

EXECUTIVE SUMMARY

RECOMMENDED SOLID WASTE MANAGEMENT STRATEGY 2023-2030



April 2021

Executive Summary

The Region of Halton (Region) provides waste management programs for its customers within four local municipalities: City of Burlington and Towns of Halton Hills, Milton and Oakville. The current solid waste management system continues to perform at a high level in terms of waste diversion with an overall diversion rate of 57% in 2019. In 2017, the Region began developing a Solid Waste Management Strategy (SWMS or Strategy) to enhance the current waste management system for the next 30 years.

The Strategy was separated into two parts, based on timing to implement the recommendations:

- Short Term SWMS (1-3 years)
- Medium (4-10 years) - Long Term (11+ years) SWMS

The **Short Term SWMS** was approved by Regional Council in June 2018 and included a Vision Statement and eight guiding principles to focus the direction and action required to support the Vision. Ten options were recommended for implementation between 2018 and 2021 and included developing strategies to reduce food waste, increasing textile reuse and recycling opportunities, staying current on ways to inform and educate the public, and increasing diversion from apartments and condominium buildings.

This **Medium-Long Term SWMS** outlines recommended options to be implemented in the Medium-Long term planning period (starting in 2022). The implementation of these options will directly benefit the Region by reducing the amount of garbage produced and extending the life of a major asset – the landfill located at the Halton Waste Management Site (HWMS). There are 16 recommendations in the following five areas which are further described below along with the potential impacts to diversion, costs and greenhouse gas emission reductions:

- Single-Family Households
- Multi-Residential Households
- Businesses
- The Community
- Region's Solid Waste System

While the Region's landfill is anticipated to last until 2044-2048 at current disposal rates, there are opportunities to extract valuable resources and energy from the residual waste stream and further extend the life of the landfill site.



Medium-Long Term Options

The Halton Region Solid Waste Management Strategy recommended numerous medium and long term options that strive to enhance and improve the Region's waste management system.

These options consider single-family and multi-residential households, businesses, and the community as a whole.

Recommendations for Multi-Residential Households

Impact on Diversion Rate (%)	One-Time Cost	Ongoing Annual Cost	Capital Costs	GHG Reductions (tonnes/year) ²
0.75% - 1.5%	\$ 62,000	\$ 30,000	0	870



Track Waste Containers

Use radio-frequency ID tags to enhance collection and reporting of waste diversion.



Waste Management Improvements

Improve waste diversion performance through increased and targeted promotion and education.



"Smart City" Technology

Conduct a feasibility study for the use of underground waste collection and weight tracking per multi-residential unit.

Recommendations for Single-Family Households

Impact on Diversion Rate (%)	One-Time Cost	Ongoing Annual Cost	Capital Costs	GHG Reductions (tonnes/year) ²
2%-4%	\$ 250,000	\$ 100,000	0	2,940



Evaluate Garbage Bag Limits

Decrease garbage bag limits in two phases (2 bags, 1 bag).



Automated Collection

Conduct a feasibility study to move to a cart-based collection program.



Waste Management Ambassadors

Conduct targeted outreach to households to improve compliance with the Region's waste management.

Recommendation for Businesses

Impact on Diversion Rate (%)	One-Time Cost	Ongoing Annual Cost	Capital Costs	GHG Reductions (tonnes/year) ²
0.25% - 0.5%	\$30,000	\$15,000	0	290



IC&I Waste Diversion Promotion and Education

Provide promotion and education to small and medium sized businesses through a waste diversion campaign and a dedicated webpage.

Recommendations for the Community

Impact on Diversion Rate (%)	One-Time Cost	Ongoing Annual Cost	Capital Costs	GHG Reductions (tonnes/year) ²
2.5% - 5%	\$ 150,000	\$ 3,320,000	\$ 39,100,000	3,220

Support the Circular Economy

Provide support for local innovators and/or organizations that design for the environment and/or reduce, reuse and reclaim waste.

Support the Sharing Economy

Promote the sharing economy (e.g., repair cafes) through supporting, partnering and/or partially funding organizations involved in this area.

Enhanced Contractor Collection Services

Conduct compliance 'blitzes' to increase proper residential set outs.

Expand Existing Collection Services

Expand collection program to align with future Provincially-designated materials.

Additional Public Waste Drop-Off Depots

Provide two additional permanent locations for residents to drop-off excess curbside collected and non-curbside waste. Additional studies will be completed before a site(s) is selected.

Promotion and Education for Diversion

Continue to find new ways to promote and educate waste management programs (e.g., pop-up events, market research, social media).



Recommendations for the Region's Solid Waste System

Impact on Diversion Rate (%)	One-Time Cost	Ongoing Annual Cost	Capital Costs	GHG Reductions (tonnes/year) ²
0%	\$ -	\$ -	\$ 500,000	5,700

Optimize Utilization of Landfill Gas

Modify/enhance the utilization of landfill gas at the HWMS. Conduct a cost benefit analysis on how best to use landfill gas.

Alternatives to Petroleum-Based Fuels for Waste Management Vehicles

Use alternative fuels for waste collection vehicles and onsite equipment.

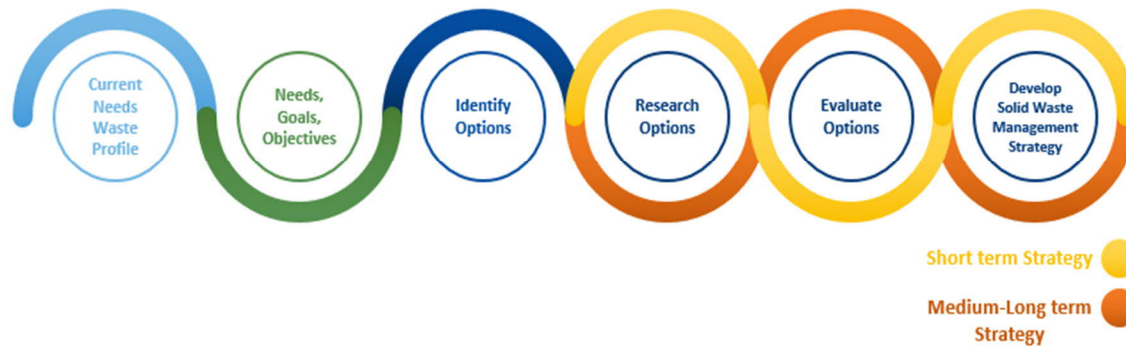
Extend Landfill Capacity

Review ways to optimize landfill operations, use technology to reduce the volume of waste requiring landfill and revisit the need to expand the HWMS landfill.



The Medium-Long Term SWMS recommends improvements and additions to the Region’s solid waste management system to meet future needs based on community growth projections, changes in waste materials, regional initiatives and provincial/federal legislation. A comprehensive approach was used to develop the SWMS and recommended options as shown in the figure below.

The recommended options align with the SWMS **Vision Statement, Objectives** and **Key Performance Indicators**.



Vision Statement
Building on the strengths of our Region, provide a sustainable, equitable and responsible waste management service that efficiently serves our community, protects our environment and is responsive to change.

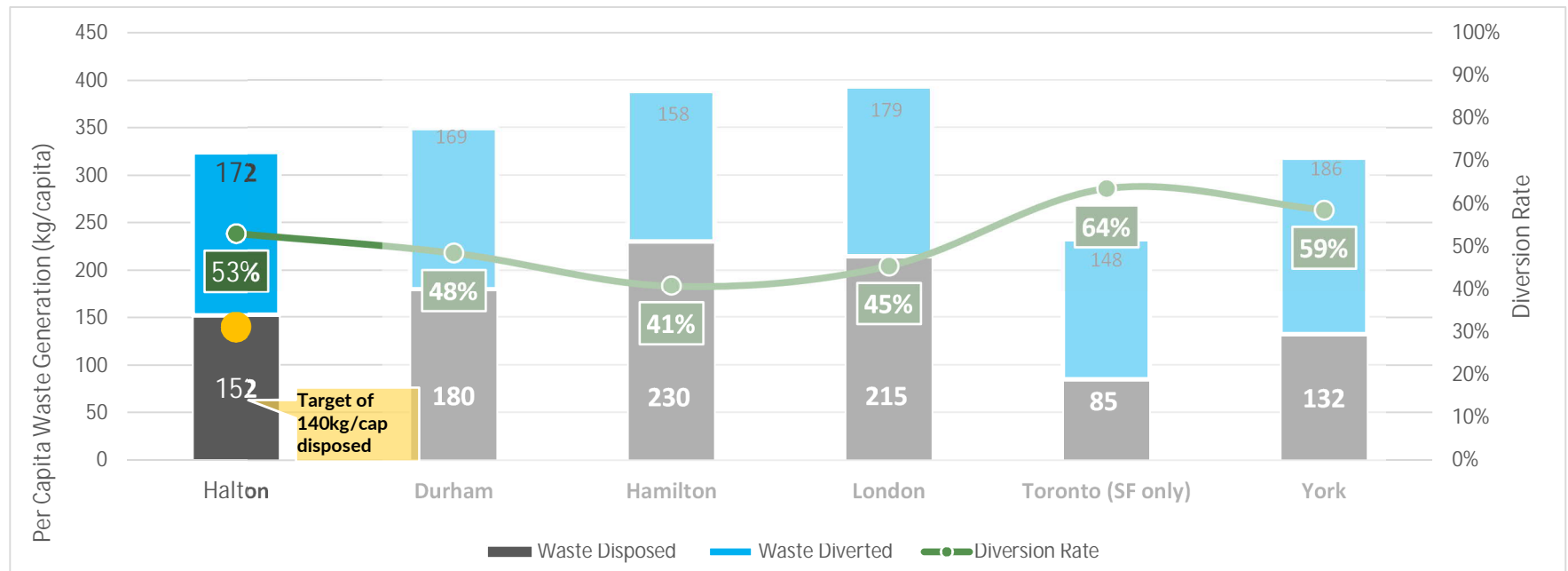
OBJECTIVES

- Enhancing diversion programs and developing innovative new waste solutions;
- Ensure the waste management system is accessible and equal for all users, with a focus on customer service, convenience, and efficiency;
- Financially and environmentally sustainable, with flexibility and resilience to changes in technology, policy and legislation, waste streams, and the community; and
- Working in partnerships and supporting public engagement, outreach, and collaboration.

KEY PERFORMANCE INDICATORS

- Per capita statistics, including waste generated, diverted, and disposed, in kg/capita and by housing type (single family, multi-residential etc.);
- Percentage of waste diverted by material streams;
- Greenhouse gas emissions in kilograms of CO₂ equivalents (kg CO₂e);
- Cost per tonne and cost per household for waste management services;
- Landfill lifespan; and
- Customer wait times at HWMS.

The Region participates in and submits data to the Municipal Benchmarking Network Canada (MBNC) for the waste management service area. In 2019, the Region generated almost 325 kg/capita with 152 kg/capita being disposed in landfill achieving a diversion rate of 53%¹. When compared to other Greater Toronto Area municipalities that also participate in MBNC, the Region is among the top performers in terms of waste diversion but also has a very high waste generation rate. The Region is striving to reduce the amount of garbage produced and through the Strategic Business Plan has set a target to achieve a waste disposal rate of 140 kg/capita. The SWMS proposes several new initiatives to reduce and divert more waste from landfill and extend the life of the Region’s landfill beyond 2044-2048.



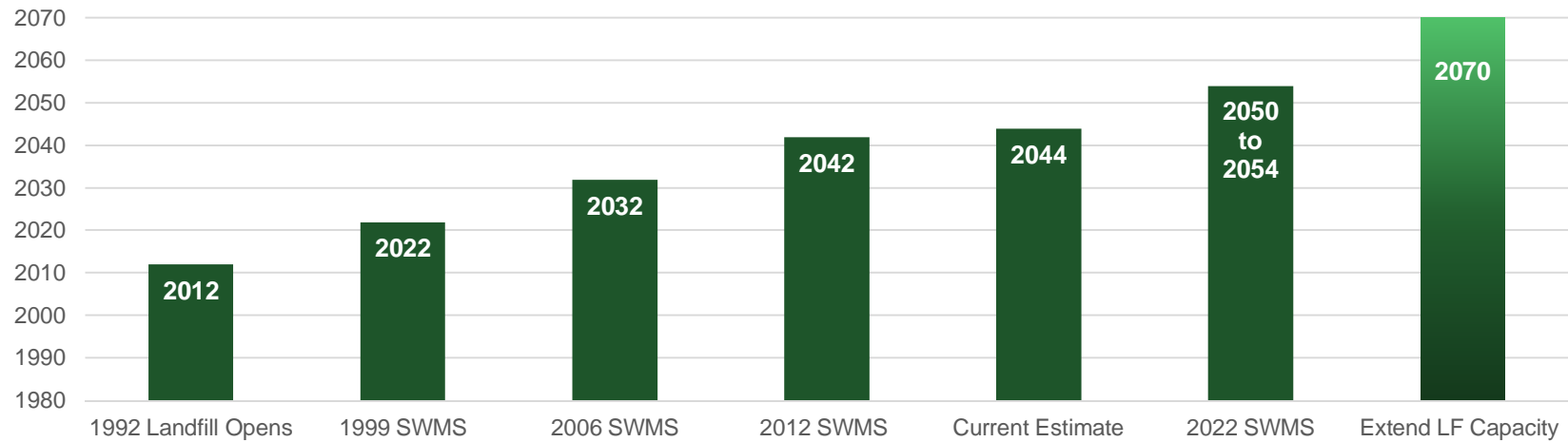
¹ It is noted that the methodology used by MBNC to estimate diversion rates differs from how the Region estimates and reports diversion rate in that the Region includes the total waste collected through diversion programs and MBNC removes the residue portion of the waste collected from diversion programs. In 2019, the Region estimated the diversion rate to be 57% and the MBNC calculation yielded a diversion rate of 53%.

A number of options were considered and evaluated in the development of the Medium-Long Term SWMS. The types of options considered included programs to reduce waste generation and increase participation in reuse programs and services, techniques to capture more waste for diversion, waste technologies to process waste, alternative disposal options, and long-term management plans for the HWMS. An objectives-based evaluation approach, developed as part of the Short Term SWMS, was used to conduct a triple bottom line evaluation (Environmental, Social, Financial) for each option. Options were categorized into Waste Diversion and Policy, Collection, Drop-off and Transfer, Processing and Residual Processing and Disposal.

The ultimate goal of the SWMS is to extend the life of the Region’s landfill by reducing the amount of waste requiring disposal. The cumulative diversion potential that the Region could achieve through implementation of the Medium-Long Term options is estimated to range from 2% in 2024 to 10% in 2033 until the end of the planning period which brings the Region to a 60% diversion rate in 2025, 65% in 2030 and 68% in 2035. It is noted that there are many different factors that affect the success of waste management programs, initiatives and facilities and would therefore impact the ability to achieve the full diversion potential of the SWMS options. It is also noted that given the Region’s current high diversion rate, achieving further increases in diversion tends to be more costly and the results may be minor.

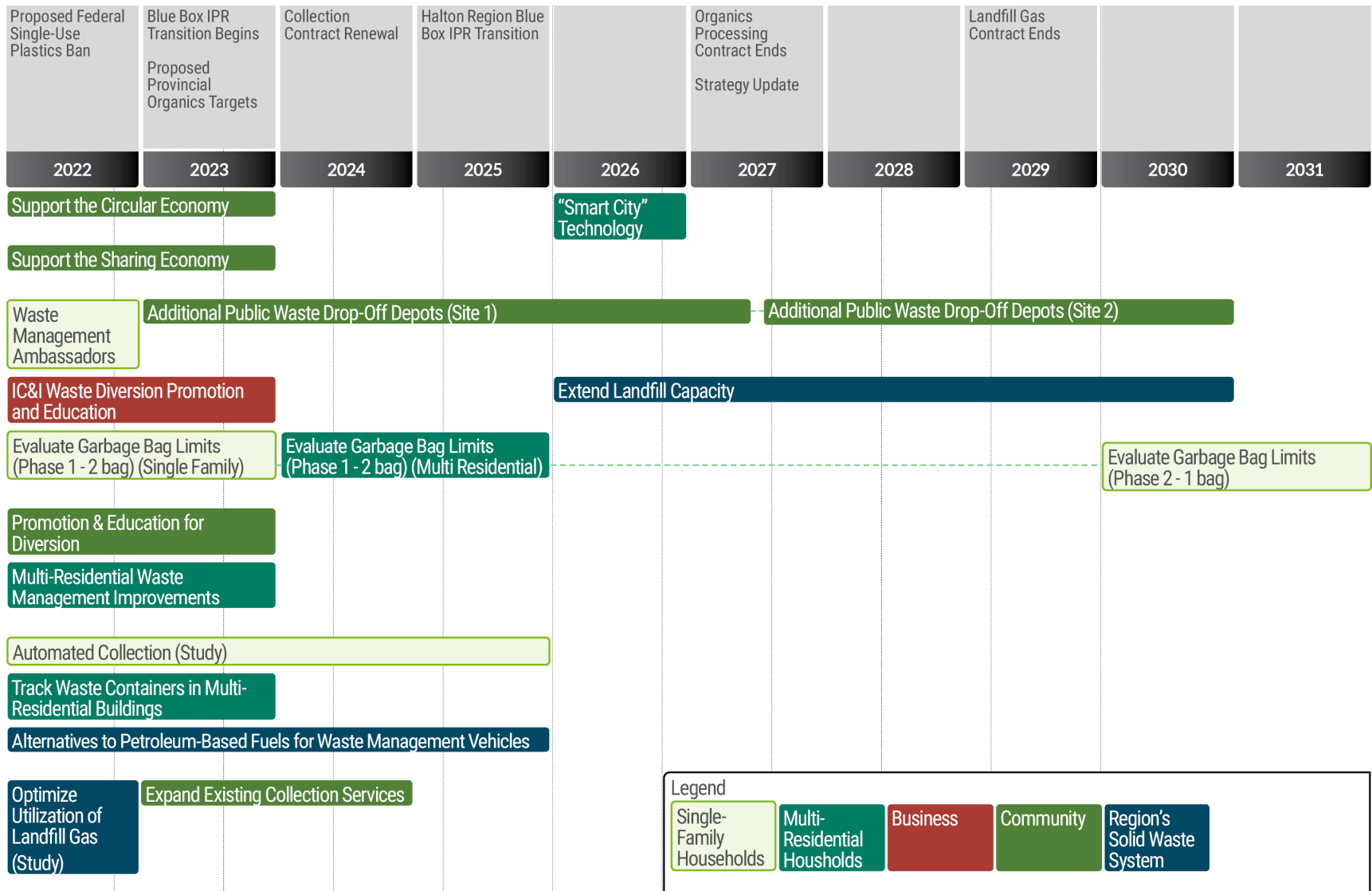
Assuming the diversion potential above is achieved and held until the end of the planning period, it is estimated that this could extend the life of the HWMS landfill by an additional 10 years or until approximately 2054-2056, if the Region is able to implement all of the initiatives and maximize full capture rate of the targeted materials. A realistic target based on partial implementation and moderate capture rates is 2050. The impact of past Strategies and the recommended options in this SWMS on the extension of landfill life is illustrated below. In addition, one of the options looks to study more ways to extend landfill capacity and if successful, could potentially increase the landfill life beyond 2070.





The recommended Strategy sets a direction for the Region to follow over the next 30 years. The **Short Term SWMS**, approved in 2018, included options to be implemented in the first three years of the SWMS (2018-2021). The draft **Medium-Long Term SWMS** recommends 16 options to carry forward. The proposed timelines to plan and implement each medium and long-term option plus the key milestones are provided in the figure below. The options are colour-coded based on who/what is affected (i.e., single-family households, multi-residential households, businesses, the community and the Region’s solid waste system).





The Medium-Long Term SWMS includes a financial analysis of the Region's current costs and cost impacts of the recommended options. The cost impact of the options was compared to the 2020 Operating Budget for the Region's Solid Waste Management division. Of the 16 recommended options, 10 had new costs associated with them that have been incorporated into the financial forecast to 2040. The 2020 Operating Budget (\$52.2M) has been used as the baseline for all future years of analysis. The 2022-2040 operating budget forecast includes the incremental one-time and operating costs as well as necessary reserve contributions to fund the associated capital costs for the recommended options. The incremental operating budget impacts represent an average cost increase of approximately \$4.6 million over the forecast period for the recommended options. The incremental increases result in an estimated average annual cost increase of \$20.56 per household.

It is noted that feasibility studies will be undertaken for a number of options, which will review the most innovative and proven technologies and/or approaches at that time and conduct more detailed analysis on the costs, risks and other considerations associated with the option. The transition of the blue box program to an Individual Producer Responsibility (IPR) operated system is expected to have a significant impact on the Region's waste management system. The IPR transition in Ontario is scheduled to begin in 2023, with Halton currently scheduled to transition in 2025. Areas of impact will include recycling collections, transfer, haulage, and processing. In the transition to IPR, there will be significant impacts to the operational requirements of the Region. This will result in changes to costs and revenues of the Region's waste management systems. The Region should continue to analyze the potential cost impact of a transition to IPR and incorporate that into the financial analysis of the various options.

Waste regulations, technology, trends and composition will change over time and given all the changes happening in the industry, it is recommended to conduct a SWMS review every five years. As such, the next update is proposed to be initiated in 2025.

