

# CIF #156 & #513.4

## Multi-residential Recycling: Implementing Best Practices Essex-Windsor



Final Project Report, 2012

Essex Windsor Solid Waste Authority

CIF Projects 156 & 513.4

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### *Acknowledgement:*

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## 1. Executive summary

This is the final report of a project implemented by the EWSWA (Essex-Windsor Solid Waste Authority) between May 2009 and January 2012. The project goal was to increase recycling rates by implementing best practices in the municipal multi-unit residential (multi-res) recycling program. Waste Diversion Ontario - Continuous Improvement Fund (WDO – CIF) provided financial and technical assistance. No outside consulting services were provided to work with EWSWA staff in completing the project.

The EWSWA currently provides blue box recycling to 156,231 curbside households, (89,629 households in the City of Windsor and 66,602 households in the seven County municipalities), and 569 multi-residential buildings (464 in the City of Windsor and 105 in the seven County municipalities). Across the County and City of Windsor, the project resulted in an increase in the numbers of buildings and residential units that were provided with recycling. The project increased the number of buildings recycling by 167 or 51% (from 326 to 493 buildings) and the corresponding number of residential units increased by 5,332 or 27% (from 19,618 to 24,950 units). The following are key project outcomes:

- The percent of buildings recycling increased from 57% to 87% - at present only there are 78 building not recycling. As these are smaller buildings they represent only 8% of all units. EWSWA continues to work with the MOE to establish recycling programs at these buildings.
- 843 95-gallon carts were added to the program. This represents an increase from 33 litres/unit to 42 litres/unit. Recommended best practices indicate that 45-55 litres/unit is the goal for optimum capture of recyclables and we continue to move toward this target.
- It is estimated that the average capture increased from approximately 70 to 90 kg/unit/year a 28% increase.
- The estimated increase is based on visual audits of cart fullness. Actual tonnages are not known, as there are not designated multi-residential routes.
- It was estimated that the total annual tonnage could increase by as much as 800 tonnes per year, as a result of both adding more unit recycling and container capacity.

- Efficiency gains were made in many, subtle ways during this project. By reducing contamination through P&E, throughput at the sorting facility improved. The increase in cart capacity at many buildings has reduced the practice of residents mixing materials in the collection containers, thus reducing contamination in those buildings. The addition of 179 multi-res properties to the recycling collection route allows for improved utilization of truck and driver time on the road.

The best practices that were implemented during this project included: creating a database of multi-residential properties, evaluating the recycling performance of individual buildings, estimating the overall program recycling rate, increasing the number of recycling containers at buildings and distributing new promotion and education materials to residents and building staff.

The cost to complete the projects budget was \$187,450. Essex-Windsor Solid Waste Authority was approved up to \$101,050.00 funding from the Continuous Improvement Fund.

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## **1. Introduction**

Established in 1994, the Essex-Windsor Solid Waste Authority (EWSWA) is the governmental agency responsible for providing an economical and environmentally conscious integrated solid waste management system for the County of Essex and the City of Windsor.

The mission of the Essex-Windsor Solid Waste Authority is to provide programs to manage the solid, non-hazardous waste generated in the County of Essex and the City of Windsor in an environmentally sound manner.

The original Master Plan outlines a very simple goal for the Essex-Windsor Solid Waste Authority: "To encourage reduction and reuse wherever

possible, to recycle everything that can be recycled, to compost what is compostable, and to landfill the rest”.

The Essex Windsor Solid Waste Authority provides the recycling collection services to 569 multi-unit residential properties in Essex-Windsor. This represents 27,110 units or approximately 15% of the total households in the region.

The EWSWA is currently updating its Waste Diversion Master Plan to provide a path to meet the region’s diversion goals into the future. With the help of CIF Projects #156 and #513.4, the EWSWA intends to increase multi-residential building and household participation and increase the amount of recyclable materials collected.

The EWSWA undertook, and continues, the task of reaching out to the residential multi-unit community of Essex-Windsor in an effort to increase the percentage of buildings and residents in the recycling program. Our efforts include site visits, education presentations, distribution of P&E materials, proper labelling of collection receptacles, distribution of in-unit collection containers and 95-gallon collection containers. To implement recycling at multi-res properties that did not respond to our outreach program the EWSWA also utilized the services of the Ministry of the Environment, local office and the Investigations Branch.

## **2. Background: multi-residential recycling program overview**

The Essex-Windsor region has 569 buildings that meet the definition of “multi-unit residential” as stated in the EPA O Reg. 103/94. This represents approximately 15% of the total number of households in the region. The Essex-Windsor area utilizes a two-stream recycle system serviced by outside contractors, with residential collection on a bi-weekly basis. The contractors provide a weekly, separate, IC&I collection, which includes the multi-residential buildings in the region. The IC&I route does not collect exclusively from multi-residential properties at any time. Most of the properties utilize a 95-gallon (360 litre) cart for collection of their recyclables. There are some exceptions, such as town home (row housing) or some of the smaller (6 unit) buildings, using red (14 gallon) or blue (16

gallon) boxes. Some of the larger properties will use, in addition to the 360 litre carts, 2 to 4 cubic yard bins strictly for OCC collection. The OCC collection is typically provided through privately contracted providers. It should be noted that the City of Windsor does provide a free OCC collection to the IC&I sector, but it is not offered the multi-unit residential properties at this time. Property owners/managers of the areas multi-unit residential properties must provide collection containers for their residents and the collection is provided free of charge by the municipality. Even with free collection only 326 of 569 (57%) buildings, representing 19,618 of the 27,110 (72%) households, utilized the service before the project.

Table 2.1: Number of households in municipality (*December, 2011*)

	Households	Percent
Curbside	156,231	85.2%
Multi-res	27,110	14.8%
Total	183,341	100%

Table 2.2: Number of households with municipal blue box program (*December, 2011*)

	Curbside	Multi-res	Total
All households	156,231	27,110	183,341
Households with municipal blue box program	112,486	24,950	137,436
% with blue box program	72%	92%	75%

It is possible to make a correlation between recycling participation and building size (units). In the Essex-Windsor area, at the end of the study, 78 buildings were not participating in the program. The average number of units for these buildings is 26. Only 12 buildings of the 78 not participating had more units than the average and represented 25% of the total non-participating units. However, 85% of the buildings not recycling contain 75%

of the units not recycling, indicating that these buildings are of smaller size than the typical participating building.

Also, condominium properties and the very large rental properties typically have full time maintenance staff that take on the responsibility of monitoring the recycling program in the building. They rotate collection containers and keep areas clean, making it easier for the residents to participate in the process. This leads to higher participation.

Few, (4%), multi-unit residential properties in the Essex-Windsor area utilize private collection for their recyclables. Only 13, (2%), utilize a private company for all of their recycling collection, while 7, (1%), use private collection for their OCC only, choosing to use 2-6 cubic yard front end loader bins.

Table 2.3: Number of multi-residential buildings and units with municipal blue box service (*December, 2011*)

	<b>Buildings</b>	<b>Units</b>	<b>Average # of units per building</b>
Total	569	27,110	48
With recycling	491	24,950	51
Without recycling	78	2,035	26
% Recycling	86%	92%	

Table 2.4: Multi-residential recycling before and after project (*December, 2011*)

	<b>Before project</b>	<b>After project</b>	<b>% change</b>
Buildings with recycling	326	493	51%
Units with recycling	19,348	24,950	29%
Unit/building	59	51	-15%



Performance measurements are a meaningful way of determining cost efficiencies within a program. In large communities where technology has been embraced allowing for on-board truck scales or where the density of multi-res properties makes it economically feasible to have dedicated routes for that sector, it will be easy to determine the economics of multi-res recycling improvements. In the smaller, less urban communities the type of measurement tools required are not economically available and the routing of trucks must include other ICI stops with the multi-res to be efficient.

In the Essex-Windsor area the cost of providing service to the multi-residential sector has not been determined, as it is co-mingled with other ICI collection. We have 3 weekly ICI routes in the County and one daily route, with each zone collected weekly, in Windsor. Any numbers provided would be rough estimates and would not provide any meaningful information.

### **3. 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 is 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. To obtain the list of multi-residential properties, there are a number of potential sources of data, including:

- Municipal departments such as planning, taxation, or technology services may be able to identifying properties and provide basic information (addresses, owners, and number of units, etc.)
- Property management or rental associations may have listings of their members' buildings and contact information for owners and property managers.

#### **4.1.1 Sources & collection methodology**

Early in the project, students were utilized to identify and record all of the multi-unit residential properties. At the same time, information about the "Apartment Recycling Initiative" was posted to the EWSWA web site, encouraging owners, managers or residents to complete a questionnaire providing information about their building and in turn receive free materials. This questionnaire was developed and posted to the web site, where it could be completed and e-mailed or faxed to EWSWA. Notice of the initiative was also provided in the EWSWA bi-annual newsletter "Enviro-Tips". It was anticipated that voluntary submissions of the questionnaire, with the promise of a reward (free P&E and in-unit collection bag), would provide most of the information from the properties.

As voluntary submissions decreased, the Internet was utilized to find information. A list of property management companies was downloaded and e-mails (where provided) and letters were sent to the administration of the property managers requesting property addresses in the Essex-Windsor area, contact information, and completion of the questionnaire. In addition reverse address look-up was utilized. This provided a list of tenants at multi-res properties. Letters were then sent to all of the names on the list requesting that they respond with the information requested or ask their owner/manager to respond. In many instances, it was during the on-site visit that much of the information was gained. During travel to site visits, we sometimes noticed that a building we were lacking information for had units to let. Notes were made of the contact information and telephone calls would typically result in the receipt of owner or manager information and a chance to get any other information needed. Finally, information for ownership of properties was gathered using the Clerk's office of each municipality for any property still missing that information.

While some preliminary data can be collected by the methods discussed above, in-person site visits to each building were completed to collect detailed information such as the recycling program performance, 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.

While conducting site visits, the opportunity was used to distribute P&E and in unit collection containers; appropriately label carts and put up posters. For these visits, some appointments were made, but mostly random visits in a designated geographical area proved to be the best method. Showing up at a property with "freebies" and buzzing or calling the on-site manager or speaking with a resident proved to be the most effective approach. Typically two EWSWA staff members were present for each site visit. While one staff member introduced the initiative to the owner/manager/resident (and acquired the demographic and other information), the other staff member would re-label carts, check building layout, inspect garbage information, note location of services, put up posters, and distribute P&E and in-unit collection bags. In many cases the manager would escort municipal staff through the building to show "how things work". This method proved to be very beneficial, as personal contact was established at a majority of buildings, giving the owner/manager/resident "a face to put on the municipal recycling program".

In some cases the owner/manager/residents were not trusting, un-cooperative or disconnected. This was the case in some of the participating properties and the majority of the non-participating properties. Tenants were reluctant to provide information on building ownership/management, and when they did provide the information the owners/managers were afraid we were "up to something" and would not speak to us or not-so-politely ask us to leave the building. A significant portion of the information being gathered entailed gaining access to the building. Most multi-unit residential buildings are "secure" buildings, making entry difficult. It was determined in some cases the "cold call" method worked best for this.

#### 4.1.2 Database and completeness of data

The EWSWA is using Microsoft Access to maintain a database of red and blue boxes to new residents in the seven municipalities of Essex County, along with recording resident collection complaints. As there is already an awareness of the use of Access by the staff, it was determined this would be the most appropriate program to use for the multi-res information. The layout was set up and designed in-house using experienced staff. Trial and error motivated some design changes to ensure data was entered in specific, essential fields before other data could be entered.

The development of this the EWSWA database was the first to be established through the CIF, under project #156. This database has been used as a model for developing the currently available CIF database used by other municipalities conducting multi-res projects through the CIF, making it unique in comparison.

The EWSWA staff completely populated the database with current information. At the time of data entry, the information entered has a high degree of accuracy.

Table 4.1: Database summary

<b>Buildings</b>	<b>Total in municipality<sup>1</sup></b>	<b>Recycling provided by municipality</b>	<b>Site visits completed<sup>2</sup></b>	<b>Data updated<sup>2</sup></b>
Number of buildings	569	556	569	569
% of all buildings	100%	98%	100%	100%

#### Notes

<sup>1</sup> Total number of buildings with six or more residential units.

<sup>2</sup> Site visits and data updates were completed at all buildings where access was permitted.

#### 4.1.3 Data maintenance

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

The EWSWA has designated one person to oversee the multi-unit residential database. In addition, the Special Projects Assistant (SPA) is assigned to take all calls for multi-unit residential inquiries. Any detail regarding these types of units is to be processed through the SPA. In this way, cart numbers may be monitored, ownership information can be verified, changes in waste handling may be noted and any recycling issues may be addressed. This process is important, and other staff have been made aware of the protocol. It is imperative to maintain consistency in the upkeep of the database. Ultimately, the person responsible for service to the residential multi-unit community is responsible for ensuring the database is kept up to date.

#### **4.1.4 Stakeholder Participation**

Early in the set up process for the Apartment Recycling Initiative, it was noticed that the legislation in O Reg. 103/94 in regards to a recycling program and the definition of multi-unit residential property was subjective. EWSWA staff called the local office of the Ministry of Environment for their interpretation of the legislation. This call led to some dialogue and ultimately a contact and a commitment of co-operation from an important community stakeholder. Working through the process of identifying recycling participants and non-participants, it became clear that help may be needed to inform/pressure some owners/managers of their obligation to comply with the legislation. An officer from the local MOE office performed investigations on many of the properties where the owner/manager had failed to respond to the many outreach attempts made by EWSWA staff to bring the property into compliance with the regulations. After the investigation, the MOE sent letters to these owners/managers informing them of their obligations under the Act, and the possible consequences of non-compliance.

After some time had passed the local office of the MOE referred the situation to the central enforcement branch of the MOE in Scarborough. The enforcement branch requested from EWSWA staff a list of non-compliant properties and committed to an investigation. Around the 3<sup>rd</sup> week of November 2011, the MOE enforcement branch conducted investigations of approximately 70 properties in the Windsor area. This investigation led to orders being issued to the non-compliant owners/managers of the properties. As a result of the co-operation of the MOE many property owners/managers subsequently established recycling programs.

#### **4.1.5 Summary and recommendation:**

In Essex-Windsor 569 multi-unit residential buildings currently meet the requirements and MOE interpretation of O Reg. 103/94 of the EPA for multi-unit residential buildings and are entered into our Access database. Through the co-operation of many community stakeholders and hard work by EWSWA staff, the Essex-Windsor Apartment Recycling Initiative has resulted in a completely populated database. Through the foresight of EWSWA staff to dedicate one person and the commitment of that staff member, the site will be continuously updated as information comes into the office regarding these or new buildings.

But, the database can only be as accurate as the information provided on a given day. Sometimes, it was found, that from the time of a site visit to a cart audit two weeks later, the garbage collection company had changed, or the building started to utilize municipal garbage collection. We found that property management companies at many condominiums change like the wind direction, making it difficult to keep current data. One can only hope that the contacts made will continue to “keep in touch” to help maintain as current and accurate a database as possible.

## **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 site visits. Performance data completed during site visits is an estimate only as it is not based on precise weights. However, if done consistently, research suggests that performance data can be within 10-15% accurate of actual weights. Obtaining this information from each building was instructive both for flagging low performing buildings and for

highlighting top performers. Low performers were flagged for follow-up strategies and top performers provided useful model buildings.

#### **4.2.1 Procedure for estimating recycling rates**

Essex-Windsor does not utilize on board scales on the recycling trucks and does not have a specific multi-res route. To determine recycling rates for each of the multi-res buildings the procedure is very simple, and results are strictly estimates.

On the appropriate collection day, before the collection staff begin their day, EWSWA staff visit the multi-res buildings. The first task is to count/verify the number of recycling containers set out for collection. From previous site visits we know the total number of carts for the property, so we will know if some are not set out. In some instances, the carts not placed out for collection may contain material, because the building staff only place out full carts. In these cases, if they are accessible, EWSWA staff will count what is in those carts, and if not accessible, count them as empty.

The fullness level of each cart, rounded to .25 of a cart, is recorded. In addition, any loose material is recorded, in appropriate cart equivalents, rounded to .25 carts. Loose material being anything placed outside of the cart or collection container. A quick look into the cart for contamination will also be taken into account when estimating fullness levels. From previous best practices studies, the weight for cart fullness is known (approximate), so the math can be done to determine the approximate recycling rate for each multi-res property.

### 4.2.2 Recycling rate estimates

Table 4.2: Building recycling rates (kg/unit/year), May 2010 (baseline\_

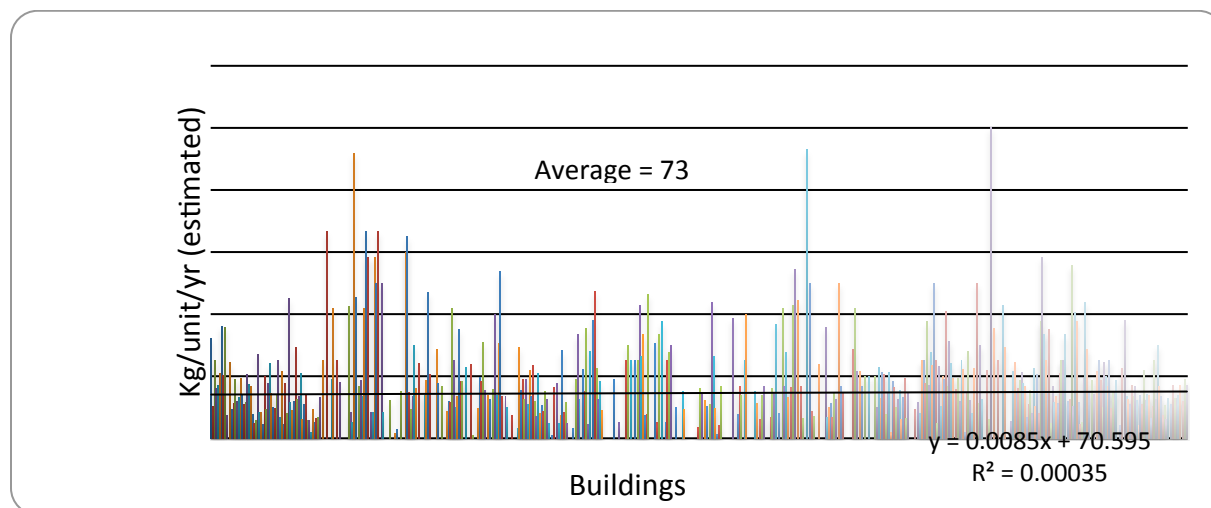


Table 4.2 shows the distribution of recycling rates (estimated kg/unit/year) based on estimates completed at visual site inspections at 569 buildings. The average recycling rate for the Essex-Windsor area upon completion of the initial recycle cart audit in May 2010 was 73 kg/unit/year. The number represents an estimate based on visual cart fullness audits and best practices conversion of weights/cart.

Graph 4.3: Summary of baseline and post-implementation recycling rates

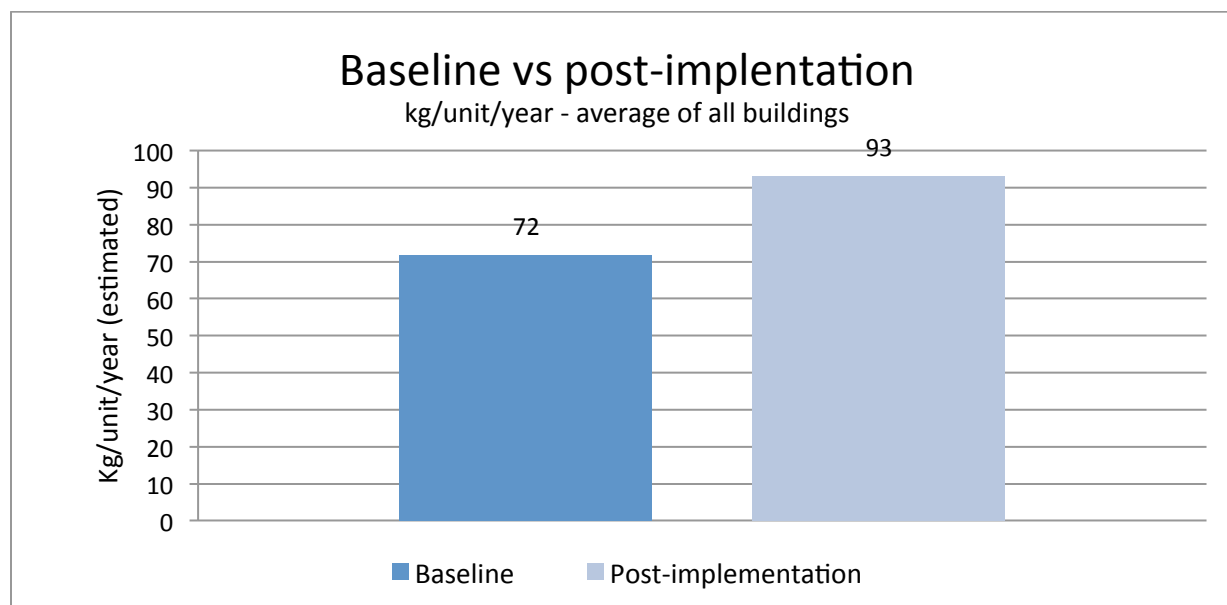




Table 4.4: Distribution of buildings by recycling rates

Recycling rate Kg/unit/yr		Baseline		Post-implementation	
Low	< 60	322	57%	242	43%
Mid	60 to 130	179	31%	224	39%
High	>130	68	12%	103	18%
Total buildings		569	569	100%	569

Table 4.4 indicates the improvement in recycling rates in the region for multi-res properties, through the use of best practices. The baseline figures indicate 57% of the properties in Essex-Windsor in 2009 were low recyclers and recycled less than 60 kg/unit/year. This is most likely because approximately 40% of Essex-Windsor multi-res properties did not have a recycling program when we started collecting information. Mid range figures include best practice rates of 60-130 kg/unit/year and high rates indicate the buildings over best practices recycling rates (130 kg/unit/year or greater).

The multi-res community in the Essex-Windsor area have many buildings in the 6-18 unit range (30%). Many of these buildings had not implemented a recycling program prior to our outreach. As the Essex-Windsor area has a two stream recycling system, the 6 unit buildings that receive two, 360 litre carts would have capacity of 333 kg/unit/year (this is an estimate that assumes that the two carts are filled with recyclables each week). These smaller buildings that are fully utilizing their capacity have helped to drive the estimated number of high recycler rates from 68 (12%) to 103 (18%) properties. The mid size buildings that typically have outdoor recycling storage, and therefore room to add carts to establish best practices capacity, would account for the mid range buildings rate increase from 31% to 39% of buildings. Alternately these buildings would also account for the additional decrease in low recyclers from 57% to 43%.

As noted the estimated increase is based on visual audits of cart fullness. Actual tonnages are not known, as there are not designated multi-residential routes. The estimated increase is based on the data presented in the Table below

Table 4.5: Estimated Recycling Rates

	Baseline (2010)	Post-Implementation (2012)
Unit recycling (rounded)	19,600	25,000
Kg/unit/year (estimated based on visual audits)	70 kg/unit/year	90 kg/unit/year
	1,370	2,250

#### 4.2.3 Weigh scale data

It is important to track recycling rates in the multi-unit residential buildings on a continuous basis. In the absence of scale data or a specific multi-res collection route, cart fullness audits will provide the best available information to evaluate changes in individual recycling rates. This ongoing monitoring will help to determine where additional focus is needed in outreach programs within the area. These follow up audits would ideally be conducted annually, but could be done every 18-24 months and still be within reasonable time to correct deficiencies in specific building recycling rates.

In the absence of weight-based data for the multi-residential buildings, Table 4.6 below indicates the trend from 2010 to 2011 for all tonnes collected from curbside and multi-residential. The total increase for the year was 1,244 tonnes or 5%. It is presumed that some of this increase is a result of the increase in multi-res tonnage. For the current data in 2012, between January and September, there is not indication of an increase. This appears to be consistent with anecdotal report from other municipalities suggesting tonnage for 2012 is done, perhaps in part to the on-going economic decline.

Table 4.6: Total Blue Box Tonnes Collected (curbside + multi-res)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>2010</b>	2126	1868	2236	2334	2279	2365	2207	2091	2498	2221	2411	2616	27252
<b>2011</b>	2171	1869	2406	2281	2478	2470	2227	2452	2655	2215	2510	2762	28496
<b>Change</b>	45	1	170	-53	199	105	20	361	157	-6	99	146	1244
<b>% Diff</b>	2%	0%	8%	-2%	9%	4%	1%	17%	6%	0%	4%	6%	5%
<b>2012</b>	2377	2099	2255	2081	2615	2386	2425	2619	2332				
<b>Change</b>	206	230	-151	-200	137	-84	198	167	-323				
<b>% Diff</b>	9%	12%	-6%	-9%	6%	-3%	9%	7%	-12%				

#### 4.2.4 Barriers to Recycling

Why is that in the garbage? Each and every building could have some form of barrier that would prevent the residents from recycling everything collected in the blue box program. This study focused more on the physical, rather than social barriers. This is a very subjective topic that could invoke as many answers as there are units in a building. The same goes for individual auditors. What an auditor in one region considers poor, another might consider acceptable.

EWSWA staff visited 569 (100%) of the buildings in the Essex-Windsor area,. At the time of the visit, notes were taken on access to waste disposal options, including, distances to garbage and recycling disposal, lighting, and overall safety of the disposal area. During the visual cart fullness audits, loose OCC, contamination and overflowing containers were noted. If there was an extraordinary amount of loose OCC, then the building was rated poor for OCC management. The same criteria were used for loose material (other than OCC) and overflowing containers.

The largest issue noted by the EWSWA staff was the poor access to recycling. It is not that buildings did not have recycling available to the resident. It was, instead, the level of difficulty in utilizing the program. For the most part, many of the buildings in Essex-Windsor have outdoor garbage and recycling collection areas for the residents (fig.1). This in itself is a

major barrier to recycling, in our opinion. Coincidentally the second and third largest barriers were overall safety and lighting in the disposal area (fig. 2 and 3). Collection points around buildings were in parking lots, beside buildings, in alleys and under parking structures. In most cases they were quite a distance from the building, poorly lit, if at all and just felt unsafe. People generally do not feel secure walking in a poorly lit parking lot anywhere from 60 to 300 feet from their door. Unfortunately, when these buildings were constructed, recycling options were not considered, resulting in tenants having to brave the elements to dispose of their recycling. To many, even in the daylight, this is a major barrier. Most of the owner/managers resisted suggestions that would improve the safety and access to recycling for their tenants. They had many excuses, like money, no room, and “no one has complained.”

*Figure 1. Barrier to recycling*



*Figure 2. Access to carts*

*Figure 3. Lack of lighting and safety*



In contrast, there were other buildings, usually larger condominiums with full time maintenance staff that were an example, even to homeowners. Some of these buildings, even though they were not at best practices for capacity, did a remarkable job at managing and promoting recycling. Hazardous waste collection containers (batteries and CFLs), OCC bundled instead of in carts, old clothes for charities and distributing collection containers so that every resident found it easy to dispose of their waste properly. In some buildings the staff (time allowing) would sort through the carts to ensure items were disposed of properly.

It is beneficial to have buildings and people that can set examples for the community, but to expect that the tools implemented at one location will work at any other is unrealistic. An orange and a lemon are both citrus fruits, but very much different, just like an apartment building on the west side is different from one downtown or on the east side. Suggestions can only be made and information passed to the owners/managers as to what has worked at other places. Ultimately it is the residents who will accept the program, or not.

Table 4.7: Barriers to recycling noted at site visits completed at x buildings

Barrier to increased recycling	Require corrective action	% of total	Set high standard 'model building'	% of total
OCC managed well	43	8%	437	77%
Overall safety	207	36%	273	48%
Access to recycling	238	42%	242	42%
Loose materials noted	70	12%	410	72%
Containers overflowing	87	15%	393	69%
Area well lighted	187	33%	293	51%
Well labelled & signed	22	4%	458	80%

#### 4.2.5 Featured buildings

Royal Windsor Terrace is a success story and example to all. This condominium building consists of 147 units in the downtown Windsor core. When we first visited this building, the residents and the maintenance person were already serious about recycling and waste diversion. Even though this property only had 6 recycle carts, they did collect batteries and other hazardous waste, kept the OCC separate and collected used clothing for donation. The maintenance person was so dedicated to re-use that he removes the disposed dish soap containers from the recycling cart to collect the last few drops for washing the recycle carts out.

Recycling collection is set up in the resident entrance from the parking structure (figure 4). Empty carts are stored in the garage and brought in, as full ones are removed. As you can see from figure 4, the area is well



organized, clean and capacity in the recycle area is maintained so that residents are comfortable disposing of their material.

As stated earlier, this property had 6 carts when we first visited. Since then they have accepted another 5, to bring them to 11, still below recommended best practices, but with all their efforts combined it brings them much closer to where they should be. Unfortunately at this time they continue to refuse more carts, due to space, but their continued efforts need to be applauded.

*Figure 4. Royal Windsor Terrace*



Boardwalk Properties is a national corporation with headquarters in Alberta. They own and operate 21 rental properties in the Windsor area with 1,495 units. Five of their properties had capacity to meet best practices guidelines when we started and one property had no recycling program in place. Through communication with EWSWA staff, the fantastic co-operation of the Boardwalk area manager, Boardwalk accepted the 100 carts to bring the other 16 of their Windsor properties to best practices capacity. They have

also brought EWSWA staff into their buildings to educate the residents on recycling expectations in the community. In one case, one of their buildings with 184 units had 5 carts. After the delivery, they increased to 25 carts, and after just 2 weeks from delivery were filling every cart each week (figure 5 and 6).

*Figure 5 and 6. Lauzon Towers after addition of best practices cart requirements*



Solidarity Towers is a 300-unit co-op building on the east side of Windsor. The residents and staff have always participated and taken recycling seriously. When we first visited this building we found 26 - 95-gallon carts lining a wall in the parking structure (Fig. 7). The staff must move these carts approximately 300 feet out of the underground garage for collection. In addition to the carts, they try to bundle their OCC to conserve space in the carts. After discussion with the management at this building about capacity and best practices, they accepted an additional 4 carts and committed to discuss alternate OCC collection methods with EWSWA that may enhance capacity.



Figure 7. Solidarity Towers carts, before



Figure 8. Solidarity Towers, EWSWA poster



### **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 and it is important to address this first before other program improvements are put in place. During Phase 2 site visits the baseline container quantities were recorded and information was collected about where containers could be relocated within the building to provide more convenience to residents. Site visits also provided the opportunity to determine if additional containers are required and where additional containers would be stored and ultimately used.

#### **4.3.1 Type of recycling containers**

Recycling storage space is referred to as 'capacity' derived from the recycling containers shared by building residents to deposit their recyclables. The EWSWA does not consider itself, and does not want to be, a retail business. While, in fact, we do sell/supply various waste diversion materials, we do not promote this fact. The multi-unit residential buildings, like any other ICI business can obtain recycling boxes or roll out-out carts through us, for a fee. The exception is that registered condominium corporations receive collection containers free of charge. There are also private businesses locally that sell or rent various collection containers.

Most multi-residential properties utilize 95-gallon roll out carts for their recycling collection. Some utilize 14 to 16 gallon boxes and a few prefer to use clear plastic bags. The collection contractor will not leave recycling at the curb unless the driver cannot verify the contents of the container. In the Essex-Windsor area there are few properties that utilize front load bins for recyclable materials, and the ones that do, use them strictly for OCC collection. The bins are obtained through purchase or rental from local businesses.

Typically, in the past, container type, size and numbers would be hit and miss, or left to the collection contractor to address. In the 7 municipalities of Essex County it would be up to the driver to notice consistent overflow or loose material. The driver or the route supervisor might suggest to the owner/manager that they invest in more or larger containers. In the City of Windsor, the “contractor” used to be municipal and such issues were referred to a supervisor, who informed the owner/manager of the situation and enforced better control of the materials.

Since implementing the outreach and best practices program, a dialogue has been established with many of the owner/managers and EWSWA staff. The owners/managers now have a contact to ask questions and receive accurate timely answers. It allows us to suggest solutions that represent best practices guidelines. An intimate knowledge of the multi-residential properties has led to an awareness of how many carts should be designated to a particular stream, based on building demographics and historical data in what has and has not worked at other, similar, buildings. In rare cases, a building at best practices capacity may find itself short of needed capacity due to the tenants desire to recycle everything they can. The cart fullness audits are a tool to identify this type of issue and make recommendations to the owner/manager to remedy the situation.

#### **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. This is equivalent in size to a standard 14-gallon blue box. In terms of multi-residential containers, the following guidelines are recommended by CIF and are considered best practices:

- 360 litre carts – one cart for every 7 residential units

- Bulk bins - one cubic meter for every 15 residential units (e.g., 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.

Recycling capacity in the multi-unit residential community of Essex-Windsor was low, with approximately 40% of properties not participating in the recycling program. Capacity was also low. Cart audits were not the best option to determine overall capacity in this community. Many of the larger properties that already had recycle programs in place would store their recycle carts inside the secure buildings and only place out full containers for collection. There was no way to know if and how many partial or empty carts remained inside the building on collection day. Cart audits did reveal non-participants or new participants and the capacity added as properties became involved. The site visits were the best tool to evaluate the true number of carts or other collection containers and therefore capacity at a property and eventually for the community.

Table 4.8 summarizes the increase in capacity over the course of the project. As this report is being composed, capacity continues to increase due to the ongoing outreach efforts by EWSWA staff and the efforts of the Ministry of Environment. The table indicates an increase of almost 200,000 litres, which translates into an increase of approximately 550 tonnes of material per year.

Of special note is the 14(16) gallon box counts. Boxes recorded were the number of boxes placed out for curbside pickup and not the numbers that may have come from site visits. The reason for this is, most of the properties using boxes are town home style properties and the residents typically keep their boxes inside their homes and are not necessarily available during a site visit,( like carts are in an apartment building).

Table 4.8: Total number of recycling containers

	Baseline February 2010	Post implementation August 2010
Units with recycling service	21,663	25,274
14 gallon boxes (some larger boxes used, but mostly still 14 gal)	512	618
95 gallon carts	2177	2804
4 yard bins	10	10
Total program capacity in litres	841,456	1,040,040
Litres per unit	39	41

Statistics tells us that when using data to determine if there is a direct correlation between variables, that the closer to 1 the resulting number, the more direct the correlation. Graph 4.9 shows the correlation factor of 0.749 before implementing the program to increase capacity and collection, and 0.80887 at the time of writing. Both numbers are reflective of a direct correlation indicating increased capacity directly reflects increased tonnage. As capacity increased the correlation factor crept ever closer to 1, indicating an even stronger relationship between capacity and tonnage.

From this information you would think that increasing capacity would be as simple as delivering carts, boxes or dumpsters to properties. In the Essex-Windsor region it was not that easy. As stated earlier in the report, recycling containers are not normally provided free to the IC&I community. Many property owners/managers expressed concerns over the cost of the containers. The EWSWA, with help from CIF, offered 95-gallon roll-out carts to multi-res properties, which resulted in increased interest. This message was communicated to the owners/managers at least 3 times through direct contact, mail or e-mail. Cost was not the only prohibitive reason given by the owners/managers for not increasing capacity, even though it was the most stated reason. Other reasons were; room, aesthetics, fear of theft or vandalism and the responsibility of getting the carts out for collection on the appropriate day. It was hard to comprehend that, managers (more than a

couple) were indicating they would not accept more carts because the residents would complain they didn't like the way it looked. None of the reasons provided were truly legitimate, but had to be respected. If any multi-unit residential community, owner or manager truly wanted to increase recycling they could, just by increasing capacity. Ultimately, sometimes after much discussion, many property owners/managers saw the value to increasing capacity. The Essex-Windsor region now has 55% of its multi res properties at or above recommended best practices for capacity levels. In addition some properties (1%) increased capacity but not to the recommended best practices levels. There was some discussion over capacity at buildings housing students or seniors verses traditional properties. As far as capacity is concerned, there should be no difference. From observations, seniors and some student buildings seem to be more diligent in their efforts to recycle everything that can be recycled, while other buildings were not so diligent but had more to recycle. These buildings typically had more recyclables in the garbage, where the senior buildings had less or no recyclables in the garbage.

Graph 4.9: Relationship between number of recycling containers and recycling

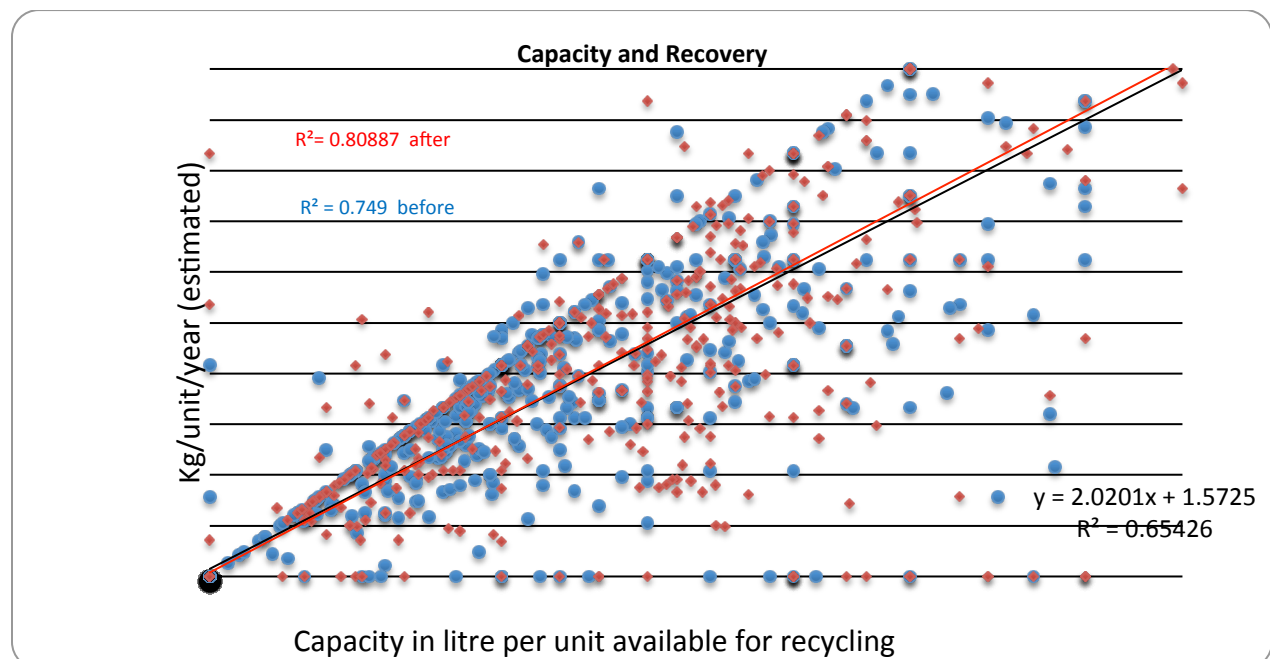


Table 4.10: Recycling capacity and recycling rate, baseline and post-implementation

Capacity range	Baseline		Post-implementation	
	Number of Buildings	Kg/unit	Number of Buildings	Kg/unit
Best practice range: 45 to 55 litres/unit	55	82	98	90
Low: less than 45 litres/unit	396	36	313	45
High: more than 55 litres/unit	118	139	164	141

### **4.3.3 Other Initiatives**

Not because of this program, but during, the EWSWA undertook a review of its Master Plan. Included within the document for public scrutiny are plans that could include limits on garbage, changes to collection frequency and increased types of material being collected to recycle. While the review is still ongoing at the time of this report, it is worth noting that there may be changes coming that will affect the community as a whole in regards to recycling.

## **4.4 Phase 4: Provide promotion & education materials**

### **4.4.1 Print materials**

A project goal was to distribute new print 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 municipal specific information.

The *CIF Best Practice Guidelines* recommends strategies for distribution of print materials which include that municipalities take 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. If time permits, a good practice is to handout the superintendents' handbook and display posters and signs at the time when recycling containers are being delivered to the building.

A part of the plan by EWSWA staff was to distribute the workload in the beginning. While some staff went out gathering information on the multi-residential community other staff assembled the promotional and educational material that would be distributed. CIF templates were used to create brochures and posters with a "Recycling Moments" theme. The posters were placed in strategic places to act as a visual reminder to recycle. The brochures included local information on the materials collected in our two stream recycling system. They also provided contact information in the event recipients had other questions.

When visiting a participating property, two EWSWA staff would generally be present. While one staff member spoke with the owner/manager the other member would deliver the P&E to each door. Separately or jointly, depending on timing, EWSWA staff would re-label carts, hang posters and put up signs where allowed and appropriate.

Table 4.11: Summary of Promotion & Education materials used

Promotion & Education component	Number distributed	Method of distribution
Resident flyers	25,000 1 per residential unit	By municipal staff to each unit
Posters	1,500 1 to 20 per building, depending on bldg size	Posted by municipal staff or building management on each floor (chute room), laundry room, lobby, mail room, etc.
Signs	500	By municipal staff, where space and structure allowed
Containers labels	1,262 – 2-3 per cart (inside, top and front)	By municipal staff

#### 4.4.2 Outreach and other materials

In-unit collection bags were distributed to each unit in participating buildings. Along with the previously mentioned P&E materials, EWSWA included an 8.5" x 11" copy of the local recycling guide, a fridge magnet with pictures of recyclable material (by stream), an 8.5" x 11" colour copy of our Household Chemical Waste collection and Public Drop off information. We also included remaining copies of our Enviro-Tips newsletter in many of the bags.

EWSWA staff made themselves available to conduct recycling seminars and presentations for owners/managers and residents. In addition, communications were forwarded to property management companies and the local condominium master board making them aware that EWSWA staff were available to attend their offices or meetings and provide information regarding recycling and the multi-residential community. While the response has been slow, we continue to get requests for the seminars from resident groups at some of the larger buildings.



Table 4.12 Summary of Other promotion and educational materials used

Promotion & Education component	Number distributed	Method of distribution
Recycle Guides	25,000	By Municipal staff to each unit
Fridge Magnets	25,000	By Municipal staff to each unit
Enviro-Tips	15,000	By Municipal staff to each unit
HHW – Public Drop Off Info	25,000	By Municipal staff to each unit
In-Unit collection bags	25,000	By Municipal staff to each unit

#### 4.4.3 Timing of Promotion & Education campaign

Timing for this project has been difficult to predict. During the application process it was projected to be completed by summer of 2009. No one at that time could predict a strike by the City of Windsor employees, ending garbage and recycling collection for the summer. The project did carry on in the 7 municipalities of the County of Essex, not affected by the strike. The overall effect was that timelines had to be shifted. Following a settlement of the labour dispute in the City, it took quite some time to get things back to normal. Residents had become accustomed to waste disposal at any cost, resulting in recycle carts being taped and screwed shut at many locations. Initial cart audits could not be conducted until the situation returned to normal. Much of the distribution of in-unit collection bags and P&E were completed late in 2010, cart distribution and best practices capacity with the final cart audits were to be completed in fall 2011. It is important to note that ongoing efforts are being made, with the co-operation of the MOE, to recruit the remaining properties that still insist on non-compliance with the recycling regulations.

## 5. Project budget and schedule

Table 5.1 CIF 156 - Project budget, planned and actual

Description	Unit	Quantity (est.)	Unit Cost (est.)	CIF Approved (upset limit)	Quantity (actual)	Unit Cost	Cost
Project planning, implementation, monitoring and data input	Buildings	569		\$34611	569	\$61	\$34709
Mileage (large region)				\$2160			\$2160
Final report	Report	1	1930	\$1930	1	\$1930	\$1930
P&E (including bags)	26000	26000		\$29500	26000	\$1.16	\$31860
Staff time, including summer student				\$11400			\$11400
<b>Total</b>				<b>\$79601</b>			<b>\$82059</b>

Note: This project funding varies from other municipal multi-res project as it was approved before the Best Practices Guidelines were developed which included a standard funding formula for projects.

Table 5.2 CIF 156 - Project schedule, planned and actual

Project Deliverables	Approved Payment (upset limit)	Percent	Expected Completion Date	Completion Date
P&E material produced and ready to deliver	\$20,000	50%	Jun-09	Jun-09
Building site visit completed, P&E material delivered	\$10,000	25%	Feb-11	Mar-11
Submit final report	\$10,000	25%	Nov-09	Mar-12
<b>CIF Funds Requested</b>	<b>\$40,000</b>	<b>100%</b>		

## CIF Project 513 – Budget & Schedule

Description	Unit	Quantity (est.)	Unit Cost (est.)	CIF Approved (upset limit)	Quantity (actual)	Unit Cost	Cost
Purchase and distribute 360 litre containers	Carts	1612	\$57	\$101,556	1464	\$60	\$87840
	Labels	3224	\$6	\$19,344	2928	\$6	\$17568
<b>Total</b>				<b>\$120900</b>			<b>\$105408</b>

Project Deliverables	Approved Payment (upset limit)	Percent	Expected Completion Date	Completion Date
Purchase and distribute containers	\$45935	75%	May-10	Sept-11
Submit final report	\$15315	25%	Nov-09	Mar-12
<b>CIF Funds Requested</b>	<b>\$61250</b>	<b>100%</b>		

## 6. Concluding comments

The Essex-Windsor Solid Waste Authority recognized that the multi-unit residential (multi-res) community in the area was a part of the local population that had been forgotten or overlooked in the larger waste diversion strategy, until now. A plan to recognize this community as, not just part of the IC&I sector, but also as part of the residential sector was established. An application for funding, from the CIF, to help offset the financial burden of establishing a comprehensive data-base of all the properties, including, owner/manager/other contact and detailed building information, such as, waste disposal, barriers to recycling, demographics and recycle capacity along with other details was made. Following this application, but related to it, the EWSWA also applied to the CIF for financial help to attempt to bring all of the multi-res properties to recommended best practices for capacity. This would be accomplished by providing recycling carts or bins at reduced prices.

The goals established by the EWSWA were to populate a database with comprehensive information on every multi-res building in the Essex-Windsor area, increase the number of participating buildings, increase the amount of material collected, become more efficient and add capacity. It is clear that EWSWA has met its goals. A database was created and populated with relevant and timely information for every multi-res property in the area, allowing for EWSWA correspondence to be delivered effectively to this community. Also, partly due to direct contact with owners/managers, we were able to increase property participation from 53% to 87%. Presently only 8% of the total units in the region are not afforded a recycling program by their building owner/manager. The EWSWA continues to work with the MOE to establish recycling programs at the remaining 78 buildings that continue to resist implementing a recycling program.

We utilized various methods to increase the amount of material collected. When conducting individual site visits to gather information and speak with owners/managers, it gave us an opportunity to address some of the barriers to recycling efforts that we noticed. One barrier was that many residents were not aware of what could be recycled and in some buildings, some residents were not even aware there was a recycling program. EWSWA staff visits not only provided P&E materials to the residents, but allowed us to help the owner/manager promote their recycling efforts, as well as make suggestions to remove the recognized barriers.

As part of our efforts to increase captured materials the EWSWA also attempted to address the lack of capacity issues at properties. The increase in participating properties, along with promotion and education and other buildings increasing their capacity has resulted in over 843 95-gallon carts being added to the collection routes. This reflects a potential increase in material of over 840 tonnes, well above the set goal of 250 - 700 tonnes. Audits of cart fullness, which give a better picture of material collection, indicating that overall capture went from approximately 70 kg/unit to 90 kg/unit, or a 28% increase.

The efficient collection and processing of material is essential to maintaining financial stability in the municipal recycling business. Efficiency gains were made in many, subtle ways during this project. By reducing contamination

through P&E, throughput at the sorting facility has improved. The increase in capacity at many buildings has reduced the practice of residents mixing materials in the collection containers, thus reducing contamination in those buildings. The addition of 179 multi-res properties to the recycling collection route allows for improved utilization of truck and driver time on the road. Clearly the added capacity to the multi-res community has had a large impact. The Essex-Windsor multi-res community saw capacity rise from 33 litres/unit to 42 litres/unit. Recommended best practices indicate that 45-55 litres/unit is the goal for optimum capture of recyclables and we are continuing to move toward this capacity target. Through this project it was clearly shown that increased capacity relates directly to increased material collection.

While the impact this project has made can clearly be seen by EWSWA staff, the largest impact has been on the multi-res residents. It is clear that they understand that EWSWA and their owners/managers are committed to providing recycling programs for them. The residents in these properties have also been provided with a sense of empowerment. They know that they are to be legally provided with access to a recycling program and they understand that the EWSWA staff will listen and attempt to resolve recycling issues in their community.

## **7. Appendices**

Appendix A – Multi-res data spreadsheets, graphs and tables  
(separate excel file)

Appendix B – P&E materials distributed

Appendix C – Questionnaire

Appendix D – In unit bags distributed

*Appendices were not attached because of the file size. Please contact EWSWA for samples of P&E materials used and other supporting documentation from this project.*