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.: 2013-J-38
Date: November 28, 2013

SUBJECT:

The 2014 Annual Solid Waste Management Servicing and Financing Study

RECOMMENDATIONS:

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

Centralized Transfer Facility

1. Based upon the AECOM Inc. study "Waste Optimization Study for 4600 Garrard Road" and business case analysis herein, a Request for Proposals (RFP) be issued seeking options to demolish the existing facility at 4600 Garrard Road (old recycling centre site north of the new materials recovery facility) and construct a new purpose-built centralized transfer facility under either a design-build or design-build-operate approach, at an estimated capital cost of approximately $7.0 million, including site works and cost escalation contingency to:

   a) Receive, process and distribute the Region's co-collected curbside source separated organics, Blue Box, and residual garbage waste materials, including compliance with stringent residual waste flow and control requirements, as dictated by the Ministry of Environment through the Durham-York Energy Centre Environmental Assessment and Certificate of Approval.

   b) Concurrent with the recommendations to award the Request for Proposals, related financing and the preferred service delivery approach for the centralized transfer facility capital project also be recommended.

Waste Collection

2. The no-cost 2013 reuse goods pilot program partnership be extended one year, with eight collection events proposed for 2014 at the Region's Garrard Road facility, and with future programs and potential event sites to be considered as part of the 2015 Solid Waste Servicing and Financing Study.

3. The successful 2012/2013 pilot mercury waste collection program, involving the exchange of mercury items for a non-mercury digital thermometer, be made a permanent component of Durham's Solid Waste Management base program, in order to further environmental protection objectives, at an annual cost for thermometers of less than $500 to be funded through annual Solid Waste Management Operating Budgets.

Solid Waste Processing

4. Negotiations with Miller Waste Systems be authorized in order to:

   a) Extend the existing contract for the continuation of processing of the Region's curbside Green Bin organics for two years beyond the current contract, in order to secure the Region's existing organics processing capacity to at least the end of the current business planning period (2018); and,

   b) Potentially expand organics processing options to address current diversion program expansion constraints and include other potential source-separated organics materials and organics received from multi-residential dwellings to facilitate higher diversion in addition to Green Bin organics.

5. Regional staff report back to Joint Committee and Regional Council on the results of negotiations with the Region's existing organics processor Miller Waste Systems, and provide options (e.g. extension or Request for Proposals), analysis and recommendations to move forward with a comprehensive organics management plan beyond 2018.

Anaerobic Digestion (AD)

6. Staff continue investigation of anaerobic digestion (AD) technologies, including non-binding discussions with potential vendors and partners, in order to inform any future business case and recommendations to Regional Council.

2014 Regional User Fees and Charges

7. The 2014 Regional Fees and Charges schedule for Solid Waste Management be approved with an increase to $2.50 from $1.50 per tag, for garbage bag tags required for garbage set-outs beyond the bi-weekly garbage bag limit, based upon a significant majority of Durham-wide collection stops demonstrating a set-out of below three garbage bags bi-weekly.

Other

8. The Regional Solicitor be authorized to amend the Regional Waste Management By-law 46-2011, to reflect the recommendations above as well as the implementation of the January 23, 2013 direction of Regional Council to make the following programs a permanent part of the Regional collection standard:

   a) The Region-wide collection of food and beverage containers and packaging, comprised of #1 Thermoform PET and #3 to #7 plastics;

   b) The curbside collection and recycling of porcelain bathroom fixtures; and,

   c) The collection and recycling of waste electronic and electrical equipment (E-waste, and formally referred to as WEEE) under both the curbside and multi-residential programs in partnership with the Ontario Electronic Stewardship.

9. The Regional Chair and Clerk be authorized to execute an agreement with the Ontario Electronic Stewardship (OES) to receive OES funding for the Region's multi-residential E-waste collection program.

1.0 EXECUTIVE SUMMARY

1.1 Solid Waste Management Expenditures

The Region's net Solid Waste Management expenditures are approximately $38 million and represented approximately 6.9 per cent of the 2013 Regional property tax bill. The net amount reflects user fees, recyclable revenues, subsidies and other recoveries which together reduce the solid waste requirement by close to 35 per cent or $21 million.

Both higher net expenditure requirements for solid waste services and financing risks are identified for the forecast period 2014 to 2018 as further detailed herein. Risks relate to existing commitments, significant planned initiatives and ongoing operational risks beyond the Region's control. These latter uncertainties include commodity market volatility, future subsidies and potential fluctuations in collection stops and/or waste tonnages which occur year-to-year. Uncertainty is also related to the new Bill 91 "*Waste Reduction Act*" which is anticipated to transform Ontario's approach to waste diversion, placing responsibility for managing designated materials on material producers and fundamentally changing the regime under which municipalities are reimbursed for collection, handling, processing, transportation and storage costs for designated materials.

1.2 Financing: Revenue and Expenditure Risk

Currently, a small deficit is anticipated at 2013 year-end, due primarily to an estimated $1.2 million deficit in Blue Box material revenues, but which will be offset by lower than expected tonnages and stop counts. While not the Region's lowest materials revenue-year ($4.3 million), 2013 revenues are currently anticipated to finish the year at approximately $4.9 million (based on data to September 2013). For comparison, revenues during the best years have approached $8 million.

Depressed market prices continue for plastics, metals and most significantly for paper fibers. Following a reduction in the 2013 Budget, an even more significant revenues adjustment is anticipated for the 2014 Budget, to account for the most recent lowered revenue trend anticipated to carry through most of 2014. The low commodities price is a result of the prolonged economic slowdown; lower retail sales; light weighting of industry packaging due to enhanced producer stewardship policies; and lower per household and Waste Management Facility (WMF) solid waste volumes. Longer term fibers market impacts are anticipated due to the shift to electronic media. 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.

1.3 Revenue Risk Offsets

Offsetting the projection for a 2013 revenues deficit and lowered 2014 Budget revenues, are refined projections for both years based upon lower than anticipated population and household growth. Lowered tonnages and stop counts affect a

significant portion of contracted operational costs for the collection, haulage, and processing of solid waste, whether related to diversion or residual (garbage) waste flows.

As detailed further herein, the 2014 Solid Waste Management Operations Budget will remain exposed to a measured level of operational risk, which will continue to be closely monitored. Fluctuations to revenues, stop counts, tonnages and related subsidies are beyond the direct control of the Region. As always, risk management includes mitigation and, should offsetting mitigation measures not be available, the Solid Waste Management Reserve Fund will continue to be utilized as appropriate to mitigate one-time property tax impacts.

The following table demonstrates potential financial impacts from ongoing Solid Waste Management financing risks:

Solid Waste Management Financial Risk Impacts

	Estimated Annual Impacts (2014)
A 1% increase in tonnages	$170,000
A 1% increase in collection stops	$180,000
A 1% decrease in subsidies	$52,000
A 1% decrease in recycling materials revenues	$49,000

1.4 Policy Uncertainty: Restructuring and a New Funding Regime

On June 6, 2013, the Ontario government introduced Bill 91, *The Waste Reduction Act* (WRA). If passed into law, the WRA will transform Ontario's approach to waste diversion by placing the primary responsibility for managing designated materials on the producers of those materials. The WRA will also require producers to meet waste reduction and service standards for all designated materials.

The WRA will require producers to reimburse municipalities for 'reasonable' costs for collection, handling, transportation and storage of designated materials, and the processing and disposal of blue box materials. While opportunities to increase the external funding of Solid Waste Management costs may result, depending upon the roles and partnerships undertaken by the Region, it is currently unclear how "reasonable costs' will be defined. It is also unclear to what extent producers will be able to meet their obligations without the benefit of municipal waste collection experience and infrastructure. Should the Region partner with private sector participants in this future system, it will be critical to ensure full cost recovery on behalf of Regional taxpayers as well as full-cost accounting.

Staff is engaged in the consultation process for the development of the WRA and its regulations and will also explore WRA related opportunities, including business case development and financial analysis and will provide updates to Committee and

Regional Council as required (for more details on the proposed legislation reference Report 2013-WR-8).

1.5 Business Plan and Budget: 2014 Expenditure Pressures

Solid Waste Management 2014 operational requirements have been refined based upon current assumptions and lowered growth estimates resulting in lowered tonnage and municipal solid waste collection stop growth. Estimates are subject to further refinements through the forthcoming detailed 2014 Business Planning and Budget process.

Budget pressures for 2014 include:

- Base budget increases, including existing contract price escalation and economic increases to maintain existing service levels;
- Reduced recycling revenues due to significantly deteriorated market conditions; and,
- The phase-out of landfill disposal and haulage costs related to the Brock Township and New York landfills and the transition to implementation of the Durham – York Energy Centre (EFW) commercial operations in the Municipality of Clarington including associated transfer and haulage shifts.

Despite 2014 net Solid Waste Management expenditure pressures Regional staff are committed to achieving the approved 2014 Property Tax guideline.

1.6 Durham – York Energy Centre Operations Implementation

The timing and tonnage assumptions for utilization of the three disposal locations over 2014 directly impact Solid Waste Management expenditure requirements for transfer, haulage and disposal. Currently, testing of the EFW facility is expected to commence in the spring of 2014, with only partial tonnages delivered to the facility until full commercial operations are achieved by the fall of 2014.

Changes to this timing, or fluctuations in residual garbage tonnages, could impact 2014 and future budget estimates. The design-build-operations contractor, under the EFW Project Agreement, contractually has until December 14, 2014 to commence commercial operations, but is expected to remain ahead of this contractual start-date.

The updated year-over-year disposal cost requirement is estimated in the following table, including estimates for the enhanced monitoring program approved on October 9, 2013. Additional costs for ambient air monitoring are anticipated to commence in 2014 at $0.2 million per year for three years, and costs for an additional annual stack test are included in each of years 2015 through 2017 (at an estimated $0.1 million per year).

Forecast Durham Disposal Cost Estimate Update
(2013 Budget and Estimated 2014 to 2018 Operations Forecast)
($ Millions)

	2013	2014	2015	2016	2017	2018
Landfill transfer, haulage & disposal costs (Brock & New York landfill)	8.11	3.29	-	-	-	-
Net EFW Transfer, haulage & disposal costs	0.26	5.29	10.07	10.48	10.98	11.41
TOTAL DISPOSAL COST	**8.37**	**8.58**	**10.07**	**10.48**	**10.98**	**11.41**
Estimated Increase		0.21	1.49	0.41	0.50	0.43
Property Tax Impact (%)	**-**	**0.04**	**0.27**	**0.07**	**0.09**	**0.08**

Notes:
1. Costs are Durham only - net of power and material revenues and York Region recoveries.
2. Net cost estimates also include operating fees, estimated contractual escalation, Regional weigh scale staffing, host community commitments, consulting and professional fees, communications/committees, legal and technical support and expanded emissions monitoring programs.

1.7 Major Capital Expenditures in 2014

Currently estimated 2014 major capital requirements total $7.3 million and include:

- Potential capital costs to meet the EFW Host Community commitment to establish a hazardous waste facility in the Municipality of Clarington by the end of the first year of EFW commercial operations. While options continue to be explored, including private sector contracted services, $0.3 million to purchase land is included within the 2014 capital forecast, subject to future reporting and analysis; and,

- An estimated $7.0 million for the recommended construction of a Regionally owned, centralized transfer facility to receive, process and distribute the Region's co-collected curbside source separated organics, Blue Box, and residual garbage waste materials, including compliance with stringent residual waste flow and control requirements, as dictated by the Ministry of Environment through the Durham-York Energy Centre Environmental Assessment and Certificate of Approval.

While an initial capital cost estimated at $7.0 million will be incurred, operational costs for a Regional transfer facility located at Garrard Road are anticipated to be lower overall through elimination of contracted service and considering transfer operations, and changes to Regional collection and waste transfer and haulage costs for residual garbage waste and source separated organics.
The net present value (NPV) cost for the Regional Garrard transfer option, compared to status quo contracted costs over 20 years, is $1.3 million (in 2013 Canadian dollars). Therefore, it is recommended that the Region construct a

purpose-built transfer facility at the Garrard Road site to ensure strict compliance and control of waste deliveries to the EFW. Along with the recommendation for the award of the Request for Proposals the service delivery approach (i.e. design–build or design–build–operate) and related financing will also be recommended.

1.8 Longer-term Solid Waste Expenditure Pressures

Solid Waste Management goals include environmental protection, increased diversion and the responsible and effective management of post-diversion residual waste. Key expenditure pressures going forward relate to:

- Initiatives to continue movement towards the Region's goal of 70 per cent diversion, including estimated requirements for increased compost processing capacity and reuse materials collection capacity; and,

- New facility infrastructure requirements and related operational and staffing impacts.

Regional staff were directed to report back through the annual Joint Servicing and Financing study on several potential projects related to the key objective of increasing waste diversion from disposal. The detailed report updates various completed and/or ongoing reviews, studies and business case analyses related to:

- Waste composition, diversion potential, and options for multi-residential diversion;
- Waste user fees and garbage bag set out limits;
- Potential for eco-station type facility(ies);
- Examination of technologies such as anaerobic digestion to increase Durham's diversion of organic materials not suitable for the current Green Bin program and using existing processing technology;
- Implementation of renovation / construction and demolition waste diversion programs at waste management facilities (WMFs) and/or eco-stations;
- The reuse day pilot program implemented in partnership with local non-profit/charitable organizations; and,
- Potential for landfill mining and site reclamation at smaller landfills.

Recommendations for additional expansion of diversion programs will be brought forward subsequent to thorough review of the implications of Bill 91 "*Waste Reduction Act*" implementation, should the Bill be passed into law.

The following chart provides the current 10-year Solid Waste Management capital forecast (2014 to 2023), which will continue to be further refined through the 2014 Business Planning and Budget approvals process, and remains subject to annual Business Planning adjustments and approvals.

Solid Waste Management Major Capital Forecast (2014 to 2023)

($ Millions)	2014	2015	2016	2017	2018	2019 to 2023	Total
Oshawa Landfill remediation						0.9	0.9
Other landfill remediation and/or reclamation		1.0	1.9	0.8			3.7
Garrard Road Transfer Station Project	7.0						7.0
Clarington Hazardous Waste Facility[1]	0.3	2.7					**3.0**
Waste Management Facilities (modifications and new)				0.5	0.9	**6.2**	**7.6**
New Seaton Waste Facility				8.5			8.5
Total Solid Waste Capital Forecast [1&2]	**7.3**	**3.7**	**1.9**	**9.8**	**0.9**	**7.1**	**30.7**

Notes:

1. The Region issued a Request for Expression of Interest (REOI) in late 2013 to explore private sector options available to implement the Region's commitment under the EFW Host Community Agreement with Clarington to provide a hazardous waste collection facility. With no suitable options received, the Region is now exploring other options, including acquisition of land and construction of the hazardous waste facility. Regional staff will report in 2014 on options available to fulfill Council's commitment, as well as potential to include other diversion collection options through an eco-station type facility, which is also being explored. The capital cost noted within the forecast includes land purchase in 2014 and potential construction in 2015.
2. Options for expansion of the Region's organics diversion program continue to be investigated, including potential for an anaerobic digestion (AD) facility. A Regionally financed AD facility is cost prohibitive and partnerships would be required and continue to be explored. While not included within the current major capital forecast, future recommended options could include both capital and operating cost components.

1.9 Conclusions

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

In addition to the ongoing Solid Waste Management goals to ensure efficient and adequate solid waste collection services for Durham's residents, protect the environment and effectively maintain solid waste assets, key goals include the successful implementation of the new Durham – York Energy Centre (EFW) project as a new long-term local disposal option and the continued movement towards the 70 per cent waste diversion objective.

Based on actual tonnes to September 2013, the Region is anticipated to reach 54 per cent diversion in 2013, despite increasing challenges due to the light-weighting of recyclable materials by industry in reaction to enhanced producer stewardship policies, return-to-retail options and issues with the current metrics used by Waste Diversion Ontario for measuring waste diversion. Incremental gains were largely the result of new diversion programs implemented, including electronic waste, curbside batteries collection, porcelain recycling, the residue clean-up system at the Material Recovery Facility and an expanded Blue Box plastics program.

Uncertainties over the forecast period include:

- Provincial policy changes, restructuring and revenue/subsidy regime change through the 2013 Bill 91 "*Waste Reduction Act*";
- Reduced market prices for recyclable materials, subsidies and user fees due to the economic slowdown;
- Tonnage and stop-count fluctuations which cause considerable uncertainties in Solid Waste Management budgeting;
- Longer-term structural changes in paper fibers markets; and,
- The impacts of these risks and uncertainties on diversion program business cases recently completed and/or underway (in terms of available diversion tonnages, diversion program/facility cost responsibilities, and available revenues).

Including landfill remediation and/or reclamation projects, and recommended or forecast new facilities, the Region's Solid Waste Management program forecasts over $30 million of major capital expenditures by 2023, not including increases due to a potential future anaerobic digestion facility, which would be reliant upon establishment of partnerships and investigation and business case around preferred options.

Regional staff continue to refine estimates as part of the 2014 Business Planning and Budget process, with the recommended detailed 2014 Solid Waste Management Business Plan and Budget anticipated before Works Committee and Regional Council in January/February 2014.

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Commissioner of Works

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Commissioner of Finance

Recommended for Presentation to Committee:

G.H. Cubitt, MSW
Chief Administrative Officer

2014 Servicing and Financing Study

Report 2013-J-38

Solid Waste Management

November 28, 2013

Solid Waste Management

2.0 Introduction

This report updates Solid Waste Management programs and associated financing pressures for the 2014 to 2023 business planning period, setting the stage for the 2014 detailed Solid Waste Management Business Plan and Budget Review. Based upon existing strategic planning objectives, net expenditure pressures which increase net property tax and financing requirements over the forecast period include:

- Movement towards the 70 per cent diversion goal, including proposed new capital programs under analysis to capture remaining organics and reuse materials from the waste stream;
- Related requirements for additional organics processing capacity over the forecast period, including additional Green Bin, leaf and yard waste capacity and a potential anaerobic digestion option to accommodate further incremental organics diversion;
- Regional landfill remediation projects, risk management plans and the perpetual monitoring and care of landfill sites to ensure continued environmental protection;
- Implementation of Durham – York Energy Centre (EFW) operations, including enhanced provincial compliance requirements for waste supply oversight, inspections and emissions monitoring, and recent new Council monitoring requirements; and,
- Potential longer-term impacts related to lower Blue Box material revenues affected by reduced commodity prices and for fibers the systemic impact from a broad-based consumer shift to electronic-based communications.

Preliminary requirements are identified for the following, subject to the forthcoming detailed 2014 Business Planning and Budget review:

- Base budget impacts, including tonnage and stop count estimates, existing contract price escalation and economic increases to maintain existing service levels;
- The phase-out of landfill disposal and transition to implementation of the Durham-York Energy Centre (EFW) operations and commercial start-up with an estimated net haulage-to-disposal budget impact in 2014 of approximately $0.2 million;
- A new centralized transfer facility to replace the Region's existing contracts for the transfer and haulage-to-disposal of residual waste, which represents a 2014 recommended capital investment of approximately $7.0 million, but with projected annual operational savings over 20 years resulting in a discounted net present value cost totaling $1.3 million (in 2013 dollars discounted at five per cent over 20 years of operations); and,
- Significantly reduced revenues available from diversion material sales due to significantly deteriorated market conditions ($1.2 million).

Despite significant cost pressures, Regional staff is committed to achieving the 2014 property tax guideline for Regional operations, and are reviewing off-setting cost reduction opportunities along with financing options which may be incorporated into the 2014 Solid Waste Management Business Plans and Budget.

As an example, staff are reviewing tonnage and stop count actuals and have identified opportunities for 2014 budget cost savings based on lowered expectations for near-term growth. These budget drivers have been reduced in recent years due to Provincial product stewardship programs, industry packaging reductions, slower economic growth, lower housing starts, and lower volumes of waste currently being generated per household.

Final recommendations for the detailed Solid Waste Management Business Plan and Budget will be presented to Works Committee in late January 2014 to be reviewed by Regional Council in February 2014.

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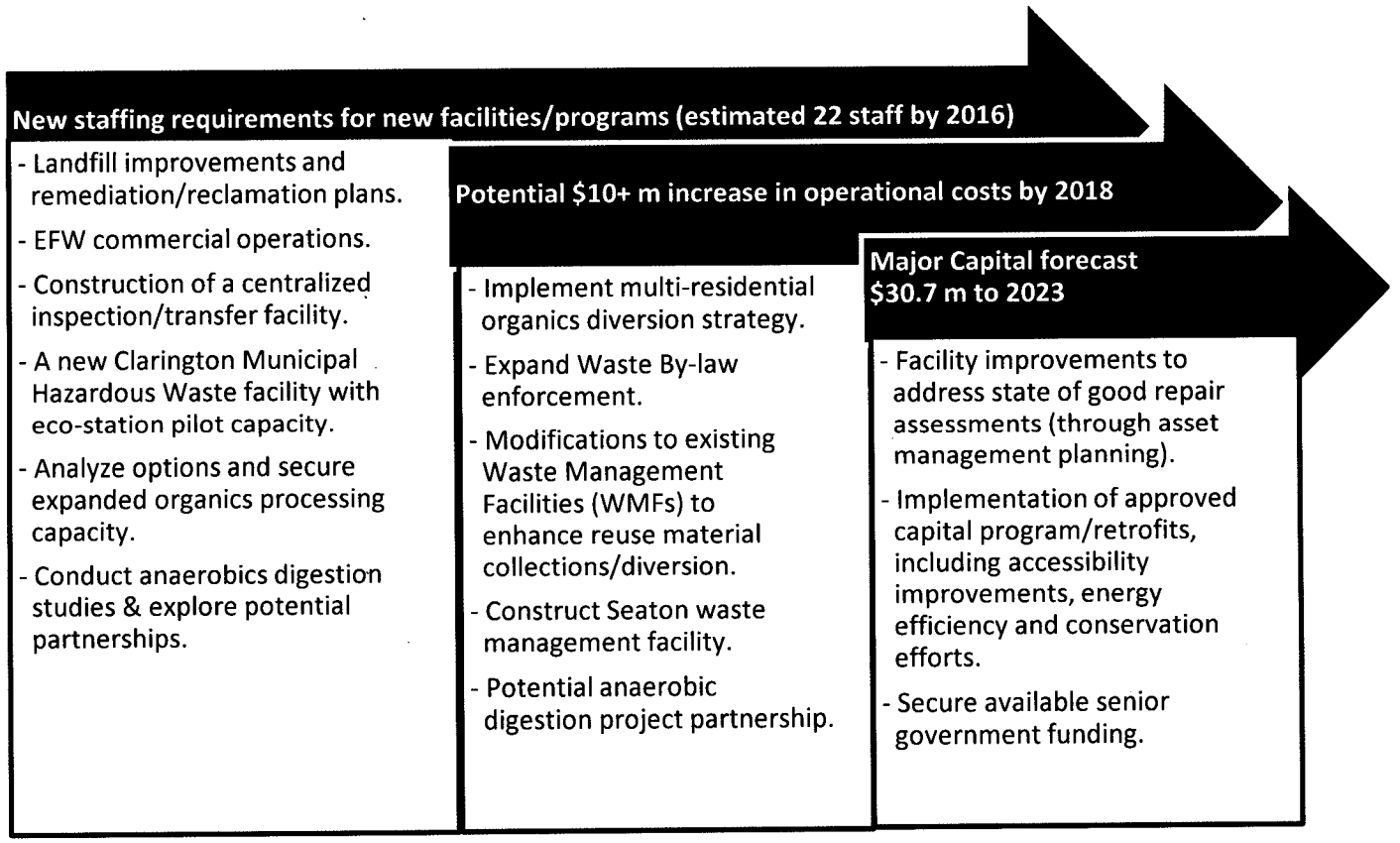
3.0 Solid Waste Management Business and Financial Planning

Solid Waste Management operations (2014 to 2018) and capital plans (2014 to 2023) are meant to achieve several objectives identified as important to our community. They include environmental protection, increased diversion and the 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 accommodation of household stop-count and tonnage growth and shifts in waste composition related to changing producer packaging materials, consumer preferences and consumption behavior, which add to uncertainties;
- Maintenance of existing Regional assets, based on life-cycle costing, business case analysis, and an effective and efficient asset management strategy, including planned maintenance and repairs and capital replacement requirements for waste facilities;
- Strengthened accessibility to Regional services and facilities, through the reduction and removal of barriers; and,
- Maximization of available senior government funding opportunities to offset property tax impacts.

The following summarizes Solid Waste Management priorities identified for 2014 to 2023 Business Plans.



4.0 Solid Waste Management: Performance Measurement Results

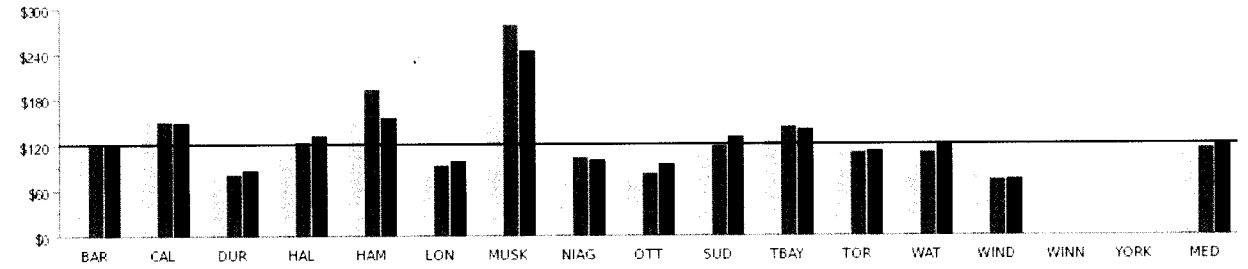
Once programs are implemented, performance is monitored, measured and evaluated through performance measurement. Performance measurement processes include:

- 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) 2012 Performance Measurement Report was recently released and results are available for 25 Durham Region service areas, including Solid Waste Management. Compared to OMBI peers, Durham Region's 2012 collection costs are relatively low, totaling $86 per tonne collected, compared to the median cost of $121 per tonne collected by the peer group overall. Most existing collection contracts across the Region are to be re-tendered by 2016 which will re-set 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 33.5 OMBI Total Cost for Garbage Collection per Tonne - All Property Classes (includes amortization)



2011	$121	$152	$81	$124	$195	$93	$280	$104	$84	$119	$144	$111	$110	$75	N/A	N/A	$115
2012	$123	$150	$86	$132	$157	$99	$246	$101	$95	$131	$142	$113	$119	$75	N/A	N/A	$121

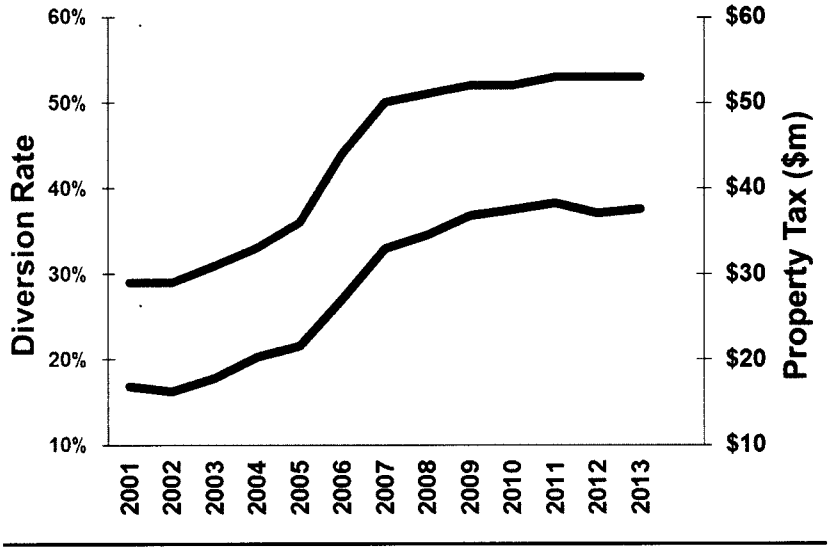
Source: SWST311T (Efficiency)

Note: All Property Classes includes residential, institutions, commercial and industrial locations. York Region operates a two-tier system and is not responsible the collection of garbage. Although they track total tonnes collected, they are unable to report on total costs.

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 responsibile for its processing, haulage, recyclables marketing and disposal.

The chart below demonstrates the strong correlation since 2001 between net solid waste management expenditures and diversion rates. The most significant costs and largest jump in diversion occurred when collection responsibilities were uploaded from six local area municipalities, including expanded curbside diversion collection programs, the Green Bin collection launch and associated additions to processing capacity.

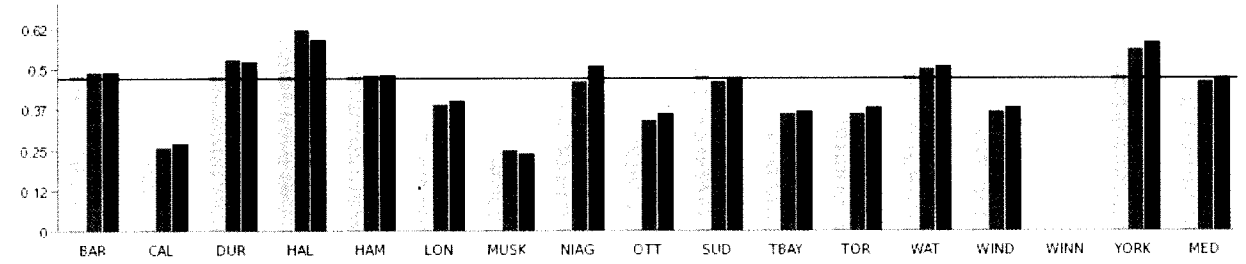
Waste Diversion and Regional Net Solid Waste Expenditure (2001 to 2013)



Durham Region remains above the median diversion rate of its OMBI peers (a median of 48 per cent diversion compared to Durham Region's 53 per cent diversion rate for 2012). The Region's diversion rate is currently estimated to reach 54 per cent for 2013, based upon the success of 2013 diversion expansions and based on actual data collected to September 30, 2013.

How many tonnes of residential waste are diverted per household?

Fig 33.4 Tonnes Solid Waste Diverted per Household - Residential



2011	0.49	0.26	0.53	0.62	0.48	0.39	0.25	0.46	0.34	0.46	0.36	0.36	0.50	0.37	N/A	0.56	0.46
2012	0.49	0.27	0.52	0.59	0.48	0.40	0.24	0.51	0.36	0.47	0.37	0.38	0.51	0.38	N/A	0.58	0.47

Source: SWST235 (Service Level)

Comment: Given the life expectancy of several landfills across the province and the fact there are many diversion programs and services in place, there is still a high volume of waste going to landfills.

Between 2014 and 2023, plans include the potential implementation of additional new diversion programs related to Blue Box, organics and re-use materials. New diversion programs are subject to ongoing analysis and annual business planning approvals and could include multi-residential organics and an expanded suite of organics diversion, potential for anaerobic digestion, potential eco-station facilities dedicated to receiving only recycling and reuse materials, and/or potential for increased enforcement, bag limit reductions and/or additional user fee adjustments.

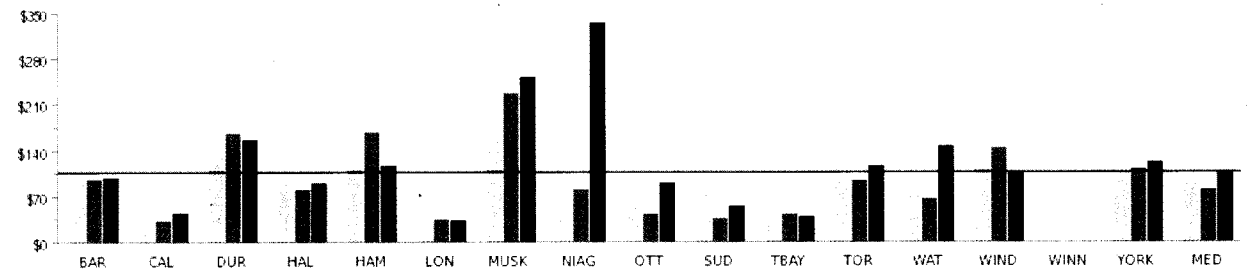
The forward-looking goal is achievement of 70 per cent diversion.

Durham Region's 2012 cost for waste diversion and garbage disposal were slightly above its peers at approximately $157 per tonne for residual garbage disposal costs and approximately $178 per tonne for diversion costs.

Disposal costs are influenced by many factors including distance to disposal sites and the availability of local disposal sites, fuel costs, and inactive and active landfill site requirements. Declining active landfill capacities in Ontario typically result in increased landfill rates, increased transportation costs due to longer haul distances and diminishing Ontario landfill options.

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

Fig 33.6 OMBI Total Cost for Solid Waste Disposal per Tonne - All Property Classes (includes amortization)



2011	$97	$34	$166	$82	$168	$35	$229	$82	$43	$37	$44	$95	$68	$145	N/A	$114	$82
2012	$99	$46	$157	$91	$118	$33	$253	$337	$91	$55	$40	$118	$147	$107	N/A	$124	$107

Source: SWST325T (Efficiency)

Note: All Property Classes includes residential, institutional, commercial and industrial locations.

As described herein, Durham Region's residual waste will continue to be trucked approximately 200 kilometres to the Modern Corporation landfill in Niagara County, New York, until the EFW begins testing in early 2014. While EFW commercial operations are anticipated in the fall of 2014, prior to the contractual Commercial Operations date of December 14, 2014, the facility will begin to receive waste for facility and performance testing procedures in the spring/summer of 2014.

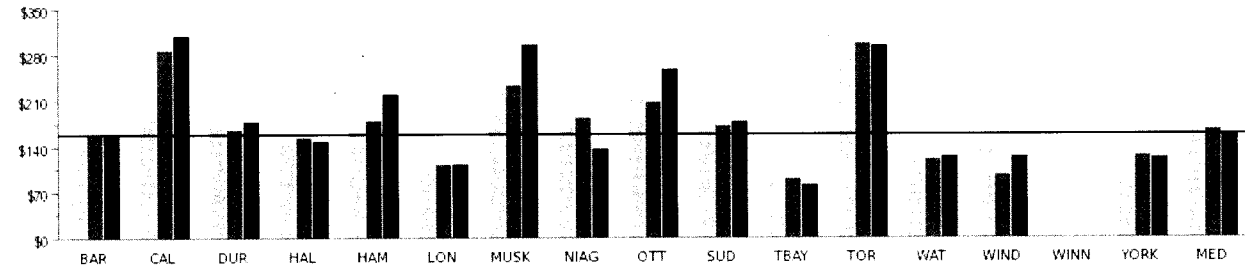
Influencing disposal costs, the Region must monitor and provide perpetual care to its existing landfill sites, which for Durham include one active landfill site and six inactive landfill sites.

Issues identified at landfill sites over time often result in additional capital requirements to provide remediation and ensure continued environmental protection, including surface and groundwater protection measures. The future remediation of landfill sites remains part of the Region's capital forecast, with an additional $4.6 million estimated requirement between 2014 and 2023. This compares to $7.4 million in remediation expenditures budgeted for the Brock Township and Oshawa landfill sites between 2010 and 2013.

Durham's cost to divert a tonne of garbage was $178 per tonne in 2012, or 13 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 33.7 OMBI Total Cost for Solid Waste Diversion per Tonne - All Property Classes (includes amortization)



2011	$159	$289	$166	$154	$181	$113	$235	$184	$208	$172	$92	$299	$121	$98	N/A	$127	$166
2012	$158	$310	$178	$150	$220	$113	$297	$137	$258	$178	$82	$295	$126	$125	N/A	$123	$158

Source: SWST330T (Efficiency)

Note: All Property Classes includes residential, institutional, commercial and industrial locations.

5.0 Monitoring Growth: Actuals, Projections and the 2014 Budget

5.1 Tonnage Growth

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. Based upon staff analysis, previous 2014 tonnage forecast projections (at 3.2 per cent tonnage growth for 2014) are being revised downwards, based upon five-year historical trends. This will lower overall expenditure requirement projections for the 2014 Budget. It is important to note that 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 to be apparent in 2014 due to volatile and uncertain tonnages and stop counts.

The current 2014 budget projection includes an overall tonnage growth estimate of 0.9 per cent. This growth estimate is comprised of 109,134 tonnes of waste disposed and 112,866 tonnes of waste diverted. Including home composting and grass-cycling tonnes, the projected 2014 diversion rate based on Waste Diversion Ontario reporting is anticipated to approach 55 per cent. The following chart demonstrates 2013 and 2014 projections based on actual waste to September 2013.

Actual Waste Received 2008 to 2012 and 2013 estimated actual and 2014 Budget Tonnes

	Actuals →				Estimated	Projected
Material	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Blue Box	50,765	51,609	53,157	51,689	52,071	52,325
Food Waste	27,454	27,594	26,865	26,899	27,101	27,825
Yard Waste	24,895	23,074	23,744	25,473	25,562	25,703
Reuse	5,977	6,146	7,226	6,763	7,012	7,013
Garbage	109,999	108,000	107,670	107,722	108,254	109,134
Total	**219,090**	**216,423**	**218,662**	**218,546**	**220,000**	**222,000**
Growth %	-3.0%	-1.2%	1.0%	-0.1%	0.7%	0.9%

Note: The 2013 estimate is based upon tonnages recorded to the end of September 2013. The table excludes backyard composting and grass cycling diversion tonnes (an estimated 10,240 tonnes for 2013). Totals include waste collected at the Region's Waste Management Facilities (WMFs) and special events, totaling approximately 11 per cent of total volume received, based on 2013 tonnage estimates.

5.2 Stop-count Growth

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 and associated 2014 budgeted collection cost increases will reflect declines in stop-count growth which reflect decreased housing starts.

Actual Collection Stops 2008 to 2012 and 2013 estimated and 2014 Budget Stops

	Actuals →				Estimated	Projected
	2009	**2010**	**2011**	**2012**	**2013**	**2014**
Pickering	27,729	28,027	28,112	28,537	29,133	29,718
Ajax	30,163	31,100	32,209	32,771	33,509	34,248
Whitby	35,401	36,247	36,826	37,442	37,995	38,603
Oshawa	44,510	45,148	45,811	46,081	46,435	46,946
Clarington	27,156	27,717	28,418	28,921	29,644	30,298
Scugog	7,921	7,927	8,098	8,100	8,193	8,234
Uxbridge	6,754	6,853	7,039	7,108	7,152	7,223
Brock	4,544	4,579	4,710	4,702	4,706	4,730
Total	**184,178**	**187,598**	**191,223**	**193,662**	**196,767**	**200,000**
Growth %		1.86%	1.93%	1.28%	1.6%	1.6%

6.0 Diversion Program Planning

6.1 Recycling Diversion

Durham's Blue Box diversion program is very successful with participation rates exceeding 90 per cent and very low contamination rates within the curbside program (below 2 per cent).

Expanded plastics approved in 2013 provided greater convenience for residents and will mean further increases in diversion for the first full-year of the new program in 2014.

Since the new plastics program began there has been a significant increase in marketed plastics.

Additional materials collection through the Blue Box will continue to be explored based upon the Region's long established diversion principles (e.g. availability of established end markets, processing capabilities, etc.).

6.2 Composting Diversion

While the Green Bin and leaf and yard waste organics programs have annually collected over 50,000 combined tonnes consistently since 2008, resident participation in the Green Bin food waste program remains below that of the Blue Box. Green Bin participation is currently estimated at 75 per cent with annual Green Bin tonnages essentially flat-lined since 2009.

Waste composition studies have repeatedly demonstrated that remaining materials found within the Region's residual garbage stream include a high proportion of organics materials that could be diverted.

Subsequent operational and capital financial plans related to the 70 per cent diversion goal will become more focused on raising the level of organics diversion tonnages. Diversion programs will target options for new collection as well as options to increase participation in existing programs.

Feasibility Studies and Business Case Analysis

Regional staff were directed to report back through the annual Joint Servicing and Financing study on several potential projects related to the key objectives of increasing waste diversion from disposal and implementation of the approved Durham – York Energy Centre (EFW) project, which includes stringent waste flow control requirements mandated by the Ministry of Environment (MOE), based on the approved Certificate of Approval.

This report updates reviews, studies and business case analyses related to:

- Waste composition, diversion potential, and options for multi-residential diversion;
- Waste user fees and garbage bag set out limits and implications for diversion;
- Potential for eco-station type facility(ies);
- Examination of anaerobic digestion to increase Durham's diversion of organic materials not suitable for the current Green Bin program;
- Implementation of renovation /construction and demolition waste diversion programs at waste management facilities (WMFs) or eco-stations;

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6.3 Current Investigations

Current feasibility and business case studies are meant to explore and resolve future diversion processing constraints, identify efficiencies and facility optimization, and provide recommendations for highest value-added future diversion, targeting program participation and specifically the organic, recyclable and reusable materials remaining within the garbage stream.

6.4 Existing Diversion Capacity Constraints

Durham Region is approaching its organic processing capacity limits. This is constraining diversion plans, expanded organics programs over the forecast period and the Region's ability to accommodate growth.

Additional operations and/or capital investments may be required over the forecast period to overcome organic processing constraints and to facilitate increased organics diversion.

Green Bin and Leaf and Yard Waste Organics Processing

The Region's current organics processing facility in the City of Pickering, under contract with Miller Waste Services and which expires in 2016 (Squires Beach Road), is currently operating at full capacity (26,000 tonnes per year). To mitigate this capacity issue, the Region also hauls and processes approximately 4,600 tonnes per year of Green Bin materials under contract to All Treat Farms Inc., located in Arthur, Ontario. Durham has access to up to 10,000 tonnes of processing capacity at All Treat Farms until 2016.

Despite slower growth than projected, it is still estimated that by the end of the forecast period (2018), even without increases in Green Bin participation rates or program expansions, Durham's source separated organics (SSO) tonnages could exceed the Region's current total contracted processing capacity of 36,000 tonnes. Until new processing capacity is secured, the Region is limited in its ability to handle growth, expand its Green Bin organics program to include more problematic organic materials or to introduce organics collection to multi-unit properties.

The lack of sufficient organics processing capacity is not limited to Durham Region. It is affecting all Ontario municipalities with organics collection programs and is increasing competition among municipalities for any available organics processing capacity. If not properly designed and operated, commercial composting facilities risk potentially significant

Feasibility Studies and Business Case Analysis Cont'd

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- The reuse day pilot program implemented in partnership with local non-profit/charitable organizations;
- Potential for landfill mining and site reclamation at smaller landfills; and,
- Optimization of the Garrard Road site through construction of a waste inspection/transfer facility to receive, process and distribute co-collected curbside source separated organics, Blue Box, and residual garbage waste materials.

odour issues. A failure to effectively process organics into useful materials under the new, and more stringent, provincial composting guidelines is also a risk. Many organics processing facilities in Ontario regularly receive odour complaints and some have received orders which have led to stoppages and complete shutdown of their operations. Durham Region contracts its organics processing with a service provider that uses proven technology that complies with the new provincial composting standards.

Anaerobic Digestion

Durham's residual waste stream includes organic materials that are not suitable for the Region's existing Green Bin program due to health and safety issues and processing constraints. These materials include relatively more contaminated multi-residential organics materials as well as other hard-to-process organic materials best addressed through other technologies such as Anaerobic Digestion (AD). Aerobic composting technologies like the one the Region currently uses for its Green Bin program are limited in their ability to process these materials.

Staff continue to explore through strategic assessment and pre-feasibility analysis, the options to use AD technology to process expanded organic materials, while producing useful energy and by-products. Pre-feasibility investigations of AD technology include a comprehensive analysis of the waste composition of multi-residential households in Durham Region, to be completed at the end of 2013. Multi-residential buildings in different local municipalities have been selected for the study, in cooperation with area municipal staff and building superintendents. The waste audit is examining regular garbage and recyclable materials to determine the composition of the garbage stream as well as the extent of material contamination.

Kelleher Environmental Inc. was retained in 2012 to complete a technical review and options analysis of AD technologies for the Region of Durham. Kelleher 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 the entire regional Source Separated Organics (SSO) stream could be processed at an AD facility. The consultant further confirmed that AD technology could provide the Region with the processing solution it needs to expand its current Green Bin program to include more problematic materials and to introduce source separated organics collection to the Region's multi-residential sector. In considering a future AD facility, due diligence is required to ensure the Region can secure an AD processor with the best solution for organics processing capacity over the long-term.

Staff will continue to investigate potential for AD and report back to Joint Committee and Regional Council on these investigations.

Collection Contracts

The Region currently has three major 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. The third Regional 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.

These collection contracts have various ending dates, as well as various option years for extensions, with the collection contract for Ajax and Pickering being the first scheduled to end in July 2015. The remaining collection contracts have optional extensions ending in July 2016 and March 2018.

There are a number of factors the Region should consider regarding its waste collection contracts. The first is the proposed Bill 91, the *Waste Reduction Act*. This Bill may impact the Region and direct potential materials that can be added or removed from the municipal collection responsibility. Additional factors that will affect the Region's collection contracts include the potential to add new materials to the blue box program or expand organics collection.

Any new collection contracts will need to be structured to identify materials for collection, tonnage estimates, truck design requirements, processing locations, collection frequencies and other collection efficiencies. Staff will be reporting in 2014 on recommended strategies for new collection contracts based on legislative changes, emerging markets development and potential synergies for harmonized collection contracts.

Recycling/Reuse Materials Collection

There are capacity constraints at the existing waste management facilities (WMF) that affect their ability to accommodate expanded reuse programs. However, any options to address capacity constraints will be impacted by changing relationships and responsibilities with regard to reuse diversion across the Province of Ontario, due to the requirements of the new Bill 91 "*Waste Reduction Act.*"

The Provincial restructuring proposed under Bill 91 is anticipated to expand recycling/reuse options, including retail return programs, which could influence both the tipping fee revenues and subsidies available to the Region for the enhanced collection of specific materials. This could influence business cases regarding new facility development(s) which rely, in part, on full cost recovery revenues from industry stewards and potential user fees.

In this changed context staff will continue to re-assess options related to existing and potential new recycling/re-use partnerships, including both potential modifications to existing WMFs to increase diversion, and construction of new eco-station type facilities to enhance the collection of recycling/re-use materials.

Eco-Station Study and Implementation

In June 2012, the Region retained consultant Conestoga Rovers & Associates (CRA), to study the feasibility and operational and financial implications of developing a standardized Regional eco-station facility model that would accept reuse and divertible materials exclusively. The concept of an eco-station is different from existing WMFs in that the design of an eco-station does not include the collection of residual waste (garbage). Eco-stations could increase accessibility and convenience of diversion services to the Region's residents.

The Region has already made a commitment as part of the Host Community Agreement to the Municipality of Clarington to provide a hazardous waste facility in Clarington within the first year of EFW commercial operations (estimated by September 2015).

In meeting this commitment, Regional staff will consider opportunities to expand the functionality of the already required hazardous waste facility to include acceptance of other reuse and divertible materials. Options for siting and design are currently being assessed. Staff is also reviewing and will report on the financial implications of potentially incorporating a two-year eco-station pilot at the future Clarington hazardous waste facility site. In the event that the province's Bill 91 becomes law, the list of acceptable materials for diversion at any proposed eco-station will also need to be revisited. A future report to Council will provide an update and comprehensive analysis of potential synergies and options, including recommendations and financing.

The Re-Use Pilot

The Region has finalized its one-year pilot project to assess the diversion potential and public acceptability of a monthly public collection event model for the collection of re-usable items such as renovation materials, furniture, clothing and other durable goods. This pilot was delivered at the Durham Recycling Centre facility on 4600 Garrard Road in Whitby in partnership with local charitable organizations including Habitat for Humanity (which served as the lead agency), the Salvation Army, Goodwill and the Canadian Diabetes Association. During the pilot, 851 vehicles delivered a total of 38 tonnes of material which was diverted from landfill disposal. It is anticipated that over 40 tonnes could be diverted annually if this program is continued.

It is recommended that this program continue through 2014 and be funded from the annual Solid Waste Operations Budget with eight special events held at the 4600 Garrard Road facility.

In light of the potential impacts of Bill 91, possible WMF modifications and the planned optimization of the 4600 Garrard Road site, the future continuation of this program and event locations should be reconsidered in the 2015 Servicing and Financing Study.

Renovation/Construction and Demolition (C&D) Waste Diversion

As part of the 2013 Solid Waste Management Servicing and Financing Study, staff was authorized to investigate potential options, anticipated diversion results and other implications from the potential to offer a new 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 total materials collected annually at the Region's three WMFs. Unfortunately, current research indicates limited end-use markets for materials in this waste category.

A comprehensive C&D program is not being recommended at this time. Staff will continue to monitor the availability of end-use markets for materials such as asphalt shingles, contaminated wood, and contaminated drywall and will update Regional Council as required. Key objectives to a future C&D program include increased diversion as well as the prevention of non-combustible materials being delivered to the new energy from waste facility.

6.5 Other Diversion Program Updates and Studies

Residue Clean-up system

In December 2012, upgrades and additions to the Durham's Material Recovery Facility (MRF) were completed. This included the installation of a residue cleanup system (RCUS) in an effort to minimize the amount of recyclables being lost to the residue stream due to cross contamination and existing processing equipment limitations. The system was designed and installed by Miller Waste Equipment Inc. as part of RFP-168-2012.

The RCUS was designed and is located to ensure that the residue/cross contamination collected from all areas of the MRF can undergo a final quality control sort prior to disposal.

Since the installation of these upgrades, and with the introduction of #3 through #7 plastics and #1 thermoform PET to the program, the Region has seen a reduction of approximately 50 percent in the amount of residue sent to disposal from the MRF, resulting in a diversion rate increase of approximately 0.5 percent.

Special Events Diversion

In 2013, five household hazardous waste (HHW) collection events, eight compost give-aways and nine electronics (E-waste) collection events were hosted across the Region, with over 30 tonnes of diversion waste received from almost 5,000 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.

The quantity, service impacts and costs of community waste events are reviewed on an annual basis and, as required, are re-evaluated to meet the needs of the Region. All requests for 2014 community event dates have been received from the Local Area Municipalities, permitting Regional staff to properly review, analyze and plan the event strategy for the following calendar year.

A summary of the proposed 2014 Special Waste Event Schedule is provided in the Attachment, which also includes the 2014 Holiday Waste Collection Schedules.

Promotion and Education: Partnership for promotion of expanded Blue Box materials

In the fall of 2013, the Region initiated and participated in a one-time Greater Toronto Area (GTA) wide expanded plastics recycling campaign with six other municipalities to promote the expanded Blue Box program for new plastics. Funding was made available for this initiative from Stewardship Ontario and the Continuous Improvement Fund. The campaign included print media, radio advertisements, billboards, digital ads at WalMart stores throughout the GTA, Google ads and other social media.

Community Outreach

The Region of Durham has implemented the major reuse, recycling and composting initiatives that could achieve diversion beyond the 70 per cent target. Composition audits of the curbside garbage waste indicate that organics and recyclable materials are still being found in waste destined for disposal.

Community outreach provides the basis for improving participation and capture rates which affect the success of existing and new waste diversion initiatives. Staff are refining the tools for education to include inter-active educational web pages for teachers and students, and the general public. Currently, residents have access to existing web tools, including "Know Before You Throw" videos, interactive games and other resources. Staff will continue to develop web tools as part of the Region's education programming in 2014.

In 2014, the outreach program, in collaboration with school boards, will address curriculum-based education as it directly relates to waste management and the environment. Students will continue to have the opportunity to be educated on the Region's waste management programs through the Region's association with school boards and private schools in the Region, through an outreach program using audio, visual and presentation tools.

The waste management division uses a variety of media tools and printed materials to inform residents of its programs and special collection events, both established and pilot, and to encourage active participation in those programs to assist in meeting the Region's waste reduction goals.

The media tools used to date for community outreach have included local newspapers, television, radio, and issuing printed materials such as waste management calendars. Surveys of residents indicated in 2013 that the local newspapers are the primary method of learning about the Region's waste management special collection events.

Regular and consistent conveyance to residents of information on waste management programs is critical to maintaining and improving public awareness and participation in those programs and the waste diversion rate. Community engagement programs focusing on waste diversion continue to be a major part of the Waste Management services mandate.

Future Bag limits and Fees

The March 2009, Golder Associates study titled, "70% Waste Diversion Study" suggested that reducing garbage collection set out limits may help to increase the Region's diversion rate.

In 2013 staff undertook a review of the current garbage bag set out limit, including discussions with the City of Oshawa and the Town of Whitby. This review included a set out study to assess the current garbage bag set out rates. The study involved counting the number of bags set out every two weeks by a sample of households over an eleven week period. Data collection also looked at participation rates in the Green Bin and Blue Box programs. This information was also collected on the non-garbage set out weeks to determine participation in the Region's Green Bin and Blue Box collection programs.

The results of the set out study indicate the average number of garbage bags set out every two weeks by homeowners across the Region is consistently less than the limit of four bags per household per bi-weekly collection. In addition, an online survey conducted at the same time as the set out study indicates that a majority of respondents do not support reducing the current four garbage bag limit.

Several Ontario municipalities have moved to reduce their bag limits for garbage and to increase bag tag fees. Staff is not recommending a reduction in Durham's bag limit for garbage at this time. However, it is recommending that Durham's bag tag fee for bags beyond the four

bag bi-weekly limit be increased from $1.50 per tag to $2.50 per tag commencing May 1, 2014. This higher fee should provide an increased incentive for the small segment of Durham households setting out over four bags bi-weekly to participate more actively in Durham's diversion programs.

Municipal Comparison of Bag Tags for Curbside Residential Collection

Municipality	Bag tag Fee	Municipality	Bag Tag Fee
Durham Region	$1.50	York Region - Town of Richmond Hill/Georgina	$2.00
Durham Region proposed	$2.50		
Niagara (Niagara Region)	$2.00	St. Catherines (Niagara Region)	$2.00
Kingston	$2.00	Cobourg (Northumberland)	$2.75
Newmarket (York Region)	$12.00 5 tags	Region of Peel	$5.00 5 tags
Halton Region (Burlington)	$2.00	Toronto	$3.10

Both Durham's bag tag fee and bi-weekly garbage set-out limit will continue to be investigated, with future changes anticipated to be recommended in support of the 70 per cent diversion goal.

7.0 The Durham-York Energy Centre

7.1 Operations Implementation

The Durham – York Energy Centre (EFW) will commence operations in 2014. Initial start-up is currently anticipated to be April 1, 2014, with facility testing protocols leading to the start of commercial operations anticipated September 1, 2014. This anticipated commercial operations date is ahead of the contractually obligated start date of December 14, 2014, and is based upon continued facility construction progress.

Currently estimated net operations costs for the EFW for 2014 are based not only upon these timing assumptions, but the transition from facility start-up and testing protocols as defined within the Project Agreement towards full commercial operations. Significant factors affecting current cost estimates are electricity revenues and tonnage flows, which in part will reflect any variability of testing procedures.

Furthermore, the full price for power, guaranteed under the Region's agreement with the Ontario Power Authority (OPA), is not available until the start of commercial operations, therefore for the months of testing, a reduced price for electricity will be received based upon Ontario market prices. Cost estimates herein assume electricity revenues received during testing will be at a 70 per cent discount to the contracted price during commercial operations after September (i.e. assumes 2.5 cents per kilowatt hour (kWh) versus the 8.0 cents guaranteed under the Region's executed Power Purchase Agreement.

At the October 9, 2013 Regional Council meeting, additional ambient air monitoring and stack source testing for the EFW facility were approved, beyond the requirements of the previously approved Environmental Assessment and Certificate of Approval. The ambient air monitoring will commence in 2014, continuing for three consecutive years at an estimated cost of $0.2 million annually. The additional stack testing, one additional test per year for three years, will begin in 2015 at an estimated cost of $0.1 million per annum.

The following table provides a preliminary estimate and update of EFW annual net expenditures, including the approved 2013 Budget and forecast disposal expenditures and revenues for 2014 budget and the 2015 to 2018 forecast. Estimates include the additional ambient air monitoring and stack source testing as well as escalation based upon contractual benchmarks. Escalation estimates are subject to change, based upon economic indicators and movement in benchmarks over time, including inflation as measured by the Ontario all-items consumer price index.

The 2015 to 2018 forecast provided below is not significantly changed from the estimates provided previously, given that a portion of the higher costs for monitoring was offset by lower than anticipated escalation based upon reduced benchmark escalation.

Forecast Disposal Cost Estimate Update
(2013 Budget and Estimated 2014 to 2018 Operations Forecast)

	Budget	Projected ($ Millions)				
	2013	**2014**	**2015**	**2016**	**2017**	**2018**
Landfill transfer, haulage & disposal costs (Brock & New York landfill)	8.11	3.29	-	-	-	-
Net EFW Transfer, haulage & disposal costs	0.26	5.29	10.07	10.48	10.98	11.41
TOTAL DISPOSAL COST	**8.37**	**8.58**	**10.07**	**10.48**	**10.98**	**11.41**
Estimated Increase		0.21	1.49	0.41	0.50	0.43
Property Tax Impact (%)	**-**	**0.04**	**0.27**	**0.07**	**0.09**	**0.08**

Notes:
1. Costs are Durham only - net of power and material revenues and York Region recoveries.

Operational cost estimates include:
- Waste staff required to operate the weigh scales at the entrance of the EFW facility site, track waste supply volumes and assist in ensuring compliance and reporting requirements;
- Establishment of a hazardous waste collection facility in Clarington within one year of EFW commercial operations under the executed Host Community Agreement (current

assumption is $0.2 million annually, although as noted herein, options are currently under investigation and this assumption may change based upon future Council approvals).
- Funding to support public committees, communications and materials;
- The expanded monitoring program approved by Regional Council on October 9, 2013, including an additional ambient air station to be implemented in 2014 and an additional annual stack testing commencing 2015 for three years;
- Purchased and professional services, including technical and environmental consulting; and,
- Operations and maintenance costs for off-site infrastructure.

7.2 Clarington Household Hazardous Waste Facility

Under the terms of the EFW Host Community Agreement, (HCA), the Region is required to establish a household hazardous waste (HHW) depot to serve the residents of Clarington, within one year of commissioning of the EFW Facility.

The Region issued a Request for Expression of Interest (REOI) to solicit private sector interest in operating an HHW facility on behalf of the Region on existing property, or entering into a design/build/operate contract for a Region owned facility.

Specifically, the Region was looking for companies that:

i. Own and operate an existing HHW facility that operates under a valid Environmental Compliance Approval (ECA) or a Certificate of Approval (C of A), and would be interested in expanding such a facility to accommodate public drop off of HHW materials;

ii. Own a waste disposal site with a valid ECA or C of A, that can be amended for the purpose of building and operating a public drop-off HHW facility; or,

iii. Own land which could accommodate a public drop-off HHW facility on behalf of Durham Region, with the understanding that the current owner obtains all necessary approvals at their cost for the purpose outlined above.

The original closing date of October 31 was extended to November 7. Only one submission was received that outlined the services that company could provide. The RFI process is now complete and no suitable options were received. As a result, the Region may develop an RFP or Tender to move forward with design/build/operate options for the construction of an HHW facility per the Clarington EFW Host Community Agreement.

This would require the Region to procure land for construction of the facility in 2014. Preliminary estimates for the cost of land in Clarington range from $100,000 to $173,000 per hectare, with a site requirement of approximately three hectares. A report prepared by Conestoga Rovers and Associates (CRA) indicates that a basic design facility for HHW would require:

- Land purchase,
- Earthworks (including civil and services),
- A modular administration building,
- Scales and a scale-house,

- A 40 foot HHW trailer,
- A loader or forklift, and,
- Three staff.

The land, capital and equipment costs for this HHW facility are estimated at up to $2.7 million, with a further $0.1 million in annual operating costs should the Region add an eco-station pilot.

Staff will report back to Committee and Council the spring of 2014 with a recommendation on the HHW siting, funding and the RFP initiation for a design and build project.

8.0 Waste Supply Control: Inspections and Transfer Operations

Regional Council directed (2013-J-9) that staff provide analyses and recommendations to Joint Works and Finance and Administrative Committee and Regional Council regarding the potential to optimize the 4600 Garrard Road site through implementation of a centralized Regional waste inspection/transfer facility to receive, process and distribute co-collected curbside source separated organics, Blue Box and residual waste materials, in order to achieve both cost efficiencies and compliance with more stringent waste flow control requirements as dictated by the Ministry of the Environment.

In 2010, the Ontario Ministry of Environment issued its Notice of Approval to proceed with the Durham - York Energy Centre (EFW) for the thermal treatment of only non-hazardous municipal solid waste. The 'Notice of Approval to Proceed' defines non-hazardous municipal solid waste specifically as "waste that is generated within the municipalities of Durham and York and collected as part of the proponents municipal collection process."

Currently, Durham collects non-hazardous municipal solid waste as part of its municipal collection process, including its waste management facilities, and delivers it to three private sector transfer stations within the Region that also serve the industrial, commercial and institutional sectors for transfer and haulage to final disposal. Should Durham continue to use these private transfer stations for transfer and haulage of its solid waste to the EFW, Durham Region cannot guarantee compliance with the terms of the Notice of Approval, because it cannot guarantee that the solid waste being delivered from the private sector transfer stations to the Energy Centre is only non-hazardous municipal solid waste generated within the municipality.

At the private transfer sites, Durham waste will be mixed with wastes from all sources. The need for strict compliance with the Ministry's Notice of Approval to Proceed necessitated the Region's investigation of the operational and financial impacts of developing its own transfer station. The study built upon 2010 findings through a consulting study by Golder Associates, titled "GIS-based Waste Transfer Logistics Modeling for the Proposed Energy-from-Waste (EFW) Facility in the Region of Durham." This study recommended one centralized transfer station for Durham's residential waste collection and concluded that the site at 4600 Garrard Road, in the Town of Whitby is ideal for this purpose.

In late 2011, Council directed staff to retain a consultant to assist in the preparation of options and business case analyses regarding optimization of the Region's 4600 Garrard Road solid

waste management facility in Whitby, with the goal of maximizing diversion opportunities and efficiencies and the Region's control over processing, transfer and haulage operations.

In early 2013, further direction required that staff provide analyses and recommendations to Joint Works and Finance and Administration Committee and Regional Council regarding the potential to optimize the Garrard Road site through implementation of a centralized Regional waste inspection/transfer facility to receive, process and distribute co-collected curbside source separated organics, Blue Box, and residual garbage waste materials, to maximize efficiencies and achieve compliance with even more stringent waste flow control requirements as dictated by the Ministry of Environment.

AECOM was subsequently retained to provide initial transfer design and costing analysis and recommendations. AECOM identified three potential configuration options for the Garrard Road site and provided forecast tonnages, facility and operational costing and transportation analysis and evaluations for each of the following:

OPTION 1: Retrofit the existing Durham Recycling Centre (DRC) building to act as a centralized transfer station, leaving the existing office spaces intact;

OPTION 2: Leave the DRC building as it is currently located and configured intact and develop a new transfer station facility for the receiving and transfer of non-hazardous municipal solid waste and source separated green bin organics on the site to the south of the DRC between the DRC and the current material recovery facility (MRF); or,

OPTION 3: Demolish the existing DRC building completely and develop a new and integrated purpose-built transfer station facility for the receiving and transfer of non-hazardous municipal solid waste and source separated green bin organics that is optimized in terms of location on the site and building configuration, including replacement office space to replace the space that currently exists in the older DRC building.

The AECOM study concluded that a centralized and regionally owned transfer station affords the Region the greatest opportunity for diversion potential and the best opportunity to ensure that municipally controlled non-hazardous solid waste is delivered to the Energy from Waste facility as required in the Ministry's Notice of Approval to Proceed.

The analysis also concluded that a Regionally owned transfer station affords greater operational and cost efficiencies going forward relative to the distributed set of privately owned facilities the Region is currently using.

Benefits identified by AECOM are as follows:

Central Transfer Station Benefits vs. Current Operation

	Centralized Transfer Station	Current Private Contract
Maximizes Region's ability to meet regulatory requirements under Region's EFW EA approval conditions re: Hauling requirements, control of waste composition, contingency waste storage	Yes	No
Maximizes opportunity for waste diversion	Yes	No
Minimizes transfer and haulage costs	Yes	No

Regional staff met with staff from the City of Oshawa and the Town of Whitby to discuss the AECOM study results and the proposed centralized transfer station option being recommended for Garrard Road. Oshawa and Whitby staff concurred with the recommendation for a new central transfer station. Both of these municipalities operate their own residential collection services for all waste materials except blue box materials. Both municipalities are also responsible for the collection of waste from their multi-unit residential sectors. Currently they deliver the residual waste and green bin organics in split trucks to the Miller Waste Pebblestone transfer station location at 2000 Wentworth Street in the City of Oshawa. The Region's contract includes the receipt of waste, loading and the transfer of materials to processing (organics) and disposal.

The AECOM study concluded that:

1. A centralized municipally owned transfer station affords the Region the greatest waste diversion and flow control opportunities for its non-hazardous municipal solid waste as required by the Ministry's Notice of Approval to Proceed.

2. A centralized transfer station located at 4600 Garrard Road in Whitby affords greater long term operational efficiencies relative to the distributed set of facilities the Region is currently using to transfer and haul its non-hazardous municipal solid waste.

3. The demolition of the existing Durham Recycling Centre and replacement with an integrated facility for the receiving and transfer of non-hazardous municipal solid waste and source separated green bin organics, including associated facility, office and storage space, is the best option for the site.

8.1 Financial Implications

Including construction and site works, AECOM and Regional staff have identified total capital requirements for a new purpose-built transfer and inspection facility as follows:

	($million)
Durham Recycling Centre Demolition	0.1
Building construction	3.0
Mechanical/Electrical	0.9
On-site works	1.5
Other costs (e.g. soft costs, consulting, and contingencies)	1.3
Construction escalation allowance	0.2
	$7.0

The current business case and costing estimates project an estimated net Regional cost (including capital and operations costs) for the recommended Regional transfer facility, compared to existing private sector transfer and haulage contracts. Over a 20-year period, including escalation assumptions, the total Regional net economic cost is estimated at approximately $1.3 million (2013 dollars, based upon a five per cent discount rate applied over 20 years of operations and including the residual value of the existing DRC as well as the sunk cost of existing Region-owned land at 4600 Garrard Road).

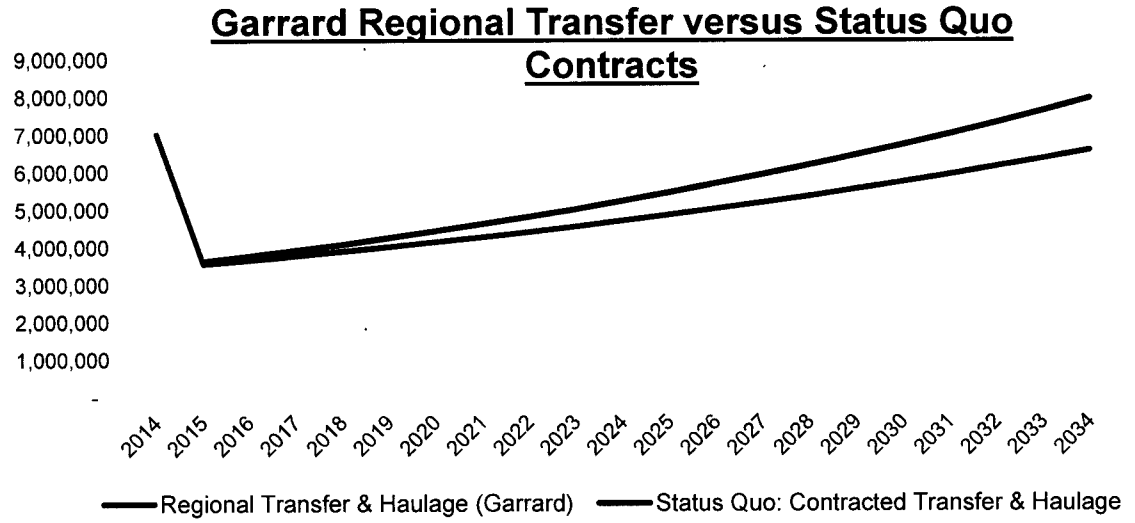
The net Regional economic cost impact is based upon the initial capital cost estimate above totaling $7.0 million and annual capital maintenance, repair and replacement costs estimated at $0.3 to $0.5 million per year over the 20 years, as well as operational cost impacts.

The net present value calculation also includes curbside collection impacts for the Region's six integrated collection municipalities. The business case result is based on a balance of both positive and negative annual operational cost impacts over the 20 years, subsequent to the initial capital investment, noted as follows:

- Higher Regional curbside collection costs;
- Lower haulage costs from Regional WMFs to transfer operations;
- The addition of capital, including the initial investment of $7.0 million and estimated annual maintenance, replacement and repair costs over 20 years;
- Lower transfer facility annual operations costs, versus existing contracts; and,
- Savings in haulage costs for co-collected source separated organics (SSO) volumes shipped to processing.

It should be noted that the centralized transfer facility at Garrard Road is also anticipated to lead to overall curbside collection cost savings for the Town of Whitby and the City of Oshawa, based upon site proximity and lowered local collection haul distances.

The following chart compares collection, transfer and haulage costs for a Region-owned and operated facility at Garrard Road versus privately contracted transfer and haulage costs based on existing contracts.



While an initial capital cost estimated at $7.0 million will be incurred, operational costs for a Regional transfer facility located at Garrard Road are anticipated to be lower overall, considering changes to Regional collection, waste transfer, and haulage costs for residual garbage waste and source separated organics. On a net present value basis, the Regional transfer option represents an estimated net present value cost of $1.3 million (discounted at 5 per cent) based upon the $7.0 million estimated up-front cost, and 20 years of collection, transfer and haulage operations. The nominal cost stream estimates are noted within the table below.

Collection, Transfer and Haulage: Annual Operational Cost Comparison Regional Transfer versus Status Quo Contracted Service

($000s)

Year	Garrard Transfer	Status Quo	Variance		Property Tax Impact	
			Annual	Cumulative	Garrard	Status Quo
2014	7,015	-	7,015	7,015	1.28	-
2015	3,555	3,620	(65)	6,950	(0.63)	0.66
2016	3,655	3,765	(110)	6,840	0.02	0.03
2017	3,766	3,915	(149)	6,691	0.02	0.03
2018	3,882	4,069	(187)	6,504	0.02	0.03
2019	4,005	4,244	(239)	6,265	0.02	0.03
2020-2024	22,043	24,059	(2,016)	4,249	3.28	3.60
2025-2029	25,937	29,665	(3,728)	521	0.71	1.02
2030-2034	30,708	36,564	(5,856)	(5,335)	0.87	1.25
		Aggregate Property Tax Impact			**5.58**	**6.65**

The estimation for a marginal net economic cost for the construction of the centralized waste transfer site is based upon existing waste flow projections, increased over the 20-year analysis based upon the Region's current household growth estimates and existing waste tonnages per household. Because contracted waste transfer and haulage is charged to the Region based upon an escalated per tonne fee, the business case improves significantly with higher tonnages, which have the effect of increasing contracted costs, but do not affect the Regional operation until the point at which expansion might be required (beyond the 20-year horizon).

The AECOM study estimated garbage and SSO tonnages combined at a level 12 per cent higher than the business case (base case forecast) during the first year of operations (2015), rising to a level of 250,910 tonnes by 2035 (14 per cent higher than the base forecast). This level of tonnages would shift the business case from an estimated net present cost of $1.3 million over the 20 year period to a net present benefit of $4.5 million.

Based upon the business case analysis performed over a 20-year horizon, the construction of a centralized transfer at 4600 Garrard Road has a similar net present value to status quo transfer and haulage costs. While an estimated $7.0 million capital investment must be made upfront, the balance of operational impacts to the Region results in increasing savings primarily due to lower operational costs and escalation over time.

It is recommended, based upon the AECOM Inc. study "Waste Optimization Study for 4600 Garrard Road" and additional business case analysis, that a Request for Proposals (RFP) be issued seeking 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 to receive, process and distribute the Region's co-collected curbside source separated organics, Blue Box, and residual garbage waste materials.

This recommendation is deemed to be the best way to ensure compliance with stringent residual waste flow and control requirements, as dictated by the Ministry of Environment through the Durham-York Energy Centre Environmental Assessment and Certificate of Approval. This benefit outweighs the marginal $1.3 million cost over twenty years resulting from the business case analysis.

Concurrent with the recommendation for the award for the centralized transfer station capital project, the preferred service delivery approach and financing will also be recommended.

9.0 Environmental Protection

9.1 Mercury Recovery Pilot Program

The Mercury Recovery Program pilot was launched in October, 2012 to divert items that contain mercury from the residential waste stream and protect the environment from this hazardous waste. Items containing mercury have always been accepted under the Region's HHW program, however the focus of the pilot program was to increase awareness of this hazardous substance and educate residents on more responsible disposal practices for items containing liquid mercury. The mercury diversion program aims to capture common household items such as thermometers, thermostats, barometers and hydrometers as well as blood pressure monitors. Under the pilot, residents were given one free oral digital thermometer in exchange for bringing mercury containing items to any of the Region's WMFs or scheduled HHW collection events. Approximately 600 items containing mercury have been collected through the pilot, primarily thermometers and thermostats. Given the environmental risks associated with mercury, it is recommended that the mercury exchange program be made into a permanent program. While no impact to the diversion rate is anticipated, this program will assist in diverting as much mercury as possible from the waste stream and will assist in protecting our environment.

9.2 Brock Township Landfill

Work continued throughout 2013 on the approved Brock Township Landfill remediation and closure plan, which will include ceasing landfilling activities at the Brock Landfill and capping the site in time for the commissioning of the Durham - York Energy Centre (EFW). In mid-2013 a tender was issued to Coco Paving Inc. for construction of the final engineered soil and liner cover system for the active waste disposal area. Construction includes the application of approximately 67,000 square metres of engineered final cover, including a geo-membrane layer. Contractor activities include grading, preparing the base for liner and waste filling, clearing and grubbing, backfilling and relocating glass and yard waste stockpiles. Completion of the liner installation and landscaping is scheduled for September 2014, at which time the EFW is expected to be operational.

Construction of concrete slabs on grade is underway for the waste drop-off area as part of the Brock Waste Management Facility, which will continue to operate as a waste transfer facility after the end of landfill operations. Engineering oversight for this project is being handled by Conestoga Rovers and Associates.

9.3 Darlington Landfill

The second phase of a project to improve the integrity of the landfill cap and site drainage was completed in 2013. This required the import of cover soil materials, grading and reseeding of the work area, to address erosion risk. The Region also completed improvements to the site access road, including realignment, grading and gravel application to facilitate control of surface water run-off and erosion.

9.4 Oshawa Landfill

Maintenance activities at the Oshawa Landfill site in 2013 included a topographic survey of the former Underhill property for a slope stability assessment of stream banks in that area, cap re-grading and repairs to monitoring wells.

CH2M-Hill was retained in 2008 to develop a post-closure care plan for the Oshawa Landfill site. Under this contract, the Region installed several passive gas venting systems in addition to new landfill gas and groundwater monitoring wells. CH2M-Hill conducted data gap assessments, monitoring program development, landfill gas assessment and landfill cover inspections were undertaken, as well as a review of environmental conditions related to preparation of a comprehensive post-closure care plan for the site. The post closure care plan is now complete and included updates to the monitoring and maintenance programs. Staff will plan maintenance activities and capital projects in 2014 in accordance with the plan.

9.5 Landfill Remediation or Reclamation (Mining)

The Region retained Golder Associates Ltd. (Golder) in October 2010 to conduct a Landfill Reclamation Assessment to evaluate the economic and technical feasibility of reclaiming some of the Region's landfill sites. Following a review of potential costs and impacts, the Blackstock site was identified as a preferred location to conduct a pilot reclamation project. Golder Associates was retained to develop a site reclamation/closure plan. The objective of the project is to obtain information and experience to assist with possible future reclamation plans for some of the Region landfill sites

Landfill reclamation (or landfill mining) is a process whereby existing landfill waste is excavated and screened on site to separate soil materials and recyclables from the remaining waste. Approval from the Ministry of the Environment is required to undertake any changes or alterations to a waste disposal facility. A staff report will be prepared for Regional Council, seeking direction to submit a Closure Plan to the Ministry which will include remediation and reclamation options for approval. Pending successful negotiations with the MOE and ECA approval, the Provisional Certificate of Approval for the site will be amended and the Region will be obligated to follow through with the scope of work outlined in the plan in order to maintain regulatory compliance.

In the event that the remediation option is selected for implementation, the Region will need to acquire buffer rights or lands to facilitate the natural attenuation any migrating contamination plume.

If the reclamation option is selected and once all approvals are in place, the Region will need to retain the services of an engineering firm familiar with waste reclamation work to prepare design drawings and technical specifications for the Tender and conduct construction oversight

of the reclamation work. The Region will also need to issue a tender for the actual landfill mining excavation work, which is expected to be conducted over a four to five month period during the summer/fall of 2016. The site would be returned to a natural state, with environmental monitoring to continue for a period of time to be approved by the MOE.

The project plan is to transport the excavated waste to the EFW for energy recovery. Negotiations will be needed with Covanta Energy to discuss logistics and technical considerations related to receiving approximately 6,000 tonnes of waste at the Durham – York Energy Centre (EFW) from the Blackstock Landfill over a four or five month period in the summer/fall of 2016.

Successful conclusion of landfill mining projects for some of the Region's smaller landfill sites will help reduce the risk of long term unfunded liabilities associated with those sites. Possible end uses of rehabilitated sites include conversion back into natural areas and/or lands available for redevelopment.

10.0 The Solid Waste Management Capital Forecast

The following chart provides the current 10-year capital forecast (2014 to 2023) which will continue to be further refined through the 2014 Business Planning and Budget approvals process and remains subject to annual Business Planning adjustments and approvals.

Solid Waste Management Major Capital Forecast (2014 to 2023)

($ Millions)	2014	2015	2016	2017	2018	2019 to 2023	Total
Oshawa Landfill remediation						0.9	0.9
Other landfill remediation and/or reclamation		1.0	1.9	0.8			3.7
Garrard Road Transfer Station Project	7.0						7.0
Clarington Hazardous Waste Facility[1]	0.3	2.7					**3.0**
Waste Management Facilities (modifications and new)				0.5	0.9	**6.2**	**7.6**
New Seaton Waste Facility				8.5			8.5
Total Solid Waste Capital Forecast [1 & 2]	**7.3**	**3.7**	**1.9**	**9.8**	**0.9**	**7.1**	**30.7**

Notes:

1. The Region issued a Request for Expression of Interest (REOI) in late 2013 to explore private sector options available to implement the Region's commitment under the EFW Host Community Agreement with Clarington to provide a hazardous waste collection facility. With no suitable options received, the Region is now exploring other options, including acquisition of land and construction of the hazardous waste facility. Regional staff will report in 2014 on options available to fulfill Council's commitment, as well as potential to include other diversion collection options through an eco-station type facility, which is also being explored. The capital cost noted within the forecast includes land purchase in 2014 and potential construction in 2015.
2. Options for expansion of the Region's organics diversion program continue to be investigated, including potential for an anaerobic digestion (AD) facility. A Regionally financed AD facility is cost prohibitive and partnerships would be required and continue to be explored. While not included within the current major capital forecast, future recommended options could include both capital and operating cost components.

10.1 Asset Management: Capital Rehabilitation and Repair

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.

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.

In 2012, Building Condition Assessments (BCA's) were 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. Identified long-term capital funding requirements projected over the next 10 years include:

10-Year Tangible Capital Assets Projections ($000's)

	2014	2015	2016	2017	2018	2019-2023	Total
Capital Repairs to Waste Management Facilities	$255	$2,100	$1,255	-	$57	$957	**$4,624**

Further refinements to this projection are being made as part of the 2014 detailed Business Planning and Budget process with the goal of ensuring an adequately funded rehabilitation and replacement program over the forecast period.

11.0 Uncertainties and Go-forward Pressures and Risks

11.1 Solid Waste Management Expenditures and Property Tax Impact

At approximately $58.5 million, Solid Waste Management represents approximately six per cent of the Region's gross 2013 property tax supported expenditures. The property tax funded 2013 budgeted net expenditure was $37.6 million, net of user fees, recyclable revenues, subsidies and other recoveries. This identified net expenditure requirement represented seven per cent of the 2013 Regional property tax bill.

The Solid Waste Management Reserve Fund is insufficient to adequately support existing commitments, significant planned initiatives, and ongoing operational risks beyond the Region's control related to commodity market volatility, subsidies, and unanticipated fluctuations in collection stops and/or tonnages year-to-year. It is proposed, therefore, that budgetary contributions to the Solid Waste Management Reserve Fund remain at existing levels for the 2014 Solid Waste Management Operations Budget.

Currently, a deficit is anticipated at 2013 year-end, due primarily to an estimated $1.2 million shortfall in Blue Box material revenues. A significant adjustment to account for the negative revenues impact will be included within the 2014 Solid Waste Management operations budget, as the trend is anticipated to continue through 2014, given the prolonged economic slowdown; reduced retail sales; light weighting of industry packaging due to enhanced producer stewardship policies; and lower per household and WMF solid waste volumes.

11.2 Financing Challenges: Revenue and Expenditure Risk

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

- Increased compost processing requirements given expansion capacity constraints and the coming end of the current food waste composting contract towards the end of the forecast period;
- Implementation of Durham – York Energy Centre (EFW) commercial operations and host community commitments, including a new hazardous waste facility in Clarington which, without private sector interest in a contractual agreement, could require land purchase and capital investment;
- Implementation of waste disposal transfer, inspection and haulage changes as required by the Ministry of Environment;
- Investigations of anaerobic digestion potential (a potentially significant capital and or operations cost addition depending upon service delivery model and potential partnerships);
- Volatile and currently low recycling commodity prices and revenue impacts with a projected 2013 negative impact of $1.2 million; and,
- New facility infrastructure requirements in Seaton late in the forecast period.

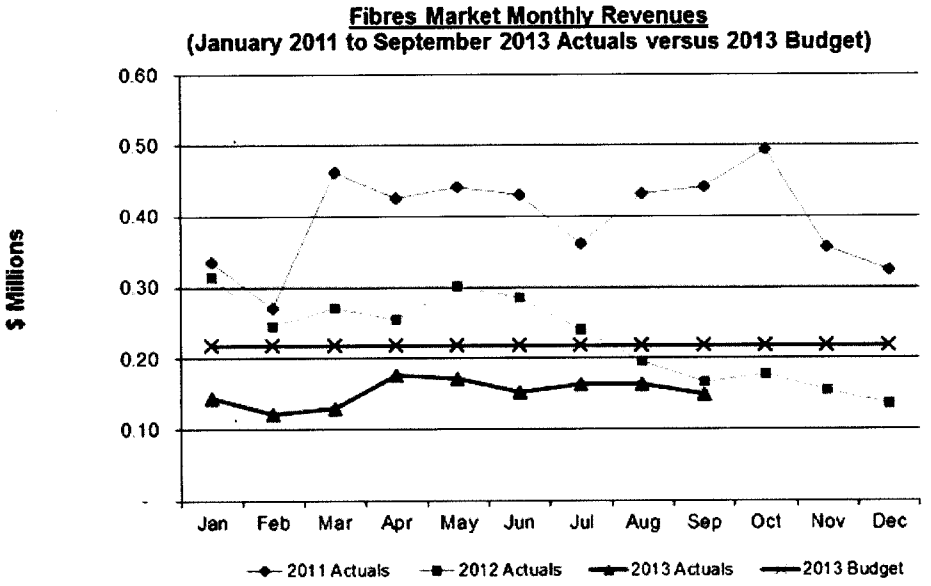
11.3 Reduced 2013 and 2014 Commodity Revenues

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.

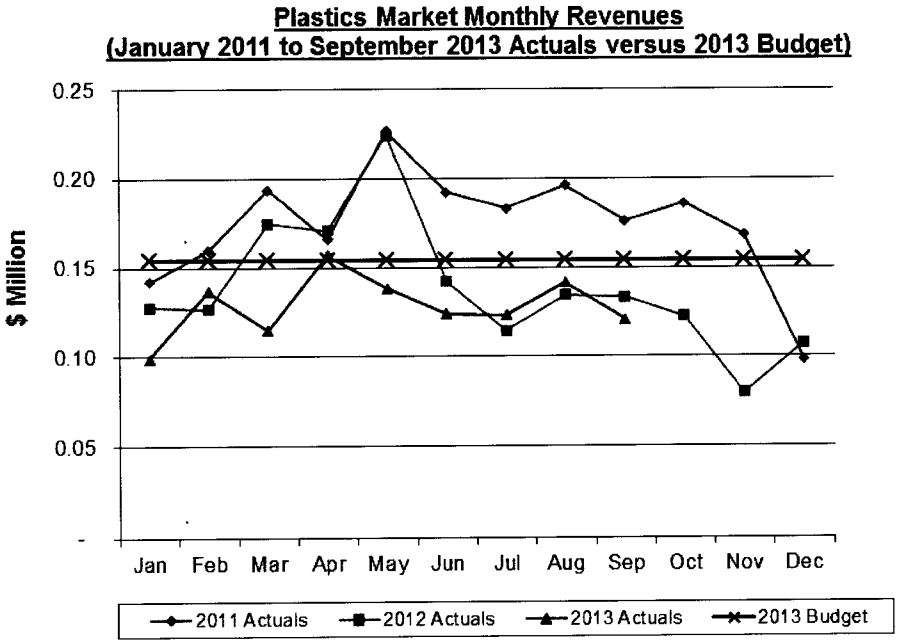
The Region has seen annual total recycling revenue highs totaling $7.8 million and lows of $4.3 million (2013 projection $4.9 million). As previously noted, a 2013 deficit of approximately $1.2 million is currently projected by year's end, although staff continues to monitor and investigate opportunities to mitigate this revenue impact.

While the 2013 Budget did reflect decreasing revenues, the detailed 2014 solid waste management operations budget will assume more significant decreases in material revenues expectations, due to depressed market pricing and expectations of continuing volatility.

The following charts demonstrate actual monthly fluctuations in market revenues for fibres, plastics and metals during 2011, 2012 and 2013 (to September 2013).



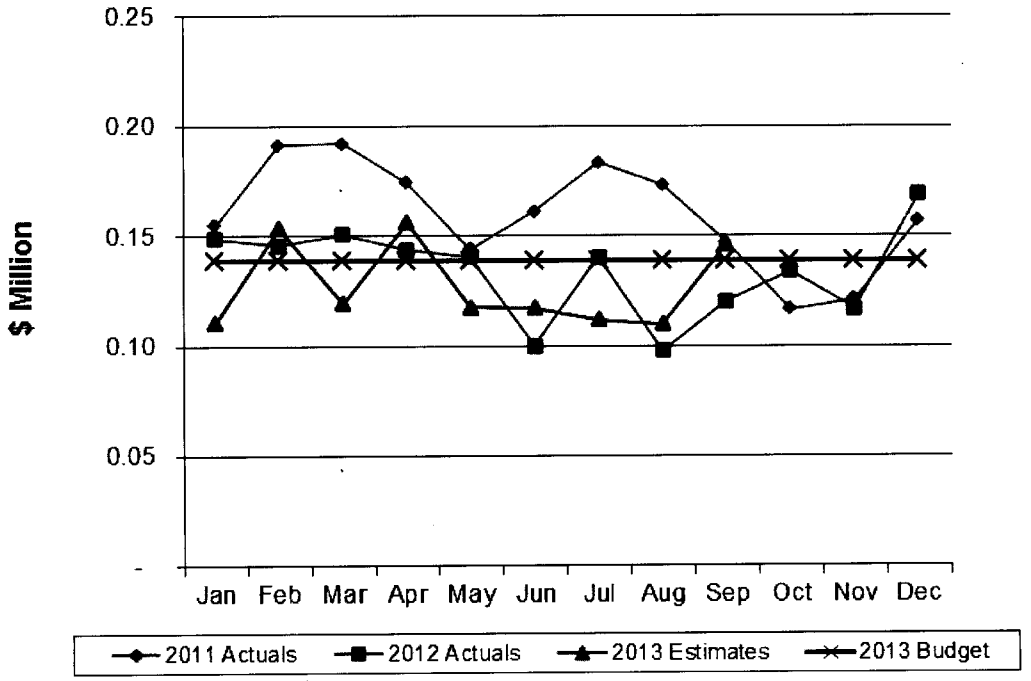
As the chart above demonstrates, budgeted 2013 fibres revenues were estimated at well below actual revenues received through 2011 and most of 2012. Identified as a potential risk in last year's servicing and financing study, the downturn in fibres markets experienced near the end of 2012, did not begin to recover until late spring 2013, and up to September has remained relatively flat. Although staff continue to monitor, no significant recovery in fibres markets is contemplated over 2014, which will be reflected in the 2014 Solid Waste Management operations Budget. 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.

Metals Market Monthly Revenues
(January 2011 to September 2013 Actuals versus 2013 Budget)



11.4 Provincial Restructuring: Bill 91 and the New Funding Regime

On June 6, 2013, the Ontario government introduced Bill 91, The *Waste Reduction Act* (WRA). If passed, the WRA will transform Ontario's approach to waste diversion by placing the responsibility for managing designated materials on the producers of those materials. The WRA will also require producers to meet waste reduction and service standards for all designated materials.

The WRA requires producers to 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 will therefore be critical for municipalities to define and identify their 'reasonable' costs. Municipalities will also need to ensure implementation of full cost accounting systems and activity based costing systems for the collection, transportation and processing of collected materials to maximize potential benefits of future partnerships with producers for managing designated materials. It is unclear how producers will be able to meet their obligations under the Act without the benefit of municipal waste collection experience and infrastructure.

If the *WRA* is approved, Durham Region is well positioned with experience and modern material collection and processing infrastructure to help producers meet their diversion requirements for existing and future designated materials. Staff will actively engage in the consultation process for the development of the WRA and its regulations. Staff will also pursue WRA related opportunities to Durham Region's benefit as they arise and will provide update reports to Standing Committee as the need arises.

On October 30, 2013, Regional Council approved Report 2013-WR-8 which outlined the WRA and the Province's Waste Reduction Strategy (WRS) and directed staff to participate in the associated consultation process with the Ministry of the Environment.

12.0 Conclusions

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.

In addition to the ongoing Solid Waste Management goals to ensure efficient and adequate solid waste collection services for Durham's residents, protect the environment and effectively maintain solid waste assets, key goals also include the successful implementation of the new Durham – York Energy Centre (EFW) project as a new long-term local disposal option, and the continued movement towards the 70 per cent waste diversion objective. The EFW project is expected to achieve commercial operations by the fall of 2014, with the first full year of commercial operations in 2015.

Based upon actual tonnes to September 2013, the Region is anticipated to reach 54 per cent diversion for 2013, despite increasing challenges due to the light-weighting of recyclable materials by industry in reaction to enhanced producer-pay policies. Incremental gains were largely the result of new diversion programs implemented including E-waste, batteries, porcelain, and an expanded Blue Box plastics program.

Uncertainties over 2014 and the 2015 to 2018 period include financing risks as well as potential opportunities due to:

- Uncertainties with respect to provincial policy changes, restructuring and revenue/subsidy regime change through the 2013 Bill 91 "*Waste Reduction Act*";

- Reduced market prices for recyclable materials, subsidies and user fees due to the economic slowdown and tonnage and reductions and fluctuations which cause considerable uncertainties in Solid Waste Management budgeting;
- Longer-term structural changes in paper fibres markets;
- The impacts of these risks and uncertainties on diversion program business cases recently completed and/or currently underway (in terms of available diversion tonnages, diversion program/facility cost responsibilities, and available revenues); and,
- Existing year-to-year risks with respect to projections of tonnages and collection stop-counts.

Including landfill remediation and/or reclamation projects, and recommended or forecast new facilities the Region's Solid Waste Management program forecasts $30.7 million of major capital expenditures by 2023, not including potential increases due to a potential future anaerobic digestion facility, which would be reliant upon establishment of partnerships, and investigation and a business case around preferred options.

Regional staff continue to refine estimates as part of the 2014 Business Planning and Budget process with the recommended detailed 2014 Solid Waste Management Business Plan and Budget anticipated before the Works Committee and Regional Council in January/February 2014.