



The Regional Municipality of Durham
Report to: The Joint Works and Finance & Administration
Committee
From: C.R. Curtis, Commissioner of Works
R.J. Clapp, Commissioner of Finance
Report No.: 2015-J-8
Date: January 29, 2015

SUBJECT:

The 2015 Annual Solid Waste Management Servicing and Financing Study

RECOMMENDATIONS:

The Joint Works and Finance and Administration Committee recommend to Regional Council that:

1. This Servicing and Financing Study be received for information to support the upcoming detailed Business Planning and Budget deliberations and set the context for 2015 Budget approvals related to the major program area of Solid Waste Management.

Municipal Hazardous or Special Waste Facility (MHSW)

2. In accordance with the requirements of the Durham York Energy Centre (DYEC) Host Community Agreement with the Municipality of Clarington, a procurement process be undertaken to acquire the services of a fully compliant privately operated Municipal Hazardous Special Waste facility to be located in the Municipality of Clarington and operational within one year of commencement of DYEC full commercial operations (approximately by May of 2016).

Transfer Station

3. Staff be authorized to expand its investigation of all transfer station options that are not limited to one location or one service provider including pre-sort technologies with a report back to Joint Committee in 2015 with the applicable business case.

New Funding

4. The Regional Chair and Clerk be authorized to execute an agreement with Ontario's Blue Box Continuous Improvement Fund to receive funding in the amount of up to \$170,000 for the purchase of a new baler for the Region's Material Recovery Facility as approved in 2014.

Liability for Collection of Waste on Private Property

5. The Regional Solicitor be requested to finalize an amendment to Bylaw 46-2011 consistent with section 4.6 herein and subject to final review and approval of the Commissioners of Works and Finance.

Bulky Rigid Plastics Pilot Recycling Program

6. Regional staff be authorized to investigate the feasibility of collecting and marketing bulky rigid plastics consisting of plastic items such as baby seats, toys, lawn furniture, helmets, baskets, etc. using the existing curbside call-in service and to report back in 2015 if feasible diversion options are identified.

Construction and Demolition Materials

7. Regional staff be authorized to implement a pilot recycling project for construction and demolition materials such as, pressure treated wood, painted wood, coated drywall, and contaminated metals, subject to approval of the related financing in the 2015 Waste Management Business Plan and Budget.

2015 Regional User Fees and Charges

8. The 2015 Regional Fees and Charges schedule for Solid Waste Management be approved with no changes compared to 2014.

SOLID WASTE MANAGEMENT

1.0 Executive Summary

This report updates Solid Waste Management programs and associated financing pressures for the 2015 to 2024 business planning period and sets the stage for the detailed 2015 Solid Waste Management Business Plan and Budget review and approvals. Three new waste diversion initiatives are also introduced along with updates on previously approved Solid Waste Management programs.

Since setting its waste diversion goals, the Region has implemented new waste diversion programs and made many improvements to existing programs. Composting of source separated organics, setting garbage bag limits, enhancing Blue Box recycling and other extensive curbside diversion opportunities have all contributed to the Region's progressive diversion rate. Promotion and education of these programs has been key to improving success. However, changes to industry products and packaging and changes in the Provincial policy and funding regime, related to the roles and responsibility for managing waste in Ontario, have and will continue to impact the integrity of municipally reported waste diversion rates. Recyclable products and packaging have become lighter and more voluminous, while materials that once counted toward municipal diversion rates are no longer managed by municipalities but by the companies bringing them to market through provincially mandated extended producer responsibility based policies.

The changes have been so dramatic that in 2014 various municipal associations, including the Association of Municipalities of Ontario (AMO) and Ontario Waste Management Association, concluded that the current diversion rate is outdated. The calculation does not take into account constantly changing products, packaging and changing waste management responsibilities over time. Durham reporting has been a catalyst for the increased attention and importance in properly measuring diversion success. Most municipalities are now reporting declining diversion rates based on the outdated diversion metric, despite significant growth in population and an increasing volume of materials collected across Ontario. In 2014, AMO, the Regional Public Works Commissioners of Ontario and the Municipal Waste Association submitted a joint letter (Appendix #1) to Waste Diversion Ontario requesting the discontinuation of the annual publication of municipal diversion rates.

The success of the Region's integrated waste management system is a result of a standardized approach to service delivery. However, given the existing two-tier waste management system in the Region, success is dependent on full participation from the City of Oshawa and the Town of Whitby in the Region's waste management programs. Full participation includes consistent application of the Regional By-law and contract enforcement as well as standardized program delivery and implementation. The Region must ensure the delivery of waste materials to the Region's facilities that meets the Region's requirements for proper processing and disposal. Furthermore, future decisions regarding reduced garbage bag limits and/or clear bags for garbage will be dependent upon cooperation from the City of Oshawa and the Town of Whitby.

1.1 Current Year Cost Pressures and Funding

The key deliverable in 2015 is the commencement of operations at the DYEC, which is unique in Ontario. The DYEC is the newest and one of the most technologically advanced waste to energy facilities. The facility is anticipated to begin to accept solid waste from both the Regions of Durham and York in February/March, 2015.

Operational impacts include implementation of the DYEC in 2015 as well as the related commitment to the Municipality of Clarington to implement a Municipal Hazardous or Special Waste (MHSW) facility by 2016. The DYEC project includes additional consulting and monitoring requirements as the Region's public private partnership (P3) contract moves from the design-build phase into the operations phase of the Project Agreement.

Operational costs for the DYEC project will be funded through the annual Solid Waste Management Operations Budget, including:

- Regional staffing and annualizations for approved weigh scale operators and administrative staff approved in 2014;
- Professional technical and environmental engineering services;
- Additional environmental monitoring requirements;
- Energy from Waste Advisory Committee (EFWAC) and Energy from Waste-Waste Management Advisory Committee (EFW-WMAC) costs;
- Property taxes; and,
- Covanta contracted services based upon the Operating fee and annual escalators as outlined within the Project Agreement.

DYEC expenditures, as previously reported, will be offset by revenues from the sale of electricity to the grid and the sale of recovered ferrous and non-ferrous materials which are anticipated to begin to generate revenues to the Region in early 2015. Project recoveries will also include funding from the Region's partner York Region, through the project Co-Owner's Agreement, based on an annual commitment to waste throughput of 30,000 tonnes, (21.4 per cent).

The 2015 Budget will reflect the transition from landfill to DYEC costs. Compared to 2014 Budget, reductions include the phasing out of landfill disposal costs at Modern landfill in New York State and significantly reduced costs for the haulage of waste from the Region's transfer stations and Regional waste management facility sites.



As a condition of the Environmental Assessment for the DYEC, the Region will host a public meeting between six and twelve months after the initial receipt of non-hazardous municipal solid waste at the DYEC. For 2015 Solid Waste Management Business Plans and Budgets, staff are planning a community waste fair in the west end of the region and plan to implement these events in different areas of the region each year to improve event access.

In terms of the new Clarington MHSW facility, costs estimated at approximately \$0.2 million per year should be at least partially offset by MHSW subsidies.

1.1.1 Proposed 2015 New Diversion Initiatives

Reuse Days

The Region has operated events for the collection of reusable goods at the Durham Recycling Centre at 4600 Garrard Road in Whitby since 2012 in partnership with local charitable organizations: Habitat for Humanity, the Salvation Army, Goodwill, and the Canadian Diabetes Association. The 2015 Budget will recommend the continuation of this program with eight events scheduled from March to October and with costs consistent with 2014 levels.

Bulky Rigid Plastics Recycling

Staff will be investigating the feasibility of collecting and marketing bulky rigid plastics (BRP) in 2015. Staff anticipates that the avoided disposal costs and revenues from the sale of material in BRP recycling will offset the cost to deliver the material to the processor / end-market. The proposed 2015 investigation will focus on collecting BRP using drop-off opportunities and the Region's existing curbside call - in service that is currently also used to collect porcelain bathroom fixtures, Waste Electronic and Electrical Equipment (WEEE) and scrap metal. Appendix 2 includes information on BRP programs in Ontario.

Construction and Demolition (C&D) Materials

Staff continues to monitor the availability of end-use markets for materials such as asphalt shingles, contaminated wood, and contaminated drywall, as well as consider the implications of a disposal ban for these types of waste from the Region's Waste Management Facilities. In 2015 staff propose a pilot contract for recycling of mixed and contaminated C&D materials (pressure treated wood, painted wood & drywall, contaminated metal) in order to assess the potential for these wastes to be diverted.

Blackstock Landfill Mining

Subject to Council approval in the 2015 Solid Waste Management Budget in February 2015, staff will undertake a procurement process as recommended herein for the services of an engineering firm familiar with landfill mining to submit a work plan for the Blackstock Landfill Mining Project, including an application to amend the site ECA to obtain MOECC approval. Once Ministry approval is received, the Region will be legally obligated to complete the landfill mining project, currently estimated to cost up to \$0.9 million.

Other Solid Waste Management Budget impacts in 2015 are anticipated to include:

- Tonnage and stop count growth;
- Contractual escalations for collection, transfer, inspection, haulage and disposal contracts; and,
- Facility maintenance, repairs and replacements per the asset management program.

While cost pressures are a challenge in 2015, several 2015 budget offsets are also anticipated for the Solid Waste Management program, including the following:

- New Blue Box subsidies, based upon the recently concluded Blue Box Arbitration process that resulted in an additional \$1 million allocation to Durham for the 2014 program and with similar benefits anticipated for 2015;
- Collection cost savings totaling approximately \$1 million on an annualized basis, based on the award of a new collection tender effective July 2015;
- Slightly higher Blue Box materials revenues due to improved market fundamentals; and,
- Other grant funding secured to offset prior approved work including \$170,000 from the Waste Diversion Ontario Continuous Improvement Fund to offset the cost of the new baler for the Materials Recovery Facility (MRF) approved in 2014.

1.2 Investigations of New Waste Processing Technologies

The Region continues to investigate leading edge waste management technologies with potential to capture the remaining divertible materials in the single family garbage stream, and the growing number of multi-family residences. To this end, and to meet strict environmental compliance requirements, staff is investigating transfer station pre-sorting options to maximize diversion. Recent technological advancements in sorting equipment may allow for a last stage pre-sort at waste transfer to maximize the capture of divertible materials from the garbage stream, post collection and prior to disposal. Staff also continues to investigate these technologies as a means to increasing diversion in the multi residential sector. Furthermore, anaerobic digestion is an additional technology used to process hard to compost organics. Staff are investigating this and similar technologies for applicability to multi-residential organics and an expanded Green Bin processing program and will provide a report with recommendations to Regional Council during 2015.

1.3 Solid Waste Management Forecast Pressures (2016 to 2019)

Net solid waste expenditure and financing pressures identified over the forecast period include:

- Landfill risk management, remediation or landfill mining, and closure plans and their perpetual monitoring and care to ensure continued environmental protection;
- Implementation of an integrated waste transfer option, with inspection and potential incorporation of additional pre-sort technologies/capabilities; and,
- Expanded diversion programs, including:
 - Additions to reuse and recycling diversion programs, including changes to curbside programs, special events and program changes at existing and/or new Regional waste management facilities (WMFs); and
 - Development of a comprehensive long-term organics management plan, including alternatives to divert contaminated organics remaining within the residential waste stream (e.g. pet waste, diapers and multi-residential organics), possibly through anaerobic digestion or other pre-sort technologies under investigation.

The following chart provides the current 10-year capital forecast. Refinements to the forecast are an ongoing process and continue as part of 2015 Business Planning. Subsequent approvals are also subject to annual Business Planning. If all noted capital projects are approved by Regional Council, the solid waste staffing complement is anticipated to increase by approximately 25 staff by 2024.

Preliminary Solid Waste Management Major Capital Forecast (\$ Millions)⁽¹⁾

	2015	2016	2017	2018	2019	2020-2024	2015-2024
Capital Repairs and Replacements	1.1	2.2	1.3	2.8	0.8	9.2	17.4
Landfill remediation/reclamation ⁽²⁾	1.0	0.5	1.5	0.8	0.3	0.6	4.7
Waste Transfer Facility	-	7.0	-	-	-	-	7.0
Eco-Reuse Diversion	-	-	0.9	0.2	-	5.3	6.4
Organics Plan Capital/AD	0.5	0.5	15.0	15.0	-	-	31.0
Seaton	-	-	-	8.5	-	-	8.5
Total Capital	2.6	10.2	18.7	27.3	1.1	15.1	75.0

Notes:

- (1) Capital projections are subject to further review and business case analyses is required per Council direction related to eco-station development, waste transfer facilities and equipment, landfill mining, and anaerobic digestion. Required capital may include public or private partnerships and/or grants and will be identified by required business cases as part of project approvals.
- (2) Landfill remediation/reclamation projects are described in Appendix 3.

1.4 Risks and Uncertainties

The Solid Waste Management program faces risks which are continuously monitored by staff.

Risks and uncertainties affecting the process of Solid Waste Management Business Planning and Budgets include fluctuations in residential waste tonnages, collection stop counts, and commodity market pricing for various waste diversion materials sold to end-markets. Subsidy levels and provincial policy are also influences beyond the Region’s direct control.

Overall, tonnages and stop counts have been temporarily declined in recent years with some reduction in expenditure pressures. Reduced tonnages are a result of Provincial product stewardship programs and industry packaging reductions, slower economic growth, and lowered volumes of waste being generated per household. These phenomena are being experienced by municipalities across the province. On the other hand, while 2015 is anticipated to improve following a 2014 positive trend, the economic slowdown and reduced demand for fibre products worldwide has negatively impacted revenues available to the Region for various diversion materials in recent years.

A blue box revenue deficit of over \$1 million was experienced in 2013 due to the drop in commodity prices. For 2014 however, with a conservatively set 2014 budget and a slight recovery in pricing, blue box revenues are at an approximate \$0.3 million surplus.

Adding to uncertainties, it is also unclear what restructuring or funding regime changes, timing or additional consultations, will be implemented at the provincial level, in regards to waste reduction policy. The Premier of Ontario, Kathleen Wynne, in a September 25, 2014 “Mandate Letter” to the Honourable Glen Murray, Minister of the Environment and Climate Change did however make it clear that waste reduction remains a priority, noting the Ministry’s priorities as including increasing waste diversion by:

“...developing and implementing improved approaches to waste diversion...building on the release of the Waste Reduction Strategy and working with industry, municipalities and other stakeholders towards the objective of reintroducing waste reduction legislation.”

Regional Waste staff participated fully in the development of the former Bill 91. In doing so, staff worked with the Ministry of Environment, the Environmental Commissioner of Ontario, Waste Diversion Ontario, industry stewards, the Association of Municipalities of Ontario, the Regional Public Works Commissioners of Ontario, the Municipal Waste Association, the Recycling Council of Ontario and with the Ontario Waste Management Association. Regional staff will continue to remain involved in consultations and will keep Regional Council apprised of any proposed changes and their implications to the Region. Key considerations include impacts due to future shifts in responsibilities (e.g. from municipalities to industry stewards), potential utilization of municipal infrastructure and options to ensure full cost recovery on behalf of Regional taxpayers.

1.5 Conclusion

Despite net cost pressures and uncertainties, staff is committed to long-term business planning and to achieving approved property tax guidelines.

The review of potential cost reductions and efficiencies continues as part of the 2015 Business Plan and Budget process. Final recommendations for the detailed Solid Waste Management Business Plan and Budget will be presented to Works Committee and Regional Council in late February 2015.

Durham Region must operate its waste management program as a fully integrated system. Integrated Waste Management Systems combine waste prevention, recycling, composting and disposal programs intricately to minimize waste and utilize resources efficiently. Durham Region has many of the key elements of an integrated system and continued success depends on maintaining a consistent service delivery across all eight local municipalities.

Waste management systems are complex and influenced by various external factors. Never static, waste management best practices constantly evolve to address changing demands and opportunities, including: population growth; commodities market fluctuations, demographic changes; policy, regulation and funding changes; evolving products and packaging; and, technological advancements. It is imperative that the waste management system continue to adapt to meet future waste management needs effectively and efficiently.

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Recommended for Presentation to Committee:

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DETAILED REPORT

The following detailed report summarizes Solid Waste Management priorities identified for 2015 to 2024 Business Planning, including new initiatives, enhancements to existing programs, an operations update, the capital forecast and uncertainties and go-forward risks and uncertainties.

2.0 New Initiatives

2.1 DYEC Operations: Start-up, Testing and Commercial Operations

The transition from facility start-up and testing protocols towards full commercial operations, as defined within the Project Agreement, is still subject to some uncertainty as noted within the DYEC Update report included within the same agenda.

During the facility acceptance testing phase there is a 50 per cent reduction in the per tonne operating fee paid to Covanta under the Project Agreement. This discount provides a significant incentive for Covanta to successfully achieve issuance of the Acceptance Certificate, based on achievement of all performance guarantees noted within the design, build, operate and maintain (P3) agreement (including emissions, residue disposal and power production guarantees).

With full revenues received under the power purchase agreement and commencement of commercial operations, the Region's disposal costs, compared to landfill, are anticipated to be lower. However, given the delayed start-up in the facility, additional costs will be incurred in 2015 as the Region's landfill contingency will need to be utilized until full waste deliveries can be achieved. In addition, additional costs will be incurred in 2015 for both monitoring and professional services costs as noted within accompanying Report 2015-J-9.

2.2 Clarington Municipal Hazardous and Special Waste (MHSW) Facility

Durham Region is recognized as a leader in diverting MHSW from the waste stream. The DYEC Host Community Agreement signed with the Municipality of Clarington includes a requirement to implement a Regional Municipal Hazardous and Special Waste (MHSW) facility in that municipality within one year of commencement of commercial operations.

It is recommended herein that a procurement process be undertaken to retain the services of a fully compliant privately operated MHSW facility, to be located in the Municipality of Clarington within one year of the commencement of DYEC full commercial operations (approximately by May of 2016). The estimate that this project will cost an additional \$0.2 million annually has not changed, although will be subject to the results of the tender.

2.3 Diversion Measurement

The most common method for measuring and reporting municipal waste diversion in Ontario is the Waste Diversion Ontario Generally Accepted Principles (GAP) waste diversion model which was developed in 1999 to provide a uniform reporting tool among Ontario municipalities.

Municipal waste diversion is also reported through the Ministry of Municipal Affairs' Municipal Performance Measurement Program and the Ontario Municipal Benchmarking Initiative.

All of these waste diversion models use weight based measures of the waste collected, recycled, composted and disposed in their calculations. They do not account for system and material changes over time and they do not allow for waste management activities outside municipal jurisdictions in which municipalities are actively engaged.

The GAP diversion calculation no longer accurately reflects the complexity and success of Ontario's waste management landscape. Some municipalities are experiencing flat lined diversion rates and may be inclined to focus on diversion efforts for heavy materials rather than for lighter weight materials which may pose more significant risks to the environment. It is important for municipalities to continue to reduce waste generation and to divert waste from landfill. It is equally important to ensure that we use a model that can accurately measure and continually evolve to reflect the complexities of an ever-changing waste management system.

In 2012, staff prepared a report outlining the need to immediately and properly analyze Ontario's diversion measurement calculation that is decades old and flawed. This need has been recognized by the municipal and private waste management sectors. Accordingly, in 2014, The Association of Municipalities of Ontario (AMO), the Regional Public Works Commissioners of Ontario (RPWCO) and the Waste Management Association co-authored a letter to the WDO requesting that the WDO stop publishing municipal waste diversion rates. AMO and RPWCO have also requested Durham Region staff lead their discussion on the development of a new waste diversion calculation model for Ontario

In light of the above, staff will report back on their analysis of an alternative waste diversion method that will include per capita waste generation rates and a baseline year to better reflect the significant changes in material weights and their management over time.

2.4 Construction and Demolition (C&D) Materials

In 2014, Regional staff investigated potential options, and implications of a diversion program for small scale renovation, construction and demolition waste materials (C&D) from the Region's Waste Management Facilities (WMFs).

C&D materials make up approximately 6,750 tonnes, or approximately 25 per cent of the 27,000 tonnes of materials collected annually at the Region's three WMFs. Current research indicates limited end-use markets for materials in this waste category. However, a program to divert these materials from disposal could result in approximately a 3.1 per cent increase in Durham's diversion rate and also avoid trying to process more difficult to combust materials at the DYEC.

In 2015, staff will continue to monitor the availability of end-use markets for materials such as asphalt shingles, contaminated wood, and contaminated drywall, as well as consider the implications of a disposal ban for these types of waste from the Region's WMFs. Private waste management facilities and commercial enterprises are located throughout the Region that can potentially receive certain types of C&D waste from residents. Future decisions regarding C&D materials will be based on analysis of diversion, risk and cost implications, and ensuring that

residents will have access to privately owned sites that accept C&D. Staff are currently considering the implementation in 2015 of a pilot contract for mixed and contaminated C&D loads (pressure treated wood, painted wood & drywall, contaminated metal) in order to assess the potential for these wastes to be diverted as part of the 2015 detailed budget process.

2.5 Transfer Station with Pre-sort Technology

At its meeting of December 10, 2013, the Joint Finance & Administration Committee considered issuing a **procurement process** regarding options to demolish the existing facility at 4600 Garrard Road and construct a new purpose-built centralized transfer facility under either a design-build or design-build-operate approach, at an estimated cost of approximately \$7.0 million.

The Committee referred the recommendation back to staff and throughout 2014, staff have continued evaluations of options and consulted with industry colleagues and private sector service and technology providers. This review determined that an effective transfer station solution coupled with new technologies could create opportunities to capture or pre-sort recyclable, organic, non-combustible and other materials from the residual waste stream post collection prior to disposal. Technologies for sorting mixed solid waste, once thought inefficient and ineffective, are being developed to the point where mixed material sorting facilities may offer viable opportunities for additional waste diversion.

Waste diversion is traditionally achieved by implementing new programs and by optimizing the amount of material captured by the diversion programs through increased resident participation. Unfortunately, regardless of Durham's numerous waste diversion programs and high resident participation, residents are likely to continue putting recyclables, organics and other divertible materials into the residual waste stream.

Modern multi-material pre-sort technology may have the potential to offer significant cost advantages in terms of increased waste diversion and assist in managing capacity at the DYEC so that the future expansion of the facility may be delayed as long as possible even with anticipated population growth.

Facilities operating in North America and Europe claim an ability to capture up to 70 per cent of materials post-collection. As part of the overall transfer function review, staff is also investigating pre-sort technologies to potentially increase diversion in the multi-residential sector. A report is anticipated before Regional Council in 2015.

2.6 Organics Management

In Report 2013-J-38, staff reported that the Region is approaching organic processing capacity limits. These limits are a constraint to diversion plans. Expanded organics capacity would allow the extraction of organics from both single family households and the multi-residential residual stream, and significantly increase Durham Region's diversion rate. However, additional operations and/or capital investments may be required to facilitate this expansion.

The Region's current organics processing facility in the City of Pickering, under contract with Miller Waste Services (Squires Beach Road), is currently operating at full capacity (26,000 tonnes per year) under a contract which expires in 2016. The Region also can deliver up to

10,000 tonnes of Green Bin materials under contract to All Treat Farms Inc., located in Arthur, Ontario until 2016.

Durham's Green Bin program currently accepts all food wastes, household plant clippings, paper fibre wastes, and potting soils. The residual waste stream also includes organic materials that are not suitable for the Region's existing Green Bin program because of health and safety issues, lowered compost quality and processing constraints. These materials include pet waste, diapers, sanitary and incontinence products. A comprehensive waste composition analysis of multi-residential households in Durham Region, that included different local municipalities, determined that the multi-residential waste stream is comprised of up to 50 per cent organic materials, which could potentially be diverted through anaerobic digestion (AD). The aerobic composting technology the Region currently uses for its Green Bin program is limited in its ability to properly process these materials and staff is currently analyzing potential to divert these organics through AD.

Staff continues to explore the options to use AD technology to process expanded organic materials, while producing useful energy and by-products. Kelleher Environmental Inc. was retained in 2012 to complete a technical review and an options analysis of AD technologies for the Region of Durham (the Kelleher report). That report confirmed that AD technology could provide a processing solution to expand its current organics program to include more problematic materials and to introduce source separated organics collection to the Region's multi-residential sector. However, it was also concluded that the Region does not generate sufficient quantities of source separated organics to warrant its own AD processing facility and that AD technology would only be financially feasible for the Region if private sector capacity were available or potentially if the entire Regional source separated organics stream is processed using an AD facility.

At its meeting of December 11, 2013, Council directed staff to provide options, analysis and recommendations to move forward with a long-term comprehensive organics management plan. To this end, staff has built upon the findings of the Kelleher report and retained the services of HDR Corporation to act as the Region's technical advisor in the development of the Region's organics management plan. HDR is assisting the Region as it conducts a technical feasibility and due diligence analysis of available technologies that could potentially deliver more comprehensive organics processing beyond the current forecast.

To date, staff has completed a Request for Information resulting in ten submissions from vendors across North America and Europe. These submissions identify AD organics processors with potential solutions that might be able to deliver balance between appropriate technology, maximum diversion and financial considerations.

Given the scope of this endeavour and the significant investment it would require a proper due diligence review which may necessitate meeting prospective service providers and inspecting operating facilities to conduct a full technical review. Waste staff intends to complete due diligence reviews in 2015 and report back to Regional Council with a report and recommendations, including business case regarding any capital proposals for future years.

2.7 Re-Use Events

The Region has operated collection events for the collection of reusable goods at the Durham Recycling Centre at 4600 Garrard Road in Whitby since 2012 in partnership with local charitable organizations: Habitat for Humanity, the Salvation Army, Goodwill, and the Canadian Diabetes Association.

In the first two years, 1,177 vehicles delivered a total of 53 tonnes of reusable material which was diverted from landfill disposal. The charities have advised that they see a substantial benefit from this partnership with the Region which was recognized in 2014 with a Gold Award from the Recycling Council of Ontario.

In 2015, eight events are scheduled from March to October. These events will continue to enhance the Region's waste diversion efforts by providing a convenient drop off location for reusable items.

2.8 Bulky Rigid Plastics Recycling Pilot

With relatively new markets for these materials, Bulky Rigid Plastics (BRP) is the fastest growing category for plastics recycling. BRP include the following materials:

- Plastic Buckets & Pails – All sizes
- Plastic Crates and Trays (Milk/Soda/Bread) and Laundry Baskets (HDPE & PP)
- Plastic Lawn Furniture, Pet Carriers (HDPE & PP)
- Plastic Pots (PP & PE)
- Large Plastic Toys, playhouses, totes and tool cases (HDPE & PP)
- Plastic garbage cans and recycling bins (HDPE & PP)
- Plastic Car Seats (Expired, Unwanted)
- Plastic Sports Helmets (Hockey, Football, Bicycle)
- Reusable storage containers.

BRP are not currently accepted in the Region's curbside Blue Box collection program or for recycling through the Region's Waste Management Facilities (WMFs). Residents are directed to dispose of these bulky items with their regular Garbage and/or Bulky Item collection programs.

Staff are investigating the feasibility of a collection program for BRP to test the diversion potential and business case of a permanent BRP recycling program. Staff anticipate that the avoided disposal costs and revenues from the sale of material in a BRP recycling will offset the cost to deliver the material to the processor / end-market. It is also estimated that a BRP recycling program could capture approximately 200 tonnes of recyclable material per year and further decrease the tonnage of residual waste requiring management at the DYEC. If approved during budget deliberations, the focus would be collecting BRP using the existing curbside call-in service that is used to collect porcelain bathroom fixtures, WEEE and scrap metal.



Given budget approval, the longer-term feasibility of collecting and marketing bulky rigid plastics, consisting of plastic items such as baby seats, toys, lawn furniture, helmets, baskets, etc. would be explored as part of the existing curbside call-in service.

3.0 Enhancements to Existing Programs

3.1 Accomplishments in 2014: Multi-Residential WEEE Collection Program:

On January 23, 2013, Regional Council approved the permanent Waste Electronic and Electrical Equipment (WEEE) collection and recycling program for both curbside and multi-residential properties. Following the successful pilot in partnership with Ontario Electronic Stewardship (OES), multi-residential buildings were provided WEEE collection services.

Currently, 50 properties are participating in this no-cost collection program in the Town of Ajax, Township of Uxbridge, and the Cities of Pickering and Oshawa. Durham is also providing this service to buildings in the City of Oshawa in partnership with Oshawa which has collection jurisdiction within its boundaries.

To date, 38 tonnes of WEEE from multi-residential buildings has been diverted from landfill with net revenues of approximately \$3,000 from the Ontario Electronic Stewardship. For 2015, staff intends to expand the multi-residential WEEE recycling program in the City of Oshawa. Implementation has largely been completed in the remaining local municipalities. The Town of Whitby does not provide a multi-residential WEEE collection service

3.2 Multi-Residential Battery Collection

In 2013, Durham Region launched a no-cost used battery collection program at 45 of the multi-residential properties it services. This program entails the onsite collection of batteries into specially purposed pails. Raw Materials Corporation (RMC), the Region's used battery processor, provides an exchange program of empty pails for full units free of charge to each building.

In 2015 the program will continue to be phased into the Region's serviced properties. The most recent program expansion occurred in late 2014 in the Township of Uxbridge.

3.3 Multi-Residential Special Collection Event Pilot

The Multi-Residential Waste Composition Audit completed in December 2013 by AET Group Inc. concluded that approximately one per cent of the audited material was household hazardous materials. This includes batteries, compact fluorescent light bulbs, medications, paints and stains, motor oil and other liquid hazardous wastes. These are materials that should not be placed in the residual waste stream but managed separately. In 2015 staff will continue to investigate the feasibility of providing MHSW collection events at large multi-residential properties to capture these materials with no additional net costs anticipated.

3.4 WDO Subsidy for New Baler at Region's Material Recovery Facility

Waste Diversion Ontario has conditionally approved the Region's application for a \$170,000 subsidy under the Blue Box Program Plan's Continuous Improvement Fund (CIF), subject to the execution of a funding agreement as recommended. This subsidy is to be received for the cost of the new baler at the MRF approved within the 2014 Waste Management Budget.

3.5 Community Outreach

The Region actively promotes its waste diversion programs through an extensive communication and education program. Key objectives include:

- Promoting participation in waste diversion programs.
- Encouraging an understanding of correct participation in programs.
- Promoting compliance with Regional waste management policies and by-laws.

In 2014, over 30 different events and activities took place, including:

- Eight spring compost events, one in each municipality
- Nine special electronic equipment drop-off events and four municipal hazardous and special waste drop-off events.
- Promotion of waste diversion programs during National Public Works Week.
- Durham Region celebrated "Waste Reduction Week" in October promoting waste reduction and diversion options for residents.
- Six reuse drop-off events were held from April to October, partnering with local charities.
- Two main educational campaigns focusing on the Green Bin program and municipal hazardous and special waste
- Articles written by Waste staff on the Green Bin, Blue Box programs and the DYEC were included in "Durham Works", the Works Department's external newsletter that is distributed twice yearly to 210,000 households in the Region.

In 2015, Waste Management staff intends to move forward with a mobile application and online tools to reach residents that increasingly rely on the use of mobile phones and/or laptop computers for their waste management information. Further, in collaboration with the school boards, the 2015 outreach program will address curriculum based education that relates to waste management and the environment. Staff is refining education tools to include interactive educational web pages for teachers and students, and the general public. Staff will also continue to develop web tools as part of the Region's education programming.

The DYEC Education Centre will provide new opportunities to host students and the public as part of the education programming related to Solid Waste Management. To this end meetings have been held with representatives from each of the Region's four public school boards to discuss future educational opportunities.

4.0 Operations

4.1 Tonnage Growth

Tonnages are a main driver of the Region's Solid Waste Management Budget. Provincial product stewardship policies, the prolonged economic slowdown and lowered retail sales, have had a continuing impact on reducing growth in waste diversion and waste disposal tonnages recently. Tonnages since 2008 have been volatile, ranging from annual growth rates of minus 3.0 per cent to plus 1.0 per cent. Budget risks will continue due to volatile and uncertain tonnages. The current 2015 budget projection includes an overall tonnage growth estimate of **-1.1 per cent compared to 2014 estimated actuals** and comprised of approximately 110,500 tonnes of waste to be disposed and 112,265 tonnes of waste currently anticipated to be diverted.

The following chart demonstrates current 2014 and 2015 projections based on actual waste tonnages to October 2014.

Actual Waste Received
2010 to 2013 Actuals, 2014 Budget and Estimated and 2015 Projected Tonnes

Material	Actuals →				Budget	Estimated	
	2010	2011	2012	2013	2014	Actuals 2014	Projected 2015
Blue Box	51,609	53,157	51,689	50,464	52,325	50,500	51,117
Food Waste	27,594	26,865	26,899	27,486	27,825	27,500	28,125
Yard Waste*	23,074	23,744	25,473	25,268	25,703	30,033	26,123
Reuse	6,146	7,226	6,763	6,385	7,013	6,900	6,900
Garbage	108,000	107,670	107,722	109,641	109,134	110,400	110,500
Total	216,423	218,662	218,546	219,244	222,000	225,333	222,765
Growth %	-1.2%	1.0%	-0.1%	0.3%	1.3%	2.8%	-1.1%

Note: Although included in the diversion rate calculation, the table above excludes backyard composting and grass cycling diversion tonnes credited to diversion (an estimated 10,500 tonnes in 2015).

*Increased tonnage in 2014 due to ice storm clean up.

4.2 Collection Stop Counts

Since 2009, the Region has utilized stop count growth as determined by Municipal Property Assessment Corporation (MPAC) data, as a benchmark for collection contract stop count adjustments. Collection service stop count growth in 2015 will reflect slightly lowered growth in recent years. The following 2015 stop count estimates continue to be refined and are based on collection stops to late 2014.

Actual Collection Stops 2010 to 2013, 2014 Estimated and 2015 Projected Stops

	Actuals →				Budget 2014	Estimated 2014	Projected 2015
	2010	2011	2012	2013			
Pickering	28,027	28,112	28,537	28,731	29,718	28,964	29,240
Ajax	31,100	32,209	32,771	33,508	34,248	34,255	35,140
Whitby	36,247	36,826	37,442	37,950	38,603	38,275	38,880
Oshawa	45,148	45,811	46,081	46,528	46,946	47,280	47,850
Clarington	27,717	28,418	28,921	29,579	30,298	30,102	30,730
Scugog	7,927	8,098	8,100	8,189	8,234	9,197	8,250
Uxbridge	6,853	7,039	7,108	7,094	7,223	7,115	7,190
Brock	4,579	4,710	4,702	4,704	4,730	4,718	4,750
Total	187,598	191,223	193,662	196,283	200,000	198,906	202,030
Growth %	1.9%	1.9%	1.3%	1.4%	1.9%	1.3%	1.6%

4.3 Collection

The Region currently has three major curbside collection contracts. Two of these contracts cover collection services for garbage, Blue Box, organics and combined scrap metal and waste electronics programs within six of the eight area municipalities (an Ajax/Pickering contract and a contract for Clarington, Brock, Scugog and Uxbridge).

The third Regional curbside collection contract is for the collection of Blue Box materials only, from the City of Oshawa and the Town of Whitby. The City of Oshawa and the Town of Whitby employ their own forces to provide all other waste collection services within their municipalities. Weekly collections occur under contract at 92 of 372 multi-residential building sites serviced by the Region, while the Town of Whitby and the City of Oshawa provide collection services to the remaining multi-residential buildings.

The Ajax/Pickering curbside collection service was retendered in 2014 with the new contract commencing effective July 1, 2015 and representing a cost savings of approximately \$0.5 million in 2015 or \$1 million annualized. The Oshawa and Whitby curbside recycling contract will also be retendered in 2015, and the curbside collection contract for Clarington, Brock, Scugog and Uxbridge will be retendered in 2017.

4.4 Public Meeting and Waste Fair

As a condition of the Environmental Assessment for the DYEC, the Region is required to hold a public meeting between six and twelve months after the initial receipt of non-hazardous municipal solid waste at the DYEC.

In September 2014, the Region held its third community Waste Fair in the Municipality of Clarington. Approximately 400 residents attended the event and the feedback received (written and verbal) was very positive. Staff are planning as part of the Waste Fair, a Regional art show and competition for artworks made from recycled materials that engages the local artist community and visual arts programs from the Region of Durham's secondary schools.

Winning artworks will be showcased on a longer-term basis at the Durham York Energy Centre.

For 2015, staff will be holding a community waste fair in the west end of the region. Staff will assess the benefits and costs to implement these events in different areas of the region every year to improve event access.

4.5 Clear Bag Investigation

In 2014, Regional Council received Works Committee Report 2014-WR-10, titled "Update Report on Clear Plastic Bags for the Curbside Collection of Garbage." This report summarized the results of a 2009 clear bag pilot program that the Region conducted in the City of Pickering and Municipality of Clarington and summarized the clear bag programs being used in other municipalities in Canada. It concluded that there is not enough information on the effectiveness of these programs to support the implementation of clear bags in Durham at this time. Staff has also concluded that any success in implementing a clear bag program in Durham Region will be contingent upon uniform implementation across all local municipalities.

In 2015, staff will continue to monitor established and upcoming municipal clear garbage bag programs for further information. A list of municipalities that have implemented or plan to implement clear bag programs is included as Appendix 6 of this report.

4.6 Liability for Collections on Private Property

In 2014, the Region provided waste management services to 371 multi-residential buildings consisting of 23,884 residential family units. Servicing these properties requires the waste collection contractor to enter onto private property to provide collection.

The Region requires all properties receiving waste service, where the contractors must enter onto the private property to provide collection, to complete an "Application for Waste Collection Services on Private Property and Indemnification Form", and submit an insurance certificate showing evidence of commercial general liability insurance yearly to the Region. This application forms "Appendix D" of "Schedule P" of Durham Region Waste By-Law 46-2011.

At its meeting of May 21, 2014, Works Committee received a deputation from a delegation of property owners expressing concern about the Region's indemnification requirements for providing service on private property and Works Committee directed staff to report back on a mutually agreeable solution.

Upon review by the Legal and Finance (Risk Management) Departments, a rewording of Terms and Condition # 3 of "Schedule P – Appendix D" has been presented and accepted by all parties.

Based on the above, staff recommends that Schedule P, "Application for Waste Collection Services on Private Property and Indemnification Form" of the Region's Waste By-law 46-2011 be amended by removing the wording in point 3 of the Terms and Conditions of the same document which currently reads as follows:

“The undersigned further agrees to indemnify and hold harmless the Region and its waste collection contractors on private property against all actions, suits, claims and demands, direct or indirect, which may arise as a result of the provision of these services to the property, including but not limited to any damages to structures that may be located on or about the premises, as a result of any waste materials collection equipment entering the property indicated above.”

And to replace it with the following additional underlined wording:

“The undersigned further agrees to indemnify and hold harmless the Region and its waste collection contractors on private property against all actions, suits, claims and demands, direct or indirect, which may arise as a result of the provision of these services to the property, including but not limited to any damages to structures that may be located on or about the premises, as a result of any waste material collection equipment entering the property, save and except any such actions, suits, claims and demands resulting from any fault, default, negligence, act or omission of the Region, or its waste collection contractors or any other Person for whom the Region is in law responsible.”

All previously executed indemnity agreements between the Regional Municipality of Durham and property owners receiving solid waste collection services from the Regional Municipality of Durham will have to be amended to reflect this change.

4.7 Special Collection Events

In 2014, four MHSW collection events, eight compost give-away events and nine WEEE collection events were hosted across the Region. The collection events diverted 13 tonnes of MHSW and 30 tonnes of WEEE. Together, 43 tonnes of diversion waste was received from 1,721 vehicles.

The compost give-away events are held in combination with blue box, green bin, and backyard composter sales and exchanges, with any remaining compost made available to local area municipalities to use on public gardens and parks.

All requests for 2015 community events have been received from the local municipalities, permitting Regional staff to plan the events for 2015 at no additional cost over 2014.

A summary of the proposed 2015 Special Waste Event Schedule is provided in Appendix 5.

4.8 Improved Kitchen Food Scraps Collection Container

As part of the collection of kitchen food waste from residential sources, the Region provides residents with a green bin and a kitchen collection unit, supplied to the Region by Orbis Corporation under a Standing Agreement. The term of this agreement was recently extended to June 30, 2015 as the first of two additional one year terms.

Orbis has recently introduced an updated version of the kitchen unit that has the following improved features:

- a slightly taller and thinner body design
- an improved front latch

- a lid that can be locked in an open 90 degree position
- a better hinge connection between the lid and the body
- built in bag clips for disposable bin liners
- a wider container opening to reduce spills

The updated unit has the same storage capacity, a vented lid like its predecessor, and can be supplied to the Region for the same cost as the existing units. In addition, the unit includes bag clips to secure the disposable liners and prevent them from collapsing in the bin. This is anticipated to preclude the need for any aftermarket bag clip devices. It is expected there will be a seamless transition to the newer style of bin, which will be distributed through the issue of waste diversion kits for new residents.

In 2014 the Works Committee received a delegation regarding a new product, called “Ring Around the Bin” to secure compostable green bin liner bags to the existing kitchen catchers. Works Committee referred this matter to staff for investigation, including the compatibility of this product with Durham’s existing Green Bin program. Staff intends to purchase “Ring Around the Bin” units at a cost not to exceed \$10,000 for distribution at Special Events subject to the availability of financing in the 2015 Solid Waste Management Budget.

4.9 National Solid Waste Benchmarking Initiative

The National Solid Waste Benchmarking Initiative (NSWBI) began in 2011 in response to requests from National Water Works Benchmarking Initiative (NWWBI) member municipalities. Durham Region is one such municipality and has been a member since 1999.

Participating municipalities benefit by being able to identify potential areas of improvement from comparisons in the key areas of cost, reliability, environmental protection, and labour management. In addition, the NSWBI partners review the performance results to identify and share Best Practices. The NSWBI offers a technical benefit that does not exist in Canada today.

AECOM facilitated the NWWBI on behalf of the member utilities in 1997. Data accuracy and consistency is the foundation of benchmarking, and AECOM’s extensive involvement in the NWWBI, including the development of the Performance Measures used to compare the data, ensures that these objectives are met.

AECOM maintains the integrity of the data collection process by developing Data Collection Templates to ensure all member utilities utilize a consistent methodology for data collection, meets with the member utilities to review their data, and rectifies any data errors or omissions.

Using the data collection results, AECOM generates custom graphs for each of the members that compare their results to the other members. AECOM also produces an annual report on the data collection results, maintains a project specific website, maintains and populates the project database, and facilitates an annual Benchmarking Workshop.

Staff are for 2015 considering participation in the National Solid Waste Benchmarking Initiative and required resources are being considered in 2015 Business Plan and Budget deliberations.

4.10 By-Law Enforcement Update

In 2014, Regional By-law Officers acted on 868 cases. They also carried out several initiatives to improve program participation and compliance. Details are provided in Appendix 7.

4.11 Solid Waste Management Performance Measurement Results

Once programs are implemented, performance is monitored, measured and evaluated. Performance measurement processes at Durham Region are included in Appendix 8.

5.0 Preliminary Capital Forecast (2015-2024)

The following chart provides the current 10-year capital forecast (2015 to 2024) which will continue to be further refined through the 2015 Business Planning and Budget process and remains subject to 2015 Regional Council approvals.



Preliminary Solid Waste Management Major Capital Forecast (\$ Millions)⁽¹⁾

	2015	2016	2017	2018	2019	2020-2024	2015-2024
Capital Repairs and Replacements	1.1	2.2	1.3	2.8	0.8	9.2	17.4
Landfill remediation/reclamation ⁽²⁾	1.0	0.5	1.5	0.8	0.3	0.6	4.7
Waste Transfer Facility	-	7.0	-	-	-	-	7.0
Eco-Reuse Diversion	-	-	0.9	0.2	-	5.3	6.4
Organics Plan Capital/AD	0.5	0.5	15.0	15.0	-	-	31.0
Seaton	-	-	-	8.5	-	-	8.5
Total Capital	2.6	10.2	18.7	27.3	1.1	15.1	75.0

Notes:

- (1) Capital projections are subject to further review and business case analyses is required per Council direction related to eco-station development, waste transfer facilities and equipment, landfill mining, and anaerobic digestion. Required capital may include public or private partnerships and/or grants and will be identified by required business cases as part of project approvals.
- (2) Landfill remediation/reclamation projects are described in Appendix 3.

Challenges are apparent with respect to ensuring adequate funding for the Region's expanding infrastructure assets over time, including ongoing life-cycle capital replacement and repair requirements as waste infrastructure ages or is decommissioned and replaced. Capital-related annual operations and maintenance costs and financing are also part of long-term financial planning considerations. Asset management planning must also consider the timing of investments and capital and rehabilitation costs over the lifecycle of an asset. Thought must also be given to the future impacts from those assets requiring replacement over a similarly short span of time in the future. Balancing out investment timing assists in ensuring affordable capital investments over the forecast period, as well as affordable maintenance and replacement schedules in the future.

Building Condition Assessments (BCA's) have been undertaken on each of the Region's waste management facilities. These assessments included visual inspections to evaluate the current state of each asset and identify capital work and associated costs potentially required over the next 25 years to maintain these assets in a state of good repair.

Further refinements to this capital projection are being made as part of the 2015 detailed Business Planning and Budget process with the goal of ensuring an adequately funded rehabilitation and replacement program over the forecast period.

6.0 Uncertainties and Go-forward Pressures and Risks

6.1 Financing Challenges: Revenue and Expenditure Risk

Significant expenditure and revenue pressures over the forecast period in the area of Solid Waste Management include:

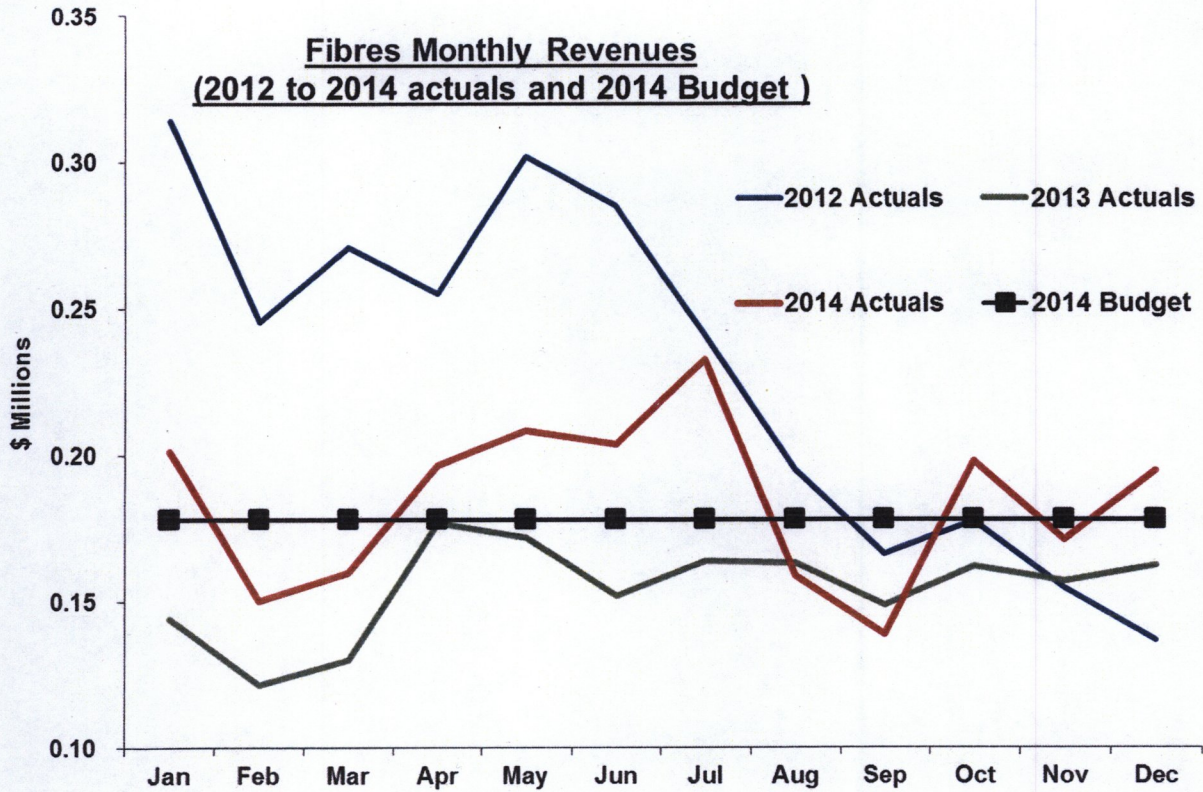
- ❖ Maintenance of existing solid waste program assets;
- ❖ Continued movement towards the 70 per cent diversion target and avoidance of future disposal capacity expansions through significant programs to extract the remaining organics, reuse and non-combustible materials from the residential residual waste stream;
- ❖ Consideration of transfer and potential incorporation of disposal pre-sort diversion processing and potential incorporation of anaerobic digestion technology as part of a comprehensive long-term organics management plan;
- ❖ Landfill risk management, remediation and closure plans and their perpetual monitoring and care to ensure continued environmental protection; and,
- ❖ Infrastructure requirements identified for the new Seaton community late in the forecast period.

6.2 Reduced Commodity Revenues

Recyclable materials revenues fluctuate based upon market prices which are tied directly to the health of commodity markets, including metals, plastics, and paper fibres markets. Budget to actual price variances and tonnage variances are tracked and assessed continuously.

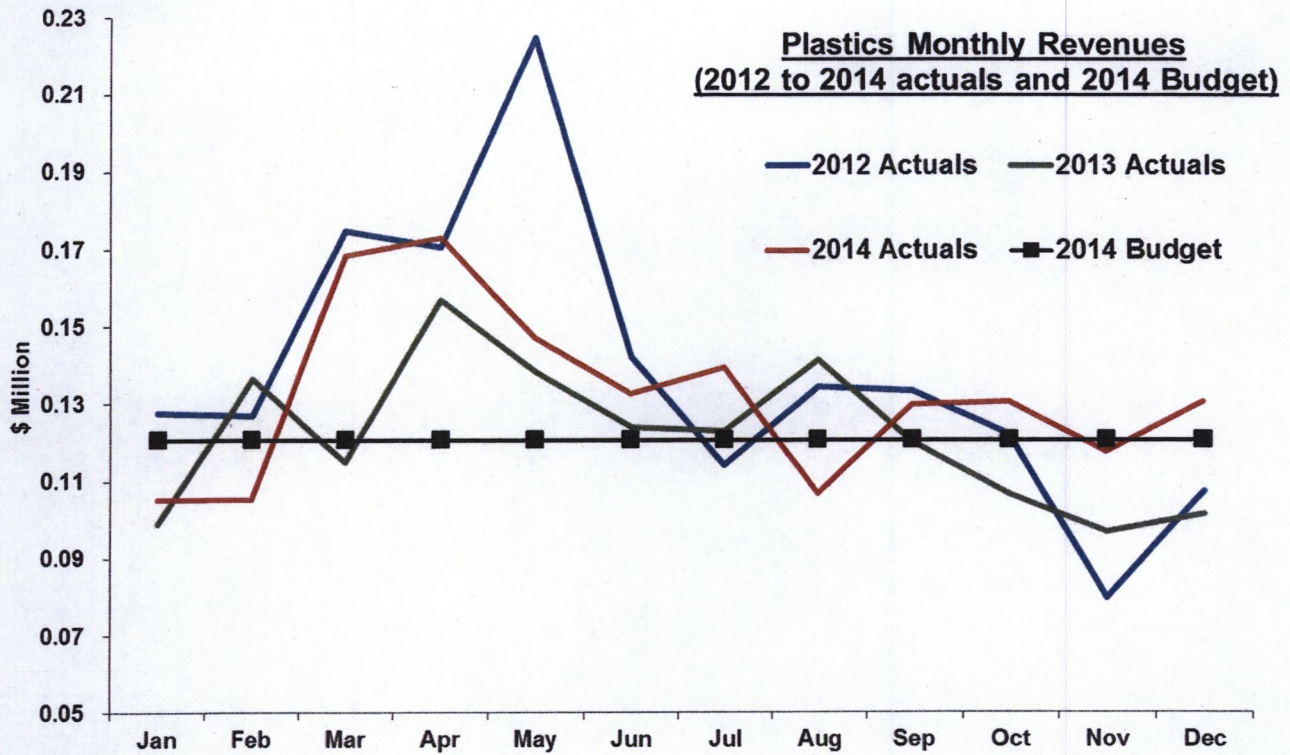
The Region has seen annual total recycling revenue highs totaling \$7.8 million and lows of \$3.9 million in 2013 which resulted \$1.2 million lower than budgeted. The 2014 Budget for commodity revenues was set at \$5.02 million. Including data to October 2014, a \$300,000 surplus in the Blue Box revenue program is anticipated for 2014. Regional staff continues to monitor actuals as part of the 2015 Business Planning process.

The following charts demonstrate actual monthly fluctuations in market revenues for fibres, plastics and metals during 2012, 2013 and 2014.

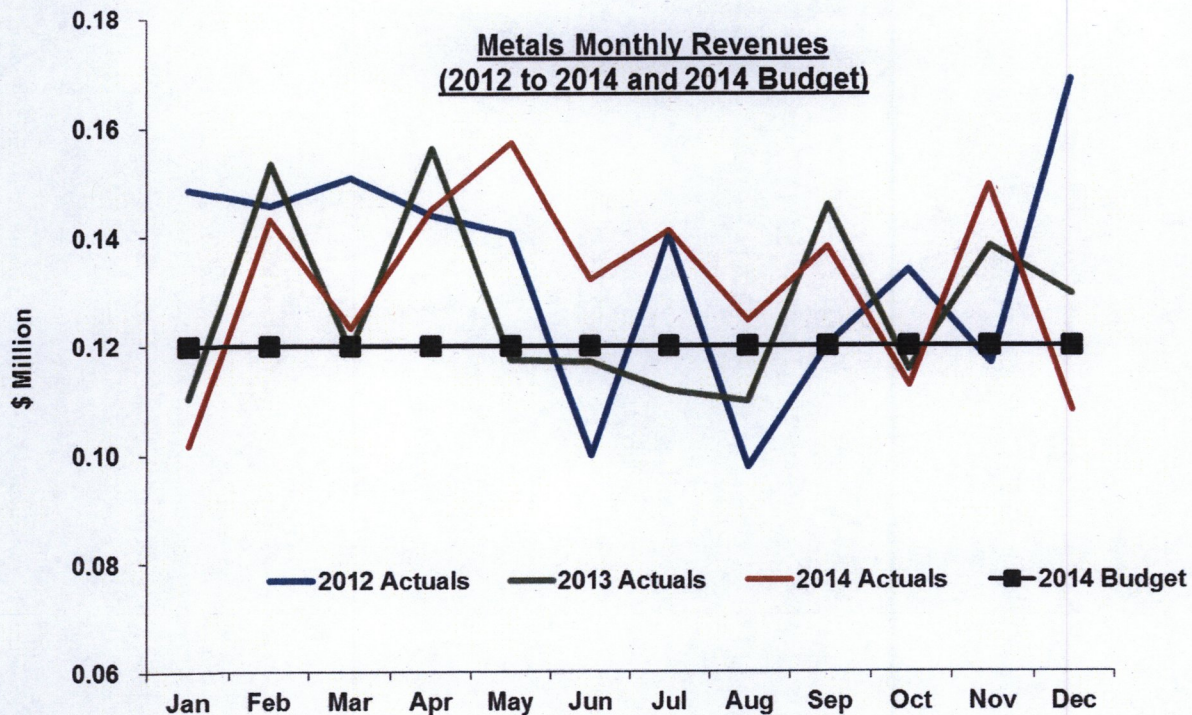


As the chart above demonstrates no significant recovery of fibres markets since the 2012 downturn has occurred. Recycled paper markets industry analysts predict continued volatility (potential lows and highs) based on steady growth and increased calls for recycled content in regards to container board and towel and tissue markets, offset by reductions due to a structural shift away from newsprint, printing and writing grades of paper.

• • •



Volatility in plastics markets is also significant, however an additional factor influencing the Solid Waste Management operations budget is Durham's significant proportion of mixed plastics, which are currently garnering a lower price due to increased market supply and increased vigilance in foreign markets accepting these materials.



Plastics and metals are also affected by industry light-weighting of packaging materials. Lighter-weight and more uniform packaging, meant to reduce industry costs due to enhanced product stewardship policies, has decreased demand for materials, contributed to lower market prices and also recently lowered the Region’s materials tonnages available for sale. Lowered materials tonnages contribute to the Region’s negative impacts on Blue Box revenues, although reductions are expected to level off at some point and eventually be offset by growth in tonnages due to population growth and increased economic activity.

6.3 Provincial Restructuring: Bill 91 and the New Funding Regime

On June 6, 2013, the Ontario government introduced a Bill 91, *The Waste Reduction Act* (WRA) which had it passed, would have transformed Ontario’s approach to waste diversion by placing the responsibility for managing designated materials on the producers of those materials. The WRA also promised to require producers to meet waste reduction and service standards for all designated materials and reimburse municipalities for the ‘reasonable’ cost of collection, handling, transportation and storage of all collected designated materials and the processing and disposal of blue box materials.

It remains unclear how producers would meet such obligations without the benefit of municipal waste collection experience and infrastructure. At question was how municipalities would define and identify their ‘reasonable’ costs to ensure implementation of full cost accounting for the collection, transportation and processing of collected materials in partnerships with industry stewards attempting to minimize their own cost exposure.

Durham Region is well positioned with experience and modern material collection and processing infrastructure and staff were also actively engaged in the consultation process for the development of the WRA and its regulations. Although the Bill died at Second Reading prior to the 2014 provincial election, the government is anticipated to reintroduce aspects of the Bill at some point in the future. Staff will continue to pursue opportunities as they arise and will provide update reports to Standing Committee as required.

7.0 Conclusion

Due in large part to Regional Council's ongoing commitment and exemplary resident participation in a multitude of new waste diversion programs implemented over the last decade, the Region's Solid Waste Management accomplishments are many and continue to garner industry recognition and awards.

Solid Waste Management operations (2015 to 2019) and capital plans (2015 to 2024) are directed at achieving objectives important to our community, including environmental protection, increased diversion and responsible and effective management of post-diversion residual waste. Other objectives of the business and financial planning process include:

- Provision of infrastructure and services commensurate with growth-related population demands, including household stop-count and tonnage growth, shifts in waste composition, consumer preferences and consumption behavior;
- Maintenance of existing solid waste program assets based on life-cycle costing, business case analysis, and an effective and efficient asset management strategy, including maintenance, repairs and capital replacement requirements;
- Strengthened accessibility to services and facilities through reduction and removal of barriers; and,
- Maximization of available senior government funding opportunities to offset tax impacts.

In addition to ongoing Solid Waste Management objectives, 2015 includes the successful implementation of the new DYEC project as a new long-term local disposal solution and continued movement towards the 70 per cent waste diversion objective. The DYEC project is expected to achieve commercial operations in early 2015.

The following will affect the waste program in 2015 and over the 2016 to 2019 period:

- ❖ Provincial policy changes, restructuring and revenue/subsidy regime change;
- ❖ Fluctuating market prices for recyclable materials;
- ❖ Investigation and business cases related to new potentially more capital intensive diversion programs;
- ❖ Changes in resident behaviours; and,
- ❖ Population growth.



The Solid Waste Management program forecasts \$75 million of capital expenditures by 2024. Regional staff continues to refine estimates as part of the 2015 Business Planning and Budget process and will provide final recommendations in the 2015 Solid Waste Management Business Plan and Budget anticipated to be presented to the Works Committee and Regional Council in late February.



November 12, 2014

Michael G. Scott,
Waste Diversion Ontario
4711 Yonge Street,
Suite 1102
Toronto, Ontario
M2N 6K8

Dear Mr. Scott:

RE: Response to Questions from October 16, 2014 WDO Listen & Learn

We are writing to you regarding Waste Diversion Ontario's (WDO) request for input on improvements to WDO's collection and reporting/measurement of municipalities' waste diversion activities.

The issue of reporting diversion of all materials (Blue Box, organics, leaf and yard waste, scrap metal, on-site diversion and reuse, and a number of other forms of diversion not currently permitted such as energy from waste) will require an overall redesign of the diversion reporting system. The original system, designed in 2002 and updated slightly since then, did a reasonable job tracking overall diversion. However it was frequently criticized for inconsistent reporting of diversion – not including reuse, and lately, not accurately accounting for full EPR systems such as OTR and OES.

The issue is more complex, including consideration of how we wish WDO or some other agency to track diversion, and how we wish to account for the various aspects of this diversion. Secondly, there is the issue of how we are going to pay for this diversion tracking and what it will ultimately be used for.

At this time, it may be premature to consider redesigning the diversion tracking system while discussions are underway between the provincial government, stewards, and the municipal sector on how to redesign the major component of diversion – the Blue Box program. Until this issue is resolved, any redesign of the diversion tracking system will merely be a patch on the existing system.

This is not to say, that examining the strengths and weaknesses of the existing diversion tracking system is not a useful exercise. If we are to do this, further review of the entire system is required. The research could lead to recommendations and discussion points that could be pushed out to a larger audience for comment and input.

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In light of the above, until a complete review of the current diversion reporting system is completed, which will properly reflect the significant changes to the municipal waste stream since the inception of the original GAP Diversion reporting, we ask that WDO discontinue the public publishing of municipal diversion rates until a revised or new calculation methodology has been developed.

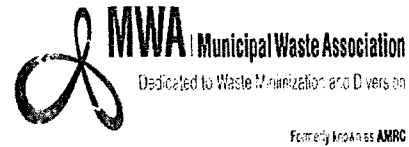
We would also suggest that a more in depth conversation to deal with the complexities of all of the issues surrounding measurement/reporting of municipal waste diversion activities beyond this WDO request for input is required. We would also suggest that WDO take a closer look at the research that RPWCO and MWA have been working on regarding redefining municipal waste diversion.

Sincerely,

Monika Turner
Director of Policy
Association of Municipalities of Ontario (AMO)

Shirley McLean, P. Eng
Supervisor, Waste Planning, Halton Region
Chair, Municipal Waste Association (MWA)

Thomas Schmidt, P. Eng
Commissioner, Transportation and Environmental Services
Region of Waterloo
Chair, Regional Public Works Commissioner of Ontario



Organizational Background

AMO is a non-profit organization representing Ontario municipal governments. AMO supports and enhances strong and effective municipal governments in Ontario and promotes the value of municipal government as a vital and essential component of Ontario and Canada's political system.

The members of RPWCO represent single and upper-tier municipalities that, collectively, provide the full spectrum of Public Works infrastructure and services to over 80% of the population of Ontario. Our work focuses on community and infrastructure building, the wise use and protection of natural resources, growing Ontario's economy, and responsible fiscal management.

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

Appendix 2

Bulky Rigid Plastics: Municipal Programs

Municipality	Collected	End Markets	Collected/Accepted Materials	Comments
Township of North Frontenac	Depot	N/A	Plastic Buckets & Pails – All size - Metal Handles Removed, Plastic Crates and Trays (Milk/Soda/Bread) and Laundry Baskets (HDPE & PP), Plastic Lawn Furniture, Pet Carriers (HDPE & PP), Plastic Pots (PP & PE), Large Plastic Toys, playhouses, totes and tool cases (HDPE & PP) Metal Axles Removed, Plastic garbage cans and recycling bins (HDPE & PP) Metal Axles Removed	Cutting materials into smaller pieces to capitalize on bin volumes
Norfolk County	Curbside	N/A	Collection staff replace broken blue boxes at curbside, broken blue boxes brought back to MRF	
City of Orillia	Depot	Pnewko Brothers	Pails, broken blue boxes, plastic flower pots - Loose (stacked) and placed in gaylords	
Peel Region	Depot	Canada Fibers Ltd.	All types of mixed bulky plastic with the exception of car bumpers. Examples include water coolers, buckets, broken chairs and children's toys.	
City of Guelph	Curbside	N/A	Flower pots and pails (e.g. 5 gallon) are baled with other polypropylene and polyethylene plastics	
City of	Depot	Entropex	Plastic toys, plastic pails,	

Hamilton			crates, laundry baskets, lawn furniture, blue boxes, totes baled at MRF	
Niagara Region	Curbside / Events	EFS	Broken blue boxes, buckets and pails baled with mixed plastics	
County of Peterborough	Depots / Events	Entropex	Plastic Buckets & Pails – All size - Metal Handles Removed, Plastic Crates and Trays (Milk/Soda/Bread) and Laundry Baskets (HDPE & PP), Plastic Lawn Furniture, Pet Carriers (HDPE & PP), Plastic Pots (PP & PE), Large Plastic Toys, playhouses, totes and tool cases (HDPE & PP) Metal Axles Removed, Plastic garbage cans and recycling bins (HDPE & PP) Metal Axles Removed	Materials need to be less than 1m cubed in order to fit through the baler
City of Peterborough	Depot	Entropex	Plastic Buckets & Pails – All size - Metal Handles Removed, Plastic Crates and Trays (Milk/Soda/Bread) and Laundry Baskets (HDPE & PP), Plastic Lawn Furniture, Pet Carriers (HDPE & PP), Plastic Pots (PP & PE), Large Plastic Toys, playhouses, totes and tool cases (HDPE & PP) Metal Axles Removed, Plastic garbage cans and recycling bins (HDPE & PP) Metal Axles Removed	Baled – great response, not surprising given all material in our society.

Appendix 3: Environmental Protection

Brock Township Landfill

In September 2014, the construction of the engineered final cover system was completed at the Brock Township Landfill. The purpose of the final cover is to limit the production of leachate by diverting surface water from the waste fill area. The engineered cover was constructed of a general fill soil layer on top of the waste, followed by a geo-membrane liner, a sand drainage soil layer, and another layer of general fill topped with a vegetated topsoil layer. Disposal of residual waste in the landfill ended in June 2014 when pre-cover elevations for the entire waste fill area was achieved. Upgrades to the Brock Waste Management facility (WMF) recyclable material drop-off area completed in 2014 include a 2,300 square metre slab-on-grade concrete pad with an 80 metre long concrete block push wall.

For 2015, a construction report must be submitted to the Ministry of Environment and Climate Change (MOECC) by February, and the next annual monitoring report will be submitted to the MOECC by June 30, 2015, as required under the site's Environmental Compliance Approval.

The Brock WMF will continue to accept recyclable materials and residual waste from residents as a permanently operated facility. Residual waste received at the Brock WMF will be transferred to the DYEC for energy recovery.

Oshawa Landfill

In December 2013, CH2M-Hill completed a Post Closure Care Plan for the Oshawa Landfill that includes updated monitoring and maintenance programs. This plan recommended an evolutionary approach to site maintenance activities that starts with low cost bio-remediation options before moving onto more expensive engineering solutions as necessary. Site issues include slope stability along the Oshawa Creek, acquiring buffer lands, cover maintenance and adding more groundwater monitoring stations.

The report's findings and recommendations are being used to plan maintenance activities and capital projects. In the 2013 Waste Management Servicing and Financing Study, approval was obtained for a Capital Budget of \$1.5 million for the implementation of activities related to the issues identified above.

The development of a project specification to address the slope stability issue and iron staining remediation using native plants is complete and will be released for tender in the spring of 2015. Part of this project will also involve in-stream work completed per fisheries regulations.

Staff worked with Development Approvals and the City of Oshawa to acquire buffer land and also investigated possible acquisition of land from Camp Samac along the northern boundary of the site.

In addition to ongoing monitoring of landfill gas, groundwater and surface water in 2014, Regional staff undertook activities related to cover maintenance. In 2013, soil was imported from the site of a new EMS building to fill in a low lying area section of landfill cover. Additional cover maintenance is planned over the next few years.

Staff also worked with the Durham Region Police Service to address an ongoing issue with trespassing and regular damages to fencing at the site. Their involvement has resulted in a dramatic decline in both trespassing and vandalism.

Finally, a study was conducted from January to May 2014 to determine the effectiveness of the existing active gas collection system which was installed in 1980. Staff will evaluate the results and implement appropriate decommissioning options in 2015. Funding for work planned in 2015 was previously approved.

Darlington Landfill

2014 work at Darlington Landfill also included erosion control measures to mitigate washouts in the area of the 2013 cap enhancement project, as well as road re-alignment and improvements, and repairs/replacement of monitoring wells. There are no new projects planned for 2015 at this site.

Potential Blackstock Landfill Mining Project

Landfill mining is the removal of waste from a landfill to reclaim additional landfill capacity or to remove a landfill completely, including its contaminants and long term liability. While additional landfill capacity is not an issue for Durham Region, eliminating long term liability and potential future costs presents a net environmental benefit to the Region.

The Region retained Golder Associates Ltd. (Golder) in October 2010 to conduct a Landfill Reclamation Assessment (landfill mining) to evaluate the economic and technical feasibility of landfill mining at the Region's landfill sites. Following a review of potential costs and impacts, the Blackstock Landfill site was identified as a preferred location to conduct a mining project as a test for potential application to larger sites located closer to urban residential areas. The Blackstock Landfill is a small Region owned inactive landfill site in the Township of Scugog that has not been formally closed because the site is grandfathered under current legislation and a formal site Closure Plan is not required.

MOECC staff has recommended that the most effective way to have this mining project approved by the Ministry is for the Region to complete a formal Closure Plan for the landfill and to include the mining project as the principal component of the Plan. Approval for landfill closure plans is obtained through applications for amendment to the site's Environmental Compliance Approval (ECA).

Staff is considering an RFP as part of 2015 planning to solicit the services of an engineering firm familiar with landfill mining work to submit the Closure Plan as part of an application to amend the ECA. The scope of work would include preparing design

drawings and technical specifications for a subsequent construction tender, as well as eventual construction oversight.

Subject to Council approval of the Blackstock Landfill mining project, an application to amend the site ECA will be submitted in 2015 to obtain MOECC approval for the Closure Plan. Once Ministry approval for the Closure Plan is received, the Region will be legally obligated to complete the landfill mining project.

The mined waste would be processed at the Durham–York Energy Centre for energy recovery and recyclables marketed, if possible. Leftover soil would be used as backfill at the site and covered with topsoil. Environmental monitoring would continue for several years to demonstrate the positive impact of this project.

Appendix 4**Re-scheduling of Waste Collections due to Statutory Holidays****December 2014 to November 2015****TOWN OF AJAX**

- **Green Bin and Blue Box scheduled for Thursday, December 25, 2014 will be moved to the next day Friday, December 26, 2014.**
- **Green Bin and Blue Box scheduled for Friday, December 26, 2014 will be moved to the next day Saturday, December 27, 2014.**
- **Garbage, Green Bin and Blue Box scheduled for Thursday, January 1, 2015 will be moved to the next day Friday, January 2, 2015.**
- **Garbage, Green Bin and Blue Box scheduled for Friday, January 2, 2015 will be moved to the next day Saturday, January 3, 2015.**
- **Green Bin and Blue Box scheduled for Friday, April 3, 2015 will be moved to the next day Saturday, April 4, 2015.**
- **Garbage, Green Bin, Blue Box and Yard Waste scheduled for Wednesday, July 1, 2015 will be moved to the next day Thursday, July 2, 2015.**
- **Garbage, Green Bin, Blue Box and Yard Waste scheduled for Thursday, July 2, 2015 will be moved to the next day Friday, July 3, 2015.**
- **Garbage, Green Bin, Blue Box and Yard Waste scheduled for Friday, July 3, 2015 will be moved to the next day Saturday, July 4, 2015.**

CITY OF PICKERING

- **Garbage, Green Bin and Blue Box scheduled for Thursday, December 25, 2014 will be moved to the next day Friday, December 26, 2014.**
- **Garbage, Green Bin and Blue Box scheduled for Friday, December 26, 2014 will be moved to the next day Saturday, December 27, 2014.**
- **Green Bin and Blue Box scheduled for Thursday, January 1, 2015 will be moved to the next day Friday, January 2, 2015.**
- **Green Bin and Blue Box scheduled for Friday, January 2, 2015 will be moved to the next day Saturday, January 3, 2015.**
- **Garbage, Green Bin, Blue Box and Yard Waste scheduled for Friday, April 3, 2015 will be moved to the next day Saturday, April 4, 2015.**
- **Green Bin and Blue Box scheduled for Wednesday, July 1, 2015 will be moved to the next day Thursday, July 2, 2015.**
- **Green Bin and Blue Box scheduled for Thursday, July 2, 2015 will be moved to the next day Friday, July 3, 2015.**
- **Green Bin and Blue Box scheduled for Friday, July 3, 2015 will be moved to the next day Saturday, July 4, 2015.**

TOWNSHIPS OF BROCK, SCUGOG, and UXBRIDGE

- **Garbage, Green Bin and Blue Box scheduled for Thursday, December 25, 2014 will be moved to the next day Friday, December 26, 2014.**
- **Garbage, Green Bin and Blue Box scheduled for Friday, December 26, 2014 will be moved to the next day Saturday, December 27, 2014.**
- **Green Bin and Blue Box scheduled for Thursday, January 1, 2015 will be moved to the next day Friday, January 2, 2015.**

- **Green Bin and Blue Box scheduled for Friday, January 2, 2015 will be moved to the next day Saturday, January 3, 2015.**
- **Garbage, Green Bin, Blue Box and Yard Waste scheduled for Friday, April 3, 2015 will be moved to the next day Saturday, April 4, 2015.**
- **Green Bin and Blue Box scheduled for Wednesday, July 1, 2015 will be moved to the next day Thursday, July 2, 2015.**
- **Green Bin and Blue Box scheduled for Thursday, July 2, 2015 will be moved to the next day Friday, July 3, 2015.**
- **Green Bin and Blue Box scheduled for Friday, July 3, 2015 will be moved to the next day Saturday, July 4, 2015.**

MUNICIPALITY OF CLARINGTON

- **Green Bin and Blue Box scheduled for Thursday, December 25, 2014 will be moved to the next day Friday, December 26, 2014.**
- **Green Bin and Blue Box scheduled for Friday, December 26, 2014 will be moved to the next day Saturday, December 27, 2014.**
- **Garbage, Green Bin and Blue Box scheduled for Thursday, January 1, 2015 will be moved to the next day Friday, January 2, 2015.**
- **Garbage, Green Bin and Blue Box scheduled for Friday, January 2, 2015 will be moved to the next day Saturday, January 3, 2015.**
- **Green Bin and Blue Box scheduled for Friday, April 3, 2015 will be moved to the next day Saturday, April 4, 2015.**
- **Garbage, Green Bin, Blue Box and Yard Waste scheduled for Wednesday, July 1, 2015 will be moved to the next day Thursday, July 2, 2015.**

- **Garbage, Green Bin, Blue Box and Yard Waste scheduled for Thursday, July 2, 2015 will be moved to the next day Friday, July 3, 2015.**
- **Garbage, Green Bin, Blue Box and Yard Waste scheduled for Friday, July 3, 2015 will be moved to the next day Saturday, July 4, 2015.**

TOWN OF WHITBY & CITY OF OSHAWA

(These municipalities produce their own calendars that run July 2014 to June 2015)

In the event of a Statutory Holiday, a “day” shift schedule will be in effect as follows (*some dates may be tentative, pending confirmation from the local municipality):

- **Thursday, January 1, 2015** (New Year’s Day) all waste collection will shift one day forward (i.e. Thursday to Friday, Friday to Saturday)
- **Monday, February 16, 2015** (Family Day) – all waste collection will shift one day forward (i.e. Monday to Tuesday, Tuesday to Wednesday and so on...)
- **Friday, April 3, 2015** (Good Friday) – all waste collection will shift one day forward (i.e. Friday to Saturday)
- **Monday, April 6, 2015** (Easter Monday) – all waste collection will shift one day forward (i.e. Monday to Tuesday, Tuesday to Wednesday and so on...)
- **Monday, May 18, 2015** (Victoria Day) – all waste collection will shift one day forward (i.e. Monday to Tuesday, Tuesday to Wednesday and so on...)

Appendix 5
2015 Community Events Schedule

SPRING COMPOST GIVE-AWAYS (8)

Town of Ajax	Municipality of Clarington
Saturday, April 18	Saturday, April 18
8 a.m. to noon	8 a.m. to noon
Ajax Operations Centre	Clarington Operations Depot
800 Salem Road North, Ajax	178 Darlington-Clarke Townline Road, Bowmanville
Township of Brock	Town of Whitby
Saturday, April 25	Saturday, May 2
8 a.m. to noon	8 a.m. to noon
Sunderland Memorial Arena	Whitby Operations Centre
20 Park Street, Sunderland	333 McKinney Drive, Whitby
City of Oshawa	City of Pickering
Saturday, May 2	Saturday, May 9
8 a.m. to noon	8 a.m. to noon
Lakeview Park (Parking Lot)	Pickering Recreation Complex
Kluane Avenue, Oshawa	1867 Valley Farm Road, Pickering
Township of Scugog	Township of Uxbridge
Saturday, May 9	Saturday, May 23
8 a.m. to noon	8 a.m. to noon
Scugog Community Recreation Centre	Uxbridge Arena & Recreation Centre

1655 Reach Street, Port Perry

291 Brock Street West, Uxbridge

ELECTRONICS (E-WASTE) COLLECTION EVENTS

Town of Ajax*	Township of Uxbridge
Saturday, April 18	Saturday, June 20
8 a.m. to noon	8 a.m. to noon
Ajax Operations Centre	Uxbridge Seniors Centre
800 Salem Road North, Ajax	75 Marietta Street, Uxbridge

Township of Brock	City of Oshawa**
Saturday, September 19	Saturday, September 26
8 a.m. to noon	8 a.m. to noon
Cannington Arena	Lakeview Park (Parking Lot)
91 Elliot Street, Cannington	Kluane Avenue, Oshawa

Municipality of Clarington**	Town of Whitby
Saturday, October 3	Saturday, October 3
8 a.m. to noon	8 a.m. to noon
Clarington Operations Depot	Whitby Operations Centre
178 Darlington-Clarke Townline Road, Bowmanville	333 McKinney Drive, Whitby

Township of Scugog**	City of Pickering**
Saturday, October 17	Saturday, October 24
8 a.m. to noon	8 a.m. to noon
Municipal Boat Launch	Pickering Recreation Complex
2 Old Rail Lane, Port Perry	1867 Valley Farm Road, Pickering

HOUSEHOLD HAZARDOUS WASTE (HHW) COLLECTION EVENTS

Township of Brock	City of Oshawa**
Saturday, June 20	Saturday, September 26
8 a.m. to noon	8 a.m. to noon
Beaverton Community Centre	Lakeview Park (Parking Lot)
176 Main Street West, Beaverton	Kluane Avenue, Oshawa

Municipality of Clarington**	Township of Scugog**
Saturday, October 3	Saturday, October 17
8 a.m. to noon	8 a.m. to noon
Clarington Operations Depot	Municipal Boat Launch
178 Darlington-Clarke Townline Road, Bowmanville	2 Old Rail Lane, Port Perry

City of Pickering
Saturday, October 24
8 a.m. to noon
Pickering Recreation Complex
1867 Valley Farm Road, Pickering

* Denotes Compost Give Away plus collection event

** Denotes co-collection event - HOUSEHOLD HAZARDOUS WASTE (HHW) & ELECTRONICS (E-WASTE)

Dates and locations are subject to change with notice

Appendix 6

Clear Bags Summary

LOCATION	PROGRAM	CLEAR BAG LIMIT	PRIVACY BAG	DIVERSION RATE
Prince Edward Island	Waste managed by Island Waste Management Corporation (IWMC) with annual user fees (\$205/household).	No limit bi-weekly cart or clear bag.	No.	2013 IWMC reported 64% diversion rate for the province.
Regional Municipality of Halifax, Nova Scotia	More than half of the 55 municipalities have clear bag program. In spring 2015, Halifax is introducing clear bags.	Six (6) bag bi-weekly limit	One (1) small privacy bag permitted within the six (6) bag limit.	2014 diversion rate for Halifax was 52%.
City of Markham - York Region, Ontario	Implemented clear bag policy in April 2013.	No limit bi-weekly clear bag.	Currently not enforcing four (4) small opaque privacy bags in each clear bag.	2012 Waste Diversion Ontario (WDO) diversion for York Region was 57%, which the City of Markham is a part of. York Region is responsible for waste processing, disposal, and diversion reporting.
Dufferin County, Ontario	Local Townships amalgamated in January 2013, the County implemented a County-wide clear bag policy in June 2013.	In June 2014, the County implemented one (1) clear bag/container per week with additional bags requiring purchased bag tags.	Two (2) small opaque privacy bags permitted in each clear bag, clear bags may also be placed into garbage containers.	2012 Waste Diversion Ontario (WDO) diversion for Town of Mono was 61%, Town of Grand Valley was 59% and Town of Orangeville was 56%.
Town of Aurora - York Region, Ontario	"Soft" launch of a clear bag program in June 2015 with a transition to a mandatory program in October 2015.	No limit bi-weekly clear bag.	Three (3) small privacy bags permitted in each clear bag.	2012 Waste Diversion Ontario (WDO) diversion for York Region was 57%, which the Town of Aurora is a part of. York Region is responsible for waste processing, disposal, and diversion reporting. 2013 diversion rate for Aurora was 54%.
Township of Central Frontenac, Ontario	Implemented clear bag policy in April 2012. Only purchased clear bags with township logo are accepted and sold for \$1.00/bag.	No limit, residents must drop off clear bags at township waste disposal sites.	One (1) small privacy bag permitted in each clear bag.	Diversion rate is unavailable.
Township of North Frontenac, Ontario	Implemented clear bag policy in 2012. Tipping fees for each clear bag are \$2.00/bag. Residents are given a free bag tag in exchange for each equivalent bag of sorted containers recyclables as an incentive.	No limit, residents must drop off clear bags at township waste disposal sites.	One (1) small privacy bag permitted in each clear bag.	Diversion rate is unavailable.
City of Guelph, Ontario	Had a clear bag policy for many years but is now replacing bags with automated cart collection.	N/A	N/A	2012 Waste Diversion Ontario (WDO) diversion for Guelph was 68%

Appendix 7: Regional Waste By-law Compliance

Enforcement Activities

In 2014, Regional By-law Officers acted on 868 cases illustrated in the chart below. Cases are situations requiring investigation or action for staff to address. Officers addressed 45% of the bylaw related cases proactively. Proactive action aims at identifying opportunities by taking pre-emptive action against potential problems.

Case Statistics Breakdown
(Jan 1 – Sept 30, 2014)

Category	Cases	Category	Cases
Garbage	121	Blue Bin	101
Bulky Items	89	Yard Waste	14
White Goods	8	Green Bin	84
Porcelain	41	Non-Bylaw Related	410
Total			868

Approximately 572 Notices were issued to residents related to the above. Notices are 'Friendly Reminder' door hangers outlining by-law infractions and act as a guide on how to come into compliance. Officers also handled 410 non-bylaw related cases addressing waste collection and contractor performance related issues. In some cases, Officers issue multiple notices to specific addresses in order to achieve voluntary compliance. Staff estimates that 25 percent of the cases required repeat notices.

In addition to complaint driven cases, the By-Law Compliance Officers conducted ten neighbourhood educational blitzes to achieve compliance for recycling, garbage, green bin, and leaf & yard waste related issues. The educational blitzes surveyed over three thousand households and resulted in the distribution of 755 notices identifying common infractions.

Three Work Orders and three tickets were also issued. Work Orders are legal documents requiring a property owner to take specific action, such as cleaning up a property to achieve compliance. Work Orders are issued when voluntary compliance is not achieved with a Friendly Reminder notice. The three tickets were issued for scavenging infractions. All three tickets issued resulted in convictions. These convictions help validate the position of By-law 46-2011 regarding scavenging.

Scavenging

Since 2011, By-law Compliance Officers have successfully identified 58 scavengers and investigated over 133 instances of scavenging. Scavenging is the unauthorized removal

of waste set out for municipal collection. Typically, scavengers remove electronics, scrap metal and liquor cans/bottles. Scavenging results in a loss of revenue through the waste diversion systems in place.

In 2014, 21 cases of scavenging were investigated, 11 scavengers were identified and four convictions were recorded for tickets issued in 2013. By-law Compliance Officers use discretion when issuing tickets due to individual circumstances which are considered beforehand. In most cases, previous warnings are issued and kept on file for future enforcement considerations. As stated above, scavenging enforcement resulted in the laying of three charges in 2014, all of which were successfully prosecuted.

Compliance Monitoring

When Durham Region approved By-Law 46-2011 and the creation of a Waste Management By-Law Compliance unit, it did so with the understanding that enforcement would be conducted with a collaborative approach employing education initiatives ahead of strict by-law enforcement. To that end, the By-Law Compliance Officers do more than just strict by-law enforcement. They also assist with outreach initiatives and gather data about program participation and obstacles to increased participation.

In 2014, the By-law Compliance Officers conducted two projects to gather participation data and to encourage increased participation in Durham's curbside waste diversion programs. The first was a Green Bin Outreach Project to investigate and increase participation in the Green Bin program. The second was a cursory Set Out Study to estimate how many households are setting out recyclables and organic waste in the residual waste stream even though they are participating in the Green Bin and Blue Box programs.

The Green Bin Outreach Project

The green bin program was initially launched in 2003 in the Townships of Brock, Scugog and Uxbridge, and the Municipality of Clarington. It was extended to Ajax, Pickering, Whitby and Oshawa in 2006. The Region's population has increased since then but recently, source separated organics (SSO) tonnages have decreased somewhat. The Green Bin Outreach Project was initiated to help increase user participation and improve the quality of SSO material through public awareness.

Summer students surveyed a total of 1890 houses in selected neighborhoods across Durham Region in 2013. The City of Oshawa and Town of Whitby were not included in the survey, as they are responsible for the collection of garbage and green bin material in their municipalities. The Township of Brock was also excluded for logistic reasons and their limited population.

The subject neighborhoods were surveyed for a minimum of three consecutive waste collection days over the course of the summer. A final list of 290, or 15 percent, of the

total addresses was compiled where no green bin was observed to be set out for collection during any of the surveyed weeks.

By-Law Compliance Officers used this data to conduct door - to - door canvassing from October 2013 to August 2014. Canvassing included verification of the survey data and visiting the identified households to inquire why they were not participating. Staff then shared information about the Region's Green Bin program, and provided those households with free Green Bins and kitchen catchers, as required. This canvassing had a 91% success rate with all but 27 of the 290 homes taking up the Green Bin program and using it on a regular basis.

Residents who were not previously using the Green Bin program reported the following reasons as to why they were not participating;

1. Did not have a green bin when they moved in.
2. Unsure where/how to obtain one.
3. Reluctant to purchase a Green Bin at retail locations, due to cost.
4. They think the 100 percent compostable bags are disgusting, break apart easily, are smelly and/or are inconvenient.
5. Have a backyard composter and do not think they need to use a Green Bin.

Given the success of this initial outreach initiative, staff will continue surveying and visiting households that are not participating in the Region's curbside waste diversion programs to raise awareness and increase program participation.

Curbside Waste Study

In 2014 By-Law Compliance Officers conducted a review of the garbage, green bin and recycling set out rates and an analysis of how many households, on average, are setting out garbage bags containing recyclables and/or organics. The curbside set out survey was conducted in all local municipalities over a four week period (March 18 – April 9, 2014).

Set out data was collected and analyzed from 256 randomly selected homes. The garbage bag set-outs at these homes were also investigated with minimal intrusion to determine if they contained recyclables and/or organics. Garbage bags were opened only if necessary.

The results of this review are consistent with previous curbside set out studies. It shows that 88 percent of households set out three or less garbage bags on average per collection and 68 percent set out two or less garbage bags per collection.

The study determined that 66 percent of households were participating in the Green Bin program and over 97 percent were participating in the Blue Box program. It further revealed that 97 percent of households were setting out four or less bags of garbage

per collection. On average, each household set out two bags per garbage collection. Only 3 percent, or nine homes in the subject group, were setting out more than the four bag limit for garbage.

Finally, the study concluded that, despite significant participation in the Green Bin and Blue Box diversion programs, 75 percent, or 191 homes in the study group, set out garbage bags containing recyclables and/or organics along with setting out their blue boxes and green bins. This compares to the predicted 100 percent of the households setting out garbage bags containing recyclables and/or organics that do not participate in the Green Bin and Blue Box programs.

The data presented above supports the position that, despite Durham's high diversion rate, there still exists the opportunity to increase the capture of the Blue Box and Green Bin materials before final disposal. Getting the recyclables and organics that are still being disposed of in the curbside programs will require a mix of solutions including mixed material pre-sort technology, anaerobic digestion processing, continued promotion and education efforts and continued by-law enforcement activities.

Increased By-Law Enforcement at Facilities

The success of the Region is based on a common approach and a waste diversion methodology implemented Region wide. Given the two-tier waste management system in the Region, the success of any future initiatives depends on full participation of the City of Oshawa and the Town of Whitby in the Region's programs and policies. Full participation includes consistent enforcement of program requirements and the delivery of materials to the Region's facilities that meet the legal and program requirements for proper processing and disposal.

Through Waste by-law 46-2011 and its contractual arrangements for waste collection, Durham Region has control over the quality of residual waste that it sends to the Durham York Energy Centre (DYEC) for processing. However, it has no such control over the quality of waste that the City of Oshawa and the Town of Whitby delivers. Inspections conducted in 2014 at the Region's contracted Pebblestone solid waste transfer station detected significant amounts of recyclable and compostable waste in the loads delivered by City and Town forces.

In light of the above, staff will increase monitoring and enforcement (inspections, bans, notices, fines, etc.) of the provisions of By-Law 46-2011 at the Region's owned and controlled waste management processing and disposal facilities. Staff will also review Waste By-law 46-2011 and recommend amendments that give enhanced authority to the Regional Municipality of Durham to inspect, reject and/or remedy any materials delivered to Regionally owned or controlled facilities that do not conform to the Region's various requirements as outlined in the by-law.

Appendix 8

Solid Waste Management: Performance Measurement Results

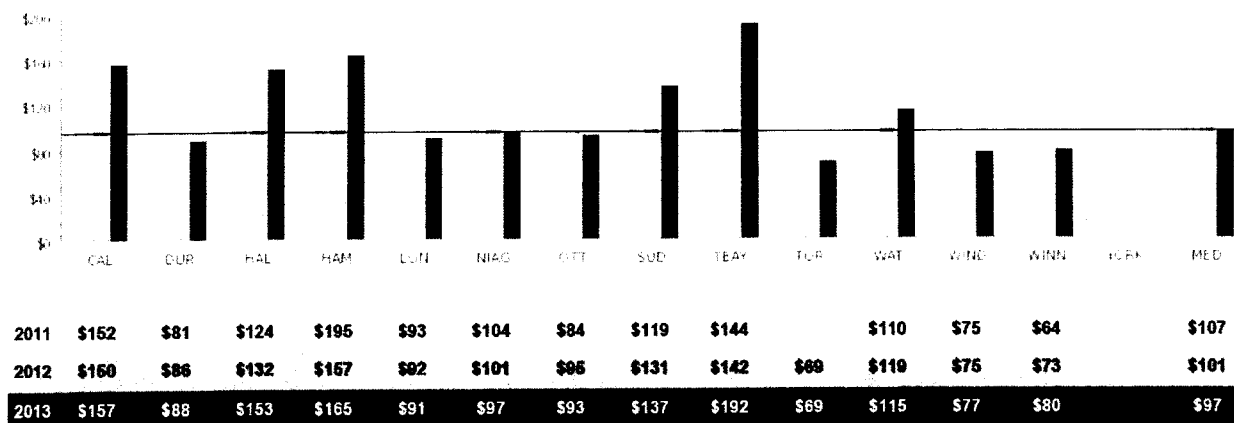
Once programs are implemented, performance is monitored, measured and evaluated. Performance measurement processes at Durham Region include:

- Measures incorporated into the detailed business plan and budget documentation;
- Measures reported to provincial authorities as part of the Municipal Performance Measurement Program; and,
- Measures developed and reported through collaborative initiatives with other municipalities, including the Ontario Municipal Benchmarking Initiative (OMBI).

The Ontario Municipal Benchmarking Initiative (OMBI) 2013 Performance Measurement Report was released in November 2014. Results are available for 25 Durham Region service areas, including Solid Waste Management. Compared to OMBI peers, Durham Region's 2013 waste collection costs are low, totaling \$88 per tonne collected, compared to the median cost of \$97 per tonne for the peer group overall. However, existing collection contracts across the Region are set to be re-tendered by 2017, which will reset pricing based upon specifications, and changed costing due to inflationary factors and the competitive environment.

What is the total cost to collect a tonne of waste?

Fig 34.2 OMBI Total Cost for Garbage Collection per Tonne - All Property Classes (includes amortization)



Source: SWST311T (Efficiency)

Note: All Property Classes includes residential and ICI (Institutions, Commercial and Industrial) locations.

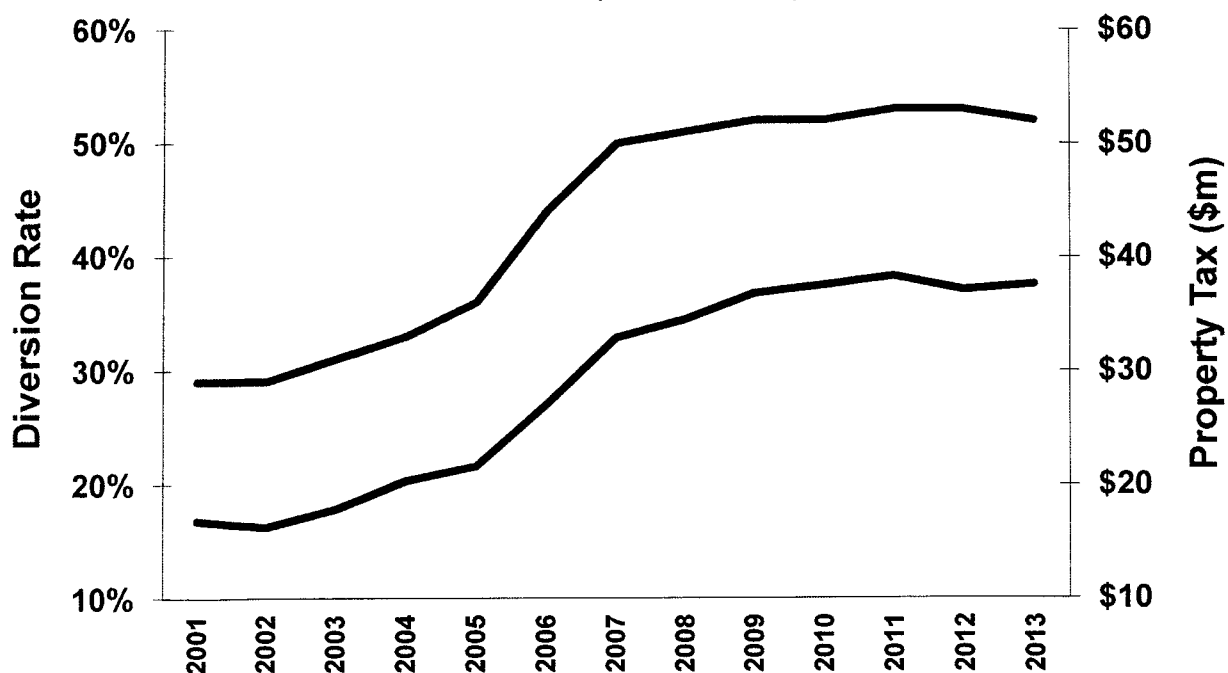
Comment: York Region operates a two-tier system and although it is not responsible for curbside collection, the Region is responsible for all processing. Therefore, York is able to report the total tonnes collected (see Fig 34.1 – SWST205); however York does not report the Total Cost.

Durham Region is responsible for the curbside collection of all municipal solid waste within six of Durham's local area municipalities, and collects Blue Box waste materials within the City of Oshawa and the Town of Whitby, who maintain responsibility for collection of garbage, Green Bin kitchen waste, yard waste, bulky and white goods materials within their jurisdiction. The

Region receives all waste from each of the eight local area municipalities and is responsible for its processing, haulage, recyclables marketing and disposal.

The chart following demonstrates the correlation between net property tax expenditures for solid waste management and diversion. The most significant 2002 to 2011 costs and largest jump in diversion occurred between 2002 and 2004 when collection responsibilities were uploaded from six of the eight local area municipalities, including curbside diversion collection program expansion, the Green Bin organics collection launch and implementation of associated new diversion material processing capacity.

**Solid Waste Diversion and Regional Net Solid Waste Expenditures
(2001 to 2013)**



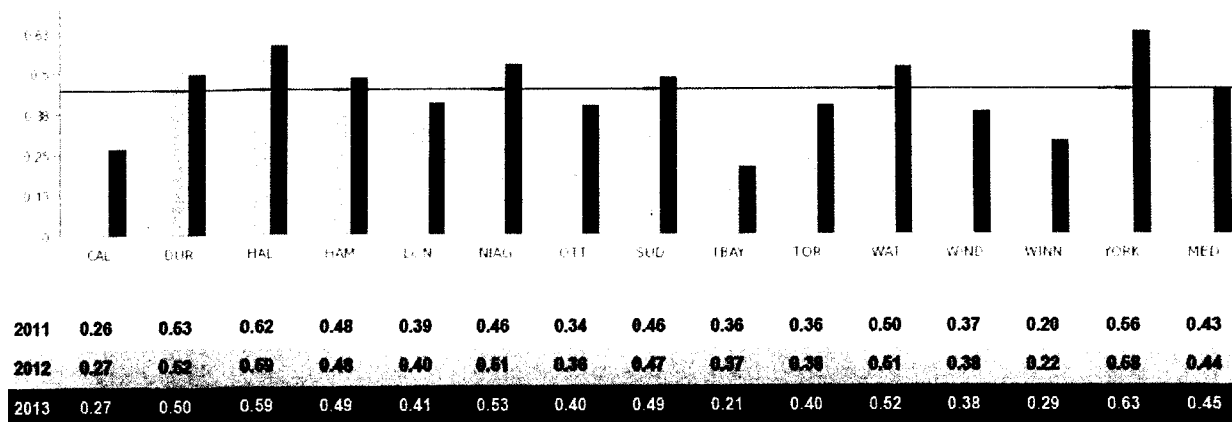
Source: Waste Management Annual Reports

Durham Region remains above the median diversion rate of its OMBI peers (a median of 47 per cent diversion compared to Durham Region's 52 per cent diversion rate for 2013).

Report #2015-J-8

How many tonnes of residential waste are diverted per household?

Fig 34.5 Tonnes Solid Waste Diverted per Household - Residential

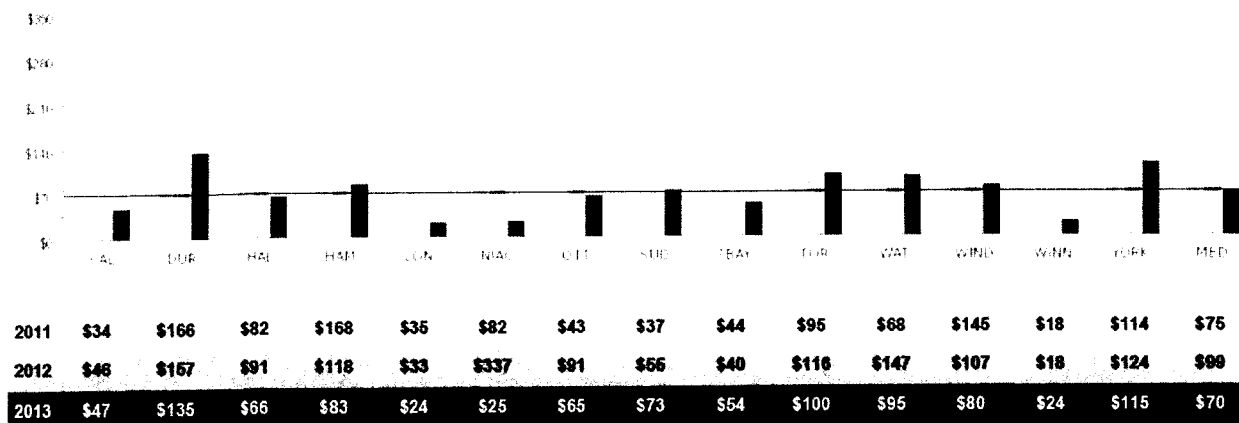


Source: SWST235 (Service Level)

Durham Region's 2013 cost for waste diversion and garbage disposal were above its peers at approximately \$135 per tonne for residual garbage disposal costs and approximately \$205 per tonne for diversion costs. Disposal costs are influenced by many factors including availability and distance to disposal sites, fuel costs and landfill site requirements. Declining active landfill capacities in Ontario typically result in increased landfill rates, increased transportation costs and diminishing Ontario landfill options. These risks will be reduced with the implementation of DYEC operations in 2015.

What is the total cost to dispose of a tonne of garbage?

Fig 34.4 OMBI Total Cost for Solid Waste Disposal per Tonne - All Property Classes (includes amortization)



Source: SWST325T (Efficiency)

Note: All Property Classes includes residential and ICI (Institutions, Commercial and Industrial) locations. In addition, declining landfill capacities typically result in increased landfill rates. Other impacts such as additional costs of transporting waste outside a community, aging infrastructure, capital costs, the cost associated with the incineration of garbage, service agreements, increase in leachate treatment and fluctuating fuel costs also impact the results.

Comment: In 2012, Niagara's result was impacted significantly due to the recording of post-closure landfill liability costs; and this was also a factor in Waterloo's increased cost in 2012.

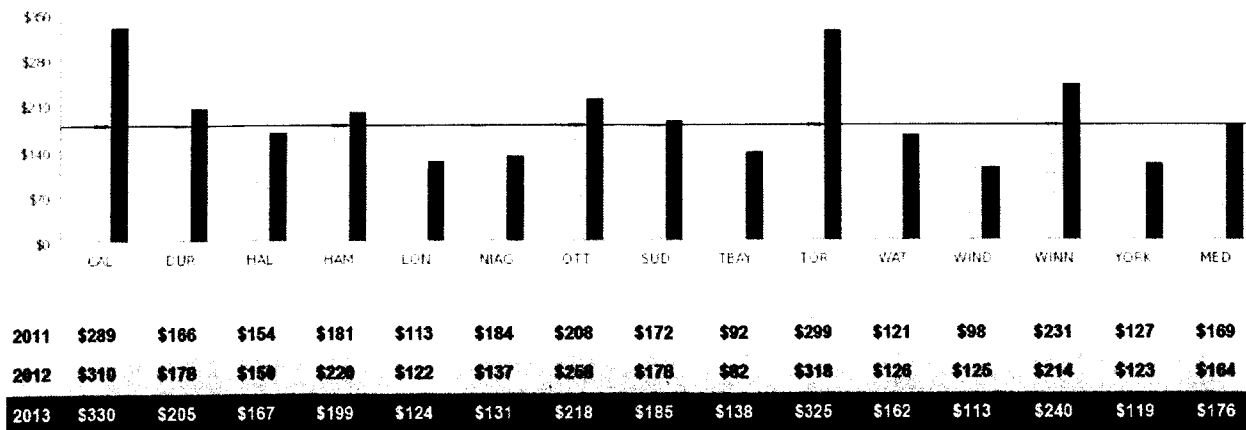
Also influencing disposal costs tracked through OMBI, the Region must monitor and provide perpetual care to existing landfill sites, which for Durham includes seven inactive landfill sites (Brock Township landfill stopped receiving new waste in 2014).

Landfill sites represent long-term liabilities and continued environmental protection and periodic remediation, including surface and groundwater protection measures, are required periodically over the long-term. Future remediation of Durham’s existing sites is part of the capital forecast, with an additional \$4.7 million estimated to be required between 2015 and 2024. This compares to \$7.4 million in approved remediation expenditures budgeted for the Brock Township and Oshawa landfill sites between 2010 and 2014.

Durham’s cost to divert a tonne of garbage was \$205 per tonne in 2013, or 16.5 per cent above the median. Cost differences reflect diverse service levels and differing circumstances across municipalities, including the types and amounts of diversion materials collected, the level of promotion and education expenditures, the magnitude, age and condition of recycling infrastructure, private versus public service providers and other factors (e.g. distance to market and material revenues and composition).

What is the total cost to divert a tonne of garbage?

Fig 34.6 OMBI Total Cost for Solid Waste Diversion per Tonne - All Property Classes (includes amortization)



Source: SWST330T (Efficiency)

Note: All Property Classes includes residential and ICI (Institutions, Commercial and Industrial) locations.