

**Municipal Multi-residential Recycling
Performance Indicators:
Costs & Recovery Numbers**

CIF Project # 183

Final Report

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Executive Summary

The goal of this project was to benchmark recycling performance indicators for multi-residential (MR) waste management services in mid-size to large Ontario municipalities. It was initiated in response to a lack of current, readily available comparative MR data.

Due to limited staffing availability to collect and analyze comparative MR data, eight municipalities came together, partnering to help support the cost of this information collection and review, with some support from the Continuous Improvement Fund. The partners included the Cities of London, Guelph, Ottawa, and Peterborough along with the Regional Municipalities of Peel, Niagara, Halton and Waterloo. The deliverables included guidelines for improved MR performance and recommendations to WDO for changes to MR Datacall reporting.

All participating municipalities were surveyed to obtain a list of the waste management services provided to their multi-residential sites; number of buildings and number of units served and not served, and details regarding how their services were financed. This information was used to benchmark Key Performance Indicator (KPI) ranges for annual cost per unit and capture per unit.

The results of the survey demonstrated that reliable data is not readily available within the individual municipalities to determine and report on MR performance. By extension, there is also a lack of comparative MR data, and it is therefore difficult to determine which municipalities are generating the highest capture per unit at the lowest cost. Most importantly, it is difficult to determine the potential penalties for municipalities with a low-performing MR sector and to balance the impact of low MR performance against the efforts and cost to counteract it.

This report focuses on establishing consistent calculation methods to be used from municipality to municipality when evaluating KPIs. Attention is given not only to calculation methodologies but to the source data needed to carry out the calculations. The report also provides recommendations to Waste Diversion Ontario on how to incorporate the data points needed to calculate these KPIs on an on-going basis into their annual Datacall.

The report demonstrates how an improved ability to evaluate individual performance will provide the information and insights necessary to plan for: increased capture and reduced costs, changes to legislation, capital acquisitions and long-term program success in the multi-residential sector.

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1. Introduction

In 2009, the City of London initiated a co-operative project with the City of Guelph, Peel Region, Niagara Region, City of Ottawa, Halton Region, Waterloo Region, and the City of Peterborough. The project was funded jointly by the Continuous Improvement Fund (CIF) and the partnering municipalities. The Municipal Waste Association (MWA), assisted by Genivar Inc., was retained to complete the work under the direction of City of London and the CIF Multi-residential Project Coordinator. The goal of this project was to benchmark recycling performance indicators for multi-residential (MR) waste management services in mid-size to large Ontario municipalities.

A number of municipalities, including London, were contemplating changes to how they service their multi-residential sector. Strategies under consideration included offering free garbage pick-up in exchange for strong recycling performance, and financing waste management services through utility fees rather than as a part of the tax base. These changes were being explored as municipalities were seeking opportunities to improve the efficiency and effectiveness of the waste management services in this sector.

Information was integral to developing a business case to assist municipal councils in the decision-making process. It was critical that baseline data be established so that the current scope and the cost of delivering recycling services to the multi-residential sector could be fully understood. Without this data, the impact of any change to how the multi-residential sector was serviced could not be accurately assessed. Similarly, cost ranges and performance measures could not be compared or contrasted between municipal programs to determine acceptable ranges.

Multi-residential programs have traditionally been poor performers. The data needed to begin to address this is not readily available. The annual Municipal Datacall administered by Waste Diversion Ontario (WDO), which is the primary source of cost and tonnage data for Ontario's recycling programs, does not require multi-residential activity to be isolated and tracked. MR data is grouped together with curbside activity, and this makes it difficult to determine and monitor the impact of poor performance.

Therefore the study scope for this project included a close review of each of the project partners' multi-residential recycling programs and identification of benchmarks and best practices. The anticipated deliverables on this project were profiles on a number of MR programs and:

1. A consolidated summary of recycling pickup, garbage pickup and other waste management services provided by the municipality or by private suppliers including the number of buildings and number of units served and not served.
2. A description of how the services were financed and by whom (municipality or building owner).
3. A benchmark of key performance indicator ranges amongst the partners for: cost/unit and cost/tonne for the different waste streams, and kilograms (kgs)/unit collected/diverted.
4. Recommendations to WDO regarding reporting of MR metrics and Best Practices as part of their municipal Datacall process.

In 2009 the study produced a preliminary set of multi-residential building performance indicators, which were shared at an Ontario Recyclers Workshop (ORW). The indicators showed annual cost ranges for recycling services from \$15/unit to \$42/unit and capture ranges from 72 kgs/unit to 108 kgs/unit. When individual program performance results were compared, anomalies were found. When the anomalies were investigated, inconsistencies in the data collection methods were uncovered. For example, some programs reported tonnages from schools with the MR weights (which overstated their kg/unit). Other factors affecting cost per unit and kgs collected per unit included recycling collection frequency, garbage set-out limits and whether or not cart costs and promotion and education cost allocations were included.

This report focuses on the the wrap-up phase of this project, in which each of the project partners program profiles was carefully reviewed and guidelines for improved MR performance and data capture were established. Extending from that review recommendations were formulated for WDO to include

isolated MR reporting in its annual datacall so as to enable municipalities to more accurately assess the impact of low MR performance and balance their action plans against the efforts and cost to counteract it.

2. Key Performance Indicators

Each partner municipality was interviewed by MWA staff and information was gathered about the number of buildings serviced, the scope of the recycling pick-up, garbage pick-up and other waste management services, the service delivery agents, the financing, and the tonnage collection data. The consolidated results of that survey can be found in Appendix B.

From the information presented from each partner, key performance indicators (KPIs) were derived that municipalities can use as guidance to improve their performance over time and against other programs. These KPIs will allow for improved data capture, which in turn will allow for a more accurate assessment of individual performance and comparability of data from multiple municipal sources. With improved comparability between municipalities will come increased opportunity to learn from high-performing communities. In addition to the KPIs, careful consideration was given to what data municipalities need to have to measure them, and how they can go about getting this information.

2.1 Multi-Residential KPIs

To measure and track municipal waste management programs over time, key performance indicators serve as benchmarks that can show the impacts of internal program changes and be used to compare recycling and garbage programs among municipalities. These indicators fall into three major areas: diversion, cost and participation.

2.1.1 Diversion

The overall goal of recycling programs is to increase the amount of material that is captured, collected, processed and marketed, rather than sent to landfill. Indicators of this category look at program performance in multi-residential recycling in terms of what could be diverted, and what is actually diverted. Program data should be segregated at a level to allow direct comparison by a particular housing type as difficulties may arise if it is not. The table below shows the Key Performance Indicators associated with diversion.

Indicator	Definition
Diversion amount	Amount of material diverted, either in tonnes or kilograms. This can be measured over the total program, per building or per unit. In the absence of direct weight data, the measure may be based on other reliable diversion indicators, such as the number of filled recycling containers.
Diversion rate	Total material diverted as a portion of total material generated. This can be measured on a per unit basis, a per-building basis or as noted above on other diversion indicators that can be consistently recorded over time.

It is important to note that while it may not be practical for some municipalities to have weight data, they can still measure. Translating visual audit data into tonnage data has been proven to be an effective way to determine weights if MR material is not tracked and weighed separately. Municipalities can establish estimated weights for carts that are 25, 50, 75 and 100% full. They must have two sets of estimated weights: one for carts that are 25, 50, 75 and 100% full of paper based materials and one for carts that are 25, 50, 75, and 100% full of comingled containers.

2.1.2 Waste Management Program Cost

Municipal waste management programs are financed by a combination of funding from WDO, the municipal tax base, recycling revenues and private fees. Indicators in this category look at how much

money is spent on various activities on an overall and a per-unit basis. The table below shows the key performance indicators associated with program cost.

Table 2 KPI Definitions: Program Cost	
Indicator	Definition
Total cost	Total amount required to pay for an aspect of waste management programming. This can be for total program costs, recycling or garbage only, or split collection out from landfilling or processing material.
Total revenues	Total amount received for selling material as commodities, and also the sale of Blue Boxes.
Unit cost (by housing)	Total amount for a program or an aspect of the program on a per-unit or per-building basis
Unit cost (by material)	Total amount for a program or an aspect of the program on a per-kilogram or per-tonne basis
Promotion & Education (P&E) Budget	Total amount of dollars budgeted for P&E on a per-unit or per-building basis

Where this level of cost detail is not available to municipalities, it is recommended that municipalities go through an allocation exercise to determine what portion of their program costs are multi-residential and determine estimate of the KPIs noted above.

2.1.3 Participation

Waste management programs will only be as successful as their participants make them, so it is important to ask for feedback on the public's perceptions of and interactions with their diversion and disposal programs. Indicators in this category measure set-out, public awareness and correct use of the system. The table below shows the Key Performance Indicators associated with participation.

Table 3 KPI Definitions: Community Involvement	
Indicator	Definition
Set-out rate	The portion of eligible collection points that put out material for collection. This can be measured using units or buildings.
Capacity	A quantitative measure of the volume available for recycling. It is a measure of the total containers designated for storage of recyclables. This is measured as litres per unit, or container to unit ratio.
Program awareness	A measure of the general public's awareness of the components of their local diversion program.
Correct use	A measure of individual performance in properly sorting materials for collection. This can be done on a per-unit basis or a per-building basis.

It is recognized that measuring set-out and correct use on a per-unit basis is not feasible for multi-residential programs. It may be used within a controlled project setting or as a derived average.

2.2 Data Requirements

Being able to measure any given indicator requires determining what data is needed to calculate the indicator's value. The table below shows the data necessary to measure each KPI outlined in the previous sub-sections. The most important numbers to benchmark are the diversion amount, diversion rate and the cost. Again, where this level of detail is not available to municipalities, it is recommended that municipalities go through an allocation exercise to determine what portion of their program diversion amount and cost are multi-residential. For some communities this may require baseline auditing and site

visits to buildings to determine appropriate allocation measures. This is discussed in greater detail in Section 2.3.

Table 4 KPI Data requirements	
Diversion KPIs	
Indicator	Data required
Diversion amount	Total material diverted in tonnes or kilograms or filled containers (for program, or building if available) Number of buildings Number of units
Diversion rate	Total material generated in tonnes or kilograms or filled containers (for program, or building if available) Total material diverted in tonnes or kilograms (for program, or building if available) Number of buildings Number of units
Program Cost KPIs	
Indicator	Data required
Total cost	Total program cost (disaggregated into collection, processing, transfer, disposal if possible)
Total revenues	Total program revenues (disaggregated into revenues from the sale of materials versus from selling Blue Boxes)
Unit cost (by housing)	Total program cost (disaggregated into collection, processing, transfer, disposal if possible) Number of buildings Number of units
Unit cost (by material)	Total program cost (disaggregated into collection, processing, transfer, disposal if possible) Total material diverted in tonnes or kilograms (for program, or building if available)
P&E Budget	Total amount of dollars budgeted for P&E Number of units Number of buildings
Participation KPIs	
Indicator	Data required
Set-out rate	Total number of buildings Total number of units Number of buildings putting out material for collection Number of units putting out material for collection
Capacity	Number of containers Size of containers Number of units
Program awareness	Number of buildings, units or residents Number of buildings, units or residents who were aware of program aspect under consideration

Correct use	Number of containers Number of materials sorted correctly
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2.3 Data Acquisition

Given the information included in the program overviews and the data needed to measure the multi-residential KPIs, it is clear that many municipalities do not have immediate access to the information they will need to calculate their KPIs. The following section outlines where some of the data can be acquired, and methodologies by which missing information can be assessed to produce a meaningful result.

For the purpose of performance tracking and data management, only multi-residential buildings that are receiving municipal service (either municipal staff or contracted staff) have been considered.

2.3.1 Demographic Data

This data should be available for all buildings, as it is data that is required for building permits, taxation, municipal elections and providing of waste services. Inter-departmental cooperation may be required to get the most up-to-date information. Municipalities should have a good understanding of which of their buildings are receiving collection services, the associated bin size and the collection route where the material is picked up from these buildings.

Basic demographic data is not useful in suggesting any program performance, but it does provide information on the overall portion of the program that is multi-residential. This is useful for planning promotion and education activities, community outreach or planning special events that are more tailored to those living in multi-residential buildings.

Data required	Source
Number of buildings	Municipal or regional tax department Municipal or regional planning department Census data
Number of units	
Number of residents	
Number/size of bins	Waste management department

2.3.2 Program Cost Data

While demographic data may be fairly easy to acquire, program cost data is much more difficult and depends on two key items: whether the municipality is using a contractor to service their multi-residential buildings, and if these buildings are services on the same collection routes as single-family households, businesses or schools.

Data required	Source
Total program cost (disaggregated into collection, processing, transfer, disposal if possible)	Municipal general ledger Waste management contract document Contractor invoicing statements
Total program revenues (disaggregated into revenues from the sale of materials versus from selling Blue Boxes)	Municipal general ledger Waste management contractor Revenue data from commodity buyers

If a municipality is providing its own collection services or processing its own material, it should be able to isolate these costs using its general ledger. It is best to separate the costs into collection, processing, transfer/depot costs and disposal, and any administrative costs. At the same time, data on the sale of materials can be collected.

In the case where a contractor is providing these services, contract documents or invoices can provide information on how much each activity costs. Where programs have a combined contract for collection and processing, it may be necessary to discuss a breakdown with the service provider to separate these components. If this is not possible, then either one cost should be used or the municipality should look at the cost breakdown of other programs such as their neighbours or municipal group members to develop of reasonable allocation methodology to separate the costs into activities. For revenues, if there is a revenue-sharing arrangement in the contract, it will be straightforward to calculate the total revenues. Where the contractor retains all of the revenue, basket-of-goods pricing or known market prices can be substituted to develop total revenue from commodity sales. Alternately, the retention of revenue by the contractor has likely lowered the contract price and may not be necessary.

Once costs by activity are known, the most difficult step is to isolate the portion for multi-residential buildings. In cases where multi-residential buildings are serviced along with schools, businesses or single-family households, it is important to avoid assuming that the costs for each type of location are the same. If this assumption is made, it will give the same result as if the entire program costs were considered, so segmenting the data in this manner does not give a usable result. If routes service several types of buildings, some form of allocation will be required.

Scenario	Cost of Multi-residential
MR buildings are serviced on designated routes with no schools, businesses or single-family households	Identified costs are entirely multi-residential
MR buildings are serviced on routes with schools or businesses	Allocation required
MR buildings are serviced on routes along with single-family households	Allocation required

For program costs, a number of allocation methodologies may be used to separate program costs for multi-residential buildings from the other material. All of these methodologies will require additional investigation on the part of municipal staff, but will provide key information on program performance:

1. Use cost information from another neighbouring or similar municipality who uses the same contractor, but has isolated multi-residential routes.
2. Ask the contractor for a more detailed break-down of costs.
3. Undertake several days of cost allocation work to determine how much time and effort is spent on multi-residential households.
4. Include a contract clause in future procurement documents requesting separate costing data for multi-residential households.

2.3.3 Program Tonnage Data

In addition to the cost of the program, the amount of material that is generated overall and the portion that is diverted, is key information. Municipalities, either from their own records, or from their processing contractor, should have data on the tonnes of material diverted. To develop generation estimates, programs can make use of their own curbside and multi-residential audit data, if available, or use data from other similar programs to make estimates.

Data required	Source
Total material generated in tonnes or kilograms (for program, or building if available)	Audits – own program or estimates using similar program data
Total material diverted in tonnes or kilograms (for program, or building if available)	Municipal records

	Contractor
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As with program costs, tonnage data will certainly be grouped for both single-family and multi-residential households, and possibly includes schools or businesses serviced along the same routes. An allocation methodology will be required to develop multi-residential-only information.

There are several possible allocation methodologies that can be used to separate tonnage for multi-residential buildings from the other material. All of these methodologies will require additional investigation on the part of municipal staff, but will provide key information on program performance:

1. On a monthly, seasonal or yearly basis, arrange for truck weights either mid-route or at the end of the route with only multi-residential material. This will allow for an estimate of the portion of the total program material that is multi-residential.
2. Perform audits on trucks with only multi-residential material on board to determine generation and estimate recovery.
3. Perform audits at multi-residential buildings to determine generation and estimate recovery

2.3.4 Additional Information

To track additional program performance, data beyond just demographics, cost and tonnage is useful. However, this data will require a more formal collection approach using allocation. Municipal or contract staff will need to develop a study methodology to collect the data over a period of time, which can then be used to measure performance. This data will provide feedback on the municipality's promotion and education program. Some information that may be useful to have is:

- Number of buildings putting out material for collection
- Number of units putting out material for collection
- Visual assessment of how full containers are
- Number of buildings, units or residents who were aware of program aspect under consideration
- Number of materials sorted correctly

3. Conclusions

Municipalities have a strong grasp of their overall recycling program costs and tonnage data, as this information is required in the WDO Datacall. Their understanding of the MR portion of those costs and capture, however, is not as strong. The data collected from the partner municipalities for this report revealed a high level of variation both in terms of the methodology used to benchmark performance and in the performance metrics themselves.

The potential penalties for municipalities with a low-performing MR sector include a lower score on the Datacall and subsequently lower funding pay-outs. Balancing the impact of low MR performance against the efforts and cost to counteract it is difficult, as the current reporting requirements do not call for isolated tracking or monitoring of this sector. Work is required to standardize how MR costs and diversion rates are measured, as reliable data is needed to determine where the problem areas lie and where improvements are possible.

There are many benefits to having a better understanding of MR operations. First, it will facilitate better management of the MR aspects of collection contracts, thereby allowing municipalities to monitor value for dollar for this service (i.e., maximize MR tonnage collected). Second, it will allow for an assessment of buildings within a community to determine which MR sites will most benefit from improvement efforts. It will also allow for direct comparison of MR activity on a municipal level and identification of opportunities for improvement based on successes in other communities. And finally, it will allow for the ability to identify the costs to implement the changes needed to bring performance up to the desired level.

Even with the detailed data collected from the municipal partners on this project, it is difficult to separate MR costs and tonnages from overall program costs and tonnages, as municipalities use a number of different models to collect and process MR material. Some programs have designated routes where only MR material is collected, while others may include pick-ups at schools, businesses or single-family residences. As such, the accuracy of the MR cost and tonnage information is subject to the degree to which the variables are isolated and accounted for. For municipalities with dedicated MR collection trucks and routes, MR-only costs and tonnes are known. Dedicated routes, however, are not the norm within municipal operations as this practice can be cost prohibitive. For most municipal programs: schools, single family households and businesses are collected and processed together, and in these cases only costs and tonnages for the overall program will be available and MR metrics must be arrived at through an allocation process.

When isolated MR data was not available, the partner municipalities each used varying allocation methods to determine their MR tonnes collected and costs. These methods included:

- Percentage based on population or households
- Percentage based on tonnage
- Percentage based on costs

These methods often assume that all households are the same, and generally do not provide an MR value that is different even though the recycling rate is known to be lower in buildings.

Currently municipalities do not get extra WDO funding for reporting additional data, but tracking this information may allow them to identify ways to improve their multi-residential program delivery cost and diversion performance, and potentially increase their funding. Tracking data would give municipalities the tools to evaluate their programs and take steps to implement effectiveness and efficiency measures.

4. Recommendations

4.1 Guidelines for Improved Performance

To effectively measure program activity, key performance indicators for multi-residential housing should consider three major areas: diversion performance, program cost and revenue, and level of participation. By extension, the number of carts (or capacity per unit) should also be monitored, as the Best Practice states that providing residents with sufficient storage capacity for their recyclables is directly tied to increasing capture rates. Similarly, efforts to engage the community through P&E efforts and training should also be tracked as they too are known to be effective strategies for increasing the number of tonnes collected. Much of the background information required to evaluate these KPIs is already required in the WDO Datacall, sourced from municipal or regional planning and waste management departments, census data, contracts or municipal general ledgers. Depending on how much MR data municipalities have, they may require additional allocations prior to evaluating their KPIs.

Where municipalities have isolated MR program cost and tonnage data available, they can use this information to directly calculate the values for their KPIs. Where municipalities do not have isolated MR program cost information available, additional investigation and determination will be required on the part of municipal staff. There are a number of possible allocation methodologies that could be used. Based on what data, time and resources are available and what is most appropriate to their operation, a program could choose to use any of the following methodologies:

1. Work with the contractor to develop a more detailed breakdown of costs and tonnes collected.
2. Carry out cost allocation studies to determine time and effort spent on MR.
3. Make changes to future procurement documents to request separate MR costs.
4. On a periodic basis, perform isolated collection and weighing of MR material.
5. On a periodic basis, perform waste audits on trucks to determine generation and estimated recovery per building.
6. On a periodic basis, perform audits at various MR buildings to determine generation and estimate recovery.
7. Complete site visits and develop a database to track MR building information such as number of units, number of carts, barriers to recycling, key contact info, etc.

The choice of which allocation methodology to use will depend on a municipality's individual circumstance and the availability of data. The studies are intended to be undertaken over a period of time, not as a permanent program change.

4.2 Recommended Changes to MR Datacall Reporting

The report authors recognize the challenges of determining KPIs in the multi-residential sector. However, to make significant program improvements it will be necessary for municipalities to develop improved metrics. The section will make recommendations on how the WDO Datacall could facilitate this transition by requiring that municipalities develop these metrics as a part of their datacall reporting and Best Practices compliance.

The recommendations presented below are organized by how they can support each of the previously identified MR KPIs (Diversion, Cost and Participation). In addition there are recommendations to support MR Best Practices, as identified by the Continuous Improvement Fund. The recommendations are general comments as it is expected that WDO staff will determine how much detailed information can be feasibly provided by municipalities, and the best way to graduate from current practices to better practices. Specific sections of the Datacall are referenced where appropriate.

4.2.1 Recommendations to support diversion KPIs

To support improved measurement of diversion KPIs, the following changes to the Datacall are recommended:

Section 4 Services Received (by contract) – additional recycling information

Require municipalities to:

- Report on actual or estimated tonnes
- Quantify number of carts/bins as well as litres/unit capacity

Provide the methodology to be used if tonnes are estimated (not actual). This may be done in similar fashion to how this is currently done for IC&I on the Datacall.

4.2.2 Recommendations to support Cost KPI

To support improved measurement of cost KPIs, the following changes to the Datacall are recommended:

Section 3.3 P&E

- Report on P&E Spending for MR

Section 4 Blue Box Costs (collection and processing)

Require municipalities to:

- Report on actual, estimated or % of cost that are MR

Provide the methodology to be used if costs are estimated (not actual).

4.2.3 Recommendations to support Participation KPIs

Section 3.2 Set-out limit/user pay

- Require MR data on set-out limit/user pay.

4.2.4 Recommendations to support MR Best Practice

Section 3.4 Best Practices questions

Require municipalities to report on:

- MR, specific, P&E efforts,
- MR user-fees,
- MR site plan approval process for newly-constructed buildings with recommended minimum standards for recycling rooms

The current section on P&E asks detailed questions about how many print ads, newsletters, flyers, etc. should be used. This report recommends additional questions be asked about the budget allocation to P&E dedicated to MR, and questions to determine what they are doing on P&E in this area.

GAP Section

Currently, in the GAP section, municipalities are asked 'how many composters' does your municipality have? Introduce an MR requirement such as 'how many recycling containers - carts or bins - do you have for multi-res?'

For municipalities in general – these are data collection activities that will help improve data management of MR, and for continuous improvement of their program. Tracking data will give municipalities the tools to evaluate their programs and take steps to implement effectiveness and efficiency measures. The competitive nature of the current funding program should reward those programs who are actively improving their operations.

Appendix A

Glossary of Terms

Glossary of Terms

Continuous Improvement Fund (CIF) was created to help Ontario municipalities undertake Best Practice initiatives to improve the effectiveness and efficiency of Blue Box recycling programs. Program funding is derived by setting aside a percentage of the fees that companies contribute to municipalities as their share of the cost of operating Ontario's Blue Box programs.

The **Cost Containment Plan** was prepared in response to the Minister of the Environment's request for new measures or enhancements to existing measures to allow the Blue Box system to divert at least 60 per cent of Blue Box wastes by 2008. The plan includes detailed program requirements and specific cost containment principles for municipalities and stewards. These policies and practices ensure compliance with cost containment principles and encourage effectiveness and efficiency for municipal Blue Box systems. The report also includes an analysis of the financial and operational impacts of the Blue Box Program Plan on the small business community. While policies and practices to ensure cost containment are focused on the efficiency of the Blue Box Program, the Program is also expected to increase its effectiveness as measured through increased recovery of Blue Box materials.

The **Datacall** requests Ontario municipal program information and prior year tonnage, cost and revenue data for Blue Box materials. Cost and revenue data are used to determine the net Blue Box system cost and to calculate stewards' 50 percent contribution. WDO undertakes a comprehensive verification process of Blue Box tonnage, cost and revenue data provided in Municipal Datacall submissions to confirm that the data are accurate and attributable to the Blue Box program. Verification of Blue Box tonnage involves a year-over-year comparison of Blue Box tonnes marketed in relation to households served, materials marketed in relation to materials available in the residential waste stream, and household recovery rates by material. Verification of Blue Box costs and revenues involves year-over-year comparison of Blue Box costs in relation to households served, year-over-year variance calculation for each cost category for each program, and analysis of gross costs, revenues and net costs by groupings of similar municipalities.

Efficiency and Effectiveness Fund (E&E Fund) was created to help Ontario municipalities increase the amount of material they recycled or to lower their net program cost. This fund was derived by setting aside 10% of the steward obligation to a fund that municipalities could apply to in several key areas. This fund was replaced by the CIF.

Municipal Industry Program Committee (MIPC) is the principal forum for discussions relating to Blue Box program between representatives for municipalities and stewards represented by Stewardship Ontario. The committee is chaired by the WDO CEO as a non-voting member, and includes equal representation from members from the Association of Municipalities of Ontario (AMO) and the City of Toronto and Stewardship Ontario. The group makes recommendations to the WDO Board relating to Blue Box program management on collection and analysis of recycling program data, calculating and reporting on payments to individual municipalities, cash flow to municipalities, and reporting on progress toward targets.

Municipal Waste Associate (MWA), formerly known as the Association of Municipal Recycling Coordinators (AMRC), is an incorporated not-for-profit organization formed in 1987 by Ontario municipal waste management professionals to facilitate the sharing of municipal waste reduction and recycling information and experience.

Stewardship Ontario (SO) is a private, not-for-profit organization that develops, funds and operates Ontario's recycling programs for printed paper and packaging (Blue Box) and household hazardous and special waste (Orange Drop). The organization collects fees from stewards to help to pay for the costs of collecting, transporting, recycling and disposing safely of products and packaging throughout the province and audits Ontario businesses that sell designated materials into the marketplace to ensure proper reporting and ensure that responsibility is shared among all companies who produce these materials.

Waste Diversion Act (WDA) provides the legislative framework under which Ontario's diversion programs operate. With this Act, the Minister of the Environment designates waste materials for which programs may be required. These include Blue Box waste, used tires, waste electrical and electronic equipment and municipal hazardous or special waste. This act details the enforcement provisions and penalties for non-compliance.

Waste Diversion Ontario (WDO) is a non-crown corporation created under the Waste Diversion Act (WDA) on June 27, 2002. WDO was established to develop, implement and operate waste diversion programs for a wide range of materials.

Appendix B

Questionnaire

PART 1: MULTI-RESIDENTIAL RECYCLING PROGRAM GENERAL INFO

INFO	DATA COLLECTION POINTS
General	Population of your municipality?
General	What percentage of municipalities population lives in a multi-residential setting?
Recycling	Is your recycling program single or two-stream?
Recycling	Does your municipality have a regulation that requires multi residential buildings to recycle?
Recycling	How does your municipality define multi Residential Buildings?
Recycling	Does your municipality include townhomes numbers in its MR Bldg calculations?
Recycling	Does your municipality include schools or Business Improvement Areas (BIAs) numbers in its MR Bldg calculations?
Recycling	Do you keep you keep a minimum number of containers at each building?
Recycling	Are all of the multi-residential buildings serviced on the same collection frequency?
Garbage	Is garbage collected at the same frequency?
Garbage	If garbage is not collected at the same frequency, please specify how often it is collected.
Composting	Does your municipality have a green bin program in place? If yes, how long has the program been in place?
Composting	For municipalities that have a green bin program in place does this program extend to multi-residential buildings? If not, are there plans in place to roll out this program to multi-residential buildings?

PART 2: MULTI-RESIDENTIAL RECYCLING PERFORMANCE INDICATORS

Waste Category	Unit of Measure	Data Collection Points
Recycling Data	Bldgs	Total # of MR Bldgs in your Region or City
		Total # of MR Bldgs receiving municipal recycling collection
	Units	Total # of MR Bldg units
		Total # of units receiving municipal recycling collection
		Total # of households (curbside plus multi-residential)
		Total # of BIA units receiving municipal recycling collection
		Total # of schools receiving municipal recycling collection
	Containers	95-Gallon Carts or Bulk Bins?
		If 95-gallon Carts are used, please indicate the total # in use
		If bulk bins are used, please indicate size (e.g., 3 yds, 4 yds)
		If bulk bins are used, please indicate the total # in use
	Volume	Litres per unit
	Weight	Total # of tonnes recyclables collected
		Kg / Unit - participating units Kg / Unit - all units
	Cost	Total Collection Cost
		Total Processing Cost
		Revenue
	Net Cost	Total Program cost after revenue
		Total Cost / Bldg
		Total Cost / Unit
Cost / tonne / Year - Collection + Processing		
Financing	Approximate expenditure on P&E	
	How is program financed? WDO, Recycling Revenues, Municipal Taxes, Combination Who pays for 95 gallon carts? Municipality, Bldg. Owner or Combination of both.	
Garbage Data	Bldgs	Total # of MR Bldgs receiving municipal garbage collection
		Total # of MR Bldgs receiving private sector garbage collection
	Units	Total # of units receiving municipal garbage collection
	Weight	Total # tonnes of garbage collected
		Kg / Unit
	Collection	How often is garbage collected?
	Cost	Total Cost (Collection + Landfilling)
		Cost / Tonne / Year - Collection
Cost / tonne / Year - Landfilling		
Total Cost / Unit Total Cost / Bldg		

Appendix C

Program Data

Program Overviews

(based on 2009 research)

The deliverables for Project 183 include:

1. An overview of each municipality's level of service, including a description of recycling pickup, garbage pickup and other waste management services provided by the municipality or by private suppliers including number of buildings and number of units served and not served, and
2. Descriptions of how the services are financed and by whom, including allocation methodologies used to separate multi-residential costs and tonnage from overall program data.

The first step to identify key performance indicators for MR waste management activities was the collection of data from the municipal project partners. In addition to the project sponsor, the City of London, information was also collected from five other programs. In 2009, each program was asked to complete the questionnaire found in Appendix B about municipal demographics, their recycling program and garbage collection. The data provided by each municipality is summarized below. It formed the basis for a presentation at an Ontario Recycler Workshop in 2009. While resources did not allow a full update on the numbers from each program in 2013, an italicized note has been added to provide a brief program update.

The seven municipal partners involved are:

- The City of London
- The Region of Peel
- The City of Ottawa
- The Region of Halton
- The Region of Niagara
- The City of Peterborough
- The Region of Waterloo

The City of London

The overall population of the City of London is 379,200 with about 30% living in multi-residential buildings. In London, multi-residential buildings are defined as residential buildings with 6 units or more. In some cases however, buildings with 10 to 12 units may be on the curbside program. Of the approximately 20,000 townhomes in the City, about ten locations are included in the multi-residential program with the remaining serviced as part of the single-family program. London does not provide service to BIAs or other commercial sites such as hospitals or schools on the multi-residential collection route. In London, the multi-residential buildings are serviced on a dedicated collection route.

London provides two-stream recycling and does not have a regulation that requires multi-residential buildings to recycle. There is also no by-law to enforce a minimum number of containers at each building and hence many do not have enough containers.

	Total	Receiving Municipal Recycling Collection		Receiving Municipal Garbage Collection	
Buildings	720	620	86%	706	98%
Units	47,350	43,250	91%	46,403	98%
BIAs		0			
Schools		0			

Building owners are responsible for the cost of containers. In terms of frequency of recycling collection, service is provided weekly. As part of a pilot project, one building received two collections per week, as there is limited space, and more buildings may be added to this schedule as needed. London's program is financed by a combination of WDO funding, recycling revenues, and municipal taxes.

Tonnage Collected	3,100	
Total Collection Cost	\$414,960	Contract price (net of revenue)
Total Processing Cost	\$387,500	\$110/tonne: \$75/tonne + 50% of revenue
Revenue	\$155,000	\$100/tonne and 50% revenue sharing with contractor

In London, garbage is collected by City crews on routes that are entirely different from recycling collection routes. Most larger multi-residential buildings received garbage collection twice as often as recycling collection.

Tonnage Collected	24,215
Kilogram/Unit	522
Total Cost (Collection + Landfilling)	\$2,400,000
Per Unit	\$52
Per Building	\$3,399
Collection Cost Per Tonne	\$69
Landfilling Cost Per Tonne	\$52

2013 update

Program overview

	2009		2012	
	Number with recycling program of total number	% with City recycling program	Number with recycling program of total number	% with City recycling program
Units	43,250 of 47,350	91%	47,870 of 51,700	93%
Buildings	620 of 720	86%	710 of 810	88%
Tonnes marketed	3,100		3,300	

Program enhancements

Since 2009 London has implemented a number of initiatives to increase the capture of Blue Box recyclables from multi-residential households. Much of these program initiatives have been made possible through funding and technical support offered through the Multi-residential Best Practices Program, offer through Waste Diversion Ontario's Continuous Improvement Fund. The program enhancements include:

More recycling carts

Increasing the number of recycling containers (360 litre carts) in our program has been a significant focus for this program. We increased the number of recycling containers in our program by 50%. Best Practices recommends that each household has 50 litres of recycling capacity in recycling space (carts or bins). In 2009 residents had an average 25 litres per unit on average and are current ratio is 38 litres per unit. We continue to work towards the best practices ratio.

Cardboard bin pilot project

To further increase recycling capacity, improve the efficiency of cardboard collection and increase the diversion of this material we have introduced cardboard bins (4 yard and 6 yard bins) at buildings on a pilot basis at approximately 30 buildings.

Promotion & Education

We have introduced a suite of new P&E materials for this program and have continued to supply P&E on a regular basis. Promotion & education includes printed materials: flyers, posters, signage, a handbook for building staff and managers, and outreach activities: lobby displays, in-unit recycling containers, recycling workshops for staff and property managers

The City of Ottawa

Ottawa has a population of about 877,300 residents, 23% of whom live in multi-residential buildings. In the City, multi-residential buildings are classified as either high rise or low rise. High rise buildings are those containing 7 or more dwelling units each of which has self-contained living, kitchen and sanitary facilities and is owned or rented on not less than a monthly basis. Low rise buildings are groups of residential dwellings of 7 units or more per property, usually attached by a common wall such as townhouses, garden homes, stacked townhomes or other similar residential complexes which is owned or rented on not less than a monthly basis. As such, townhomes are considered multi-residential.

Ottawa's recycling program is two-stream and recycling at multi-residential buildings is enforced by By-Law 2006-300. There is no minimum number of containers at each building. The City pays for both 360 Litre carts and Front End Loading (FEL) containers. The city provides once-weekly pick-up at most buildings, with a number of buildings on a twice-weekly collection to accommodate limited space to add extra containers.

	Total	Receiving Municipal Recycling Collection		Receiving Municipal Garbage Collection	
Buildings	1,254	1,254	100%	1,254	100%
Units	91,665	91,665	100%	91,665	100%
BIAs		0			
Schools		0			

If a building requires an extra collection due to residents moving in or out or a holiday, another pick-up can be arranged free of charge. No schools or Business Improvement Areas are included in the multi-residential program. Ottawa covers collection of industrial, institutional and commercial material through either private operators or the City's Yellow Bag Program. Ottawa's program is financed by a combination of municipal taxes and private charges.

Tonnage Collected	9,942	Glass Metal Plastic (GMP) = 2008.86, Fibre = 7933.16
Total Collection Cost	\$1,939,533	FEL GMP & Fibre: \$ per lift, Recycling Cart: \$ per tonne
Total Processing Cost	\$909,711	GMP: \$255.00 per tonne, Fibre: \$50.10 per tonne
Revenue	\$1,325,155	Portion of total tonnage: MR is 14% of total tonnages
Promotion & Education	\$25,000	Estimate

In the City of Ottawa, similarly to London, garbage is collected by a different contractor on completely different routes from those used for recycling pick-ups. Buildings receive once-per-week collection of the allocated number of garbage containers, based on the container limits set by the City base on the number of units. If the property or building requires additional collections, the property manager or owner is required to pay for them.

Tonnage Collected	33,162
Kilogram/Unit	362
Total Cost (Collection + Landfilling)	\$2,667,054
Per Unit	\$29
Per Building	\$2,127
Collection Cost Per Tonne	\$41
Landfilling Cost Per Tonne	\$29

2013 update

The City of Ottawa services 99% of all multi-residential properties with either containerized or curbside garbage/recycling collection and/or cart recycling. All multi-residential buildings in Ottawa are required to have a recycling program at their location. All multi residential properties that receive curbside garbage collection are on the green bin program. The City has also recently added those properties that receive containerized garbage collection to the green bin program, if requested.

The City of Ottawa funds the multi-residential program (and the curbside program) through property taxes. A "Solid Waste Fee" is indicated on the tax bill. The 2013 SW fees are \$82.00 per unit for those properties that receive curbside garbage collection service and \$40.00 per unit for those properties that receive containerized garbage collection service.

The City manages the multi residential data in an internal database which includes; contact information, building information, collection information and details, and site inspection reports.

Promotion and education for the multi residential program is done through the waste management inspectors , customer service clerks as well as a team of outreach staff, on a request bases. The City has

labels that affix to the containers and carts with program information. The City also supplies a number of posters and pamphlets as well as a handbook for superintendents and property managers that are available upon request.

In 2013, Council approved the “Solid Waste Collection Guidelines for Multi Unit Residential Development”. This document was created so that developers and planners can take into consideration proper waste storage and waste collection systems while developing a new multi residential property.

The current multi residential collection contract will expire on May 31, 2014 and a new multi residential collection contract will be in effect June 2, 2014.

Peel Region

In the Region of Peel, about 23% of the 1.2 million people live in multi-residential housing. Within the Region, multi-residential buildings are defined as residential buildings with more than 6 units. However, some buildings in excess of 6 units receive curbside collection. Townhomes with central collection areas are included in this definition, which would use carts or front-end bins for recycling collection.

All recycling in Peel is single-stream, with enforced recycling in multi-residential buildings under By-Law No. 91-2007. There is a set fine of \$105 for placing recyclable material in the wrong container. Currently Peel’s Waste Collection Design Standards Manual suggests the buildings should have at least one cart for every 10 units, but this may be updated to one cart per seven units. The Region is making efforts to provide the minimum capacity required through providing front-end recycling bins and providing additional carts to buildings in need, but there is no direct enforcement of recycling capacity at buildings. The Region is responsible for the cost of containers.

	Total	Receiving Municipal Recycling Collection		Receiving Municipal Garbage Collection	
Buildings	661	661	100%	648	92%
Units	92,000	92,000	100%	90,160	98%
BIAs		1,213			
Schools		284			

Recycling is collected once a week at multi-residential buildings. A few locations still receive twice-a-week recycling, a practice which is being phased out with the introduction of front-end recycling. Peel also provides recycling collection service to schools, BIAs, and municipal properties as part of the Region’s multi-residential collection routes. Peel’s program is financed by a combination of WDO funding, recycling revenues, and municipal taxes.

Tonnage Collected	8,707	Includes BIA, ICI, schools
Total Collection Cost	\$622,846	Estimate: 60% of front end collection and 40% cart-based collection
Total Processing Cost	\$446,719	Estimate: \$61.08 processing fee per marketed tonne, assuming 16% residue rate applied to tonnes collected
Revenue	\$598,990	Estimate: \$81.92 per marketed tonne
Promotion & Education	\$34,307	Includes printing and delivery of annual Multi-Residential Waste Guides, recycling handbooks for superintendents, property managers and owners, and laminated recycling posters

Garbage in Peel Region is not collected at the same frequency as recycling and is instead picked up twice per week.

Tonnage Collected	56,003
Kilogram/Unit	609
Total Cost (Collection + Landfilling)	\$6,958,661
Per Unit	\$77.18
Per Building	\$10,527.47
Collection Cost Per Tonne	\$23.44
Landfilling Cost Per Tonne	\$77.18

2013 update

The Region of Peel provides multi-residential collection services to over 650 locations representing approximately 89,000 units. The Region provides single stream recycling collection. Garbage is collected twice per week and recycling collection is generally once per week with the exception of properties with storage issues that require twice per week recycling collection. The Region provides front-end recycling containers ranging from 3 to 6 yd³ in size where applicable and also 95 gallon recycling carts to other locations, which are typically smaller. A recycling guide dedicated to multi-residential residents is mailed out annually in the spring. Reusable blue recycling bags are provided free of charge and bin/cart stickers are affixed to all containers showing what materials can be recycled.

The Region will be starting a pilot project to integrate Radio Frequency Identification (RFID) technology in tracking and reporting waste collection data in 2013. 20 locations have been chosen to test the RFID solution with the intent to implement the program full scale in 2014. A "report card" will be generated for mailing out to property owners/managers showing the collection services provided during a specific reporting period, including information on garbage and recycling generation and diversion rates. It is hoped that with an increased awareness of the building's diversion performance and the ability for the Region to pinpoint low performers that diversion rates can be improved. Should the Region adopt some sort of user pay system, the RFID system will be able to provide the necessary data and integrate with an appropriate billing system.

Halton Region

With a population of about 450,000, Halton Region has about 31,000 households that are considered multi-residential buildings. Multi-residential buildings include residential dwellings with 6 or more apartments, as well as schools and a minimal number of townhomes that receive service via totes or bins.

The Region's recycling program is single-stream and the by-law is currently being updated and may include enforcement of multi-residential recycling. Recycling is collected once per week for all buildings.

	Total	Receiving Municipal Recycling Collection	Receiving Municipal Garbage Collection
Buildings		721	432
Units		27,000	No data
BIAs		18,000	
Schools		125	

The Region provides each building with as many bins as necessary. Halton's program is financed by a combination of municipal taxes and private charges.

Table 15 Recycling Program Cost and Tonnage for Multi-Residential Locations in Halton		
Tonnage Collected	4,205	
Total Collection Cost	\$355,000	
Total Processing Cost	\$339,553	
Revenue	\$20,250	
Promotion & Education	\$21,000	

Garbage at multi-residential buildings in Halton is collected once or twice per week, depending on the building.

Table 16 Garbage Program Cost and Tonnage for Multi-Residential Locations in Halton		
Tonnage Collected	9,858	
Kilogram/Unit		
Total Cost (Collection + Landfilling)	\$1,015,793	
Per Unit		
Per Building	\$2,351	
Collection Cost Per Tonne	\$13	
Landfilling Cost Per Tonne		

2013 update

The Region of Halton services approximately 500 apartment buildings with 95-gallon carts. Halton provides once every week single stream collection with a dedicated truck. Halton provides the carts at no charge along with posters for the recycling rooms. Each unit is provided with a recycling bag with the acceptable materials depicted in the graphics on the bags. Handbooks are available for the superintendants and Halton staff will deliver workshops upon request. Halton is using the Access database developed by CIF and is currently updating all the apartment information by conducting site visits and inputting into the database.

An organics pilot is being done at four apartment buildings. Part of the pilot has included a kitchen container study to determine preferences based on different styles and sizes of containers.

While conducting the site visits, apartment buildings are being assessed on the feasibility to implement an organics collection program at the building. Halton has developed draft Development Design Guidelines for Source Separation of Solid Waste with specifications and criteria for new buildings to ensure best practices for the management of solid waste are included in the design of the proposed building.

The City of Peterborough

Of the total population of 74,600, the City of Peterborough reports that about 26% of the population is living in multi-residential housing. Only townhomes which use 95-gallon caddies are considered multi-residential.

The City's recycling program is two-stream. The minimum number of containers at each building is two, with all buildings receiving collection once per week. Building owners are responsible for the cost of containers. Schools and Business Improvement Areas are not included.

	Total	Receiving Municipal Recycling Collection		Receiving Municipal Garbage Collection	
Buildings	162	161	99%	92	57%
Units	7,503	7,368	98%	2,945	39%
BIAs		0			
Schools		0			

The estimates shown below reflect Peterborough's collection operation, where multi-residential buildings are serviced on routes with single-family households.

Tonnage Collected	1,895	Estimate (21% of total)
Total Collection Cost	\$290,215	Estimate (21% of total)
Total Processing Cost	\$203,858	Estimate (21% of total)
Revenue	\$265,173	Estimate (21% of total)
Promotion & Education	\$10,662	Estimate (21% of total)

In Peterborough, not all buildings receive municipal garbage collection. Those that do receive collection from the City have their material picked up once per week. Estimates below are based on the portion of the City that is multi-residential (9%).

Tonnage Collected	1,482
Kilogram/Unit	503
Total Cost (Collection + Landfilling)	\$1,780,243
Per Unit	\$54
Per Building	\$1,742
Collection Cost Per Tonne	\$86
Landfilling Cost Per Tonne	\$54

2013 update

The City of Peterborough services approximately 90% of all multi-residential (over 7 units) buildings in the City, with carts. A good portion of the remainder (though not quantified) are serviced with blue boxes. The city provides free collection of unlimited quantities, once every week. Collection is principally curbside only, though there are a few exceptions where the truck will go a small distance onto private property if there are no obstructions or safety concerns. It is two-stream collection. Building owners must purchase their carts; tenants who use their own blue boxes to set out would need to purchase their own (the city provides one blue box at no charge, then they are \$5 each). It has also started to provide MR dwellers with free recycling bags, to carry their goods down to their depots.

Peterborough has been working with Anne Boyd/CIF to improve its MR program over the past couple of years. It is always a challenge to quantify changes, since collections are part of the single family collections. The city has much-improved labeling, bags available to residents, posters, brochures, and better-educated supers. It just finished the first of four separate collections of MR buildings only, and that

showed that about 10% of the recycling stream is coming from MR buildings (which is 23%-25% of the population). Staff note! that the loads coming from apartments were surprisingly clean, with little cross-contamination.

Peterborough does not have a Green bin or other organics collection program in place. Promotion of backyard composting continues to be an integral part of the city's education program.

Niagara Region

Like Halton, Niagara has a population of 450,000 residents. Of this amount, 10% live in multi-residential buildings. Niagara Region currently defines multi-residential as high-rise buildings with 7 self-contained units or more. Townhouses are not included in the Region's multi-residential unless vehicle access for curbside collection is not possible. Schools and Business Improvement Areas are also not included.

Niagara Region provides two-stream recycling. Multi-residential recycling is indirectly required through the Region's Waste Management By-law. For properties that use Regional garbage collection, there is a ban of recyclables from curbside garbage collection (more than 5% of recyclables by volume in the garbage is not accepted). Where waste is delivered by private contractor or by the individual household to Regional drop-off depots and landfill sites, there is a ban of recyclables from garbage containers and land-fill. There is no minimum number of containers at each building; it is left to the building owner or superintendent to determine. The building owner is responsible for the cost of the containers.

	Total	Receiving Municipal Recycling Collection		Receiving Municipal Garbage Collection	
Buildings	564	317	56%	319	57%
Units	20,697	11,710	57%	10,812	52%
BIAs		0			
Schools		0			

Collection frequency at multi-residential buildings is based on the service level requested by each lower-tier municipality in the Region. In 2009 Niagara had three levels of service:

- 16.7% properties use curbside Blue/Grey Boxes, which is collected weekly with alternating streams (papers one week and containers the following week).
- 4.6% use Base Level of Service, which includes weekly cart collection, alternating streams (papers one week and containers the following week).
- 34.9% use Enhanced Level of Service which includes weekly collection of both streams.

NOTE: Niagara has made significant changes to their program since 2009.

Niagara's program is financed by a combination of WDO funding, recycling revenues, and municipal taxes.

Tonnage Collected		This number was never calculated as Niagara did not weight this material separately or conduct any sort of visual audit at its buildings.
Total Collection Cost	\$243,449	
Total Processing Cost		Included with totals (\$107.51/tonne for total)
Revenue		Included with totals (-\$140.95/tonne)
Promotion & Education		No specific budget amount

In Niagara, garbage collection is also based on the service level requested by each of the area municipalities. There are three levels of service:

- 32% of properties currently receive Base Level of Service which includes once-per-week curbside garbage collection of up to a maximum of twelve containers.
- 24% of properties currently receive Enhanced Collection Service which includes front-end container service, with a collection frequency as requested by the building owner.

Tonnage Collected	
Kilogram/Unit	
Total Cost (Collection + Landfilling)	\$903,845
Per Unit	
Per Building	
Collection Cost Per Tonne	
Landfilling Cost Per Tonne	\$92.25

As part of the Region's contract which commenced in 2011, multi-residential buildings will not be eligible for curbside or front-end container waste collection service, unless the lower tier municipality requests it under Enhanced Collection Service.

2013 update

A region-wide multi-residential dwelling recycling program was implemented on February 28, 2011. A region-wide program was identified in the Region's Level of Service Study as one of the options to maximize waste diversion and help meet Council's 65% waste diversion target. This program was needed to standardize service between municipalities and provide consistent diversion services to both the low density and multi-residential sectors.

In preparation for the new program, staff secured Continuous Improvement Funding (CIF) funding for approximately 50 per cent of the total implementation costs.

Prior to the implementation of a region-wide program, staff completed site visits to establish baseline data for participation and determine the type of recycling services and recycling performance at multi-residential buildings. The site visits revealed that 29-32% of properties did not have a recycling program and a further 17% had a partial service with the collection of only the container stream.

For those properties that had recycling, the type of service varied in terms of recycling provider (i.e. private contractor, Region or local municipality), collection frequency and type of service (i.e. Blue/Grey Boxes vs. Recycling Carts).

As part of the new collection contract which began on February 28, 2011, weekly, two stream collection (Blue and Grey Carts) is provided by the Region to all multi-residential buildings with 7 or more units. Collection of recycling carts occurs either on-site (if it meets the Region's requirements set out in the Collection of Waste By Way of Entry onto Private Property Policy) or curbside.

Currently the Region is providing recycling cart collection to approximately 78% of multi-residential properties and a further 8% are serviced with curbside Blue/Grey Boxes. Approximately 6% do not have recycling, however, the Region is still working on bringing these properties on board which includes working with the local Ministry of the Environment office. Seven per cent of properties have decided to remain with their private sector provider and the Region does not have recycling information for approximately 1% of the multi-residential properties.

The Region offers recycling carts at a 50% discount as an incentive to superintendents, property managers and owners to ensure they have the appropriate cart to unit ratio. Over 1,600 carts have been sold and delivered to date. As well, the Region provides free in-unit recycling bags (one Blue Bag and one Grey Bag per household to store and transport recyclable materials). Properties that wish to use Blue and Grey Boxes need to purchase them for their tenants and they are available for \$5 each.

Based on sample weights conducted twice a year from multi-residential properties receiving recycling cart collection, approximately 1,060 tonnes of recyclables were collected in 2011 and 1,300 tonnes in 2012. In 2012, an average 1.29 kg/hhld/week was collected. The Region is currently servicing over 2,550 recycling carts from multi-residential properties.

In 2012, the Region implemented a Green Cart program for multi-residential buildings. This service is available on a request basis only.

Region of Waterloo

Of the total population of 520,000, the Region of Waterloo estimates that about 30% of the population is living in multi-residential housing. Any building with six or more units is defined as multi-residential and townhomes are included in this definition.

The City's recycling program is three-stream, where fibres, containers and cardboard are collected separately. There is no regulation requiring multi-residential buildings to recycle. The minimum number of container at each building is three, with all buildings receiving collection once per week. Schools and some Business Improvement Areas are included in the cart recycling program.

Table 23 Municipal Recycling Collection at Multi-Residential Locations in Waterloo					
	Total	Receiving Municipal Recycling Collection		Receiving Municipal Garbage Collection	
Buildings	1,483	1,362	92%	332	22%
Units	59,812	54,786	92%	8,796	15%
BIAs					
Schools		203			

2013 update

Since 2009, the Region of Waterloo has implemented CIF #250 and distributed new promotional items to each unit to help residents better understand and participate in the program. Each unit received two reusable bags (a blue one for containers and a grey one for paper products which coordinate with the carts), a brochure that was based on the CIF template, and a fridge magnet. When these items were delivered, staff also completed site assessments to evaluate the depot conditions and participation rates, re-stickered carts as required, and provided the superintendent with the new recycling guidebook. Results of this project are currently being compiled.

In October 2010, the Region started a pilot collecting organics from over 30 multi-residential buildings. These apartment buildings and townhouse complexes range from 8 to 350 units each, have different layouts and demographics. The organics collected in 120 litre green carts are the same as those for the green bin program. Preliminary results are showing that buildings under 50 units are averaging 3 kg/unit/week, the pilot's targeted diversion rate. Staff will report to Council in 2013 with results and recommendations.

The Region is currently in a master plan process to determine not only new diversion/recycling programs, but also how to handle the remaining residue/garbage over the next 20 years. Many residents attending the first series of public open houses in the fall of 2012 suggested improved 3Rs programs for multi-residential buildings. Certainly with forecasts that multi-residential populations in Waterloo Region will increase from 30% to 50% by the end of the life of this master plan, 3Rs programs for apartment buildings and townhouse complexes need to be a priority. The WMMP should be completed by fall, 2013.