A Waste Recycling Strategy for *Oxford County*

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1 Introduction

This Waste Recycling Strategy (WRS) was initiated by the County of Oxford to develop a plan to increase the efficiency and effectiveness of local residential recycling programs and maximize the amount of residential blue box material diverted from disposal in the County.

This Waste Recycling Strategy was developed with support from the Continuous Investment Fund and using the Continuous Investment Fund's *Guidebook for Creating a Municipal Waste Recycling Strategy*.

This document provides a high-level strategic roadmap on where the County and its municipal partners can improve their blue box recycling programs. Many of these recommendations identify opportunities for improvement to operational practices the County is currently doing and should be explored in greater detail during the County's future integrated solid waste management study.

The County's overall blue box diversion rate for 2009 was approximately 19%. This strategy sets a short term (2 to 3 years) blue box diversion rate target of 23% and a long term (5 to 10 years) blue box diversion target of 33%.

A summary of the recommendations included in this report include:

Consolidation of Operations

1. Re-examine the consolidation of processing operations with Woodstock and South-West Oxford during the development of Oxford's Integrated Solid Waste Management Strategy (ISWMS).
2. Extend the current processing contract for one year. Issue a tender for processing of recyclables for the subsequent years.

Collection Frequency

1. During the ISWMS process, investigate the feasibility of adjusting collection frequency and co-collection opportunities with garbage or (if applicable) household organics.

Private Property and Multi-Residential Participation

1. Assess the feasibility of extending collection services to the multi-residential sectors.
2. If collection services are to be extended to the entire multi-residential sector, develop an implementation plan, identify reporting metrics, and prepare a data collection protocol.

Recycling Contracting

1. Identify what tasks are to be included in the collection/processing tenders that are currently missing from the current tenders.
2. Include performance measures and penalties for non-performance in the tenders and contracts.
3. Obtain outside expertise in preparation of solid waste management contracts.

Routing Efficiencies

1. Re-assess the feasibility of double sided collection in some rural areas of the County, including (but not limited to):
    a. Where double sided collection is suitable;
    b. A safety analysis; and
    c. A customer service survey to assess the public's attitude toward double sided collection.
2. In the next collection tender, include:
    a. Double sided collection as an option (where feasible);
    b. Preparation of electronic route maps.

Appropriateness of Equipment and Vehicle Usage

1. Assess the feasibility of automated collection in Oxford County, including how it has worked in other municipalities. This type of assessment is eligible for CIF funding until 2012.
2. Assess the feasibility of alternative fuel vehicles or hybrid technologies for collection equipment. This type of assessment is eligible for CIF funding until 2012.
3. During contracting/tendering process, specify the maximum allowable age of equipment and include enforceable inducements to ensure that those equipment age limits are not exceeded at any point during the contract.

Increasing Diversion from Institutional, Commercial and Industrial (ICI) Sector

1. In consultation with the partner municipalities, identify what reporting metrics are required for ICI waste/recycling collection and a protocol for tracking them.
2. Develop an ICI Waste Diversion Program to help provide support to businesses wishing to find alternatives to waste disposal.
3. Engage the ICI community during the upcoming Integrated Solid Waste Management Plan process to identify opportunities for diversion in that sector.

The Customer Service Response Framework

1. Involve the lower tier municipalities in updating (as necessary) the protocol for directing and addressing incoming waste management and recycling questions and complaints.
2. Develop an approach for how best to advise the public where they should direct their questions and complaints.

3. Finish updating the County's Waste Management Programs manual for front line customer service staff.
4. Provide regular training for front line staff on the County's Waste Management Program customer service protocol, including:
    a. Regularly scheduled training for all front line customer service staff; and
    b. Mandatory review of the protocol document by new front line staff hires.
5. Include collection contract performance measures related to communications in the collection contract tender.
6. Include a requirement for 100% GPS tracking, to include GPS tracking of spare or replacement vehicles, in future collection tenders with enforceable inducements when this service is interrupted for any reason including due to vehicle failure.

Data Management

1. In conjunction with the lower tier municipalities, identify what reporting metrics are required for waste recycling and administration.
2. Develop a reporting protocol for collecting the required metrics, including a common electronic form (possibly web-based).
3. Establish a procedure whereby tonnages are reconciled with weight tickets on a regular (daily or weekly) basis.

These recommendations will help the County of Oxford to improve their overall Blue Box program efficiency and to increase their Blue Box diversion rate up to the current average for their municipal grouping (23%) and beyond.

2 Overview of the Planning Process

The planning process for this Waste Recycling Strategy was based on the Continuous Investment Fund's *Guidebook for Creating a Municipal Waste Recycling Strategy*. The process consisted of the following steps:

- Confirming the planning process with County project staff;
- Conducting a review of relevant background information, in particular the 2009 WDO datacall information and program communications material;
- Conducting a stakeholder scan with municipal representatives and other stakeholders;
- Conducting an assessment of the County's current waste generation and diversion trends, practices and systems and future needs;
- Reviewing and evaluating a suite of options and recommendations for improving the County's recycling programs;
- Consulting with the public and stakeholders through an open house and presenting the draft strategy recommendations to the County's Waste Management Steering Committee; and
- Preparing the Waste Recycling Strategy.

3 Study Area

The study area for this WRS includes the County of Oxford. The Strategy primarily focused on the residential sector, although outreach was extended to members of the County's ICI sector and recommendations for improving diversion in that sector are also provided.

4 Public Consultation Process

The public consultation process for the development of this project included interviews with municipal representatives from 6 of the partner municipalities. Members of the County's Solid Waste Advisory Committee were also invited to complete and submit their responses to the interview questions. The municipal representatives interviewed included:

- Mary Ellen Greb and Bill Freeman, Township of South West Oxford;
- David Creery, City of Woodstock;
- Dennis O' Neil and Sherry Matheson, Township of East Zorra-Tavistock;
- Gary Crandall, Township of Blandford-Blenheim;
- John Phillips and Karen Mychayluk, Township of Ingersoll; and.
- Michael Graves and Ron Smith, Township of Norwich.

Other input was provided by Marguerite Halasz (Firestone Textiles) and the Ingersoll Business Improvement Area.

It was generally observed during the interviews that the blue box recycling programs across the County have improved considerably over the past few years, and that there currently no major concerns. However, other issues that they would like to see addressed in the WRS include:

- How to improve customer service (e.g., collection frequency, blue box litter) and make recycling more convenient for residents;
- Service issues with respect to contracted collection (missed pick-up of blue box materials, equipment break-downs, damages to blue box bins);
- Ensuring the distribution of resources from the County to the municipal partners is equitable; and
- Increasing education and awareness of recycling, as well as reduction and reuse, among residents and participating businesses (in particular, how to prepare the blue box materials). For example, developing simple "How To" videos that can be posted on the County's website could be an effectively means to accomplish this.

Other Waste Management Topics Raised

In addition to providing comments about the County's blue box program, the scan participants also raised a number of other issues outside of the scope of this project. These are noted here so that they may be addressed during the County's upcoming integrated solid waste management study:

- The issue and cost of illegal dumping, particularly in the rural/urban boundary areas;
- The ability of the County to cover waste diversion costs through user fees;
- How best to deal with recyclable business waste that is not covered by stewardship funds; and
- Businesses require help to find outlets for recyclable materials and to identify ways to encourage employees to recycle in the workplace.

An open house was held on November 4, 2010 from 7:00 to 9:00 pm at the Oxford County Administration Building. Comments received at the open house included:

- Expand the list of accepted blue box materials;
- Expand the blue box program to include multi-residential buildings and commercial properties;
- Provide a simple chart of "how" and "when" to use the blue box program,
- Support given for tightening the waste service contracting;
- Support given for single-sided collection;
- Suggestion that automated collection only be used if it is cost-effective; and
- Concern about illegal dumping along rural roads.

5 Goals and Objectives

The purpose of this Waste Recycling Strategy (WRS) is to provide the County with a plan for addressing blue box recycling issues over the next 20 to 25 years. Specifically, the goals of the WRS include:

- To provide direction on the future evolution of the County's residential recycling program;
- To identify how best to increase residential waste diversion from recycling and achieve the following short and long term blue box diversion targets:
    - Short term (2 to 3 years): 23% (average for municipal grouping);
    - Long term (5 to 10 years): 33% (if achieving a 75% capture rate of residential blue box materials);
- To identify opportunities for improving cost efficiencies; and
- To provide direction on how the County can move towards recycling best practices.

In addition to the goals listed above, the WRS is also intended to provide direction on the following areas:

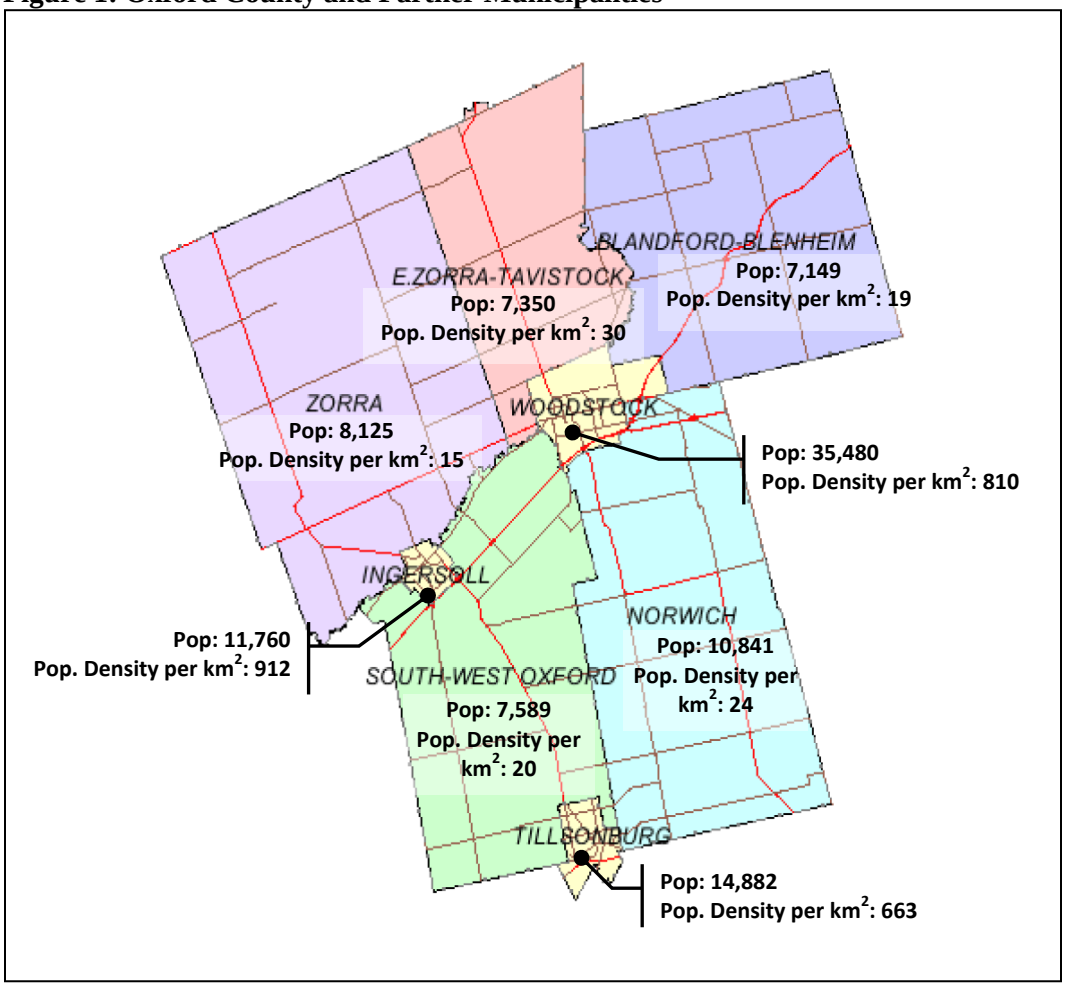
- The consolidation of blue box collection and processing operations;
- Bi-weekly vs. weekly collection for either garbage and/or blue box collection;
- Private property collection;
- Routing efficiencies;
- Appropriateness of equipment and vehicle usage;
- Increasing ICI and multi-residential participation;
- The customer service response framework; and
- Data management.

6 Current Solid Waste Trends, Practices and System and Future Needs

Community Characteristics

In 2006, Oxford County had a population of 102,756 and included 42,626 single-family households[1]. Oxford County is comprised of 8 lower tier municipalities, with a mix of rural and urban characteristics. Figure 1 below presents a map of the municipalities and presents their population and population density.

Figure 1: Oxford County and Partner Municipalities



Map source of Oxford County. Population values based 2006 Statistics Canada Census data.

[1] Counts for multi-residential households are not included in cost analysis, as the County does not currently have an accurate population count for this sector and municipal service to this sector is limited.

Current Waste Generation and Diversion

In 2009, Oxford County generated approximately 35,533 tonnes of residential solid waste per year. Of this, 6,901 tonnes, or approximately 19%, is diverted through the blue box program. Currently, the most common material recycled is papers (or fibres), while the least are metals.

Table 1 below summarizes the current waste generation and blue box diversion rates.

Table 1: Residential Solid Waste Generated and Diverted through Blue Box

Residential Waste Stream/Blue Box Material	Tonnes	Percent of Total Waste
Total waste generated	35,533	-
Papers (ONP, OMG, OCC, OBB and fine papers)	4,988	14%
Metals (aluminum, steel, mixed metal)	391	1%
Plastics (containers, film, tubs and lids)	612	2%
Glass	909	3%
Total Blue Box material currently diverted	6,901	19%

As the table below indicates, Oxford County's current blue box diversion rate is slightly below average for its WDO municipal grouping for 2008[2].

Table 2: Average Blue Box Diversion Rate

Oxford County (2009)	19%
Municipal Grouping: Rural Regional (2008)	23%

Potential Waste Diversion

As no waste audit data currently exists for the County of Oxford, the Stewardship Ontario Waste Audit results for Simcoe County have been used to approximate Oxford's current waste composition[3]. Based on the waste composition data, approximately 11,459 tonnes of blue box recyclable materials are available for diversion (based on a Target Blue Box capture rate of 75%). Of this amount, an estimated 4,668 tonnes of material are still currently in the waste stream and being disposed of in landfill. Estimates of blue box material available for diversion are listed in Table 3.

[2] 2009 WDO GAP Municipal Grouping data not available at the time this strategy was prepared.

[3] The Stewardship Ontario waste audit data for Simcoe County was used as it most closely resembles Oxford County's characteristics compared to the other municipalities included CIF Waste Recycling Strategy Guidebook. The removal of LCBO returnable glass has been accommodated in the composition assessment. Compared to the CIF Municipal Waste Recycling Strategy Guidebook, this reduces the amount of glass available in the waste stream for blue box from 8% of the total waste stream to 3%.

Table 3: Current and Potential Diversion (Based on 75% Target Blue Box Capture Rate)			
Material	***Total Available for Diversion in Waste Stream (tonnes/year)***	***Currently Recycled (tonnes/year)***	**Potential Increase *(tonnes/year)***
Fibres (ONP, OMG, OCC, OBB and fine papers)	7,995	4,988	3,007
Metals (aluminum, steel, mixed metal)	799	391	408
Plastics (containers, film, tubs and lids)	1,865	612	1,253
Glass	799*	909	Nil
Total	11,459	6,901	4,668

** The Total Available for Diversion in the Waste Stream is based on a 75% capture rate of the total amount of material in the waste stream. Based on the waste composition profile of Simcoe County, it is estimated that there are 1,066 tonnes of blue box glass in Oxford County's waste stream, of which 909 tonnes, or 85%, is currently being captured. Improvements to Oxford's recycling programs are not likely to capture significantly more glass materials.*

Achieving the 75% target capture rate for paper, metals and glass could raise Oxford County's blue box diversion rate from 19% up to an estimated 33%.

Existing Programs and Services

While the collection and processing of blue box materials is funded by the County of Oxford, the collection and processing operations for each of the local municipalities are contracted out to either private contractors or the municipalities themselves. For example, the City of Woodstock and the Township of South-West Oxford collect recyclables and garbage using their own municipal staff, while collection for the other six municipalities is contracted to Emterra Environmental (formerly Halton Recycling Ltd.).

The method of collection is generally consistent across most of the county, with some minor differences with the type of materials collected in South-West Oxford and Woodstock (primarily empty aerosol containers). All households within the County are required to purchase a $1.50 bag tag for each bag of garbage set out for collection. Residents typically set out recyclable materials for collection in blue boxes, but residents are allowed to set out materials in other containers, such as tubs or cardboard boxes.

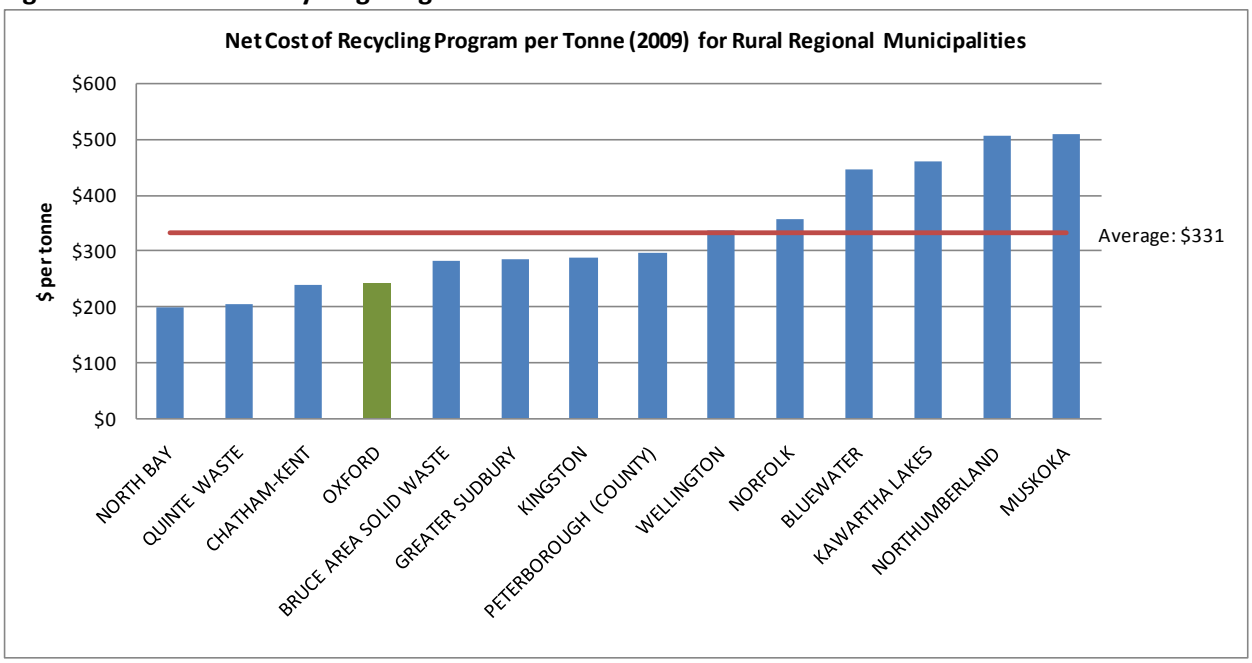
Collection of recyclables materials is every two weeks, while garbage is collected weekly. Residents set out their materials in two stream: one bin for fibres, and another bin for containers.

Recyclables for Woodstock and South-West Oxford are currently processed by Canada Fibers Ltd. The collected recyclables are brought to the City of Woodstock's transfer station. Once a load of material has accumulated, the material is sent by backhaul to either Canada Fibers Ltd. or the City of Hamilton MRF. For the remaining six municipalities, the processing of recyclables is

contracted by the County to HGC. Materials are delivered by the recyclable material collection vehicles to the processing facility daily.

In 2009, the total net annual recycling costs for Oxford County as reported in the WDO datacall was $1,790,865.01. This amounts to $260 per tonne, or $17 per capita. As Figure 2 below shows, net annual recycling costs for Oxford County are below average for its WDO municipal grouping.

Figure 2: Net Cost of Recycling Program

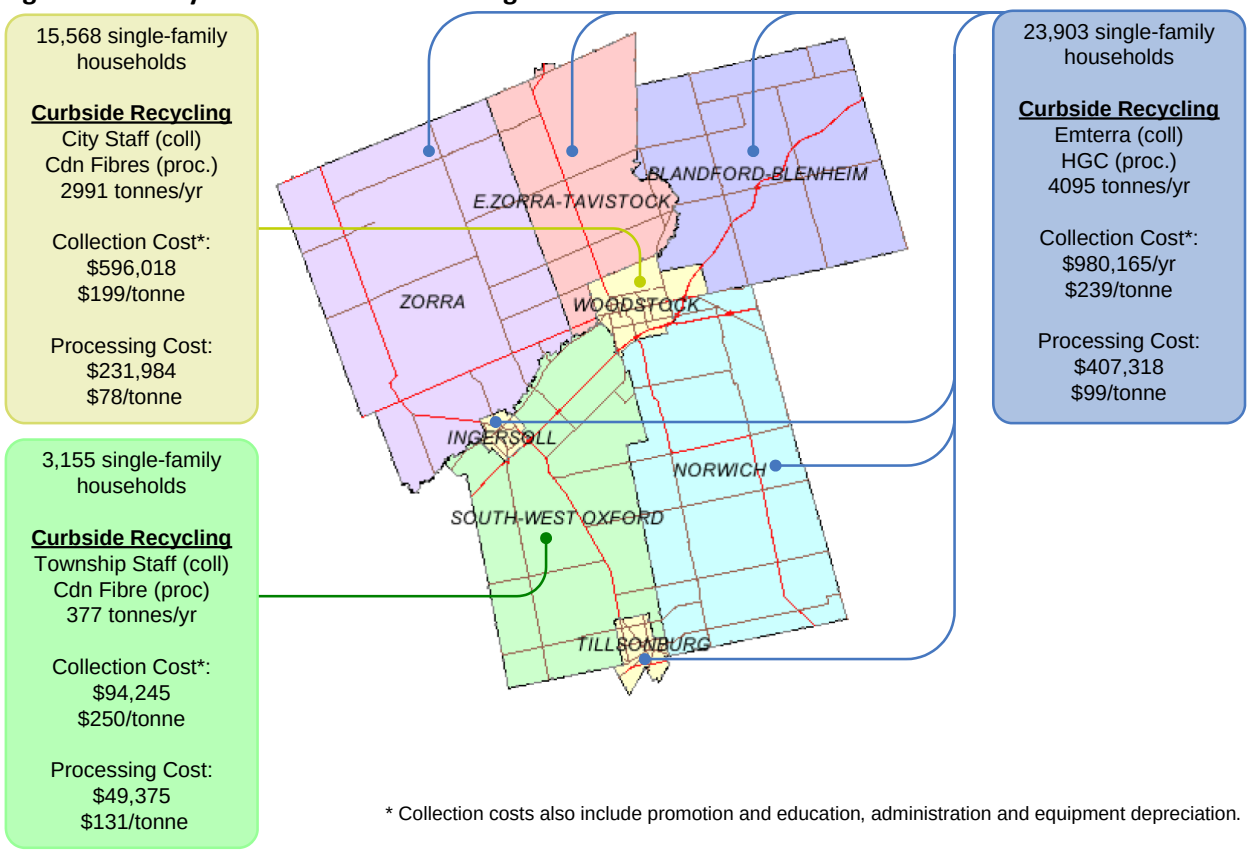


Within the County, gross program costs for the the blue box program vary between Woodstock, South-West Oxford, and the remaining six municipalities (see Figure 3 below). Based on costs reported in the 2009 WDO Datacall, Woodstock has the lowest overall blue box program cost per tonne at $277, followed by the County at $339 per tonne, while the overall cost for South-West Oxford $381[4]. A lower program cost per tonne is expected in higher density areas.

Woodstock and South-West Oxford jointly have their recyclables processed by Canada Fibers Ltd., while the recyclable materials for the municipalities of Norwich, Blandford-Blenheim, Zorra, East Zorra-Tavistock, Ingersoll and Tillsonburg are processed by HGC. In 2009, the processing cost per tonne for Woodstock and South-West Oxford are $78 per tonne and $131 per tonne, respectively, while the processing costs for the remaining municipalities are $99 per tonne. Overall, processing costs for the County as a whole are $100 per tonne, or $17 per household.

[4] Includes costs related to collection, processing, depot/transfer station, promotion and education, and administration.

Figure 3: County Collection and Processing Costs



* Collection costs also include promotion and education, administration and equipment depreciation.

Anticipated Future Waste Management Needs

The population of Oxford County is expected to increase to 122,900 by 2016 and 131,200 in 2021[5]. Assuming the per capita waste generation rates remain consistent over time, it is estimated that by 2021 the County will generate approximately 45,400 tonnes of solid waste per year, of which 14,600 tonnes will be blue box materials available for diversion. Table 4 depicts the expected growth rates for solid waste generation and blue box material recovery overtime.

Table 4: Anticipated Future Solid Waste Generation Rates and Available Blue Box Material

Solid Waste Generated per Capita: 346 kg/person/yr Blue Box Material Available per Capita: 112 kg/person/yr			
	2010	**2016**	**2021**
Population	102,756	122,900	131,200
Total Waste (tonnes)	35,533	42,499	45,369
Blue Box Material Available (tonnes)	11,459	13,706	14,632

[5] Hemson Consulting Ltd. *Population, Household & Employment Forecasts 2001-2031*. April 2006.

7 Review of Options and Recommendations

This section discusses the proposed options for this WRS and provides a suite of recommendations.

7.1 Consolidation of Operations

Collection

Oxford County provides the funding for the collection of recyclables within the partner municipalities. In the City of Woodstock and the Township of South-West Oxford, collection is carried out by municipal staff. In the six other municipalities, collection is contracted to Emterra Environmental.

The consolidation of collection services would typically require a County-wide tendered contract with a service provider. Based on feedback received from the stakeholder scan, there is insufficient impetus encouraging Woodstock or South-West Oxford to consider such an arrangement at this time. For example, the City of Woodstock's per tonne cost for collection of recyclables in 2009[6] was approximately $199 per tonne, or about $40 per tonne less than the County of Oxford's cost. While the per tonne cost for South-West Oxford is $11 per tonne greater than that of Oxford County Township representatives expressed satisfaction with using municipal staff for collection, noting that real-time, two-way communication with drivers is efficient and that drivers can be used to assist with other municipal works projects or tasks as needed.

The City of Woodstock is currently developing a Solid Waste Diversion Strategy, with an expected completion date January 2011. The County of Oxford will also begin developing an Integrated Solid Waste Management Strategy in winter of 2011. While it does not seem feasible for the County to pursue the consolidation of collection operations at this time, it could be re-examined during the Integrated Solid Waste Management Strategy process, after a review of Woodstock's Waste Diversion Strategy, and in consideration with the County's other waste collection activities (e.g., garbage, bulky item, and organics, if applicable).

Processing

The processing of the County's recyclable materials is conducted by two contractors. The materials from Woodstock and South-West Oxford are stored together at Woodstock's transfer station and then sent to the Canada Fibers processing facility in Hamilton. Recyclables for the other six partner municipalities are shipped to the HGC processing facility in Brantford.

There may be opportunities for cost-savings by processing the recyclables from all eight partner municipalities under one contract. For example, there may be bulk-order savings if all of the

[6] Based on 2009 WDO datacall.

materials are sent to one processor. The City of London processing facility, which is scheduled to be accepting material from other municipalities for January 2012, will possibly offer a sliding scale for processing costs (e.g., lower per tonne fee for larger volume of material).

The County may also be able to reduce its transportation costs if it is able to form an agreement with the City of Woodstock for use of its transfer station. The current capacity at the Woodstock transfer station is approximately 46 tonnes for fibres and 36 tonnes for containers. At this capacity and with current recyclable capture rates, the transfer station could accommodate an average of two days of fibres and four days of containers (see Table 5 below). However, the volumes of materials collected may fluctuate and could on some occasions reduce available storage time.

Table 5: Average Daily Tonnage for Oxford County

Material	*Average Daily Tonnage Collected (current)**	*Projected Average Daily Tonnage Collected (based on achievement of 75% target capture rate)**	*Current Capacity of facility*
Fibres	21 tonnes	33 tonnes	46 tonnes
Containers (metals, plastics, glass)	8 tonnes	14 tones	36 tonnes

** Assuming 240 collection days. Based on tonnes marketed.*

Recommendations

1. Re-examine the consolidation of processing operations with Woodstock and South-West Oxford during the development of Oxford's Integrated Solid Waste Management Strategy, including recycling, garbage, and if applicable organics.
2. Extend the current processing contract for one year. Issue a tender for processing of recyclables for the subsequent years.

7.2 Collection Frequency

Recyclables

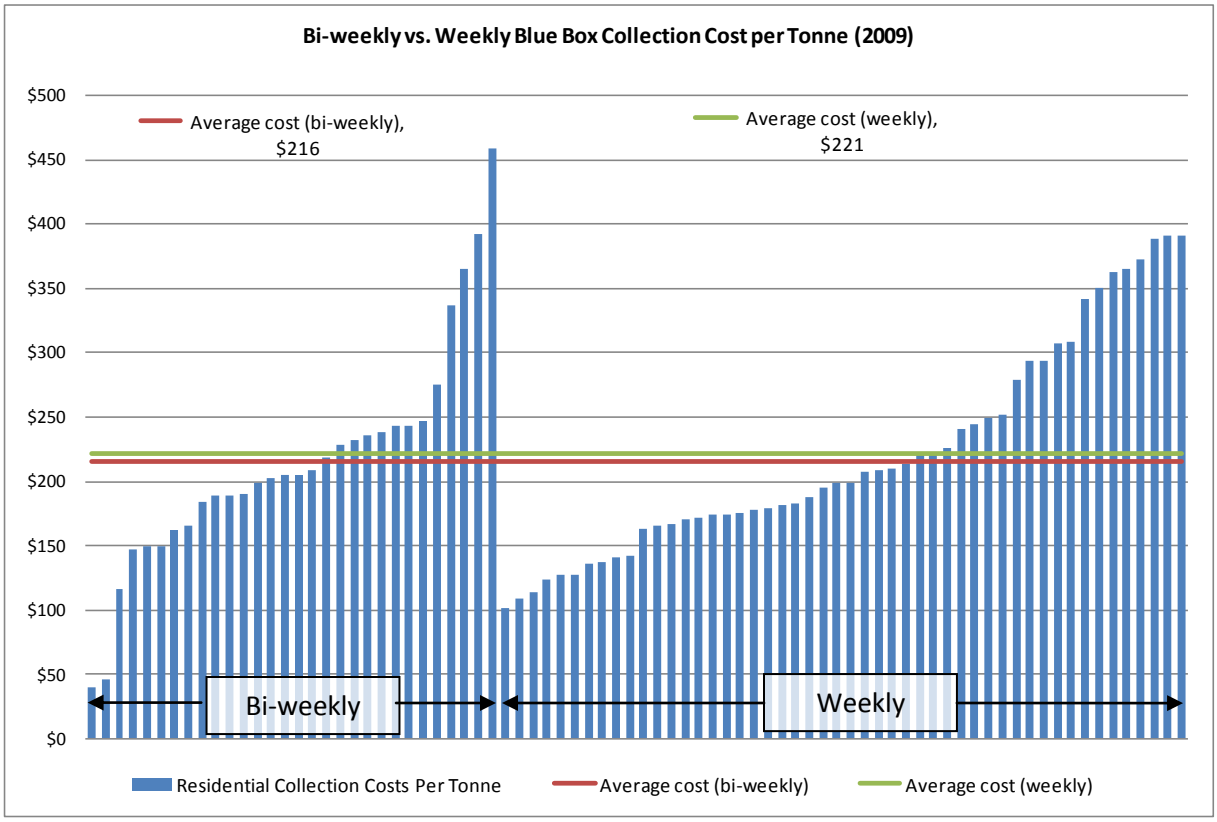
Currently, recyclables are collected throughout Oxford every two weeks, while garbage is collected every week. One of the issues faced by the partner municipalities is whether or not to increase the frequency of collection for blue box materials. Some of the partner municipalities report that, while not a major issue, they do hear comments from residents that desire a return to weekly blue box collection. The main reason for this is to avoid the accumulation and overflow of blue box materials. This can also be an issue for seniors, as the blue boxes can become heavy and cumbersome for them over a two-week period.

Collection costs were reviewed for 76 Ontario municipalities to assess the impact of bi-weekly versus weekly collection of on blue box collection costs. As Figure 4 illustrates, the average per tonne collection cost for bi-weekly collection among Ontario municipalities ($216 per tonne) is

slightly lower than the average cost for weekly ($221 per tonne)[7]. Currently, collection costs for Woodstock and the municipalities collected under the Oxford contract are below average[8], while collection costs for South-West Oxford are above average. This is likely due in part to the urban/rural compositions of the eight municipalities, as collection per tonne is typically more expensive in rural, lower density areas and less expensive in urban, higher density areas.

In terms of the amount of blue box material collected per household, an assessment of these same 76 municipalities show that municipalities with weekly programs market approximately 14% more blue box materials than those municipalities with bi-weekly collection. However, as Figure 5 illustrates, the amount of blue box material is marketed per household varies widely among municipalities.

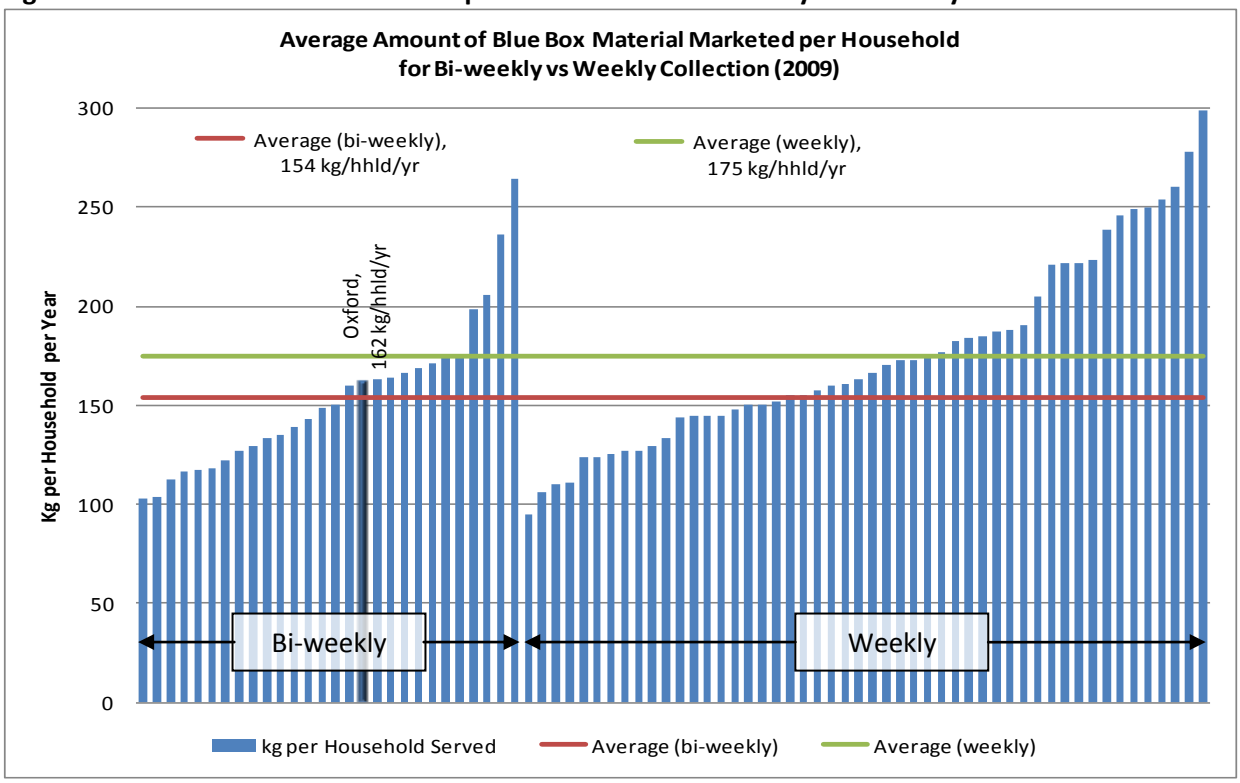
Figure 4: Bi-weekly vs. Weekly Collection Costs



[7] Based on published WDO 2009 datacall information. Data set includes 28 municipalities recorded as providing 26 collections per year for curbside blue box programs for single family dwellings (bi-weekly) and 50 municipalities recorded as providing 42 to 52 collections per year for curbside blue box programs for single family dwellings (weekly). Municipalities marketing less than 500 tonnes of blue box materials were excluded from this analysis. Weekly collection includes those dual stream systems where fibres and containers are collected on alternating weeks.

[8] Collection costs represented in this graph do not include promotion and education or administration.

Figure 5: Blue Box Material Marketed per Household for Bi-weekly and Weekly Collections



There are a wide range of factors that can affect the costs of weekly or bi-weekly collection, in particular if or how blue box materials are collected with other wastes, such as garbage or (where applicable) household organics, and if the materials are collected single or dual stream. Oxford County will be developing an Integrated Solid Waste Management Plan (ISWMP) in 2011. During this study, a detailed, holistic look at various collection scenarios could be examined against the status quo for garbage and recyclables collection, including:

- Co-collection of recyclables with garbage, with alternating weeks for recyclable streams;
- Co-collection of recyclables with household organics (if household organics is to be considered in the County's ISWMP), with alternating weeks for recyclable streams; and
- Dedicated recyclables collection with alternating weeks.

Recommendations

1. During the ISWMP process, investigate the feasibility of adjusting collection frequency and co-collection opportunities with garbage or (if applicable) household organics.

7.3 Private Property and Multi-Residential Participation

Currently, the collection of recyclables by the County and its partnering municipalities is provided primarily for single-family households, and multi-family units in general do not participate in this service. Recently, the County has completed a multi-residential unit study and has estimated that there are 1,347 multi-residential units in Oxford County, excluding the City of Woodstock[9]. Using the per household collection and processing costs as a guide, it is estimated that expanding collection to these units and incorporating their recyclables into the blue box stream will cost approximately $70,000 per year and increase the amount of material diverted by 230 tonnes.

Table 6: Tonnage and Cost for Multi-Residential Recycling for Oxford County (not including City of Woodstock)	
Number of Additional households (not including Woodstock)	1,347 (in 118 buildings)
Average Tonnage Diverted per Household	171 kg per hhld per year
Estimated Additional Tonnage Diverted*	230 tonnes of blue box materials
Estimated Additional Collection Cost**	$47,200
Estimated Additional Processing Cost	$22,800
Total Estimated Cost	$70,000

** Assuming multi-family units with a participate rate that is 75% that of single family units.*
*** For estimate purposes, assumed to have similar collection costs. While collection time will be more efficient per household, there will be additional costs, such as provision of equipment at the multi-residential buildings.*

Recommendations

1. Assess the feasibility of extending collection services to the multi-residential sectors.
2. If collection services are to be extended to the multi-residential sector, develop an implementation plan, identify reporting metrics, and prepare a data collection protocol.

[9] The City of Woodstock is in the process of preparing its own multi-family unit count.

7.4 Recycling Contracting

A carefully written recycling tender and contract is crucial for ensuring municipalities receive best value for money and are protected against poor or non-performance, particularly with respect to collection. The tender should clearly describe what is required, and the contract should describe penalties for non-performance. While the County's contracts currently include some performance measures, penalties for non-performance are not included. Examples of topics that should be covered in the tendering/contracting process include:

- Role of contractor in the enforcement of proper material set out (e.g., when to refuse loads, use of corrective communication materials, etc);
- Data collection tools (e.g., forms, GPS tracking, etc);
- Field communication protocols for during collection; and
- Penalties for non-performance (e.g., inappropriate behaviour by contractor staff, missed collection, etc).

Other suggestions for tender and contract inclusions are noted in other parts of this strategy, specifically:

- Section 7.5, recommendation #2;
- Section 7.6, recommendation #3;
- Section 7.8, recommendation #'s 5 and 6.

Stewardship Ontario has also prepared a Model Tender Tool to assist municipalities in designing their solid waste tenders. The tool is located in their Recyclers' Knowledge Network[10] and topics include:

- Pre-tender considerations and consultation;
- Level of service considerations;
- Compiling background information;
- Tender preparation;
- Evaluation process;
- Release, opening, evaluation and award of tender; and
- Post award discussions.

Recommendations

1. Identify what tasks are to be included in the collection/processing tenders that are currently missing from the current tenders.
2. Include performance measures and penalties for non-performance in the tenders and contracts.
3. Obtain outside expertise in preparation of solid waste management contracts.

[10] Available at http://vubiz.com/stewardship/Welcome.asp. Log in Recyclers' Knowledge Network with e-mail address and select "Model Tender" under the "What's Here" drop down menu on the left side of the page.

7.5 Routing Efficiencies

One of the challenges faced by Oxford County with respect to collection efficiency is that it consists of a wide rural area. A lower population density results in more time being spent driving from stop to stop compared to time spent collecting waste. To address this, the County has implemented single sided waste collection in most rural areas. Advantages and disadvantages to this approach are listed below.

Table 7: Advantages and Disadvantages to Single-Side Rural Waste Collection

Advantages	Disadvantages
• Rural road only travelled down once • Lowers kilometers vehicle is driven • Lower mileage reduces fuel consumption, greenhouse gas emissions • Less time travelled and decreased fuel consumption should result in decreased collection costs	• Inconvenience of resident in taking waste across the road • Potentially increased safety risks due to resident crossing the road

This approach typically is not be suitable in urban areas, and it is not be suitable all rural areas. For example, some rural roads are more densely populated than others, and there may be safety concerns (e.g., hills, visibility, etc) that discourage single sided collection.

Accurate mapping has also been raised as an issue. Route maps provided by the contractor are at times inadequate for ensuring the clear identification of routes. In future collection contracts, the route maps should be prepared in an electronic format by the successful bidder and according to the conditions established by the County (e.g., electronic file format, scale for urban and rural or problem areas, etc). It is not recommended that the County prepare the maps, as the County could then be held responsible for routing mistakes, changes, map omissions, or other route map related issues. An electronic copy of the file should be provided to the County.

Recommendations

1. Re-assess the feasibility of double sided collection in some rural areas of the County, including (but not limited to):
    c. Where double sided collection is suitable;
    d. A safety analysis; and
    e. A customer service survey to assess the public's attitude toward single sided collection.
2. In the next collection tender, include:
    f. Double sided collection as an option (where feasible);
    g. Preparation of electronic route maps.

7.6 Appropriateness of Equipment and Vehicle Usage

Using the appropriate vehicles for collection and transfer of blue box materials can help to reduce costs through avoided downtime and reduced collection time per stop. Assessing the appropriateness of vehicles can include age, size, configuration (e.g., side vs. rear loader, compartmentalized, etc) and method of loading (e.g., automated with mechanical arm, mechanical lift, manual lift, etc). For example, one of the issues raised during the interviews with municipal representatives was that Emterra Environmental experienced frequent equipment breakdowns. This may be an issue related to vehicle maintenance, but it could also be related to the age of the equipment.

Automated collection is one option commonly looked at for improving cost efficiency of collection. This typically involves the placement of materials in carts, which are then lifted and emptied through the use of a side-arm lifter (see diagram, right). While there are advantages of this approach, there are also disadvantages. These are reviewed in table 8 below.

Table 8: Advantages and Disadvantages of Automated Collection

Advantages	Disadvantages
• Only one staff member required per collection route • Fewer work-related injuries • Carts provide covered storage of materials • Typically result in reduced collection costs • Easier for seniors to roll to curb than carrying a heavy blue box	• May require converting to single-stream recycling, which limits the number of available local processors • If dual stream, would require a cart each for stream (fibres and containers) • In rural areas, there may be limited space for placing cart at roadside due to location of ditch • In some areas, tree limbs may interfere with arm lift

The application of innovative truck technologies, such as alternative fuel vehicles (e.g., biodiesel or natural gas) or hybrid technologies could also be considered. For example, natural gas-fueled trucks can reduce greenhouse gas generation by 20 to 25 percent and are generally quieter than those that are diesel-fueled. Similarly, Transport Canada conducted a feasibility study about hybrid refuse trucks and found that fuel consumption could be reduced by approximately 25 percent.

Recommendations:

1. Assess the feasibility of automated collection in Oxford County, including how it has worked in other municipalities. Funding is available from CIF until 2012 for municipalities moving to automated collection programs.
2. Assess the feasibility of alternative fuel vehicles or hybrid technologies for collection equipment. Funding is available from CIF until 2012 for municipalities purchasing alternative fuel vehicles.

3. During contracting/tendering process, specify the maximum allowable age of vehicles at any point during the contract, and include enforceable inducements.

7.7 Increasing Diversion from ICI

The County currently provides some collection services to its Industrial, Commercial and Institutional (ICI) sector, primarily in Woodstock but in other portions as well. Currently, metrics for this sector are not available. The County estimates that 7% of the total tonnage collected in Woodstock is ICI, while 2% of the material collected by the County is ICI. No ICI is recorded as being collected in South-West Oxford. A protocol for tracking ICI tonnages would help the County better assess tonnages currently being collected.

During the stakeholder scan, it was raised by one of the business community members that there is little support available for businesses to encourage employees to recycle more or to find avenues for where to recycle their materials. To assist its local businesses in waste diversion, the County could initiate an ICI Waste Diversion Program, which would provide some support to businesses. This support could be provided in the form of education programming and various incentives and disincentives for reducing waste. For example, such a program could include (but is not limited to):

- Educational materials advising businesses on how to reduce their waste, develop a waste reduction plan or conduct a waste audit. This could include web-links to existing resources, such as the resources provided on the websites for the Recycling Council of Ontario (www.rco.on.ca/businesses) or Waste Reduction week in Canada (www.wrwcanada.com, under the resources tab).;
- Recognition for or case studies on business leaders who are finding ways to reduce their waste;
- Promotion of retailer take-back programs; and
- Discussions with local businesses about their most significant wastes and opportunities for reducing or recycling.

During the Integrated Solid Waste Management Plan process, the County could also engage ICI stakeholders to help identify opportunities for waste diversion and reduction and their needed support.

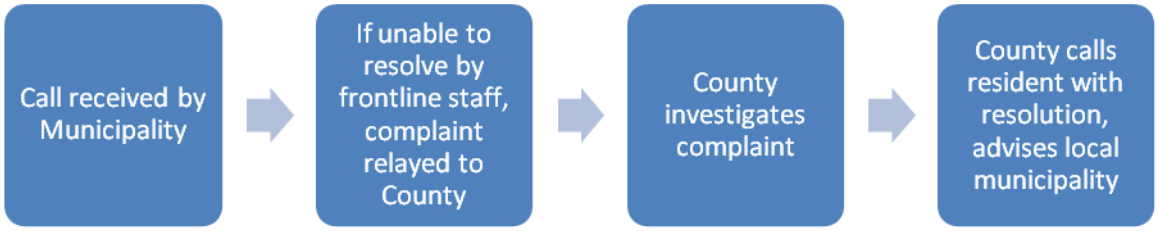
Recommendations

1. In consultation with the partner municipalities, identify what reporting metrics are required for ICI waste/recycling collection and a protocol for tracking them.
2. Develop an ICI Waste Diversion Program to help provide support to businesses wishing to find alternatives to waste disposal.
3. Engage the ICI community during the upcoming Integrated Solid Waste Management Plan process to identify opportunities for diversion in that sector.

7.8 The Customer Service Response Framework

Customer complaints and questions are commonly received primarily through the local level municipality and then funneled up to the County for resolution, if required. Figure 6 below illustrates a typical complaint resolution scenario.

Figure 6: Complaint Resolution Procedure



Generally, this approach was found to work well, although there were some concerns that there were some inefficiencies in having the call being funneled through the local municipality rather than coming directly to the County. However, it was noted during the interviews with the partner municipalities that there is value to the municipality to be involved in that part of the community outreach with its residents, and in many cases the municipality is able to resolve the issue rather than forwarding it on to the County. For example, a question about collection times or acceptable materials can be easily answered by municipal staff, while complaints about missed collection should be forwarded to the County (in areas where collection is administered by the County).

The County currently has protocol in place that outlines what types of calls should be resolved by the municipality or forwarded to the County. Municipal staff were last trained on the protocol in 2008, and the training manual is in the process of being updated. While response time is generally good (same day resolution to issues), this time and use of staff resources could be reduced if the public is educated on when they should call their local municipality or the County.

The County's contracted staff also has established a protocol whereby collection drivers are equipped with two-way radios to enable communication with dispatch, and cell phone communication is established between dispatch and the County. Drivers are supposed to report any collection-related issues (e.g., a blocked street, refused collections, etc) to their dispatcher, who in turn is to report this to the County. This procedure is not followed consistently, and there are no penalty measures incorporated in with the collection contract to address this.

The County has implemented a GPS tracking system in some municipal and all contracted fleet., However, the contracted fleet experiences frequent breakdowns and vehicle replacements, and often the vehicle replacements are not GPS-equipped. As a result, use of the GPS tracking technology is not used consistently.

Recommendations

1. Involve the lower tier municipalities in updating (as necessary) the protocol for directing and addressing incoming waste management and recycling questions and complaints.

2. Develop an approach for how best to advise the public where they should direct their questions and complaints.
3. Finish updating the County's Waste Management Programs manual for front line customer service staff.
4. Provide regular training for front line staff on the County's Waste Management Program customer service protocol, including:
    a. Regularly scheduled training for all front line customer service staff; and
    b. Mandatory review of the protocol document by new front line staff hires.
5. Include collection contract performance measures related to communications in the collection contract tender.
6. Resolve current operational issue with installed GPS system. Include a requirement for 100% GPS tracking in future collection tenders.

7.9 Data Management

The County currently receives waste recycling data from its partner municipalities, which it uses in its reporting to WDO but also for its own system tracking. Currently, this information is not collected in a consistent method or at regular intervals. The County should work with its partner municipalities to identify what reporting metrics are required and to develop a protocol for collecting that information.

Recommendations

1. In conjunction with the lower tier municipalities, identify what reporting metrics are required for waste recycling and administration.
2. Develop a reporting protocol for collecting the required metrics, including a common electronic form (possibly web-based).
3. Establish a procedure whereby tonnages are reconciled with weight tickets on a regular (daily or weekly) basis.

8 Monitoring and Reporting

The monitoring and reporting of Oxford County's recycling program is considered a Blue Box program fundamental best practice and is a key component of this Waste Recycling Strategy. Once implementation of the strategy begins, the performance of the Waste Recycling System will be monitored and measured against the baseline established for the current system. Once the results are measured, they will be reported to Council and the public.

The approach for monitoring the County's waste recycling program is outlined in the Table 10 below.

Table 10: Recycling System Monitoring

Topic	Tool	Frequency
Total waste generated (by type and by weight)	Measuring of wastes and recyclables at transfer station/disposal site (e.g., weigh scale records)	Each load
Diversion rates achieved (by type and by weight)	Formula: (Blue box materials + other diversion) ÷ Total waste generated * 100%	Monthly
Waste disposed (by type and by weight)	Reconciliation of weigh scale tickets	Monthly
Program participation	Customer survey (e.g., telephone); monitoring set-out rates	Every 1 to 3 years
Customer satisfaction	Customer survey (e.g., telephone); tracking calls/complaints received to the municipal office	Every 1 to 3 years
Opportunities for improvement	Customer survey (e.g., telephone); tracking calls/complaints received to the municipal office	On-going
Planning activities	Describe what initiatives have been fully or partially implemented, what will be done in the future	Annually

9 Conclusion

This Waste Recycling Strategy describes a number of opportunities for increasing diversion through the County's and its partners' recycling programs, and also achieving greater cost efficiencies. Waste management planning is not a static process, and this strategy will help inform and provide direction into the County's upcoming Integrated Solid Waste Management Strategy development process. This waste recycling strategy recognizes the importance of the roles performed by the County and each of its partner municipalities, and was developed in the spirit of collaboration for environmental sustainability.