilities/Systems	Computerized weigh scale HDPE liner and leachate collection system Equipment and staff facilities
Equipment/Staffing	2008 CAT D6 dozer 2000 CAT 816 compactor 1996 Volvo A35 rock truck Approximately four FTE staffing
Hour of Operation	Monday to Saturday: 8:30 AM to 5:00 PM
Vehicle Count	31,000 per year

The landfill is operated with suitable equipment and staff complement. Typical indicators of a well-run landfill operation include a compact tipping face, sufficient soil cover over the waste, well organized road network and cell development, and good general housekeeping including litter control. Given the size of the facility and available resources, the Brighton Landfill operates to a very high standard. Recent improvements to the equipment fleet and environmental control systems have elevated the overall performance of the site. While there is always room for improvement, the Brighton Landfill is a professionally run operation with committed and competent staff.

2.1.2 Transfer Stations

Transfer stations (also sometimes referred to as drop-off facilities) are at the following locations, also noted on Figure 2-1:

- Brighton Landfill, 1112 County Road 26, north of Highway #401.
- Seymour Transfer Station, 344 5th Line West, west of County Road #30, south of Campbellford.
- Bewdley Transfer Station, 7650 County Road 9, between County Road 28 and County Road 18.
- Hope Transfer Station, 4775 5th Line, east of county Road #10).

The Municipality of Port Hope's Ward 2 is the only geographic area in the County that does not receive municipal collection of garbage and recyclables. This was a historic preference of local residents and was maintained when the County assumed full responsibility for waste management. The Hope Transfer Station accepts only tagged residential bagged garbage, recyclables and scrap metal (no Freon containing white goods) from Ward 2 residents of the Municipality of Port Hope. This transfer station is open Monday, Tuesday, Friday, and Saturday from 9:00 AM to 5:00 PM, and Wednesday from 11:00 AM to 7:00 PM.

The transfer station at the Brighton Landfill has the same hours of operation as the landfill as noted above. Materials accepted are noted above, but no blue box materials other than cardboard are accepted at the landfill.

The Bewdley Transfer Station is the only facility in the County to accept all garbage, recyclables, and other materials for diversion including scrap metal and white goods, drywall, and leaf and yard waste. This transfer station is open Monday to Saturday 8:30 AM to 5:00 PM in the summer and Tuesday to Saturday 8:30 AM to 5:00 PM in the winter.

The Seymour Transfer Station is located at 344 5th Line West, west of County Road #30, south of Campbellford. Its hours of operation are Monday to Saturday from 8:30 AM to 5:00 PM.

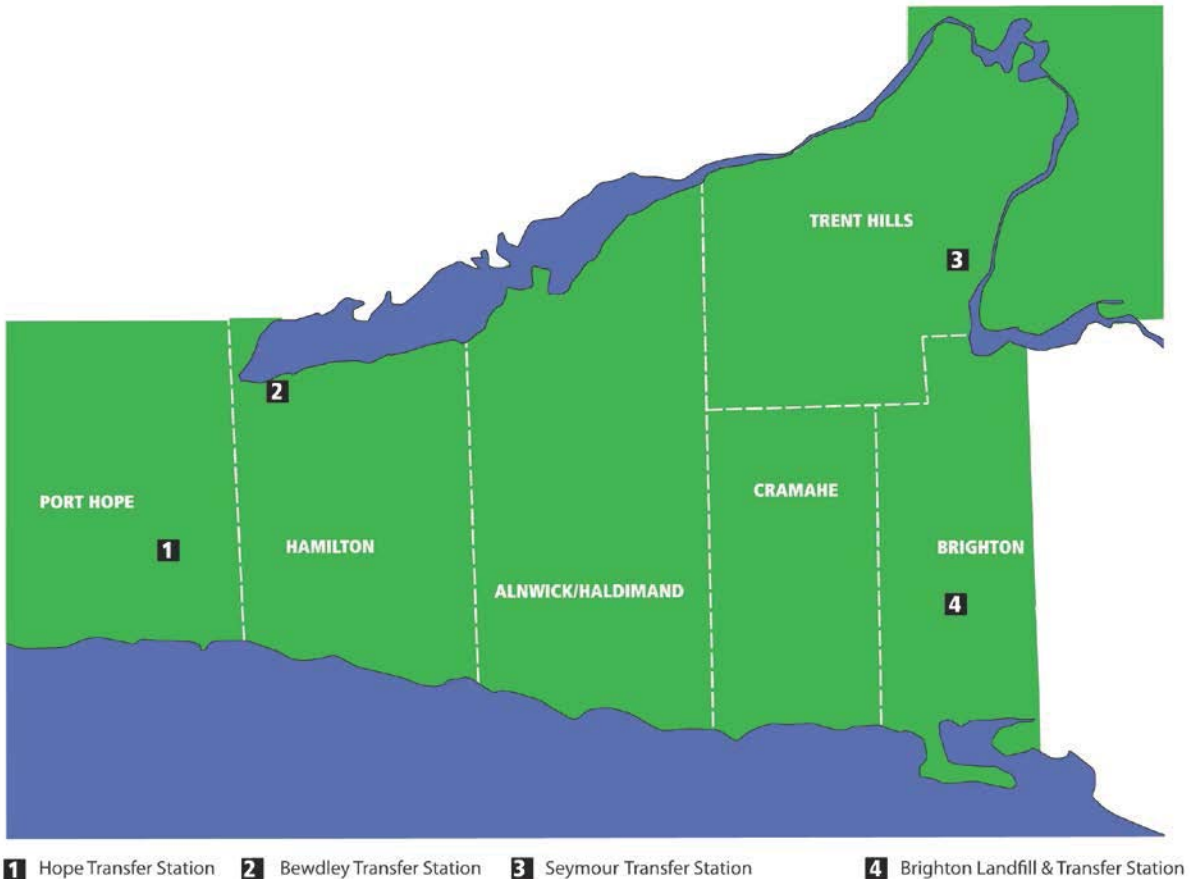


Figure 2-1: Location of Transfer Stations and Landfills

2.2 ANTICIPATED FUTURE NEEDS

2.2.1 Existing Permitted Landfill Disposal Capacity

Effective January 1, 2013, the total remaining capacity at the Brighton and Seymour Landfills was 214,000 m³ (206,000 m³ at Brighton and 8,000 m³ at Seymour).

Approvals for landfill capacity are typically granted based on a volumetric measure, even though incoming waste material is measured by the tonne at weigh scales; therefore, the in-place density of the waste is a critical performance factor. The greater the compaction of the waste (and therefore the greater the in-place density), the more tonnes of waste can be placed within a given volume. Landfill volume is typically referred to as airspace.

In-place waste density at municipal landfills can vary from 600 to 1000 kg per m³. The actual density achieved is a function of the type of waste, the compactive effort, and the amount of soil cover placed over the waste daily.

2.2.2 Impact of Potential Expansion at Brighton Landfill on Residual Disposal Needs

As previously discussed, an independent process is underway to expand the permitted capacity of the Brighton Landfill. The County has applied to the MOE to increase capacity at the Brighton Landfill by approximately 500,000 m³.

Effective January 1, 2013 remaining approved landfill capacity in the County was 214,000 m³. In the absence of any future expansion approvals, this capacity will be completely consumed by 2016. Therefore, failure to obtain approval to expand the Brighton Landfill will result in the need for the County to take immediate actions to secure disposal capacity at other sites in Ontario or elsewhere in anticipation of the Brighton site closing in 2016.

Even with the approval of the Brighton expansions, County-wide landfill capacity will be completely consumed by approximately 2024.

The preceding projection of disposal needs is considered to be sufficiently conservative to be used for long-term planning needs. If the County implements additional diversion programs in the future, disposal needs will be reduced and projections can be adjusted accordingly.

2.2.3 Transfer Station Future Needs

The four transfer stations are strategically located throughout the County and provide reasonable hours of operation for residents to drop off waste and recyclable materials. There is sufficient property for drop-off area expansion, and operations can be easily adapted to accommodate additional materials for diversion.

Future challenges at the transfer stations include:

- Improved safety measures to prevent injuries due to falls

- Inconsistent levels of service at each transfer station
- Policy issues related to the Hope Transfer Station

2.3 ALTERNATIVE SOLUTIONS TO MEET FUTURE NEEDS

2.3.1 Alternative Landfill Solutions

The County operates only one active landfill site. The Brighton Landfill is monitored for environmental impacts, has improved environmental control systems, and is an overall well-managed facility. The general day-to-day operations are good and no obvious deficiencies are present.

The major challenge for the County in the short-term is securing additional long-term disposal capacity. Even if the Brighton Landfill expansion is approved, capacity will be exhausted by approximately 2024. While other residual waste disposal options are discussed further in Section 5, this section only addresses landfill disposal alternatives.

There are generally two alternatives for municipalities to meet future land disposal needs as follows:

- Develop local municipal landfill capacity through expansions or constructing new sites

- Secure long-term disposal and hauling contract with private landfill operator(s)

Both approaches can deliver 20 years of secure disposal capacity. The decision on which approach to follow is often a matter of policy for municipal councils. Some communities are committed to dealing with waste within their borders independent of cost and community impacts. Other communities are comfortable with arrangements that involve hauling of waste to other jurisdictions.

2.3.2 Alternative Solutions for Transfer Stations

Alternative solutions to address safety concerns at the transfer stations include various fall prevention guards currently used at other similar sites in Ontario. A number of different arrangements with varying costs are available for consideration by the County.

There is currently no consistent level of service offered at the transfer stations. In addition to the current practice, the County could implement full service at all sites, or solicit input from customers on local needs at each transfer station to develop a system based on community feedback.

Fees to drop off garbage at the Bewdley Transfer Station were previously over 50% higher than the other two County operated transfer stations. The rationale for this historic difference was that the County incurs transportation costs to haul waste from Bewdley to the active landfill. An

alternative approach recently implemented by the County is the harmonization of rates for garbage disposal at all sites.

The lack of curbside collection service in Port Hope Ward 2 drives the need for a transfer station in this area. An alternative to operating the Hope Transfer Station is to offer full collection services in Ward 2 consistent with the remainder of the County. Ward 2 residents would pay the same $2.75 per bag fee at the curb, as they are currently charged at the transfer station.

2.4 EVALUATION OF ALTERNATIVES

2.4.1 Evaluation of Alternative Landfill Disposal Solutions

The two long-term disposal options both have a clear set of advantages and disadvantages. The relative weighting of these pros and cons often reflects local priorities. Certain municipal councils may not want to invest the time, and risk community upheaval over a proposed new municipal landfill site. Site searches often consume community and council energy at the expense of other programs. Another perspective is that a community has a moral duty to manage its own waste within its borders. The relative merit of a certain perspective is largely a subjective judgment.

If a community decides to seek additional landfill capacity, there is no right or wrong approach. Both have merit. It is often prudent to ask the community for feedback on which general approach they are most comfortable supporting in the long-term based on the following list of advantages and disadvantages. It is interesting to note that often an advantage with one approach is a disadvantage with the other.

Table 2-2: Advantages and Disadvantages of Long-Term Waste Exporting and Developing Local Landfill Capacity

Advantages	Disadvantages
Long-Term Waste Export Contract	
Reasonably predictable costs	Long haul transportation required
No local environmental impacts	Increased transportation costs
Limited community effort required	Increased air emissions
	Perception that no more diversion required
	Potentially higher long-term cost
Develop Local Landfill Capacity	
Lower long-term costs if approved	Up-front EA costs with no guarantees
Better promotes waste reduction	Potential local environmental impacts
Local integrated solution	Potential for divisive community debate

During the initial round of public consultation in late 2012, public feedback was sought by asking the following question:

- Accepting that some landfill disposal will be required in the future, would you prefer that the County export waste out of the County for landfill, or develop local landfill capacity?

Public feedback was strongly supportive of developing local landfill capacity. Only 19% of respondents indicated that they would prefer exporting waste outside the County.

2.4.2 Evaluation of Alternative Transfer Station Solutions

With respect to safety improvements, the County should consider two or three different styles of fall prevention devices currently in place at other similar facilities, and solicit feedback from those transfer station operators on the performance of those devices over several years. The experience of Stantec staff is that the benefits gained by installing such devices far outweigh the negative risks, and strongly suggest that the County implement fall prevention measures.

With respect to differing service levels at transfer stations, there does not seem to be any impediment to accepting the full list of “Recycle Clean” program materials at transfer stations. The additional diversion achieved may be relatively small, but the presence of blue carts or other containers ~~to accept~~ all materials will send a positive message to customers that all diversion is important. In addition to the “Recycle Clean” materials, the County could consider installing facilities for additional diversion of materials such as municipal hazardous or special waste (MHSW), construction and demolition (C&D) waste, and waste electronic and electrical equipment (E-waste). It is not anticipated that the County would require additional staff resources to monitor these programs.

The existing transfer stations provide the public with the opportunity to divert additional materials. During the initial round of public consultation, feedback was sought on whether the public would utilize the transfer stations to drop off MHSW, C&D, and E-waste materials if the services were available.

Respondents were near unanimous in their support for new diversion opportunities at the existing transfer stations. These existing sites offer great potential for diversion of a wide range of materials at relatively low costs.

2.5 CONCLUSIONS AND RECOMMENDATIONS

Based on a comprehensive review of County landfill and transfer station operations, and feedback received from the public and the Master Plan Advisory Committee, Stantec has generated the following conclusions and recommendations:

- Pending the result of the Brighton Landfill Expansion Environmental Assessment approval process, the County requires a residual disposal strategy to be developed either in the 0-2 year short term if no expansion approval is obtained; or in the 4-6 year

mid-term if the proposed landfill expansion is approved by the province. Waste export is the only feasible short-term option if the current EA is not approved.

- The three existing County operated transfer stations can be better utilized by offering a common package of diversion opportunities for a wider range of materials. It is recommended that the County expand services at transfer stations in a staged manner over the next five years. Rebranding these facilities as “Community Recycling Centres” is also suggested.

- It is recommended that the County install fall prevention devices near bins at all transfer stations in the near term.

3.0 Material Recovery Facility Operations

3.1 CURRENT PROGRAMS AND SERVICES

Northumberland County's Materials Recovery Facility (MRF) currently processes single stream material from the County and two stream materials from the City of Kawartha Lakes. The MRF is operated by 35 full-time and 9 part-time staff and processed approximately 16,000 tonnes of material in 2012 from County municipal collection, County businesses, and the City of Kawartha Lakes (CKL). The MRF was originally constructed in 1996 and the County upgraded its fibre line in 2008 ($2.3 million) and is now in need of an upgrade or replacement of the existing container line.

The County currently operates the MRF in the context of a "Regional MRF" in that it has provided processing services for other municipalities, principally the CKL. In 2012 the CKL delivered approximately 4,700 tonnes of fibre and 1,700 tonnes of co-mingled containers from their dual-stream recycling program to the County MRF for processing. The County previously charged a tipping fee and had a revenue sharing arrangement with the CKL for their recyclable materials. As discussed in the introductory sections, the County and CKL have recently entered into a formal contract whereby the County will receive all CKL recyclables for processing for at least the next five years.

3.2 ANTICIPATED FUTURE NEEDS

As part of the Master Plan, Stantec reviewed existing operations of the MRF including material sorting capabilities, and the ability/need to increase or decrease the number and type of materials currently being sorted for recovery. The County further required a review of existing MRF operations in the context of an existing conceptual design for an upgrade to the container line. This was undertaken with consideration given to any new initiatives by Waste Diversion Ontario (WDO) with respect to potential provincial standardization of materials recovered and MRF Regionalization initiatives along with other best practices and WDO funding.

Given the County has recently determined that it will continue to operate in a Regional MRF context, plans for capital improvements can now be undertaken.

3.3 ALTERNATIVE SOLUTIONS TO MEET FUTURE NEEDS

There is current uncertainty regarding proposed initiatives by the Province of Ontario for increased Extended Producer Responsibility (EPR) which has complicated decision making regarding investments in new MRF infrastructure. WDO is making progress in this regard and as part of that initiative, and in the context of best practices, has already begun work to assess the best Regional MRF configuration for the province. For the Eastern Ontario Region, a Diversion Network Configuration Modeling exercise (AECOM, 2011) was undertaken to that end that assessed a number of different regional MRF configurations including one option for all

tonnage from Eastern Ontario (except Ottawa) to be shipped to the Durham MRF and one option for both the Region of Durham and the City of Ottawa to have Regional MRFs. The least cost option was found in fact to be a third scenario for both the Cities of Kingston and Ottawa to have Regional MRFs. WDO has recently commissioned a new study to optimize the blue box material processing system in Ontario and while the outcomes of that study are yet unknown, it is likely, based on the focus/outcomes of the AECOM study that the Durham MRF will again be assessed and perhaps identified as a Regional MRF. It should be noted that the planning horizon for this latest report is focused on the year 2025.

However, given the uncertainty of province-wide plans the County has secured a processing partner (CKL) and can now proceed independently with a high level of certainty as to future needs.

3.4 EVALUATION OF ALTERNATIVES/OPPORTUNITIES FOR PUBLIC INPUT

During the initial round of public consultation in 2012, the following questions were posed to gauge whether the community supported continuing to process materials locally or whether they would be willing to perform additional sorting (change from one stream to two stream recyclables):

- Do you have a preference as to whether the County manages its own recyclables within the County versus shipping our recyclable materials outside of the County for sorting and processing?
- Do you support the County entering into agreements with other municipalities to process their recyclable materials at our Recycling Plant, as a means of supporting local employment and reducing the cost to process our own recyclable materials?
- Would you be willing to sort your recyclable materials into more than one bag or container, if it would result in lower costs to sort the materials at the Recycling Plant and less contamination of recyclables?

When asked if they would support the County entering into agreements with other municipalities to process their recyclables at the County's MRF there was over 90% support for this option. The County has subsequently executed a processing contract with the CKL. Also, the majority of respondents (57%) stated they would prefer that the County managed its own recyclables within the County where the waste was generated as opposed to shipping the materials outside of the County for sorting and processing. Respondents strongly confirmed (91%) that they would be willing to sort their recyclables into more than one bag/container if it resulted in a lower cost and less contamination of materials.

3.5 CONCLUSIONS AND RECOMMENDATIONS

The County now has a clear strategy for the operation of the Materials Recycling Facility (MRF) since a contractual arrangement has been confirmed with the City of Kawartha Lakes. Upgrades

to the MRF and changes in local collection can now be implemented with the certainty of a processing partner in place. It is recommended that the County upgrade aging equipment at the MRF in 2014/2015, and transition to a two-stream collection program for recyclables by the next contract expiry date in December 2018.

4.0 Residual Waste Disposal Alternatives

4.1 CURRENT PROGRAMS AND SERVICES

Currently, the County does not utilize any disposal alternatives to landfill for residual waste.

4.2 ANTICIPATED FUTURE NEEDS

As discussed previously, landfill capacity in the County is expected to be consumed by 2016 in the absence of an expansion approval. Even with the approval of an expansion at Brighton, the landfill capacity in the County is expected to be completely consumed by approximately 2024. The County will need to secure disposal capacity through developing local landfill capacity through expansions or construction of new sites, or securing a long-term disposal and hauling contract with a private landfill operator. Another option available to the County is the potential to develop alternative disposal options for residual waste such as incineration, gasification, or pyrolysis. While the County already has a robust recycling program, a food waste organics collection program and other initiatives could be implemented to increase waste diversion and significantly delay alternative disposal needs.

It should be noted that only a portion of the residual waste is combustible and approximately 15 to 30% of this material by weight would still require landfill disposal; therefore, the County will still require landfill capacity for disposal of the non-combustible materials and remaining ash, if a thermal processing or incineration option were implemented.

4.3 ALTERNATIVE SOLUTIONS TO MEET FUTURE NEEDS

The County has already been approached by a number of vendors of alternative disposal technologies who utilize some sort of thermal treatment, including Renewable Energy Management Inc. (REM), Sunbay Energy Corporation, and Global Consulting/Quantum Solutions Technology Ventures. REM is currently in the planning process to potentially locate a facility in Port Hope. The County sought public input during the initial round of public consultation in late 2012 regarding alternative disposal technologies.

The County could explore opportunities to develop/manage/own or use a new or existing waste processing facility. Processing approaches that could be considered would include:

- Conventional Energy from Waste (EFW) approaches, such as mass burn incineration
- New thermal technologies such as gasification, plasma arc gasification, and pyrolysis
- Emerging thermal technologies such as gas plasma, 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

- Biological treatment such as aerobic composting/treatment and anaerobic digestion

Consideration could also be given to the co-processing of residual solid waste with biosolids, which could be a viable option with some of the technologies. Co-processing is a relatively common practice in Europe, where a number of thermal treatment facilities accept this material stream (either with or without dewatering, and either raw or digested). The material stream with the highest thermal value would be raw dewatered biosolids. Further review is needed to decide if these are options the County wishes to pursue.

More detailed information on alternative disposal technologies is included in Appendix E.

4.4 EVALUATION OF ALTERNATIVES

Given the range of technologies and costs for these types of alternatives, public input is an important factor in deciding if this is an option the County wishes to pursue. There are a number of factors to consider including, but not limited to:

- **Technical Viability** – Has the technology been implemented at the bench, pilot, or full scale? Is it operating successfully in North America? Are there potential legal risks to County?

- **Sustainability** – What are the types and quantities of energy and materials that can be recovered and/or produced?

- **Environmental Impacts** – What are the projected air and water emissions, quantities and characteristics of the residue requiring disposal?

- **Siting Considerations** – What are typical siting issues and concerns for this technology? Where would the facility be located?

- **Economic and Financial Considerations** – What are the capital and operating requirements? What kind of employment potential is associated with the technology?

- **Technology Vendors** – Who are the major vendors of this technology and what are the typical implementation requirements on the part of the community being served by the technology?

- **Implementation Considerations** – What is the approximate length of time to obtain provincial and municipal approvals? How long until the facility would be operational?

While costs have not been quantified for these alternative technologies, it is reasonable to assume that all options to landfill disposal will have significantly higher costs. For example, the

Durham-York incinerator has a capital cost of approximately $300 million for a 140,000 tonne per year facility.

The public was asked to respond to the following two questions to gauge interest in alternative disposal technologies:

- Would you support the construction of an "Alternative Disposal Facility" (e.g. incinerator or other energy-from-waste facility, or waste digester) within the County?

- Would you support a partnership between the County and another municipality or private sector company for the construction and operation of an "Alternative Disposal Facility"?

Over 70% of public respondents supported the concept of an Alternative Disposal Facility, but there were some concerns regarding partnering with a private sector partner.

4.5 CONCLUSIONS AND RECOMMENDATIONS

Aside from the Algonquin Power incinerator in Brampton, there are currently no operational full-scale Alternative Disposal Facilities in Ontario. The Durham-York incinerator in Courtice is under construction but has no available capacity. Other potential facilities are many years away from being realistic options for the County to consider.

Given the very long lead time to establish and operationalize Alternative Disposal Facilities (typically at least 10 years), the very high cost, and the fact the County must address a potential short-term landfill capacity issue, there is little justification to focus on alternative technologies at this time.

It is recommended that the County re-visit opportunities to utilize alternative disposal technologies in the mid to longer term once more development has occurred in the Ontario market.

5.0 Curbside Collection Services

5.1 CURRENT PROGRAMS AND SERVICES

5.1.1 Curbside Waste Collection Program

Curbside garbage collection is provided to most residential dwellings within the County on a weekly basis with the exception of Port Hope Ward 2 as previously discussed. The program consists of a weekly set out limit of three bags or containers, of which all must be tagged (garbage tags costs $2.75 each) and each bag cannot exceed 18 kg in weight. Residents have the option of using half of a tag for the collection of a grocery-size bag not weighing more than 9 kg. The County provides collection from private roads as per the following schedule; curbside collection May to October, end-of-road collection from October to May. The County also has a medical waste bag tag program, where residents must apply and if they qualify will be provided an increased weekly set-out limit and free bag tags for the management of the additional waste.

5.1.2 Curbside Recycling Collection Program

Single stream collection of recyclable materials is provided on a weekly basis (except Port Hope Ward 2) to residential dwellings and some smaller industrial/commercial/institutional (IC&I) properties. Recyclables can be set out in either transparent bags (blue or clear) or in blue boxes. The County enforces mandatory recycling as part of the waste bylaw and will reject contaminated recyclables at the curb by labeling unacceptable materials with an information sticker. As with the garbage collection, the County provides collection from some private roads as follows; curbside collection May to October and end-of-road collection October to May.

The following items are currently accepted in the recycling program:

- Newspaper, office paper, and soft cover books
- Cardboard
- Boxboard
- Polycoat containers (milk cartons, disposable coffee cups, etc.)
- Aluminum
- Steel
- Glass
- Plastics #1 through #7, excluding Styrofoam (i.e. expanded polystyrene)

5.1.3 Collection Service Contract Summary

The County currently collects waste and recyclables on a weekly basis from 35,407 permanent and 2,657 seasonal stops, for a total of 38,127 stops per week. Given that the seasonal stops only receive collection five months per year (mid-May until mid-October), the County pays the Contractor a monthly Per Stop Rate, multiplied by the Effective Stop Count for a total of 36,577

stops. The Effective House Count is adjusted on January 1 of each subsequent year of the contract to account for any stops added to or removed from the contract over the prior year.

A new collection contract commenced in December 2010, for an eight (8) year term, and the services were awarded to Green For Life Environmental Corporation (formerly National Waste Ltd.) for the provision of garbage and recyclable materials collection to all designated residential dwellings and IC&I locations within the County. Service is provided at a rate of $4.25 per stop per month, with seasonal variations built into the costing structure.

This contract was written as per WDO's best practice protocols as 'optimization of operations' in collections and processing as they follow the generally accepted principles (GAP) for effective procurement and contract management. This collection contract will provide the County with efficient and effective collection services over the next six years.

5.2 ANTICIPATED FUTURE NEEDS

Currently, the County generates approximately 27,300 tonnes of residential solid waste per year. Of the total residential waste generated, the County diverted approximately 10,900 tonnes, resulting in an overall residential diversion rate of approximately 40%[2]. The County's Waste Recycling Strategy (2cg, 2011) reports the estimated capture rate for blue bag/box materials at 61% (7,224 tonnes collected) representing the percentage of materials that are set out at the curb of what is available in the waste stream (11,670 tonnes). Increased diversion efforts to capture additional available recyclable materials will see a shift in collection efforts (reduced garbage and increased recycling) and this would further be shifted by introduction of a food waste program (likely in the order of 5,000 tonnes). Both initiatives could effectively reduce the amount of waste collected by up to half. This has been the driver for many municipalities to shift from weekly to bi-weekly waste collection and the collection of these three streams (as well as leaf and yard waste) has also driven municipalities to consider various co-collection options with respect to the three waste streams. Future needs and opportunities for collection will be strongly connected to the diversion initiatives that are implemented as the result of the Master Plan. Another outcome of the plan could be the provision of curbside collection services to Ward 2 and Alderville First Nation.

5.3 ALTERNATIVE SOLUTIONS TO MEET FUTURE NEEDS

The County has implemented some best practices into its waste management programming including set-out limits, bag tags, and the use of transparent bags for recycling collection. The options listed below represent further options that could be considered as they may serve to improve the County's waste management system performance.

- Inclusion of Ward 2 (Port Hope) and/or Alderville First Nations
- Residual waste set out limit decrease
- Bi-weekly garbage collection *but only with source-separated organics program*

[2] 2010 WDO Datacall. GAP Waste Diversion Rate.

- Clear bags for residential waste (but only with source-separated organics program)
- A cart and/or blue box based program
- Co-collection options (e.g. recycling and organics to MRF site)
- Implementation of a dual-stream curb side collection program for recyclables

During the initial round of PICs in late 2012, public input was sought on a variety of collection issues. Given that the Ward 2 collection issue does not affect the rest of the County, questions were not posed on this issue. Some issues such as co-collection do not affect residents therefore questions were also not posed.

A small majority (57%) of respondents supported the concept of a food waste collection program. Regarding the use of collection carts versus plastic bags, the majority (61%) preferred bags due to concerns about storage, handling, and animal access. There was very strong support (91%) for the concept of residents sorting recyclables into two streams rather than the current practice of mixing all recyclables in a plastic bag. Response to the question of mandatory clear garbage bags was indifferent.

5.4 CONCLUSIONS AND RECOMMENDATIONS

Residents indicated a strong interest in helping improve the recovery of recyclables at the MRF. By taking on additional effort to sort in the home, processing of materials is more effective and less costly.

This willingness supports the overall proposed shift from a single stream recycling program to a two-stream program. This will simplify needed upgrades at the MRF as the County's processing partner (CKL) already utilizes a two-stream system.

The current collection contract is very cost effective and is meeting the County's current needs very well. There is also sufficient time to re-design the tender for the next contract to improve waste diversion efforts with yard waste and potentially food waste curbside collection.

It is recommended that the County commit to a transition to a two-stream recycling collection program so that upgrades to the MRF can be designed for a known incoming mix of materials.

6.0 MHSW and E-Waste Diversion Programs

6.1 CURRENT PROGRAMS AND SERVICES

The County does provide collection points for Municipal Hazardous or Special Waste (MHSW) and Electronic Waste (E-waste) at the Brighton Landfill, the Bewdley and Seymour Transfer Stations, and the County's Works Yard located in Cobourg. Both hazardous waste materials and electronic waste are collected through the hazardous waste depots. These depots are operational two to three (2-3) days per month from April to October (dates are provided in the County's Waste and Recycling Information Calendar and on the County's website).

The current system receives partial to full funding support through the stewardship programs administered by the Stewardship Ontario and Ontario Electronic Stewardship. Currently, Waste Diversion Ontario is in the process of re-evaluating the funding model for the municipal MHSW program. The E-waste program receives funding for the collection of materials through the Ontario Electronics Stewardship.

Additional collection locations for E-waste materials are provided through the 'Recycle Your Electronics' program (recycleyourelectronics.ca), which provides residents with online access to a list of locations where specific materials can be taken to for proper disposal. Since these programs are generally provided by the private sector, they generally limit the amount and types of materials that are accepted at any one location, which is a hindrance if residents have more than one type of E-waste to be disposed of at any given time.

6.2 ANTICIPATED FUTURE NEEDS

With the ever increasing movement towards electronic devices with shorter lifespans, and residents becoming more aware of the hazard of certain materials, there will continue to be a growing demand for access to proper disposal options for these types of materials. Future needs and opportunities for collection of these materials will be strongly connected to the diversion initiatives that are implemented as the result of the Master Plan.

6.3 ALTERNATIVE SOLUTIONS TO MEET FUTURE NEEDS

Since residents are already utilizing the MHSW and E-waste depots located at the landfill and transfer stations, the next logical step would be to establish a permanent MHSW and E-waste depot at the Brighton Landfill, and the Bewdley and Seymour Transfer Stations. Residents will be more likely to dispose of MHSW and E-waste materials properly if a depot is conveniently located where they are already taking other materials.

The opportunity exists to explore potential partnerships with the private sector and not-for profit groups for the development of a "Take it Back" program to provide residents with year-round access to disposal of the majority MSHW materials including batteries, paints, and solvents as

well as E-waste materials. This option could be considered as an alternative to year-round operation of the MHSW depots or as a complementary program to permanent MHSW depots.

6.4 RESULTS OF PUBLIC INFORMATION CENTRES

Public feedback on enhanced access to MHSW and E-waste facilities was almost universally supported (98%). Improving access is a relatively low cost program change that would obviously be well received in the community.

6.5 CONCLUSIONS AND RECOMMENDATIONS

In Section 2, it was previously concluded that a transition to common service levels at all transfer stations was desirable and recommended to be implemented in a staged manner.

It is recommended that MHSW and E-waste receiving programs be included as a component of the transfer station upgrades at facilities across the County.

7.0 Other Diversion Programs

7.1 CURRENT PROGRAMS AND SERVICES

7.1.1 Yard Waste Program

The County currently does not provide curbside collection of yard waste; however, some individual municipalities do provide seasonal collection. Residents are encouraged to bring yard waste directly to the Bewdley and Seymour Transfer Stations, and the Brighton Landfill. The current composting facilities operated by the County are located at those three same sites.

7.1.2 Bulky Waste Program

Bulky waste vouchers are provided to each household within the County on an annual basis for one (1) load of materials up to 100 kg to be brought to either a landfill or transfer station. The Municipality of Port Hope provides curbside collection of bulky waste once per year to Ward 1 only.

7.1.3 Waste Diversion Depots

The County currently operates ‘diversion depots’ at its landfill sites and transfer stations for a number of recyclable items. Table 7-1 provides an overview of the materials that are currently accepted.

Table 7-1: Acceptable Materials at the County’s Waste “Diversion Depots”

Acceptable Materials	Brighton Landfill	Seymour Transfer Station	Bewdley Transfer Station	Hope Transfer Station
Tires	Yes	Yes	Yes	No
Drywall	Yes	Yes	Yes	No
Scrap Metal/White Goods	Yes	Yes	Yes	Yes
Yard Waste	Yes	Yes	Yes	No
Cardboard	Yes	Yes	No	No
Residential Recyclable Materials	No	No	No	Yes
Residential Recyclables Including Cardboard	No	No	Yes	Yes

7.2 ANTICIPATED FUTURE NEEDS

With generation rates of all waste materials expected to increase due to population growth, the County needs to be able to provide effective and efficient diversion services for these waste streams.

7.2.1 Yard Waste

With the movement towards development of mid to high density housing, there may be a need to consider curbside collection of yard waste, as residents may not be able to manage this waste on their own property. The County could explore potential collection options with the area municipalities to address resident's concerns and demands. Diversion of yard waste is often the most cost effective option when considering new diversion options.

7.2.2 Bulky Waste

The County already effectively manages bulky waste through the provision of vouchers on an annual basis. This system ensures that resident utilize existing infrastructure for the proper disposal of these waste.

7.2.3 Waste Diversion Depots

With the movement towards viewing waste as a resource, the need exists to provide residents with the opportunity to divert as many different kinds of material from landfill as possible. Waste diversion depots in conjunction with re-use areas provide opportunities for residents to increase diversion efforts.

7.3 ALTERNATIVE SOLUTIONS TO MEET FUTURE NEEDS

7.3.1 Yard Waste

The County could consider the implementation of a seasonal curbside yard waste collection program. A seasonal collection program may necessitate upgrades to the composting facility at the landfill sites. This material could also be mixed with food waste as part of a source separated organics collection program.

7.3.2 Bulky Waste

Additional diversion options could be explored to manage bulky waste received at the landfill and transfer stations. Various partnership scenarios have been implemented by other municipalities that could be assessed to identify arrangements that are suitable to the County.

7.3.3 Enhanced Waste Diversion Depots

Many large municipalities (e.g. York and Peel Regions, Toronto, and Edmonton) have developed what they refer to as Community Recycling Centres (CRCs), Community

Environmental Centres (CECs), and Eco Stations. These facilities are designed to receive source separated materials bound for beneficial end-markets. The focus is on waste recovery with secondary consideration given to disposal. CRCs can provide residents with convenient points of access to drop off materials that are not so easily managed at the curb such as building materials, electronics, and bulky items like appliances and shredded paper.

The County could consider adding additional recyclable items to those accepted at their transfer stations such as construction and demolition type materials, textile recycling, or reuse. Re-branding them as CRCs will support the movement from waste disposal to waste resources recovery.

7.3.4 Source Separated Organics (SSO) or "Green Bin" Program

The County has several options with respect to processing of SSO. One option is to identify and investigate opportunities for SSO to be received at an existing organic waste processing facility. A second option is to undertake a feasibility study for a new organics processing facility at the County's MRF site.

The County could assess the relative advantages and disadvantages of each of these approaches to assess the feasibility of implementing a curbside organic waste collection program to achieve higher diversion targets. Curbside collection options would need to be assessed in concert within the overall curbside waste management program as discussed in Section 5.0.

Planning for the rollout of a "Green Bin" program with curbside collection is a multi-year process. If the County were to ultimately own or partner at a new local facility, a minimum three year period would be required for approvals, design, and construction.

7.3.5 Alternative Diversion Options

The options listed below represent best or 'better' practices to improve the County's waste management system performance. These options should not be evaluated in isolation of the impacts to the rest of the waste management system.

- Consider seasonal curbside yard waste collection
- Enhance existing waste diversion depot programs (potential to include re-use options for the management of bulky waste and other materials)
- With respect to SSO collection and processing, would residents be open to "local" solution for the management of organic waste

Feedback received from the public during the initial round of public consultation in late 2012 showed that a small majority (56%) supported a yard waste collection program. Given that much of the County is rural, this level of support is not surprising. Most municipalities with an

urban/rural mix such as the County generally only offer service to the compact urban areas. As previously discussed, there was extremely strong public support for increasing the range of materials available for drop-off at the transfer stations.

During the second round of public consultation, support for yard waste collection increased to 80% with support from both urban (92%) and rural (75%) as determined by reviewed postal code information.

7.4 CONCLUSIONS AND RECOMMENDATIONS

Curbside collection of leaf and yard waste in the urban area offers the greatest potential to divert waste from landfill in the short-term at a relatively low cost. Stantec recommends that the County implement yard waste collection on a trial basis in 2015 and implement full service in 2019 when a new collection contract becomes effective.

Diversion of food waste can divert significant tonnage, but significant program and financial planning is required given that program costs are typically high. It is recommended that operational and capital cost planning begin immediately for a food waste (“Green Bin”) program to be fully implemented by 2019.

No change to the bulky waste program is recommended.

It is also recommended that existing transfer stations be adapted to receive a greater variety of materials as opposed to constructing new environmental depots. The rebranded Community Recycling Centres also provide a ready-made opportunity for further education on waste diversion programs.

It is recommended that the County consider utilizing the municipal special event licensing program to provide recycling carts and boxes for those events, possibly at a nominal cost, conditional on allowing messaging from the County on waste reduction.

All of the diversion opportunities described in this and other sections require a refocused promotion and education program specifically designed to advance the waste reduction goals of this Master Plan. The refocused plan can vary from year to year to address new program rollouts.

8.0 Service Level Equity for Multi-Unit Dwellings, Apartments, and Businesses

8.1 CURRENT PROGRAMS AND SERVICES

8.1.1 Existing Collection Service Levels

The County currently provides weekly waste and recycling collection service for all single family homes and seasonal residences (in season), with the exception of Port Hope Ward 2 where residents selected to utilize a transfer facility rather than receive collection. Three bags of waste are permitted to be placed at the curb at each stop, provided a bag tag is affixed and the container does not weigh more than 18 kg (40 pounds). The 2012 cost for a bag tag is $2.75. There is no limit or cost for recyclable set out.

Waste and recycling collection is also offered to multi-unit dwellings and apartment buildings provided they are on a collection route and have reasonable public roadway access. The collection limit for waste is 3 bags per dwelling unit, up to a maximum of 15 bags per stop regardless of the size of the building. The same $2.75 per bag fee applies. There is no limit or cost for recyclable set out.

Institutional and retail/commercial premises on collection routes are also offered weekly waste and recycling collection service, except for the central business districts of Cobourg and Port Hope which are offered twice weekly service. Recycling collection is limited to 20 containers per premise and is offered at no cost. The County's waste bylaw (15-10) does not specifically limit the number of waste containers that may be set out, or whether the bag tag fee would apply. Current practice is reported by County staff to be a three bag limit for waste and that the $2.75 per bag fee would apply.

8.2 ALTERNATIVE SOLUTIONS TO MEET FUTURE NEEDS

8.2.1 Current Practice at Other Municipalities

There is no common approach at other Ontario municipalities to deal with municipal collection services at apartment buildings and smaller downtown and commercial properties. Local systems evolved over time to meet local needs and demands.

- The City of Toronto offers garbage, recycling, and organics collection to all multi-residential buildings. Each property is charged a specific rate for garbage collection based on the number of pick-ups per week and the number and size of dumpsters collected. Recycling and organics collection is provided at no charge. Through the yellow bag program, select small businesses are provided curbside garbage collection (cost per bag) and free recycling and organics collection.

- The Region of Waterloo provides no waste collection to multi-residential properties over six units but offers a $30 per unit rebate in lieu of service. Recycling is collected at all multi-residential properties for no fee. Downtown areas in Cambridge/Kitchener/ Waterloo receive bagged garbage and recycling collection at no cost.

- The City of Peterborough does provide for collection of recycling from multi-residential buildings, either curbside or cart based depending on the size of the building. All buildings are eligible for collection of garbage, but it is limited to two bags per unit. Most of the larger buildings within the City have opted for private collection of garbage.

- Durham Region offers collection of garbage, recycling, and organics to multi-residential buildings who qualify for the services. Property owners must apply and be able to demonstrate that they can meet Durham Region's Technical and Risk Management Guidelines for Waste Collection Services on Private Property. Durham Region will supply a property with materials to promote recycling including in-unit collection bags and educational materials.

While Ontario regulations require multi-residential building and IC&I owners to implement recycling and waste reduction programs, adherence to these regulations is inconsistent unless municipalities provide the required regulated service.

With very few exceptions, municipal waste and recycling collection is not offered in Ontario at major IC&I facilities. In general, premises such as factories, big box and conventional malls, hospitals, and service commercial properties are separated from conventional housing and have significant waste disposal needs. Collection is conducted by private contractors utilizing bulk bins. Bins are typically steel containers with a six cubic yard capacity requiring a specialized collection vehicle. Bagged collection is simply not a reasonable alternative for such premises based on the quantities and types of waste products generated. The County's current practice of not offering service to major IC&I premises is consistent with other municipal waste systems across the Province.

8.2.2 Equity of Current System for Apartments and Businesses

The County's current lack of service for major IC&I premises is consistent with other Ontario municipalities, and is considered reasonable and appropriate given the quantity and types of wastes generated by those premises. No changes are recommended.

For small businesses along routes and downtown areas, the County approach again follows the standard practice at many Ontario municipalities and reflects a good use of resources to assist small businesses at the same per bag fee as residents. This service is optional so if a certain business chooses not to place bags at the curb, no charge is incurred; however, businesses have the same three bag limit as households.

For apartment buildings over six units, the question of equity is more complicated. Garbage and recycling collection is generally considered to be a residential service for residential taxpayers, but higher density residential units are often ineligible for full service. It is not appropriate to provide bagged collection at large buildings for operational and public health reasons. Large piles of bagged garbage is unsightly, awkward to collect, and will attract vermin.

8.3 CONCLUSIONS AND RECOMMENDATIONS

Feedback received from the public was over 90% supportive of providing recycling collection services to all residential dwellings in the County including apartments and condominiums. This is a clear and easily implementable diversion opportunity for the County. It is recommended that service be rolled out in a staged manner and be fully implemented prior to the expiry of the current collection contract.

Some downtown business owners requested further discussion with County staff to address their location-specific challenges. No other changes are proposed for these types of waste and recycling collection systems.

9.0 Cost Recovery Mechanisms

9.1 EXISTING COST RECOVERY SYSTEM

The County currently generates revenue to cover the cost of programs and services through a variety of fees, grants, and local taxation. Projected revenue sources for 2012 to fund waste management programs and services are summarized below (Table 9-1).

Table 9-1: Waste Management Program Revenue Sources

Taxation	$3,590,400
Bag Tags	$2,400,000
Sale of Recyclables	$1,816,900
Landfill Tipping Fees	$1,655,200
Waste Diversion Ontario Grants	$874,500
Bewdley Transfer Station Fees	$514,800
Stewardship Ontario Grants	$320,800
Other Sources	$557,400
Total 2012 Revenue	**$11,730,000**

The general distribution of revenue sources at the County is typical of most municipalities that operate active landfill sites. The County has made effective use of funding opportunities beyond local taxation.

9.2 ALTERNATIVE SOLUTIONS TO MEET FUTURE NEEDS

9.2.1 Future Funding Challenges

Local taxation currently comprises less than one third of the total cost to operate waste management programs and services in the County. That is a significant achievement, but also means that future programs funded primarily through local taxation will cause a significant percentage increase in the property tax levy.

For example, if future spending and revenue needs increase by 10% ($1.17 million), this would represent an increase in the waste management portion of the tax levy of over 30% in the absence of other funding sources.

While the current bag tag program has been successful in raising $2.4 million to offset collection and disposal cost, the current $2.75 per bag fee may leave little room for future increases. Current bag tag fees in other municipalities are listed in Table 10-2.

Table 9-2: Current Bag Tag Fees by Municipality

Townships of Havelock/Belmont/Methuen	$1.20 per bag
Prince Edward County	$3.00 per bag for curbside collection $5.00 per bag for disposal at waste disposal sites
Belleville	$2.50 per bag
Quinte West	$2.50 per bag
Township of Asphodel-Norwood	$2.00 per bag
Region of Durham (Clarington, Port Perry, etc.)	$1.50 per bag over the four-bag limit
Township of Otonabee-South Monaghan	No bag tags, over two bag limit must be taken to transfer station at $1.00/bag or landfill ($5.00 < 100kg)
City of Peterborough	No bag tags

This type of revenue source also has the problem of diminishing returns as new waste reduction programs are implemented, and residents improve waste reduction at the source and set out fewer bags. Also, if the fee rises above what the community perceives as a reasonable threshold, some will seek to maximize bag weight, place bags in open commercial bins, or undertake other counterproductive measures.

Revenue from the sale of recyclable materials is currently strong but will always be subject to year-to-year volatility as the broader commodity markets fluctuate. Historic gains in revenue from cooperative marketing and increasing acceptance of blue box materials as feedstock will be maintained, but future similar increases are unlikely.

The County and other Ontario municipalities have benefitted in recent years from more stable and predictable funding from Stewardship Ontario and Waste Diversion Ontario. Given the uncertain economy in Ontario going forward, major new funding initiatives are unlikely.

9.3 CONCLUSIONS AND RECOMMENDATIONS

Feedback from the public on increasing bag tag fees and property taxes to support new waste reductions was mixed at just over 40% of respondents in favour of higher fees. In some ways, this level of support is actually quite high given the nature of the question.

While residents and businesses may be willing to absorb some increase in fees, it is Stantec's opinion that there is limited potential to fund new programs or program enhancements from higher bag tag and landfill fees alone. Therefore it is recommended that the County maintain the current revenue balance of user fees and property taxes. It is also recommended to stage the rollout of program enhancements over several years to lessen the financial impacts of these new programs.

10.0 Conclusions and Recommendations

Based on a comprehensive review of the County's waste management programs and services, and the feedback received from the public and the Master Plan Advisory Committee, Stantec has generated the following conclusions:

1) The County now has a clear strategy for the operation of the Materials Recycling Facility since a contractual arrangement has been confirmed with the City of Kawartha Lakes. Upgrades to the MRF and changes in local collection can now be implemented with the certainty of a processing partner in place;

2) Collection of Yard Waste/Brush at the curbside offers the greatest potential to increase diversion from landfill in the short term, and at a relatively low cost;

3) A transition to common service levels at the County's three (3) public drop off locations will assist in enhancing existing diversion programs, and simplify messaging to the community;

4) Collection of recyclables from all multi-residential dwellings will improve diversion from this growing housing sector in the County;

5) A more flexible collection program for small businesses in the downtown cores will better address specific needs in these areas;

6) Overall system costs are reasonable and the existing curbside collection contract is well designed and well managed;

7) There is limited potential to fund new programs or program enhancements from higher landfill and bag tag fees;

8) Implementation of a "Green Bin" food waste diversion program may take several years to properly plan but full implementation is feasible within a five-year period;

9) Alternative disposal technologies for residual wastes are not currently approved or available for County consideration (with the exception of the Algonquin Power incinerator in Brampton) but could be reconsidered as a mid or longer term program improvement option;

10) Pending the result of the Brighton Landfill Expansion Environmental Assessment approval process, the County requires a residual disposal strategy to be developed either in the 0-2 year short term if no expansion approval is obtained; or in the 4-6 year mid-term if the proposed landfill expansion is approved by the province. Waste export is the only feasible short-term option if the current EA is not approved.

11) The County's current promotion and education efforts need to be re-focused and specifically designed to advance the waste reduction goals of this Master Plan. The re-focused program should vary from year to year based on new program rollouts. Existing funding can be redirected as needed with one-time funding available from new program budgets.

Stantec has developed recommendations for program improvement and change to be implemented by the County over the next 20 years. Master Plans often provide a very aggressive implementation schedule which places severe pressure on financial and staff resources in the short term. This approach can lead to unrealistic expectations and community disappointment when program rollouts are delayed. The following recommendations stagger opportunities for improvement over the planning horizon to allow staff to systematically develop detailed implementation plans while also spreading the financial impact of program changes over a more manageable time period.

The following list presents issues representing major change or of strategic importance. Other more minor issues are included within the body of the report. An integrated waste management system such as that operated in Northumberland County has many interdependencies. The follow recommendations cannot necessarily be implemented in isolation and related activities are noted where applicable.

A decision matrix is presented in Figure 10.1 to illustrate the major issues considered when developing recommendations for new waste diversion efforts.

A SHORT-TERM OPPORTUNITIES

A1 – Upgrade of the Materials Recycling Facility

Given that the County now has a longer term processing contract with the City of Kawartha Lakes, and the fact that material from CKL arrives sorted into separate container and paper fibre streams, it is recommended that the County upgrade aging equipment at the MRF in 2014/2015, and transition to a two stream collection program for recyclables by the next collection contract expiry date at the end of 2018.

A2 – Implement Yard Waste/Brush Curbside Diversion Program

Diversion of yard waste and brush from landfill is a straightforward and cost effective waste reduction strategy. It is recommended that the County implement seasonal collection in 2015 (April to November) and beyond through a single truck pilot program, and that all areas deemed to benefit from seasonal collection through the pilot program receive collection service during the next collection contract beginning in 2019.

FIGURE 10-1

DECISION MATRIX - MAJOR DIVERSION OPTIONS

COUNTY OF NORTHUMBERLAND WASTE MANAGEMENT MASTER PLAN

Potential Diversion Program	Diversion Potential[1]	Relative Cost[2]	Technical Feasibility	Public Support	Implementation Recommendation
Yard Waste Collection/Processing	1000 - 2000 tonnes/yr	Moderate	Proven	Strong	Short Term
Green Bin Collection/Processing	1000 - 5000 tonnes/yr	High	Proven	Mixed	Mid Term
Drop Off Areas at Depots/Transfer Stations	500 - 2000+ tonnes/yr	Low	Proven	Strong	Short Term
Alternative Technologies for Residuals Management	Up to 80% of current wastestream	Likely Moderate to High	Developing (except mass burn incineration)	Mixed	Mid to Long Term
Recyclables Collection at Apartments/ Condominiums	500 - 700 tonnes/yr	Moderate	Proven	Strong	Short Term

1. Total waste to landfill in County is approximately 34,000 tonnes per year.
2. Relative Cost:
   Low - less than $100/tonne net cost
   Moderate - $100 to $200/tonne
   High - greater than $200/tonne net cost

A3 – Collect Recyclables from all Multi-Residential Dwellings

Most multi-residential dwellings (apartment buildings and condominiums) in the County do not receive any municipal collection services. While the County's bag tag garbage system does not work well for these types of dwellings, collection of recyclables can be readily implemented in a cost effective manner. This recommendation also serves to anticipate the likely shift in the County to construction of more multi-residential units in the future.

A4 – Upgrade Transfer Stations and Implement/Maintain Common Services and Fees

The three County transfer stations provide a ready-made opportunity for residents and business to cost-effectively divert additional materials from landfill. Upgrading the transfer stations to permit drop-off of a wide variety of materials such as dimensional lumber, wooden pallets, electronics and textiles is a very flexible and cost-effective method to address the challenges of a changing wastestream. Drop-off of blue box recyclables and other traditional materials can also be easily accommodated. Rebranding these facilities as "Community Recycling Centres" is also recommended.

As these drop-off programs are being developed, it would be beneficial to implement common services across all County facilities and maintain the recent policy change (April 2013) of common fees at all sites. It is also suggested that staff investigate opportunities to partner with not-for-profit organizations for the establishment of re-use facilities at the County's landfill and/or Transfer Stations.

A5 – Develop a More Flexible Collection Program for Downtown Small Business

Some downtown small business owners have requested that the current policies be revisited to meet their needs, while still maintaining County policy regarding fee-for-service. Many municipalities offer special accommodations for downtown small business to reflect the challenges of operating in those locations. Possible changes may include more frequent collection and more bags allowed on each collection day.

A6 – Maintain Current Revenue Balance of User Fees and Property Tax Support

Future program spending increases cannot be fully funded from User Fees without creating unintended consequences. Increasing bag tag and landfill fees beyond what is considered reasonable by the community will lead to attempts by residents to dispose of waste through roadside dumping, inappropriate use of municipal garbage receptacles, excessive compaction, and waste disposal in private bulk bins. The County should also maximize other potential revenue sources such as grants, subsidies, and revenue from the sale of collected commodities.

A7 – Develop Collection and Processing Options for Green Bin Organics

Curbside collection of green bin organics has the potential to divert significant tonnage, but program implementation would be at a high cost. Processing facilities in Ontario have had many challenges in recent years and guaranteed long term processing capacity has historically been difficult to obtain from contracted providers. The County should work with its municipal neighbours in the near term to explore opportunities to jointly develop an organics processing facility locally, or solicit bids for contracted service. Collection approach and rollout strategy can be developed in the 1 – 3 years window. In the interim, the County could look into the feasibility of offering backyard composters to the general public at a subsidized rate to promote additional organic waste diversion in advance of a curbside collection program.

A8 – Develop Short Term Residual Disposal Strategy (if required)

If the proposed Brighton Landfill expansion is not approved by the Province of Ontario, the County will need to create a short term strategy to address its future disposal needs when the Brighton site closes in 2016 or 2017. Options in this scenario will be limited and with few options beyond export to another private or public sector landfill, or export to a waste-to-energy facility. It is recommended that this strategy be developed and finalized in 2014 and 2015 if required.

B MID- AND LONG-TERM OPPORTUNITIES

B1 – Revisit Opportunities to Utilize Alternative Disposal Technologies at Permitted Facilities

Aside from the Algonquin Power waste-to-energy facility in Brampton, there are no other commercial-scale facilities utilizing alternative disposal technologies currently operating in Ontario. Given that some technologies offer great promise, it is recommended that the County revisit this approach in the mid and longer term.

B2 – Full Implementation of Green Bin Organics Program

It is recommended that implementation of a collection and processing program for green bin organics be fully rolled out by 2019 after a thorough operational and financial planning process is complete.

B3 – Develop Detailed Residual Disposal Strategy

This recommended action is the same as recommendation A8, but is not required until a later date based on the premise that Brighton Landfill expansion is approved in the short term. Based on the public's desire to have the County manage their waste locally, the current residual disposal options are limited to: expanding an existing landfill; or developing a new landfill. Both of these options would require the County to go through a provincial EA process. This process would need to commence in the year 2016 or 2017. If at the time this EA is proceeding there are

other viable waste disposal options available locally (e.g. waste-to-energy), the County should include these options in the EA for consideration.

B4 – Optimize Function and Diversion Potential of Transfer Stations

As packaging and technological trends change, the mix of materials suitable for diversion at the transfer stations will also change. County staff will be required to add and delete materials acceptable for diversion as trends change in order to maintain the long-term effectiveness of this strategy.

B5 – Transition to Two-Stream Curbside Sort for Recyclables

The County currently collects recyclables mixed in a blue bag. By separating paper fibres from containers in the collection vehicle, less sorting is required at the Materials Recycling Centre, residue is reduced, and cleaner materials can be sold to market for higher revenue.

B6 – Complete 5 Year Review Cycle for this Master Plan

The waste management industry continues to evolve at a rapid rate compared to most other municipal public works services. A 5-year review cycle for this Master Plan is considered appropriate given several program options has mid to long-term implementation recommendations.

11.0 Implementation Plan

Master Plans of any kind are only useful if costs and timing are linked to recommended actions. Approving lofty program goals with no financial ability to achieve them serves little purpose. The Terms of Reference for this assignment clearly identified that proposed solutions must be reasonable in the context of Northumberland County.

Figure 11-1 graphically presents the proposed timeline for new program implementation, along with expected diversion potential and cost. It is expected that the County will improve its waste diversion performance from 40% currently, to 53% by 2019. Mid and longer term program implementation will permit the County to achieve the 60% waste diversion goal within the 20 year planning horizon.

A summary of both short-term and long-term recommended actions is presented. Where applicable, estimated capital and operating costs, and corresponding diversion potential is noted on Figure 11-1. Information on the figure is also summarized below.

Recycling Centre Upgrades

- Complete capital upgrades based on needs (2014-2015 / $1.5 million capital)
- Incorporate two stream sort into tender (2017-2019 / potential 500-1000 tonne gain through reduced residue)

Yard Waste/Brush Diversion

- Pilot seasonal service (2015 / $200,000 operating / 1000-2000 tonnes diversion)

Recyclables Collection at Apartments/Condominiums

- Phase in service over three years (2016-2018 / $30,000 new operating and capital each year / 600 tonnes diversion)
- Incorporate into tender (2017-2019)

Diversion at Depots/Transfer Stations

- Phase in services over four years (2015-2018 / $50,000 new operating and capital each year / 500-2000 tonnes diversion; 1200 tonnes utilized for planning purposes)

Enhanced Service to Downtowns

- Determine stakeholder needs (2014)
- Enhance service at minimal or no net cost (2015)

FIGURE 11-1
IMPLEMENTATION PLAN
COUNTY OF NORTHUMBERLAND WASTE MANAGEMENT MASTER PLAN

	2014	2015	2016	2017	2018	2019	2020	2021 - 2025	2026 - 2035
COUNTY COUNCIL APPROVAL OF MASTER PLAN	*					* Update Master Plan		*	Update Master Plan
RECYCLING FACILITY									
→ Confirm long-term processing capacity needs	*								
→ Upgrade equipment based on two-stream sort		up to $1 million capital	savings of $200K /yr		up to $1.5 million capital	savings of $500K /yr			
→ Incorporate two-stream sort into collections tender		500 - 1000 tonnes							
YARD WASTE/BRUSH DIVERSION									
→ Add seasonal service as pilot (single truck)		$200,000 annual							
→ Continue based on participation									
→ Incorporate into new collection tender		1000 - 2000							
→ Commence new collection contract including seasonal yard waste									
RECYCLABLES COLLECTION AT APARTMENTS/CONDOS									
→ Phase in new service by 2019			$30,000/yr	$30,000/yr	$30,000/yr				
→ Include as base collection item in new collection contract			200 tonnes	200 tonnes	200 tonnes				
DIVERSION AT DEPOTS/TRANSFER STATIONS									
→ Confirm expanded diversion programs									
→ Service phase in		$50,000/yr	$50,000/yr	$50,000/yr	$50,000/yr				
→ Develop revised fee and service schedule		300 tonnes	300 tonnes	300 tonnes	300 tonnes				
ENHANCED SERVICE TO DOWNTOWNS									
→ Develop plan based on stakeholder need									
→ Provide enhanced service to meet need									
LANDFILL/RESIDUALS									
→ Develop short-term disposal strategy (no Brighton expansion)									
→ Develop disposal strategy (Brighton approved to 2024)									
GREEN BIN ORGANICS									
→ Plan for full program rollout:									
o Meet with possible municipal partners									
o Evaluate private processing capacity						conceptual 1000 - 5000 tonnes			
o Scope collection methods and costs									
o Approvals/design/construction processing facility									
o Procure containers/rollout promotion									
→ Commence new collection contract including green bin organics						$250,000 to $1 million/yr			
ANNUAL AND CUMULATIVE FINANCIAL IMPACT - **Annual Operating Additions**		$ 250,000	$ 80,000	$ 80,000	$ 80,000	$ 1,000,000			
- **Annual Operating Savings**		$ -	$ (200,000)	$ -	$ -	$ (500,000)			
- **Cumulative Totals**		$ 250,000	$ 130,000	$ 210,000	$ 290,000	$ 790,000			
PROJECTED WASTE DIVERSION POTENTIAL - **Annual Additions (tonnes)**		1800 - 3300	500	500	500	1000 - 5000			
- **Cumulative Totals (tonnes)**		1800 - 3300	2300 - 3800	2800 - 4300	3300 - 4800	4300 - 9800			
- **Diversion Percentage**	(40% assumed)	47%-53%	49%-55%	51%-57%	53%-59%	56%-75%			
COST PER HOUSEHOLD	($190 assumed)	$197 / yr	$194 / yr	$196 / yr	$198 / yr	$211 / yr			

Landfill/Residuals

- Develop short-term disposal strategy (2014-2015) assuming Brighton Landfill EA is not approved
- Develop future disposal strategy (2017-2018) assuming Brighton Landfill EA is approved

Green Bin Organics

- Plan for full program rollout:
    - Meet with possible municipal partners (2014)
    - Evaluate private processing capacity (2014)
    - Scope collection methods and costs (2015)
    - Approvals/design/construction processing facility (2015-2017)
    - Procure containers/rollout promotion (2018)
- Incorporate into new collection tender (2017-2018) and full service implementation by 2019 ($250,000 to $1 million / 1000 – 5000 tonnes diversion)

Note: Costs for green bin program planning and capital construction may be incurred earlier than 2019, but costs shown represent typical ongoing annual expenses for operating and debt service if capital funds are required.

Cost Summary

Capital	$1.5 million (Recycling Centre)
Operating (including minor capital)	$200,000/year (yard waste/brush in 2015)
	$90,000/year (recyclables collection by 2018)
	$200,000/year (depot diversion by 2018)

Potential Diversion Summary by 2019

Reduced residue at recycling centre	500-1000 tonnes
Yard waste/brush	1000-2000 tonnes
Recyclables	600 tonnes
Depot/transfer stations drop off	500-2000 tonnes (1200 tonnes used for planning)

Planned Diversion Progress to 2019

Current diversion rate		40%
Planned	2015	47%-53%
	2016	49%-55%
	2017	51%-57%
	2018	53%-59%
	2019	60%+

12.0 Closure

All of which is respectfully Submitted,

STANTEC CONSULTING LTD.

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Appendix A
Master Plan Advisory Committee

Long-Term Waste Management Master Plan
Advisory Committee
Terms of Reference
Northumberland County

January 2012

1.0 Goal

1.1 To advise and assist Northumberland County with the completion of the Long-Term Waste Management Master Plan review process. The goal of the process is to prepare a Long-Term Waste Management Master Plan which is realistic, attainable, economically feasible and can be implemented within the 25 year planning horizon.

2.0 Purpose

2.1 The primary roles and responsibilities of the Long-Term Waste Management Master Plan Advisory Committee (Advisory Committee) are to:

- Learn about current waste management services;
- Assist in the study planning process;
- Provide advice and review consultant reports on waste management issues;
- Review possible solutions; and
- Assist in the formulating of study recommendations.

3.0 Reporting

3.1 Figure 1 identifies the relationship and reporting structure of the Advisory Committee and others that have a role in providing input to the County on the development of its Long-Term Waste Management Master Plan. The Advisory Committee, being a committee that acts as the conduit for public input to the review process, will provide feedback to County staff through Advisory Committee meetings.

3.2 The minutes of the Advisory Committee meetings will be provided to County Council for their information. Specific issues that required Council direction will be addressed via a staff report to Council.

4.0 Composition

4.1 The Advisory Committee will be comprised of approximately 21 individuals including individuals and representatives as listed in the below table:

Members	Number of Representatives
Northumberland County Council	1
Lower-Tier Municipal Councillors (or designated representatives)	7
Not-for-profit Environmental Group	1
Northumberland Youth Council	1
Local Home Builders Association	1
Local Business Improvement Association	1
Local Chamber of Commerce	1
Local Waste Management Company	1
Local Industrial Sector	1
Local Agriculture Sector	1
Local Tourism Sector	1
Alderville First Nations	1
Ministry of the Environment	1
Members from the Public at Large (to be appointed by County Council)	2
Total	21

4.2 Additional staff of the County's Transportation and Waste Management Department and the selected consulting firm shall serve on the Committee in a resource capacity.

5.0 Membership Selection

5.1 The County will advertise requesting interested individuals or groups to apply for appointment to the Advisory Committee. Interested groups or individuals will be required to provide a brief resume and statement of interest. Responses from the advertisement will be forwarded to the Transportation and Waste Management Department for consideration.

5.2 In nominating members to the Advisory Committee, regard shall be given to the aim of achieving a high level of technical expertise regarding environmental and waste management. Preference shall be given to residents within Northumberland County and availability to attend meetings. It is important that an applicant is able to attend as many Advisory Committee meetings as possible and undertake work outside of the regular meetings. All residents of Northumberland County are eligible to serve on the Advisory Committee.

5.3 The County Council representative will serve as the Chair of the Advisory Committee. The selection of a Vice-Chair will be done through a nomination and open election process.

6.0 Meetings

6.1 The Advisory Committee will meet several times during the course of the plan review. The development of the Long-Term Waste Management Master Plan is expected to take approximately 18 months. Special meetings may be held at the call of the Chair. Northumberland County Council shall be kept informed of such meetings. All meetings of the Advisory Committee will be open to the public.

6.2 Agendas and minutes for each meeting will be circulated to Council to be received as information. The minutes as they relate to a specific issue will also be attached to an applicable staff report for Council's information. The minutes of each Advisory meeting will be amended as necessary and approved at the following meeting. The Advisory Committee agendas will be prepared by the County and the Advisory Committee Chair or Vice Chair with input from other Advisory Committee members.

7.0 Meeting Agenda and Minutes

7.1 Meeting agendas will be prepared and distributed by the County to the Committee members, and other interested participants, at least 5 working days prior to the Advisory Committee meetings.

7.2 The County will be responsible for the preparation and distribution of the agenda and minutes.

7.3 The meeting minutes will be an elaborated record of decisions, highlighting decisions or choices made and the rationale for each decision or choice. They will not be a detailed record of all discussions.

7.4 Meeting minutes will normally be prepared and distributed within one week of the particular meeting. The record will be approved at the subsequent meeting.

7.5 Any member of the general public can request to be included on a mailing list for distribution of notices for the Advisory Committee meetings.

8.0 Delegations of Advisory Committee Meetings

8.1 Any person(s) wishing to appear before the Advisory Committee as a delegate must submit a request to the Transportation and Waste Management Department, advising of the topic or item to which they wish to speak. All requests must be received at least 10 working days prior to the meeting to ensure that the delegation is included on the agenda. Any person wishing to address the Advisory Committee as a delegate, who has not previously arranged to do so, may be granted permission to do so only by Committee resolution.

9.0 Committee Resolutions

9.1 Advisory Committee will seek to achieve consensus on decisions. Recommendations are "carried" if supported by a simple majority. On issues where consensus is not reached, the alternative points of view will be described and the reasons for those differing points of view will be explained and provided as part of the information forwarded to those being advised.

9.2 A quorum of half the membership plus one is required for the Advisory Committee to make decisions or make its formal recommendations. However, it will not prohibit meetings from occurring or inhibit discussions to continue to move the agenda along. Meetings will not normally be postponed due to the lack of quorum unless the meeting is specifically identified as a special decision making meeting.

9.3 Only resolutions as they appear in the adopted Minutes may be considered as officially representing the position of the Committee.

9.4 Adopted resolutions of the Advisory Committee will be brought to County Council for its consideration. The County's Transportation and Waste Management Department may prepare staff reports for County Council's consideration which offer differing or contradictory recommendations to those of the Advisory Committee. This process will enable County Council to consider the merits of both the staff and Advisory Committee recommendations prior to making a decision on a particular matter or issue.

10.0 Conflict of Interest

10.1 Member having a pecuniary interest or a conflict of interest with any issue coming before the Advisory Committee must disclose the interest at the earliest opportunity.

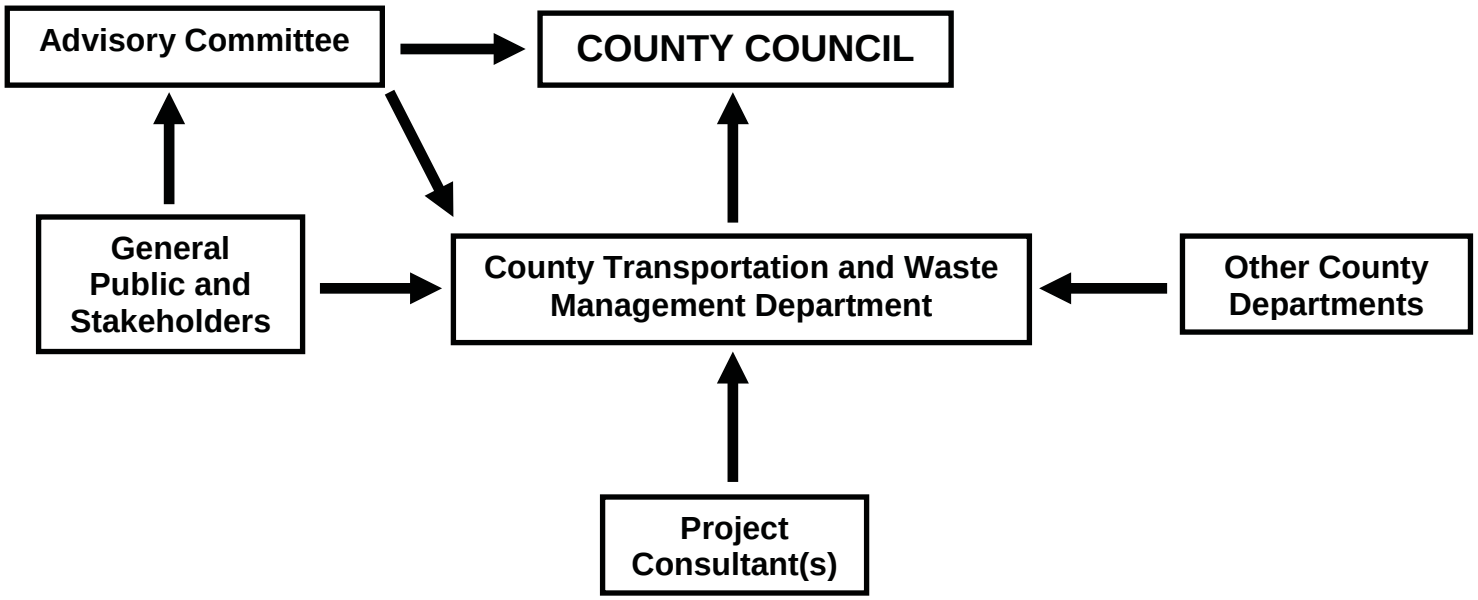
11.0 Other Procedures

11.1 Advisory Committee members will:

- Reveal the interests and needs of their constituency early in discussions;
- Respect fellow members and their diverse views; and
- Recognize that all members have an equal right to the floor, and will not dominate the discussions.

Figure 1

Organizational Structure for the Long-Term Waste Management Master Plan Review



AGENDA
Long-Term Waste Management Master Plan
Advisory Committee Meeting
Wednesday June 13, 2012

Time: 1:30 p.m.
Location: Council Chambers of County Headquarters Bldg.
(located at 555 Courthouse Rd., Cobourg)

1. Introductions

2. Long-Term Waste Management Master Plan (LTWMMP) Process Overview
    - Progress to date
    - Anticipated timeline for development of the LTWMMP

3. Advisory Committee Protocols
    - Review of Terms of Reference and purpose of the Committee

4. Presentation by County Staff and Stantec Consultants
    - Overview of Current Waste Management Services and Future Options / Opportunities

5. Round Table Discussions on the Following Topics:
    - Landfills and Transfer Station Operations
    - Material Recovery Facility Operations
    - Residual Waste (garbage) Disposal Alternatives
    - Curbside Collection Services
    - Other Diversion Programs
    - Service Level Equity for Multi-Unit Dwellings, Apartments and Businesses
    - Cost Recovery Mechanisms

6. Next Steps
    - Receive additional feedback from Committee members
    - Revise draft Interim Technical Reports
    - Hold first series of Open Houses in early fall of this year

7. Other Business

8. Next Meeting

MINUTES

Long-Term Waste Management Master Plan
Advisory Committee Meeting
Wednesday June 13, 2012

Time: 1:30 p.m.
Location: Council Chambers of County Headquarters Bldg.
(located at 555 Courthouse Rd., Cobourg)

ATTENDEES:

Committee Members:

Councillor John Logel	Mayor Mark Walas	Deputy Mayor Stan Frost
Deputy Mayor Jim Williams	Deputy Mayor Isobel Hie	Councillor David Turck
Judy Smith-Torrie	Brittany Pegg	Jeannine Cheer
Kelly Morgan-Mackenzie	Peter Dounoukos	Paul Burnham
Councillor Dave Mowat	Dean Peters	Don Forster

County Staff and Consultants:

Bill Pyatt	Mobushar Pannu	Jennifer Moore
Karl Allen	Heather Nemec	Brooke Gillispie
Adam McCue	Jim Archibald	Lauren Young

REGRETS:

Mayor Linda Thompson	Nicole Willett	Chris Cardona
Karen Theriault	Deputy Mayor Rosemary Kelleher-MacLennan	

1. Introductions

    - Bill Pyatt, County CAO, welcomed everyone and passed along Mayor Linda Thompson's regrets on being unable to attend the meeting.
    - Mayor Linda Thompson is the Chair of the Advisory Committee. In her absence at this inaugural meeting of the Committee, Bill Pyatt volunteered to Chair the Committee. At future meetings, if the Chair is absent, the Vice Chair will Chair the meeting.
    - At the commencement of the meeting all in attendance introduced themselves and identified which group / organization they were representing.

2. Long-Term Waste Management Master Plan (LTWMMP) Process Overview
    - Adam McCue provided the following summary of the progress to date of the LTWMMP process:
        - In the fall of last year the County underwent a Request for Proposal process to select a qualified Environmental Consultant to assist it with the development of a Long-Term Waste Management Master Plan
        - In November of 2011, the consulting assignment was awarded to Stantec Consultants Ltd.
        - In February of this year, County Council approved the creation and structure of an Advisory Committee, to assist with the development of the LTWMMP

- Over the past few months Stantec and County staff have been developing draft Interim Technical Reports pertaining to the various programs and services the County's Waste Management Division oversees. County staff have also been working on creating the Advisory Committee and filling its membership.

- Adam McCue provided the following tentative timeline for the development of the LTWMMP
  - County is hoping to hold the first series of Open Houses for the LTWMMP in the fall of this year, after the County has received the Advisory Committee's input on the draft Interim Technical Reports
  - The goal of the first series of Open Houses will be to inform the general public about the waste management services the County currently provides and gather their input and suggestions on the potential opportunities to improve upon these services or to develop new ones.
  - Following the first series of Open Houses, the County and Stantec will incorporate the feedback received and develop a draft of the LTWMMP.
  - The draft plan will be presented to the Advisory Committee likely in January of next year, and following the Committee's review / input, the plan will be revised as necessary and presented to the public in a second series of Open Houses (likely to be held in late winter or early spring of next year)
  - Following the second series of Open Houses, the County and Stantec will incorporate the additional feedback received on the draft plan and likely hold another meeting of the Advisory Committee to finalize the plan before it is presented to County Council for review / approval
  - Once the plan has been approved by County Council, the final series of Open Houses will be held to present the plan to the public.

- The following questions and answers followed the LTWMMP overview and tentative timeline:

1) Isobel Hie asked if the County could limit or control what type of material is generated by manufactures / retailers?

   Adam McCue commented that the County has very little say in what materials get used by manufactures to produce or package their items. The County is a member of a number of organizations such as the Association of Municipalities of Ontario (AMO) the Ontario Waste Management Association (OWMA) and the Municipal Waste Association (MWA), which advocate on behalf of municipalities and waste management service providers to promote changes and improvements to the waste sector. One of the issues which is discussed frequently at meetings is packaging, and ways of standardizing packaging so that materials generated can be easily managed and recycled.

2) The question was asked where the $0.05 charged by some retail stores goes to?

   Adam McCue stated that, to the best of his knowledge, the money charged for plastic single use grocery style bags is kept by the retail store.

3. Advisory Committee Protocols

- Adam McCue provided the following review of the Terms of Reference for the Advisory Committee:

GOAL

- To advise and assist Northumberland County with the completion of the LTWMMP review process. The goal of the process is to prepare a LTWMMP which is realistic, attainable, economically feasible and can be implemented within the 25 year planning horizon.

PURPOSE

- Primary roles and responsibilities of the LTWMMP Advisory Committee are to:
    - Learn about current waste management services
    - Assist in the study planning process
    - Provide advice and review consultant reports on waste management issues;
    - Review possible solutions; and
    - Assist in formulating study recommendations

REPORTING STRUCTURE

- Advisory Committee is to act as a conduit for public input to the LTWMMP review process and can provide feedback to County staff through Advisory Committee meetings.
- Minutes of the Advisory Committee meeting will taken by County staff and reviewed by the by the Committee before being adopted. Issues that require Council direction will be addressed via a staff report to Council.

COMPOSITION

Members	Number of Representatives
Northumberland County Council	1
Lower-Tier Municipal Councillors (or designated representatives)	7
Not-for-profit Environmental Group	1
Northumberland Youth Council	1
Local Home Builders Association	1
Local Business Improvement Association	1
Local Chamber of Commerce	1
Local Waste Management Company	1
Local Multi-Dwelling Property Management Company	1
Local Industrial Sector	1
Local Agriculture Sector	1
Local Tourism Sector	1
Alderville First Nations	1
Ministry of the Environment	1
Members from the Public at Large (to be appointed by County Council)	2
Total	22

MEETINGS

- Will be held several times throughout the planning process. Special meetings may be held at the call of the Chair.
- All meetings will be open to the public
- Agendas and minutes of the meetings will be circulated to County Council for information

AGENDAS AND MINUTES

- Agendas will be prepared by County staff and circulated to the Committee (and other interested parties) at least 5 working days prior to the meeting
- Members of the steering committee are encouraged to submit agenda items
- Draft minutes will be prepared and circulated within 1 week of the meeting. The record of the meeting will be approved at the subsequent meeting

DELEGATIONS

- Any person wishing to appear before the Committee must submit a request to the County, advising of the topic or item to which they wish to speak. Requests are to be received at least 10 days in advance of the meeting. If an individual has not made prior arrangements to make a delegation, he/she may be granted permission to do so only by Committee resolution

COMMITTEE RESOLUTIONS

- In order for a resolution to be carried it must receive a simple majority (51%). If consensus cannot be reached, the alternative points of view will be noted along with the reasons for the differing views
- At least half of the Committee membership plus 1 must be present at a meeting to make decisions. Meetings can proceed with this number of members present: decisions cannot be made, but discussions on agenda items can still proceed
- Adopted resolutions of the Committee will be brought to County Council for its consideration. The County's Transportation and Waste Management Department may prepare staff reports for County Council's consideration which offer a differing or contradictory recommendation(s) to those of the Advisory Committee. This process will enable County Council to consider the merits of both the staff and Committee's recommendations prior to making a decision on the particular matter.

CONFLICT OF INTEREST

- Any member having a pecuniary interest or a conflict of interest with any issue coming before the Committee must disclose the interest at the earliest opportunity.
- Jeannine Cheer, who represents a local Home Builders Association, informed the Committee that her husband was a partner in a business venture to construct and operate a Waste Transfer Station in the Township of Cramahe.

CHAIR AND VICE-CHAIR

- The Chair of the Committee will be the County Council representative (Councillor Linda Thompson)
- The selection of a Vice-Chair is to be done through a nomination and open election process
- Given the absence of the Chair at this meeting and given that this was the first meeting of the Committee, Adam McCue recommend that the election of the Vice-Chair be deferred until the next meeting of the Advisory Committee. This suggestion was agreed to by the Committee.

4. Presentation by County Staff and Stantec Consultants
    - Adam McCue provided a presentation on the current waste management services provided and / or overseen by the County.
    - Jim Archibald provided a presentation on Stantec's review of the County's waste management services and the future options / opportunities to enhance or improve upon them.

5. Round Table Discussions on the Following Topics:

- Landfills and Transfer Station Operations
    - Dean Peters stated that he felt we do not value landfill capacity enough. He commented that we will always need a landfill for the material we cannot recycle or divert.
    - Adam McCue noted that the County is currently going through a separate public process (the Environmental Assessment process) to fully line and expand the Brighton Landfill. Adam noted that through this process the County is hoping to receive approval from the Ministry of the Environment to dig up waste from the unlined portion of the landfill and place it onto new landfill cells that will have plastic liners and a leachate collection system. In order to accommodate the movement of all of the waste from the unlined section of the landfill to the new lined sections, the County needs to create new lined landfill cells within the landfill property, but outside of the area which is currently approved for waste disposal. If approved, the expansion would increase the County's landfill capacity from the year 2016 until the year 2023.
    - Judy Smith-Torrie asked if it would be feasible to undertake similar processes (placement of liners) at the County's other smaller closed landfill sites, to increase landfill capacity and at the same time have more local landfills for County residents to make use of. Adam McCue commented that the County's other closed landfills are currently operating well as "natural attenuation" sites, meaning the leachate is not having off-site impacts on groundwater. In the case of the Brighton landfill, the concern that the landfill could impact nearby residential wells or potentially the Brighton Municipal Well Supply, was a significant driver in substantiating the need for lining the site. Adam noted that there would be high costs associated with remediating (e.g. digging up and placing liner and leachate collection systems under these closed sites), and operating a number of different landfill sites within the County, as each site would require at a minimum two staff, equipment and facilities (office, scale, public drop area, etc.).

- Material Recovery Facility Operations
    - It was asked if the MRF is currently operating at capacity.
    - Adam McCue noted that the MRF's capacity is approximately 18,000 tonnes per year (based on one 8 hr shift per day). Currently the MRF processes approximately 16,000 tonnes per year, so with one shift, there is approximately 2,000 tonnes of additional capacity available.
    - If a second shift were to be added, the capacity of the MRF would theoretically double to 36,000 tonnes per year.
    - Adam McCue commented that one of the big questions which will need to be answered through this planning process is whether the County should continue to operate as a Regional MRF with one shift; whether it should look at going to two shift and processing even more material; or whether, long-term, the County should be looking to only process its own materials.
    - It was asked why the County does not sort out at the MRF all LCBO bottles and containers and return them the LCBO to receive the deposit for these items. Adam McCue explained that the LCBO containers

(glass, plastic and aluminum) put out for curbside collection by residents are comingled with other recyclables and get compacted in the collection vehicle. As a result, many of the glass bottles end up getting broken in the process. At the MRF, we do not manually sort aluminum containers. There is an eddy current separator used (which works very similar to a magnet), that ejects all aluminum materials off of the conveyor line and into a storage bunker. In order to get the aluminum LCBO beverage containers, staff would then have to physically hand pick through all of the aluminum materials to get the few LCBO aluminum cans. This process would be time consuming and likely not worth the additional revenue it could potentially generate.

- It was asked if the County breaks even or makes money on collecting and processing recyclable materials. Adam McCue responded, that even with the sale of recyclable materials, and the funding the County from Stewardship Ontario for processing residential recyclable materials, there is still a net cost to recycling. Adam noted that the revenue the County gets from the sale of recyclable materials is tied directly to the commodity markets (plastic, paper, metals, etc.). When the commodity markets drop, the County experiences a drop in their revenues. For example, in 2009, after the markets dropped, the County revenue for recyclable materials ended up being approximately $1.1 million, compared to 2011, when the revenue rebounded to $2.2 million for roughly the same amount of material marketed. Adam committed to providing the Committee with Commodity Price Sheets which show the historical prices per tonne for various recyclable materials.

  ACTION: Adam McCue

- It was asked where the recyclable materials from the County's MRF get sent to once they are sold. Adam McCue committed to providing a breakdown of where various materials get sold / shipped to at the next Advisory Committee meeting.

  ACTION: Adam McCue

- Residual Waste (garbage) Disposal Alternatives
  - Dean Peters stated that in order to determine what to do with residual waste (or the operation of our MRF), we must decide if the County is interested in making a large capital investment, as they did in the past with the construction of the MRF. If there is no interest in making capital investments, then the number of options for managing recyclables or residual waste becomes limited.
  - Adam McCue stated that there are very few options currently available to Northumberland County for disposing of residual waste. They are:
    - Developing a new landfill within the County;
    - Expanding an existing landfill within the County;
    - Exporting the residual waste to another landfill in Ontario (or the states); or
    - Exporting the residual waste to an Energy from Waste Facility (EFW). There are a number of different technologies for thermally treating waste. The most conventional / common place is incineration. Other technologies such as gasification, plasma arc, and pyrolysis are less common place and in many

cases the facilities employing these technologies are either pilot facilities or are processing very specific waste materials and not municipal waste (the composition of which can vary greatly and be problematic for these technologies).

- Bill Pyatt, recommended that the County attempt to set up tours for interested members of the Committee to visit: an incinerator facility currently operating in the Peel Region; a fully engineered landfill; and an organics composting facility.

ACTION: County

- Bill Pyatt also suggested discussions on residual waste disposal alternatives be deferred until the next meeting of the Advisory committee and further, that the County and its consultant prepare a presentation for the next meeting, which would focus on the various technologies for processing residual waste, how they work, where the facilities are currently being operated, on what scale, and the pros and cons associated with each technology.

ACTION: County and Stantec

- Given the ever diminishing landfill capacity in eastern Ontario, Mayor Walas asked Bill Pyatt if discussions surrounding waste management had been held at the Eastern Ontario Warden's Caucus. Bill Pyatt commented that waste management hasn't been a topic of discussion, for the simple reason that in Eastern Ontario, for the most part, the oversight of waste management programs is dealt with at the lower-tire municipal level, and not at the County (or upper-tier) level. Northumberland County is fairly unique in that it has oversight of waste management. Bill Pyatt further explained that it can be difficult to develop a multi-municipality approach or solutions for waste disposal, since the needs and priorities of neighbouring municipalities can vary greatly.

- Curbside Collection Services
  - Kelly Morgan-MacKenzie noted that uncollected waste was a problem in the downtown business area of Port Hope and asked if the bag-tag system would be reviewed as part of this process? Adam McCue noted that the County's bag-tag system would be reviewed as part of this planning process.
  - It was asked why at some retail stores, bag tags cost $3.00 each, when, if bought at a municipal office, or from the County, they are only $2.75? Adam McCue explained that the County allows retailers to add up to a 10% mark-up to the value of a bag tag, in order to cover the costs they incur in selling bag tags on the County's behalf.

- Other Diversion Programs
  - Dean Peters asked if the County would be willing or interested in seeking out a community within the County to implement various diversion measures on a trial basis, to see if a relatively high diversion rate could be achieved (e.g. provision of curbside organics pick-up or two-stream recyclables pick-up)

- Dean Peters also commented that one of the big questions which needs to be addressed / answered, is how to get the general public involved in the planning process and how to communicate any changes being proposed.
- Councillor Hie stated that it was key to get youth involved, possible through school programs. Adam McCue noted that the Northumberland County, in conjunction with the City of Kawartha Lakes and the City and County of Peterborough had retained an organization to develop an educational program, focused on diversion and recycling, and that the pilot program would be linked to public school curriculum so that it would be appealing to the Boards of Education.
- Don Forster requested that Adam McCue send him information on the pilot school program. Don is involved with the Recycling Council of Ontario (RCO), and felt that this might be something RCO would be interested in supporting.

ACTION: Adam McCue

- Don Forster indicated that he would provide the County with the contact at Seneca College for the composting program they recently implemented.

ACTION: Don Forster

- Service Level Equity for Multi-Unit Dwellings, Apartments and Businesses
  - Adam McCue noted that the County, through this process will be looking into the feasibility of providing curbside collection services to Multi-dwelling properties, apartment complexes and businesses.

- Cost Recovery Mechanisms
  - Adam noted that as part of this planning process, the County will be reviewing the mechanisms (e.g. bag-tags, funding, tipping fee revenues, etc.) by which the waste management services provided by the county are paid for.

6. Next Steps
   - Arrange for tours of Waste Management Facilities
   - Provide in-depth technical session / presentation on Residual Waste Disposal Alternatives at the next Advisory Committee Meeting
   - Review draft materials to be presented at the first series of Open Houses at the next Advisory Committee Meeting
   - Hold first series of Open Houses in the fall of this year

7. Next Meeting
   - Next meeting of the Advisory Committee will be held during the week of September 10th. Adam McCue will circulate some tentative dates and times for the meeting to the Advisory Committee for consideration.

ACTION: Adam McCue

ATTACHMENT No. 1

The Price Sheet

Ontario Market Price Trends for June 2012

MONTHLY AVERAGES (CDN$/Metric Tonne)

	Jan 2011	Feb 2011	Mar 2011	April 2011	May 2011	June 2011	July 2011	Aug 2011	Sept 2011	Oct 2011	Nov 2011	Dec 2011	Jan 2012	Feb 2012	Mar 2012	Apr 2012	May 2012	June 2012
Aluminum Cans	1778	1837	1908	1954	1974	1965	1880	1809	1683	1622	1546	1520	1519	1638	1658	1553	1550	1466
Steel Cans	366	332	343	343	318	323	333	326	319	341	326	355	363	302	318	313	314	248
Glass (clear)	27	27	27	27	27	27	27	26	26	26	25	26	26	25	26	25	29	29
Glass (mixed)	(11)	(10)	(10)	(10)	(9)	(9)	(8)	(8)	(13)	(22)	(11)	(13)	(11)	(15)	(11)	(11)	(23)	(18)
PET (mixed)	566	688	720	697	748	695	637	657	700	710	625	375	383	450	609	655	670	399
HDPE (mixed)	494	601	633	668	692	587	501	454	482	522	563	545	552	580	648	715	680	548
Plastic Tubs & Lids	80	113	118	234	360	365	314	330	283	241	266	260	239	171	223	304	272	na
Mixed Plastics*		51	52	59	89	60	41	36	37	36	37	35	36	37	34	34	41	34
Film Plastic	18	24	20	20	22	29	26	28	32	21	31	28	31	25	33	33	32	31
Polystyrene	(53)	(75)	na	na	(89)	na	(99)	na	(99)	na	(99)	na	na	na	na	na	na	na
Newspaper (ONP #8)	105	113	150	149	126	127	129	139	142	148	99	89	91	91	93	91	92	94
Corrugated (OCC)	184	186	180	174	169	173	178	177	179	189	146	143	141	157	156	155	145	148
Hardpack (OBB/OCC)	89	89	93	94	92	96	103	109	113	115	82	68	65	66	74	80	67	65
Boxboard (OBB)	72	77	77	75	73	81	97	na	115	na	na	85	69	76	71	76	71	72
Polycoat Containers	105	110	114	124	129	135	129	143	140	158	123	114	115	114	118	117	106	109
Composite Index	**151**	**165**	**186**	**186**	**175**	**175**	**172**	**177**	**178**	**183**	**145**	**131**	**129**	**133**	**142**	**143**	**140**	**127**

YEARLY AVERAGES (CDN$/Metric Tonne)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Aluminum Cans	2045	2045	1827	1595	1608	1893	1700	1709	1619	1772	1763	2169	2065	1904	1215	1591	1790	1564
Steel Cans						52	26	47	76	191	116	141	168	245	89	263	335	310
Glass (clear)	48	47	47	49	50	50	31	29	34	38	36	36	33	27	26	25	27	27
Glass (mixed)		0	(4)	(25)	(20)	(15)	(15)	(15)	(19)	(12)	(31)	(31)	(31)	(24)	(18)	(15)	(11)	(15)
PET (mixed)	650	650	155	300	144	326	324	166	278	432	507	314	368	352	187	391	652	528
HDPE (mixed)	345	356	447	226	211	373	257	233	364	428	683	565	524	573	320	464	562	621
Plastic Tubs & Lids	100	100	76	66	3	5	5	0	12	51	104	128	146	204	22	54	247	242
Mixed Plastics*																	48	36
Film Plastic	40	40	(4)	(5)	(12)	7	26	0	8	55	148	137	51	35	3	13	25	31
Polystyrene	110	125	125	125	125	125	125	75	75	75	75	75	75	75	75	(16)	(86)	na
Newspaper (ONP8)	214	159	31	48	76	118	76	100	99	114	101	89	118	121	72	90	126	92
Corrugated (OCC)	159	214	97	73	99	112	55	106	89	114	95	80	131	111	68	149	173	150
Hardpack (OBB/OCC)	159	120	5	17	20	65	38	63	62	75	68	50	89	76	42	74	95	70
Boxboard (OBB)									43	62	53	41	70	62	26	61	84	72
Polycoat Containers	189	198	99	26	24	83	57	58	64	67	66	59	84	75	39	105	127	113
Composite Index						**134**	**95**	**113**	**114**	**131**	**124**	**111**	**145**	**150**	**80**	**124**	**169**	**136**

* The composition for mixed plastics varies from each municipality based on the range of materials accepted and the specifications from their end markets.

Notes:

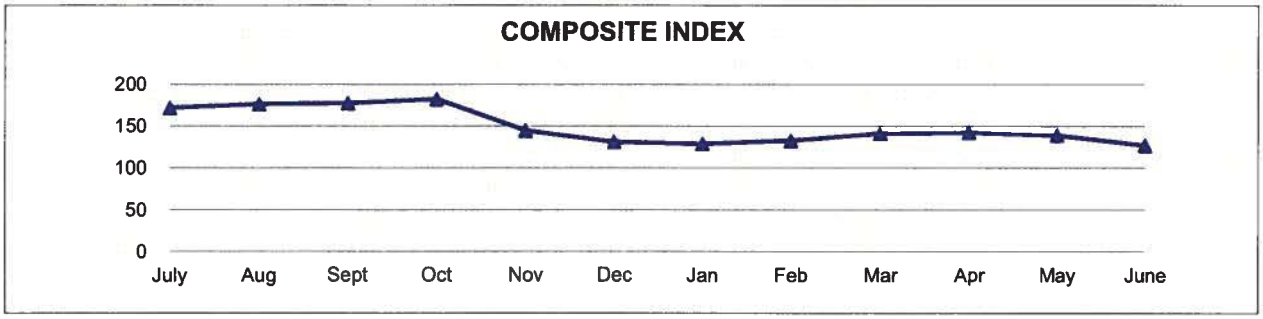
1) Prices are for baled post-consumer residential materials, except glass, which is loose.
2) Prices are FOB the municipality except for glass and polystyrene which are delivered. NOTE: In May 2012, prices for glass are FOB the municipality.
3) Prices are compiled from a range of municipal programs across Ontario combined with information from industry representatives. Prices may not be the same as actual prices being paid in any given program.
4) The Composite Index is calculated using the overall composition of residential Blue Box material recovered and marketed in Ontario as reported from the approved 2010 WDO Datacall with some additional allocations to material categories. Mixed glass includes coloured glass. ONP8 includes a quantity of lower grade papers sold at lower prices. Composition figures are updated annually. Details available upon request.
5) Materials with a listed price of "na" indicate either an insufficient number of municipalities reported a price in the given month (<4) or variation in the reported price which is not considered representative of Ontario

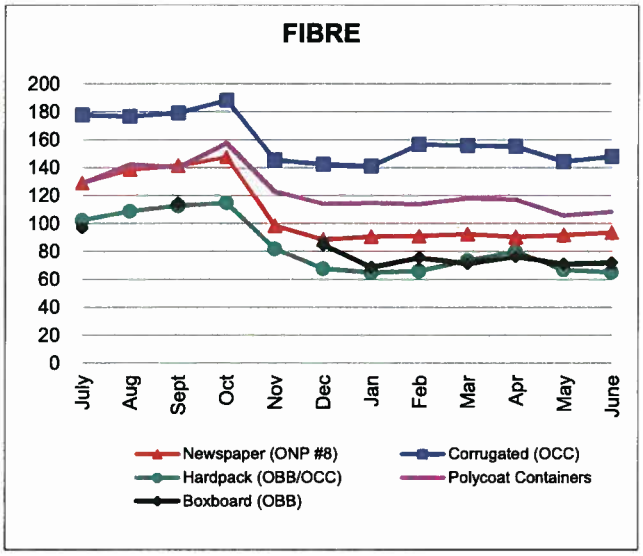
For more information please contact:
Neil Menezes at 416-644-8349 (Toll-Free: 888-277-2762, Ext. 3989) email: nmenezes@stewardedge.ca
StewardEdge, 26 Wellington Street East, Suite 601, Toronto, Ontario, M5E 1S2

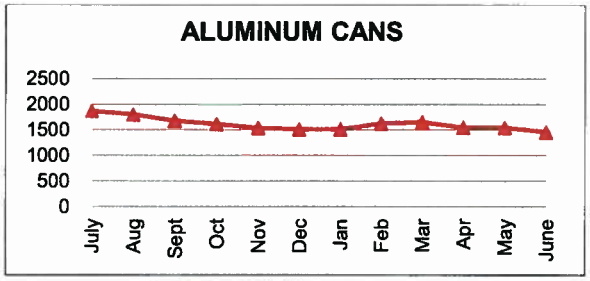
Past editions of *The Price Sheet* are archived on the StewardEdge website at http://stewardedge.ca/pricesheet/

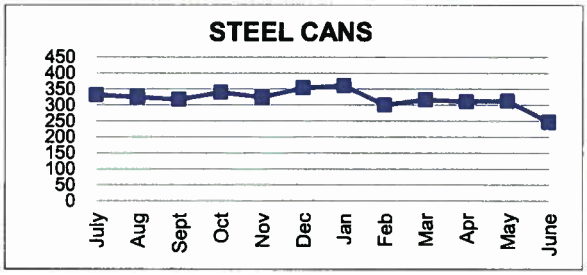
The Price Sheet

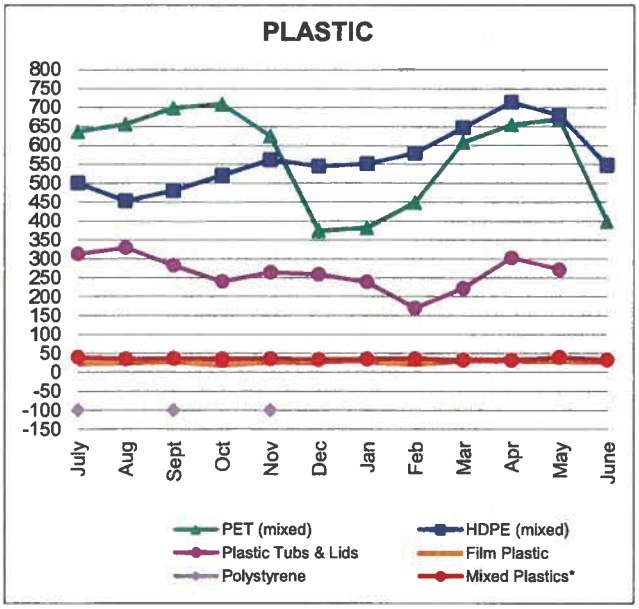
Ontario Monthly Averages from July 2011 to June 2012
(CDN$/Metric Tonne)

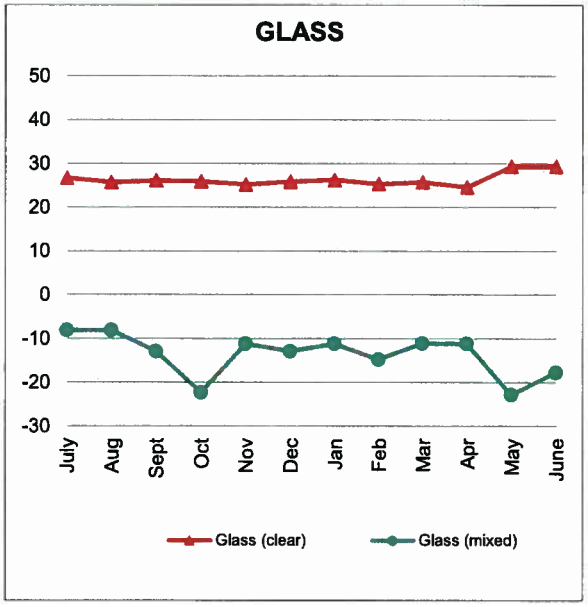








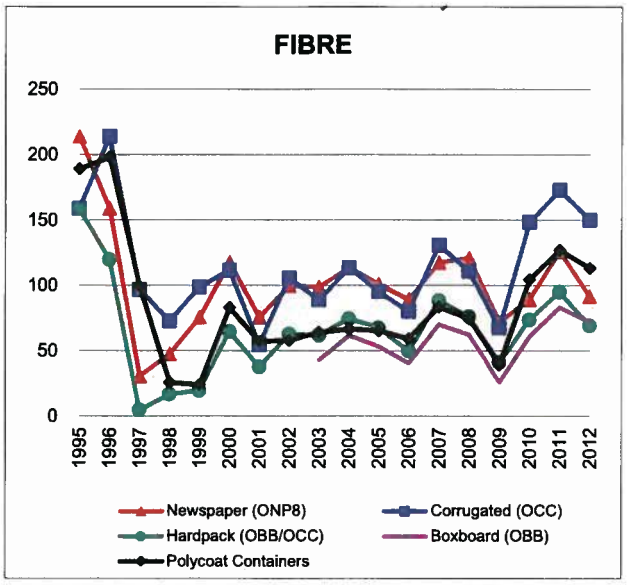


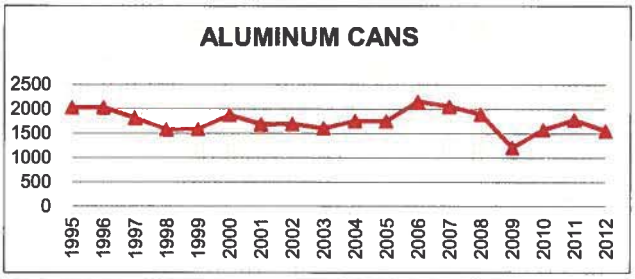


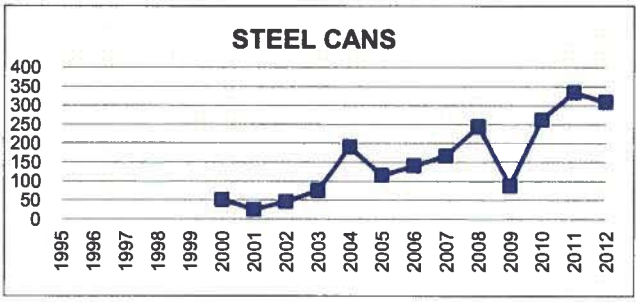
Graphs produced from Monthly Averages Table.

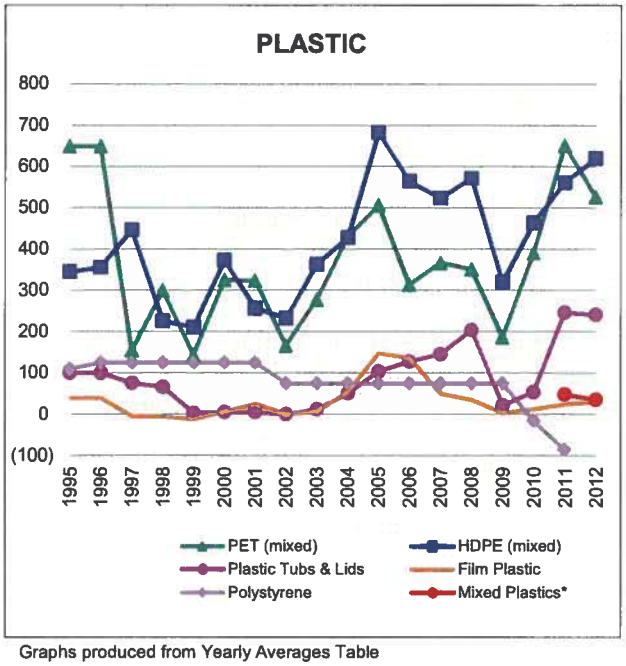
The Price Sheet

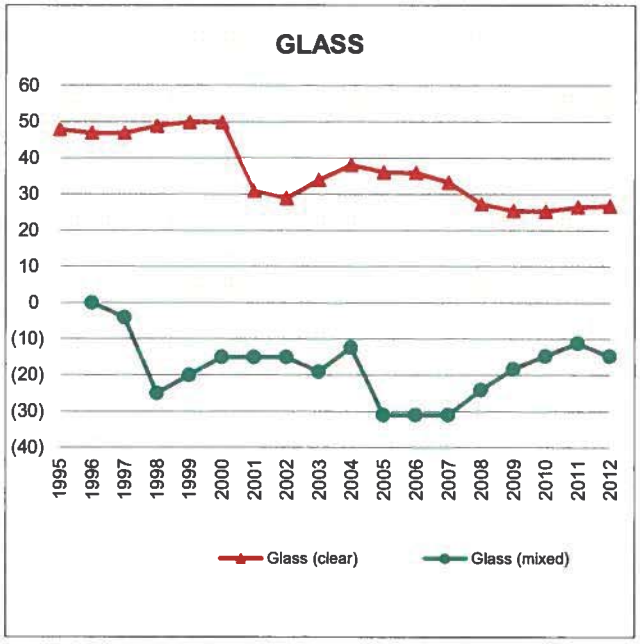
Ontario Historical Yearly Averages











Graphs produced from Yearly Averages Table

AGENDA
Long-Term Waste Management Master Plan
Advisory Committee Meeting
Tuesday September 11, 2012

Time: 1:30 p.m.
Location: Cobourg Best Western
Northumberland Room
(located at 930 William Street, Cobourg)

1. Introductions

2. Declarations of Pecuniary Interest

3. Review and adoption of previous meeting minutes

4. Review and adoption of meeting agenda

5. Update on Advisory Committee Membership

6. Nominations and Selection of Advisory Committee Vice Chair

7. Presentation on Facility Tours (Halton Waste Management Site & Algonquin Power EFW) – by County Staff

8. Presentation on Alternative Waste Disposal Technologies – by Stantec

9. Review of draft Public Information Centre (PIC) display boards

10. Review of draft Frequently Asked Questions (FAQ) handout

11. Discussions on community engagement in this planning process

12. General discussions / comments on draft technical reports

13. Next Steps
    - Receive additional feedback from Committee members
    - Revise draft Interim Technical Reports
    - Hold first series of Open Houses in early fall of this year

14. Other Business

15. Next Meeting

MINUTES

Long-Term Waste Management Master Plan
Advisory Committee Meeting
Tuesday September 11, 2012

Time: 1:30 p.m.
Location: Best Western Cobourg Inn & Convention Centre
930 Burnham Street, Cobourg - Northumberland Room

ATTENDEES:

Committee Members:

Mayor Linda Thompson	Mayor Mark Walas	Deputy Mayor Jim Williams
Deputy Mayor Isobel Hie	Deputy Mayor Rosemary Kelleher-MacLennan	
Deputy Mayor Stan Frost	Councillor David Turk	Dean Peters
Kelly Morgan-Mackenzie	Peter Dounoukos	Judy Smith-Torrie
Brittany Pegg		

County Staff and Consultants:

Mobushar Pannu	Adam McCue	Karl Allen
Heather Nemec	Brooke Gillispie	Jim Archibald
Kerrie Skillen		

REGRETS:

Councillor John Logel	Councillor Dave Mowat	Karen Theriault
Jeannine Cheer	Paul Burnham	Don Forster
Nicole Willett	Chris Cardona	

1. Introductions
    - Mayor Linda Thompson welcomed everyone and introduced herself as she could not in attend the first meeting.
    - Before commencing the meeting, Mayor Thompson requested that each member introduce themselves and identify which group / organization they were representing.

2. Declaration of Pecuniary Interest
    - Deputy Mayor Isobel Hie declared Pecuniary Interest with regard to the Material Recovery Facility due to her son-in-law's employment there.

3. Review and Adoption of Previous Meeting Minutes
    - Deputy Mayor Rosemary Kelleher-MacLennan noted that the minutes indicated, incorrectly that she was in attendance. Adam McCue noted that the correction would be made
    - Minutes were adopted with the one correction.

4. Review and Adoption of Meeting Agenda
    - Approved as circulated and carried

5. Update on Advisory Committee Membership
    - Adam McCue reported that Chris Cardona, representative for multi-dwelling properties removed himself from the Advisory Committee due to health considerations
    - After discussion, the committee agreed that multi-dwelling property owners should be represented, especially due to the challenges and lower capture rate of recyclables from these properties
    - County Staff will prepare a letter to multi-dwelling property owners, requesting that interested parties contact Adam McCue to be considered for membership on the Advisory Committee. The mailing list will be obtained through the Municipal Property Assessment Corporation, filtering for multi-dwelling properties with 7 or greater units.

      Action: Adam McCue

6. Nominations and Selection of Advisory Committee Vice Chair
    - Deputy Mayor Jim Williams nominated Mayor Mark Walas for the position of Vice-Chair
    - No other nominations were received
    - Mayor Mark Walas accepted the position through acclamation

7. Presentation on Facility Tours (Halton Waste Management Site & Algonquin Power EFW)
    - Adam McCue gave a presentation highlighting the tours of both facilities. The following are questions or comments received from the committee:

      Q: The planning process cost an estimated $60 million, of which $10 million was for actual design and construction. Did this include the cost of the gas collection system?

      A: Yes, it does include the cost of the collection system; however, it does not include the cost for the internal combustion engines recently installed to burn the landfill gas to produce electricity.

Q: The Halton facility uses tarps as cover to prevent animals from getting to the garbage at the tipping face as well as to reduce the amount of daily cover required. How much daily cover does the County currently use at the Brighton Landfill?
A: The County applies approximately 6" of cover soil at the end of each operating day. This represents approximately 12-15% of the total allowable capacity for the landfill.
Q: Dean Peters has notes taken during the tour stating that it took 20 years for the planning process which included an Environmental Assessment, for the Milton location to be chosen for the Halton Region Waste Management Site. During the presentation it was noted as taking 10 years. In addition, Dean's notes indicated that the number of vehicles that utilized the container site was 160,000 and a total of 200,000 vehicles visited the site on a yearly basis. During the presentation it was noted as a total of 170,000 vehicles per year.
A: Adam will check these stats and report back at the next scheduled meeting.

Action: Adam McCue

Q: What was the level of noise or smell at the Halton site?
A: There was minimal noise and very little smell throughout the site.

Q: Does the Halton site have a program to educate the public regarding their personal buying habits and ways to increase diversion?
A: Halton Region has produced a booklet that has gone out to residents and is offered for pick-up at the site called "Rethinking our Waste" that provides extensive information for the public.

Q: During the presentation regarding the Algonquin Power Energy from Waste Facility it was noted that approximately 30% of the material received goes to landfill, as either "overs"(e.g large items that can't be processed such as mattresses), bottom ash or fly ash. What portion of the materials is sent to hazardous waste landfills?
A: Adam noted that only the fly ash (contaminants taken out of the exhaust gas, go to hazardous waste landfill. Adam will find out what the quantities of this fly ash are and report back at the next meeting.

Action: Adam McCue

C: Judy Torrie-Smith commented that her overall impression of the Halton Site was that it fit the landscape layout well; it was great that all of the Waste staff were located on site, within one building and felt that the addition of the Salvation Army Re-Use trailer was a positive way to promote diversion.

8. Presentation on Alternative Waste Disposal Technologies
    - Kerrie Skillen presented the various options available for waste management. The following are questions or comments received by the committee members:

      Q: What are the differences between the Canadian and the European standards for Air Emissions and controls?

      A: Kerrie will provide a table of the Canadian and European Air Emission Standards at the next meeting

      Action: Stantec

      Q: What about sludge (biosolids) can this type of waste go through thermal treatment?

      A: Not that Stantec is aware of.

      C: Dean Peters noted that Renewable Energy Management (REM) is proposing a Low-Temperature Gasification facility within the Municipality of Port Hope. The technology being proposed for this facility is in use in over 50 plants world-wide.

      C: The committee has to decide what screening matrix will be used to help determine the outcome of our waste management master plan. The following are suggestions that could begin the discussion:

      Technology confidence
      Sustainability confidence
      Capital cost
      Operating cost
      Behaviour change (public, business etc.)
      Impact on diversion attitude with mass burn
      Losing control if we send our waste out of the County
      Overall environmental impact
      Local impact

      C: Mayor Linda Thompson agreed that a scoring matrix should be created.

C: Deputy Mayor Stan Frost stated that the decision about what the County does with our waste cannot be based on cost alone.

9. Review of draft Public Information Centre (PIC) display boards
    - The Committee members reviewed and requested the following changes:
        - No. 3 should list the current transfer station locations and remove the sentence following 'Port Hope Ward 2 Transfer Station' heading.
        - No. 4 remove first bullet under 'Possible Actions to Increase Diversion' heading. Add more diversion tactics ie garden waste pick-up, every week recycle/every other week garbage pick-up; perhaps make this its own slide.
        - No. 6 second bullet should read *some* equipment is in need of upgrade.

10. Review of draft Frequently Asked Questions (FAQ) handout
    - Given time constraints, it was asked that comments on the FAQ handout be provided to Adam McCue by September 24th.

Action: All

11. Discussions on community engagement in this planning process
    - The following comments were received:
        - Remove the question regarding the Hope Transfer Station.
        - Re-order the questions, putting the easy questions first, so as not to discourage people
        - Make the questions easier to read, using layman terms.
        - County needs to look at other ways to engage the public, Open Houses alone, are not enough.
        - The revised Comment Sheet should be put on the County website as a survey.
        - After the feedback has been received from the first Open House it should be taken to communities within the County to solicit more public involvement.
    - Committee members were asked to review the Draft Comment Sheet and send comments or suggestions to Adam McCue by September 24th

Action: All

12. General discussions / comments on draft technical reports
    - It was requested that the question regarding the Hope Transfer Station be removed.

13. Next Steps

- Mayor Linda Thompson suggested that it would be beneficial for the committee members to tour the Material Recovery Facility (MRF) and the County Landfills. Possible dates to be circulated to Committee members for availability.

Action: Adam McCue

14. Other Business

- Deputy Mayor Stan Frost would like to know what the upper level of government is doing to put restrictions on manufacturers regarding packaging. This item will be added to the next meeting agenda.

Action: Adam McCue

15. Next Meeting

Late 2012 or early 2013; Adam McCue will send out tentative dates, following discussions with the Chair.

Action: Adam McCue

AGENDA
Long-Term Waste Management Master Plan
Advisory Committee Meeting
Monday March 4, 2013

Time: 1:00 p.m.
Location: County Council Chambers
(located at 555 Courthouse Rd., Cobourg)

1. Introductions

2. Declarations of Pecuniary Interest

3. Review and adoption of previous meeting minutes

4. Review and adoption of meeting agenda

5. Updates on Action Items from Sept. 14, 2013 meeting

    a) Mail out to Multi-Dwelling Property Owners re: membership vacancy on committee

    b) Confirmation of stats relating to annual usage of Halton Waste Management Facility

    c) Quantities of Fly-Ash produced annually by Algonquin Power Energy-from-Waste Facility

    d) Provision of comparison table between European and MOE air emission standards

    e) Scheduling of tours of County's MRF and Brighton Landfill for interested Advisory Committee members

    f) Additional information on what other levels of government are doing with regards to packaging standards / restrictions

6. Seymour Landfill – upcoming change in operations (ATTACHMENT No. 1)

7. Harmonizations of Waste Disposal Tipping Fees at County Landfills & Transfer Stations (ATTACHMENT No. 2)

8. MRF

    a) Proposal to Process City of Kawartha Lakes' Recyclable Materials

9. Update on Long-Term Waste Management Master Plan Process (ATTAHMENT No. 3)

    a) Public Responses to Initial Stage of Public Consultation
    b) Summary of Public Feedback
    c) Proposed Future Direction Based on Feedback

10. Next Steps
    a) Integration of Advisory Committee and Staff comments into "Proposed Future Direction" of LTWMMP – March 2013
    b) Development of cost scenarios and proposed implementation staging for recommended new or enhanced services – April 2013
    c) Development of draft LTWMMP – April 2013
    d) Tours of MRF and Brighton Landfill in late April / early May 2013
    e) Meeting of Advisory Committee in mid-May 2013 to review draft LTWMMP
    f) Second Series of PICs in early-to-mid June, 2013
    g) Compile and review public comments received from second series of PICs – July / August 2013
    h) Incorporation of additional public feedback into draft LTWMMP Sept. 2013
    i) Meeting of Advisory Committee in early Oct. 2013 to review revised draft of LTWMMP
    j) Incorporation of Advisory Committee comments into final draft of LTWMMP – late Oct. 2013
    k) Final draft of LTWMMP to County Council for review / adoption in Nov. 2013
    l) Final series of PICs to inform public about the adopted LTWMMP – dependent on Council approval / direction

11. Other Business

12. Next Meeting

    - mid-May, 2013

ATTACHMENT No. 1

ATTACHMENT No. 2

ATTACHMENT No. 3

MINUTES

Long-Term Waste Management Master Plan
Advisory Committee Meeting
Monday March 4, 2013

Time: 1:00 p.m.
Location: County Council Chambers

ATTENDEES:

Committee Members:

Mayor Linda Thompson	Mayor Mark Walas	Deputy Mayor Jim Williams
Deputy Mayor Isobel Hie	Deputy Mayor Stan Frost	Councillor David Turk
Councillor John Logel	Peter Dounoukos	Judy Smith-Torrie
Jeannine Cheer	Kim Watson	Karen Theriault

County Staff and Consultants:

Mobushar Pannu	Adam McCue	Karl Allen
Daniel Orr	Brooke Gillispie	Jim Archibald
Kerrie Skillen		

REGRETS:

Councillor Dave Mowat	Deputy Mayor Rosemary Kelleher-MacLennan	
Paul Burnham	Don Forster	Nicole Willett
Dean Peters	Kelly Morgan-Mackenzie	Brittany Pegg

1. **Introductions**
   - Mayor Linda Thompson welcomed everyone and asked everyone in attendance to introduce themselves.
   - Adam McCue thanked Kim Watson for volunteering to be the representative on the committee for the Multi-Dwelling sector.

2. **Declarations of Pecuniary Interest**
   - Deputy Mayor Isobel Hie declared a Pecuniary Interest with regards to the Material Recovery Facility (MRF), as her son-in-law is an employee of the MRF.
   - Jeannine Cheer declared a Pecuniary Interest with regards to a site specific issue (waste transfer stations)

3. Review and Adoption of Previous Meeting Minutes

- Motion to adopt minutes of the previous meeting was moved by Judy Smith-Torrie, seconded by Deputy Mayor Isobel Hie, and passed unanimously.

4. Review and Adoption of Meeting Agenda

- Motion to adopt meeting agenda was moved by Councillor John Logel, seconded by Councillor David Turck, and passed unanimously.

5. Updates on Action Items from Sept. 14, 2013 meeting

a. *Mail out to Multi-Dwelling Property Owners re: membership vacancy on committee*

Adam confirmed that the County had completed the recommended mail out to Multi-Dwelling Property Owners. Adam noted that very little feedback from the mail out had been received (3 response in total) and that only one respondent was interested in becoming a representative on our Advisory Committee. By acclimation, Kim Watson, a representative of Rupa Holdings Inc., is the Advisory Committee representative for the Multi-Dwelling sector.

b. *Confirmation of statistics relating to annual usage of Halton Waste Management Facility*

The County has confirmed that, on average 170,000 vehicles make use of the Halton Waste Management Facility on an annual basis.

With respect to the timing for approvals of the Halton Waste Management Facility:

- Halton Region incorporated in 1974.
- In 1978, Halton Region sought approval for a landfill, but at a different site.
- In 1982, Halton officially restarted its search for a landfill site under the new Environmental Assessment Act.
- In 1987, the Joint Board Hearing started.
- The Joint Board Hearing ended in 1988, after 194 days, 50,000 pages of reports and 1,000 exhibits of evidence.
- In 1989, the Joint Board Hearing issued approval, and the MOE issued a certificate of approval.
- Construction of the Halton Waste Management Site started in 1991.
- The Site opened in 1992.

c. ***Quantities of Fly-Ash produced annually by Algonquin Power Energy-from-Waste Facility***

On average, a typical tonne of waste received from the Region of Peel produced the following (Figure included as **Attachment No. 1**):

- 220 kg of bottom ash (22%)
- 12 kg of scrap metal (1.2%)
- 5 kg of fly ash (0.5%)

d. ***Provision of comparison table between European and MOE air emission standards***

Jim Archibald of Stantec provided a copy of a Memorandum prepared by the Region of Durham containing a comparison table of European Union Emission Limits and MOE Emission Limits. A copy of this memo is included as **Attachment No. 2**.

e. ***Scheduling of tours of County's MRF and Brighton Landfill for interested Advisory Committee members***

Adam noted that, due to delays from additional waste excavation and weather, the construction of the new cell at the Brighton Landfill was not completed in 2012.

Weather permitting, the contractor will re-commence works on the cell construction in April.

Adam would like all committee members to be able to view the actual construction of the cell liner and leachate collection system. This process will take 3 to 4 weeks from start to finish.

Once the County has a better understanding of when exactly the liner will be installed, Adam will send out invitations for tour(s) of the landfill and MRF.

Adam noted that the County is more than willing to host a series of tours (on different dates and times) to facilitate as many interested participants as possible.

f. ***Additional information on what other levels of government are doing with regards to packaging standards / restrictions***

Adam provided the following information on various government and non-profit agencies which are striving to reduce packaging.

Canadian Council of Ministers of the Environment (CCME)

CCME published, in October of 2009, a report titled “A Canada-wide Strategy for Sustainable Packaging”’.

The purpose of this Strategy is to “build on the Canada-wide action plan for Extended Producer Responsibility (EPR) to help create a more consistent Canada-wide approach to EPR for packaging and to support a shift by all packaging actors towards greater packaging sustainability.”

“The Strategy aims to increase awareness and information about packaging sustainability among all packaging actors and to promote reductions in packaging and more sustainable packaging choices at all stages of the packaging life cycle – from packaging design to waste management. CMME’s ultimate goal is to reduce the overall quantity of packaging materials generated and disposed of throughout Canada, with the aspirational goal of zero waste.”

This Strategy’s timelines are as follows:

1) Within the short term (0-2 years: 2010 to 2012) start work on:
    a. Industry-Government Working Group
    b. Industry Agreements
    c. Canada-wide Standards and Certification for Compostable Packaging
    d. Sustainable indicators, metrics and related tools for packaging
2) Following the above, and dependent on consultation between industry-government working group, focus on:
    a. Canada-wide labelling system for packaging recyclability
    b. Reuse programs
    c. Industry education and recognition programs
    d. Excessive packaging Ombudsman
    e. Shopping basked index

A copy of the Strategy report is included as **Attachment No. 3** to these minutes.

Sustainable Packaging Coalition (SPC)

“SPC” is an industry working group dedicated to a more robust environmental vision for packaging. Through strong member support, an informed and science based approach, supply chain collaborations and continuous outreach, they endeavour to build packaging systems that encourage economic prosperity and sustainable flow of materials.”

SPC is a project of GreenBlue, a non-profit organization that equips business with the science and resources to make products more sustainable.

The SPC's definition of Sustainable Packaging is:

- Is beneficial, safe & healthy for individuals and communities throughout its life cycle
- Meets market criteria for performance and cost
- Is sourced, manufactured, transported and recycled using renewable energy
- Is manufactured using clean production technologies and best practices
- Is made from materials healthy in all probable end-of-life scenarios
- Is physically designed to optimize materials and energy
- Is effectively recovered and utilized in biological and / or industrial closed loop cycles.

This is the definition adopted by the CCME in their Strategy.

Packaging Association of Canada (PAC)

PAC has over 1,700 members (including big names like: Walmart, Target, Tim Hortons, Loblaws, P&G, Nestle, Costco, McDonalds, Sobeys, Coca-cola Ltd. Canadian Tire; and Kraft)

Their Mission Statement is to: "Maximize value and sustainable growth for our associated members.

One of the PACs focuses is on sustainable material management.

PAC will be hosting a "Packaging Optimization Summit" in Toronto on May 15th, some key presenters at the summit will be:

- VP, Environment & Sustainability – Coca-cola
- Director, Sustainability & Environmental – Costco
- VP, Global Sustainability – P&G
- VP, Sustainability – Sobeys

Adam indicated that he or another representative from the County would likely attend this Summit. **ACTION: COUNTY**

6. Seymour Landfill – upcoming change in operations

Adam noted that the Seymour Landfill in nearly full, and on April 1st of this year, the Seymour landfill will cease operations as a landfill and commence operations as strictly a Transfer Station.

Only loads of waste which can be unloaded by hand will be accepted at the site once it becomes a transfer station.

The Site will still continue to accept all of the materials it did when it was as a landfill. Any waste received requiring landfill disposal will be hauled to the Brighton landfill for ultimate disposal, using the County's Roll-off Trucks.

Included with the Agenda package was a report to County Council outlining the reasons for closing the landfill. A copy of the newspaper ad the County developed to notify residents about this change was also included in the Agenda package.

County has also been handing out pamphlets with information about the change in operations to all landfill and transfer stations patrons, since November.

Ads are also running on local radio stations and information on the operational change was included with the Waste Voucher mail-out.

7. Harmonization of Waste Disposal Tipping Fees at County Landfills & Transfer Stations

Adam noted that on April 1st of this year, the County will be harmonizing the tipping fee for Waste Disposal at all of its landfills and transfer stations.

Currently the disposal rate at the Brighton and Seymour Landfills is $95 per tonne and $115 per tonne at the Bewdley Transfer Station.

On April 1st of this year, the disposal rate for waste will be $115 per tonne at all County operated sites.

Included with the Agenda package was a report to County Council outlining the reasons for harmonizing the tipping fees. A copy of the newspaper ad the County developed to notify residents about this change was also included in the Agenda package.

County has also been handing out pamphlets with information about the change in tipping fees to all landfill and transfer stations patrons, since November.

Ads are also running on local radio stations and information on the tipping fee change was included with the Waste Voucher mail-out.

8. MRF - Proposal to Process City of Kawartha Lakes' Recyclable Materials

Adam noted that in October of 2012, the County responded to a Request for Expressions of Interest (REOI) from the City of Kawartha Lakes (CLK), regarding their Integrated Waste Management Plan.

This REOI sought expressions of interest from waste service providers for almost all of their waste management needs (e.g. HHW, Landfilling, Waste Collection, Processing, L&Y waste, etc.)

The County responded to the REOI, and expressed an interest in continuing to process CKL's recyclable materials, at our MRF.

As a result of our REOI submission, the County was invited to submit a detailed proposal for this service.

The County submitted its detailed proposal in February of this year.

The County is hopeful that it will be successful through this process, in securing a long-term contract (5 yrs with 2 yr renewal option) to process CKLs recyclable materials. It is not known for sure when the County will receive notification of the results of the proposal process.

CKL's materials represent approximately 40% of the material we process at our MRF. If the County is unsuccessful in its bid, it would likely actively pursue processing contracts from other municipalities and / or private sector.

9. Update on Long-Term Waste Management Master Plan Process (ATTAHMENT No. 3)

a. Public Responses to Initial Stage of Public Consultation

Jim Archibald provided the following summary:

Attendance at first series of PICs: Port Hope – 39

Campbellford – 8

Colborne – 10

The County received a total of 264 completed questionnaires. 24 were hard copy and 240 were electronic submissions.

b. Summary of Public Feedback

Jim Archibald provided the following summary of the Public Feedback:

1) 98% of respondents said they would make use of Waste Transfer Stations to drop off HHW & E-Waste.
2) 76% of respondents said they would make use of diversion programs at County Landfills and Transfer Stations for items such as Asphalt Shingles, Wood Waste, or Construction and Demolition material.
3) 94% of respondents supported the County entering into agreements with other municipalities to process their recyclable materials at the County's MRF
4) 57% of respondents indicated they would prefer the County to manage the processing of their own recyclables versus send the material out of the County to be processed at another MRF
5) 94% of respondents supported the County adopting a waste diversion goal of 60%
6) Over 91% of respondents supported the County offering garbage and recycling collection services to multi-dwelling facilities, apartment buildings and businesses
7) 91% of respondents indicated they would be willing to sort their recyclable material into more than one bag or container in it would result in a lower cost and less contamination of materials
8) 81% of respondents indicated they would rather the County develop local landfill capacity versus exporting waste outside of the County for landfill disposal
9) 61% of respondents would prefer to use bags or bins to place their recyclables out for collection versus putting them into a cart
10) 41% of respondents indicated they would support an increase in property taxes to pay for new or enhanced waste reduction programs and services
11) 42% of respondents indicated they would support an increase in the cost of bag tags as a means of paying for new or enhanced waste reduction programs and services

Further details of the Public Feedback are included in the Project Direction Update which was circulated with the Agenda package for this meeting.

c. Proposed Future Direction Based on Feedback

Jim Archibald led discussions on a number of proposed changes / enhancements to the County's waste management services and programs. Below are the recommendations along with any comments received from the Advisory Committee Members

a) With respect to offering additional diversion options at our County transfer stations, Stantec continues to suggest that existing transfer stations could be easily and cost-effectively modified to offer additional drop off services. The public has indicated a strong willingness to better utilize these existing facilities. Stantec recommends that further evaluation of drop off options for the transfer stations be undertaken to determine.

Councillor Hie stated that Canadian Tire are taking back e-waste.

Adam committed to providing the committee with a listing of local private sector companies currently accepting e-waste. **ACTION: COUNTY**

Judy Smith-Torrie noted that she felt it was very important for residents to have year round access to HHW and E-Waste disposal.

Deputy Mayor Frost commented that there is increasing pressure, especially in urban areas, for better access to yard waste disposal.

Deputy Mayor Jim Williams suggested that E-Waste materials collected by the County should be processed in Ontario. Adam noted that the County participates in the E-Waste program overseen / administered by Ontario Electronic Stewardship (OES) and that he would check to ensure that E-waste materials collected are in fact processed in Ontario.

ACTION: COUNTY

b) With respect to future MRF operations, Stantec suggest further evaluation of a two stream collection program for recyclables in concern with MRF retrofits based on an incoming clean sort of paper and containers. Stantec also suggest concerted efforts be made in the very near future to negotiate a long-term processing contract with the City of Kawartha Lakes (CKL) to maintain the current economy of scale at the MRF.

Adam reiterated that the County had responded to CKL's request for proposal to process their recyclable materials. Within the next few months the County should know whether or not they were successful in their bid to continue to process CKLs recyclable materials.

Adam noted that the County entered into a long-term waste and recyclables collection contract with GFL in December of 2010. Given the competitive rate of this contract, and the timelines associated with educating the public about a change to curbside set-out requirements, Adam suggested that, if the County were to go to a two-stream collection

system for recyclables, it would make sense to implement the change as part of a new collection contract, around 2018.

Deputy Mayor Frost suggested the County should conduct a pilot program to see how well two-stream recycling would be received in Northumberland County, and any challenges that may need to be overcome, prior to full implementation.

NOTE: *Councillor Hie removed herself from discussions relating to the MRF, as per her declaration of pecuniary interest. She rejoined discussions at the meeting, once discussions relating to the MRF had finished.*

c) With respect to providing waste collection services to multi-dwellings, apartments and businesses, Stantec suggests that recyclables collection for all residential units be reviewed in more detail, along with the adequacy of the current downtown business collection services

Adam noted that, if the County were to commit to collecting recyclable from all dwelling units (incl. Multi-dwellings and apartment buildings), it would likely take a phased approach, whereby it would offer the service to certain areas over a roll-out period of 2 to 4 years. Adam suggested this sort of time line would be necessary, since the infrastructure available and resources required to facilitate collection of recyclables would need to be assessed on a building by building basis and would be require a lot of staff involvement.

Councillor Turck stated he would like to see businesses be able to place more than 3 bags of garbage out for collection, especially since the collection system is full user pay.

Adam noted he has received similar requests from businesses in the downtown core who do not have space to place a private garbage bin, but who cannot meet the 3 bag maximum imposed by the County. One example was a downtown restaurant.

d) With respect to Waste Export, Stantec will develop conceptual cost estimates for waste export options, but will focus efforts on local solutions for residual waste.

e) With respect to funding new or enhanced waste reduction programs, Stantec will review alternative potential methods to fund optional new programs.

f) With respect to the possibility of providing a curbside collection service for Source Separated Organics (SSO) a.k.a. Kitchen Waste, and Leaf and Yard Waste, Stantec suggests that future study examine a staged approach to leaf and yard waste and green bin implementation, with leaf and yard waste given a higher priority and earlier implementation date.

Jim Archibald indicated that collecting Leaf and Yard waste was relatively cheap and easy in comparison to other divertible materials and that there was potential to capture a lot of material through a seasonal curbside collection program.

Jim also noted that the implementing a SSO collection program could increase current collection costs by 50%, plus the cost to have the material processed could cost between $100 and $200 per tonne.

Adam noted that the benefit to collecting SSO and Leaf and Yard waste, is the potential to increase residential waste diversion by up to 20%.

Deputy Mayor Frost noted that Cobourg's seasonal pick-up of Leaf and Yard waste works well for fall leaves, but is not adequate for residents who need to dispose of garden waste which is generated throughout the growing season. As a result, there is a lot of garden waste being illegally dumped in parks and open spaces.

Judy Smith-Torrie suggested the County could conduct "How to Garden" seminars for the public to promote backyard composting.

Mayor Thompson noted that SSO collection and composting is something that has been spoken about quite a lot and seems to be something that is wanted and needed in the County.

Councillor Turck suggested that the County should look into the feasibility of placing a bin within each area municipality (possibly at a works yard) so that the public wouldn't have as far to go to dispose of Leaf and Yard waste.

Councillor Hie suggested the public should be encouraged to support local lawn and garden businesses for the removal of yard waste during the growing season. She also suggested the County should be supporting these small businesses not taking away from them.

g) With respect to Alternative Disposal Facilities (non-landfill), Stantec will continue to explore all viable local alternatives to landfill as part of this planning process.

10. Next Steps

a. Integration of Advisory Committee and Staff comments into "Proposed Future Direction" of LTWMMP – March 2013
b. Development of cost scenarios and proposed implementation staging for recommended new or enhanced services – April 2013
c. Development of draft LTWMMP – April 2013
d. Tours of MRF and Brighton Landfill in late April / early May 2013
e. Meeting of Advisory Committee in mid-May 2013 to review draft LTWMMP
f. Second Series of PICs in early-to-mid June, 2013
g. Compile and review public comments received from second series of PICs – July / August 2013
h. Incorporation of additional public feedback into draft LTWMMP Sept. 2013
i. Meeting of Advisory Committee in early Oct. 2013 to review revised draft of LTWMMP
j. Incorporation of Advisory Committee comments into final draft of LTWMMP – late Oct. 2013
k. Final draft of LTWMMP to County Council for review / adoption in Nov. 2013
l. Final series of PICs to inform public about the adopted LTWMMP – dependent on Council approval / direction

11. Other Business

None

12. Next Meeting

- Possibly May 23, 2013

ATTACHMENT No. 1

ATTACHMENT No. 2

ATTACHMENT No. 3

AGENDA
Long-Term Waste Management Master Plan
Advisory Committee Meeting
Thursday May 23rd, 2013

Time: 1:30 p.m.
Location: 600 William Street, Cobourg - Community Boardroom

1. Review of Meeting Procedures

2. Introductions

3. Declarations of Pecuniary Interest

4. Review and adoption of previous meeting minutes

5. Review and adoption of meeting agenda

6. Updates on Action Items from March 4, 2013 meeting

    a) County representative to attend Packaging Optimization Summit to be held in Toronto on May 15, 2013

    b) County to provide committee with a listing of local private sector companies currently accepting e-waste (ATTACHMENT No. 1)

    c) County to investigate where e-waste materials collected by the County are sent for processing as part of the Ontario Electronic Stewardship program

    d) County to schedule tours of MRF & Brighton Landfill New Cell Construction

7. Packaging Optimization Summit
    a) Summary / Overview by Adam McCue

8. MRF
    a) Update on Proposal to Process City of Kawartha Lakes' Recyclable Materials

9. Review of Draft Long-Term Waste Management Master Plan Executive Summary (ATTAHMENT No. 2)

10. Decision / Evaluation Matrix

11. Public Information Centers – Round No. 2

    a) Proposed dates and locations
    b) Review of draft display boards
    c) Review of draft comment sheet / questionnaire
    d) Communications / Advertising
        i. Media
        ii. High School Students

12. Next Steps
    a) Tours of MRF and Brighton Landfill in late early June 2013
    b) Second Round of PICs in mid June, 2013
    c) Compile and review public comments received from second round of PICs – July / August 2013
    d) Incorporation of additional public feedback into draft LTWMMP Sept. 2013
    e) Meeting of Advisory Committee in early Oct. 2013 to review draft of LTWMMP
    f) Incorporation of Advisory Committee comments into final draft of LTWMMP – late Oct. 2013
    g) Final draft of LTWMMP to County Council for review / adoption in Nov. 2013
    h) Final round of PICs to inform public about the adopted LTWMMP – dependent on Council approval / direction

13. Other Business

14. Next Meeting

- Early October, 2013

ATTACHMENT No. 1

Approved OES Collection Sites

Area	Company Name
Bewdley	Northumberland County - Bewdley HHW / E-Waste Depot
Brighton	Brighton Recycling
	Northumberland County - Brighton HHW / E-Waste Depot
Campbellford	Northumberland County - Seymour HHW / E-Waste Depot
Cobourg	Canadian Tire
	Habitat ReStore
	Home Hardware
	Northumberland County - Cobourg HHW / E-Waste Depot
	Staples
Port Hope	Home Hardware
Peterborough	County of Peterborough - Peterborough
	Future Shop
	Habitat ReStore
	Metro Tonder Recycling
	Staples
Trenton	Waste Management Corp.

ATTACHMENT No. 2

Northumberland County Waste Management Master Plan – Draft Executive Summary and Implementation Plan

May 2013

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LIST OF FIGURES

1.0 Executive Summary

The County of Northumberland's (County's) overall waste management system is well developed. Individual programs and services are operating effectively and most modern waste management processes are in place. What could be improved is an overall consolidated future vision for the entire waste management system. Creation of a Waste Management Master Plan (Master Plan) will address this situation by providing clear direction for the next 20 years. Implementation of the Master Plan can be staged over the short (0 to 5 years), medium (5 to 10 years) and longer term (10 to 20 years).

Stantec Consulting Ltd. (Stantec) has been retained by the County to assist in the development of a long-term Master Plan. The County's stated objectives for the development of the Master Plan are as follows.

- To review current waste management programs and propose alternative methods of practical and sustainable waste management service delivery, including a plan to meet or exceed the provincial waste diversion target of 60%; and
- To identify and review practical and sustainable residual waste disposal options.

The ongoing process to expand the Brighton landfill is not included within the scope of this assignment, but the status and magnitude of the landfill expansion has been considered when evaluating future landfill and/or residual waste disposal needs.

The following specific constraints were identified which may impact the program choices available to the County at certain points in time:

- The Materials Recycling Facility(MRF) has much greater processing capacity than needed to manage the County's residential recyclable materials. This additional capacity is used to process local private sector recyclable materials and blue box materials collected within the City of Kawartha Lakes.
- The County's only operating landfill north of Brighton will reach capacity in 2016 based on the current approval, and in 2024 presuming provincial approvals are granted for a proposed expansion; and
- The terms and conditions of the existing collection contract including expiry date, facility locations and capacities.

Based on a comprehensive review of the County's waste management programs and services, and the feedback received from the public and the Master Plan Advisory Committee, Stantec has generated the following conclusions:

1) The County now has a clear strategy for the operation of the Materials Recycling Facility (MRF) since a contractual arrangement is likely to be executed in the near future with the City of Kawartha Lakes. Upgrades to the MRF and changes in local collection can now be implemented with the certainty of a processing partner in place;

2) Collection of Yard Waste/Brush at the curbside offers the greatest potential to increase diversion from landfill in the short term, and at a relatively low cost;

3) A transition to common service levels at the County's four (4) public drop off locations will assist in enhancing existing diversion programs, and simplify messaging to the community;

4) Collection of recyclables from all multi-residential dwellings will improve diversion from this growing housing sector in the County;

5) A more flexible collection program for small businesses in the downtown cores will better address specific needs in these areas;

6) Overall system costs are reasonable and the existing curbside collection contract is well designed and well managed;

7) There is limited potential to fund new programs or program enhancements from higher landfill and bag tag fees;

8) Implementation of a "Green Bin" food waste diversion program may be beyond the financial means of the County in the short term but should be reconsidered as a mid or longer term program improvement option;

9) Alternative disposal technologies for residual wastes are not currently approved or available for County consideration(with the exception of the Algonquin Power incinerator in Brampton) but could be reconsidered as a mid or longer term program improvement option; and

10) Pending the result of the Brighton Landfill Expansion Environmental Assessment(EA) approval process, the County requires a residual disposal strategy to be developed either in the 0-2 year short term if no expansion approval is obtained; or in the 4-6 year mid-term if the proposed landfill expansion is approved by the province. Waste export is the only feasible short-term option if the current EA is not approved.

Stantec has developed recommendations for program improvement and change to be implemented by the County over the next 20 years. Master Plans often provide a very aggressive implementation schedule which places severe pressure on financial and staff resources in the short term. This approach can lead to unrealistic expectations and community disappointment when program rollouts are delayed. The following recommendations stagger opportunities for improvement over the planning horizon to allow staff to systematically develop detailed implementation plans while also spreading the financial impact of program changes over a more manageable time period.

The following list represents issues representing major change or of strategic importance. Other more minor issues are included within the body of the report. An integrated waste management system such as that operated in Northumberland County has many interdependencies. The follow recommendations cannot necessarily be implemented in isolation and related activities are noted where applicable.

A decision matrix is presented on Figure 1 to illustrate the major issues considered when developing recommendations for new waste diversion efforts.

2.0 Recommendations

2.1 SHORT-TERM OPPORTUNITIES

A1 – Upgrade of the Materials Recycling Facility

Given that the County is likely to execute a processing contract for up to seven years with the City of Kawartha Lakes (CKL) in the near future, and the fact that material from CKL arrives sorted into separate container and paper fibre streams, it is recommended that the County upgrade aging equipment at the MRF in 2015/2016, and transition to a two stream collection program for recyclables by the next collection contract expiry date.

A2 – Implement Yard Waste/Brush Curbside Diversion Program

Diversion of yard waste and brush from landfill is a straightforward and cost effective waste reduction strategy. It is recommended that the County implement seasonal collection in 2014 or 2015(April to November) and beyond through a single truck pilot program, and that all areas deemed to benefit from seasonal collection through the pilot program receive collection service during the next collection contract beginning in 2019.

A3 – Collect Recyclables from all Multi-Residential Dwellings

Most multi-residential dwellings (apartment buildings and condominiums) in the County do not receive any municipal collections services. While the County's bag tag garbage system does not work well for these types of dwellings, collection of recyclables can be readily implemented in a cost effective manner. This recommendation also serves to anticipate the likely shift in the County to construction of more multi-residential units in the future.

A4 – Upgrade Transfer Stations and Implement Common Services and Fees

The four County transfer stations provide a ready-made opportunity for residents and business to cost-effectively divert additional materials from landfill. Upgrading the transfer stations to permit drop-off of a wide variety of materials such as dimensional lumber, wooden pallets, electronics and textiles is a very flexible and cost-effective method to address the challenges of a changing wastestream. Drop-off of blue box recyclables and other traditional materials can also be easily accommodated.

As these drop programs are being developed, it would be beneficial to implement and maintain common fees and services across all County facilities.

A5 – Develop a More Flexible Collection Program for Downtown Small Business

Some downtown small business owners have requested that the current policies be revisited to meet their needs, while still maintaining County policy regarding fee-for-service. Many

municipalities offer special accommodations for downtown small business to reflect the challenges of operating in those locations. Possible changes may include more frequent collection and more bags allowed on each collection day.

A6 – Maintain Current Revenue Balance of User Fees and Property Tax Support

Future program spending increases cannot be fully funded from User Fees without creating unintended consequences. Increasing bag tag and landfill fees beyond what is considered reasonable by the community will lead to attempts by residents to dispose of waste through roadside dumping, inappropriate use of municipal garbage receptacles, excessive compaction, and waste disposal in private bulk bins.

A7 – Develop Short Term Residual Disposal Strategy (if required)

If the proposed Brighton landfill expansion is not approved by the Province of Ontario, the County will need to create a short term strategy to address its future disposal needs when the Brighton site closes in 2016 or 2017. Options in this scenario will be limited and with few options beyond export to another private or public sector landfill, or export to a waste-to-energy facility. It is recommended that this strategy be developed and finalized in 2014 and 2015 if required.

2.2 MID- AND LONG-TERM OPPORTUNITIES

B1 – Revisit Opportunities to Utilize Alternative Disposal Technologies at Permitted Facilities

Aside from the Algonquin Power waste-to-energy facility in Brampton, there are no other commercial-scale facilities utilizing alternative disposal technologies currently operating in Ontario. Given that some technologies offer great promise, it is recommended that the County revisit this approach in the mid and longer term.

B2 – Develop Collection and Processing Options for Green Bin Organics

Curbside collection of green bin organics has the potential to divert significant tonnage, but program implementation would be at a very high cost. Processing facilities in Ontario have had many challenges in recent years and guaranteed long term processing capacity is difficult to obtain from contracted providers. The County should work with its municipal neighbours in the to explore opportunities to jointly develop and an organics processing facility locally and plan to add curbside service by 2019.

B3 – Develop Detailed Residual Disposal Strategy

This recommended action is the same as recommendation A7, but is not required until a later date based on the premise that Brighton Landfill expansion is approved in the short term.

B4 – Optimize Function and Diversion Potential of Transfer Stations

As packaging and technological trends change, the mix of materials suitable for diversion at the transfer stations will also change. County staff will be required to add and delete materials acceptable for diversion as trends change in order to maintain the long-term effectiveness of this strategy.

B5 – Transition to Two-Stream Curbside Sort for Recyclables

The County currently collects recyclables mixed in a blue bag. By separating paper fibres from containers in the collection vehicle, less sorting is required at the Materials Recycling Centre, residue is reduced, and cleaner materials can be sold to market for higher revenue.

B6 – Complete 10 year Review of this Master Plan

The waste management industry continues to evolve at a rapid rate compared to most other municipal public works services. A 10-year review of this Master Plan is considered appropriate given several program options has mid to long-term implementation recommendations.

3.0 Implementation Plan

Master Plans of any kind are only useful if costs and timing are linked to recommended actions. Approving lofty program goals with no financial ability to achieve them serves little purpose. The Terms of Reference for this assignment clearly identified that proposed solutions must be reasonable in the context of Northumberland County.

A summary of both short-term and long-term recommended actions is presented graphically on Figure 2. Where applicable, estimated capital and operating costs, and corresponding diversion potential is noted on Figure 2. Information on the figure is also summarized below.

Recycling Centre Upgrades

- Complete capital upgrades based on needs (2015-2016/ $2-2.5 million capital)
- Incorporate 2 stream sort into tender (2017-2019/ potential 500-1000 tonne gain through reduced residue)

Yard Waste/ Brush Diversion

- Pilot seasonal service (2014 or 2015/ $200,000 operating/ 1000-2000 tonnes diversion)

Recyclables Collection at Apartments/Condominiums

- Phase in Service Over 3 years (2016-2018/ $30,000 new operating and capital each year/ 600 tonnes diversion)
- Incorporate into tender (2017-2019)

Diversion at Depots/Transfer Stations

- Phase in services over 4 year (2015-2018/ $50,000 new operating and capital each year/ 500-2000 tonnes diversion; 1200 tonnes utilized for planning purposes)

Enhanced Service to Downtowns

- Determine stakeholder needs (2014)
- Enhance service at minimal or no net cost (2015)

Landfill/Residuals

- Develop short-term disposal strategy (2014-2015) assuming Brighton landfill EA is ***not*** approved

- Develop future disposal strategy (2017-2018) assuming Brighton landfill EA is approved

Green Bin Organics

- Revisit processing options and costs (2017-2018)
- Incorporate into new collection tender and expand service in 2019

Cost Summary

Capital	$2-2.5 million (Recycling Centre)
Operating (including minor capital)	$200,000/year (yard waste/brush in 2015)
	$ 90,000/year (recyclables collection by 2018)
	$200,000/year (depot diversion by 2018)

Potential Diversion Summary by 2019

Reduced residue at recycling centre	500-1000 tonnes
Yard waste/brush	1000-2000 tonnes
Recyclables	600 tonnes
Depot/transfer stations drop off	500-2000 tonnes(1200 tonnes used for planning)

Planned Diversion Progress to 2018

Current diversion rate		40%
Planned	2015	47%
	2016	49%
	2017	51%
	2018	53%

FIGURE 1

DECISION MATRIX - MAJOR DIVERSION OPTIONS

COUNTY OF NORTHUMBERLAND WASTE MANAGEMENT MASTER PLAN

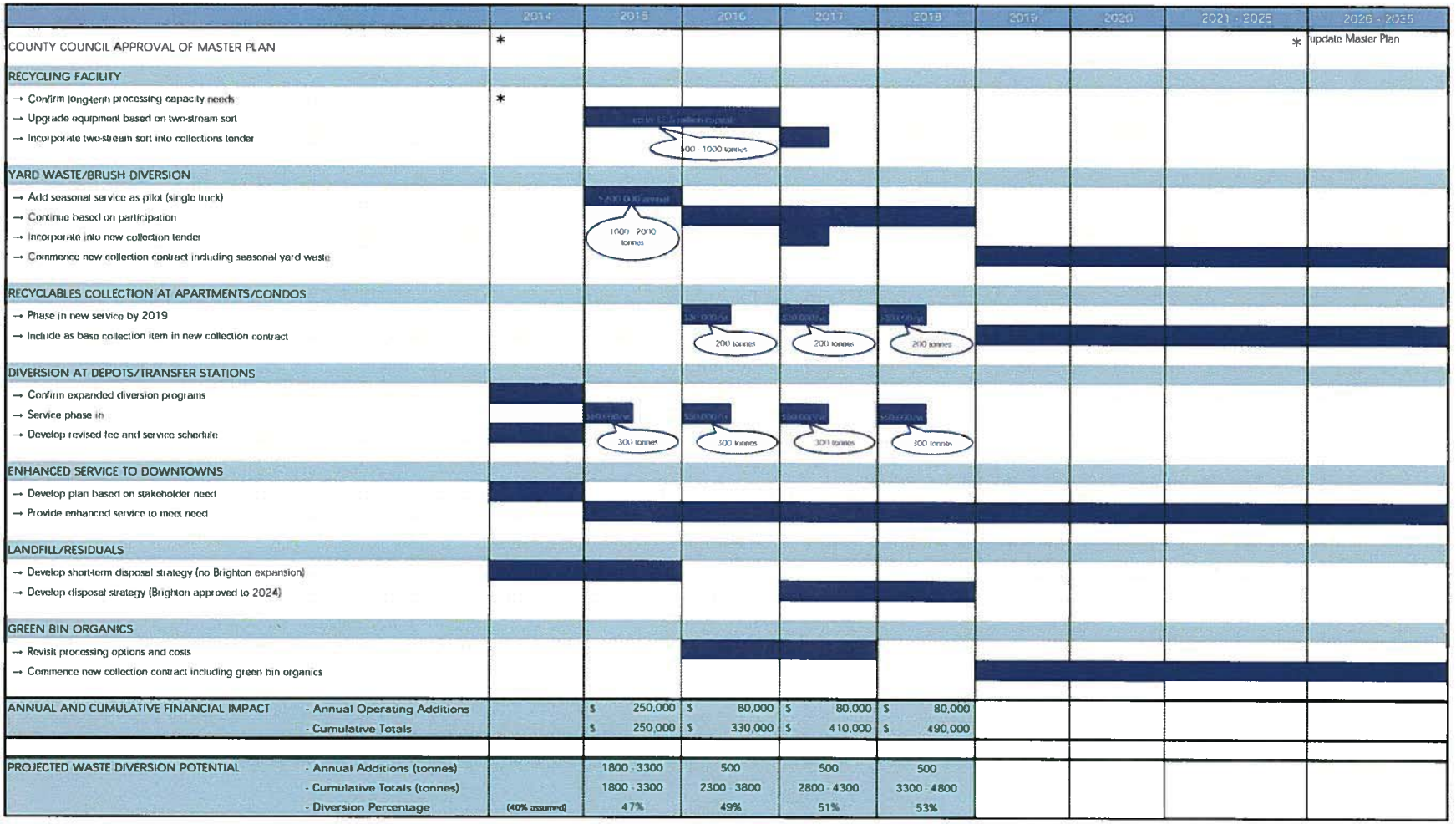
Potential Diversion Program	Diversion Potential[1]	Relative Cost[2]	Technical Feasibility	Public Support	Implementation Recommendation
Yard Waste Collection/Processing	1000 - 2000 tonnes/yr	Moderate	Proven	Strong	Short Term
Green Bin Collection/Processing	1000 - 5000 tonnes/yr	High	Proven	Mixed	Mid to Long Term
Drop Off Areas at Depots/Transfer Stations	500 - 2000+ tonnes/yr	Low	Proven	Strong	Short Term
Alternative Technologies for Residuals Management	Up to 80% of current wastestream	Likely Moderate to High	Developing (except mass burn incineration)	Mixed	Mid to Long Term
Recyclables Collection at Apartments/ Condominiums	500 - 700 tonnes/yr	Moderate	Proven	Strong	Short Term

1. Total waste to landfill in County is approximately 34,000 tonnes per year.
2. Relative Cost:
   Low - less than $100/tonne net cost
   Moderate - $100 to $200/tonne
   High - greater than $200/tonne net cost

FIGURE 2

IMPLEMENTATION PLAN

COUNTY OF NORTHUMBERLAND WASTE MANAGEMENT MASTER PLAN



ANNUAL AND CUMULATIVE FINANCIAL IMPACT	- Annual Operating Additions		$ 250,000	$ 80,000	$ 80,000	$ 80,000				
	- Cumulative Totals		$ 250,000	$ 330,000	$ 410,000	$ 490,000				
PROJECTED WASTE DIVERSION POTENTIAL	- Annual Additions (tonnes)		1800 - 3300	500	500	500				
	- Cumulative Totals (tonnes)		1800 - 3300	2300 - 3800	2800 - 4300	3300 - 4800				
	- Diversion Percentage	(40% assumed)	47%	49%	51%	53%				

Appendix B
Public Consultation and Communication Plan

Long-Term Waste Management Master Plan

Public Consultation and Communication Plan

File No. 161111073
November 2012

Prepared for:

The County of Northumberland
555 Courthouse Road
Cobourg, ON K9A 5J6

Prepared by:

Stantec Consulting Ltd.
49 Frederick Street
Kitchener ON CA N2H 6M7

PUBLIC CONSULTATION AND COMMUNICATION PLAN

Table of Contents

1.0 Introduction

Consultation is an essential component of any successful waste management master planning process and is usually a key factor in community acceptance and participation in municipal waste management programs. This Public Consultation and Communications Plan identifies the goals and objectives of the Long-Term Waste Management Master Plan (LTWMMP) and the Public Consultation and Communications Plan, key audiences with whom the project will engage with, the mechanisms for communication that will be utilized to engage the community throughout the development of the project, and roles for key Project Team members.

1.1 GOALS AND OBJECTIVES

1.1.1 Overall Project Objective

The County of Northumberland's LTWMMP will address concerns for management of all waste, both residential and IC&I for the next 25 years.

The broad focusof the LTWMMP, as described in the original RFP for this project,is:

- To review current waste management programs and propose and evaluate alternative methods of practical and sustainable waste management service delivery, including a plan to assist the municipality to meet the provincial diversion target of 60%; and
- To identify and review practical and sustainable residual waste disposal options.

Based on a discussion with County staff and the consulting team during the project initiation meeting morespecific goals for the LTWMMP were identified as follows.

- To propose and evaluate alternative methods to optimize existing waste diversion programs;
- To propose and evaluate alternative methods to implement new waste diversion programs;
- To propose and evaluate alternative methods to continuously improve operational performance at the Material Recycling Facility;
- To identify and review alternative ways to address the County's long-term waste disposal needs (which will include exploring landfill disposal and Alternative Disposal Technologies); and
- To promote and maintain the good work the Department of Transportation and Waste Management is already doing.

1.1.2 Public Consultationand Communication Plan Objectives

- To conduct a meaningful consultation process to ensure that key audiences and stakeholder groups including; County staff, LTWMMP Advisory Committee, Councilors, County residents, First Nations,IC&I waste generators, waste management contractors and the general public are provided with information to help them understand the purpose, review process and desired outcomes of the LTWMMP.

- To ensure that key audiences and stakeholder groups are provided with and take advantage of opportunities to express their views on the LTWMMP.

- To provide County Council with the information and data they need on the LTWMMP and programs under review in order to make informed decisions.

1.2 GENERAL COMMUNICATIONS APPROACH

The approaches identified in this document will be developed on the principles of openness, transparency, inclusion and accessibility.

2.0 Key Audiences and Stakeholder Groups

2.1 INTERNAL COMMUNICATIONS

a) LTWMMP Review Committee

- Adam McCue - Manager of Planning and Technical Support
- MobusharPannu – Director of the Transportation and Waste Management Department
- Rob Cox - Waste Operations Manager
- Karl Allen - Manager MRF
- Heather Nemec – Education and Communications Coordinator
- Janice Morgan - MRF Receptionist and Hotline Attendant
- Councillor Mark Wallace, Councillor and Waste Services Division Coordinator
- Councillor Linda Thompson, Councillor and Waste Services Division Coordinator

b) Waste and Recycling Hotline (1-866-293-8379)– Managed by Janice Morgan

c) County Council

d) LTWMMP Advisory Committee

The LTWMMP Advisory Committee (Advisory Committee) will be designated by the County to represent a broad range of interests across the area community and to focus public input on the project.

As defined in Section 2.1 of the Advisory Committee's Terms of Reference (ToR), the primary roles and responsibilities of the Advisory Committee are to:

- Learn about current waste management services;
- Assist in the study planning process;
- Provide advice and review consultant reports on waste management issues;
- Review possible solutions; and
- Assist in the formulating of study recommendations.

In Section 4.1 of the Advisory Committee's ToR it is proposed that the Advisory Committee will be comprised of approximately 21 individuals including individuals and representatives as listed in the following table:

Members	Number of Representatives
Northumberland County Council	1
Lower-Tier Municipal Councillors (or designated representatives)	7
Not-for-profit Environmental Group	1
Northumberland Youth Council	1
Local Home Builders Association	1
Local Business Improvement Association	1
Local Chamber of Commerce	1
Local Waste Management Company	1
Local Industrial Sector	1
Local Agriculture Sector	1
Local Tourism Sector	1
Alderville First Nations	1
Ministry of the Environment	1
Members from the Public at Large (to be appointed by County Council)	2
Total	**21**

2.2 EXTERNAL COMMUNICATIONS

This section outlines specific external key audiences and stakeholder groups that will be targeted during the project. All key audiences and stakeholders groups listed will be added to a stakeholder distribution list which will be used to communicate specific information about the project to them (for more information see Section 3.0).

2.2.1 First Nations and Aboriginal Communities

Alderville First Nation will be invited to be a member of the Advisory Committee (see Section 2.1).

Should they decline to participate on the Advisory Committee we will offer (via a telephone call) to identify any questions or concerns they may have from the onset of the project, and to inquire about making a presentation to them about the project. In addition, we will add an appropriate contact from Alderville First Nation to the stakeholder distribution list and information about the project, such as Notice's of upcoming Public Information Centres, will be provided to them accordingly.

2.2.2 Municipalities

Ongoing communication will occur with each of the seven lower-tier municipalities through their representative on the Advisory Committee. Each lower-tier municipality will appoint either one member of its council or appoint a citizen representative to the Advisory Committee. Each of the following municipalities will be represented on the Advisory Committee.

- Municipality of Brighton
- Municipality of Port Hope
- Town of Coburg
- Township of Alnwick/Haldimand
- Township of Cramahe
- Municipality of Trent Hills
- Township of Hamilton

In addition, each lower-tier municipality will be contacted/communicated with directly through their CAO.

2.2.3 Government

A letter outlining the project initiation, the consultation process and project contact information will be mailed to the following government agencies or persons to initiate and solicit feedback at the beginning of the project.

- Rob Milligan, Member of Provincial Parliament, Government of Ontario
- Kawartha Pine Ridge District School Board
- Halliburton Kawartha Pine Ridge District Health Unit

Information, such as Notice's of upcoming Public Information Centres, will be provided to everyone on the stakeholder distribution list, which will include the above listed government agencies or persons.

In addition, a representative from the Ministry of the Environment (MOE) will be invited to be a member of the Advisory Committee (see Section 2.1). Should they decline to participate on the Advisory Committee we will add an appropriate MOE contact to the stakeholder distribution list and information about the project, such as Notice's of upcoming Public Information Centres, will be provided to them accordingly.

2.2.4 General Public

The general public will primarily be kept informed about the project via the project website, and traditional communication mechanisms including newspaper and radio advertisements.

Members of the public will be added to the stakeholder distribution list upon request and receive direct mail outs as the project proceeds.

Customers who have active accounts with the Department of Transportation and Waste Management will be automatically added to the stakeholder distribution list.

2.2.5 Seasonal Residents

Seasonal residents will primarily be kept informed about the project via the project website, and traditional communication mechanisms including newspaper and radio advertisements.

Seasonal residents will be added to the stakeholder distribution list upon request and receive direct mail outs as the project proceeds.

The County will also take a unique approach to informing seasonal residents about the project by including a notice about the LTWMMP on the communique sent within the 2012 Bulky Waste Voucher which will be mailed to all owners of residential dwellings (including seasonal dwellings) in the County.

The County will also advertise upcoming Public Information Centres on the public sign outside of the municipal building at 860 William Street, to reach the most individuals as possible.

2.2.6 Local Interest Groups

A letter outlining the project initiation, the consultation process and project contact information will be mailed to the following groups to initiate and solicit feedback at the beginning of the project.

Waste Management Service Providers

- BFI Canada Inc.
- Bin-It Ltd.
- GFL Solid Waste Haulage Division Northumberland
- Harnden Haulage
- Load-n-lift Disposal and Haulage
- Wakley Disposals Limited
- Waste Management

NGOs

- Go Green Together - 207a Division St, Cobourg

Other

- Beyond the Blue Box - 14 Covert Street, Cobourg
- Salvation Army Thrift Store - Queen Street, Campbellford
- St. John's United Church, 50 Bridge Street W., Campbellford
- Habitat for Humanity ReStore - Unit 1-20 Ewart St., Cobourg.

Information, such as Notice's of upcoming Public Information Centres, will be provided to everyone on the stakeholder distribution list, which will include the above listed local interest groups.

3.0 Communication Channels

Community members and interested stakeholders will be provided with various methods to access information about the project and opportunities to provide input including:

- **Project website**
  - Aproject website will be maintained and updated with information about the project. The website address is: http://www.northumberlandcounty.ca/wasteplan
- **Project Email Address**
  - Emails will be accepted through the County's existing waste email address. The email address is: wastedept@northumberlandcounty.ca
- **Phone Number**
  - Stakeholders can call the Waste and Recycling Hotline (1-866-293-8379), managed by Janice Morgan, to get information about the project or submit an inquiry/comment.
- **Direct Mail/Email**
  - A stakeholder distribution list will be generated and maintained throughout the project with the contact information for key audience members and members of the public who ask to be placed on the list.
  - Information, such as Notice's of upcoming Public Information Centres, will be provided to the stakeholders throughout the project.
- **Meetings and Phone Calls**
  - As appropriate, the Project Team will hold meetings with key audiences or phone stakeholders to discuss the project and/or respond to inquiries.
- **Newspaper Notifications**
  - Newspaper advertisements will be used to notify stakeholders of upcoming Public Information Centres. Ads will likely be placed in the Brighton Independent, Northumberland News and Northumberland Today.
- **Radio**
  - Ads will be placed on local radio stations such as Star 93.3 and 107.9 The Breeze
- **Public Information Centres**
  - Eight public information sessions will be held to present information and solicit feedback on the project.
  - Feedback forms and questionnaires will be used to help gather information from attendees during the Public Information Centres.
- **Public Signs**
  - Notification of the Public Information Centres will be provided on the public sign outside of the municipal building at 860 William Street.

- **Voucher**
  - A notice about the LTWMMP on the communique sent within the 2012 Bulky Waste Voucher which will be mailed to all owners of residential dwellings (including seasonal dwellings) in the County.
- **Presence at Public Events**
  - Information booths will be set up during public events, where appropriate.

4.0 Information Sheets

The County will prepare Information Sheets to share details about the project and respond to frequently asked questions.Fact Sheets may also be prepared to communicate waste generation and disposal projections, county solid waste programs, waste facility infrastructure, and/or an overview of Alternative Disposal Technologies.

The Information and Fact Sheets should be made available on the project website and electronic and/or hard copies provided when requested.

Information Sheets

- Project Profile and Timeline for Completion, highlighting Consultation Events
- Frequently Asked Questions

Fact Sheets (for example)

- Waste Generation and Disposal Projection
- County Solid Waste Policies and Programs
- Solid Waste Facility Infrastructure
- Alternative Disposal Technology

5.0 Communication Materials Management

5.1 STAFF ROLES AND RESPONSIBILITIES

5.1.1 Project Team Directory

Contact information for the main contacts on the Project Team is provided below:

- **Northumberland County**

  Adam McCue
  Manager of Planning and Technical Support

  Transportation & Waste Management Department
  Northumberland County
  555 Courthouse Rd.
  Cobourg, ON K9A 5J6
  Office: 905-372-3329, ext. 2299
  mccuea@northumberlandcounty.ca

- **Stantec Consulting Limited**

  Kerrie Skillen
  Consultation Lead

  Stantec Consulting Ltd.
  3430 South Service Rd, Unit 203
  Burlington, ON L7N 3T9
  Office: 905-631-3923
  Kerrie.Skillen@stantec.com

  Jim Archibald
  Project Manager

  Stantec Consulting Ltd.
  49 Frederick St.
  Kitchener, ON N2H 6M7
  Office: 519-575-4115
  Cell: 519-497-8742
  James.Archibald@stantec.com

5.1.2 Key County Staff

Adam McCuewill act as the primary contact for the project. Adam's role will include:

- Liaise with Review Committee, County staff, County departments, Council, and the Advisory Committee.
- Mail 2012 Bulky Waste Voucher to owners of residential dwellings (including seasonal dwellings) in the County.
- Work with Kerrie Skillen to draft the stakeholder distribution list.
- Maintain/update stakeholder distribution list and forward to Kerrie Skillen upon request.
- Receive and review emails from project email address (along with Heather Nemec).
- Forward all telephone, email and hard copy stakeholder correspondence related to the project to Kerrie Skillen.
- Respond directly to stakeholder inquiries (via email and phone) as appropriate.
- Support Kerrie Skillen with generating responses to stakeholder inquiries, as appropriate.
- Review and provide comment on Notices, letters, information sheets, fact sheets, comment/responses, and Public Information Centre summary reports.
- Mail/email Notices and letters.
- Attend presentation to Alderville First Nation, if required.
- Attend Public Information Centres, as appropriate.

Heather Nemec will support communications for the project. Heather's role will include:

- Maintain project website.
- Receive and review emails from project email address (along with Adam McCue).
- Respond directly to stakeholder inquiries (via email) as appropriate.
- Forward all telephone, email and hard copy stakeholder correspondence related to the project to Kerrie Skillen.
- Arrange for Notices to be advertised in the local newspapers.
- Track and file communication materials and media stories related to the project.
- Support the development of the Public Information Centre story boards.
- Generate and submit radio ads to advertise the Public Information Centres.
- Advertise Public Information Centres on the public sign outside of the municipal building at 860 William Street, to reach the most individuals as possible.
- Organize (and possibly be present at) information booths to be set up during public events (including the Public Information Centres), where appropriate.

Janice Morgan will receive and respond to general stakeholder inquiries made through the County's Waste and Recycling Hotline. Depending on the nature of the call or the information being sought, Janice may forward the request on to Adam McCue. Janice will document and forward all inquiries and, as appropriate, a summary of any responses she's provided to Adam McCue and Kerrie Skillen.

5.1.3 Stantec Consulting Ltd.

Kerrie Skillen, from Stantec Consulting Ltd., will act as the Consultation Lead for the Project. Kerrie's role will include:

- Work with Adam McCue to generate the stakeholder distribution list.
- Receive and review stakeholder correspondence provided from County staff.
- Generate responses to stakeholder inquiries/comments in consultation with Adam McCue.
- File and track comment/responses for all correspondence received on the project.
- Generate Notices, letters, newspaper advertisements, information sheets, and fact sheets as appropriate.
- Follow up with Alderville First Nation and attend presentation, if required.
- Generate feedback forms, questionnaires and story boards for the Public Information Centres.
- Attend Public Information Centres, as appropriate.
- Generate the Public Information Centres summary reports.

Appendix C
Public Information Sessions 1, 2, 3 (Round 1)

Northumberland County

DID YOU KNOW

THAT THE COUNTY'S LANDFILLS COULD BE FULL BY 2016?

Would you like to learn more about this and other Waste Management issues and opportunities?

If so, plan on attending one of the upcoming Public Information Centers (PICs) being held on the development of a Long-Term Waste Management Master Plan for Northumberland County.
Details of the PICs are provided below:

PIC No. 1 – Thur. Nov. 29th, – Twp. of Cramahe Council Chambers – located at 1 Toronto St., Colborne

PIC No. 2 – Mon. Dec. 3rd – Auditorium of the Campbellford Area – located at 313 County Rd. 38, Campbellford

PIC No. 3 – Tue. Dec. 4th – Capitol Theatre – located at 20 Queen St., Port Hope

Each of the three PICs will run from 3:00 p.m. until 7:00 p.m.

For more information on the County's Long-Term Waste Management Master Plan process, please visit our website at www.northumberlandcounty.ca, or contact the following individuals:

Adam McCue
Manager of Planning & Technical Support
Transportation and Waste Management Dept.
Northumberland County
Ph: (905) 372-3329 ext. 2299
Fx: (905) 372-7050
mccuea@northumberlandcounty.ca

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Fx: (905) 631-8960
kerrie.skillen@stantec.com

County of Northumberland

LONG-TERM WASTE MANAGEMENT MASTER PLAN

Public Information Centre No. 1

November 29th, 3-7pm:1 Toronto St., Colborne
December 3rd, 3-7pm: 313 County Rd. 38, Campbellford
December 4th, 3-7pm: 20 Queen St., Port Hope

Northumberland county

Please sign in
Take an information sheet to record your thoughts
as you review the display material

County staff and the study team are available
to discuss your questions and concerns

Public input will influence this study;
please take time to fill out a comment sheet

Northumberland county

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LONG-TERM WASTE MANAGEMENT MASTER PLAN

What Are We Doing?

Northumberland County is developing a Long-Term Waste Management Master Plan (LTWMMP) which will:

- Review Current Programs and Services
- Assess Our Facilities and Infrastructure
- Assess Our Past Performance Against Diversion Targets
- Establish New Diversion Goals and Strategies to Achieve Them

Why Are We Doing This?

- Our Landfills are Reaching Their Approved Capacity
- Our MRF Requires Upgrading
- New Technologies are Emerging for Waste Disposal
- Regional and Provincial Initiatives May be of Value

What's The Process and Timing?

Fall 2011

- Council Decision to Develop Plan
- Consultant Retained for Assessment of Current Programs/Facilities and Identification of Technologies

Spring 2012

- Advisory Committee Engaged

Fall 2012

- Public Meetings Scheduled as Well as Other Forums for Public Input

Spring/Summer 2013

- Develop Draft Plan for Review by Public
- Additional Public Meetings

Fall 2013

- Recommendation to County Council on LTWMMP

Northumberland county

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LONG-TERM WASTE MANAGEMENT MASTER PLAN
SERVICES OVERVIEW

SERVICES OVERVIEW

- The County provides the following waste management services:
  - Curbside collection of garbage and recycling.
  - Operation of 2 landfills and 1 waste transfer station.
  - Processing and marketing of recyclables at our Material Recovery Facility.
  - Operation of 4 seasonal Household Hazardous Waste and Electronic Waste Depots.
  - Leaf and Yard Waste Composting.

- In 2011 the County managed over 52,100 tonnes of waste material:
  - 18,700 tonnes were diverted from landfill (through recycling and composting).
  - 33,400 tonnes of waste went to landfill.

- The County diverts approximately 40% of all residential waste from landfill through diversion programs.

- The County owns and operates:
  - Two active landfills: Brighton and Seymour
  - One waste transfer station: Bewdley
  - One Material Recovery Facility: Grafton
  - Seven closed landfills
  - Four Household Hazardous Waste/E-Waste depots

- The County pays for the operation of the waste transfer station owned and operated by the Municipality of Port Hope, used by Ward 2 residents only

Northumberland County

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LONG-TERM WASTE MANAGEMENT MASTER PLAN
LANDFILLS

CURRENT ACTIVE LANDFILLS:

Brighton Landfill: 4 years of disposal capacity remaining.

Seymour Landfill: Will reach capacity by April of 2013, at which time it will become strictly a Waste Transfer Station (similar to the Bewdley Transfer Station).

The Brighton Landfill has a pending expansion that, if approved, will increase its disposal capacity. Despite the proposed expansion, this capacity will be exhausted by 2023.

OPTION	ADVANTAGE	DISADVANTAGE
Develop local landfill capacity	➢ Local Solution ➢ Municipally controlled ➢ Low cost	➢ Long-term monitoring ➢ Potential for local environmental impacts ➢ Long and costly approvals process ➢ Risk of not receiving necessary approvals
Transfer waste to landfill outside of County	➢ No new local landfill	➢ Higher cost than local landfill ➢ Trucking of waste ➢ Not a local solution ➢ Not under municipal control
Transfer Waste to an Alternative Waste Disposal Facility (e.g. Incinerator)	➢ Increased waste diversion from landfill ➢ Production of electricity ➢ No new local landfill	➢ Higher cost than local landfill ➢ Trucking of waste ➢ Not a local solution ➢ Not under municipal control

Northumberland County

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LONG-TERM WASTE MANAGEMENT MASTER PLAN
TRANSFER STATIONS

CURRENT TRANSFER STATIONS:

Port Hope Ward 2 Transfer Station: Owned and operated by Municipality of Port Hope. Used only by Ward 2 residents. Operations paid for by the County.

Bewdley Transfer Station

Seymour Transfer Station

Brighton Transfer Station

Each of these transfer stations offers different levels of service and fees depending on the location.

OPTION	ADVANTAGE	DISADVANTAGE
Offer a consistent level of service at County owned transfer stations	➢ Common messaging ➢ Increased accessibility to waste diversion	➢ Slight increase in operating costs
Rebrand Transfer Stations as "Community Recycling Centres"	➢ More emphasis placed on "Recycling" ➢ Promotes recycling and diversion	➢ None

Northumberland County

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LONG-TERM WASTE MANAGEMENT MASTER PLAN
CURBSIDE COLLECTION

CURRENT CURBSIDE COLLECTION :

- The County offers weekly waste and recyclable pickup (except for Port Hope Ward 2).
- The County makes over 38,000 stops per week.
- The curbside collection program is overall very cost effective.
- County residents divert around 40% of their residential waste from landfill.

OPTION	ADVANTAGE	DISADVANTAGE
Place garbage and recycling out in clear bags	➢ Increased waste diversion (garbage wouldn't be picked-up if recyclable materials observed inside the bag)	➢ Privacy issues
Sort recyclable materials into more than one bag or bin	➢ Less contamination of materials ➢ Increased ease of sorting at the recycling plant ➢ Lower sorting costs	➢ More sorting required by residents ➢ Possible increase in collection costs
Collection of Recyclables and garbage in carts versus bags or bins	➢ More storage capacity in carts ➢ Materials protected from elements and animals ➢ Less risk of injury to collectors	➢ Residents need place to store carts ➢ Can be difficult to manoeuvre carts (especially in winter) ➢ One time high capital cost to purchase carts

Northumberland County

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LONG-TERM WASTE MANAGEMENT MASTER PLAN
MATERIALS RECOVERY FACILITY

MATERIALS RECOVERY FACILITY (MRF)

- Processes household recyclables such as fibres (paper and cardboard) and containers (plastic bottles and jugs, aluminum and metal cans, milk and juice cartons, etc).
- Is currently operated as a Regional facility, providing processing services for other municipalities.
- May require long-term processing arrangements with other municipalities to continue operating as a Regional MRF.
- Some equipment is in need of upgrade

Northumberland county

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LONG-TERM WASTE MANAGEMENT MASTER PLAN
MATERIALS RECOVERY FACILITY

MATERIALS RECOVERY FACILITY (MRF) FUTURE OPTIONS

OPTION	ADVANTAGE	DISADVANTAGE
Only manage recyclables generated within the County	➢ Lower gross operating costs ➢ Less financial risk with market fluctuations	➢ Higher operating costs per tonne ➢ Less local employment
Continue to process recyclable materials from other municipalities in Ontario	➢ Lower operating cost per tonne ➢ Increased selling power (more materials to market) ➢ Continued level of local employment or possible increase	➢ Higher gross operating costs

Northumberland county

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LONG-TERM WASTE MANAGEMENT MASTER PLAN
HOUSEHOLD HAZARDOUS AND ELECTRONIC WASTE

HOUSEHOLD HAZARDOUS AND ELECTRONIC WASTE:

- County operates four (4) seasonal Depots for the free disposal of Household Hazardous Waste (HHW) and Electronic Waste (E-Waste).
- Each depot is open 1 Wednesday and 1 Saturday per month from April through to October.

OPTION	ADVANTAGE	DISADVANTAGE
Offer a year-round service for disposal of HHW and E-Waste at a County facility	➢ Increase waste diversion ➢ Increase convenience to residents ➢ Reduce risk of material being disposed of in landfill	➢ Capital cost to construct facility suitable for year-round operations ➢ Increased operational costs

Northumberland County

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OTHER WASTE DIVERSION PROGRAMS

- The County currently diverts the following items from landfill at our Landfills and Transfer Stations through our "Public Drop-Off Areas":
    - Scrap Metal
    - Dry Wall
    - Tires
    - White Goods (fridges, stoves, etc.)
    - Leaf and Yard Waste
- As a means of further diverting waste from landfill, the County could implement the following options:

OPTION	ADVANTAGE	DISADVANTAGE
Provide additional bins at "Public Drop Off Areas" for additional materials (e.g. asphalt shingles, wood waste, Styrofoam, etc.)	➢ Increased waste diversion	➢ Slight increase in operating costs
Implement an Organic Waste (e.g. Kitchen Waste) collection program	➢ Increase diversion by approx. 15% to 20% ➢ Creation of high-quality compost ➢ Lower Green House Gas emissions than landfill	➢ High cost to collect and process ➢ More sorting required by residents ➢ "yuck" factor
Implement seasonal collection of Leaf and Yard Waste	➢ Residents would no longer have to transport this material	➢ Increased cost to collect and process this material

SERVICE LEVEL EQUITY

- The County currently collects garbage and recyclable materials weekly from residents.
- Businesses who meet the County's collection requirements (e.g. no more than 3 bags per pick-up) can also receive this collection service.
- There are a number of apartment buildings and larger businesses who hire private waste contractors to manage the waste they produce.

OPTION	ADVANTAGE	DISADVANTAGE
Extend garbage and recycling collection services to apartments and multi-dwelling buildings	➢ Increased waste diversion	➢ More garbage going to County landfills that currently goes elsewhere ➢ Increased cost to set up and administer program ➢ Taking over private sector work
Extend garbage and recycling collection services to all businesses within the County	➢ Increased waste diversion	➢ More garbage going to County landfills that currently goes elsewhere ➢ Increased cost to set up and administer program ➢ Taking over private sector work

THANK YOU FOR ATTENDING!

If you have any questions, please contact:

Adam McCue
Manager of Planning & Technical Support
County of Northumberland
555 Courthouse Road
Cobourg, K9A 5J6
Telephone: 905-372-3329 Ext. 2299
Fax: 905-372-1696
E-mail: mccuea@northumberlandcounty.ca

Or

Kerrie Skillen
Consultation Lead
Stantec Consulting Ltd.
3430 South Service Rd., Unit 203
Burlington, ON L7N 3T9
Telephone: 905-631-3923
Email: kerrie.skillen@stantec.com

Information on the County's LTWMMP is also available on our website at www.northumberlandcounty.ca/wasteplan or find us on Facebook under 'Northumberland County Waste Department'

Please fill out the comment sheet to provide your feedback.

Northumberland county

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COMMENT SHEET

Long-Term Waste Management Master Plan

The questions below are designed to provide the County with feedback from the public about their wants and needs with respect to the various waste management options and alternatives the County will be considering as it conducts its Long-Term Waste Management Master Planning Process.

Please submit your comments by January 11, 2012, so that we can address them in our project documents.

County of Northumberland - Long Term Waste Management Master Plan
Attention: **Adam McCue**
Manager of Planning and Technical Support
County of Northumberland
555 Courthouse Road
Cobourg, K9A 5J6
Telephone: 905-372-3329 ext. 2299
Fax: 905-372-1696
E-mail: mccuea@northumberlandcounty.ca

Waste Diversion Programs:

Would you like to have a seasonal curbside collection service for leaf and yard waste?

Would you like to have a curbside collection service for household organics (e.g. food waste)?

Would you make use of diversion programs at County Landfills and Transfer Stations for items such as: Asphalt Shingles, Wood Waste or Construction and Demolition material?

Would you support the County owning and operating an organics (e.g. food waste) processing facility?

Do you like the idea of rebranding Waste Transfer Stations as “Community Recycling Centers”?

Cost Recovery Mechanisms:

Would you be willing to pay higher property taxes for new or enhanced waste reduction programs and services?

Would you be willing to pay higher bag tag fees for new or enhanced waste reduction programs and services?

Waste Diversion Target:

The Provincial goal for residential waste diversion is 60%, meaning that 60% of all waste generated by residents is diverted from disposal through waste reduction, re-use of waste materials or recycling of waste materials.

a. Would you support the County adopting a waste diversion goal of 60% by the year 2020?

b. If not, what do you feel is a realistic waste diversion goal?

Landfills and Transfer Stations:

Accepting that some landfill disposal will be required in the future, would you prefer that the County export waste out of the County for landfill, or develop local landfill capacity?

Would you make use of Waste Transfer Stations to drop off Household Hazardous Waste, Electronic Waste, and construction and demolition debris, if these services were available?

Curbside Collection Services:

Would you object to placing your household garbage out in clear bags, as a means of ensuring that recyclable materials are not being disposed of in with household garbage?

Would you be willing to sort your recyclable materials into more than one bag or container, if it would result in lower costs to sort the materials at the Recycling Plant and less contamination of recyclables?

Would you prefer curbside collection of recyclables and garbage in carts instead of in bags?

Material Recovery Facility (Recycling Plant):

Do you have a preference as to whether the County manages its own recyclables within the County versus shipping our recyclable materials outside of the County for sorting and processing?

Do you support the County entering into agreements with other municipalities to process their recyclable materials at our Recycling Plant, as a means of supporting local employment and reducing the cost to process our own recyclable materials?

Garbage Disposal Alternatives:

Would you support the construction of an "Alternative Disposal Facility" (e.g. incinerator or other energy-from-waste facility, or waste digester) within the County?

Would you support a partnership between the County and another municipality or private sector company for the construction and operation of an "Alternative Disposal Facility"?

Household Hazardous Waste and Electronic Waste Diversion Programs:

Do you feel that the level of service currently being provided through the County's seasonal Depots is satisfactory?

Would you prefer year-round access for disposal of Household Hazardous and Electronic Waste?

Service Level Equity for Multi-Dwelling buildings, Apartments and Businesses:

Do you feel the County should offer garbage and recycling collection services to all multi-dwelling facilities?

Do you feel the County should offer garbage and recycling collection services to all Apartment buildings?

Do you feel the County should offer garbage and recycling collection services to Businesses?

Additional Comments:

Please provide additional comments here:

Please print your name and contact information (optional):

Name:	
Group or Organization:	
Mailing Address:	
Telephone:	
E-mail Address:	

If you would like to be added to the Project Communications List, please tick here: ☐

Comments will be maintained for reference throughout the project and will become part of the public record. Under the Freedom of Information and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person.

Thank-you for your comments!

Stantec

Memo

To:	Adam McCue	From:	Kerrie Skillen
	County of Northumberland		Guelph, ON
File:	PICs 1,2,3 Feedback	Date:	June 6, 2013

Reference: Summary of Public Feedback

There are a planned total of eight public input events related to the development of the Master Plan. These eight events will occur over three stages during the planning process. The first three of eight such events were held in late 2012. Feedback was strong for an early stage consultation with overall response summarized below.

Responses to the following five questions indicated very strong public support (90+) for the particular initiative.

1. *Would you make use of diversion programs at County Landfills and Waste Transfer Stations? (question 3 and 11)*

    a. **98%** of respondents said they would make use of Waste Transfer Stations to drop off Household Hazardous Waste, Electronic Waste, and construction and demolition debris, if these services were available.

    b. **76%** of respondents said they would make use of diversion programs at County Landfills and Transfer Stations for items such as: Asphalt Shingles, Wood Waste or Construction and Demolition material.

2. *Do you support the County entering into agreements with other municipalities to process their recyclable materials at our Recycling Plant*

    a. **94%** of respondents supported this option.

    b. Common response was that recyclables should only be accepted from local municipalities to reduce the trucking distance.

    c. Note: **57%** of respondents prefer if the County manages its own recyclables within the County versus shipping the recyclable materials outside of the County for sorting and processing.

3. *The County adopting a waste diversion goal of 60% by the year 2020*.

    a. **94%** of respondents supported this goal.

    b. Many residents noted that the goal should be higher. The recommended range varied from 40-90%.

4. *Do you feel the County should offer garbage and recycling collection services to all multi-dwelling facilities, apartment buildings, or businesses? (Listed as 3 separate questions)*

    a. **92%** support for multi-dwelling facilities, **93%** support for apartment buildings, **91%** support for businesses.

b. Respondents were concerned about cost recovery. Some unsure how program will be paid for. Want to make sure multi-dwelling facilities, apartment buildings, and businesses pay their share or more.

5. *Would you be willing to sort your recyclable materials into more than one bag/container if it resulted in a lower cost and less contamination of materials?*

   a. **91%** supported this option.

1.1 ALTERNATIVES RECEIVING LIMITED SUPPORT

Responses to the following five questions indicated only fair to poor support for the particular initiative:

1. *Export Waste out of the County for landfill.*

   a. **19%** of respondents indicated that they would rather export waste outside of the County for landfill than develop local landfill capacity.

   b. Respondents have a strong sense of ownership of waste - frequent mention of incinerator technology as an option for locally managing waste. Respondents are worried about the cost of disposing the waste.

2. *Use of Carts instead of Bags for Recyclables and Garbage.*

   a. **39%** of respondents would prefer use of carts. Therefore **61%** of respondents indicated they prefer use of bags.

   b. Concern regarding ability for animals to get into carts, storage of carts, and maneuverability.

3. *Pay Higher Property Taxes for New or Enhanced Waste Reduction Programs and Services.*

   a. **41%** of respondents indicated they would support an increase to property taxes.

   b. Frequent mention of full user pay program as an alternative.

   c. Many are worried about the rate of increase vs. the benefit.

4. *Pay Higher Bag Tag Fees for New or Enhanced Waste Reduction Programs and Services.*

   a. **42%** of respondents indicated they would support an increase to bag tag fees.

5. *Curbside collection of food waste and seasonal collection of leaf and yard waste(LYW)*

   a. **56%** of respondents supported addition LYW collection, **57%** supported food waste collection.

   b. Many respondents (especially those in rural areas) are currently composting most of these materials and feel that it is adequate. Many respondents want the soil if the County is composting it.

c. Note: **78%** of respondents supported the County owning and operating a food waste processing facility.

1.2 ADDITIONAL FEEDBACK ON PRIORITIES

Other feedback that is also considered relevant is provided below. Stantec also offers some commentary given that there may have been some confusion regarding the intent of the question.

- Respondents seemed to be lacking knowledge of how a community recycling centre or organics(food waste) processing facility operates. Some found it difficult to answer questions on this topic.

- The question "*would you object to placing your household garbage out in clear bags, as a means of ensuring that recyclable materials are not being disposed of in with household garbage*" seems to have caused some confusion. Many responded 'yes' with an explanation that really meant 'no.' **Overall the response was indifferent.**

- **73%** of respondents support the construction of an Alternative Disposal facility within the County. Common comments or concerns were:

    - Ensuring no negative impacts to the environment or human health.
    - Concern with location of technology.
    - Want ability for technology to produce energy.
    - Note: **71%** support partnership with a nearby municipality, however, some respondents have a strong aversion to partnering with the private sector.

- Respondents indicated that there is a need to increase the level of service for HHW and electronics seasonal depots

    - Year-round service isn't necessarily needed; however an increase to the current level is preferred.

- **74%** of respondents support the rebranding of the Waste Transfer Stations as "Community Recycling Centers".

2.0 PROPOSED FUTURE DIRECTION BASED ON FEEDBACK

Given the relatively large number of written comments from the public, and the very strong support for some alternatives, Stantec believes it is reasonable to now narrow the alternatives for detailed evaluation. Specific suggestions for Advisory Committee consideration are noted below as items A to G.

Reference: Summary of Public Feedback

A. *Would you make use of diversion programs at County Landfills and Waste Transfer Stations? (question 3 and 11)*

   a. ***98%*** *of respondents said they would make use of Waste Transfer Stations to drop off Household Hazardous Waste, Electronic Waste, and construction and demolition debris, if these services were available.*

   b. ***76%*** *of respondents said they would make use of diversion programs at County Landfills and Transfer Stations for items such as: Asphalt Shingles, Wood Waste or Construction and Demolition material.*

Stantec had previously indicated that existing transfer stations could be easily and cost-effectively modified to offer additional drop off services. The public indicated a strong willingness to better utilize the existing facilities. Given that the County has four such transfer stations with good geographic separation, ***Stantec suggests further evaluation of drop off options for the transfer stations.***

B. *Do you support the County entering into agreements with other municipalities to process their recyclable materials at our Recycling Plant*

   a. ***94%*** *of respondents supported this option.*

   b. *Common response was that recyclables should only be accepted from local municipalities to reduce the trucking distance.*

   c. *Note:* ***57%*** *of respondents prefer if the County manages its own recyclables within the County versus shipping the recyclable materials outside of the County for sorting and processing.*

The County is near a critical point in determining a long-term strategy for the re-furbishment and operating approach at the Materials Recycling Facility (MRF). Certain pieces of processing equipment require replacement in the near future and the current processing arrangement with the City of Kawartha Lakes is not secured over the long term.

Residents indicated strong support (91%) for additional sorting of recyclables in the home. This type of change would likely involve reverting to a conventional blue box (with paper sorted separately from containers). The existing blue bag system mixes all materials which then necessitates additional effort at the MRF to separate materials. Industry terminology for the current blue bag system is a “one stream sort” as opposed to “two stream” for separated paper and containers in a blue box.

Residents indicated no strong preference between a blue cart and blue bag collection program if the County chose to maintain the current one stream collection system. Some municipalities use a blue cart rather than a blue bag for a “one stream” collection program, but a significant up-front capital cost is required to purchase the carts. There is no compelling reason for the County to transition to blue carts if the current one stream program is to be maintained.

Resident opinion on sorting and blue carts is very helpful as there seems to be strong support to move to a two stream collection program, with the benefit being less equipment and sorting at the MRF. ***Stantec suggests further evaluation of a two stream collection program for recyclables in concert with MRF***

retrofits based on an incoming clean sort of paper and containers. A change of this nature will increase curbside collection costs slightly, but will also result in reduced capital costs at the MRF and reduced per tonne processing costs. Programs with two stream sorting also have the potential to improve revenue per tonne on the sale of recyclables due to a cleaner final product. This type of change would have no impact on the relationship with the City of Kawartha Lakes as their program is already a two stream sort. ***Stantec also suggests that concerted efforts be undertaken in the very near future to negotiate a long term processing contract with the City of Kawartha Lakes to maintain the current economy of scale at the facility.*** Certainty regarding receipt of materials from other municipalities should be established before capital purchases are approved for the MRF.

C. *Do you feel the County should offer garbage and recycling collection services to all multi-dwelling facilities, apartment buildings, or businesses? (Listed as 3 separate questions)*

   a. ***92%*** *support for multi-dwelling facilities,* ***93%*** *support for apartment buildings,* ***91%*** *support for businesses.*

   b. *Respondents concerned about cost recovery. Some unsure how program will be paid for. Want to make sure multi-dwelling facilities, apartment buildings, and businesses pay their share or more.*

Residents and others who responded to the PIC questions were strongly supportive of extending service to apartments, condominiums and business provided that users of the service pay their fair share. Garbage collection from larger complexes that use bulk bins would not be easily implementable given the County's bag tag system and collection fleet. However, there are opportunities for improving recovery of recyclables by providing collection for all residential units in the County. This is an important policy issue to consider at this time given that the County is likely to see a shift to more multi-residential buildings in the future. Garbage and recycling collection for small businesses in the downtown cores also warrants review. Placing bag limits on these business, even though they pay for every bag, often provides only a partial level of service compared to their weekly needs. ***Stantec suggests that recyclables collection for all residential units be reviewed in more detail, along with the adequacy of the current downtown business collection services.***

D. *Export Waste out of the County for landfill.*

   a. ***19%*** *of respondents indicated that they would rather export waste outside of the County for landfill than develop local landfill capacity.*

   b. *Respondents have a strong sense of ownership of waste - frequent mention of incinerator technology as an option for locally managing waste. Respondents are worried about the cost of disposing the waste.*

Public response on the issue of waste exporting was very clear. Only 1 in 5 preferred shipping waste out-of-County compared to developing local landfill capacity. ***Stantec will develop conceptual cost estimates for waste export options, but will focus efforts on local solutions for residual waste.***

E. *Pay Higher Property Taxes for New or Enhanced Waste Reduction Programs and Services.*

   a. ***41%*** *of respondents indicated they would support an increase to property taxes.*

b. *Frequent mention of full user pay program as an alternative.*

c. *Many are worried about the rate of increase vs. the benefit.*

Pay Higher Bag Tag Fees for New or Enhanced Waste Reduction Programs and Services.

d. ***42%** of respondents indicated they would support and increase to bag tag fees.*

Roughly 4 in 10 respondents supported paying more in taxes or through bag tags to develop enhanced waste reduction programs with clear environmental gains. While not a majority, this level of support is quite strong given the nature of the questions. ***Stantec will review these alternatives as a potential method to fund optional new programs.***

F. *Curbside collection of SSO and seasonal collection of leaf and yard waste*

a. ***56%** of respondents supported addition LYW collection, **57%** supported SSO collection.*

b. *Many respondents (especially those in rural areas) are currently composting most of these materials through BYC and feel that it is adequate. Many respondents want the soil if the County is composting it.*

c. *Note: **78%** of respondents supported the County owning and operating a SSO facility.*

Just over half of respondents supported collection of household organics (green bin) and leaf and yard waste in the urban areas. There is little need for additional service in rural areas. Leaf and yard waste programs are typically very cost effective for the diversion achieved, and are easily implementable. However, green bin programs are costly from both a collection and processing standpoint. ***Stantec suggests that future study examine a staged approach to leaf and yard waste and green bin implementation, with leaf and yard waste given a higher priority and earlier implementation date.***

G. *Alternative Disposal Facilities (non-landfill)*

a. ***73%** of respondents support the construction of an Alternative Disposal facility within the County. Common comments or concerns were:*

- *Ensuring no negative impacts to the environment or human health.*
- *Concern with location of technology.*
- *Want ability for technology to produce energy.*
- *Note: **71%** support partnership with a nearby municipality, however, some respondents have a strong aversion to partnering with the private sector.*

Three quarters of respondents supported the construction of alternative disposal facilities (non landfill) in the County. This is a similar level of support to the development of a County landfill. This response suggests that County residents are committed to managing their own wastes locally. ***Stantec will continue to explore all viable local alternatives to landfill as part of the planning process.***

Appendix D
Public Information Sessions 4, 5, 6 (Round 2)

How Can I Learn More or Participate?

There are numerous options available for you to get involved or find answers to your questions.

Public Information Centres (PICs)

Will Be Held:

⇒ Tuesday, June 18 from 3p.m. to 7p.m. at Brighton Community Centre (Located at 75 Elizabeth Street, Brighton)

⇒ Wednesday, June 19 from 3p.m. to 7p.m. at Alnwick Civic Centre (located at 9059 County Road 45, Roseneath)

⇒ Thursday, June 20 from 3p.m. to 7p.m. at County Council Chambers(located at 555 Courthouse Road, Cobourg)

Information on the County's LTWMMP is also available on our website at www.northumberlandcounty.ca/wasteplan or

Find us on Facebook

Under 'Northumberland County Waste Department'

For Further Information on the County's Long-Term Waste Management Master Plan, Please Contact:

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Northumberland county

Northumberland County Waste Department

www.northumberlandcounty.ca

1-800-354-7050

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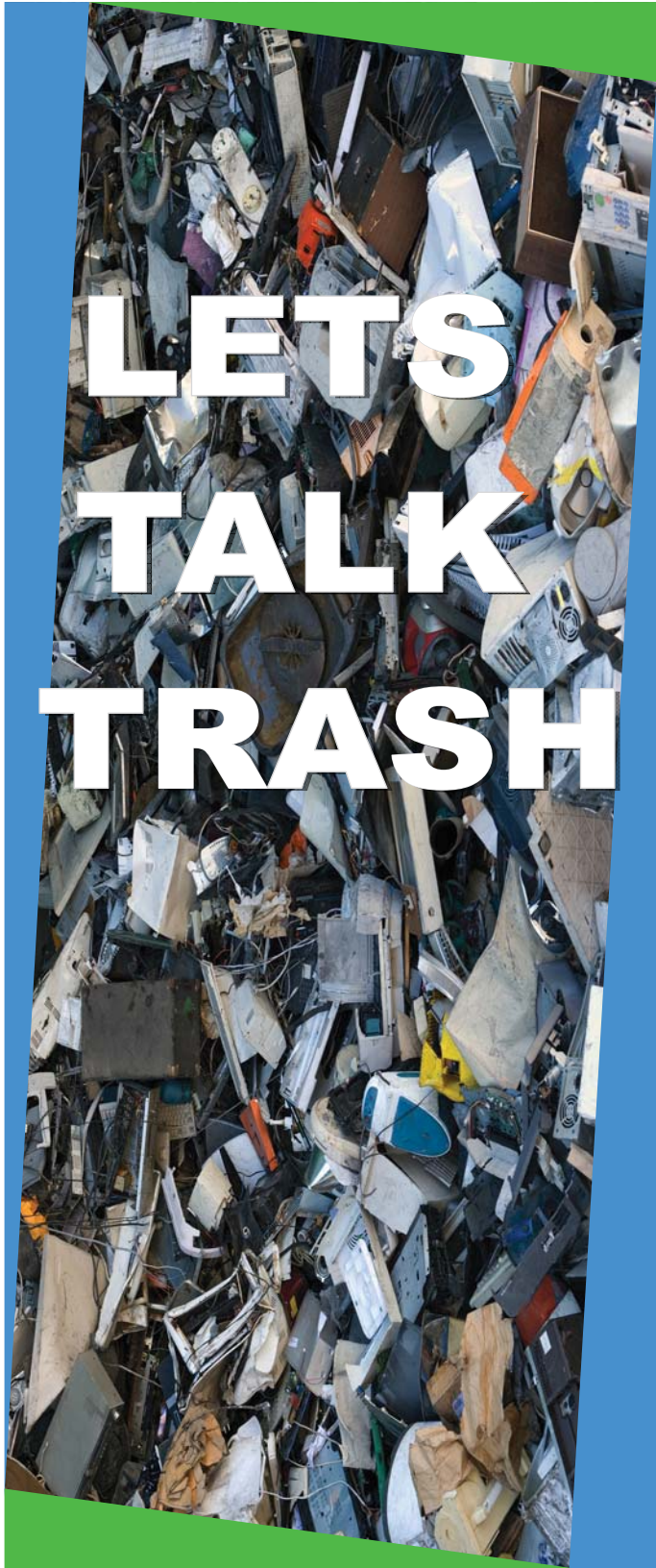


What Are We Doing?

Northumberland County is developing a Long-Term Waste Management Master Plan (LTWMMP) which will:

- ⇒ **Review Current Programs and Services**
- ⇒ **Assess Our Facilities and Infrastructure**
- ⇒ **Assess Our Past Performance Against Diversion Targets**
- ⇒ **Establish New Diversion Goals and Strategies to Achieve Them**

Why Are We Doing This?

- ⇒ **Our Landfills are Reaching Their Approved Capacity**
- ⇒ **Our MRF Requires Upgrading**
- ⇒ **New Technologies are Emerging for Waste Disposal**
- ⇒ **Regional and Provincial Initiatives May be of Value**

What's The Process and Timing?

Fall 2011

- ⇒ **Council Decision to Develop Plan**
- ⇒ **Consultant Retained for Assessment of Current Programs/Facilities and Identification of Technologies**

Spring 2012

- ⇒ **Advisory Committee Engaged**

Fall 2012

- ⇒ **Public Meetings Scheduled as Well as Other Forums for Public Input**

Spring/Summer 2013

- ⇒ **Develop Draft Plan for Review by Public**
- ⇒ **Additional Public Meetings (We are here)**

Fall 2013

- ⇒ **Recommendation to County Council on LTWMMP**

County of Northumberland

LONG-TERM WASTE MANAGEMENT MASTER PLAN

Second Round of Public Information Centres

June 18th, 3-7pm: Brighton Community Centre – 75 Elizabeth St., Brighton
June 19th, 3-7pm: Alnwick Civic Centre – 9059 Ct. Rd. 45, Roseneath
June 20th, 3-7pm: County Council Chambers – 555 Courthouse Rd., Cobourg

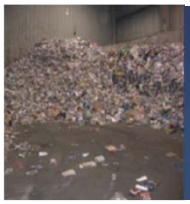
Please sign in.

Take an information sheet to record your thoughts as you review the display material.

County staff and the study team are available to discuss your questions and concerns.

Public input will influence this study; please take time to fill out a comment sheet.

The comment sheet is available online at http://www.northumberlandcounty.ca/wasteplan



SERVICES OVERVIEW

- The County provides the following waste management services:
  - Curbside collection of garbage and recycling.
  - Operation of 1 landfill and 2 waste transfer stations.
  - Processing and marketing of recyclables at our Material Recovery Facility.
  - Operation of 4 seasonal Household Hazardous Waste and Electronic Waste Depots.
  - Leaf and Yard Waste Composting.

- In 2012 the County managed over 49,700 tonnes of waste material:
  - 16,300 tonnes were diverted from landfill (through recycling and composting).
  - 33,400 tonnes of waste went to landfill.

- The County diverts approximately 40% of all residential waste from landfill through diversion programs.

- The County owns and operates:
  - One active landfill: Brighton
  - Two waste transfer stations: Bewdley and Seymour
  - One Material Recovery Facility: Grafton
  - Eight closed landfills
  - Four Household Hazardous Waste/E-Waste depots

- The County pays for the operation of the waste transfer station owned and operated by the Municipality of Port Hope, used by Ward 2 residents only

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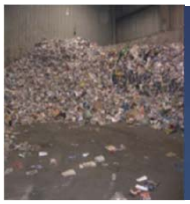

LONG-TERM WASTE MANAGEMENT MASTER PLAN SERVICES OVERVIEW

WHAT ARE WE DOING?

- Northumberland County is developing a Long-Term Waste Management Master Plan (LTWMMP) which will:
    - Review Current Programs and Services
    - Assess Our Facilities and Infrastructure
    - Assess Our Past Performance Against Diversion Targets
    - Establish New Diversion Goals and Strategies to Achieve Them

WHY ARE WE DOING THIS?

- Our Landfill is Reaching its Approved Capacity
- Our MRF Requires Upgrading
- New Technologies are Emerging for Waste Disposal
- Regional and Provincial Initiatives may be of Value

WHAT IS THE TIMING AND PROCESS?

Fall 2011

- Council Decision to Develop Plan
- Consultant Retained for Assessment of Current Programs/Facilities and Identification of Technologies

Spring 2012

- Advisory Committee Engaged

Fall 2012

- Public Meetings Scheduled as Well as Other Forums for Public Input

Spring/Summer 2013

- Develop Draft Plan for Review by Public
- Additional Public Meetings (We are here)

Fall 2013

- Recommendation to County Council on LTWMMP

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FIRST ROUND OF PUBLIC INFORMATION CENTRE

- In November and December of 2012, three Public Information Centres (PICs) were held throughout the County to obtain community feedback on potential solutions to meet the County's long-term waste management needs.

- Feedback was strong for an early stage consultation, with overall response summarized below.

- A summary of public feedback was prepared and presented to the County's Long-Term Waste Management Master Plan Advisory Committee Meeting.

Total written responses	264	• 24 hard copy • 240 electronic
Total PIC attendees	57	• Port Hope – 39 • Campbellford – 8 • Cramahe – 10

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WASTE DIVERSION

- 94% of respondents supported the County adopting a waste diversion goal of 60%.

CURBSIDE COLLECTION

Recyclables

- 91% of respondents indicated they would be willing to sort their recyclable materials into more than one bag or container if it would result in lower overall system costs and less contamination.

- 61% of respondents would prefer to use bags or bins to place their recyclables out for collection versus putting them in a cart.

Leaf and Yard Waste

- 56% of respondents supported addition leaf and yard waste collection.

Food Waste

- 57% of respondents supported food waste collection.

- 78% of respondents supported the County owning and operating a food waste processing facility.

SERVICE LEVEL EQUITY

- Over 91% of respondents supported the County offering garbage and recycling collection services to multi-dwelling facilities, apartment buildings and businesses.

HOUSEHOLD HAZARDOUS, ELECTRONIC WASTE, and OTHER DIVERSION PROGRAMS

- 98% of respondents said they would make use of Waste Transfer Stations to drop off Household Hazardous Waste, Electronic Waste and Construction and Demolition debris if these services were available.

- 76% of respondents said they would make use of diversion programs at County Landfills and Transfer Stations for items such as Asphalt Shingles, Wood Waste, or Construction and Demolition material.

MATERIALS RECOVERY FACILITY (MRF)

- 94% of respondents supported the County entering into agreements with other municipalities to process their recyclable materials at the County Material Recycling Facility.

- 57% of respondents indicated they would prefer the County to manage the processing of their own recyclables versus send the material out of the County to be processed at another MRF.

LONG-TERM WASTE MANAGEMENT MASTER PLAN
SERVICES OVERVIEW

DISPOSAL

- 81% of respondents indicated they would rather the County develop local landfill capacity versus exporting waste outside of the County for landfill disposal.

- 73% of respondents support the construction of an Alternative Disposal facility within the County. Common comments or concerns were:
  - Ensure no negative impacts to the environment or human health.
  - Concern with location of technology.
  - Want ability for technology to produce energy.
  - 71% of respondents support partnership with a nearby municipality.

COST RECOVERY

- 41% of respondents indicated they would support an increase in property taxes to pay for new or enhanced waste reduction programs and services.

- 42% of respondents indicated they would support an increase in the cost of bag tags as a means of paying for new or enhanced waste reduction programs and services.

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RECOMMENDATIONS – Short Term Opportunities

A1 – Upgrade of the Materials Recycling Facility (MRF)

- In 2008 the processing equipment for the fibre (paper) sorting line at the MRF was upgraded. The processing equipment for the container (pop cans, water bottles, juice cartons, etc.) is in need of upgrade, as it is over 17 years old.
- Given that the County has executed a processing contract for up to seven years with the City of Kawartha Lakes (CKL), and the fact that material from CKL arrives sorted into separate container and paper fibre streams, it is recommended that the County upgrade aging equipment at the MRF in 2014-2016, and transition to a two stream collection program for recyclables by the next collection contract expiry date.

A2 - Implement Yard Waste/Brush Curbside Collection Program

- Diversion of yard waste and brush from landfill is a straightforward and cost effective waste reduction strategy. It is recommended that the County implement a pilot seasonal (April to November) curbside collection program for yard waste and brush in 2014 or 2015. All areas deemed to benefit from the seasonal collection program would receive collection services during the next collection contract, beginning in 2019.

A3 - Collect Recyclables from all Multi-Residential Dwellings

- Most multi-residential dwellings (apartment buildings and condominiums) in the County do not receive any municipal collections services. While the County's bag tag garbage system does not work well for these types of dwellings, collection of recyclables can be readily implemented in a cost effective manner. This recommendation also serves to anticipate the likely shift in the County to construction of more multi-residential units in the future.
- It is recommended that the County extend curbside collection services for recyclables only to multi-residential dwellings.

A4 - Upgrade Transfer Stations and Implement Common Services and Fees

- The four public drop off areas at the County transfer stations and landfill provide a ready-made opportunity for residents and business to cost-effectively divert additional materials from landfill. It is recommended that the County upgrade the public drop off areas at its transfer stations and landfill to permit the drop-off of a wide variety of materials such as lumber, wooden pallets, electronics, asphalt shingles, construction & demolition material and textiles. Drop-off of blue box recyclables and other traditional materials can also be easily accommodated.
- As these drop programs are being developed, it would be beneficial to implement and maintain common fees and services across all County facilities.

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RECOMMENDATIONS – Short Term Opportunities

A5 - Develop a More Flexible Collection Program for Downtown Small Business

- Some downtown small business owners have requested that the current policies be revisited to meet their needs, while still maintaining County policy regarding fee-for-service. Many municipalities offer special accommodations for downtown small business to reflect the challenges of operating in those locations. Possible changes may include more frequent collection and more bags allowed on each collection day.
- It is recommended that the County investigate ways to accommodate the waste disposal needs of downtown businesses, while still maintaining its user pay system. Options could include increased collection frequency or allowing more garbage bags per pick-up.

A6 - Maintain Current Revenue Balance of User Fees and Property Tax Support

- Future program spending increases cannot be fully funded from User Fees without creating unintended consequences. Increasing bag tag and landfill fees beyond what is considered reasonable by the community will lead to attempts by residents to dispose of waste through roadside dumping, inappropriate use of municipal garbage receptacles, excessive compaction, and waste disposal in private bulk bins.
- It is recommended that the County maintain their existing revenue balance, with waste collection costs being covered by user fees (e.g. bag tags) and all other services funded through levy (e.g. property taxes).

A7 - Develop Short Term Residual Disposal Strategy (if required)

- If the proposed Brighton landfill expansion is not approved by the Province of Ontario, the County will need to create a short term strategy to address its future disposal needs when the Brighton site closes in 2016 or 2017. Options in this scenario will be limited and with few options beyond export to another private or public sector landfill, or export to a waste-to-energy facility. It is recommended that the County develop a strategy to address this scenario in 2014 and 2015, if required.

RECOMMENDATIONS – Mid and Long Term Opportunities

B1 – Revisit Opportunities to Utilize Alternative Disposal Technologies at Permitted Facilities

- Aside from the Algonquin Power waste-to-energy facility in Brampton, there are no other commercial-scale facilities utilizing alternative disposal technologies currently operating in Ontario. Given that some technologies offer great promise, it is recommended that the County re-evaluate the possibility of utilizing Alternative Disposal Technologies for residual waste management in the mid-to-long term.

B2 – Develop Collection and Processing Options for Green Bin Organics

- Curbside collection of green bin organics has the potential to divert significant tonnage, but program implementation would be at a very high cost. Processing facilities in Ontario have had many challenges in recent years and guaranteed long term processing capacity is difficult to obtain from contracted providers.
- It is recommended that the County work with its municipal neighbours to explore opportunities to jointly develop an organics processing facility locally and plan to add curbside service by 2019.

B3 – Develop Detailed Residual Disposal Strategy

- This recommended action is the same as recommendation A7, but is not required until a later date based on the premise that Brighton Landfill expansion is approved in the short term.
- If the proposal to expand the Brighton Landfill is approved by the Province of Ontario, the landfill's life will be extended to around the year 2023. Over 81% of respondents to the initial round of public consultations indicated that they would prefer the County develop local landfill capacity versus exporting our waste elsewhere for ultimate disposal. Based on the public's desire to manage their waste locally, the current options are limited to: expanding an existing landfill or developing a new landfill. Both of these options would require the County to go through a provincial Environmental Assessment (EA) process. This process would need to commence in 2016 or 2017. At that time, if there are other viable waste disposal options available locally (e.g. waste-to-energy facility) the County should include these options for consideration as part of the EA process.
- It is recommended that the County commence an EA process in 2016 or 2017 to develop local long-term landfill capacity and that as part of this process, any other available local waste disposal options also be assessed.

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RECOMMENDATIONS – Mid and Long Term Opportunities

B4 – Optimize Function and Diversion Potential of Transfer Stations

- As packaging and technological trends change, the mix of materials suitable for diversion at the transfer stations will also change. County staff will be required to add and delete materials acceptable for diversion as trends change in order to maintain the long-term effectiveness of this strategy.

B5 – Transition to Two-Stream Curbside Sort of Recyclables

- The County currently collects all recyclables mixed in blue bags or blue boxes. By separating paper fibers from containers in the collection vehicle, less sorting is required at the Materials Recovery Facility, residual is reduced, and more materials can be sold to market.
- It is recommended that the County transition from its existing single stream recycling collection program to a two stream recycling collection program in 2019, at the end of the existing collection contract. Under the two stream recycling collection program residents would be required to place all of their fiber material (paper and cardboard) in one container or blue box and all of their container material (pop cans, juice cartons, water bottles, etc.) into another container or blue box for collection.

B6 – Complete 10 year Review of this Master Plan

- The waste management industry continues to evolve at a rapid rate compared to most other municipal public works services. A 10-year review of this Master Plan is considered appropriate given several program options has mid to long-term implementation recommendations.

LONG-TERM WASTE MANAGEMENT MASTER PLAN
SERVICES OVERVIEW

FIGURE 1

DECISION MATRIX - MAJOR DIVERSION OPTIONS

COUNTY OF NORTHUMBERLAND WASTE MANAGEMENT MASTER PLAN

Potential Diversion Program	Diversion Potential[1]	Relative Cost[2]	Technical Feasibility	Public Support	Implementation Recommendation
Yard Waste Collection/Processing	1000 - 2000 tonnes/yr	Moderate	Proven	Strong	Short Term
Green Bin Collection/Processing	1000 - 5000 tonnes/yr	High	Proven	Mixed	Mid to Long Term
Drop Off Areas at Depots/Transfer Stations	500 - 2000+ tonnes/yr	Low	Proven	Strong	Short Term
Alternative Technologies for Residuals Management	Up to 80% of current wastestream	Likely Moderate to High	Developing (except mass burn incineration)	Mixed	Mid to Long Term
Recyclables Collection at Apartments/ Condominiums	500 - 700 tonnes/yr	Moderate	Proven	Strong	Short Term

1. Total waste to landfill in County is approximately 34,000 tonnes per year.
2. Relative Cost:
   - Low - less than $100/tonne net cost
   - Moderate - $100 to $200/tonne
   - High - greater than $200/tonne net cost

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LONG-TERM WASTE MANAGEMENT MASTER PLAN
SERVICES OVERVIEW

FIGURE 2
IMPLEMENTATION PLAN
COUNTY OF NORTHUMBERLAND WASTE MANAGEMENT MASTER PLAN

		2014	2015	2016	2017	2018	2019	2020	2021 - 2025	2026 - 2035
COUNTY COUNCIL APPROVAL OF MASTER PLAN		*							*	update Master Plan
RECYCLING FACILITY										
→ Confirm long-term processing capacity needs		*								
→ Upgrade equipment based on two-stream sort			up to $2.5 million capital							
→ Incorporate two-stream sort into collections tender			500 - 1000 tonnes							
YARD WASTE/BRUSH DIVERSION										
→ Add seasonal service as pilot (single truck)			$200,000 annual							
→ Continue based on participation										
→ Incorporate into new collection tender			1000 - 2000 tonnes							
→ Commence new collection contract including seasonal yard waste										
RECYCLABLES COLLECTION AT APARTMENTS/CONDOS										
→ Phase in new service by 2019				$30,000/yr	$30,000/yr	$30,000/yr				
→ Include as base collection item in new collection contract				200 tonnes	200 tonnes	200 tonnes				
DIVERSION AT DEPOTS/TRANSFER STATIONS										
→ Confirm expanded diversion programs										
→ Service phase in			$50,000/yr	$50,000/yr	$50,000/yr	$50,000/yr				
→ Develop revised fee and service schedule			300 tonnes	300 tonnes	300 tonnes	300 tonnes				
ENHANCED SERVICE TO DOWNTOWNS										
→ Develop plan based on stakeholder need										
→ Provide enhanced service to meet need										
LANDFILL/RESIDUALS										
→ Develop short-term disposal strategy (no Brighton expansion)										
→ Develop disposal strategy (Brighton approved to 2024)										
GREEN BIN ORGANICS										
→ Revisit processing options and costs										
→ Commence new collection contract including green bin organics										
ANNUAL AND CUMULATIVE FINANCIAL IMPACT	- Annual Operating Additions		$ 250,000	$ 80,000	$ 80,000	$ 80,000				
	- Cumulative Totals		$ 250,000	$ 330,000	$ 410,000	$ 490,000				
PROJECTED WASTE DIVERSION POTENTIAL	- Annual Additions (tonnes)		1800 - 3300	500	500	500				
	- Cumulative Totals (tonnes)		1800 - 3300	2300 - 3800	2800 - 4300	3300 - 4800				
	- Diversion Percentage	(40% assumed)	47%	49%	51%	53%				

Northumberland County

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LONG-TERM WASTE MANAGEMENT MASTER PLAN
SERVICES OVERVIEW

THANK YOU FOR ATTENDING!

If you have any questions, please contact:

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Please fill out the comment sheet to provide your feedback. – http://www.northumberlandcounty.ca/wasteplan

Northumberland county

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COMMENT SHEET

Long-Term Waste Management Master Plan
The Recommended System and Proposed Implementation Plan

The questions below are designed to provide the County with feedback from the public about their wants and needs with respect to the various waste management options and alternatives the County will be considering as it conducts its Long-Term Waste Management Master Planning Process.

Please submit your comments by July 19, 2013, so that we can address them in our project documents.

County of Northumberland - Long Term Waste Management Master Plan
Attention: **Adam McCue**
Manager of Planning and Technical Support
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Cobourg, K9A 5J6
Telephone: 905-372-3329 ext. 2299
Fax: 905-372-1696
E-mail: mccuea@northumberlandcounty.ca

The County's Long-Term Waste Management Master Plan (LTWMMP) process has considered public feedback and developed recommendations to improve and change our waste management system.

We want your feedback on these recommendations and the proposed implementation plan.

Short-Term Opportunities

1. Implement Yard Waste/Brush Curbside Collection Program

CONTEXT: Diversion of yard waste and brush from landfill is a straightforward and cost effective waste reduction strategy.

RECOMMENDATION: It is recommended that the County implement a pilot seasonal (April to November) curbside collection program for yard waste and brush in 2014 or 2015. All areas deemed to benefit from the seasonal collection program would receive collection services during the next collection contract, beginning in 2019.

COST: It is estimated that the annual cost to offer this service would be $200,000 per year or $5.00 per household per year.

DIVERSION: It is estimated that this program could divert an additional 1,000 to 2,000 tonnes per year, which would increase the County's diversion rate by between 4% and 7%.

QUESTION: Do you support the County implementing a seasonal curbside collection program for yard waste and brush?

Strongly Disagree	☐	Disagree	☐	Neutral	☐	Agree	☐	Strongly Agree	☐

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2. Collect Recyclables from all Multi-Residential Dwellings

CONTEXT: Most multi-residential dwellings (apartment buildings and condominiums) in the County do not receive any municipal collections services. While the County's bag tag garbage system does not work well for these types of dwellings, collection of recyclables can be readily implemented in a cost effective manner.

RECOMMENDATION: It is recommended that the County extend curbside collection services for recyclables only, to multi-residential dwellings.

COST: It is estimated that the annual cost to offer this service would be $90,000 per year or $2.50 per household per year.

DIVERSION: It is estimated that this program could divert an additional 600 tonnes per year, which would increase the County's diversion rate by 2%.

QUESTION: Do you support the County extending curbside collection services for recyclables to multi-residential dwellings?

Strongly Disagree	☐	Disagree	☐	Neutral	☐	Agree	☐	Strongly Agree	☐

---

3. Upgrade Public Drop-off areas at Transfer Stations and Landfills and Implement Common Services and Fees

CONTEXT: The four public drop off areas at the County transfer stations and landfill provide a ready-made opportunity for residents and business to cost-effectively divert additional materials from landfill.

RECOMMENDATION: It is recommended that the County upgrade the public drop off areas at its transfer stations and landfill to permit the drop-off of a wide variety of materials such as lumber, wooden pallets, electronics, asphalt shingles, construction & demolition material and textiles.

COST: It is estimated that the annual cost to offer this service would be $200,000 per year or $5.00 per household per year.

DIVERSION: It is estimated that including more diversion options at the public drop-off areas could divert an additional 500 - 2,000 tonnes per year, which would increase the County's diversion rate by between 2% and 7%.

QUESTION: Do you support the County upgrading the public drop-off areas at its transfer stations and landfills to allow for more options for diversion of waste materials from landfill?

Strongly Disagree	☐	Disagree	☐	Neutral	☐	Agree	☐	Strongly Agree	☐

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4. Develop a More Flexible Collection Program for Downtown Small Business

CONTEXT: Some downtown small business owners have requested that the current policies be revisited to meet their needs, while still maintaining the County policy regarding fee-for-service. Many municipalities offer special accommodations for downtown small business to reflect the challenges of operating in those locations. Possible changes may include more frequent collection or more bags allowed on each collection day.

RECOMMENDATION: It is recommended that the County investigate was to accommodate the waste disposal needs of downtown businesses, while still maintaining its user pay system. Options could include increased collection frequency or allowing more garbage bags per pick-up.

COST: It is estimated that there would be little, if any, additional cost to make special accommodations.

DIVERSION: There would be no effect on waste diversion.

QUESTION: Do you support the County making special accommodations for downtown businesses, in order to better meet their waste disposal needs?

Strongly Disagree	☐	Disagree	☐	Neutral	☐	Agree	☐	Strongly Agree	☐

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5. Maintain Current Revenue Balance of User Fees and Property Tax Support

CONTEXT: Future program spending increases cannot be fully funded from User Fees without creating unintended consequences. Increasing bag tag and landfills fees beyond what is considered reasonable by the community will lead to attempts by residents to dispose of waste through roadside dumping, inappropriate use of municipal garbage receptacles, excessive compaction, and waste disposal in private bulk bins.

RECOMMENDATION: It is recommended that the County maintain their existing revenue balance, with waste collection costs being covered by user fees (e.g. bag tags) and all other services funded through levy (e.g. property taxes).

COST: Not applicable.

DIVERSION: Not applicable.

QUESTION: Do you support the County continuing to fund waste collection services through bag tags sales and all other waste diversion programs through property taxes?

Strongly Disagree	☐	Disagree	☐	Neutral	☐	Agree	☐	Strongly Agree	☐

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6. Develop Short Term Residual Disposal Strategy (if required)

CONTEXT: If the proposed Brighton landfill expansion is not approved by the Province of Ontario, the County will need to create a short term strategy to address its future disposal needs when the Brighton site closes in 2016 or 2017. Options in this scenario will be limited to export to another private or public sector landfill, or export to a waste-to-energy facility.

RECOMMENDATION: It is recommended that the County develop a strategy to address this scenario in 2014 and 2015, if required.

COST: Not yet determined.

DIVERSION: No impact on waste diversion anticipated.

QUESTION: Do you support the County developing a short-term residual disposal strategy that would see waste exported to a landfill facility outside of the County, in the event that the current proposal to expand the Brighton Landfill is not be approved by the Province of Ontario?

Strongly Disagree	☐	Disagree	☐	Neutral	☐	Agree	☐	Strongly Agree	☐

QUESTION: Do you support the County developing a short-term residual disposal strategy that would see waste exported to a waste-to-energy facility outside of the County, in the event that the current proposal to expand the Brighton Landfill is not be approved by the Province of Ontario?

Strongly Disagree	☐	Disagree	☐	Neutral	☐	Agree	☐	Strongly Agree	☐

Mid and Long -Term Opportunities

7. Revisit Opportunities to Utilize Alternative Disposal Technologies at Permitted Facilities

CONTEXT: Aside from the Algonquin Power waste-to-energy facility in Brampton, there are no other commercial-scale facilities utilizing alternative disposal technologies currently operating in Ontario. Given that some technologies may become viable in the future, it is recommended that the County revisit this approach in the mid and longer term.

RECOMMENDATION: It is recommended that the County re-evaluate the possibility of utilizing Alternative Disposal Technologies for residual waste management in the mid-to-long term.

COST: Not yet determined.

DIVERSION: No impact on waste diversion anticipated.

QUESTION: Do you support the County re-evaluate the possibility of utilizing Alternative Disposal Technologies for residual waste management in the mid-to-long term.

Strongly Disagree	☐	Disagree	☐	Neutral	☐	Agree	☐	Strongly Agree	☐

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8. Develop Collection and Processing Options for Green Bin Organics

CONTEXT: Curbside collection of green bin organics has the potential to divert significant tonnage, but program implementation would be at a high cost. Processing facilities in Ontario have had many challenges in recent years and guaranteed long-term processing capacity is difficult to obtain from contracted providers. The County should work with its municipal neighbours to explore opportunities to jointly develop an organics processing facility locally and plan to add curbside service by 2019.

RECOMMENDATION: It is recommended that the County work with its municipal neighbours to explore opportunities to jointly develop an organics processing facility locally and plan to add curbside service by 2019.

COST: Greater than $1,000,000 per year, or over $25 per household per year.

DIVERSION: It is estimated that this program could divert an additional 2,000 to 5,000 tonnes per year, which would increase the County's diversion rate by between 7% and 18%.

QUESTION: Do you support the County working with its municipal neighbours to explore opportunities to jointly develop an organics processing facility locally and adding the collection of household organics (kitchen waste) to the curbside collection contract in 2019?

Strongly Disagree	☐	Disagree	☐	Neutral	☐	Agree	☐	Strongly Agree	☐

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9. Develop Detailed Residual Disposal Strategy

CONTEXT: If the proposal to expand the Brighton Landfill is approved by the Province of Ontario, the landfill's life will be extended to around the year 2023. Over 81% of respondents to the initial round of public consultations indicated that they would prefer the County develop local landfill capacity versus exporting our waste elsewhere for ultimate disposal. Based on the public's desire to manage their waste locally, the current options are limited to: expanding an existing landfill or developing a new landfill. Both of these options would require the County to go through a provincial Environmental Assessment (EA) process. This process would need to commence in 2016 or 2017. At that time, if there are other viable waste disposal options available locally (e.g. waste-to-energy facility) the County should include these options for consideration as part of the EA process.

RECOMMENDATION: It is recommended that the County commence an EA process in 2016 or 2017 to develop local long-term landfill capacity and that as part of this process, any other available local waste disposal options also be assessed.

COST: Unknown at this time.

DIVERSION: Not applicable.

QUESTION: Do you support the County undertaking an Environmental Assessment to develop local long-term landfill capacity as its residual waste disposal solution?

Strongly Disagree	☐	Disagree	☐	Neutral	☐	Agree	☐	Strongly Agree	☐

QUESTION: Do you support the County including other viable waste disposal options (e.g. waste-to-energy) as part of the proposed Environmental Assessment to develop a long-term residual waste disposal solution?

Strongly Disagree	☐	Disagree	☐	Neutral	☐	Agree	☐	Strongly Agree	☐

10. Transition to Two-Stream Curbside Sort for Recyclables

CONTEXT: The County currently collects all recyclables mixed in blue bags or blue boxes. By separating paper fibers from containers in the collection vehicle, less sorting is required at the Materials Recovery Facility, residual is reduced, and more materials can be sold to market.

RECOMMENDATION: It is recommended that the County transition from its existing single stream recycling collection program to a two stream recycling collection program in 2019, at the end of the existing collection contract. Under the two stream recycling collection program residents would be required to place all of their fiber material (paper and cardboard) in one container or blue box and all of their container material (pop cans, juice cartons, water bottles, etc.) into another container or blue box for collection.

COST: Yet to be determined.

DIVERSION: It is estimated that transitioning to a two stream recycling collection program could divert an additional 500 - 1,000 tonnes per year, which would increase the County's diversion rate by between 2% and 4%.

QUESTION: Do you support the County transitioning from a single stream curbside collection service for recyclables to a two stream curbside collection services, as recommend above?

Strongly Disagree	☐	Disagree	☐	Neutral	☐	Agree	☐	Strongly Agree	☐

Additional Comments:

Please provide additional comments here:

Please print your name and contact information (optional):

Name:	
Group or Organization:	
Mailing Address:	
Telephone:	
E-mail Address:	

If you would like to be added to the Project Communications List, please tick here: ☐

Comments will be maintained for reference throughout the project and will become part of the public record. Under the Freedom of Information and Protection of Privacy Act and the Environmental Assessment Act, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person.

Thank you for your comments!

Memo

Stantec

To:	Adam McCue	From:	Kerrie Skillen
	County of Northumberland		Stantec
File:	Northumberland PIC Comment Sheet Results	Date:	September 11, 2013

Reference: Results from the Northumberland PIC #2 Comment Sheets
Waste Management Master Plan

The following summarizes the feedback received from the Northumberland County WMMP PICs (Round 2) comment sheets. A total of 246 responses were received between June 13, 2013 and September 8, 2013 with 21 of these responses written, and the remaining 225 responses completed through the online survey.

Most Supported Options:

1. Extending curbside collection services for recyclables to multi-residential dwellings.

2. Upgrading the public drop-off areas at the County's transfer stations and landfills to allow for more options for diversion of waste materials from landfill.

3. Implementing a seasonal curbside collection program for yard waste and brush.

4. Transitioning from a single stream curbside collection service to a two stream curbside collection service for recyclables.

5. Undertaking an Environmental Assessment to develop local long-term landfill capacity as its residual waste disposal solution.

Least Supported Options:

1. Developing a short-term residual disposal strategy that would see waste exported to a landfill facility outside of the County, in the event that the current proposal to expand the Brighton Landfill is not approved by the Province of Ontario.

2. Developing a short-term residual disposal strategy that would see waste exported to a waste-to-energy facility outside of the County, in the event that the current proposal to expand the Brighton Landfill is not approved by the Province of Ontario.

3. Including other viable waste disposal options (e.g. waste-to-energy) as part of the proposed Environmental Assessment to develop a long-term residual waste disposal solution.

Options Receiving the Most Support:

1. *Do you support the County extending curbside collection services for recyclables to multi-residential dwellings?*

    a. **84%** of respondents answered either 'agree' or 'strongly agree'.

2. *Do you support the County upgrading the public drop-off areas at its transfer stations and landfills to allow for more options for diversion of waste materials from landfill?*

    a. **83%** of respondents answered either 'agree' or 'strongly agree'.

3. *Do you support the County implementing a seasonal curbside collection program for yard waste and brush?*

    a. **80%** of respondents answered either 'agree' or 'strongly agree'.

4. *Do you support the County transitioning from a single stream curbside collection service for recyclables to a two stream curbside collection services?*

    a. **76%** of respondents answered either 'agree' or 'strongly agree'.

5. *Do you support the County undertaking an Environmental Assessment to develop local long-term landfill capacity as its residual waste disposal solution?*

    a. **74%** of respondents answered either 'agree' or 'strongly agree'.

Options Receiving the Most Objections:

1. *Do you support the County developing a short-term residual disposal strategy that would see waste exported to a landfill facility outside of the County, in the event that the current proposal to expand the Brighton Landfill is not approved by the Province of Ontario?*

    a. **31%** of respondents answered either 'disagree' or 'strongly disagree'.

    b. **49%** of respondents answered either 'agree' or 'strongly agree'.

2. *Do you support the County developing a short-term residual disposal strategy that would see waste exported to a waste-to-energy facility outside of the County, in the event that the current proposal to expand the Brighton Landfill is not approved by the Province of Ontario?*

    a. **30%** of respondents answered either 'disagree' or 'strongly disagree'.

    b. **58%** of respondents answered either 'agree' or 'strongly agree'.

3. *Do you support the County including other viable waste disposal options (e.g. waste-to-energy) as part of the proposed Environmental Assessment to develop a long-term residual waste disposal solution?*

    a. **31%** of respondents answered either 'disagree' or 'strongly disagree'.

    b. **63%** of respondents answered either 'agree' or 'strongly agree'.

    c. Respondents were supportive of waste-to-energy as a local disposal option, however there is concern about health effects.

4. Additional Priorities/ Comments:

- *Do you support the County making special accommodations for downtown businesses, in order to better meet their waste disposal needs?*
    - **72%** of respondents answered either 'agree' or strongly agree'

- *Do you support the County continuing to fund waste collection services through bag tags sales and all other waste diversion programs through property taxes?*
    - **72%** of respondents answered either 'agree' or strongly agree'

- *Do you support the County working with its municipal neighbours to explore opportunities to jointly develop an organics processing facility locally and adding the collection of household organics (kitchen waste) to the curbside collection contract in 2019?*
    - **68%** of respondents answered either 'agree' or 'strongly agree'.

- *Do you support the County re-evaluating the possibility of utilizing Alternative Disposal Technologies (ADTs) for residual waste management in the mid-to-long term?*
    - **68%** of respondents answered either 'agree' or strongly agree'

- Some respondents said they would prefer the focus on waste diversion and reduction initiatives rather than developing long term disposal capacity.

- Support for Leaf and Yard Waste collection has increase from **56%** to **80%** since the first round of public consultation.

Appendix E
Alternative Disposal Technologies

1.0 Alternative Disposal Technologies

At the outset, it must be emphasized that there currently exists no alternative disposal technologies (ADTs) capable of eliminating the need for landfill. Although not the case in many European jurisdictions, based on the current Canadian regulatory setting, residues emanating from all of these technologies must be disposed in a landfill. The issue usually at hand when considering ADTs is, therefore, the degree to which the technology can reduce the need for landfill. Because residues from the processing of municipal solid waste (MSW) must currently be landfilled, the study of ADTs is usually focused on those technologies that can provide a significant size or volume reduction in landfill requirements. For this reason, thermal treatment technologies are currently considered the most applicable alternative to landfill. The consideration of mechanical, biological, or chemical processes, when considering the treatment of MSW, is usually undertaken as a front-end component of a thermal process, when producing an alternative or refuse derived fuel, or at a landfill when aiming to stabilize the materials being deposited.

Thermal treatment can play a number of important roles in an integrated waste management system including:

- Reduction in the volume of waste; therefore, preserving landfill space (thermal treatment does not replace the need for landfills as various residuals still need disposal)
- Recovery of energy from the solid waste stream
- Recovery of minerals and chemicals from the solid waste stream which can then be reused or recycled
- Destruction of a number of contaminants that may be present in the waste stream

In most jurisdictions, thermal treatment of waste is applied to manage the remaining waste stream after source-separated diversion of recyclables and organics. Figure 1 presents a schematic diagram illustrating how thermal treatment fits into a conventional waste management system that includes source-separated recycling and organics diversion components. Aerobic composting and anaerobic digestion are discussed in Sections 1.4 and 1.5 respectively.

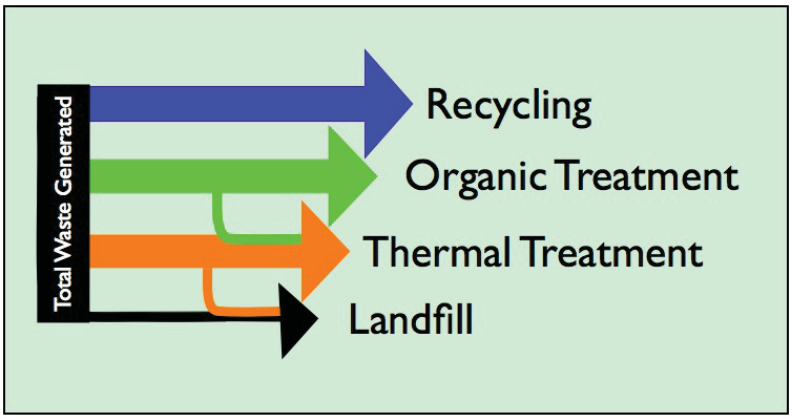

Figure 1: Role of Thermal Treatment in Integrated Waste Management

Thermal Treatment Technologies

Thermal treatment covers a range of technologies that extract energy from the waste while reducing its volume and rendering the remaining fraction mostly inert. These technologies can be generally grouped into two main categories: conventional combustion and advanced thermal treatment.

Conventional combustion technologies include mass burn incineration and fluidized bed incineration among others. Mass burn incineration is the most common type of waste to energy technology used worldwide. Advanced thermal treatment technologies include gasification, pyrolysis, and plasma gasification. These technologies tend to involve more complex technological processes.

Thermal treatment of MSW involves the oxidation of combustible materials found within the waste. Generally speaking, there are three main stages of any thermal treatment process:

- **Drying and Degassing** – Here, volatile content is released at temperatures generally between 100 and 300°C. The drying and degassing process are only dependent on the supplied heat.

- **Pyrolysis and Gasification** – pyrolysis is the further decomposition of organic substances in the absence of added oxygen at approximately 250 – 700°C which results in the production of syngas (a gas mixture consisting primarily of H_2 and CO), tars (high molecular mass hydrocarbons), and char. Gasification is the partial thermal degradation of organic substances in the presence of oxygen but with insufficient oxygen to oxidize the fuel completely (sub-stoichiometric conditions). Gasification occurs at temperatures, typically between 500 – 1,000°C and results in the formation of syngas. Overall, this stage results in the conversion of solid organic matter to the gaseous phase.

- **Oxidation** – the combustible gases (i.e., syngas) created in the previous stages are oxidized, depending on the selected thermal treatment method, at temperatures generally between 800 and 1,450°C.

Typically, these individual stages overlap but they may be separated in space and/or time depending on the particular thermal treatment process being considered[1].

Table 1 provides an overview of the energy products of various thermal treatment technologies.

Table 1: Comparison of Various Thermal Treatment Technologies

Process	Combustion (Incineration)	Gasification	Pyrolysis
Conversion Temperatures	980°C to 1,090°C	760°C to 1,650°C	650°C to 980°C
Amount of Oxygen	Excess O_2	Partial O_2	None
Energy Products	• Steam • Electricity	• Hydrogen (H_2) • Carbon Monoxide (CO)	• Hydrocarbons (Gas) • Tars (Liquid) • Char (Solid)

- *Source: Table 4-1 Waste Conversion Technologies. SWANA Applied Research Foundation FY2011 Disposal Group Subscribers. December 2011.*

In Canada there are currently seven operational conventional combustion incinerators that treat MSW (greater than 25 tpd), and one facility currently under construction, one demonstration plasma arc gasification facility, and two proposed plasma arc gasification facilities. There is also a gasification-to-ethanol (Waste-to-Fuel) facility under construction. Table 2 provides an overview of each of these facilities.

Table 2: Overview of Conventional Combustion Facilities in Canada that Treat MSW

Facility Name	Thermal Treatment Process	Approved/ Licensed Capacity
Metro Vancouver Waste to Energy Facility (1988 start-up)	Mass-burn incineration – Martin grates	720 tonnes per day (tpd) - approximately 273,318 tonnes per year (tpy).
L'incinérateur de la Ville de Québec	Mass-burn incineration – Von Roll grates	920 tpd - approximately 293,300 tpy.
L'incinérateur de la Ville de Lévis	Incineration – primary combustion chamber with afterburner	80 tpd - approximately 24,768 tpy.
MRC des Iles de la Madelaine	Mass-burn incineration – step grate	31 tpd - approximately 4,500 tpy.
Algonquin Power Peel Energy-From-Waste Facility, Brampton, ON (1992 start-up)	Two-stage modular incineration – Consumat units	500 tpd - approximately 170,000 tpy.
PEI Energy Systems EFW Facility, Charlottetown PEI	Two-stage Starved Air Modular Incineration - Consumat CS-1600 units	99 tpd – approximately 25,623 tpy.

[1] European Commission. 2006. Integrated Pollution Prevention and Control Reference Document on the Best Available Techniques for Waste Incineration

Facility Name	Thermal Treatment Process	Approved/ Licensed Capacity
Wainwright Energy From Waste Facility	Three-stage Starved Air Modular Incineration System	27 tpd - approximately 3,681 tpy.
Durham-York Energy Centre	Mass-burn incineration – Covanta process	Facility currently under construction. Approved for 1,520 tpd of MSW. Approximately 140,000 tpy.
Plasco Ottawa Demonstration	Plasma Arc gasification – Plasco Technology	Less than 75 tpd for the duration of the test pilot phase.
Plasco Ottawa	Plasma Arc gasification – Plasco Technology	Construction to start in 2013, potential to be fully operational by 2019. Once operational 104,000 tpy of MSW.
Dufferin County	Plasma Arc gasification – Westinghouse Plasma Gasification technology	Once approved and operational – 265 tpd – approximately 90,000 tpy of MSW.
Advanced Energy Research Facility Edmonton, Alberta	Waste-to-Biofuel test facility – Enerkem technology	Research facility designed to development and demonstration of innovative technologies that are capable of converting residual biomass into biofuels and green chemicals.
Waste-to-Biofuels Facility Edmonton, Alberta	Waste-to-Biofuel – Enerkem technology	Once operational 100,000 tpy of sorted MSW.

Sources: GENIVAR Ontario Inc. in association with Ramboll Danmark A/S, 2007. Municipal Solid Waste Thermal Treatment in Canada. Covanta Energy. Durham/York Region – Ontario Canada. http://www.covantaenergy.com/en/facilities/development-projects/durham.aspx. Plasco Energy Group. A Partnership for a Zero-Waste Ottawa. http://www.zerowasteottawa.com/en/. Waste Conversion Technologies. SWANA Applied Research Foundation FY2011 Disposal Group Subscribers. December 2011.

1.1 THERMAL TREATMENT TECHNOLOGIES

1.1.1 Conventional Combustion – Traditional Mass Burn Incineration

Conventional combustion is a well-established technology developed over 100 years ago for energy generation from MSW. The most common conventional combustion approach is single-stage combustion or mass burn incineration (sometimes referred to as grate-fired technology). Over 90% of waste to energy facilities in Europe utilizes mass burn incineration technology with the largest facility treating approximately 750,000 tpy[2]. Mass burn facilities require minimal pre-processing of MSW, although they do rely on a waste source that has high calorific value.

Conventional combustion incineration facilities that treat MSW produce unwanted emissions to air during the combustion of waste materials. Over the years, the amount of harmful byproducts

[2] Thomas Malkow. 2004. Novel and innovative pyrolysis and gasification technologies for energy efficient and environmentally sound MSW disposal. In Waste Management 24 (2004) 53-79

produced has been greatly reduced due to the increased sophistication of the combustion and operational controls for such facilities. Emissions that are produced during combustion are reduced using air pollution control (APC) systems which remove unwanted contaminants such as trace metals and various acid gases from the flue gas produced.

Conventional combustion (specifically mass burn) technology is well established, with a number of established vendors that supply some or all components of the technology. Over 20 vendors worldwide were found to provide some components (grate systems, boilers) or provide services for the overall design, build and operation (DBO) of conventional combustion facilities.

1.1.2 Gasification

Gasification of MSW is the heating of waste to produce a burnable gas (syngas) which is composed of a mix of primarily H_2 and CO along with smaller amounts of CH_4, N_2, H_2O, and CO_2. The syngas produced can then be used off-site or on-site in a second thermal combustion stage to generate heat and/or electricity. Gasifiers are primarily designed to produce usable syngas.

There are three primary types of gasification technologies that can be used to treat waste materials, namely fixed bed, fluidized bed, and high temperature gasification. Of the three types of gasification technologies, the high temperature method is the most widely employed on a commercial scale.

In this process, the waste passes through a degassing duct in which the waste is heated to reduce the water content of the waste (drying and degassing) and is then fed into a gasification chamber/reactor where it is heated under suitable conditions to convert the solid fuel to syngas. Oxygen is injected into the reactor so that temperatures of over 2,000°C are reached. The amount of oxygen required is just enough to maintain the heat that is necessary for the process to proceed. The high temperature causes the hydrocarbons in the MSW to dissociate into syngas. The syngas is processed to remove water vapour and other trace contaminants, so that it can be used for power generation, heating, or as a chemical feedstock.

Gasification is only used at a few facilities to treat MSW. This is primarily due to operational issues that arise due to the heterogeneous nature of MSW as the gasification process generally requires a fairly homogenous feedstock. In addition, gasification tends to have much higher range of operating and capital costs in comparison with conventional combustion facilities, given the requirement for waste pre-processing and the added complexity of the technology. Gasification also tends to have higher net costs, given that generally less energy (and thus less revenue) is recovered from the waste stream[3].

Gasification facilities require APC systems to reduce unwanted emissions to air, the APC approach will vary based on how the syngas is processed. Gasification systems generally appear to have (or report to have) somewhat lower stack emissions than mass burn WTE plants, as the syngas is cleaned before combustion[4] .

[3] Fichtner Consulting Engineers. 2004. The Viability of Advanced Thermal Treatment of MSW in the UK. Published by ESTET, London
[4] Waste Conversion Technologies. SWANA Applied Research Foundation FY2011 Disposal Group Subscribers. December 2011.

1.1.3 Plasma Arc Gasification

Plasma arc gasification uses an electric current that passes through a gas (air) to create plasma which gasifies waste into simple molecules. Plasma is a collection of free-moving electrons and ions that are formed by applying a large voltage across a gas volume at reduced or atmospheric pressure. The high voltage and a low gas pressure, causes electrons in the gas molecules to break away and flow towards the positive side of the applied voltage. When losing one or more electrons, the gas molecules become positively charged ions that transport an electric current and generate heat.

When plasma gas passes over waste, it causes rapid decomposition of the waste into syngas. The extreme heat causes the inorganic portion of the waste to become a liquefied slag. The slag is cooled and forms a vitrified solid upon exiting the reaction chamber. This substance is a potentially inert glassy solid. The syngas is generally combusted in a second stage in order to produce heat and electricity for use by local markets. In some cases, alternative use of the syngas as an input to industrial processes has been proposed.

Plasma arc gasification has not yet been used at a commercial scale to treat MSW. Reported plant experience indicates that the wear on the plasma chamber is very high and to keep the process operating redundant plasma chambers are needed.

There are no large scale commercial plants in operation in North America or Europe but there are a number of plasma arc systems that are being tested or proposed to treat MSW.

Plasco Energy has a pilot facility in Ottawa, which began operation in 2007. The City of Ottawa has entered into a contract with Plastic for the development of an expanded plasma gasification facility capable of processing 300 tpd of MSW. The facility is schedule to be constructed by 2016 and fully operational by 2019[5] .

The emissions to air from the process are associated with the combustion of the syngas in gas engines to produce electricity. These emissions must meet requirements in the operating permit that are more stringent than those set out in Ontario guidelines for PM, organic matter, HCl, NO_x, mercury, cadmium, lead, and dioxins/furans.

1.1.4 Pyrolysis

The concept of pyrolysis of MSW gained popularity in the 1960s as it was assumed that since MSW is typically about 60% organic matter, it would be well suited to pyrolytic treatment. Currently there are 12 commercially-active pyrolysis facilities that use MSW, 10 in Japan and 2 in Germany[6].

Pyrolysis is the thermal decomposition of feedstock at a range of temperatures in the absence of oxygen. The end product is a mixture of solids (char), liquids (oxygenated oils), and syngas (consisting of CO_2, CO, CH_4, H_2). The pyrolytic oils and syngas can be used directly as boiler

[5] City of Ottawa. Environment Committee Report 12. December 14, 2011.
[6] Waste Conversion Technologies. SWANA Applied Research Foundation FY2011 Disposal Group Subscribers. December 2011.

fuel or refined for higher quality uses such as engine fuels, chemicals, adhesives, and other products. The solid residue is a combination of non-combustible inorganic materials and carbon.

Pyrolysis requires thermal energy that is usually applied indirectly by thermal conduction through the walls of a containment reactor since air or oxygen is not intentionally introduced or used in the reaction. The transfer of heat from the reactor walls occurs by filling the reactor with inert gas which also provides a transport medium for the removal of gaseous products.

The composition of the pyrolytic product can be modified by the temperature, speed of process, and rate of heat transfer. Liquid products (pyrolytic oils) are produced by lower pyrolysis temperatures while syngas is produced by higher pyrolysis temperatures. The syngas produced can be combusted in a separate reaction chamber to produce thermal energy which can then be used to produce steam for electricity production.

Pyrolysis generally takes place at lower temperatures than used for gasification which results in less volatilization of carbon and certain other pollutants, such as heavy metals and dioxin precursors. The relatively low temperatures allow for better metal recovery before the residual pyrolysis products enter the high temperature chamber where they are vitrified.

The flue gas from the combustion of the pyrolysis gas must be treated in an APC system. No fundamental differences have been identified to-date between flue gas from conventional grate fired plants and pyrolysis plants.

1.2 EMERGING COMBUSTION AND THERMAL TREATMENT TECHNOLOGIES

There is a great deal of flux in the thermal treatment marketplace with regard to new and emerging technologies. Many of the emerging technologies have yet to be proven and the financial capacity of many of the new technology vendors is limited.

With more proven technologies such as mass burn, the evolution of technology has focused on improving combustion and emissions performance through design adjustments, such as new grate design and improved combustion air management systems. Significant achievements associated with more conventional technologies include low-NO_x burners, improved efficiency, heat exchangers, waste heat recovery systems, and newly developed equipment for wet scrubbing and activated carbon absorption.

The following is a selected list of some emerging combustion and thermal treatment technologies. While there are other emerging technologies, the following represents technologies that are in development (preliminary development, test facilities, or commercial scale proposals) in North America. The information has been made available from technology vendors and generally is yet to be verified by any independent parties.

1.2.1 Gasplasma

The gasplasma process is used by Advanced Plasma Power, a United Kingdom-based company. They currently have one small-scale, demonstration plant in operation. The gasplasma process uses waste feedstock to produce clean hydrogen-rich syngas and Plasmarok™, a vitrified recyclate, which reportedly can be used as a building replacement or replacement aggregate.

The gasplasma process is designed for post-diversion materials (i.e., those materials that cannot be recycled or composted). Although it can operate with a variety of feedstock, it operates most efficiently when treating a prepared solid recovered fuel (SRF). Advanced Plasma Power utilizes three different technologies in their process: fluidized bed gasification, plasma arc treatment, and a power island. The gasifier operates at a temperature of approximately 900°C. At this temperature, the material is thermally broken down into syngas. The plasma arc treatment "cracks" the dirty syngas coming out of the gasifier. The cracking process breaks the molecular structure of the syngas and reforms it into a simpler structure, thereby producing a hydrogen-rich fuel gas. The hydrogen-rich fuel gas is cooled and further cleaned before being fed into the gas engines at the power island. It is claimed that the electrical generating efficiency reaches 35 – 40%.

The fluidized bed gasifier used in the gasplasma process produces char and ash (approximately 10 – 15% of the feedstock) this material is recovered in Plasmarok™. Plasmarok™ is stated as being an environmentally stable material that can be re-used as a building aggregate (in the United Kingdom). The vendor claims Plasmarok™ significantly reduces the amount of residue requiring landfilling; from 60,000 tonnes of SRF, 450 tonnes of activated carbon from the gas scrubbers requires landfilling (over 99% reduction)[7].

1.2.2 Thermal Cracking Technology (Fast Pyrolysis)

Graveson Energy Management (GEM) uses traditional petrochemical industry technology to convert MSW into clean synthetic gas. A GEM facility employing thermal cracking technology has been operating in Romsey, England since 1998. It can process up to 1,680 tonnes per day of refuse derived fuel (RDF) that has been ground to less than 2 mm particle size and dried to 5% moisture. Thermal cracking is also described as "fast pyrolysis" as it involves rapid heating of the waste fuel in the absence of oxygen.

In thermal cracking, prepared waste material is fed into the oxygen-free chamber. The chamber has stainless steel walls that are heated to 850°C. The waste material is instantly heated and thermally cracks to syngas in a matter of seconds. Syngas entering the gas filtration system is further filtered to remove finer particles and is cooled rapidly from 1,500°C to less than 400°C to prevent the formation of dioxins and furans. A small portion of the clean syngas is used to heat the GEM converter, which reduces the need for fossil fuels. The remainder of the syngas can be used in boilers, engines, or turbines for generation into energy. Mineral solids are produced as a residual, typically in the amount of 8 – 10% for domestic waste[8].

1.2.3 Thermal Oxidation

Zeros Technology Holdings uses an Energy Recycling Oxidation System that can reportedly dispose of all classifications of waste. Zeros claims no emissions are produced in the process and other effluents can be sold as products or reintroduced into the system; however, to our knowledge, these claims have not been supported by independent verification. The system is

[7] Advanced Plasma Power. 2010. *What is Gasplasma – The Process.* Accessed February 10, 2010 http://www.advancedplasmapower.com/index.php?action=PublicTheProcessDisplay .

[8] GEM Canada Waste to Energy Corp. 2009. *Process Description and Gas Production.* Accessed February 10, 2010. http://www.gemcanadawaste.com/53257.html.

closed and uses pure oxygen for the oxidation process, as opposed to ambient air. The oxidation process used by this technology was originally developed for oil spill remediation. Several projects are in various stages of development; however, there is currently no Zeros facility in operation.

Zeros combines six different technologies in their process: rotary kiln; gasification (Oxy-Fuel Technology); Rankine Cycle Technology; Fischer-Tropsch Fuels Technology; Gas Capture Technology; and Clean Water Technology. The gasification-oxidation process is a two stage process using limited oxygen and high temperature. The system gasifies the fuel source to produce primarily carbon monoxide and hydrogen. This synthetic gas forms the building blocks for the transformation to liquid fuels such as diesel using the Fischer-Tropsch Technology[9].

1.2.4 Waste-to-Fuels

Approaches to transform waste into fuels are generally based on the concept that rather than using the syngas produced through gasification as a direct energy source, the syngas can be used as a feedstock to generate various liquid fuels that could then be used off-site.

Enerkem intends to construct the world's first facility intended to produce biofuels from MSW. Construction of the full-scale Edmonton facility is underway and operations are currently planned to begin in 2013[10] . The research facility was completed and became operational in June 2011[11]. Enerkem indicates Alberta will reduce its carbon dioxide footprint by more than six million tons over a 25 year period, while producing 36 million liters of ethanol annually through the use of this facility.

Enerkem converts urban biomass, agricultural residues and/or forest residues into biofuels by means of a four step process:

1. Pre-treatment of the feedstock which involves drying, sorting, and shredding of the materials.

2. Feedstock is fed into the gasifier. The bubbling fluidized bed gasifier converts the residues into synthetic gas and operates at a temperature of approximately 700°C.

3. Synthetic gas cleaning and conditioning, which includes the cyclonic removal of inerts, secondary carbon/tar conversion, heat recovery units, and reinjection of tar/fines into the reactor.

4. Conversion of syngas into biofuels.

[9] Zeroes Technology. 2008. Accessed May 10, 2010 http://www.zerosinfo.com/technology.php.
[10] Edmonton Waste-to-Biofuels Project. 2012. Project Status and Schedule. http://www.edmontonbiofuels.ca/status.htm?yams_lang=en.
[11] City of Edmonton. Enerkem. Alberta Innovates Energy and Environmental Solutions. News Release. New research facility recovers value from waste, lowers emissions. June 23, 2011.

Enerkem intends to produce approximately 360 litres of ethanol from 1 tonne of waste (dry base)[12].

Changing World Technologies employs a Thermal Conversion Process which converts waste into oil. They state: "The Thermal Conversion Process, or TCP, mimics the earth's natural geothermal process by using water, heat, and pressure to transform organic and inorganic wastes into oils, gases, carbons, metals, and ash. Even heavy metals are transformed into harmless oxides". Changing World Technologies does not have a commercial facility at this time; however they do have a test centre in Philadelphia, PA[13].

1.3 MIXED WASTE PROCESSING

Mixed waste processing (MWP) technologies are alternative technologies to traditional processing (source separation of recyclable and organics) and have been developed to manage the municipal garbage stream. MWP technologies do not require residents to source separate materials (traditionally organics) from their garbage. Garbage bags are mechanically separated at a central processing facility producing recyclable material, compost, and residue for final disposal. Various technologies have been developed around the world to achieve this mechanical separation of organics and some recyclables from other residues. There are currently four mixed waste processing facilities operating in Canada located in Edmonton Alberta, Sorel-Tracy Quebec, Otter Lake Nova Scotia, and Westmorland-Albert New Brunswick.

The Edmonton, Quebec and New Brunswick facilities process the garbage stream resulting in a compost product. All of these programs have a separate recycling collection program in place. The Nova Scotia facility processes the residual garbage stream after source separation of organics and recyclables to create a stable inert residual material that is landfilled.

Generally, these facilities put the received garbage into a large bioreactor that is a horizontally sloping cylinder that slowly rotates, containing the garbage for two to three days. During this time the waste undergoes initial mixing and breakdown. The material is then sorted with a screen that allows the organic material to fall through onto a conveyor separating it from the residual waste. The residual waste goes for final disposal, and the organic material goes for further composting and screening. Some MWP facilities inject bio-solids into the organic material for composting.

MWP facilities demonstrate the ability to capture most of the organic material in the garbage stream without relying on the resident to separate it out of the garbage. Since most organic material has a high water content, MWP facilities in Europe have been used to dry the waste to create a refuse derived fuel (RDF) prior to use in Energy from Waste facilities to ensure maximum capture of net energy from the waste material.

There is a wide range in capital costs for MWP facilities depending on the level of infrastructure required to achieve separation and control odours. Significantly higher costs for a MWP facility are the result of equipment needs and volume. A MWP facility must process much more

[12] Enerkem. 2010. Technology Overview. Accessed February 10, 2010 http://www.enerkem.com/index.php?module=CMS&id=6&newlang=eng.
[13] Changing World Technologies. 2010. What Solutions Does CWT Offer? What is Thermal Conversion Process (TCP)?. Accessed February 10, 2010. http://www.changingworldtech.com/what/index.asp.

material than a central composting facility (CCF) because it is processing both the garbage and organics as a combined volume. Many municipalities have completed a cost/benefit analysis of MWP vs. CCF and generally have concluded that the capital and operating costs associated with a MWP facility are two to four[14] times higher than the costs associated with a CCF.

Another key issue associated with MWP is the quality of the compost product. The higher contamination rates inherent with MWP facilities usually results in the production of compost that does not meet the Category A criteria and is therefore considered a waste requiring disposal in Ontario. The compost from currently operating MWP facilities is of a lower quality and within Ontario would be used as a daily cover or in restricted berm application in landfill operations. Any excess material produced would require final disposal in landfill.

1.4 AEROBIC COMPOSTING

Aerobic composting is an engineered biological process conducted in the presence of oxygen whereby naturally occurring microorganisms convert organic materials into carbon dioxide, water, and biomass. Many commercial composting systems have been developed to yield a high quality compost product. These systems are used to process organic materials including food scraps generated from municipal and IC&I sources. Some of the better known aerobic composting technologies that are currently available include:

- In-vessel bays (with mechanical agitation): Agitated beds compost materials in "bays" contained by long channels with concrete walls. A turning machine, traveling on top of the bays, agitates and moves the material forward. Forced aeration is provided through the floor of the channel; the top of the channel is open.

  LaFleche Environmental located in Moose Creek, operates an aerated, agitated six channel IPS (Siemens) system, which involves 21-25 days of enclosed, in-channel processing followed by 21 days of outdoor windrow composting for the curing phase.

  Universal Resources Recovery Inc. operates a 35,000 tonnes/year (source separated organics (SSO)) agitated channel composting system (technology provided not confirmed) in Welland.

- In-vessel horizontal basin reactors: Horizontal basin reactors are essentially open beds where material is agitated by a turning mechanism suspended from a bridge over the bed. Instead of individual channels that are characteristic of agitated bay systems (with the agitator riding on top of the channels), basin reactors have one open bed.

  Miller Waste Systems designed, built, and operates a 50,000 tonnes/year in-vessel system in Pickering. This facility utilizes the Japanese Ebara technology which is the travelling bridge with turning paddle that incrementally agitates the composting material in the open wide bed.

- Modular tunnels/biocells: These contained composting systems are modular - individual containers are added to address volume/throughput increases. The

[14] Halton Region. PPW56-07 Options to Divert Residential Organic Materials from Landfill Disposal. March 2007.

majority of (but not all) tunnel systems use a static composting method (i.e., there is no mechanical agitation while material is in the container or tunnel). Instead, agitation is provided when material is unloaded. Fans supply oxygen and remove moisture and heat.

There are several organics processing facilities operating in Ontario that utilize three (3) different static biocell technologies including: the Christiaens technology (60,000 tonnes/year Peel Integrated WM facility in Brampton, 60,000 tonnes/year AIM Environmental facility in Hamilton and the 30,000 tonnes/year Guelph facility), the Herhof technology (8,000 tonnes/year Region of Peel Caledon facility), and the Orgaworld technology (100,000 tonnes/year London facility and the 100,000 tonnes/year Ottawa facility).

- In-vessel vertical reactors: Vertical reactors or silos available today for composting municipal organics are normally passively-aerated - there is no forced aeration as with early generation designs of this technology. The material is contained in vertical, wire-mesh “cages” that enable air to flow through. The cages can be tall (e.g., 3 to 4 metres high) but are usually only about a metre wide and thus the core of the composting mass is at most 0.5-0.6 metres from the air space that surrounds the cage.

  The Emterra organics processing facility in Newmarket utilizes Vertical Composting Unit (VCU) vertical reactors as part of the overall aerobic and anaerobic processes at that facility (see description below under the Anaerobic Digestion technology section).

- Non-fixed enclosure aerated static piles with periodic agitation: This technology utilizes bags or fabric covers in lieu of containing the organic material in a fixed structure. Forced aeration can be either positive or negative.

  There are several organics processing facilities operating in Ontario that utilize the Gore cover technology (which, unlike most bags or cover systems, provides a measure of odour control due to the nature of the fabric cover) including: the 75,000 tonnes/year (40,000 tonnes/year SSO and 35,000 tonnes/year L&Y) IMS facility in Thorold, the Region of Peel’s Chinguacousy windrow composting site, the 40,000 tonnes/year All Treat Farms 32-row windrow composting facility in Arthur, and the 20,000 tonnes/year Norterra facility in Kingston.

- Open windrows or aerated static piles: With aerated windrows, piles are built over in-floor trenches, and then turned either with dedicated windrow turners or front-end loaders. Facilities with higher throughput demands increasingly are using windrow turners to move material through low-rate processing and curing more quickly. Aerated static pile composting is comprised of forcing (positive) or pulling (negative) air through a trapezoidal compost pile. Agitation only occurs when piles are combined or moved to a different area for curing.

To our knowledge each of the facilities described above involve a low-rate and/or curing phase operation that utilizes outdoor open windrows or aerated static piles.

1.5 ANAEROBIC DIGESTION

Anaerobic digestion (AD) is a biological process that treats organic materials in the absence of oxygen. Microorganisms that thrive in an anaerobic environment degrade the materials and produce biogas (typically 50-55% methane) as a by-product. The biogas can be captured and converted into energy.

Although originally developed primarily as a treatment method for municipal wastewater solids, AD has evolved as a treatment system for the organic fraction in municipal solid waste. Whereas the AD technologies for municipal sewage sludge and manure revolve around treating a homogenous waste stream with high liquid content, the systems developed for organics in municipal solid waste take into account the higher initial solids content of the organic materials to be processed.

The primary characteristics of (and distinctions between) AD systems include: number of stages (one or two); total solids content (wet processes at <15% TS, dry processes at >20% TS); operating temperature (mesophilic processes at about 34°C to 45°C and thermophilic process at about 45°C to 60°C); process flow (continuous or batch); and mixing regime (completely mixed, plug flow, static). The most fundamental distinctions between AD technologies are:

- Single Stage – wet
- Single Stage – dry
- Two Stage Systems – almost exclusively wet
- Batch Systems

AD technologies utilized in Ontario are complemented by subsequent aerobic composting of the remaining solid materials (or digestate). This is because the highest quality marketable compost consistent with the Ontario proposed ‘AA’ standard is almost always desired and AD on its own will not typically achieve this objective.

In Ontario there are currently two (2) AD facilities designed to process municipal SSO; the Dufferin Organics Processing Facility in Toronto and the Emterra facility in Newmarket. Both of these facilities utilize the single stage, wet, mesophilic BTA technology (represented in North America by Canada Composting Inc.). The City of Toronto is currently constructing a new 55,000 tonnes/year wet AD facility at its Disco Rd. Transfer Station. The Dufferin facility is planned to be expanded from 25,000 tonnes/year to 55,000 tonnes/year once the Disco Rd. facility is operational.

At the Toronto Dufferin facility SSO is preprocessed in a hydropulper to condition material for subsequent anaerobic digestion and to remove heavy (grit and glass) and light (plastic film) contaminant fractions. After contaminants are removed, the remaining liquid/solids slurry (pressate) is then anaerobically digested, dewatered following digestion, and then the dewatered material (digestate) is sent off-site for further low-rate and curing phase processing. At the Newmarket facility (Emterra), a similar preprocessing step is utilized; however, following the preprocessing step the pressate is dewatered with the liquid fraction directed to the anaerobic digesters (with the primary objective of methane production) while the solids fraction is aerobically processed using the VCU vertical reactors as identified above.