



The Regional Municipality of Durham Report

To: Committee of the Whole
From: Commissioner of Finance and Commissioner of Works
Report: #2019-COW-3
Date: January 16, 2019

Subject:

2019 Solid Waste Management Servicing and Financing Study

Recommendations:

That the Committee of the Whole recommends to Regional Council that the following recommendations be approved:

- A) Whereas the Regional Municipality of Durham's current Long-Term Waste Management Strategy Plan expires in 2020:
- Staff be authorized to commence a process in 2019 to update the Regional Municipality of Durham's Long-Term Waste Management Strategy;
 - A consultant be retained through a competitive procurement process for a two-year assignment to develop and support the consultation and communication components of a Long-Term Waste Management Strategy 2021 – 2040, with the cost of this assignment not to exceed \$200,000, subject to the finalization of the 2019 Solid Waste Management Business Plans and Budgets;
 - Regional Council endorse a vision for the Long-Term Waste Management Strategy 2021 – 2040 that continues and enhances the reduce, reuse, recycle principles and incorporates the vision of waste as a resource as a foundation of the plan.
- B) Staff be authorized to pursue an administrative amendment with the Ministry of Environment, Conservation and Parks (MECP) to revise the existing Environmental Compliance Approval for Durham York Energy Centre (DYEC) processing limit of 140,000 tonnes per year to 160,000 tonnes per year to reduce the need to utilize other disposal options and to optimize the operation of the facility.
- C) Staff be authorized to commence the Environmental Assessment (EA) for the DYEC expansion to process 250,000 tonnes per year, including retaining consulting assistance at a cost not to exceed \$60,000, subject to the finalization of the 2019 Solid Waste Management Business Plans and Budgets.

- D) Whereas the Region's Request for Pre-Qualification 1095-2018 for the receipt, transfer and haulage and processing of organics from the Region's source separated green bin collection program resulted in only one bidder, being Miller Waste Systems, that staff be authorized to enter into negotiations for a sole source contract with Miller Waste Systems for this service, with up to a five-year term and that the Commissioner of Finance, in consultation with the Commissioner of Works, the Region's Solicitor and CAO, be authorized to execute the contract to be funded from the 2019 and subsequent annual Waste Management Business Plan and Budget.
- E) Whereas the Oshawa Waste Management Facility (WMF) has exceeded its design capacity to accommodate the increased users of the site, that staff be authorized through a competitive procurement process to install an additional inbound weigh scale at the Oshawa Waste Management Facility at a cost not to exceed \$100,000 subject to the finalization of the 2019 Solid Waste Management Business Plans and Budgets.
- F) That staff be authorized to retain a consultant to optimize the Oshawa Waste Management Facility to accommodate the future needs of the Region, at a cost not to exceed \$60,000 subject to the finalization of the 2019 Solid Waste Management Business Plans and Budgets.
- G) The 2019 Business Plan and Budget include effective July 1, 2019, a new \$250 per tonne charge for fill material (such as soils, concrete and mixed construction materials) and mixed loads containing fill material at Regional WMFs to manage the fill material received on a full cost recovery basis (a cost \$125 per tonne higher than the current mixed load fee).
- H) Whereas the *Waste Free Ontario Act, 2016* will require changes or replacements to existing program plans and revised agreements for municipalities to participate in the programs for Tires and for Waste Electrical and Electronic Equipment (WEEE), that the Regional Chair and Regional Clerk, in consultation with the Commissioners of Works and Finance, be authorized to amend or replace existing contracts, as applicable, for the Region to be able to participate in the new programs and obtain any available funding.
- I) A consultant be retained to explore alternate beneficial uses and markets for problematic blue box materials (such as glass, plastics and paper) within the Region of Durham at a cost not to exceed \$60,000 subject to the finalization of the 2019 Solid Waste Management Business Plans and Budgets.

Report:**1. Executive Summary**

- 1.1 For the past twenty years, waste management priorities have been guided by the Long-Term Waste Management Strategy Plan 2000-2020 approved by Regional Council. Most of the plan's goals have been realized and Durham has become a leader in solid waste management.
- 1.2 As the Region moves beyond the timeframes of the previous plan, there is a need to establish goals and objectives for the next 20 years. It is critical to commence an update to the long-term waste management strategy (LTWMS) as the solid waste "world" is changing, resulting in significant impacts to municipalities including the Region. There are new challenges and opportunities with technologies, materials, markets and policies which will impact the Region. These changes will determine what materials are managed and how materials are managed into the future.
- 1.3 To prepare for the future, staff has commenced preliminary work towards the development of a long-term waste management strategy for the years 2021 to 2040. The new long-term waste management strategy will be developed envisioning the creation of programs where waste materials become resources.
- 1.4 The goals of a long-term waste management strategy will include addressing the pressures created by growth and environmental sustainability. Disposal capacity and operational optimization will be required in the near term.
- 1.5 Managing food waste is both a challenge and an opportunity. The promotion and education programs will evolve to ensure there is a focus on changing behaviour and movement towards the reduction of food waste.
- 1.6 **The 2021 to 2040 Long-Term Waste Management Strategy will see the Region manage its solid waste as a resource through innovation and adaptability to enhance environmental sustainability. Promotional and education programs will be a key component for success.**
- 1.7 The Environmental Certificate of Approval (ECA) currently caps the Durham York Energy Centre (DYEC) processing capacity at 140,000 tonnes per year. However, the DYEC was constructed to manage up to 160,000 tonnes per year without any modifications to the infrastructure, processes and services. Amending the ECA permit to allow the DYEC processing of 160,000 tonnes per year is estimated to save up to \$1.3 million in the first year increasing to \$2.1 million in subsequent years, because of increased revenues from electricity and metals, cost avoidance for disposal of bypass waste to landfill and a contractually reduced fee for tonnages processed beyond the Owner delivery obligation of 140,000 tonnes.
- 1.8 The Ministry of Environment Conservation and Parks (MECP) has advised that it will not accept an interim optimization plan for the DYEC without the Regions of Durham and York's commitment to also develop a long-term plan for the DYEC. Therefore, the development of a focused Environmental Assessment (EA) Terms of Reference

for the DYEC long term capacity expansion plan should commence in 2019.

- 1.9 The need for disposal capacity and increased diversion can be addressed through the implementation of a Mixed Waste Pre-sort and Transfer Facility. The Mixed Waste Pre-sort and Transfer facility will remove organic waste from the garbage (single family and multi-residential) and other recyclables. An Anaerobic Digestion facility would process the organic waste to produce a bio-fuel, fertilizer and a soil augmentation. Significant disposal capacity can be created, and diversion targets could be achieved with these systems in place.
- 1.10 Staff will report in 2019, with an update on the waste composition study, potential partnerships and service delivery models for the development of a Regional long-term organics management strategy and related financial implications. Authority to proceed to the RFQ stage for the Mixed Waste Pre-sort and Transfer facility with the Anaerobic Digestion process will be sought.
- 1.11 **Creation of disposal capacity and increasing diversion through optimization and technology will be necessary.**
- 1.12 Recyclable markets will continue to be a challenge and revenues remain uncertain in 2019. Some materials are becoming very difficult to market and revenues have decreased significantly and, in some cases, have become a cost.
- 1.13 **A study to explore alternate uses/markets for problematic materials is required.**
- 1.14 The Oshawa Waste Management Facility has exceeded its manageable capacity due to the significant growth in the area and associated usage of the facility. An optimization study and infrastructure improvements are necessary. An additional inbound scale is required to address congestion and traffic queuing onto Ritson Road. A study on site optimization is proposed.
- 1.15 **Staff will bring forward the study results and recommendations.**
- 1.16 The *Waste Free Ontario Act, 2016* will require the Region to make changes to existing programs and revise agreements to participate in the programs for Tires and Waste Electrical and Electronic Equipment (WEEE). It is recommended the Regional Chair and Regional Clerk, in consultation with the Commissioners of Works and Finance, be given authority to amend or replace existing contracts, as applicable, for the Region to be able to participate in the new programs and continue to obtain any available funding.
- 1.17 **Staff will bring forward analysis and recommendations as new legislation comes forward.**

2. Introduction

- 2.1 On November 29, 2018 the MECP released its draft environment plan: "Preserving and Protecting our Environment for Future Generations A Made-in-Ontario

Environment Plan.” The plan outlines high level objectives for environmental actions in Ontario and includes expanding organics diversion and consultation on an organics landfill ban, exploring thermal treatment options to recover resources from waste, a commitment to move Ontario’s existing waste diversion programs to the extended producer responsibility model and host a Provincial Litter Clean Up day. At the time of the writing of this report, the Plan has been posted for public consultation on the Environmental Bill of Rights website for final comments by January 29, 2019.

- 2.2 As reported to Regional Council during 2017 and 2018, the impacts of the “China National Sword Policy” on recycled materials will continue to affect the Region’s solid waste management budgets. Decreased marketing opportunities and diminished revenues are compounded by increased operating costs to separate materials for the end markets. This will create challenges to ensure that all collected material can be managed as a resource. Considering the above, the Region may soon face difficult decisions about the continuance of some of its current diversion programs which could significantly impact the diversion rate. In the meantime, municipalities continue preparing for Extended Producer Responsibility for the blue box program although the timeline for implementation has not been finalized.
- 2.3 Staff will continue reviewing current services and proposing new programs to increase and improve service delivery to the community, including the areas of blue box litter, blue box processing and promotion and education. There will be an enhanced focus on food waste reduction with a view to converting waste to a resource. Staff will investigate opportunities to expand waste diversion in the Industrial, Commercial and Institutional (IC&I) sectors.
- 2.4 The future of solid waste management comes with significant challenges and opportunities which must be met with local solutions that continue to ensure appropriate service levels and efficiencies while keeping pace with changing legislation.
- 2.5 This Servicing and Financing Study is structured as follows:

Planning for the Future

- Long-Term Waste Management Strategy 2021-2040
- Food Waste

Addressing Growth

- Organics Management Strategy
- DYEC Operations and Expansion
 - 2018 DYEC Operating Update
 - DYEC Disposal Capacity Increase (Interim Solution)
 - DYEC Expansion (Longer Term Solution)
- New Developments in the Region of Durham – 2019

Operations: 2019 and Forecast

- Material Recovery Facility
 - Problematic Markets
- Organics Management Processing
 - Interim Organics Solution
- Contract Management
 - Solid Waste Transfer and Haulage Services
 - Solid Waste Tonnages
- Waste Management Facilities
- Rationalization of Waste Collection Services
- Clarington Municipal Hazard and Special Waste Facility
- Perpetual Care of Landfills
- Environmental Studies – Landfill Remediation
- Scott Landfill Mining Project
- Landfill Project Updates
 - Blackstock Landfill Mining Project
 - Oshawa Landfill
 - Scugog Landfill
- Promotion and Education Plan
- Multi-Residential Waste Collection and Diversion

Legislation

- Regulatory Uncertainty
- Carbon Pricing
- Climate Change
- Extended Producer Responsibility Programs
- Blue Box Transition
- Anaerobic Digestion – Long-term Organics Management Strategy
- DYEC Ambient Air Monitoring

Financial and Risk Implications

- Solid Waste Management Finance
- The Preliminary 10-year Solid Waste Management Capital Program
- Asset Management Planning
- Looking Forward: Long-term Financial Planning.

3. Planning for the Future

- 3.1 Developing a long-term waste management strategy for the next 20 years involves consultation with all Regional stakeholders affected by Regional Solid Waste Management service delivery. Significant changes are expected in the future. The recent shift in provincial policies, the movement toward extended producer responsibility of Blue Box materials, and challenges caused by the “China National Sword Policy” are requiring the entire waste management industry to redefine its strategies and objectives.

3.2 In Durham, the focus will continue to be on the 3Rs – reduce, reuse and recycle with new emphasis on resource recovery recognizing waste as a resource. Programs will be developed that encourage residents to reduce the waste generated and increase opportunities for secondary uses for the materials generated through recovery programs. Existing reuse programs will continue and will be augmented through partnerships with other organizations that promote repairs, trading, sales or other initiatives that benefit the community. Recycling programs will be locally beneficial and have sustainable markets for products and packaging. Key waste management performance indicators will move away from the simple tonnage diversion calculations used today to include beneficial impacts of financial, social and environmental factors.

Long-Term Waste Management Strategy 2021 to 2040

3.3 The Region of Durham endorsed a Long-Term Waste Management Strategy Plan (Plan) in 1999 for the years 2000 to 2020. A diverse team of staff and members of the public worked extensively to conduct public consultation and develop the Plan. The Plan had four main objectives:

- a. To divert at least 50 per cent of residential waste from disposal by the Year 2007 or earlier.
- b. To secure an alternate source for the disposal of residential waste, when the City of Toronto's Keele Valley Landfill Site is closed.
- c. To implement an integrated residential waste management system for the collection, processing and disposal of (1) Blue Box recyclables, (2) Food and Yard waste materials, (3) residual garbage waste, and (4) special wastes.
- d. To consider an "Energy from Waste" type facility for the disposal of residual garbage waste.

3.4 As the Region approaches 2020, the primary objectives of the Plan have been achieved and it is time to develop a new plan to guide waste management decisions for the next 20 years.

3.5 Solid waste management is subject to technological, demographic, legislative and global market changes. The waste management landscape has changed significantly since 2000, creating both challenges and opportunities for municipal solid waste management.

3.6 In recent years, there have been multiple changes in the waste management landscape in Ontario. Technology changes have resulted in less commodities (newspaper) and more multi-material packaging (pouches) entering the waste stream which presently have little commodity value. The previous provincial government passed the *Waste-Free Ontario Act, 2016* (Act). The Act was intended to move Ontario to a full producer responsibility framework, making the producers of designated materials, currently managed by municipalities, responsible for their end of life management and creating a circular economy.

3.7 To date only one regulation has been issued under the Act, related to the end of life management of used tires. Extended producer responsibility regulations are

currently being developed for electronics and municipal hazardous and special waste. The recent change in government has created uncertainty in how responsibilities for the blue box program will be affected under future extended producer responsibility regulations.

- 3.8 The external and internal pressures identified above can present opportunities. The new Long-Term Waste Management Strategy will redefine how waste is viewed and utilized as a resource. Waste management will become a tool for enhancing environmental sustainability and wastes can potentially be used as resources for environmental improvement and financial opportunities. With these challenges and opportunities in mind, staff propose the following Long-Term Waste Management Strategy vision:

The Region of Durham will manage solid waste as a resource through innovation and adaptability to enhance environmental sustainability.

- 3.9 Staff have been working throughout 2018 to develop a framework for a new Long-Term Waste Management Strategy 2021 - 2040. Discussion has focused on development of an updated vision for the management and marketing of solid waste.
- 3.10 Developing a robust Strategy for 2021 – 2040 will require support to identify potential impacts of the challenges faced by the waste management industry. Full consultation with the public, local municipalities and other stakeholders on the Strategy will be key to achieving community support and endorsement of action plans that will be developed. Consultant assistance will be required to support public information sessions and consolidate community input.
- 3.11 Funding of \$200,000 will be proposed in the 2019 Business Plan and Budget to undertake the development, research and community consultation required in 2019 and 2020. Throughout the process, and in 2020, staff will report back to Council on the development of the draft Strategy and the results of the public consultations. In 2021, the Strategy will be finalized and presented to Regional Council for endorsement. Funding requests will be identified through future annual Business Plans and Budgets to begin the Strategy implementation, which will include communicating the objectives of the Strategy and providing research and education on how waste can become a resource for the Region and its residents.
- 3.12 The finalized Strategy will be reviewed every five years to adjust for changing regulations, market conditions and other influences, and to assess progress toward meeting the targets of the Strategy. Staff will request funding for this exercise as required in the 2019 and future annual Business Plans and Budgets.

Food Waste

- 3.13 Food waste has garnered global focus in recent years. Government and non-governmental organizations have recognized food waste as a large contributor to climate change in its production, distribution and disposal. Producing food requires significant resources including water and fossil fuels, while rotting food in landfill sites generates methane gas. Governments at all levels are collaboratively working

on strategies to address and minimize food waste.

- 3.14 The Government of Canada is currently consulting on a food policy for Canada led by the Ministry of Agriculture and Agri-Food Canada. While not specifically focused on food waste, a key component of the emerging food policy is the need to protect the environment to ensure continued access to safe, reliable and abundant food grown in Canada. This environmental protection includes land, water and air.
- 3.15 The Province released the Food and Organic Waste Framework (Framework) in April 2018 after a year of consultation. Although focused on avoiding environmental impacts through the reduction of waste generation, the Framework is part of the previous Climate Change Action Plan, recognizing that food waste impacts climate change. Ontario's Framework includes actions to educate the public about minimizing food waste including improved date labelling and donation options. The Framework also includes requirements for municipalities, businesses, institutions and multi-residential buildings to improve the capture and recovery of organic material from the waste stream. The Framework sets ambitious diversion targets for all sectors.
- 3.16 Non-governmental organizations have been even more assertive in efforts to address food waste. The National Zero Waste Council has completed extensive food waste studies and developed policy options for Canadian jurisdictions to use in addressing food waste. Policy actions are suggested for food producers and retailers to avoid food waste such as better date labelling and improved food inventory management systems.
- 3.17 Other non-governmental organizations are taking steps to support and encourage minimizing food waste. The Ontario Association of Food Banks and its members facilitate the transfer of surplus food from farmers and food companies to local food banks for distribution.
- 3.18 At the municipal level, the Region of Durham will include food waste prevention and recovery in the promotion and education program as well as part of the long-term waste management strategy 2021 – 2040.
- 3.19 Durham is an active participant in the Recycling Council of Ontario's study of cost-effective collection options for surplus usable food and food waste for the IC&I sectors. The Composting Council of Canada is also working with the Ministry of Agriculture and Agri-Food Canada to investigate opportunities to use food waste as a resource to rehabilitate Ontario's depleted farming soils.
- 3.20 Moving forward, as the impact of food and food waste is a global issue, staff will continue to investigate additional potential partnerships with other government agencies and non-government organizations involved in this important issue.

4. Addressing Growth

- 4.1 The DYEC residual tonnages (Table 1) have exceeded Durham's processing capacity and tonnages are increasing annually due to growth. Through waste

composition investigations, it is evident that a significant portion of the residual waste stream is organic waste. The removal of organics from the residual stream with a mixed waste pre-sorting facility could extend the DYEC's processing capacity, thereby deferring the need for a facility expansion beyond 2030 (Figure 1).

- 4.2 Utilizing a mixed waste transfer and pre-sort function to remove organics from garbage bags also creates an opportunity to capture other non-combustible materials and marketable recyclables (such as ferrous and non-ferrous metals) from the garbage stream. These materials can be marketed along with recovered organic waste that can be processed into bio-fuels, fertilizers and organic solids for composting.
- 4.3 The increase in multi-residential and high-density developments in Durham has resulted in the need for specialized services which address municipal collection of organics and recyclables. Utilization of a mixed waste pre-sort system would allow for the capture and processing of organic materials generated by the Region's multi-residential sector and currently within the garbage stream.

Organics Management Strategy

- 4.4 At its meeting on June 13, 2018, Regional Council approved anaerobic digestion (AD) with a mixed waste transfer and pre-sort facility as the preferred technologies for the Region's long-term organics management strategy (Report #2018-COW-146). This approach would address the Regional Council direction to meet 70 per cent diversion and would also secure a made in Durham solution for Solid Waste Management. AD is a modern technology that can provide a long-term sustainable option for food and organic waste disposal.
- 4.5 The results of the Request for Information (RFI #1158-2017) conducted in 2018 indicated that there are companies/consortiums available to implement a mixed waste transfer and pre-sort with AD solution for the Region either through a design build operate and maintain (DBOM) contract or a private sector service contract. Staff will report back to Council in early 2019 on the potential for partnerships, grant funding, and a phased approach while reporting on service delivery and business case analysis and updates. It is anticipated that the report will recommend proceeding to a Request for Qualification process, after which recommendations will be formulated regarding moving forward to a Request for Proposal (RFP) process to secure a suitable long-term organics management solution.
- 4.6 An organics management system that includes pre-sort and AD could:
 - a. Address population growth;
 - b. Relieve capacity constraints at the DYEC;
 - c. Improve environmental sustainability through the reduction of greenhouse gases; and,
 - d. Position the Region to achieve compliance with the Province's food and organic waste objectives.

DYEC Operations and Expansion

2018 DYEC Operating Update

- 4.7 The Durham York Energy Centre (DYEC) is managed under a Project Agreement that includes design, construction, and up to 25 years of operations and maintenance. Notice to Proceed was granted in August 2011 and by 2014 a portion of the Region's post diversion residual waste (waste) was being diverted to the facility for facility testing and commissioning. Facility Commercial Operations was achieved in early 2016, ending the long-haul trucking of the Region's garbage residue to New York State. Since then the Region's waste has been processed or disposed of either at the DYEC or through alternate/ bypass disposal located in south western Ontario or New York State, as follows:

Table 1: Durham Share of Waste Processing and Disposal Tonnes

| | Actual 2016 | Actual 2017 | Estimated 2018 | Projected 2019 |
|-------------------------------|------------------------|------------------------|---------------------------|---------------------------|
| DYEC | 96,260 | 104,972 | 110,000 | 110,000 |
| Covanta Alternate Disposal | 12,876 | 13,657 | 4,566 | 9,656 |
| Canada Fibres | - | - | 3,657 | - |
| Durham landfill | 1,174 | - | - | - |
| Durham Residual Tonnes | 110,310 | 118,629 | 118,223 | 119,656 |

Note: Includes MRF residue tonnes disposed of at the MRF contractor's cost (in 2016 2,421 tonnes; in 2017 3,359 tonnes; and, in 2018, an estimated 3,833 tonnes).

- 4.8 The DYEC processed approximately 140,000 tonnes of waste from January 1, 2018 to December 30, 2018 including York Region's share.
- 4.9 It is estimated that the disposal tonnage over the 2019 delivery obligation of 110,000 tonnes (i.e. the 9,656 noted in Table 1 for 2019) will cost an additional \$0.9 million based on the Covanta Project Agreement and the alternate disposal destinations secured. The weighted average disposal cost for bypassed garbage residue estimated for 2019 is approximately \$90 per tonne, including inspection, transfer, haulage and disposal.
- 4.10 Landfill costs are subject to increased risk and price volatility related to landfill capacity constraints and long-haul trucking fuel/diesel pricing, which creates uncertainty for landfill costs in the future.
- 4.11 The final 2019 estimates will be reflected in the 2019 Business Plan and Budget. Projections for 2020 to 2023 are based on current forecast assumptions for tonnages, and contract costs, including estimated changes in inflationary benchmarks based on recent years' actual adjustments.
- 4.12 The 2018 environmental monitoring data has been submitted to the MECP as part of the annual reporting requirements. In 2018, there were no environmental exceedances of air, water or soil verified to be a result of DYEC operations. Source testing at the DYEC in 2018 has shown that the facility is operating within

environmental requirements and confirms that the facility is not significantly impacting the surrounding environment.

DYEC Disposal Capacity Increase (Interim Solution)

- 4.13 In 2010, Regional Council directed a new diversion target of 70 per cent. The DYEC was sized to meet the projected capacity and designed to accommodate expansion. The DYEC design capacity was based on a relatively more cautious assumption that the Region would surpass 60 per cent diversion within a decade. However, higher than expected growth and waste generation with lower than expected diversion rates have led to an earlier than anticipated need for DYEC expansion. As noted in Table 1 above, Durham has exceeded its 110,000 tonne share since the commencement of commercial operations in 2016. Without increased diversion, waste will continue to exceed DYEC capacity, with increasing cost risks associated with long-term landfill capacity, availability and price.
- 4.14 As constructed, the DYEC can process up to 160,000 tonnes per year without any modifications to the infrastructure, processes and services. The Environmental Certificate of Approval (ECA) currently caps the processing capacity at 140,000 tonnes per year. With approval of an environmental screening process and an ECA administrative amendment for up to 160,000 tonnes per year, Durham and York would each gain additional waste disposal capacity and allow a more efficient operation. This interim solution could meet the waste management needs of Durham residents for an additional three to five years. An interim solution is required to meet current capacity requirements. The next stage of expansion to 250,000 tonnes per year will require significant technical and financial effort and approvals could be obtained over a 10-year horizon.
- 4.15 To align with service delivery and waste disposal mandates in Durham, staff recommend that the Regions of Durham and York pursue an administrative amendment with the MECP to revise the existing ECA's maximum allowable processing capacity from 140,000 tonnes per year to 160,000 tonnes per year, citing designed capacity, efficiency and capacity factors.
- 4.16 The recommended administrative amendment to 160,000 tonnes will provide operational efficiencies and greater flexibility in the waste processing rate but will also result in savings related to the reduced contract processing fee for tonnage beyond the current 140,000 tonne per year regulatory limit (110,000 Durham) and additional power and materials revenue recoveries resulting from the additional tonnages processed.
- 4.17 Table 2 presents the preliminary operational forecast for the DYEC based on Durham's current 110,000 tonne delivery obligation and demonstrating estimated net cost savings related to the recommended regulatory administrative amendment from 140,000 tonnes to 160,000 tonnes processing capacity.

**Table 2: Estimated Durham Disposal Costs (2019 to 2023)
(\$ Millions)**

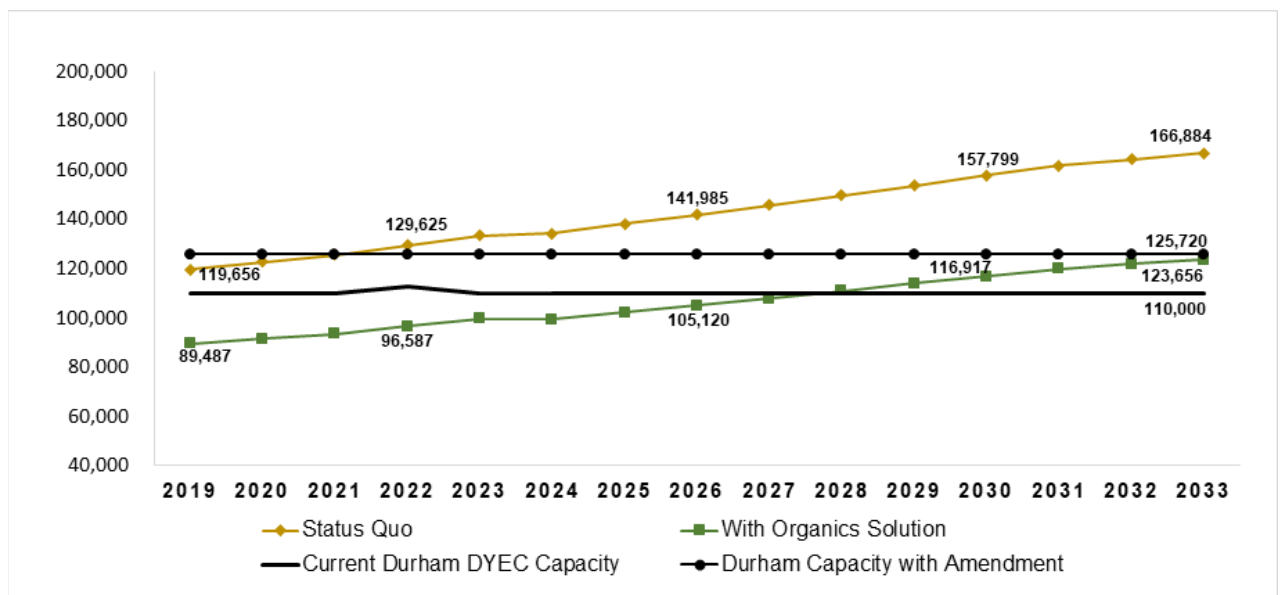
| | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|--------------|--------------|--------------|--------------|--------------|
| Covanta Operating Fee | 13.2 | 13.5 | 13.7 | 14.0 | 14.2 |
| Property Taxes | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 |
| Non-Covanta Operating Costs (gross costs) | 0.9 | 0.9 | 0.9 | 1.0 | 1.0 |
| Non-Covanta costs | 1.4 | 1.4 | 1.5 | 1.6 | 1.6 |
| Total Gross Costs | 14.6 | 14.9 | 15.2 | 15.6 | 15.8 |
| <u>Revenues</u> | | | | | |
| Electricity Revenues (IESO) | (7.0) | (7.1) | (7.1) | (7.2) | (7.2) |
| Materials Recovery Revenues | (0.5) | (0.5) | (0.5) | (0.5) | (0.5) |
| sub-total Revenues | (7.5) | (7.6) | (7.6) | (7.7) | (7.7) |
| Net Durham DYEC Cost | 7.1 | 7.3 | 7.6 | 7.9 | 8.1 |
| Covanta landfill disposal (beyond DYEC capacity) | 0.9 | 0.9 | 1.2 | 1.6 | 2.0 |
| Status Quo Cost of Disposal | 8.0 | 8.2 | 8.8 | 9.5 | 10.1 |
| With DYEC ECA Administrative Amendment: | | | | | |
| Reduced Covanta Operations Fee > 140,000 tonnes | 0.0 | (0.4) | (0.6) | (0.9) | (1.3) |
| Additional Revenues (IESO and material recovery) | 0.0 | (0.9) | (1.1) | (1.3) | (1.3) |
| Covanta landfill disposal (beyond 125,720 tonnes) | 0.0 | 0.0 | 0.0 | 0.1 | 0.5 |
| Sub-total Amendment Savings | 0.0 | (1.3) | (1.7) | (2.1) | (2.1) |
| Total Cost of Disposal | 8.0 | 6.9 | 7.1 | 7.4 | 8.0 |

Footnotes:

1. Reduced Covanta fee based on deduction of landfill charge and reduced processing fee for tonnages beyond 140,000 tonnes processed (estimated at \$35.45 per tonne in 2019, increasing to an estimated \$38.03 per tonne by 2023). It is assumed York Region uses its full 21.4 per cent share of amended capacity.
2. Includes materials recovery facility residue tonnes, which are the cost responsibility of the MRF contractor (approximate recovery of \$0.3 million).
3. Landfill fees are assumed to escalate from \$90.00 per tonne in 2019 to \$98.21 per tonne in 2023.
4. Power revenues escalation estimates are based on 35 per cent CPI per the IESO Power Purchase Agreement. Conservatively, revenues for ferrous and non-ferrous metals recoveries are not assumed to escalate.

- 4.18 Savings are generated over 2020 to 2023 related to: the elimination of landfill disposal costs over 2020 and 2021; reduced landfill needs over 2022 and 2023; discounted DYEC processing fees for tonnages processed beyond the 140,000 tonne delivery obligation; and additional power and material recovery revenues due to increased processed tonnages. It is anticipated that by 2022, subject to potential implementation of a long-term organics management solution, the new amended tonnage cap will be exceeded due to household growth in Durham and York.
- 4.19 To qualify for an administrative amendment, the changes must have manageable environmental impacts. This proposed capacity increase is not anticipated to have any increased environmental impacts and does not require any changes to facility processes or equipment. However, the MECP reserves the right to decide whether the change is administrative in nature or if it requires a technical review. If an ECA administrative amendment is acceptable to the MECP without further technical review, additional studies will not be required.
- 4.20 An ECA amendment to allow full utilization of existing nameplate capacity at the DYEC facility (i.e. 140,000 tonnes amended to 160,000 tonnes, with Durham's share of capacity assumed to increase 15,720 tonnes from the current 110,000 tonnes capacity to 125,720 tonnes capacity) will allow the facility to operate more efficiently with financial benefits anticipated as noted above. The ECA amendment also provides interim disposal capacity until the Region's mixed waste processing and organics management strategy can be developed.
- 4.21 As demonstrated in Figure 1, it is estimated that the implementation of a long-term organics' management solution, along with the proposed regulatory amendment for DYEC capacity utilization could postpone a DYEC expansion to 250,000 tonnes per year by over 10 years and possibly as much as 15 years, depending upon actual household growth and the future composition of managed wastes and related impacts to diversion processing operations.

**Figure 1: Waste Projections:
Durham DYEC Capacity Utilization**



Footnote:

Mixed waste tonnages are based on estimated 2018 tonnage actuals, 2019 projected tonnes and household growth projections including Seaton. Organics capture rate assumptions for Green Bin source separated organics and mixed waste organics are consistent with the GHD anaerobic digestion study and preliminary business case.

DYEC Expansion (Longer-Term Solution)

- 4.22 The MECP has stated that the Regions of Durham and York will need to demonstrate their intention to initiate concurrent planning for both the interim and long-term solutions for solid waste processing capacity at the DYEC. It is therefore proposed that both the environmental screening process leading to an administrative amendment of the ECA to 160,000 tonnes per year and the development of the Terms of Reference for the focused Environmental Assessment (EA) for the expansion to 250,000 tonnes per year be developed concurrently.
- 4.23 The DYEC site and facilities have been designed to accommodate expandability and will allow for continued processing operations during the expansion construction stages. The first steps towards expansion will be discussions with Co-owner York Region and the drafting of a new Terms of Reference (TOR) for an EA (for an expansion to 250,000 tonnes per year). The TOR development would commence in 2019 and will require approximately \$60,000 in consulting services to complete which will be brought forward with 2019 Business Plan and Budget deliberations. The full cost to complete an EA could be as high as \$10 million and could take approximately five to 10 years to complete.
- 4.24 The Region cited the ability to manage Regional waste within its own jurisdiction as a beneficial outcome after years of trucking waste across international boundaries. If the Region does not increase processing capacity via the regulatory amendment and AD or DYEC through expansion, then it will have to consider landfilling excess

waste, where the Region is once again dependent on others for disposal and is at risk for increased and uncertain landfill and long-distance haulage fees.

New Developments in the Region of Durham – 2019

- 4.25 Residential growth in the Region directly impacts waste contracts. When a new development does not meet the specifications necessary to allow for service delivery then the level of collection services could be impacted.
- 4.26 As part of the Development Application Review process, all new residential development applications are reviewed to determine if the Region can provide municipal waste collection services based on the proposed design. The assessment is based on the application of criteria and requirements as governed by Regional Waste By-law 46-2011. Developments that do not meet the Region's Bylaw requirements and standards for municipal waste collection service must obtain their own private waste collection services.
- 4.27 In 2018, the Waste Management Division reviewed numerous development applications for compliance with the requirements for municipal waste collection services. Many of these met the Regional requirements for municipal waste collection services including condominium developments on private roads. Meeting the Regional Waste Guidelines for Service on Private Property, as defined in Regional Waste Bylaw 46-2011, is a condition for a development receiving municipal waste collection services. Developments that do not meet the Guidelines must obtain private waste collection services.
- 4.28 Report #2018-COW-144 "Service Delivery Options for New Developments Accessed by Private Roads that Do Not Meet Design Standards for Municipal Waste Management Services" directed staff to consult with area municipalities, developers and service providers to investigate options for new developments to be able to receive municipal waste collection services, and to evaluate alternate waste collection methods. Regional Waste Management and Planning staff, along with representatives of the local municipalities, are developing options for broader consideration and consultation during 2019. Staff anticipates reporting back to Council by the end of this year.

5. Operations: 2019 and Forecast

- 5.1 While the City of Oshawa and Town of Whitby retain responsibility for local waste collection (excluding Regional Blue Box collection), the Region is responsible for the collection of all waste streams in the remaining six local area municipalities as well as the receipt, transfer/haulage, processing and residue disposal of all wastes collected by the Region, Oshawa and Whitby.
- 5.2 The majority of the Solid Waste Management Operating Budget (approximately 80 per cent of the gross solid waste management budget) is related to private sector waste service contracts. These service contracts include curbside waste and diversion collections, waste transfer and haulage services, processing operations and waste disposal. Private sector processing and operations' contracts include the

Region-owned recycling material recovery facility (MRF) and the Durham York Energy Centre (DYEC) waste-to-energy facility, while compost processing is currently conducted through a service contract at a private sector facility.

- 5.3 Waste collection and processing costs are increasing, and global market conditions continue to result in diminishing revenues for recycling commodities. These pressures, combined with other issues such as a shortage of collection and transport vehicle drivers, impact the Region's ability to maintain the quality and costs of its services.
- 5.4 A large part of the success of the Region's curbside collection programs is its ongoing outreach to the community. Moving forward, communication campaigns will focus on organics management and the reduction and recovery of food waste. The Promotion and Education program will be a focus in the Long-term Waste Management Strategy with a view to the development of new programs aimed at assisting residents to reduce and better manage their food waste.
- 5.5 The Region of Durham is beginning to experience increased levels of contamination in both the Blue Box and Green Bin programs. This is due to new residents moving from other regions, lack of diversified educational outreach and differences between programs in other jurisdictions.

Material Recovery Facility (MRF)

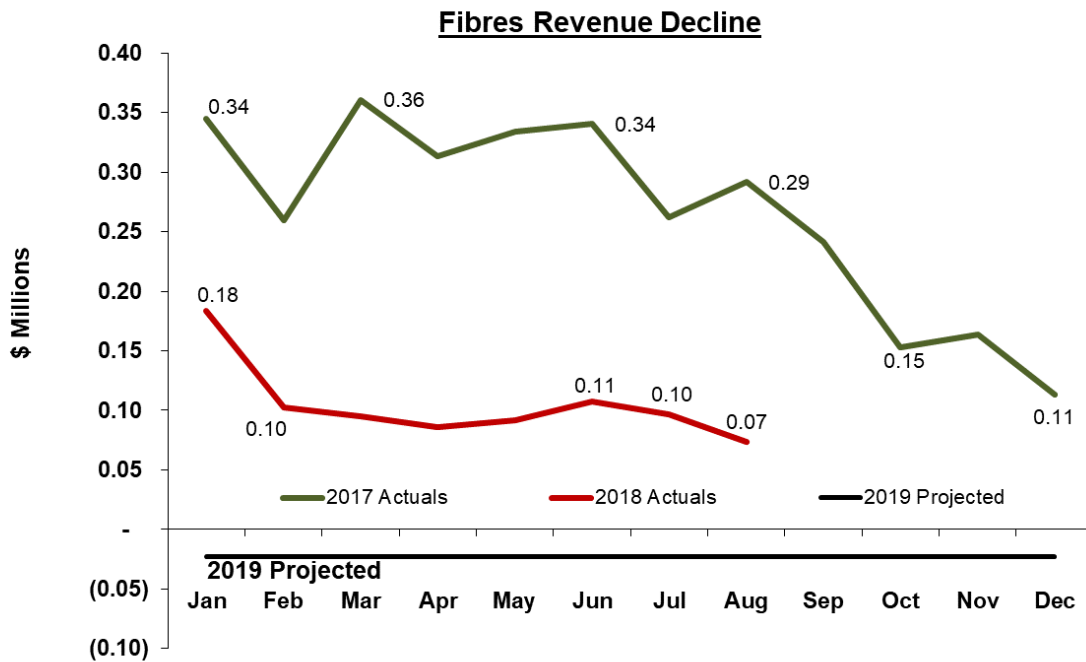
- 5.6 The volume and cost of managing recyclables continues to rise due to the light-weighting of materials and the increase in plastics, wraps and mixed material packaging. These factors contribute not only to an increasing per unit operating cost and new capital processing equipment requirements, but also negatively impact diversion rates, which continue to be calculated based on tonnage. The weight of products and packaging has been significantly reduced over time as packaging producers seek to reduce their costs and subsidies to municipalities. These subsidies are based on funding for approximately 50 per cent of the net Blue Box program costs and include adjustments for best practice.
- 5.7 For 2019, Stewardship Ontario (industry) subsidy funding is estimated at \$5.9 million, while revenues from the sale of Blue Box materials are estimated to be in the range of \$2.8 million, subject to fluctuations in commodities markets. Combined, these revenue recoveries total approximately \$8.7 million which is reflected in the Budget to offset the overall cost of the Blue Box program, including collection and processing (an estimated \$17 million in 2019).

Problematic Markets

- 5.8 In addition to the uncertainty created by the new *Waste Free Ontario Act, 2016* and its planned regulations, the government for the People's Republic of China in July 2017 notified the World Trade Organization that it intended to prohibit the import of certain wastes including mixed paper and mixed plastics. In its "Chinese National Sword Policy," China also announced a new and stringent 0.5 per cent contamination standard for recycling material imports.

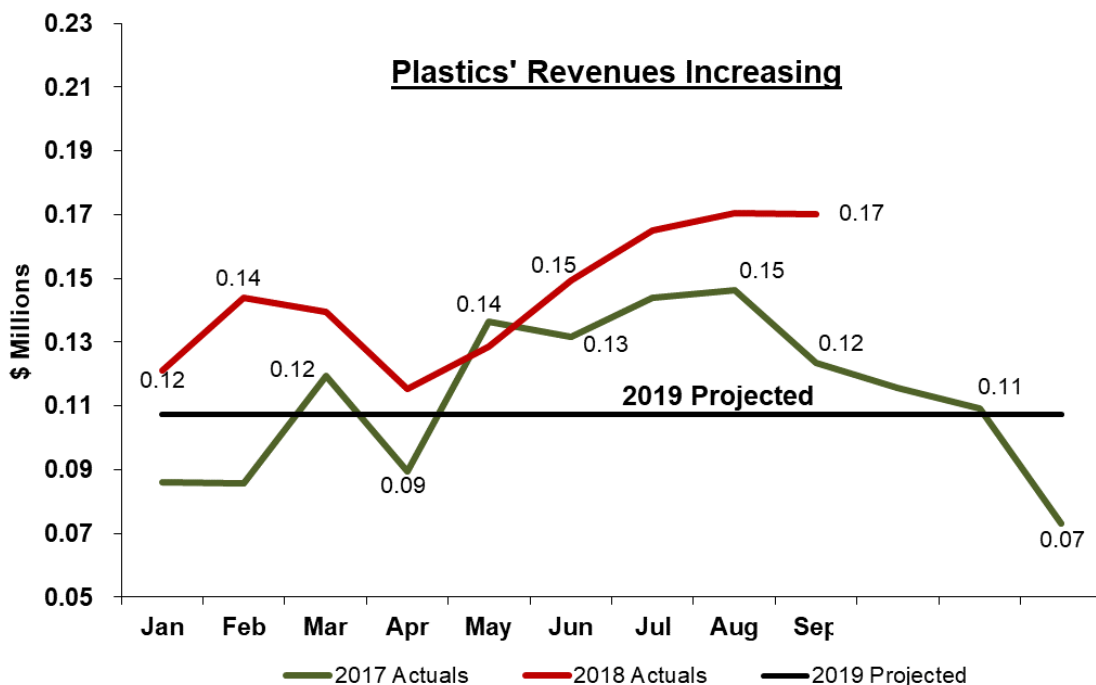
- 5.9 These new restrictions came into effect on January 1, 2018 and effectively banned recycling and scrap commodity imports into China. While this may eventually encourage the creation of more North American based processing facilities, many blue box materials are becoming very difficult to market and revenues have decreased significantly and, in some cases, have become a cost.
- 5.10 Recyclable markets are expected to remain difficult as China tightens its restrictions. The Chinese restrictions will likely continue decreasing the revenue from blue box materials sold into recycling markets.
- 5.11 This is expected to pose an ongoing financial pressure. In addition, plastics and metals markets can also be affected by:
- a. Industry light-weighting of packaging materials;
 - b. World oil prices;
 - c. Demand for raw materials relative to recycled content; and,
 - d. Population growth and economic activity.
- 5.12 Budget to actual price and tonnage variances have been and continue to be tracked and assessed. At least in the near-term, it is expected that there may be no revenue generated from newsprint through 2019, a portion of these losses may be offset by growth of revenues in steel and aluminum.
- 5.13 The following figures demonstrate 2017 and 2018 trends in paper (fibers), plastics and metals revenues, and highlight the basis for projected 2019 budget for each. As demonstrated in Figure 2, revenues are negative and represent a net fibres cost projected for 2019.

Figure 2: Fibres Revenues (2017 and 2018 and 2019 Projected)



Footnote: Old newsprint (ONP), previously representing over 65 per cent of all annual fibres tonnage received, is now processed and marketed with no net revenues and a net cost is projected for 2019. The 2019 projected revenues noted above reflect revenues received for old corrugated cardboard (OCC), mixed paper and gable top containers (e.g. milk and juice cartons).

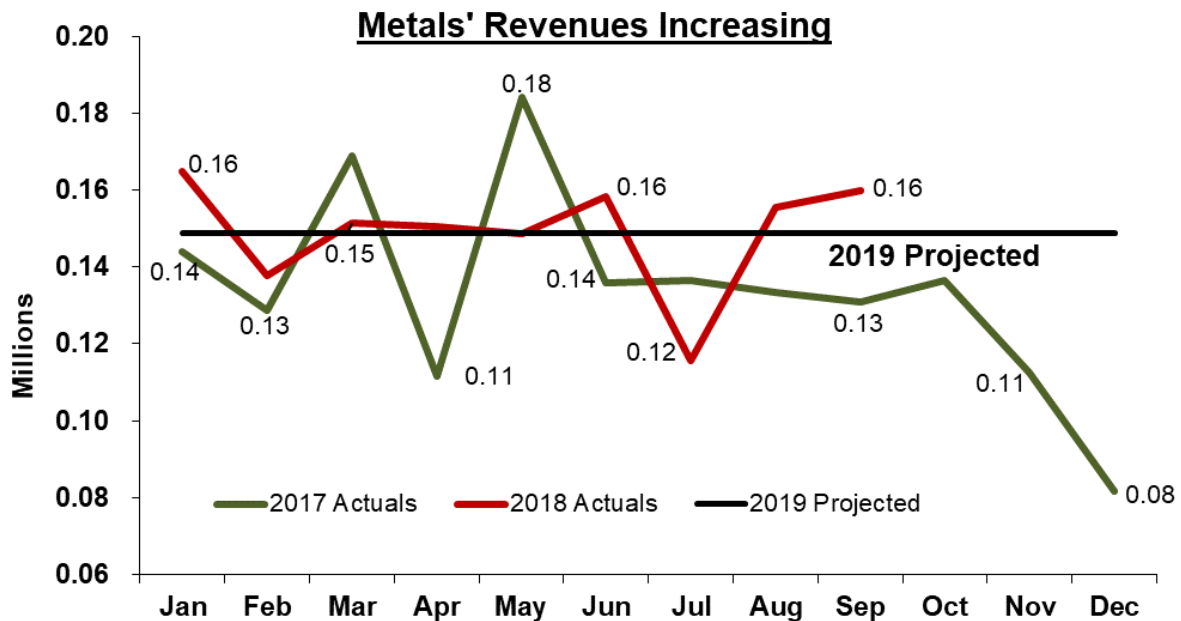
Figure 3: Plastics' Revenues (2017 and 2018 actuals and 2019 projected)



Footnote: PETE plastics typically represent over 60 per cent of the Region's plastics revenues and

increasing PETE revenues since mid-2018 offset declines in revenues being received for HDPE and Tubs and Lids (#3-#7 plastics).

Figure 4: Metals Revenues (2017 and 2018 actuals and 2019 projected)



Footnote: Metals revenues, while they are also subject to volatility are anticipated to remain strong through 2019 and subject to market fundamentals should assist in offsetting costs/risks associated with fibres and plastics.

5.14 The 2019 Budget projection for blue box material revenues totals \$2.8 million, a reduction of 46 per cent compared to 2018 Budget (\$5.2 million).

5.15 The recycled glass processing end market in Ontario is extremely constrained with only one processor in operation. This has created a situation where the processor can set strict demands for contamination levels and the Region’s material recovery facility has difficulty meeting them. In addition, the cost to the Region to sort one tonne of glass is \$90 and the cost for transportation and processing is an additional \$60 per tonne.

5.16 Staff continue to monitor this ongoing situation and work with other municipalities, contractors and other stakeholders, to identify alternative marketing opportunities as well as alternate uses for recycling materials to help minimize negative impacts of the global recycling economy on the Region. Table 3 below shows estimated materials’ revenues for 2018 actuals and 2019 projected.

**Table 3: Declining Projected Recyclable Materials' Revenues
(2018 Budget and 2019 Projected)**

| | 2018 Budget | 2019 Projected |
|---------------|----------------------|-----------------------|
| Fibres | (\$2,508,300) | \$276,200 |
| Plastics | (1,020,600) | (1,289,100) |
| Metals | (1,637,700) | (1,785,900) |
| Totals | (\$5,166,600) | (\$2,798,800) |

5.17 Within the 2019 Business Planning and Budget process, staff will propose retaining a consultant to explore alternate beneficial uses and markets for problematic blue box materials within the Region of Durham at a cost not to exceed \$60,000, with financing to be proposed in the 2019 Solid Waste Management Budget and Business Plan. The potential use by industry, of the Region's glass and other problematic materials in various processes will also be investigated

5.18 Every effort will be made to ensure all commodities collected for diversion will continue to be sent to end markets for reuse and that no materials collected for diversion will be sent to disposal unless there are no end market options for the material.

Organics Management Processing

5.19 Municipalities across Ontario are in the process of implementing plans to meet new standards set by the province to significantly reduce food waste and divert greater quantities of organics from municipal mixed waste streams. Organics processing and related costs are anticipated to change significantly. The costs estimated for 2019 currently reflect status quo source separated organics (SSO) i.e. Regional Green Bin and leaf and yard waste collection programs and compost processing systems. However, as directed by Council in Report #2018-COW-146, staff are currently recommending an interim up to five year solution for organics processing while the long-term organics management strategy is being developed (as discussed in Interim Organics Solution below). This may impact final 2019 and future pricing.

5.20 As directed, Regional staff will prepare a report to Regional Council, which will update waste composition studies, confirm organics quantities and quality, and explore potential partnerships and service delivery models for the development of a Regional long-term organics' management strategy. Regional Council endorsed a preferred solution including the transfer and pre-sort of mixed waste, as well as mixed waste and Green Bin organics processing, utilizing anaerobic digestion technology (Report #2018-COW-146). Future organics program costing will be updated as both the interim organics solution and long-term organics solution are advanced and reported to Regional Council and as the details of the regulations are confirmed by the new provincial government.

Interim Organics Solution

5.21 A current agreement with Miller Waste Systems provides for the receipt, and processing of residential source separated green bin organics collected by the Region. This contract expires on June 30, 2019.

5.22 Request for Pre-Qualification (RFPQ) 1095-2018 for the receipt, transfer and haulage and processing of organics from the Region's source separated green bin collection program for the Regional Municipality of Durham was issued on November 14, 2018 and closed on December 11, 2018.

5.23 Only one response was received from Miller Waste Systems, which was evaluated by a committee consisting of staff from the Works Department. The evaluation was overseen by the Finance Department – Purchasing Division. The evaluation was based upon criteria included within the RFPQ, including:

- Experience and qualifications (40%);
- Odour management (30%);
- Quality management (25%);
- Innovation (5%)
- Client references (pass/fail); and,
- Financial and insurance capability (pass/fail).

5.24 Miller Waste System's submission met all RFPQ evaluation criteria and has existing facilities that can serve Durham's requirements.

5.25 Given that RFPQ 1095-2018 resulted in only one compliant submission, it is recommended that staff be authorized to enter into negotiations for up to a five-year term sole source contract with Miller Waste Systems for this service. Staff recommends that the Commissioner of Finance, in consultation with the Commissioner of Works, the Region's Solicitor and CAO, be authorized to execute the contract to be funded from the 2019 and subsequent annual Waste Management Business Plans and Budgets.

Contract Management

5.26 The Region maintains several curbside collection contracts for the residential and multi-residential collection of Blue Box (weekly), Green Bins (weekly), black bagged garbage (bi-weekly), leaf and yard (seasonal) waste and other special collections available for the household pick-up of diversion materials and/or bulky garbage. Collection costs are impacted annually by both the growth in household stops, growth in collected tonnage and any applicable contractual escalation clauses, which are generally tied to Statistics Canada pricing benchmark movements.

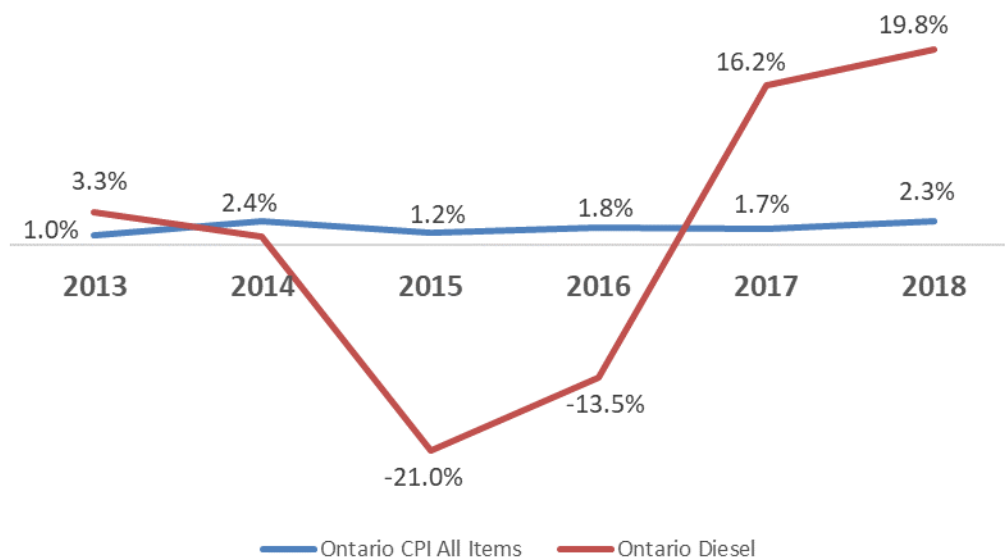
5.27 In 2019, an increase in collection costs is anticipated related both to additional

collection stops due to household growth, increased waste tonnage, new contracts (i.e. green bin organics processing) and contractual adjustments related to inflationary benchmarks.

5.28 Most waste contracts utilize a proportion of the Consumer Price Index (CPI) for general inflationary adjustments which have, as demonstrated through Ontario CPI All-Items, increased an average 1.7 per cent since 2013. This price benchmark is estimated, based on data available to November 2018, to reach an annual average 2.3 per cent increase for 2018.

5.29 Contracts including truck haulage (e.g. collection or other diesel haulage fleets) may also include adjustments related to a proportion of the movement in the Diesel Fuel Benchmark. Figure 5 below demonstrates the relatively consistent general benchmark and significant diesel fuel price volatility over the previous five years.

Figure 5: Movement in Ontario Diesel Fuel and CPI Ontario Benchmarks (2013 to 2017 Actual and Estimated 2018)



Source: Statistics Canada (2018 estimates are based on average year-to-date monthly data available at January 2, 2019).

5.30 Table 4 below demonstrates the historical and estimated 2018/19 growth in collection stops by local municipality, including 2013 to 2017 actuals, 2018 estimated and 2019 projected stops

**Table 4: Region of Durham Collection Stops
(2013 to 2017 Actuals, 2018 Estimated and Preliminary 2019 Projection)**

| | 2013 | 2014 | 2015 | 2016 | 2017 | Estimated 2018 | Projected 2019 |
|--------------|----------------|----------------|----------------|----------------|----------------|-------------------|-------------------|
| Ajax | 33,640 | 34,229 | 34,774 | 35,370 | 36,605 | 36,946 | 37,300 |
| Brock | 4,710 | 4,722 | 4,739 | 4,747 | 4,878 | 4,991 | 5,020 |
| Clarington | 29,678 | 30,218 | 30,751 | 31,443 | 32,545 | 32,871 | 33,210 |
| Oshawa | 46,645 | 47,230 | 47,878 | 48,616 | 50,362 | 51,077 | 51,540 |
| Pickering | 26,194 | 26,406 | 26,885 | 27,272 | 28,086 | 28,783 | 29,060 |
| Scugog | 8,194 | 8,206 | 8,245 | 8,265 | 8,469 | 8,481 | 8,510 |
| Uxbridge | 7,095 | 7,125 | 7,221 | 7,282 | 7,499 | 7,510 | 7,560 |
| Whitby | 37,987 | 38,262 | 38,455 | 38,944 | 40,200 | 40,462 | 40,720 |
| TOTAL | 194,143 | 196,398 | 198,948 | 201,939 | 208,644 | 211,121 | 212,920 |

Solid Waste Transfer and Haulage Services

5.31 Waste collection vehicles bring curbside waste from the Region's eight local municipalities and deliver it to privately owned and operated transfer stations located in the Municipality of Clarington and the Town of Whitby, where waste materials are inspected, loaded into haulage trucks and taken to waste processing facilities and disposal sites.

Figure 6: Durham Currently Contracted Waste Transfer Locations



5.32 The cost for waste inspections, transfer and haulage is driven by weight and the related per tonne service fee, as well as contractual inflationary adjustments, as described above.

5.33 Regional inspection, transfer and haulage costs are included within the Solid Waste Management Operations Budget and are currently estimated to total approximately \$1.9 million projected for 2019, including costs to inspect and haul all residual garbage from the transfer stations to the DYEC facility.

Solid Waste Tonnages

**Table 5: Regional Solid Waste Tonnages ^(2,4)
(2013 to 2017 Actuals, 2018 Estimated and 2019 Projected)**

| | 2013 | 2014 | 2015 | 2016 | 2017 | Estimated 2018 | Projected 2019 |
|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------|-------------------|
| Blue Box | 50,466 | 49,531 | 48,254 | 47,924 | 47,840 | 47,681 | 47,839 |
| Food Waste | 27,487 | 27,007 | 26,796 | 27,611 | 28,319 | 28,021 | 28,161 |
| Yard Waste | 25,268 | 32,123 | 27,554 | 24,728 | 25,084 | 25,732 | 26,117 |
| Reuse Programs | 6,364 | 6,284 | 7,194 | 10,814 | 6,839 | 6,442 | 6,770 |
| Garbage | 109,641 | 110,417 | 110,498 | 107,887 | 115,271 | 114,390 | 115,357 |
| Garbage Blackstock | 0 | 0 | 0 | 0 | 0 | | 1,300 |
| Garbage MRF | 1,288 | 1,675 | 2,323 | 2,421 | 3,359 | 3,833 | 3,000 |
| TOTAL | 220,514 | 227,037 | 222,619 | 221,385 | 226,712 | 226,099 | 228,544 |

Notes:

- 1 The increased yard waste tonnages in 2014 were due to the 2013 ice storm clean-up. Yard waste also includes Christmas tree collections.
- 2 Although included in diversion rate calculations, the table above excludes backyard composting, grass cycling and other credits recognized by RPRA.
- 3 The garbage total includes garbage residue from the Region's Materials Recovery Facility (MRF) related to Blue Box processing as well as 1,300 tonnes of waste anticipated from the Blackstock landfill mining project in 2019.
- 4 Figures may not add due to rounding.

Waste Management Facilities

5.34 Durham owns and operates three Waste Management Facilities (WMFs) in the City of Oshawa, and in the Townships of Scugog and Brock. These facilities allow for public drop-off of recyclables, garbage, construction and demolition waste, hazardous waste, waste electrical and electronic equipment, leaf and yard waste and tires.

5.35 The Oshawa WMF was originally built in the late 1960's and has exceeded its capacity. It was designed to accommodate a few hundred cars per day. Today, weekend use often exceeds 1,700 cars per day, creating traffic congestion and potentially unsafe operating conditions for users and staff. In the past, staff have managed growth by installing a second queuing lane for incoming traffic (although there is only one inbound weigh scale at this time), adding additional outbound weigh scales and modifying traffic flow patterns within the site. Further reconfiguration of the site and its operations is now imperative to improve safety and service, and to reduce congestion. Staff will propose, within the 2019 Business Plan and Budget, infrastructure improvements at the Oshawa Waste Management Facility, including preliminary cost estimates of up to \$100,000 for an additional inbound weigh scale.

5.36 Staff also recommend hiring a consultant to review and provide recommendations

for improved optimization of the Oshawa WMF, with \$60,000 in financing anticipated to be included in the 2019 Solid Waste Management Business Plan and Budget.

- 5.37 Notwithstanding the need to conduct an overall review of the Oshawa WMF, there is an immediate need to address the acceptance of construction related fill materials at all three WMF's. The WMF's have traditionally accepted fill materials such as bricks, stone, concrete, soil and asphalt and used it for fill on site. The facilities no longer require this material and it is not beneficial or efficient to process these non-combustible materials at the DYEC. It is no longer cost effective to provide a disposal service for this material.
- 5.38 In order to discourage the disposal and/or the mixing of loads brought to Regional WMF's, staff recommend that, effective July 1, 2019, that the tipping fee for any load containing fill materials be adjusted to \$250 per tonne from the current level of \$125 per tonne to manage the fill material received on a full cost recovery basis. The Region's Fees and Charges By-law, subject to Council approval will be adjusted accordingly, complimented by a promotion and education campaign to inform residents of this change and encourage the use of alternate local disposal options available for this material.

Rationalization of Waste Collection Services

- 5.39 In June 2018, Council gave direction for staff to initiate a process in 2019 to review the opportunity to improve source separation at Regional Facilities and, where practical, to consolidate all waste management services at the Regional level to ensure the recycling and other waste diversion services provided at these locations are consistent with the residential waste management programs.
- 5.40 Council also directed staff to engage with local municipal staff to investigate potential savings for transitioning waste services at local municipal facilities to the full suite of the Regional waste management program services on a full cost recovery basis and to report back to Regional Council with findings and recommendations.
- 5.41 Staff will identify the potential opportunities for financial and environmental benefits through the examination of potential operational efficiencies for the recycling and marketing of materials.
- 5.42 With Council direction, staff are also prepared to examine potential efficiencies and financial savings associated with the Region providing all waste collection services to all of the local municipalities.

Clarington Municipal Hazardous and Special Waste (MHSW) Facility

- 5.43 The Host Community Agreement with the Municipality of Clarington related to the construction of the DYEC includes a provision that requires the Region to implement a Regional MHSW facility in the Municipality of Clarington. The former police station in Bowmanville was selected as the preferred location and the detailed design phase was completed in 2018.
- 5.44 To optimize the available space in the facility, the design includes office areas for the

Waste Management Call Centre and for Waste Management By-law officers on the upper floor with the lower floor accommodating the MHSW facility.

- 5.45 Construction of grading and drainage improvements to the site commenced in November 2018 ahead of the interior renovation phase to the main building. The tender has been awarded and construction work will be completed for the facility opening in 2019.

Perpetual Care of Landfills

Environmental Studies - Landfill Remediation Programs

- 5.46 Landfills are a major contributor of greenhouse gases into the atmosphere. In a typical landfill, microorganisms degrade organic waste in an oxygen-free environment creating methane. Without any methane capture controls, the gases are vented into the atmosphere. This process is called anaerobic degradation. Gas emissions can continue at a landfill for up to 100 years depending on the organic content of the waste.
- 5.47 The production of methane in landfills can be corrected through Aerobic Landfill Bioreactor technology which involves the controlled injection of air into the landfill to convert existing methane producing waste processes (anaerobic degradation) into non-methane producing waste (aerobic degradation). Research into this technology indicates the potential for waste to be biologically stabilized in four years thereby decreasing the environmental impacts by reducing greenhouse gas emissions and controlling leachate production.
- 5.48 Aerobic Landfill Bioreactor technology can also reduce the risks and management costs associated with landfill leachate. Furthermore, once all the organic material in a landfill is stabilized, the volume of the landfill waste decreases significantly. This volume reduction can make future landfill mining operations more affordable at the Region's landfill sites. It will also allow for the potential reuse of the landfill space for other purposes.
- 5.49 Site-specific evaluations will be considered to investigate potential use of aerobic and anaerobic landfill bioreactor technology at selected Region landfill sites.

Scott Landfill Mining Project

- 5.50 The Scott landfill site is located on the west side of 6th Concession Road, south of Regional Road 13, in the Township of Uxbridge. The site is 2.55 hectares and was in operation from 1974 to 1995. Subject to approvals, a Site Remediation plan will be developed in 2019 in support of an ECA amendment application to commence the mining project. Waste excavation and screening would be scheduled for 2020. Waste will be excavated and screened for transport to the DYEC for processing.
- 5.51 Funding of up to \$25,000 for consulting services to implement a site remediation plan for the Scott landfill located in the Township of Uxbridge will be considered in the proposed 2019 Solid Waste Management Business Plan and Budget. The scope of the work is anticipated to include a preliminary subsurface investigation,

preparation of the site remediation plan, contract tendering support, construction monitoring, and a construction summary report. The plan will be informed by the landfill mining project completed at the Blackstock site and will include an updated project budget estimate for inclusion in the 2020 Solid Waste Management Business Plan and Budget.

Landfill Project Updates

Blackstock Landfill Mining Project

- This project involves the excavation, screening, and transportation of waste from the landfill to the DYEC for processing. Recovered metals are being removed for recycling. The separated soil will be used for regrading and the site will be covered with natural vegetation.
- Excavation of waste began in October of 2018 and is scheduled to be completed within 18 weeks of its commencement. The monitoring wells removed during excavation will be re-installed and a report outlining the mining activity will be included in the annual groundwater and surface water report for the MECP on June 30th, 2019. As per the ECA, the Region may request changes to the annual monitoring program to reflect the site's transition to a greenfield site. Regional staff will also complete a report in 2019 to Regional Council and to the Federation of Canadian Municipalities Green Municipal Fund (GMF) at the conclusion of the pilot. GMF has approved \$350,000 of grant funding for the pilot, subject to pilot completion and verification of costs and the reporting of pilot results, including environmental benefits.

Oshawa Landfill

- In December 2013, CH2M-Hill completed a Post Closure Care Plan for the Oshawa Landfill that includes updated monitoring and maintenance programs. This plan recommended an evolutionary approach to site maintenance activities that starts with low cost bio-remediation options before moving onto more expensive engineering solutions as necessary. Site issues include slope stability along the Oshawa Creek, buffer land acquisition requirements, maintenance of the landfill cover and the addition of more groundwater monitoring stations.
- A remediation project to address the slope stability issue and iron staining was completed in 2015. This project involved re-grading, creating a filter bed for the groundwater, stream diversion and installation of a compost system to stabilize the slope and provide a vegetative medium. To date, the results have been positive. In 2016, Palmer Environmental was retained to conduct a geomorphology study of the surrounding Oshawa Creek and its tributaries. This study identified and prioritized the seep and erosion areas for remediation. Three of the five high priority areas were remediated in 2018, with some of the areas utilizing the Filtrexx compost system that was successfully used in a remediation project in 2015.
- Regional staff have continued discussions with both the City of Oshawa and Scouts Canada to investigate potential land acquisitions along the northern

boundary of the site (Camp Samac), and City of Oshawa lands to the west. Both the Region and Oshawa Councils have agreed to the transfer of the Oshawa property to the west of the site. Discussions continue with Scouts Canada.

- Capital funds totalling \$1.5 million for the implementation of activities related to the issues identified above were approved in prior years' business plans and budgets.
- In 2017 Malroz Engineering completed a post closure landfill analysis report. The report identified design options that would best suit the Oshawa site. The overall concepts will be implemented within 10 years, but public consultations could begin in the next two to three years.

Scugog Landfill

- In 2018 staff worked with Kawartha Conservation Authority and Sir Sandford Fleming college – Ecosystem Management students to develop a long-term use for this former landfill site. Four groups of students prepared business cases which presented ideas on creating improved habitat for wildlife and how to provide nesting habitat for waterfowl that utilize the adjacent sewage lagoons. Both the landfill and Nonquon water pollution control plant participated in the TD Tree Days. Volunteers planted trees and shrubs on these properties. Species were chosen based on the recommendations given by the students. Two test plots were used on the top of the landfill to evaluate the survival rates to see what species are best suited to this unique environment.
- The survival rate of these tree and plant species will be monitored to determine the next phase of the final closure of the Scugog landfill.

Promotion and Education Plan

5.52 Promotion and Education (P&E) have proven to be an effective way of enhancing waste program participation and fostering a culture that embraces the principles of reduce, reuse, recycle and resource recovery. It is recognized that changing waste handling behaviour requires regular messaging, innovative delivery methods and incentives. The expectations for results must be measured over several years.

5.53 P&E is also critical for addressing contamination in both the green bin and blue box programs. As demonstrated in a past program with the green bin within one year the Region was able to reduce plastic contamination from 20 per cent to five per cent.

5.54 As illustrated by the many years of P&E programs focused on the curbside Blue Box recycling, the Region has achieved a 90 per cent participation rate and a 91.4 per cent capture rate. It is accepted that changing attitudes and behaviour requires long-term strategies and efforts to foster greater waste reduction and improve recovery.

5.55 The Region is facing the challenge of providing services to a growing and diversifying population. This creates a situation where the disposal capacity cannot keep up with the Region's waste management needs. Therefore, efforts must be

redirected to reduce the amount of waste generated and increase our diversion from disposal.

5.56 To decrease the organic waste generation rates, the 2019 P&E program will be focused on changing behavior to reduce food waste generated by residents through messaging related to food waste prevention and improve green bin awareness and use by:

- a. Maximizing the value of food waste – managing food waste as a resource;
- b. Debunking the myths or misconceptions around the green bin - odours, animals, inconvenience; and,
- c. Reducing Barriers - Highlight tips to reduce common green bin issues - fruit fly prevention, bag breakage, etc.

5.57 The P&E efforts will also be focused on the need to increase the diversion of organics. It is estimated that the Region's curbside participation rate in the Green Bin program is approximately 60 per cent and the recent audits confirm that the garbage bag contains in excess of 30 per cent organics which could be diverted.

5.58 To achieve these goals the P&E program must incorporate a new messaging plan that will engage residents with consistent information across multiple platforms. The results of these new and refocused efforts will be realized over the coming years and will include new strategies to deliver the messaging.

5.59 Durham Region will be challenged in 2019 to achieve the goals set out by previous Council direction and new provincial legislation.

Multi-Residential Waste Collection and Diversion

5.60 In 2018, the Region provided waste management services to 398 multi-residential properties which encompass 25,064 dwelling units. Multi-residential waste and recycling collection services are provided under three contracts. In 2019, the contract for the multi-residential recycling collection for Ajax, Pickering, Oshawa and Whitby will be tendered.

5.61 The Region has expanded multi-residential programs to include Waste Electrical and Electronic Equipment collection in partnership with Ontario Electronic Stewardship at 72 properties. Used batteries are collected, in partnership with Raw Materials Inc. in 103 properties, and Diabetes Canada began operating its Clothesline© Program in 2017 with service now at 19 properties. Staff continually review properties and are expanding these specialized collection programs on a property by property basis to buildings that have the space and infrastructure required to ensure successful programs.

5.62 Like the curbside Blue Box program, Durham offers a dual stream recycling program to its multi-residential sector. Multi-residential recycling is collected using 120 litre (95-gallon) recycling carts which are specifically labeled to instruct residents to separate their materials into paper fibre materials and containers. Although residents are actively encouraged to sort their materials into the appropriate carts

through ongoing education and promotion initiatives, contamination is an ongoing issue and difficult to control. In 2019, staff will propose a pilot to test the impact of using specially coloured lids on recycling carts to clearly differentiate “Containers” carts from “Fibers” carts as a method to decrease recycling contamination.

6. Legislation

Regulatory Uncertainty

- 6.1 The newly elected Progressive Conservative government campaigned on a platform of reducing electricity prices, eliminating the Ontario cap and trade system, and cutting regulations and tax rates to help support business growth. The protection of the environment continues to be a major issue facing legislators and the new provincial government has announced that consultations and new provincial environmental policies and regulation are forthcoming to address climate change policy and the protection of the environment and human health. However, beyond the cancellation of the Ontario cap and trade system, it remains unclear how the priorities of the new government will impact Durham’s integrated waste management system and the EPR framework.

Carbon Pricing

- 6.2 The *Climate Change Mitigation and Low Carbon Economy Act* was passed in 2016 and established a cap and trade carbon reduction system for Ontario. The Durham York Energy Centre (DYEC) was a regulated carbon emitter under this Act and complied with all regulatory obligations. The Cap and Trade program was cancelled as one of the first actions by the newly elected Ontario government. The cancellation of cap and trade removes a potential financial obligation to purchase carbon allowances in the future. However, the *Cap and Trade Cancellation Act* requires the government to develop a new climate change action plan that could impact the DYEC.

Climate Change

- 6.3 Municipal solid waste management programs are key contributors to achieving a low carbon society, by diverting materials out of the residual solid waste stream for re-use, recycling and composting. Re-using and recycling materials is far less energy and carbon-intensive than the production of comparable materials from virgin sources.
- 6.4 In addition, a key consideration for the long-term organic management plan is to increase the diversion of organics and consider opportunities for energy and resource recovery from organics to further offset waste emissions and/or create environmental offsets.
- 6.5 In terms of climate adaptation and risk management, the solid waste environmental studies program is responsible for the monitoring, inspection, and remediation of Regional landfill sites, including consultations with the public and ensuring environmental protection and regulatory compliance. Climate adaptation-related activities include: inspections; monitoring and reporting; well-water testing; and,

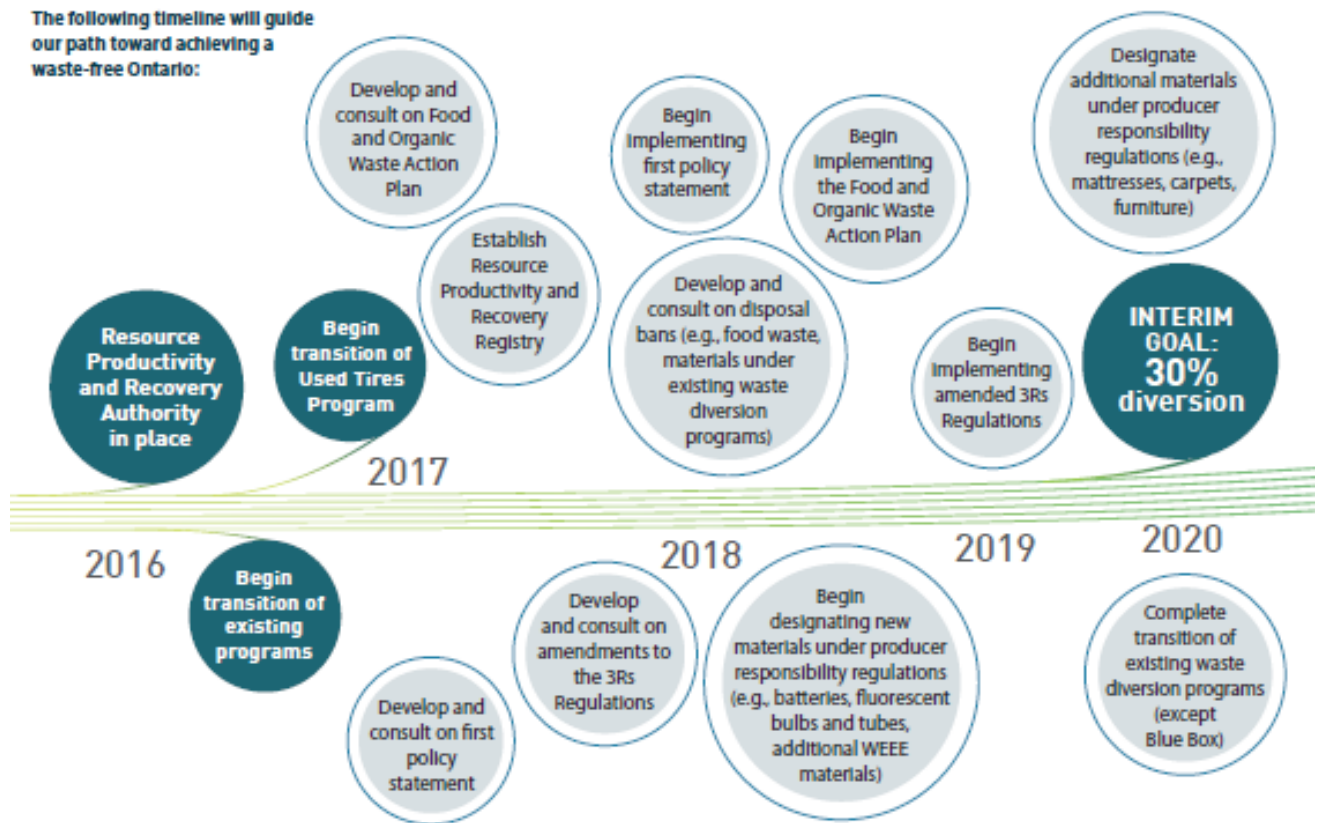
repairs or improvements to protect ground water resources, including preventing rainfall infiltration and preventing leachate springs from forming around landfills.

- 6.6 As noted herein, the Region is also completing investigations of alternative options for the remediation and rehabilitation of landfills, including the Blackstock landfill mining pilot, which is expected to be completed in 2019 and may provide a sustainable option for other Regional landfills to reduce methane emissions and reduce the risk of leachate migration during extreme precipitation events.

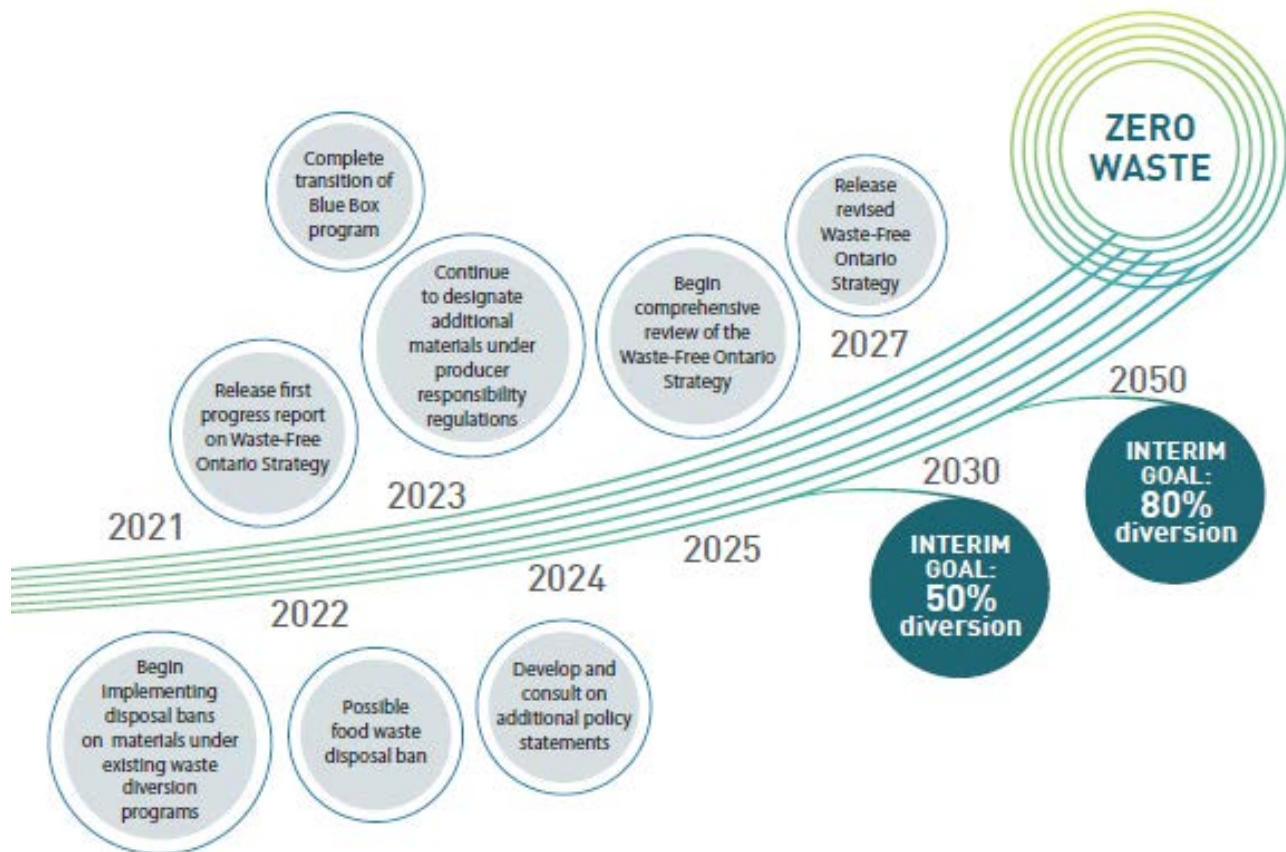
Extended Producer Responsibility Programs

- 6.7 In 2016, the Province of Ontario approved the *Resource Recovery and Circular Economy Act* (RRCEA) establishing the framework for extended producer responsibility (EPR) in Ontario. This is the most significant change to the waste management industry in Ontario since the introduction of the blue box. The first of many transition years commenced in 2018 as regulatory and action plan proposals were developed for public consultation. The transition to full EPR in Ontario is continuing. However, it is not yet known when the new government will implement regulations for full blue box EPR or how they may change the Resource Recovery and Circular Economy Act (RRCEA).
- 6.8 The used tire regulation under the RRCEA was passed in April 2018 and comes into effect on January 1, 2019. The regulation establishes mandatory and enforceable tire collection and management targets for producers. Work is underway to transition to the new regulation under the oversight of the Resource Productivity and Recovery Authority.
- 6.9 The previous Ontario Government issued the following timelines to achieving a waste free Ontario (Source: "Strategy for a Waste Free Ontario" (Feb 2017), pages 11 and 12). It is staff's understanding that the current government is pursuing similar timelines.

Figure 6: Provincial Timelines for Achieving a Waste Free Ontario



Source: “Strategy for a Waste Free Ontario” (February 2017). Government of Ontario.



Source: "Strategy for a Waste Free Ontario" (February 2017). Government of Ontario.

6.10 In the spring of 2018, the Minister of Environment, Conservation and Parks issued wind-up letters for the Waste Electronics and Electrical Equipment (WEEE) program and the Municipal Hazardous and Special Waste (MHSW) program.

6.11 Current collection programs for these materials are to be wound up by June 30, 2020 and December 31, 2020 respectively and replaced by new regulations that take effect immediately following the wind-up date. Consultations on the wind-up plans are expected in 2019 and draft regulations to govern the new full EPR programs should be posted for public comment as well. At this time there is no indication that the process for these programs will be changed under the leadership of the new Ministry of Environment, Conservation and Parks.

Blue Box Transition

6.12 In 2017, the Minister of Environment, Conservation and Parks issued direction to Stewardship Ontario and the RRPA to develop an amended Blue Box Program Plan as an interim step to full EPR for the blue box by 2023. The interim step was to provide for a gradual transition of responsibility for blue box collection and processing to producers from municipalities. Due to numerous concerns with the plan, including extending for several years beyond the 2023 final transition date, the draft amended Blue Box Program Plan was not submitted for approval and implementation.

6.13 Future transition discussions were made more difficult with the significant changes in the recycling markets in 2018. The most significant change was China implementing its National Sword Policy in January 2018 which banned the import of most plastics and placed strict contamination limits on imports of paper for recycling. Since China was the recycler for most plastic material globally, this action has caused significant disruption to the international recycling market. Impacts on Durham are mitigated by its two-stream curbside recycling system which keeps the materials clean and relatively free of contamination, and recent investments to improve the performance of the Region's MRF. Despite the cleaner recycling collection program and the improvements to its MRF, Durham is still receiving significantly less revenue for its recycling commodities and this situation is expected to continue into the near future. Staff is investigating and will report further on additional operational and technical improvements to improve Durham's recycling material quality.

Anaerobic Digestion – Long-term Organics Management Strategy

6.14 Ontario's Food and Organic Waste Framework (Framework) under the Climate Change Action Plan was finalized in April 2018. Food and organic waste diversion are identified globally as a key area for improvement to mitigate climate change. Enhanced organics diversion initiatives will move Ontario toward a circular economy and help to minimize greenhouse gas emissions from its waste management activities. The Framework identifies a 70 per cent organics diversion target for larger municipalities like Durham to be met by 2023. Meeting this target will require Durham to implement enhanced diversion techniques to remove organics from the disposal stream, including addressing multi-residential organic waste.

6.15 However, since the Framework was developed under the requirements of the *Climate Change Mitigation and Low-Carbon Economy Act* and is part of the previous government's Climate Change Action Plan, the future implementation of the Framework is unknown. In the absence of clear provincial direction, Durham Region is continuing plans to meet the 2023 diversion targets. Meeting the targets requires extended implementation timeframes for infrastructure development. Regardless, meeting the 2023 diversion targets for organics is also critical for Durham to manage its DYEC processing capacity mentioned earlier in this report and is consistent with the Region's current 70 per cent diversion target set in 2010.

DYEC Ambient Air Monitoring

6.16 In 2018, the MECP passed new air standards for sulphur dioxide (SO₂). Along with new stack emission standards, the ambient air quality criteria were also lowered significantly. The change corresponds to the changes made to the SO₂ Canadian Ambient Air Quality Standards at the federal level and are intended to apply to large geographic areas that form a single air shed. While the DYEC stack tests and continuous emissions monitoring are consistently below the regulatory limits, it is very likely that the ambient air monitoring stations operated by the Region will show exceedances for SO₂ due to various activities in the surrounding area when the new standards take effect in 2020 (Federal) and 2023 (Ontario).

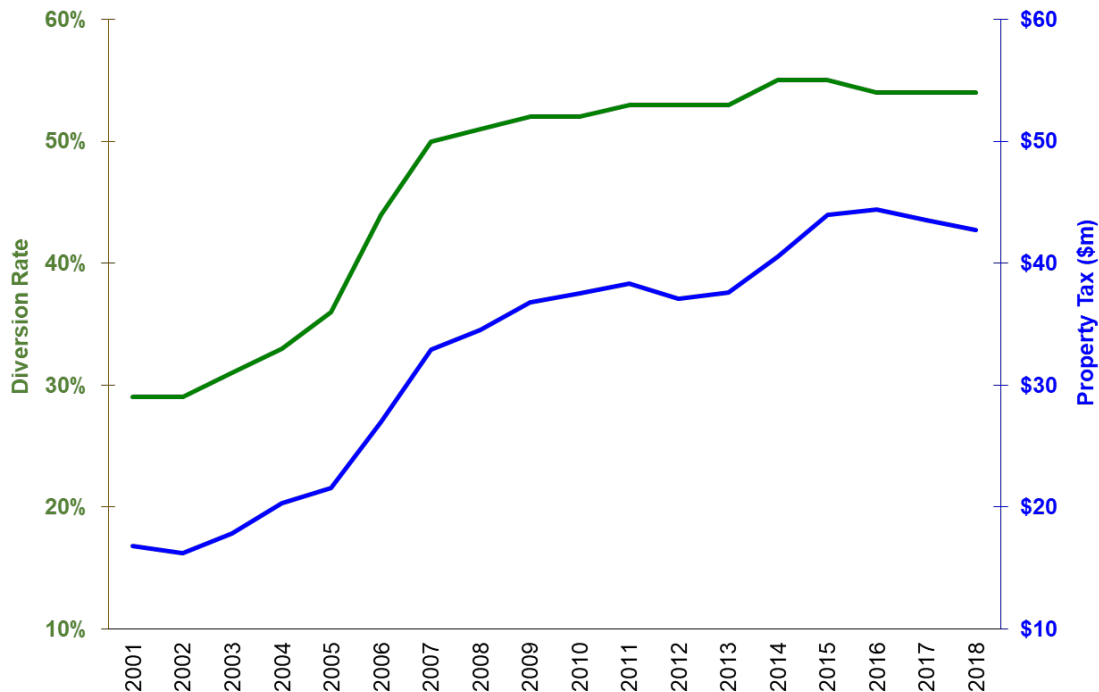
6.17 In addition to the new standards for SO₂, lower standards have also been proposed

for nitrogen dioxide (NO₂). These standards have not yet been finalized but again will likely result in exceedances at the ambient air monitoring stations operated by the Region near the DYEC. While not directly attributable to the DYEC, exceedances at the ambient air monitoring stations require staff and consultant time to investigate and report. This situation will continue as ambient air quality standards are lowered.

7. Financial and Risk Implications

- 7.1 Since 2001, when the Region's diversion rate was below 30 per cent and the Regional solid waste management property tax expenditure was less than \$20 million, there has been a strong correlation between the solid waste management property tax expenditure and achievement of higher diversion rates.
- 7.2 The most significant increase in costs occurred when collection responsibilities were uploaded from the six local area municipalities and curbside diversion collection programs were significantly expanded to increase diversion, including most notably the addition of the Region-wide curbside Green Bin program and expansions to the Blue Box program to accept greater material volumes and increase the types of materials accepted.
- 7.3 By 2007, the 50 per cent diversion had been achieved, although the Region's solid waste management property tax expenditures had also almost doubled to provide significant new diversion services and meet the demands related to growth.

Figure 7: Solid Waste Diversion and Regional Solid Waste Management Property Tax Expenditures (2001 to 2018)



7.4 The Region's diversion rate has flatlined in the mid 50 per cent range due in part to industry and market changes beyond the Region's control. Achievement of Regional Council's 70 per cent diversion target is deemed unlikely to occur without improvements to Green Bin participation rates, lowered multi-residential contamination rates, and the extraction of organics from mixed waste streams in both the residential and multi-residential sector. The latter is anticipated to add significant capital and/or operating costs, which are dependent on organics solution implementation and future service model approvals and/or potential partnerships.

Solid Waste Management Finance

7.5 In 2018, the Solid Waste Management Budget represented approximately 5.9 per cent of the Region's \$1.195 billion gross budget. Solid waste management costs are funded primarily through property taxes (\$43 million in 2018, representing just over 60 per cent of the Solid Waste Management gross budget of \$70 million).

7.6 Property tax funded solid waste management services were delivered at a 2018 Regional average property tax cost of approximately \$177 per year based on an average single detached home in Durham Region (assumes a current value assessment of \$424,900 and an annual Regional tax bill of \$2,673).

7.7 Other funding sources included within annual Solid Waste Management Budgets include:

- a. Service and user fees, including waste management facility fees, curbside garbage bag tag fees and local municipal waste service recoveries (approximately \$3.5 million);
- b. Industry Steward subsidies which currently fund municipalities based upon approximately 50 per cent of the net Blue Box program costs and 100 per cent of the used tire, waste electrical and electronics equipment (WEEE), and municipal hazardous and special wastes (MHSW) diversion collection programs (approximately \$5.9 million);
- c. Material revenues from marketable recycling materials collected, including plastics, metals and limited fibres (approximately \$2.8 million);
- d. Senior government grant funding, most recently including funding for the 2018 study of anaerobic digestion (\$175,000) and in 2019 anticipated to include funding for the Blackstock landfill mining pilot project (\$350,000); and,
- e. DYEC revenues and recoveries which include federal gas tax financing of annual capital debt service costs, recoveries from York Region for York's share of net operating costs, and Durham's share of power revenues and metals recovery revenues (approximately \$11.5 million).

The Preliminary 10-year Solid Waste Management Capital Program

- 7.8 The preliminary 10-year solid waste management major capital program is provided in Table 6 below and is subject to further refinements based on 2019 Business Planning, finalization of the long-term organics management solution, business case results and future Regional Council approvals/direction. In 2019, proposed budget and financing will continue to be reviewed as part of the annual Business Planning and Budget process.
- 7.9 The preliminary forecast conservatively provides for the Region to undertake full implementation of a capital project related to transfer, mixed waste pre-sort and anaerobic digestion implementation. However, a private sector service delivery contract option remains under consideration and may reduce or eliminate the need for capital investment.

**Table 6:
Preliminary Solid Waste Management Major Capital Forecast (\$ Millions) ⁽¹⁾**

| Capital Expenditures | Projected 2019 | 2020 | 2021 | 2022 | 2023 | 2024-2028 | Total 2019-2028 |
|-----------------------------------|-------------------|--------------|-------------|------------|------------|------------|--------------------|
| 1. Landfill: | | | | | | | |
| Remediation & Rehabilitation | 0.3 | 2.9 | 1.7 | 0.4 | 1.2 | 4.4 | 10.9 |
| 2. Clarington MHSW Facility | 0.2 | | | | | | 0.2 |
| 3. Organics Management | | 165.3 | | | | | 165.3 |
| 4. DYEC EA & Study ⁽¹⁾ | 0.1 | 10.1 | 0.9 | | | | 11.1 |
| 5. Waste Management Facilities | | 2.6 | 11.7 | | 0.5 | 4.3 | 19.1 |
| 6. Material Recovery Facility | 1.1 | 0.3 | 0.3 | 0.5 | | | 2.2 |
| 7. Waste Long-term Strategy | 0.2 | | 0.3 | | | | 0.5 |
| Total Capital | 1.9 | 181.2 | 14.9 | 0.9 | 1.7 | 8.7 | 209.3 |
| Financing ⁽²⁾ | Projected 2019 | 2020 | 2021 | 2022 | 2023 | 2024-2028 | Total 2019-2028 |
| 1. Property Taxes | 1.9 | 3.3 | 3.2 | 0.9 | 1.7 | 8.7 | 19.7 |
| 2. Solid Waste Reserve | | 12.6 | 6.7 | | | | 19.3 |
| 3. Other ⁽³⁾ | | | 5.0 | | | | 5.0 |
| 4. Debentures ⁽⁴⁾ | | 165.3 | | | | | 165.3 |
| Total Financing | 1.9 | 181.2 | 14.9 | 0.9 | 1.7 | 8.7 | 209.3 |

Notes:

1. York Region's share of costs to be determined
2. Preliminary financing provided. Actual financing to be approved by Regional Council on a project specific basis.
3. Contribution of \$5.0 million for the Seaton Waste Management Facility available as part of the Seaton Front-ending Agreement.
4. Conservative estimate of debentures for the Long-term Organics Management Plan. The preliminary capital forecast provides for \$165.3 million of Regionally owned and financed organics management facilities, including transfer and mixed waste pre-sort. Regional Council will in early 2019 consider staff recommendations regarding the preferred organics management solution which could be a capital project or a long-term service contract.

7.10 The primary drivers of the capital forecast are: the need for expanded processing capacity and a long-term waste management plan and growth in waste tonnages. As previously noted, the facilities identified and approved by Regional Council for organics management, if fully owned and financed by the Region, could account for almost 80 per cent (\$165.3 million) of the estimated \$209.3 million capital forecast.

7.11 The forecast includes \$10.9 million of investment in the Region's closed landfill sites to ensure environmental compliance and where possible and beneficial to rehabilitate sites and mitigate associated long-term liabilities and site monitoring and environmental management requirements.

7.12 At DYEC, an estimated \$11.1 million of capital is included within the forecast, subject to future approvals, for an EA process which could take up to 10 years to complete. An amount of \$60,000 will be recommended for approval in 2019 to develop an EA terms of reference. The remaining funds will be subject to future Regional Council

approvals. This amount would also be dependent upon York Region's participation.

7.13 Other significant expenditures relate to the Region's waste management facilities, including:

- a. The completion of the Clarington MHSW facility as part of the DYEC Host Community Agreement with the Municipality of Clarington (a projected additional \$0.2 million in 2019 for a total project cost of \$1.4 million);
- b. The replacement of old and deficient processing equipment at the 12-year old MRF to: mitigate failures; address voluminous light-weight plastics and broken glass; and, ensure marketable recyclables are not disposed as garbage residue (currently estimated at approximately \$2.2 million);
- c. Ensuring new and/or modified waste management facilities remain safe despite increasing pedestrian and vehicular traffic, maximize diversion opportunities and discourage disposal of re-useable, recyclable and unacceptable materials (approximately \$10.6 million); and,
- d. Implementing plans for the new Seaton community in the City of Pickering, which include a new estimated \$8.5 million waste management/transfer facility.

Asset Management Planning

7.14 The Region owns seven waste management facilities with an estimated replacement cost at year-end 2017 totaling \$243.1 million. These facilities were given overall condition ratings of "fair" to "very good," at year-end 2017 (Report #2018-COW-171) based on the most recent condition assessments of building structures.

7.15 However, processing equipment and rolling stock requirements are increasing due to normal replacement and maintenance requirements and have a shorter life-cycle compared to building structures. For example, the MRF processing equipment is approaching its life-cycle of 15 years and deficiencies have been identified. Staff are currently investigating options for reinvestment and potential returns, while considering the potential timing of anticipated transition of the Blue Box program to EPR. While some investments may provide returns in terms of efficiency, costs or available materials revenues, some investments may be required to continue processing recyclables until the transition finally occurs. Staff will address these requirements through 2019 Business Plan and Budget deliberations.

7.16 In addition to the ongoing MRF analysis, other capital replacement needs are identified for 2019 Budget review and include tangible capital asset requirements for various facilities (e.g. heavy equipment, asphalt and scale house repairs and replacements and roll-off bin replacements).

Looking Forward: Long-term Financial Planning

7.17 The changing regulatory context for waste management programs as outlined in this report results in uncertainty and challenges in projecting both 10-year capital and five-year operations requirements.

7.18 As discussed above, financial risks result from:

- a. Growth rates and related fluctuations in tonnages managed, collection stop counts, contractual escalation based on macro-economic indicators and Statistics Canada Benchmarks;
- b. Shifts in waste tonnages, volume and composition related to changing Regional programs and the private sectors response to provincial enhanced producer responsibility (EPR) programs (e.g. continued light weighting of packaging, regulated waste reductions and impacts from private sector retail-return programs etc.);
- c. Revenues from user fees at WMF's, blue box commodity pricing and revenues from EPR programs for tires, MHSW and WEEE programs.
- d. Potential for increased municipal capital, operating and contractual costs to comply with new recycling and organics frameworks; and,
- e. DYEC emission compliance cost risk related to: potential for changing emission standards and facility biomass changes over time; and
- f. Ongoing market fluctuations for diverted products, including changing customer standards, and marketing and sales challenges.

8. Conclusion

8.1 In addition to policy, program and technical considerations that staff use in analyzing and determining the best alternatives for implementation of the long-term waste management strategy 2021-2040, staff will also include long-term financial planning. Ongoing assessments of cost, financing, risk and affordability allow for development of long-term financial and asset management strategies supported through business case analysis which will ensure the appropriate balance of property tax versus user fee and other financing. Maintaining an ability to adapt if necessary to unforeseen changes related to provincial policy and framework will ensure continued long-term financial sustainability and the prudent management and mitigation of financial risks and uncertainties as the Region moves forward to implement a successful long-term solid waste management strategy for 2021 - 2040.

Respectfully submitted,

Original Signed By

Nancy Taylor, BBA, CPA, CA
Commissioner of Finance

Original Signed By

Susan Siopis, P.Eng.
Commissioner of Works

Recommended for Presentation to Committee

Original Signed By

Elaine C. Baxter-Trahair
Chief Administrative Officer