

# CIF 514.4

## Multi-Residential Recycling: Implementing Best Practices *Oxford County*



Final Project Report, October 15, 2012

Oxford County

CIF 514.4

*Acknowledgement:*

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## 1. Executive Summary

This is the final report of a project implemented by Oxford County between May 2010 and June 2012. The project goal was to increase recycling rates by implementing best practices in the municipal multi-residential recycling program. Waste Diversion Ontario - Continuous Improvement Fund (WDO – CIF) provided financial and technical assistance, and worked with Oxford County staff in completing the project.

This project evaluated multi-residential blue box recycling in seven of the eight municipalities located in Oxford County. Within the study area, 27,992 households receive blue box recycling, as well as 2,915 households in 115 multi-residential buildings. The number of multi-residential buildings provided with municipal recycling service increased from 56 to 85 during this project. This represents a corresponding increase in terms of residential units from 1,196 to 2,323.

The best practices that were implemented during this project included: creating a database of multi-residential properties, evaluating the recycling performance of individual buildings and estimating the overall program recycling rate, increasing the number of recycling containers at buildings, distributing new promotion and education materials to residential and building staff, and distribution of apartment size recycling bins (two per unit) to participating buildings free of charge.

The average building recycling rate at the start of project was estimated at 42 kg/unit/year; the total amount recycled for all multi-residential buildings at the start of the program was estimated at 50 tonnes per year. By the end of the program, two hundred and twenty-seven 360 litre recycling containers were added to the program, increasing the recycling capacity from 43 litres per unit to 59 litres per unit. When considering bi-weekly collection, the effective capacity is approximately 35 litre per unit. It is estimated that implementing best practices had the effect of increasing recycling by 44% or from 42 kg per unit per year to 95 kg per unit per year.

The approved project budget was \$52,664. Oxford County was approved for up to \$26,332 based on 50% of the project budget. The cost to complete the project was \$32,660. Most of the difference is attributed to the lower recycling cart cost as a result of purchasing through the CIF co-operative tender process. In addition, fewer carts were purchased than proposed. With the savings Oxford was able to add additional promotion elements to the project now included in the original budget.

**Table 1.1: Summary of Project Results**

	Before Project	After Project	% Increase
Units recycling	1,196 of 2,915	2,323 of 2,915	94%
Buildings with recycling	56	85	52%
Litres per unit capacity	45	69	53%
Kg/unit/year (estimate)	42	95	44%

## 2. Introduction

The County is located between the City of London and the Region of Waterloo. The County consists of eight municipalities. Five are predominantly rural in nature and three are urban areas – the City of Woodstock and the Towns of Ingersoll and Tillsonburg. The County’s population is approximately 106,000.

CIF Project #514.4 evaluated blue box recycling in multi-residential buildings located in seven of the eight municipalities within the County. Multi-residential buildings located in the City of Woodstock were not part of this study.

The purpose of the County’s program was to implement and monitor a long-term multi-residential program that satisfies best practices. The County’s project goals were the development of a multi-residential database, increasing recycling container capacity, and the development and distribution of multi-residential promotion and educational (P&E) materials.

## 3. Background: Multi-Residential Recycling Program Overview

Oxford County’s curbside collection program consists of weekly garbage pick-up and bi-weekly, two-stream recycling collection. The garbage collection program is funded through bag tags and presently no bag limits apply.

While curbside recycling collection is bi-weekly for both single family homes and multi-residential buildings, businesses located in the business core for the Towns of Ingersoll and Tillsonburg receive weekly cardboard collection.

Residential blue boxes are sold to residents at below cost and multi-residential totes are sold to building owners at 50% of the County’s purchase price.

The number of collection vehicles used to carry out recycling collection varies from municipality. Typically, five vehicles are used to collect recycling in the towns of Ingersoll and Tillsonburg, and three to collect in the rural municipalities.

Given that multi-residential households represent 9% of the total household count in the study area, joint collection between the residential and multi-residential sector occurs to achieve cost efficiencies.

Oxford County has a diverse composition of multi-residential buildings ranging from townhouses and condominium units with and without direct street access, to modular home parks, converted homes and large apartment buildings. Only those properties with six or more units were evaluated during this project.

Multi-residential buildings participating in the County’s curbside collection program have several options for collection:

- *Bring individual blue boxes to the municipal curb for those units having direct street access.*  
This option is often utilized by homes converted into apartments or row townhouse complexes.
- *Bring individual blue boxes or multi-residential totes to the curb for those properties not permitted to have private property collection.*  
This option is often utilized by larger townhouse complexes and apartment buildings where there is insufficient space onsite for collection vehicles to navigate.
- *Arranged for on-site collection of multi-residential totes through the private property collection application process.*  
This option is often utilized by large apartment complexes.

To receive on-site private property collection, property owners must submit a completed private property collection agreement; including an Indemnity Agreement with Insurance Certificate (see Appendix A). Upon receipt of this information, County staff will conduct a site visit to determine if the premise is suitable for collection vehicles to navigate and provide service.

Older buildings often have difficulty meeting the site access requirements for safe vehicle access. To ensure that future buildings do not experience the same problems, the County has included an assessment of whether or not the site meets County specifications for private property collection as part of their Planning Review Process. Sites not meeting County requirements are notified that municipal garbage and recycling collection will be performed at the municipal curb.

The following tables identify the current state of affairs of Oxford County’s municipal blue box program and multi-residential building participation for the study area.

**Table 3.1: Number of Households in Oxford County as of August 2010**

	Households	Percent
Curbside	27,992	91%
Multi-Residential	2,915	9%
Total	30,907	100%

**Table 3.2: Number of Households with Municipal Blue Box Program as of August 2010**

	Curbside	Multi-Residential	Total
All households	27,992	2,915	30,907
Households with Municipal Blue Box Program	27,992	1,196	29,188
% with Municipal Blue Box Program	100%	41%	94%

*Note: these numbers represent households with access to the municipal blue box program and does not necessarily speak to the level of participation or quality of set out.*

Table 3.3 shows further details regarding buildings with and without recycling service as of the start of the project. The number of units per building did not seem to impact participation levels in the study area. Rather it was noted that many multi-residential households only had access to recycling if they were to take their recycling to the curb in individual 16 gallon blue boxes. During the project, 29 buildings were converted to a municipal cart program.

**Table 3.3: Number of Multi-Residential Buildings and Units with Municipal Blue Box Service as of August 2010 – June 2012**

	Before Project		After Project	
	Buildings	Units	Buildings	Units
Total	115	2,915	115	2,915
With Municipal Recycling	56	1,196	85	2,323
With Private Recycling	5	310	3	126
Recycling Unknown	54	1,409	27	466
% with Municipal Recycling	49%	41%	74%	80%

Table 3.4 identifies that the County was able to increase the number of buildings that received municipal recycling service by 52% and the number of units by 94%. The latter is a direct result of bringing on line multi-residential buildings with high unit counts.

**Table 3.4: Multi-Residential Recycling Before and After Project as of August 2010 – June 2012**

	Before project	After project	% change
Buildings with Municipal Recycling	56	85	52%
Units with Municipal Recycling	1,196	2,323	94%
Average Unit/bldg	21	27	28%

Table 3.5 provides program performance measures before and after program implementation. This information is based on data collected during visual audits of containers for fullness and contamination.

**Table 3.5: Recycling Program Performance Measures Before and After Project**

	Aug-10	Jun-12
	Kilograms	Kilograms
Quantity (Kilograms)	50,232	220,685
Multi-Residential Units	1,196	2,323
Kg/Per Unit (estimated)	42	95

## 4. The Project Scope

The project scope included four main phases:

- Phase 1: Develop and maintain a database of buildings
- Phase 2: Benchmark recycling performance
- Phase 3: Increase recycling container capacity
- Phase 4: Provide promotion & education materials

Each of the phases are discussed in the following sections.

### 4.1 Phase 1: Develop and Maintain a Database of Buildings

Creating and maintaining a database of all multi-residential properties is an important step towards implementing best practices. A number of data sources were used to develop a list of potential multi-residential properties located in the study area.

- Data from planning, taxation, and information technology services were used to identify properties and provide basic information such as: addresses, owners, number of units, etc.
- Property management companies were contacted for building listings and contact information for owners and property managers.

#### 4.1.1 Sources and Collection Methodology

During the summer of 2010, the County's Waste Management summer student developed a database of multi-residential buildings located in the study area, meeting the requirements of the project. Summer students were hired in 2011 and 2012 to monitor the program and keep data current.

Several data sources were used to develop a master list of potential multi-residential buildings. First, municipal property assessment data was obtained from the County's Geographic Information Systems Department. This information was downloaded from the County's master database by filtering the data by municipality, property class, and, where available, number of units. Second, each of the member municipalities were contacted for additional property information with the expectation that additional contact data could be obtained on these properties.

Lastly, the County relied on an outdated listing of multi-residential buildings receiving municipal private property collection. From these sources, the County was able to develop a master listing of potential buildings to be visited and assessed as per program requirements.



The preliminary data collected by the methods discussed above provided the County with a starting point to develop a new and more comprehensive multi-residential database. Site visits were conducted at each buildings that would allow access. Collected information included:

- whether the building supported a recycling program;
- how well the recycling program was working;
- building characteristics that may create recycling challenges or opportunities (e.g., room for recycling bins);
- contact information for the on-site representative (e.g. superintendent), and
- the role that the on-site staff play in managing the building’s recycling program.

A member of the CIF Multi-Residential team trained County staff on how to conduct multi-residential building site visits/evaluations. The County assessed buildings using the CIF provided Multi-Residential Audit Form (see Appendix B).

Many of the buildings did not have permanent building staff working on site, so gaining access to the buildings was difficult. Residents were also hesitant to provide building access to County staff or building contact information. After several attempts to gain building access, staff quickly identified that assessing the buildings on recycling collection day increased the chances of the staff being able to gain access to the buildings and converse with either the building superintendant or residents.

Upon completion of the visit, data was recorded on a CIF building audit worksheet and then transferred into an Excel worksheet for future conversion into the CIF Multi-Residential database. In the end, multiple visits to buildings were required to collect data. Data collection was completed in December 2010.

#### **4.1.2 Database and Completeness of Data**

Data was originally collected and recorded on CIF Multi-Residential Audit Forms; one for each building visited. Initially, the information was kept in hard copy only, as the County was waiting for the development of the CIF Multi-Residential Database. However, in late August 2010 the County’s summer student started transferring the audit data to an Excel spreadsheet (see Appendix C) which was later transferred to the CIF developed Multi-Residential Access Database (see Appendix D) in 2011.

Inconsistencies were noted upon review of the final database. These inconsistencies can be attributed to the data being handled several times from the audit stage to final entry into the CIF Multi-Residential Access Database. Data entry errors were corrected at time of notice.

The CIF generated database has proven to be a useful tool for the County, as it was designed to track information in a manner that was not historically tracked by the County. At present the database is being used to approximately 75% of its maximum capability. Full use of the database will occur once staff becomes more familiar with the software.

All multi-residential buildings are listed in the database, however incomplete data does exist where attempts to contact property owners and/or building representatives were unsuccessful. A further attempt to collect incomplete data was performed in May and June of 2012.

**Table 4.1: Database Summary**

Buildings	Total in municipality <sup>1</sup>	Recycling provided by municipality	Recycling provided by private sector	Recycling unknown	Site visits completed 2010	Data updated 2012
Number of buildings	115	85	3	27	76	88
% of all buildings	100%	74%	3%	23%	66%	77%

Notes:

<sup>1</sup>Total in municipality is all multi-residential buildings of six or more residential units.

#### 4.1.3 Data Maintenance

After the initial investment to create an up-to-date database has been completed it is important to protect this investment by maintaining the database and ensuring a process of keeping it up-to-date.

The County assigned the updating of the CIF Multi-Residential Access Database as an ongoing task of the Waste Management Summer Student position. Routine building visits and assessment of individual program performance will occur each year in the months of May and June. The County’s summer student will also be tasked with database maintenance, and monitoring and measurement of the program.

#### 4.1.4 Benchmarking and Reporting

Oxford County co-collects multi-residential recycling with recycling from single-family homes. This form of collection is the most efficient method of collection for the County given material volumes. To identify accurate recycling tonnage amounts collected from the multi-residential sector, the County arranged for an annual dedicated multi-residential collection run in the Town of Tillsonburg in May beginning in 2012. Multi-residential households located in the Town of Tillsonburg represents 41% of all multi-residential households in the County. The tonnage data collected during this annual run was extrapolated across the remaining multi-residential buildings in the study area. This information was then compared against the visual audits results for comparison. It was noted that the results of the audit data was approximately 10% higher than the tonnage data.

#### 4.1.5 Summary and Recommendation

A total of 88 building audits were completed with audit information being stored electronically in the CIF Multi-Residential database. To continue program momentum and awareness, annual reporting of program results will be incorporated into the County's annual waste management report to County Council as well as in the municipal datacall.

#### 4.2 Phase 2: Benchmarking Recycling Performance

A key step in implementing program improvements is to benchmark current performance so that future recycling targets can be established and program improvements can be tangibly measured as you move towards meeting these desired targets.

Evaluating performance is a quantitative assessment that measures the following:

- 1) How much each building is recycling (kg/unit), and,
- 2) How much is being recycled by all the buildings collectively.

Performance indicators such as container fullness and contamination were monitored during two site visits. Performance data collected during site visits should be considered as an estimate only and not based on precise weights. However, if done consistently research suggests that performance data has been found to be within 10-15% accuracy of actual weights. This is supported by Oxford's data comparison between the audit results and actual tonnes collected. The purpose of collecting this information from each building was to flag low performing buildings for follow-up strategies and to highlight top performers.

##### 4.2.1 Procedure for Estimating Recycling Rates

One staff person was assigned the task of performing building audits. Doing so eliminated variances in auditor observations. As much as possible, site visits were conducted on recycling day. This allowed staff to assess:

- Number of containers and type of containers used (bins/totes/other)
- Fullness of containers
- Contamination level of containers
- Set out location of the containers (curb or private property)
- Potential barriers to recycling

Audit data was recorded using the multi-residential site visit worksheets, and then transferred to an electronic database described in Section 4.1.2 of this report.

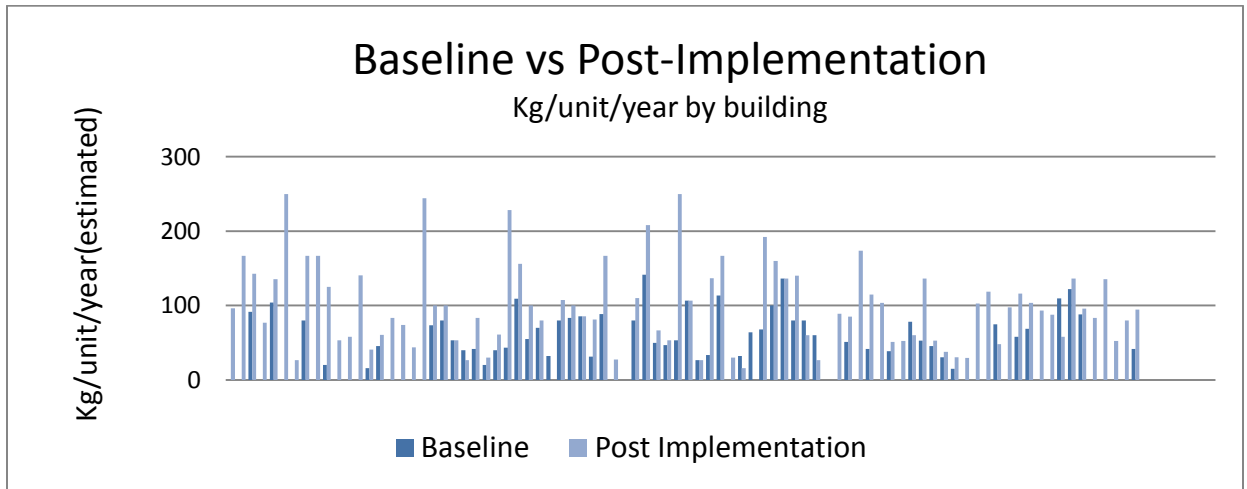
##### 4.2.2 Recycling Rate Estimates

The following tables and graph provide before and after information on recycling rates for multi-residential buildings receiving municipal recycling collection.

Table 4.2 illustrates comparative building recycling rates over the duration of the study (August 2010 to June 2012). This graph shows both an increase in the quantity of recyclables collected,

and an increase in the number of buildings participating in the municipal program. Building participation increased by 52%. This increase can be attributed in part to the County promotion and education efforts during this project. As well, during the project, the Ministry of the Environment (MOE) conducted building audits on two separate occasions in the Town of Tillsonburg. Immediately after each of the Ministry’s audits, more buildings showed an interest in the County’s recycling program.

**Graph 4.2: Comparative Building Recycling Rates**



Graph 4.3 and Table 4.4 illustrate improvements made in multi-residential recycling rates before and after project implementation (August 2010 - June 2012) on a kilogram per unit per year basis. In addition to cost effective pricing on carts, and access to professional promotion and educational material through the Continuous Improvement Fund, the County was able to positively impact recycling rates through impromptu recycling sessions with the building managers and residents. These informal recycling sessions often occurred on recycling day and covered the basics of blue box recycling including acceptable materials.

The County observed that building owners and superintendants began to take ownership of their individual programs after these sessions. This appeared to happen once they realized that the County was there to assist them with their blue box program as well as provide them with tools and resources to run their program.

Graph 4.3: Summary of Baseline and Post-Implementation Recycling Rates (estimated)

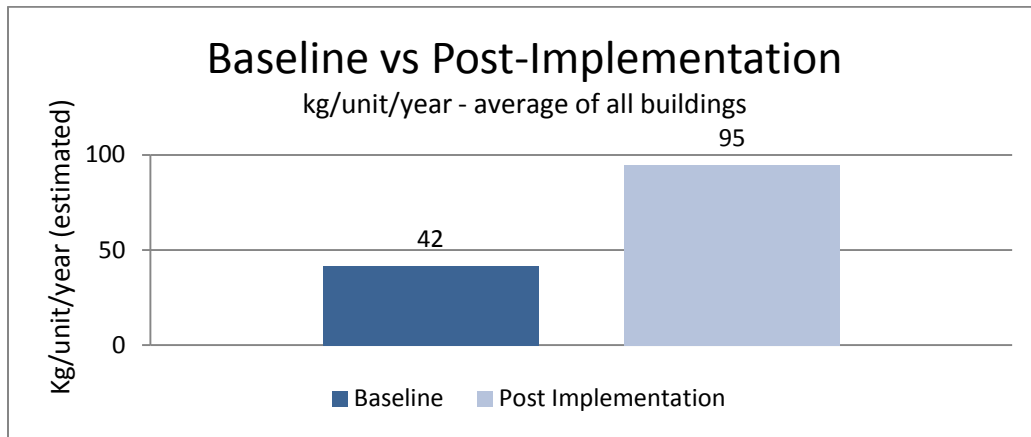


Table 4.4: Distribution of Buildings by Recycling Rates

Recycling Rate Kg/unit/yr		Baseline		Post-implementation	
Low	< 60	57	67%	27	32%
Mid	60 to 120	25	29%	34	40%
High	>120	3	4%	24	28%
Total		85	100%	85	100%

### 4.2.3 Barriers to Recycling

The majority of multi-residential buildings located in the study area are townhouses, condos and three storey walk-ups with outside storage of garbage and recycling facilities. Most of these buildings lacked indoor common areas, outside of the mailroom located in the entrance of the buildings.

Gaining access to buildings was very difficult given the absence of full-time building superintendants. Residents were reluctant to allow County staff access to their buildings. Staff made several attempts to gain access to each of these security-controlled buildings and meet with building owners to review their recycling program. County staff then began assessing the exterior garbage and recycling facilities and the material set outs on collection day. We found this approach to be very helpful in gaining valuable data on individual building recycling performance, container conditions and conditions of the exterior container storage facilities.

Collection day audits allowed for quick identification of damaged containers, lack of container labels, and contamination. The County re-contacted the building owners to discuss the findings. Equipped with the information from the audits, the County was able to engage building owners in more meaningful dialog on their individual recycling programs. It was during these discussions that the County learned that many of the recycling programs in these buildings were initiated by the residents and not by the building owners. Building owners were receptive to receiving

assistance from the County to enhance their program by way of new or replacement carts, in-unit storage containers, laminated posters and resident flyers.

Where building owners were receptive to implementing or enhancing their recycling programs, County staff coordinated delivery of materials. Staff also assisted with cart labeling, poster and bin placement, and provided collection day information, such as curb or private property access.

Table 4.5 documents the remaining barriers to increased recycling as of June 2012.

Opportunities still exist to reduce barriers to recycling in the study area. While not tracked in this study, the County did identify the use of plastic bags as an item in need of addressing as well as improved signage and educational material.

**Table 4.5: Barriers to Recycling Noted at Site Visits Completed at 88 buildings**

Barrier to increased recycling	Require corrective action	% of total	Set high standard 'model building'	% of total
OCC managed well	9	10%	38	43%
Contamination	14	16%	13	15%
Access to recycling	20	23%	18	20%
Loose materials noted	13	15%	44	50%
Containers overflowing	10	11%	44	50%
Well labelled & signed	20	26%	18	20%
Total	86		175	

**Figure 1: Barrier to Recycling – Poor Signage and Access**



Figure 2: Barrier to Recycling – Poor Access to Recycling, Containers Overflowing, Contamination



#### 4.2.4 Featured Buildings

Over the two-year study, improvements in building recycling performance were noted. Some of the more dramatic successes have been highlighted below.

##### 80 Bridges Street, Town of Tillsonburg

This apartment complex contains 40 units, mainly occupied by senior citizens. The original building audit identified that there were four 95-gallon carts on site not being used. At the request of the building owner, the County was able to increase the number of carts from four to eight. At this capacity of 1 cart per 5 units they have sufficient capacity to capture 100% of all recyclables generated in the building, and well above the recommended best practice ratio of 1:7, designed to capture 70% of the recyclables (as per the MOE provincial goal). Additionally, the building owner was eager to have in-unit recycling bins (two for each unit) along with promotion and educational material distributed to each unit.

The County worked with the building owner to identify the ideal outdoor storage location for the carts and the ideal location for curbside collection. Figure 3 below, illustrates a typical recycling set out since the building started participating in the program.

This building is a success because the residents have really embraced the program and take pride in making sure recyclables are sorted properly. Through visual audits, recycling is estimated at 98 kg/unit/year.

Figure 3: 80 Bridges Street, Town of Tillsonburg



### 220 Ingersoll Street, Town of Ingersoll

This condominium complex contains 60 units and the residents range from young families to senior citizens. The original building audit identified that this property did not offer recycling to the residents unless the residents took it upon themselves to bring a 16-gallon blue box to the curb. Recycling volumes at this location were very low and sporadic.

One tenant, passionate about recycling, took it upon herself to implement and monitor a recycling program for the complex. Through the CIF program the County delivered a total of 18 – 95 gallon carts, 120 in-unit containers, and promotion and educational material. Again, the number of carts exceed the best practices range, however additional carts were supplied when the initial cart supply did not meet capacity demand.

The carts are located inside the community centre and are only accessible to residents at certain times of the week. This practice was implemented so that volunteers could monitor bin contamination. At present, this system appears to be working well, receiving excellent scores for barrier evaluation and collecting an estimated 244 kg/unit/year.

Figure 4: 220 Ingersoll Street, Town of Ingersoll



### 23 North Street, Town of Tillsonburg

This location consists of 55 modular home park located in the Town of Tillsonburg. The County has been working with the property owner for years to establish a proper recycling program for the park. This location has had problems in the past with large community piles of highly contaminated material set out at the curb for collection.



Figure 5: 23 North Street, Town of Tillsonburg – Before



In 2011, the curbside collection contractor refused to service this location due to high levels of contamination. At this time the County was able to convince property owners to try a cart program. Twelve carts were delivered along with labels, poster and in-unit containers. Subsequent visual audits have shown recycling collection at 136 kg/unit/year with average levels of contamination.

Figure 6: 23 North Street, Town of Tillsonburg - After



Figure 6 illustrates that opportunities still exist to improve cart labeling and cardboard set outs. Even with those imperfections, this location has improved dramatically.

### 4.3 Phase 3: Increase Recycling Container Capacity

Having enough storage space for recyclables is one of the most critical factors in a successful recycling program. It is important to address this first, before other program improvements are put in place. During Phase Two site visits, the baseline container quantities were recorded. Information was also collected about locations where containers could be placed to provide more convenience to residents. Site visits also provided the County with the opportunity to determine if sufficient containers were available and where additional containers could be stored and ultimately used.

#### 4.3.1 Type of Recycling Containers

Recycling storage space, referred to as 'capacity', is the shared recycling containers used by building residents to deposit their recyclables.

Through the initial audit, the County identified that various types of collection containers ranging from 16 and 22 gallon blue boxes to 95 gallon carts were used. It was also noted that

many buildings did not promote recycling through the use of 95-gallon carts. Residents wishing to recycle were required to take individual blue boxes to the curb. This method of recycling is inconvenient for the resident, time consuming for the collection contractor and causes disputes over ownership of bins, contaminate material, etc.

All containers can be purchased from the County or at any one of the area municipalities at below cost for the 16 and 22 gallon bins and 50% of the purchase price for the 95 gallon carts as a way to encourage multi-residential recycling. Typically, the 16 and 22 gallon bins are purchased directly by the residents at one of the sales centres, while the 95 gallon carts are distributed by the County.

The County also encourages building owners to have one 95-gallon cart for every seven units. The purchase of the 95 gallon carts was again met with opposition until building owners learned that the price of the containers was being partly subsidized by the County and CIF resulting in an extremely low investment on their part. The County sold the 95-gallon carts for \$30 a cart.

#### **4.3.2 How Much Recycling Capacity is Being Provided?**

Based on the provincial target of recycling 70% of all recyclables, it is recommended that each residential unit be provided with a minimum of 50 litres of storage capacity (based on weekly collection). This is equivalent in size to a standard 16 gallon blue box. The equivalent capacity needed for buildings collected bi-weekly would be approximately 100 litres per unit, or two standard blue boxes. In terms of multi-residential containers, the following guidelines are recommended by CIF and are considered best practices, based on weekly-collection:

- 360 litre carts – one cart for every seven residential units
- Bulk bins - one cubic meter for every 15 residential units (eg, a 4-yard bin for 60 units)

Continuous Improvement Funding is provided on the basis that municipalities implement these best practice ratios. The guidelines represent average requirements and it is assumed that at the building level there will be ranges depending on the demographics.

Initial building audits identified that the County's multi-residential program had an average capacity per unit of 43 litres/unit, which was below the provincial target. By the end of the program, the County had increased average capacity to 59 litres/unit.

The best practice ratio of one 95-gallon cart for every seven multi-residential units is based on weekly recycling collection. In Oxford County, recycling collection is bi-weekly. This form of collection often forces residents to make more efficient use of container space by packing bins properly. Therefore it is not necessarily a straightforward translation of needing twice as many carts with bi-weekly collection. However, for the purpose of this study, the ratio of two 95-gallon carts for every seven multi-residential units was used. Oxford County should be at an approximate capture rate 286 kg/unit. At the start of the project the County's capture rate was approximately 42 kg/unit and increased to 95 kg/unit.

During the two-year project study, the County worked with building owners to either increase capacity or initiate a recycling program. Significant progress was made in this area resulting in 227 carts being introduced into the system and doubling the number of units with access to recycling.

Efforts were also made to change buildings from the use of individual 16 gallon blue boxes to a cart system. Some progress was made in this area, however many buildings still preferred using the traditional 16 and 22 gallon blue box, as documented in Table 4.6. These buildings were often condominium or townhouse complexes, or three story walk-ups, having very little space outside to dedicate to a recycling storage area.

**Table 4.6 Total Number of Recycling Containers**

	Baseline - December 2010	Post Implementation - June 2012
Units with Municipal Recycling Service	1196	2323
95 gallon carts	97	324
16 gallon bins	324	359
22 gallon bins	0	31
Total Program Capacity in Litres	51,120	136,760
Capacity Per Unit (l/unit)	43	59

Notes:

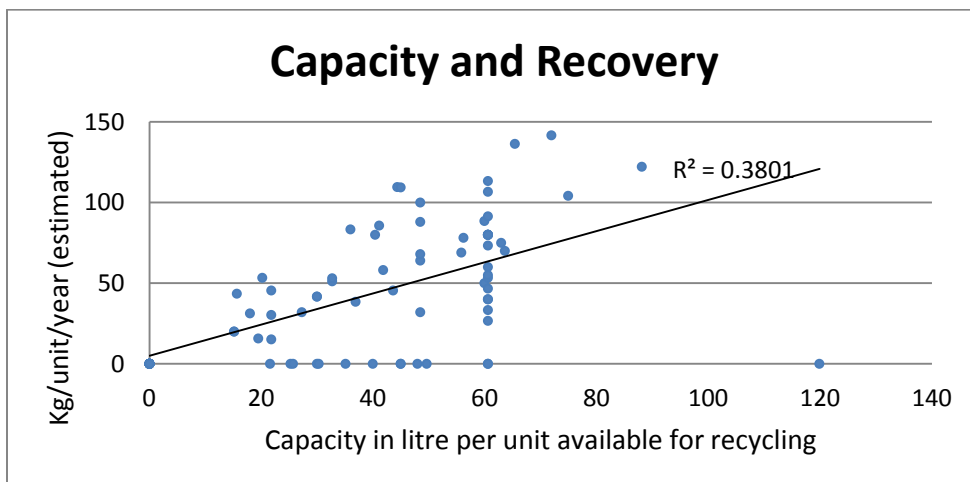
95 gallon cart = 360 litres

16 gallon bin = 50 litres

22 gallon bin = 70 litres

Buildings that provided more capacity for recycling saw an increase in recycling activity. This relationship is illustrated in Graph 4.7 showing baseline data and Graph 4.8 showing post implementation data. The R-value in the graph indicates the degree of correlation between the two variables, with a maximum of 1.0.

**Graph 4.7: Baseline - Relationship Between Number of Recycling Containers and Recycling**



Graph 4.8: Post Implementation - Relationship Between Number of Recycling Containers and Recycling

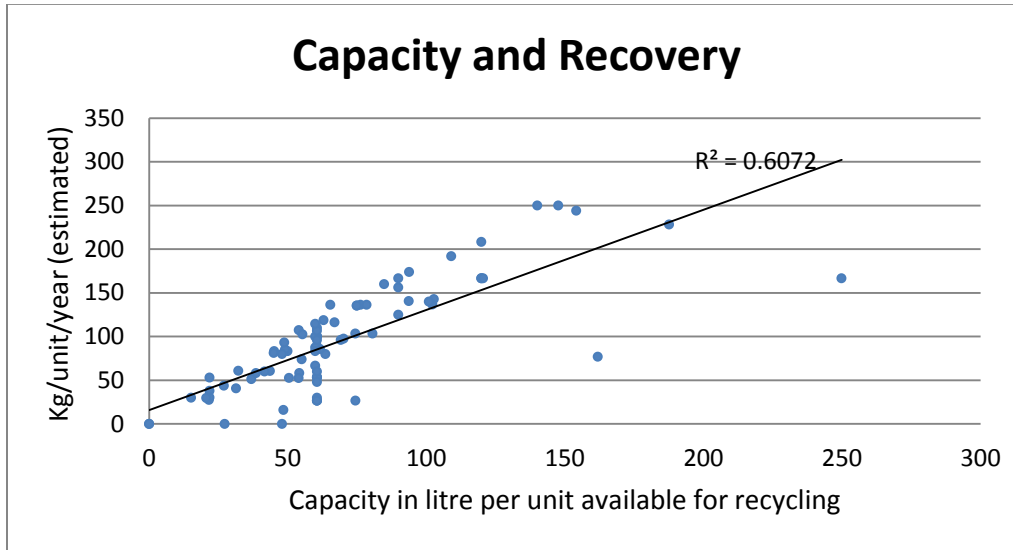


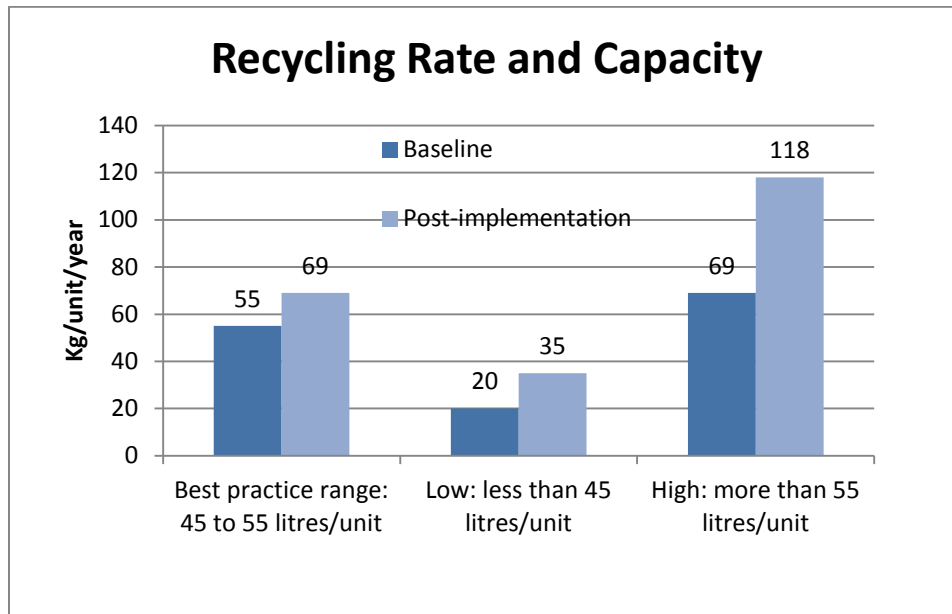
Table 4.9 illustrates the number of buildings that had a recycling capacity and recycling rate at, below or above the Best Practices range. This information was calculated by performing visual audits both at the beginning and end of the project, estimating recycling kg/unit.

Table 4.9: Recycling Capacity and Recycling Rate, Baseline and Post-Implementation

Capacity Range	Baseline		Post-Implementation	
	Number of Buildings	Kg/unit	Number of Buildings	Kg/unit
Best practice range: 45 to 55 litres/unit	16	55	17	69
Low: less than 45 litres/unit	44	20	16	35
High: more than 55 litres/unit	28	69	55	118

Graph 4.10 shows that the average recycling rate for buildings that provide 45 to 55 litres per unit capacity is approximately 70 kg per unit per year (estimated based on visual audits). Buildings with more or less than the recommended capacity are shown to have greater and lesser recycling rates as indicated in the graph.

Graph 4.10: Recycling Capacity and Recycling Rate, Baseline and Post-Implementation



## 4.4 Phase 4: Provide Promotion and Education Materials

### 4.4.1 Print Materials

One of the project goals was to distribute printed materials to promote recycling and educate building residents and staff about what can and cannot be recycled. Municipalities have access to print templates (resident flyers, posters and signs for buildings, container labels and a guidebook for superintendents, property managers and building owners) through the CIF website. The template materials were customized with information specific to the County.

The *CIF Best Practice Guidelines* recommends strategies for distribution of print materials, which include the municipalities taking responsibility for:

- Distributing print materials directly to residents;
- Distributing and displaying posters at multi-residential properties, and
- Applying labels to recycling containers.

These materials should not be left with building staff for distribution. Past experience has found that stacks of flyers and posters left with superintendents may not get handed out to residents and posters will not be displayed.

During this project the County distributed cart labels, posters and residential flyers with information on the County’s two stream recycling program. Examples of these can be found in Appendix E.

**Table 4.11: Summary of Promotion and Education Materials Used**

Promotion & Education Component	Number Distributed	Method of Distribution
Resident flyers	2,000 1 per residential unit	By municipal staff and property owners to each unit
Posters	454 Amount distributed depended on building size	Posted by municipal staff in recycling area
In-unit containers	1,790	By municipal staff and property owners to each unit
Containers labels	454 – 2 per cart (top and front)	By municipal staff

**4.4.2 In-unit Containers**

The County distributed two free in-unit recycling containers to those buildings open to receiving them; 1790 containers in total were distributed. The distribution of the free in-unit recycling bins was initially met with opposition from the building superintendants and property owners. They believed that increased effort would be required to manage the in-unit containers. Often, several attempts were required by the County to illustrate the benefits of using the in-unit containers and provide assurances that the containers were free before their distribution was allowed. Follow-up conversations with building owners and superintendants confirmed that use of the in-unit containers had a positive impact on the buildings recycling performance.

**4.4.3 Timing of Promotion & Education Campaign**

The project began in May 2010 and ran for 24 months with an approved budget of \$23,200 and an actual expenditure of \$14,606. During that time, project tasks included the development of multi-residential building list, site visits which included container audits, the development of a database, and distribution of containers and promotion and educational materials.

Specifically, the County achieved the following:

- Site visits at 88 buildings
- Evaluation of buildings and estimate of how much was being recycled at each building
- Development of a database of 115 properties which will be updated annually

- Increased the number of 95 gallon carts by 227
- Distributed 1790 in-unit containers
- Distribution of 2,000 flyers and 454 labels and posters

## 5. Project Budget and Schedule

CIF Project 514.4 had an approved project budget of \$23,200. Project activities came in under budget at \$14,606, a variance of \$8,594. This variance can be attributed to over estimating the number cart required as well as lower than forecasted purchase price of the carts.

Table 5.1 Project Budget, Planned and Actual

Description	Unit	Quantity	Unit Cost	CIF Approved (upset limit)	Quantity	Unit Cost	Actual
Staff support	Building	120	\$35	\$4,200	115	\$35	\$4,025
Increase capacity	95 Gallon Totes	340	\$100	\$17,000	340	\$48	\$8,165
Final report	Report	1	\$4,000	\$2,000	1	\$2,000	\$2,000
In-unit containers	Bins	3000	3.79	\$3,132	3000	\$3.79	\$5,688
<b>Total Approved Project Costs</b>				<b>\$26,332</b>			<b>\$19,878</b>

Other Project Costs	Unit	Quantity	Unit Cost	CIF Approved (upset limit)	Quantity	Unit Cost	Actual
Print costs	Brochures				2,300	\$0.41	\$475
Print costs	Posters				450	\$1.28	\$290
Print costs	In-unit Flyers				2,000	\$0.11	\$113
<b>Other Project Costs</b>							<b>\$877</b>
<b>Total Project Costs</b>							<b>\$20,755</b>

Table 5.2 Project Schedule, Planned and Actual

Project Deliverables	Approved Payment (upset limit)	Percent	Completion Date
Phase A and B details	\$0	0%	
Phase C and D details	\$0	0%	
Submit final report	\$20,755	100%	Aug-12
<b>CIF Funds Requested</b>	<b>\$20,755</b>	<b>100%</b>	

## 6. Concluding Comments

Project success can be attributed to having access to industry experts, pre-developed databases and promotion and educational materials as well as participating in bulk product purchases. Oxford County is not unique; workloads far exceed available resources, which affect the amount of time spent on programs. Being a part of the multi-residential working group and learning from other municipal experiences assisted the County in rolling out this program. In addition, having the right staff to implement the program is key.

## 7. Appendices

Appendix A – Oxford County Multi-Residential Private Property Agreement

Appendix B – CIF Multi-Residential Audit Form

Appendix C – Multi-Residential Building Database Excel Worksheet

Appendix D – CIF Multi-Residential Building Database

Appendix E – Multi-Residential Promotion and Educational Materials



Appendix A  
Oxford County Multi-Residential Private Property  
Agreement

**Entry on to Private Property for  
Waste Collection Service Provision  
Operations Policy**



The County of Oxford's operating practice for waste collection is that waste collection services are not provided to or on private property/roadways. However, waste collection services may be provided to private property/roadways upon review by the County of Oxford and in consultation with the waste collection contractors.

In order to establish a common approach for providing waste collection to private property throughout the County of Oxford the following shall apply.

The County of Oxford, or its designated Contractors, may enter private property for waste collection provided that:

1. The County has determined that the private roadways to be used by waste collection vehicles are physically satisfactory; and
2. The owners or occupants of the private property have executed the required Indemnity Agreement

If it is determined that entry on to private property is not feasible and/or the required Indemnity Agreement has not been executed, the County may refuse to enter the private property/roadways for the collection of waste and may at its own discretion determine alternate collection arrangements.

**Assessment of Eligibility for Entry on Private Property**

To determine the eligibility for entry on to private property for waste collection the following criteria shall apply:

1. The physical ability to provide collection service on the private property (new or existing development) is based on the County's determination of safety, liability and the collection contractor's ability to access the proposed location. The roadway shall be assessed by the County and/or its contractor for the following requirements:
  - i. The private roadways/properties must be designed to permit access to and egress from collection locations without reversing and unobstructed access to waste to be collected
  - ii. For developments that do not permit through passage, a turnaround area will be required
  - iii. Private roadways/properties must have a minimum width of 6.00 meters

**Entry on to Private Property for**  
**Waste Collection Service Provision**  
**Operations Policy**

- iv. The overhead clearance must meet or exceed the standards prescribed in the Ontario Highway Traffic Act
- v. The private roadway/property must be clear of ice and snow

For safety and liability reasons, the County requires that a private roadway be designed to permit a waste collection vehicle to service areas without the need to reverse. The County will consider the use of a turnaround area for the waste collection vehicles. The area must be dedicated specifically for the turning movements of collection vehicles and shall have appropriate signage indicating that parking will not be permitted in the area required by the collection vehicles. Repeat obstruction of the turnaround area will result in loss of curbside collection service.

- 2. A properly executed Indemnity Agreement must be obtained from all private property owners prior to commencement or continuation of waste collection services on a private roadway or property.



## INDEMNITY AGREEMENT

FROM: \_\_\_\_\_ (Owner)  
(Name of Private Property Owner)

\_\_\_\_\_  
(Address of private property owner)

AND \_\_\_\_\_  
(Name of authorized agent of private property owner)

\_\_\_\_\_  
(Address of authorized agent)

TO: The County of Oxford and its officers, employees, agents and contractors

In consideration of waste collection from the private property of the Owner, the Owner on behalf of all owners, occupants and invitees, and the heirs, executors, administrators, successors and assigns of the owners occupants and invitees agrees to:

1. Permit the County to enter the private property for waste collection purposes.
2. Maintain in full force and effect, throughout the currency of this agreement, an insurance policy respecting personal injury and property damage, in the minimum amount of Three Million Dollars (\$3,000,000) per occurrence. The County shall be named as an additional insured on the policy and a copy of the insurance shall be provided to the County.
3. Indemnify and hold harmless the County, and its officers, employees, consultants, agents, contractors or subcontractors, from and against all actions, suits, claims and demands which may be brought against or made upon, and against all associated losses, damages, costs, expenses whatsoever which may be incurred by, the County and its officers, employees, consultants, agents, contractors or subcontractors in consequence carrying out waste collection activities on the property (including but not limited to damage to pavement, driving surfaces or boulevards, which are caused by entry or reentry of waste collection vehicles) except losses, damages, costs or

expenses which are caused by the negligence of the County or its officers, employees, consultants, agents, contractors or subcontractors .

This agreement shall be in force from the date of signing to June 30, 2013.

Signed, sealed and delivered

---

Signature of Owner or Signing Officer

---

Print name of Owner or Signing Officer

---

Date

Appendix B  
CIF Multi-Residential Audit Form

# Oxford County: Site Visit Form

(supported by excel & access files)

Address (full mailing) : \_\_\_\_\_

Units: \_\_\_\_\_ Floors: \_\_\_\_\_ Site Visit Date & Day of Week: \_\_\_\_\_

## Building Type:

Condo / Rental / Senior / Student / Co-op / Public

Garbage: Municipal / Private

Recycling: Municipal / Private

Recycling Collection Day(s) \_\_\_\_\_

Garbage Collection Day(s): \_\_\_\_\_

## Contact Information

Property Management Info: Same as owner

Company Name: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Phone #: \_\_\_\_\_

Cell #: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Address: \_\_\_\_\_

## On-Site Contact Info:

Super / Building Manager / Property Manager / Owner / NA

Name: \_\_\_\_\_

Phone #: \_\_\_\_\_

Cell #: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Address: \_\_\_\_\_

## Performance Evaluation

Recycling Container Quantities: # of 95 gal = \_\_\_\_\_ # of Other Carts (ex. 65 gal)/4yd bins = \_\_\_\_\_

# of Paper Carts: \_\_\_\_\_ # full or part full containers: \_\_\_\_\_

# of Container Carts: \_\_\_\_\_ # full or part full containers: \_\_\_\_\_

OCC : approx quantity

**Barrier Evaluation:** Rate on a scale of 1 to 3: 1 = Bad and requires attention, reserve rate of 3 for Excellent

OCC \_\_\_\_\_ Contamination \_\_\_\_\_ Stream mixing \_\_\_\_\_ Accessibility \_\_\_\_\_

Loose materials \_\_\_\_\_ Overflowing carts \_\_\_\_\_ Area clean \_\_\_\_\_ Area well light \_\_\_\_\_

Labels & Signage \_\_\_\_\_

## Recycling & Garbage Area Description – check all that apply

Garbage Containers: # bins x size \_\_\_\_\_ Or curbside  Garbage Chutes  Weekly Pickup  Twice/wk

Recycling Area: Outdoor  Outdoor Under cover  Inside room  Main Fl  Under ground  Collect from each floor

Number of Recycling Depots \_\_\_\_\_ Twinned with garbage  Recycling containers shared with other buildings

Addresses that share \_\_\_\_\_

Room to add extra recycling containers  Where \_\_\_\_\_ How Many \_\_\_\_\_

Comments:

<p>Managements interest in purchasing bins</p>	
<p>Opinion of current recycling habits of residents</p>	
<p>Managements opinion of how their residents can improve their recycling habits</p>	
<p>Any other concerns</p>	



Appendix C  
Multi-Residential Building Database Excel Worksheet

## Start of Program - First Audit Results

Data for Municipality Serv

Civic Numb	Street Name	City Name	Municipality	Visit Date	Visit Result	Garbage Collection	Recycling Collection	Building Type	Units	Container Type	Total Available 95 Gallong Carts	Gallons	Litres	# of 16 Gallon
65	Cowan St	Princeton	Blandford-Blenheim	Jun-10	No Audit	Unknown	Unknown	Senior	26	Unknown	0	0	0	0
35	Main St N	Princeton	Blandford-Blenheim	Jun-10	No Audit	Unknown	Unknown	Rental	6	Unknown	0	0	0	0
69	Albert St	Plattsville	Blandford-Blenheim	Dec-10	Audit	Municipal	Private	Rental	6	Tote	2	190	719	0
16	Douro St	Plattsville	Blandford-Blenheim	Jun-10	Audit	Municipal	Unknown	Rental	6	Bin	0	0	0	0
40	William St	Plattsville	Blandford-Blenheim	Jun-10	Audit	Municipal	Municipal	Rental	7	Bin	0	0	0	7
16	Albert St	Plattsville	Blandford-Blenheim	Dec-12	Audit	Private	Unknown	Rental	13	None	0	0	0	0
43	Oxford St	Drumbo	Blandford-Blenheim	Jun-10	Audit	Municipal	Municipal	Senior	24	Tote	5	475	1798	0
30	Balsom Street	Innerkipp	East Zorra-Tavistock	Nov-10	Audit	Private	Unknown	Senior	12	Tote	4	380	1438	0
9	Decew St	Tavistock	East Zorra-Tavistock	Jun-10	Audit	Municipal	Municipal	Rental	6	Bin	0	0	0	6
18	Woodstock St North	Tavistock	East Zorra-Tavistock	Jul-10	Audit	Municipal	Municipal	Rental	6	Bin	0	0	0	6
64	Wellington St	Tavistock	East Zorra-Tavistock	Dec-10	Audit	Municipal	Unknown	Rental	6	None	0	0	0	0
											Total Available 95 Gallong Carts	Total Gallons	Total Litres	Total # 16 Gallon Bins
											171	16245	61494	379

Appendix D  
CIF Multi-Residential Building Database

Building Name  
 Civic#  
 Street Name  
 Property Type  
 Contact First Name  
 Contact Last Name  
 Contact Company Name

Civic#	Street Name	Property Type	City	First Name	Last Name	Company Name
3	Erie Court	Rental	Tillsonburg			
4	Erie Court	Rental	Tillsonburg			Prop
4	Prospect St	Rental	Tillsonburg			
5	Hardy Ave	Rental	Tillsonburg			
5	John Pound Rd	Condo/Rental	Tillsonburg			
5	Lamers Court	Rental	Tillsonburg			On-s
6	Lamers Court	Rental	Tillsonburg			On-s
9	Decew St		Tavistock			
9	Tidey St	Condo	Norwich			
10	Dufferin St	Rental	Norwich			
11	Glendale Dr	Rental	Tillsonburg			On-s
14	Third St	Condo/Rental	Tillsonburg			
15	King St	Condo/Rental	Tillsonburg			On-s
16	Albert St	Rental	Plattsville			Own
16	Douro St	Rental	Plattsville			
16	George St	Rental	Norwich			
18	Balazs Cr1	Condo/Senior	Tillsonburg			
18	woodstock St North	Rental	Tavistock			
19	Wren crt		Tillsonburg			
21	Wren crt	Condo/Rental	Tillsonburg			

## Appendix E

### Multi-Residential Promotion and Educational Materials

# Plastic, Metal, Glass



## Metal

Steel & aluminum cans  
Paint cans, pie plates & foil



## Cartons & drink boxes



## Glass

Bottles & jars



## Plastics

bottles, tubs, jugs

# Paper Products



Newspapers, flyers



Boxes, egg cartons, tubes



Cardboard boxes  
(stack between carts)



Magazines, books,  
catalogues



Household paper

# PAPER PRODUCTS



**Household paper**



**Cardboard boxes  
(stack between carts)**



**Boxes, egg cartons, tubes**



**Newspapers, flyers**



**Magazines, books,  
catalogues**



# PLASTIC, METAL, GLASS



## **Metal**

Steel & aluminum cans  
Paint cans, pie plates & foil



## **Cartons & drink boxes**



## **Plastics**

bottles, tubs, jugs



## **Glass**

Bottles & jars



**The Multi-Recycler**

The Multi-Recycler is a sturdy, free standing, 6 gallon bin is an ideal recycling bin for small spaces. Using a unique patent pending design, this container stacks easily to create a multi-purpose recycling station, or can be hung on a wall, keeping floor space clear.

**ONLY \$3.50**



**Curbside Container**

Our recyclable curbside containers are designed to meet your specifications for a multi-material curbside box. The large, ergonomically designed carrying lip allows for easy handling and comfortable pick-up.



**ONLY \$6.00**

Contact your superintendent for order details or call Oxford County Waste Management at (519) 539-9800



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**ONLY \$6.00**

Contact your superintendent for details order or call Oxford County Waste Management at (519) 539-9800

## Do not recycle

### PLASTIC

Toys  
Makeup jars  
Caulking tubes  
Plastic egg cartons  
Plastic food wrap  
Garden products bags

### PAPER/FIBRE

Tissues  
Waxed paper  
Foil gift wrap  
Waxed cardboard  
Foil wrapping paper  
Ice cream cartons  
Chip bags

cups, crystal

Window glass

Light bulbs

Mirrors

Pottery

Pots and pans

Makeup containers

### METAL

Food-contaminated foil

Coat hangers

Pots

Batteries

### GLASS

Drinking glasses,  
dishes,

THINK BLUE  
LIVE GREEN

## Oxford County Recycles

Take a moment to sort and recycle. Every time you place materials in your recycling container you accomplish at least three good deeds for the day. First, you are diverting waste from the landfill, and thus extending its life. Second, you are ensuring materials such as aluminum and paper that have many lives, can be used and reused to their fullest. And third, you are helping to save money. In the last eight years the sale of recyclable materials has provided close to \$5 million in revenue to Oxford County.



**OxfordCounty**  
*growing stronger...together*

This project has been delivered with the assistance of Waste Diversion Ontario's Continuous Improvement Fund, financed by Ontario municipalities and stewards of blue box waste in Ontario.

## DROP EVERYTHING!

All that stuff that isn't garbage, and doesn't go in your blue recycling bin, can now be dropped off at convenient collection depots, for reuse, recycling or responsible disposal:

- Leftover paint and solvents, empty oil containers and used oil filters, antifreeze, propane tanks, fertilizers and pesticides, non-rechargeable batteries, televisions, computers and peripherals, fax machines and printers.

Do your bit to keep our communities livable. Learn more at the website hosted by Stewardship Ontario and Ontario Electronic Stewardship:

**dowhatyoucan.ca**



Ontario Electronic Stewardship

DO WHAT YOU  
**CAN**



Stewardship Ontario

Thinking  
beyond  
the box

Help reduce the amount of waste that goes to our landfills.

For more information on apartment recycling, please visit our website at [www.blueboxmore.ca](http://www.blueboxmore.ca)

Printed on 100% recycled paper.

## RECYCLING MOMENTS:

# A FAMILY Affair



RECYCLE  
OFTEN

Your Guide  
To Recycling.

**OxfordCounty**  
*growing stronger...together*

# Oxford County's Recycling Guide.

## Stream 1: Paper Products

- Newspaper and telephone books
- Magazines, catalogues & books
- Paper boxes and egg cartons
- Household paper
- Cardboard boxes (i.e. clean pizza boxes, packing boxes) should be flattened 30" x 30" x 8", bundled and placed beside the recycling carts.



Newspapers, Telephone Books, Magazines & Catalogues



Paper Boxes and Egg Cartons



Household Paper



Cardboard Boxes

Fibres



## Stream 2: Containers

- Glass bottles and jars
- Aluminum and steel cans, foil containers and foil
- Plastic bottles, jugs and tubs with the number 1, 2, 4 and 5 on the bottom of the container
- Milk & juice cartons, drink boxes (discard lids & flatten)
- Empty metal paint cans (remove lids)



Glass Bottles & Jars



Aluminum & Steel Cans, Foil Containers and Foil



Plastic Bottles, Jugs & Tubs



Milk and Juice Cartons and Drink Boxes



Empty Metal Paint Cans (remove lid)

Containers



**Oxford County**  
*growing stronger...together*

Need More Information?

Call Customer service at 519-539-9800 or visit [www.oxfordcounty.ca](http://www.oxfordcounty.ca)