DILLON CONSULTING

The City of Owen Sound

Waste Management Strategy

April 2023

April 19, 2023

City of Owen Sound
808 2nd Avenue East
Owen Sound, Ontario
N4K 2H4

Attention: Chris Webb,
Manager of Engineering Services

Waste Management Strategy

Dillon Consulting Limited is pleased to provide the City of Owen Sound (City) with a Waste Management Strategy (Strategy).

Through this strategy, we have collected information on best practices and existing programs and stakeholder consultation to provide a foundation for developing options that will enhance and improve the City's current waste management systems. This waste management strategy considers the City's current and future needs based on government legislation and policies.

Thank you for this opportunity to assist you with this important assignment. We look forward to discussing the report and next steps of the strategy.

Sincerely,

DILLON CONSULTING LIMITED

Alida Kusch

Alida Kusch
Project Manager, Associate
Our file: 22-4351

DILLON CONSULTING

51 Breithaupt Street
Suite 200
Kitchener, Ontario
Canada
N2H 5G5
Telephone
519.571.9833
Fax
519.571.7424

Table of Contents

Acronyms and Abbreviations

Definitions

Executive Summary

1.0 **Introduction** **1**

1.1 Background to Waste Management Strategy 1
1.2 Limitations 3
1.3 Project Approach 3
1.3.1 Task 1: Project Management 4
1.3.2 Task 2: Public and Stakeholder Consultation 4
1.3.3 Task 3: Review of Current State Management System 4
1.3.4 Task 4: Future Needs 5
1.3.5 Task 5: Development of Recommendations 5
1.3.6 Task 6: Reporting 5

2.0 **Current and Upcoming Regulations** **6**

2.1 Local By-laws 6
2.1.1 By-law 2005-151 6
2.1.2 By-law 2006-001 7
2.2 Provincial Jurisdiction – Ontario 8
2.2.1 Individual Producer Responsibility 9
2.2.2 Excess Soils Regulation 10
2.2.3 Food and Organic Framework 11
2.3 Federal Jurisdiction 12
2.3.1 Canada's Commitment to Plastic Reduction 13

2.3.2 Federal Single-Use Plastics Regulation 13

2.4 Emerging Trends 14

3.0 Historical Waste Information 16

3.1 Planning for Sustainability: Long Term Waste Management Plan (2007 to 2031) 16

3.2 Official Plan 2021 16

3.3 Waste Generation 17

4.0 Current State 18

4.1 Waste Management System Overview 18

4.1.1 Waste Programs 18

4.1.2 Miller Waste Transfer Station 19

4.1.3 Leaf and Yard Waste Compost Site 20

4.1.4 Hazardous and Special Products 20

4.1.5 In-House Parks 21

4.2 Waste Quantities 21

4.2.1 Waste Generation Rate 21

4.3 Strength, Weakness, Opportunities and Threats Analysis 22

5.0 Future Needs 25

5.1 Population Trends and Projections 25

5.2 Forecasted Residential Waste Quantities 27

6.0 Public and Stakeholder Consultation 30

7.0 Recommendations 33

7.1 Long List of Options 33

7.2 Preferred Options 34

7.2.1 Option 1: Enhance Backyard Compost Program 35

7.2.2 Option 2: Complete a Business Case and Pilot Program for a Green Bin Curbside Collection Program 35
7.2.3 Option 3: Explore Long Term Operations at the City Compost Site 37
7.2.4 Option 4: Explore Options for Increasing the Number of HSP Drop-Off Events 38
7.2.5 Option 5: Explore Enhancing Service Levels such as Weekly Garbage Collection 38
7.2.6 Option 6: Enhance the Promotion of the Goods Exchange Day 39
7.2.7 Option 7: Evaluate Curbside Service Level Options 40
7.2.8 Option 8: Enhance Public Space Container Management and Systems 40
7.2.9 Option 9: Develop Strategy for Managing Litter 41
7.2.10 Option 10: Develop a Promotion and Education Strategy 41
7.2.11 Option 11: Update the Solid Waste By-law 42
7.2.12 Option 12: Enhance Enforcement Mechanisms of the Solid Waste By-Law 42
7.2.13 Option 13: Improve Waste Management Services in the River District 43
7.2.14 Option 14: Develop a Transition Plan for IPR 43
7.2.15 Option 15: Explore Opportunities with Neighbouring Municipalities 44
7.2.16 Option 16: Establish Climate Change Targets/Policies for Waste Management 45
7.3 Options Evaluation Criteria 45
7.4 Options Evaluation 47
7.5 Options for Future Consideration 53
7.6 Strategy Map and Action Plan 53

8.0 **Conclusion** **55**

Figures

Figure 1: Waste Management Hierarchy 2
Figure 2: Our Approach 3
Figure 3: Curbside Waste 2016 to 2021 (Tonnes) 17
Figure 4: Waste Generation Rates (kg/Capita, 2019 to 2021) 22
Figure 5: Population Trends and Projections (Annual Growth Rate, 0.26%) 26
Figure 6: Population Trends and Projections (Annual Growth Rate, 1.0%) 26
Figure 7: Waste Projections 2023 to 2043 in Tonnes (Annual Growth Rate, 0.26%) . 28
Figure 8: Waste Projections 2023 to 2043 in Tonnes (Annual Growth Rate, 1.0%) ... 29
Figure 9: Evaluation - Economic Feasibility 49
Figure 10: Evaluation - Social Impacts 50
Figure 11: Environmental Impacts 51
Figure 12: Evaluation Summary 52
Figure 13: Implementation Timeline 54

Tables

Table 1: Accepted and Unacceptable Materials at the Compost Site 20
Table 2: Options for Future Consideration 53

Appendices

A Long Term Waste Management Plan Progress Update
B Supporting Documentation

Acronyms and Abbreviations

AMO	Association of Municipalities in Ontario
BIA	Business Improvement Area
C&D	Construction and Demolition
CCME	Canadian Council of Ministry of the Environment
CFC	Chlorofluorocarbon
CIF	Continuous Improvement Fund
City	City of Owen Sound
CM	Circular Materials
CMO	Circular Materials Ontario
Dillon	Dillon Consulting Limited
FTE	Full Time Equivalent
GHG	Greenhouse Gas
HHW	Household Hazardous Waste
HSP	Hazardous and Special Products
IC&I	Industrial, Commercial and Institutional
IPR	Individual Producer Responsibility
L&Y	Leaf and Yard
MECP	Ministry of the Environment, Conservation and Parks
NGO	Non-Governmental Organization
P&E	Promotion and Education
PAYT	Pay-as-you-throw

PRO	Producer Responsibility Organization
RFID	Radio Frequency Identification
RFP	Request for Proposals
RFT	Request for Tender
RPRA	Resource Productivity and Recovery Authority
RRA	Resource Recovery Alliance
RRCEA	Resource Recovery and Circular Economy Act
Strategy	Waste Management Strategy
SWOT	Strengths, Weaknesses, Opportunities and Threats
WDTA	Waste Diversion Transition Act

Definitions

"Garbage" refers to solid waste materials which are not divertible and end up in the landfill.

"Recycling" refers to materials that are accepted in the Blue Box program and are able to be diverted from landfill.

"Waste" refers to both garbage and recycling.

Executive Summary

The completion of a Waste Management Strategy (Strategy) was identified in the City of Owen Sound (City)'s 2021 to 2023 Strategic Plan Refresh. The Strategy is intended to outline waste management goals and objectives to support a healthy lifestyle in Owen Sound and enhance resiliency and capacity for mitigating and adapting to climate change impacts. The City is aware of the potential impacts that provincial and federal regulatory changes could have on the current waste management system, including transitioning to full Individual Producer Responsibility (IPR) by July 2023. The intent of the new Strategy is to identify potential impacts to IPR and confirm the City is prepared to have a smooth transition.

Dillon Consulting Limited (Dillon) was retained in 2022 to develop the Strategy through completion of a review of the City's existing services while exploring new and innovative ways to provide waste management services. This Strategy included reviewing the City's background and historical information on the waste management system, analyzing current and future waste generation and trends, conducting several engagement activities, assessing recommendations from previous strategies and plans and development of recommendations.

Dillon developed an initial public survey to build an understanding of the current state of Owen Sound and which areas of waste management residents wanted to see improvements and what was working well already. Based on the results of the public survey, discussions with the City and the completion of a current state review, an initial list of 35 options for consideration was developed. In consultation with the City, the 35 options were narrowed down to 16 options and categorized into organics, recycling, garbage, waste reduction, reuse, compliance, litter prevention, promotion and education (P&E), program improvements and enhancements and/or other recommendations. Prior to researching and evaluating the preferred options, a second public survey was completed to confirm no additional options should be considered and that there were no major objections from the public to move forward with assessing the 16 options. Based on the results of the second survey, all 16 of the options were carried forward for further consideration. Dillon completed research and assessed the 16 options according to estimated costs (operational and capital), level of risk, whether the

option is proven or unproven, level of effort, climate change impacts and potential for diversion. The 16 options include the following:

- Option 1: Enhance Backyard Compost Program;
- Option 2: Complete a Business Case and Pilot Program for a Green Bin Curbside Collection Program;
- Option 3: Explore Long Term Operations at the City Compost Site;
- Option 4: Explore Options for Increasing the Number of HSP Drop-Off Events;
- Option 5: Explore Enhancing Service Levels such as Weekly Garbage Collection;
- Option 6: Enhance the Promotion of the Goods Exchange Day;
- Option 7: Evaluate Curbside Service Level Options;
- Option 8: Enhance Public Space Container Management and Systems;
- Option 9: Develop Strategy for Managing Litter;
- Option 10: Develop a Promotion and Education Strategy;
- Option 11: Update the Solid Waste By-law;
- Option 12: Enhance Enforcement Mechanisms of the Solid Waste By-Law;
- Option 13: Improve Waste Management Services in the River District;
- Option 14: Develop a Transition Plan for IPR;
- Option 15: Explore Opportunities with Neighbouring Municipalities; and
- Option 16: Establish Climate Change Targets/Policies for Waste Management.

The lowest score based on the evaluation was Option 5: Explore enhancing service levels. With the potential implementation of a green bin curbside collection program (Option 2), weekly garbage collection may not be necessary as organics will no longer be in the garbage stream.

The intent of the Strategy was to evaluate the City's current waste management services, complete consultation with the community to develop options to explore and implement in the future. The Strategy identified improvements to current programs, additional programs to explore through feasibility studies, pilot programs and enhancements to existing programs. These options, if implemented, could support the goal to build healthy lifestyles in the City as well as build resilience and capacity for mitigating and adapting to climate change impacts.

1.0 Introduction

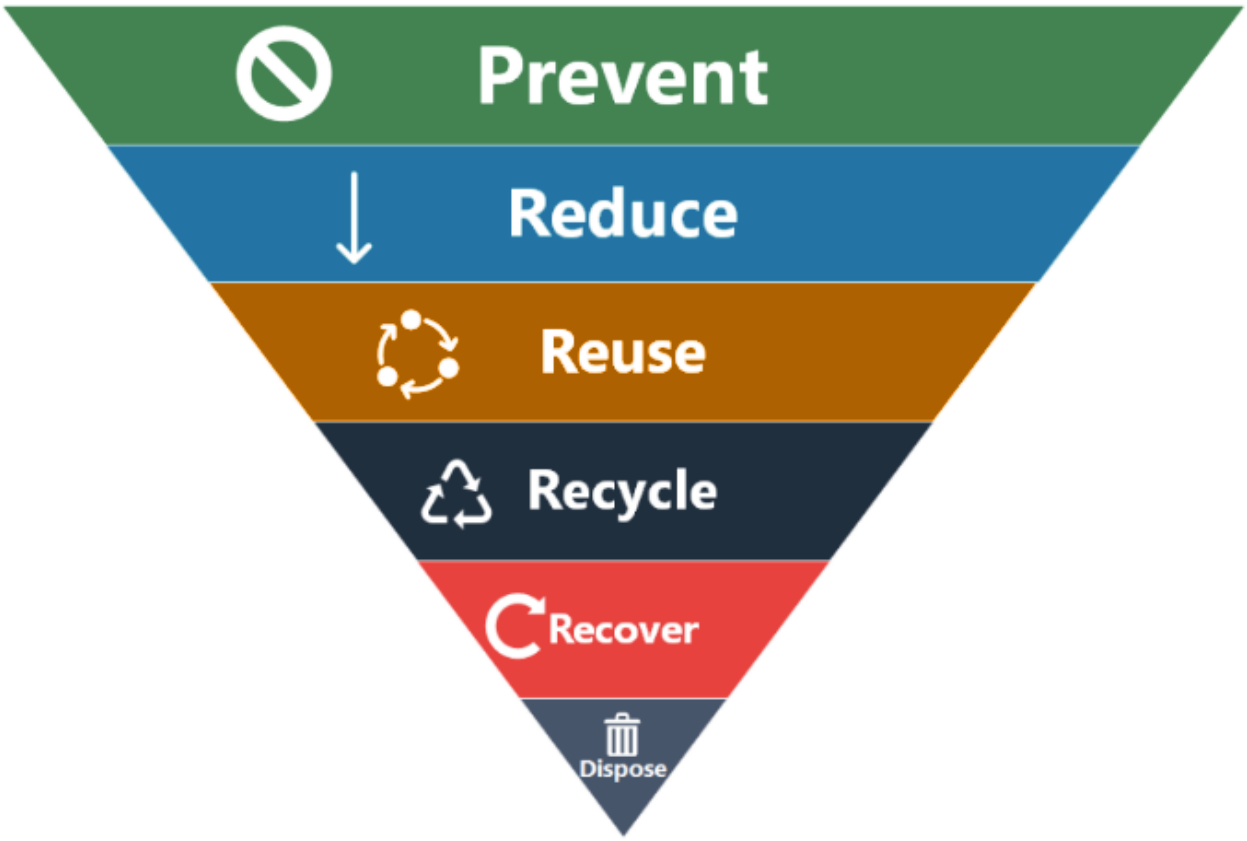
The City of Owen Sound (City) is located on the Niagara Escarpment and the Bruce Peninsula. It sits within an inlet on the southern shore of Georgian Bay and is approximately 24 square kilometres with a population of 21,612 (as per the 2021 Statistics Canada Census). However, there is high seasonal tourism during the spring and summer months for the City's geography, history and arts scene. The City has a diverse economy and is the largest lower tier municipality by population within Grey County.

1.1 Background to Waste Management Strategy

In 2007 the City developed a Planning for Sustainability: Owen Sound's Long-Term Waste Management Plan (Plan) which focused on the potential to achieve up to 70% waste diversion by 2015. Since the Plan was developed there have been significant changes in trends, technologies and legislation within the waste industry.

The City recently undertook the City-wide 2021 to 2023 Strategic Plan Refresh which identified the completion of a new Waste Management Strategy (Strategy). The intent of the Strategy is to guide the City in waste management goals and objectives including the City's goals to support healthy lifestyles and enhance resiliency and capacity for mitigating and adapting to climate change impacts. The focus of the Strategy is intended to be on the upper tiers of the waste management hierarchy (**Figure 1**): prevent, reduce, reuse and recycling with solutions that are sustainable and cost-effective. Another key area of focus of the Strategy is to find ways to prepare, adapt and transition the City's waste management system in this ever-changing waste management industry.

Figure 1: Waste Management Hierarchy



In 2022 Dillon Consulting Limited (Dillon) was retained by the City to develop an updated Strategy for a ten-year planning period. The Strategy involved the following:

- Review of the City's current waste management functions;
- Identify climate change impacts to the current waste management system;
- Review legislation and regulatory requirements that will impact the City's waste management system;
- Determine industry best practices based on a jurisdictional review;
- Review new and emerging diversion techniques and technologies;
- Complete stakeholder consultation on the existing waste management system and potential options; and
- Identify waste reduction and diversion opportunities including a cost analysis of proposed options.

1.2 Limitations

This study is limited to reviewing the current municipal solid waste management services and operations for the City of Owen Sound. For this study, solid waste refers to municipal solid waste generated or produced by residents that the City may service. This study's scope does not include waste from the following sources:

- Municipal sources such as wastewater treatment plants that produce sewage sludge or biosolids. Sludge or biosolid waste streams are typically managed through the City's Water and Wastewater Department; or
- Liquid waste or hazardous waste, except for municipal hazardous or special waste under the Province of Ontario's Waste Diversion Transition Act, 2016, O. Reg. 387/16.

Additionally, Dillon prepared this report for the sole benefit of the City of Owen Sound. The material in the report reflects Dillon's best judgement in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decision based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

1.3 Project Approach

As a part of the Strategy, six tasks were undertaken to provide the City with recommendations to improve waste management programs and diversion rates (**Figure 2**).

Figure 2: Our Approach

1.3.1 Task 1: Project Management

Task 1 entailed overseeing the project and setting up the project for success. As part of this task, a project initiation meeting was held and attended by representatives from the City and Dillon. During the meeting, the project scope was confirmed, a status update on the 2007 Plan was provided and requests for waste management data and reports were made by Dillon.

1.3.2 Task 2: Public and Stakeholder Consultation

A Communications and Public Consultation Plan was developed for the Strategy which guided the communications and public consultation throughout the project. The Communications and Public Consultation Plan identified resources, timelines, objectives, communication preferences and social media content for key components of the Strategy. Task 2 occurred simultaneously with Tasks 3 to 6 and included the following activities:

- Public survey at the onset of the project which provided an understanding of the current waste management perceptions in Owen Sound and what is important to the community;
- Public survey to obtain feedback on the draft recommendations and input into priorities;
- Two public open houses (virtual) to present information and solicit public feedback on the draft recommendations, receive input on implementation priorities and encourage attendees to fill out the second survey; and
- Local event attendance to capture additional survey responses and community feedback.

Additionally, three presentations were provided to the City's Operations Committee throughout the project.

Details of the public consultation activities and what was heard has been included in **Section 6.0**.

1.3.3 Task 3: Review of Current State Management System

To inform the state of the City's current waste management functions, several activities were completed which included the following:

- Regulatory Review: Current and upcoming regulations and their potential impacts on the City (**Section 2.0**);
- Historical Review: To identify historical information through a review of available plans, studies and reports relevant to the City (**Section 3.0**);
- Current State Review: To identify current waste management functions, including gaps and opportunities (**Section 4.0**); and
- SWOT Analysis: A strengths, weaknesses, opportunities and threats (SWOT) analysis was completed to augment data gathered during the project initiation meeting and to provide a baseline for this study (**Section 4.0**).

1.3.4 Task 4: Future Needs

With an understanding of the City's current position based on the background review and completion of the first survey, the future needs of the City's solid waste management system were documented through the estimation of future waste quantities to manage, emerging trends and regulatory changes. This has been documented in **Section 5.0**.

1.3.5 Task 5: Development of Recommendations

A list of 35 options were presented to the City for review. Background information such as the Long-Term Waste Management Plan, current and upcoming regulations and legislations, emerging trends, public engagement and consultation with City staff were incorporated into the proposed options.

A collaboration session was held with the City and Dillon that involved identifying which options were the highest priority to include in the Strategy, which options might be beneficial to explore in the future and which should be removed. In consultation with the City the list was narrowed down to 16 options to research for the Strategy. The 16 options were evaluated using a triple-bottom line approach for final recommendation on which options to carry forward.

1.3.6 Task 6: Reporting

The Strategy was presented to the City and finalized following receipt of comments.

2.0 Current and Upcoming Regulations

This is a time of significant changes to waste regulations in Ontario which makes understanding the policy environment an important part of municipal planning processes. The section describes the current legislative context, including statutory requirements at the municipal, provincial and federal level December, 2022. Also included is commentary on emerging trends as the industry is adapting to changes not only as a result of new legislation, but also as a result of environmental and economic shifts.

2.1 Local By-laws

The City has two By-laws for solid waste which include the following:

- By-law 2005-151: A By-law to Regulate the Collection and Disposal of Garbage and Recyclable Materials (see By-law No. 2005-151); and
- By-law 2006-001: A By-law to Regulate the Collection, Handling and Recycling of Waste and Recyclable Materials in Certain Premises in The City of Owen Sound (see By-law No. 2006-001).

2.1.1 By-law 2005-151

By-law 2005-151, known as the City's "Waste Management By-law", regulates the collection and disposal of waste and recycling materials. It is a consolidated By-law that stipulates processes and conditions that the City requires for garbage and recycling services, including those at facilities operated by a third party (i.e., transfer station and drop-off depot) and for other diversion programs. Waste diversion programs covered in the By-law include programs for recycling, leaf and yard (L&Y) waste, household hazardous waste (HHW), goods exchange day and backyard composters. The By-law also covers waste management in public spaces. It was enacted in 2005 and has had four amendments including its consolidation. The most recent version was adopted December 5, 2017.

The By-law's enforcement and penalty section grants authority to Enforcing Officers to inspect garbage on public property and indicates that any person who contravenes the provision can be held accountable per the Provincial Offences Act. By-law enforcement

is provided as a corporate service and the City's Policy CrS-BL6 authorizes By-law officers to foster compliance with City regulatory By-laws.

Fees related to waste management collection and disposal are not referenced in the Waste Management By-law, but can be found separately in the City's By-law 2022-006 "The Fees and Charges By-law" (see https://www.owensound.ca/en/city-hall/resources/Documents/By-Laws/2022-066-2022-Fees-and-Charges-By-law-CONSOLIDATED.pdf and refer to schedule 'L' Waste Management Fees).

The Waste Management By-law includes schedules 'A' through 'L' which document more specific requirements for various aspects of the City's integrated waste management system. The schedules provide further details on the following:

- Regulations for the servicing of various geographical areas of the City (e.g., downtown River District);
- Program details, noting that it is significant that the majority of Blue Box related content is organized together under Schedule B as this schedule will need to change as a result of the provincial Blue Box program details, noting that Schedule B is primarily focused on the Blue Box program which will require updating as a result of Individual Producer Responsibility (IPR);
- Waste container requirements;
- Waste collection details (i.e., maps and collection schedule);
- Prohibited waste materials; and
- Program information, including the Garbage Bag Tag program and various waste diversion programs.

2.1.2 By-law 2006-001

Passed and enacted January 9, 2006, By-law 2006-001 regulates the collection, handling and recycling of waste collected from the industrial, commercial and institutional (IC&I) sector. This consolidated By-law was revised and verified on February 7, 2014.

The intent of the By-law is to promote recycling in establishments that are:

- Commercial establishments, including: retail outlets (e.g., stores), service based businesses (e.g., salons), recreational facilities (e.g., gyms), entertainment businesses (e.g., theatres) and office buildings;

- Industrial properties, which refers to sites where economic activities are conducted and includes construction, manufacturing, transportation, communication or wholesale uses; and
- Institutional entities, such as schools, hospitals, libraries, places of worship, City-owned properties, public or non-profit facilities (e.g., community centres).

The By-law's Schedule 1 lists items that are currently defined as Recyclable Materials.

The By-law makes the Environmental Superintendent of the City, or their designate an authority over its clauses. (Note that the By-law currently does not include gender inclusive language. This report has modified the original language with the assumption that the Environmental Superintendent can designate this authority to people who identify as women). This includes the authority to determine whether the premise falls into the definition of IC&I, the inclusion/exclusion of items in Schedule 1 and the ability to exercise enforcement actions. The Environmental Superintendent can request a waste audit from IC&I establishments and can cease providing service in the event of non-compliance with the By-law. If the Environmental Superintendent declines to accept waste from an IC&I establishment, the customer is prohibited from disposing of waste at the City's Recycling Drop-off Centre and Transfer Station at the Miller Waste System Site.

Provisions are also included for proper recycling set out, including the need for IC&I customers to use approved recycling containers and for the handling of recycling within the establishment. The handling provisions, along with clauses requiring an internal recycling policy that informs managers, tenants and employees of the establishment to be informed of proper recycling practices, are intended to ensure that all materials included in Schedule 1 reach their destination at the City. The provisions in the By-law could also be a mechanism for the Environmental Superintendent to intervene in the event that an IC&I establishment is removing materials of greater economic value (e.g., aluminum, steel) from the rest of the recycling stream.

2.2 Provincial Jurisdiction – Ontario

In 2016, the Waste-Free Ontario Act was passed by the Legislative Assembly of Ontario. That year, it also enacted two Acts: The Resource Recovery and Circular Economy Act (RRCEA) and the Waste Diversion Transition Act (WDTA). These acts are important to

understanding the legislative context for municipal waste management in Ontario, primarily as RRCEA and WDTA authorize the transition of the financial and operational responsibility for waste diversion programs in Ontario from municipalities to product and packaging producers.

Pursuant to the WDTA, the Ministry of Environment, Conservation and Parks (MECP) has shifted the authority for oversight of waste diversion programs from Waste Diversion Ontario to the Resource Productivity and Recovery Authority (RPRA). RPRA is now responsible for the wind-up of industry funding programs under the former model, registering producers under the RRCEA and developing oversight mechanisms including reporting. Transitioned waste diversion programs include tires, batteries, electrical and electronic equipment and hazardous and special products. Currently the Blue Box program is also being transitioned to the IPR model.

2.2.1 Individual Producer Responsibility

The Blue Box transition is the most significant program impacted by the provincial transition to IPR, due to the value of investments that municipalities have made and the complexity of removing this program from integrated waste management systems. The City is registered with RPRA to transition its Blue Box program as one of the first municipalities to transition on July 1, 2023.

Blue Box Regulation 391/21, as amended by Blue Box Regulation 349/22 is the regulation that details how the transition of responsibility for the municipal Blue Box program to producers across the province will occur. This includes the timeline for transition, which is between July 1, 2023 and December 31, 2025. By January 1, 2026 producers will be responsible for financing and operating a recycling system, termed the "Common Collection System," across the province. The significance of Blue Box Regulation 349/22 for municipalities is, following the transition, there will be no regulated responsibility for municipalities to provide Blue Box collection, processing or education for eligible sources (see below).

Pursuant to Blue Box Regulation 349/22, producers are required to meet material management targets, which outline the quantity of various types of designated Blue Box materials that need to be captured and processed. During the transition years (i.e., July 1, 2023 to December 31, 2025) producers will be responsible to provide the services at the same level as was provided pre-transition to "eligible sources," which are locations

identified in the regulation and include residential homes, long-term care homes, schools, institutions and religious organizations and in some public spaces. Producers will be required to collect materials that are designated as "eligible materials" in Blue Box Regulation 349/22. These include single-use packaging and products such as water bottles, glass jars, aluminum and steel cans and other items commonly included in municipal recycling programs.

Producers can fulfill their obligations under the regulation by signing a written agreement with a Producer Responsibility Organization (PRO) which acts on their behalf to provide collection services, processing, reporting and other services. RPRA is responsible for overseeing how PROs self-organize to provide the services required under Blue Box Regulation 349/22.

Circular Materials Ontario (CMO) is the only one of the four PROs that registered with RPRA that is offering collection and management of recycling from eligible sources in Ontario. This is as a result of the other three PROs (Resource Recovery Alliance (RRA), Ryse and the Canadian Beverage Container Recycling Association) being unable or unwilling to participate in the IPR program as collectors or processors (e.g., CMO successfully acquired the operations of RRA in September 2022, which eliminated it as a PRO). Over the next few years CMO will be working with municipalities to transition Blue Box programs to the new IPR model. CMO has also put forth contracts for review by municipalities that offer their services for Blue Box collection from non-eligible sources, including facilities, public spaces and promotion and education (P&E).

The City should continue to monitor updates and information from RPRA, CMO and the PROs regarding Blue Box Regulation 349/22.

2.2.2 Excess Soils Regulation

With the aim of promoting soil reuse, reducing risks associated with contaminated soil, redeveloping brownfields and reducing the transportation of soil, the MECP introduced Regulation 406/19 "On-Site and Excess Soil Management" under the Environmental Protection Act. Excess soil is soil mixed with rock that has been excavated as part of a project and removed from the project area. Soil that is contaminated and that is extracted from quarries and pits is exempt from Regulation 406/19.

The regulation will become effective over five years and was developed in three phases:

- Phase 1, beginning January 1, 2021 is related to the development of reuse rules, including risk-based standards, waste designation and approvals;
- Phase 2, beginning January 1, 2023 is for testing, tracking and registration; and
- Phase 3, beginning January 1, 2025 implements restrictions on landfilling soils.

As of January 1, 2021, Phase 1 introduced a new framework for the excavation, removal and transport of "excess soils" between two or more sites. Regulation 406/19 required development project leaders and operators/owners of soil reuse sites, residential development soil depots sites, to file notices regarding how they reuse and dispose of excess soil in compliance with a new provincial registry, which the ministry had directed RPRA to establish and maintain. On April 21, 2022, the MECP suspended sections of "Phase 2" of Regulation 406/19, changing its implementation date from January 1, 2022 to January 1, 2023.

While RPRA is responsible for the excess soil registry, the MECP is responsible for policy and programs related to the regulation and for conducting compliance and enforcement activities.

2.2.3 Food and Organic Framework

On April 30, 2018, under the RRCEA, the MECP released the Food and Organic Waste Framework (Framework) which sets as its vision, "A circular economy that moves towards zero food and organic waste and zero greenhouse gas (GHG) emissions from the waste sector." With the aim to prevent, reduce and rescue food waste in order to reach provincial Climate Change Action Plan targets, the Framework aims to reduce food and organic waste, recover resources from food and organic waste, support resource recovery infrastructure and promote beneficial uses of recovered organic waste. The Framework contains two components: The Food and Organic Waste Action Plan and The Food and Organic Waste Policy Statement (Policy Statement).

The Food and Organic Waste Action Plan sets out opportunities for collaboration among partners and other mechanisms to achieve goals, such as the development of food safety guidelines to support the safe donation of surplus food.

The Policy Statement advises various levels of government, institutions (including hospitals, schools, retailers) and commercial entities (including producers), that the province has an interest in organic waste reduction and recovery. It also sets organic

waste reduction and diversion targets for several sectors and communities. The targets vary depending on the region, population and population density. The Policy Statement prioritizes food waste reduction and recommends that municipalities create food waste reduction P&E programs. It also advocates for the rescue of surplus food waste through partnerships with food rescue organizations or the use of technology to improve logistics and safety for food redirection. The types of food and organic wastes that should be diverted are included, as is a section to acknowledge the emergence of compostable products and packaging. This section recognizes the need for industry standards, new recovery technology and P&E. Notably, the Framework indicates that an organics disposal ban is coming; however, it is not specific regarding the timing for this change.

The Policy Statement provides specific municipal targets for reduction and resource recovery of food and organic waste generated by single-family dwellings in urban settlement areas is 70%, either by 2023 or by 2025 (depending on the location). Industrial and commercial facilities that are subject to the policy are to reach a 50% to 70% target, depending on the area.

The City does not currently have an organic waste collection program; however, since the City is located within Southern Ontario, has a population between 20,000 and 50,000 (21,612) and a population density that is greater than 100 people per square kilometre (approximately 600 people per square kilometre), it falls within Section 4.2 (ii) in the Policy Statement. This means that the City should provide collection of food and organic waste to single-family dwellings in urban settlement areas and that a 50% recovery target should be reached by 2025. (See Policy 4.2.ii (b) and target (c) in section 2: Food and Organic Waste Policy Statement | ontario.ca).

2.3 Federal Jurisdiction

While waste management is mainly regulated at the provincial level, the federal government also plays a role in addressing waste, particularly plastic pollution. Canada has joined in making a commitment to this issue on the international stage, as well as through the development of an action plan and a regulation to reduce the use of single-use items.

2.3.1 Canada's Commitment to Plastic Reduction

The Government of Canada has committed to plastics reduction, as is articulated in the Strategy on Zero Plastic Waste, Ocean's Plastic Charter and the Canada-Wide Action Plan on Zero Plastic.

The Ocean Plastic Charter has been adopted by national governments including Canada, France, Germany, Italy and the United Kingdom, with the aim to move towards a more resource-efficient and sustainable approach to plastic management. The Charter brings together leading governments, businesses and civil society organizations to recognize and reduce marine plastic litter.

The Strategy on Zero Plastic Waste published by the Canadian Council of Ministers of the Environment (CCME) in 2018, outlines the action areas that Canada needs to address to achieve the targets outlined in the Ocean Plastics Charter. The Strategy on Zero Plastic Waste outlines Canada's vision for plastics in a circular economy and the approach has three integrated elements:

- Prevention of plastic waste;
- Collecting all plastics, including through clean up; and
- Recovering value from all plastics using a range of strategies and processes.

The Canada-Wide Action Plan on Zero Plastic Waste builds on the national strategy to reduce plastic waste and pollution and aims to contribute to the Ocean Plastic Charter. In 2019 the Canada-Wide Action Plan on Zero Plastic Waste outlined actions for governments to take in order to recover the value of plastics through reuse, repair, remanufacture, refurbishment and recycling. Through the Canada-Wide Action Plan on Zero Plastic Waste the federal government is working with provinces and territories to develop producer responsibility programs, invest in technologies and solutions, support community and citizen-led activities, prevent and retrieve lost or discarded fishing gear and accelerate research on the impacts of plastic pollution.

2.3.2 Federal Single-Use Plastics Regulation

On June 20, 2022, the Government of Canada published regulatory prohibitions on single-use plastics. As of December 20, 2022, federal bans will be in place to prohibit the manufacture and import of the following plastics:

- Checkout bags;
- Cutlery;
- Straws and flexible straws (accessibility exceptions apply);
- Foodservice ware;
- Ring carriers; and
- Stir sticks.

In order to allow for single-use plastics in circulation in the supply chain to be disbursed, the sale of these materials will be prohibited one year later (i.e., effective by December 20, 2023).

The technical definitions of the banned single-use items were based on physical properties that can be tested in a lab. For example, a plastic checkout bag is defined as a single-use plastic checkout bag if:

- It is made of plastic and will break or tear if it is used to carry 10 kilograms (kg) over a distance of 53 meters 100 times; or,
- It is made of plastic and will break or tear if washed in a machine in conditions under which cloth bags would normally be washed.

As well as its intended purpose to reduce plastic consumption and litter, it is anticipated that the regulation will also result in an increase in the use of alternative single-use items such as paper bags and straws, wooden stir sticks, shopping bags marketed as reusable and moulded fibre foodservice ware.

2.4 Emerging Trends

A variety of industry trends and government policies are developing across Canada in municipal, provincial and federal jurisdictions. As the City develops their waste management policies, goals and objectives over the next ten years, staff should be informed of the following issues and developments that face the waste management sector. The list below is provided to identify key developments:

- Climate change results in risks within the industry, for example, there is greater likelihood of disruptions due to storms that produce surges in waste requiring handling (e.g., fallen trees and yard waste; spoiled food from power disruptions);

- Emergency measures may necessitate increased employee health and safety protocols (e.g., extreme heat, operational delays as a result of weather events, pandemic health concerns that restrict people from working in close proximity);
- Supply chain disruptions can impact procurement, including timelines and budgets for acquiring new goods (e.g., garbage trucks manufacturing and repair delays and price escalations, including the cost of fossil fuels);
- New opportunities are arising from initiatives promoting circular economy, emissions reductions and diversity and inclusion (e.g., opportunities for alternative energy capture and use from landfill gas collection and anaerobic processing of organic waste; attention to local economic wellbeing of communities through purchasing from local and diverse suppliers);
- Advanced technology is emerging and may offer environmental and job function improvements (e.g., electric vehicles, data collection technology on collection vehicles, the potential use of artificial intelligence in recycling sorting facilities);
- Ontario municipalities are undergoing significant changes as a result of IPR legislation (**Section 2.2.1**). Impacts include reconsidering their waste operations, such as the use of split truck (and dual stream/ automated collection vehicles) and reconsidering diversion metrics as information gathering for Datacall will no longer be necessary. The light-weighting of packaging also continues to be a consideration in determining new diversion metrics;
- General instability in economic markets, including the instability in the price of oil, could impact the price of virgin plastics. An uptick in interest among product and packaging producers in developing end markets for recycling and an increased awareness that recycling processes are dependent upon the market could result in producers ensuring that materials captured through recycling are competitively priced and of a satisfactory quality for inclusion in new products;
- Several municipalities are addressing construction and demolition (C&D) waste and there is an appetite for establishing new diversion programs. C&D management is also of interest due to impacts of disasters; and
- An increase in alternative products and packaging in the market, including items marketed as compostable and alternatives products to replace prohibited single-use plastics.

3.0 Historical Waste Information

This section outlines the historical state of waste management within the City including an overview of the Planning for Sustainability: Long Term Waste Management Plan (Long Term Waste Management Plan) and City's Official Plan (2021). Historical waste generation on waste collection data and tonnages has also been provided.

3.1 Planning for Sustainability: Long Term Waste Management Plan (2007 to 2031)

The Long Term Waste Management Plan incorporates sustainability principles and was developed to "meet the needs of the present without compromising the ability of the future to meet its own needs". In 2006, the City achieved 55% diversion of recyclable and organic (leaf and yard) materials and set an ambitious target of diverting 70% waste by 2015. The vision of the Long Term Waste Management Plan was to create an affordable, self-reliant and environmentally sound waste management program by 2031. A long list of goals were developed in the Long Term Waste Management Plan which included general, community, economic and environmental protection goals. A more detailed review of developed strategies and progress to date in the Long Term Waste Management Plan has been included in **Appendix A**.

3.2 Official Plan 2021

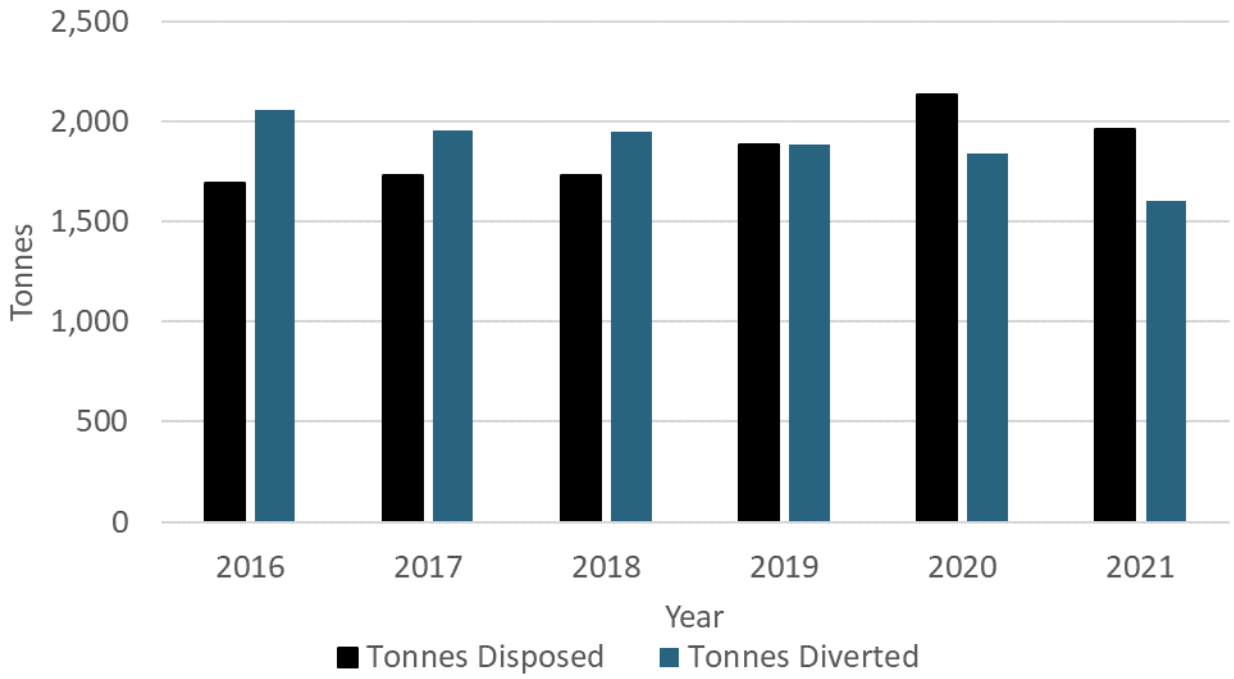
The Official Plan outlines the City's long-term vision, goals, objectives and policies to mitigate the effects that physical changes have on the social, economic, built and natural environment. The Official Plan provides direction for the City's Environmental Services waste management initiatives which include the following:

- Improving waste diversion, reduction and disposal;
- Improving public awareness of waste issues;
- Preparing for future legislative changes;
- Exploring new waste technologies and/or approaches; and
- Developing a Waste Management Strategy.

3.3 Waste Generation

The quantity of residential waste collected curbside between 2016 and 2021 remains relatively consistent over the past six years, ranging from 1,695 tonnes in 2016 to 2,136 tonnes in 2020 (**Figure 3**). Waste diverted from disposal is also relatively consistent between 1,602 to 2,058 tonnes for the same time period. In more recent years (2020 and 2021) diversion has decreased. The City's population has increased 0.26% year-over-year and increased 1.3% in the last five years.

Figure 3: Curbside Waste 2016 to 2021 (Tonnes)



4.0 Current State

This section outlines the current state of waste management in the City, including programs, services, generation rates, operating costs and summarizes staff input through a SWOT feedback tool.

4.1 Waste Management System Overview

The City is a lower tier of Grey County; however, Grey County does not provide waste management services to its municipalities. The City offers garbage and recycling collection to approximately 6,600 households. The following section describes the programs in place for each waste stream across the City.

4.1.1 Waste Programs

Curbside garbage collection is provided City-wide; however, there are slight variations in the collection schedule (bi-weekly versus weekly) depending on the area of the City which includes the River District, East Side and West Side. Curbside recycling collection is also provided across the City.

River District Curbside Garbage Collection

Curbside garbage collection occurs on a weekly basis for residents living within the River District (downtown core); however, waste is often set out on days where curbside collection is not scheduled to occur. Parks Staff are responsible for managing overflowing waste materials and/or material left out on days where collection does not occur. One Parks Staff operates a Glutton Street Vacuum in the River District Monday to Friday which costs approximately $30,400 for labour and equipment on an annual basis. City Hall receives waste collection on Monday's by the Parks Staff.

The River District experiences some challenges in terms of compliance and lack of messaging to residents and IC&I properties in regards to the current waste management programs and services.

Residential Curbside Garbage Collection

Curbside garbage collection is provided to households on different days according to the City's 'East Side Waste Management Calendar' and the 'West Side Waste Management

Calendar'. There is a four bag or container limit for each household, with each bag or container requiring a bag tag which can be purchased for $2.50 each at City Hall, the Public Works Building, the library and several local stores. Collection occurs on a bi-weekly basis for residents living outside of the River District.

Garbage collection services for both the River District and residential areas was approximately $220,000 in curbside contract collection fees and $240,000 in tipping fees for 2021.

Curbside Recycling Program

Curbside recycling collection is provided to residents, IC&I customers and at apartment buildings. Residents are able to use either the Blue Box or clear plastic bags, while businesses and apartment buildings only use City recycling carts. Collection of Blue Box materials (including boxboard) occurs on a bi-weekly basis. Corrugated cardboard boxes must be flattened and tied in a bundle on the curb; this is collected once per week in the River District and once per month in all other areas of the City.

Recycling collection services for both the River District and residential areas was approximately $665,000 in curbside contract collection fees in 2021 with approximately $385,000 in Blue Box revenues.

4.1.2 Miller Waste Transfer Station

The Transfer Station is operated under Environmental Compliance Approval A620065 with curbside collection contracts issued to Miller Waste's parent company Miller Paving Limited. Waste is collected at the Transfer Station before being transported for final disposal or processing locations. The City's Recycling Depot is located at the Miller Waste Transfer Station and is owned and operated by Miller Waste.

Recycling Depot

Miller Waste accepts the following materials on behalf of the City at the Recycling Depot and is responsible under contract for their proper disposal:

- Chlorofluorocarbon appliances (fridge, freezer, air conditioner, dehumidifier);
- Scrap metal;
- Appliances that do not contain refrigerant;
- Tires;

- Blue Box materials;
- Corrugated cardboard;
- Boxboard, wax, plastic coated boxboard including juice boxes;
- Newspaper, fine paper;
- Glass;
- Tin and plastics;
- Metal pots and pans with plastic handles removed; and
- Reusable plastic containers.

4.1.3 Leaf and Yard Waste Compost Site

The City does not collect L&Y waste at the curb; instead materials must be brought to the Compost Site at 2450 28th Avenue East which uses windrow composting. The site does not currently have any staff or attendants. **Table 1** outlines the acceptable and unacceptable materials at the Compost Site. The City also has kitchen compost containers and backyard composters for sale at various locations for residents. The Compost Site is un-staffed and City staff have indicated that illegal dumping and receipt of unacceptable materials occurs.

Table 1: Accepted and Unacceptable Materials at the Compost Site

Accepted Materials	Unacceptable Materials
• Leaves; • Grass clippings; • Houseplants; • Garden plants; • Sod; • Brush; • Clean stumps; • Logs and firewood; and • Branches.	• Stumps/root balls contaminated with soil; • Soil, fill, or dirt; • Dimensional lumber, including wooden pallets; • Building materials; • Garbage; • Plastic, including bags; • Food waste; • Pet waste; • Ashes; and • Invasive plants.

4.1.4 Hazardous and Special Products

The City organizes and hosts eight events throughout the year to collect HHW or Hazardous and Special Products (HSP). The events are organized and run by City Staff

and Photech, which is contracted to receive and dispose of the dropped off materials. Residents from within the municipality can participate in the events free of charge; residents from outside of Owen Sound require payment to participate via their home municipality. There are some cost, liability and health and safety concerns for the City Staff running the program and it has been discussed to have Photech take full control over the events.

4.1.5 In-House Parks

City parks are serviced daily while neighbourhood parks are serviced every other day between Victoria Day to Labour Day using Haul-All side loader garbage trucks, operated by Parks Staff. As noted, the River District is also serviced by Parks Staff Monday to Friday for any overflowing waste materials, bags or items left out on non-collection days. There are currently only garbage receptacles in parks. When the City previously tested out residential use of recycling receptacles, the level of contamination experienced resulted in disposing the contents as garbage.

Tipping fees for In-House Parks annually costs approximately $20,000 and total costs of labour wages and equipment for both Parks and River District waste management is approximately $92,000 annually.

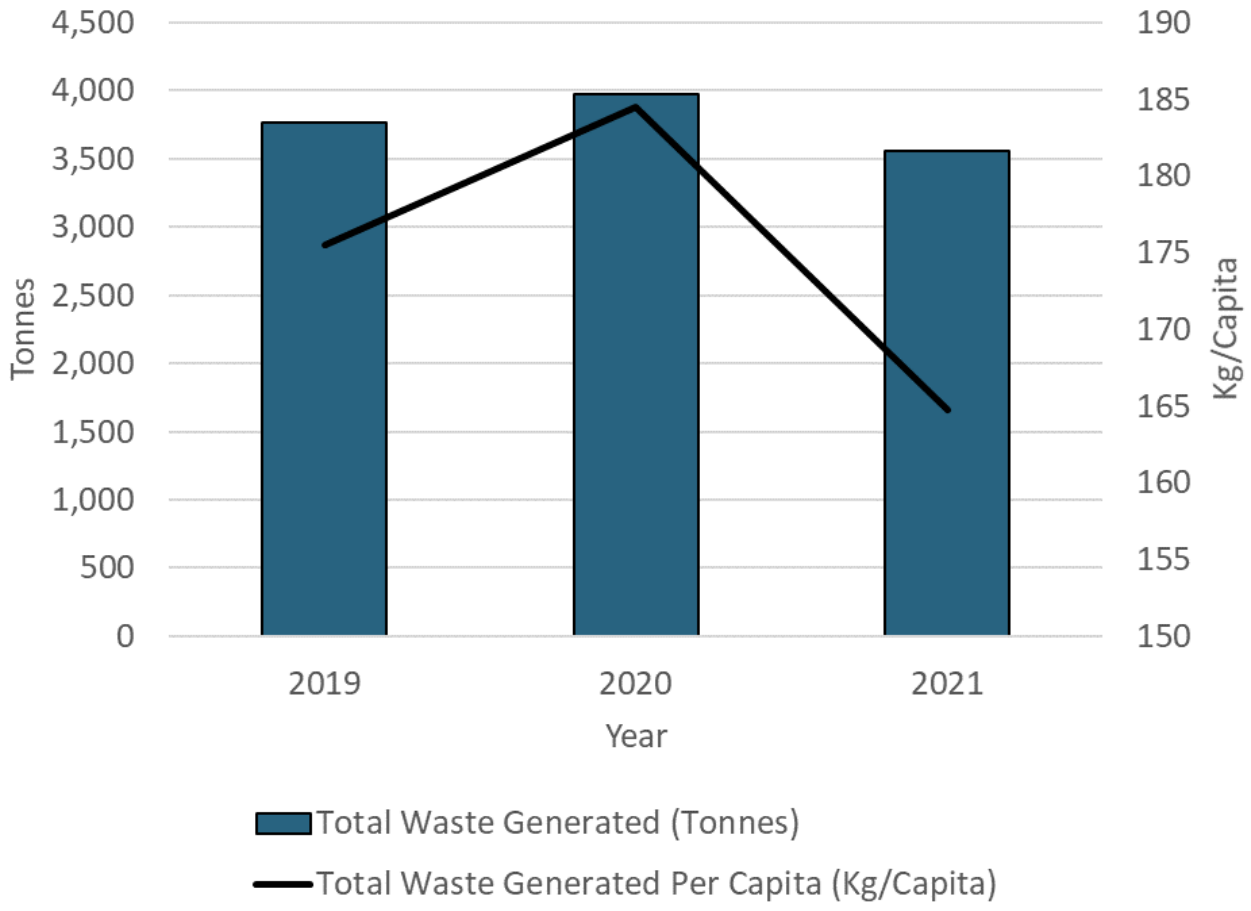
4.2 Waste Quantities

This section provides an overview of the current waste generated per capita in the City over the past three years.

4.2.1 Waste Generation Rate

The waste generation rate is a calculation of the average quantity of waste generated per capita. Waste generation rates are affected by various factors and can be closely linked with economic conditions. In general, more prosperous populations consume more and greater consumption results in greater waste generation. Using the City's 2019 to 2021 waste tonnage and population data, waste generation rates were calculated for households receiving curbside collection (**Figure 4**). The 2021 per capita waste generation rate was 165 kg/capita which is a decrease since 2019 and 2020.

Figure 4: Waste Generation Rates (kg/Capita, 2019 to 2021)



4.3 Strength, Weakness, Opportunities and Threats Analysis

Dillon conducted a SWOT analysis with the Supervisor of Environmental Services and Manager of Engineering Services to develop a better understanding of the City's waste management priorities and current programs. The following summarizes the results of the SWOT analysis:

Strengths:

- Positive relationship with Miller Waste;
- Many staff have been with the City for over 15 years;
- Has a Compost Site (however, current management of the Site is a weakness);

- City does not own/operate any waste facilities and vehicles (e.g., trucks) related to waste/recycling collection which can be less risky than owning a facility (may also be seen as a threat); and
- Good compliance in residents with bag tags program in most areas of City (there are pockets of the City which are less compliant (e.g., bag tags not put on bags and left at the curb in the downtown area where it is difficult to determine where the waste came from) and can be seen as a weakness).

Weaknesses:

- Downtown waste management system and communication with tenants and landlords;
- Low residential participation/compliance in bag tag program downtown e.g., bag tags not put on bags and left at the curb in the downtown area where it is difficult to determine where the waste came from;
- Management of the Compost Site (e.g., under-utilized, staffing issues);
- Lack of awareness for cost-effective solutions to improve waste programs which can lead to less motivation to change current systems;
- Lack of understanding of eligible and non-eligible sources for IPR transition;
- Limited awareness and understanding of waste management by the general public (generally as well as future changes such as IPR);
- No dedicated solid waste staff. Waste management is one of many areas of focus and falls under the Supervisor of Environmental Services and other areas may require more attention (e.g., transit) from time-to-time;
- Limited involvement from the County-level;
- Unaware of what decisions the County may be making with regards to solid waste. The County's solid waste strategy has been put on hold;
- Public may indicate that the City has not been proactive enough with waste management related to waste diversion;
- Lack of P&E in regards to existing waste management services and waste-related best practices; and
- Difficult to understand waste collection schedule(s).

Opportunities:

- Improvement in waste By-laws to increase compliance and enforcement;

- Increase resident participation in waste management programs;
- Increase resident understanding and awareness of waste management programs;
- Reallocation of some of the Blue Box budget to other areas;
- Open to understanding what types of new technologies may be available;
- Partnerships with neighbouring municipalities, including the County, can be explored;
- HSP events should be reviewed to consider how they could be improved; and
- Resource recovery improvements are possible with appropriate site management

Threats:

- IPR regulations;
- City does not own/operate any waste facilities which may result in less control over the system (may also be seen as a strength);
- Increased costs to enhance current waste management programs; and
- Staffing within the City for overall waste management and the programs within this portfolio.

5.0 Future Needs

The following sections include population and waste projections. Population projections are based on Statistics Canada's Census Data and mentioned populations from past waste management strategies. Waste projections are calculated using these population trends as well as information provided to Dillon by the City project team.

5.1 Population Trends and Projections

For the purposes of this Strategy, a ten-year planning period was used to support and rationalize the direction of future waste management programs and services; however, population projections and future waste streams have been projected over 20 years. The steps involved understanding historical and current trends in waste generation and reviewing available population projection data.

The City's population has increased 0.26% year-over-year and increased 1.3% in the last five years. It is noted that the City's growth projections should be confirmed in future strategic planning and execution work as COVID-19 has influenced immigration and emigration trends in ways that are not yet fully understood. This should continue to be investigated further as this will have an impact on waste management. In order to develop a population projection, the City's future population was estimated through interpolation over a 20-year period. The projected populations over 20 years from 2023 to 2043 are provided in **Figure 5** and **Figure 6**. **Figure 5** assumes that the population would continue to increase at the 0.26% annual rate. **Figure 6** is based on a strategic growth plan which the City estimates 1.0% annual increase in population and assumes that the population would continue to increase at a 1.0% annual rate.

Figure 5: Population Trends and Projections (Annual Growth Rate, 0.26%)

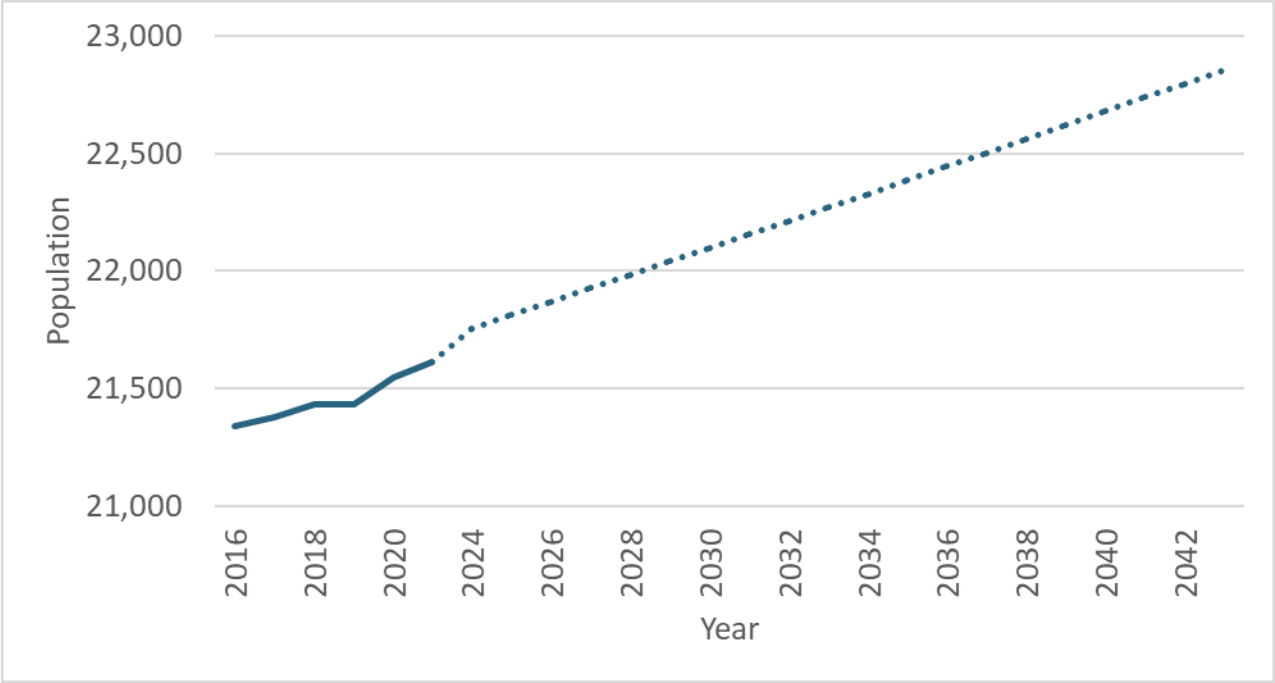
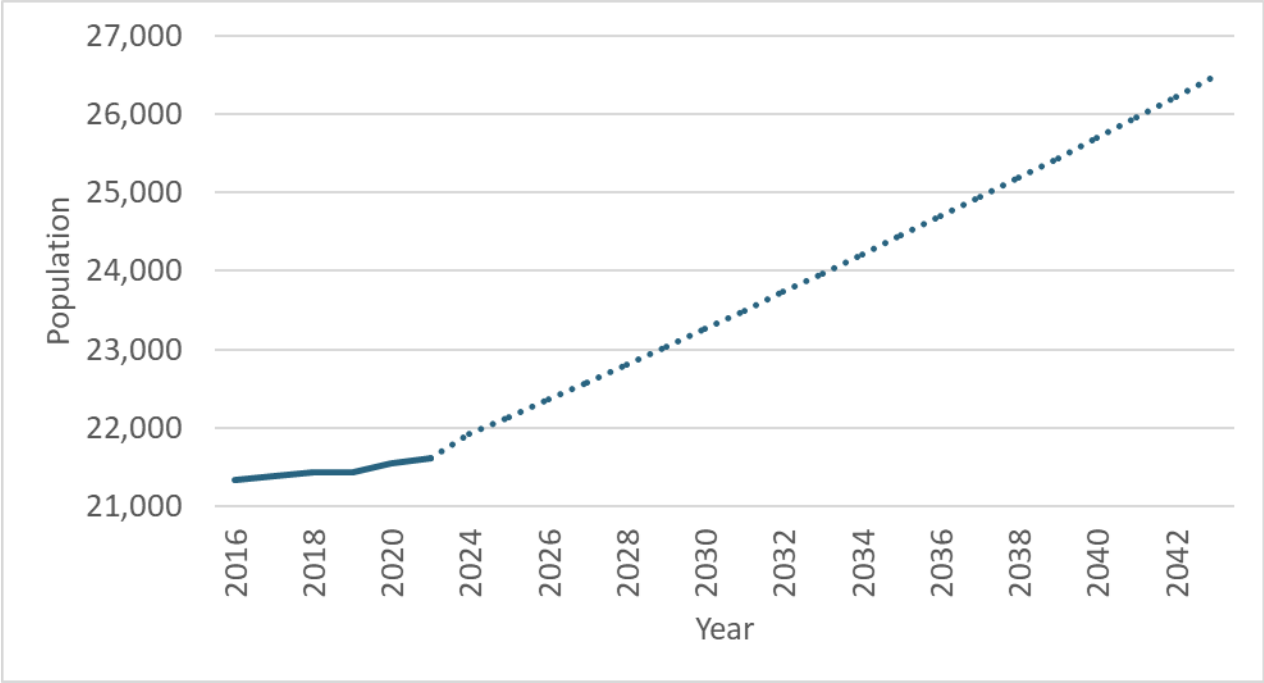


Figure 6: Population Trends and Projections (Annual Growth Rate, 1.0%)



5.2 Forecasted Residential Waste Quantities

To estimate future waste quantities to be managed over the planning period, 2023 was selected as the base year. It was assumed that the waste composition would remain unchanged over the planning period. However, the participation rate (e.g., use of diversion programs, but not necessarily putting materials in the right stream) and capture rate (e.g., putting materials in the right stream) will change over time due to new programs and policies, increased P&E and product stewardship initiatives. It is challenging to predict the future waste stream based on how quickly and continuously product packaging and waste continues to change. Some examples of how waste is currently changing include:

- Product packaging is getting lighter to reduce transportation costs;
- More people prefer to get their news from online sources, which is decreasing the generation of newspapers;
- Increased online shopping in general as well as throughout COVID-19 generates more household cardboard; and
- Increased availability of single-use products that are plastic and labelled as compostable or biodegradable (e.g., coffee capsules, stand-up pouches, takeout containers) (noting that the federal single-use plastics ban is likely to have an impact on single-use products).

Two forecasts have been developed to estimate the future quantities of waste generated over the planning period. The first forecast is based on the Statistics Canada Census population growth rate of 0.26% per year from 2016 to 2021 with the assumption that this growth rate will continue over the planning period. To estimate future quantities, the preceding year's waste quantity was multiplied by the annual percent change in population (0.26%) and a 1% annual waste generation rate. A graphical representation of this forecast is provided in **Figure 7**.

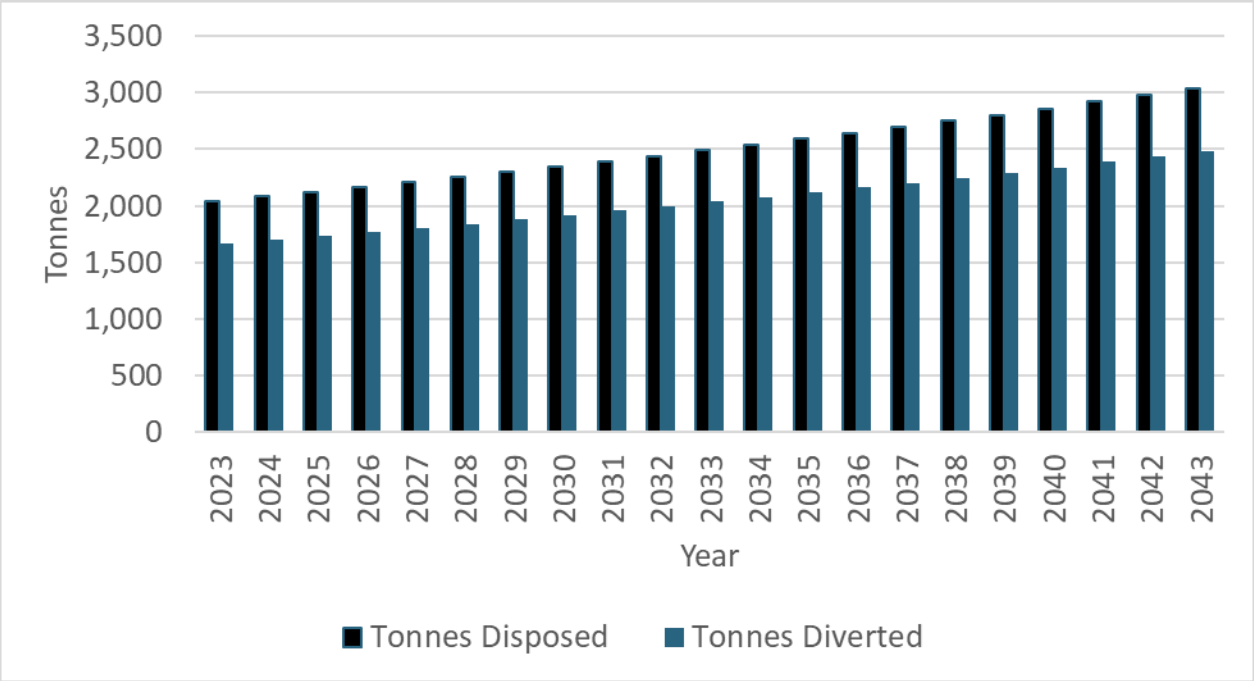
At an annual population growth rate of 0.26%, by 2043 and assuming the current rate of diversion does not change, it is estimated that the City will divert approximately 2,110 tonnes and dispose of approximately 2,580 tonnes of waste unless the City increases waste prevention, reduction and recycling.

Figure 7: Waste Projections 2023 to 2043 in Tonnes (Annual Growth Rate, 0.26%)

The second forecast is based on the City's strategic growth plan of a 1.0% annual increase in population throughout the planning period. To estimate future quantities, the preceding year's waste quantity was multiplied by the annual percent change in population (1.0%) and a 1% annual waste generation rate. A graphical representation of this forecast is provided in **Figure 8**.

At an annual population growth rate of 1.0%, by 2043 and assuming the current rate of diversion does not change, it is estimated that the City will divert approximately 2,480 tonnes and dispose of approximately 3,040 tonnes of waste unless the City increases waste prevention, reduction and recycling.

Figure 8: Waste Projections 2023 to 2043 in Tonnes (Annual Growth Rate, 1.0%)



6.0 Public and Stakeholder Consultation

Engagement and consultation was an important part of the Strategy development process. The engagement process was designed to solicit feedback and gather input from the community and stakeholders at key milestones in the planning process. Input and feedback was integrated into decision-making at each stage. Waste management practices at home, at work and in the community are an important part of the waste management system. Understanding this, broad-based community engagement and education throughout the project was critical to the development of the Strategy.

The following section provides a summary of the approach and feedback received for each of the public and stakeholder consultation activities.

Communications and Public Consultation Plan

A Communications and Engagement Plan was created at the start of the project to guide the engagement and consultation for the Strategy. The plan outlined the engagement objectives, key stakeholders, notification procedures, engagement activities and social media communications.

Online Public Survey #1

The first online public survey was launched on July 6, 2022 and ran until August 5, 2022 on the 'Our City Owen Sound' engagement platform and was promoted via social media. The intention of the first survey was to assess current perceptions of waste management in Owen Sound, what is important to the community and what expectations of the Strategy.

There were 327 total responses to the survey. Overall participants wanted to see waste reduction and reuse as a priority for the Strategy.

The top themes heard in the survey responses included:

- Introduce a green bin curbside collection program (food scraps);
- Increase cardboard collection frequency;
- Reduce single-use plastics;
- Consider eliminating the bag tag program; and
- Make the system easy to understand and use.

Some survey participants also noted ideas regarding recycling, including recycling more materials such as Styrofoam; however, these were not considered as part of the Strategy, due to the Province's move toward IPR.

Public Open Houses

Two virtual open houses were held on October 4, 2022 from 6:00 pm to 7:00 pm and October 5, 2022 from 2:00 pm to 3:00. The purpose of the open houses were to publicly share information regarding the Strategy and respond to public questions and comments.

The two open houses were promoted on the 'Our City Owen Sound' page and on the City's Twitter and Facebook pages. The open houses included a presentation that covered the project process, the draft waste management options explored in the Strategy and next steps. The structure of the open houses included pauses throughout the presentation to answer questions and hear comments.

In total, there were no attendees at the October 4 open house and two people attended the open house on October 5. Discussion points from the October 5 open house included:

- Considerations for climate change;
- Increasing promotions and education around waste reduction;
- Changes to the Blue Box program with IPR;
- Importance of a green bin curbside collection program and reducing food waste; and
- Benchmarking and data sharing to track progress.

Online Public Survey #2

The second public survey was developed and launched on September 27, 2022 and ran until October 16, 2022. The survey questions focused on the 16 options to assess the public's level of support and priorities with the proposed recommendations.

There were 284 responses total to the second survey. Overall participants strongly agreed with the options for waste management in Owen Sound. The following options had strong support from participants:

- Complete an assessment and pilot program for rolling out a city-wide food waste collection program;
- Explore expanding the HSP Drop-Off event;
- Develop a strategy for managing litter; and
- Establish climate change targets and/or policies for waste management activities.

Additional comments from participants included:

- Support for a green bin curbside collection program;
- Considerations for weekly garbage pickup, specifically in the summer months; and
- Increase P&E to encourage people to know how to properly sort waste.

Local Event Attendance: Owen Sound Farmers Market

A pop-up booth was set up at the Farmers Market on Saturday October 15, 2022 from 8:00 am to 12:30 pm. The booth was designed to invite people to participate in the second survey and to learn about the options proposed for the Strategy. Overall 28 people stopped by the booth to engage with Dillon staff and ten people completed the second survey. Comments noted by booth visitors included:

- The HSP Drop-Off event line is too long and more options for managing HSP should be considered;
- Support for a green bin curbside collection program; and
- Support for making Owen Sound more sustainable.

Summary of Engagement and Communications Activities:

- 327 contributors to the first online public survey;
- 284 contributors to the second online public survey;
- Two virtual open houses with two people in attendance;
- In-person community event with 28 visitors;
- 12 social media posts;
- Two updates on the City's engagement platform.

Engagement was an important part of the Strategy. Feedback gathered was integrated into the options development and assisted with understanding the perceptions and level of support for the developed options.

7.0 Recommendations

This section highlights the development of the final list of proposed options. Background information such as the Long Term Waste Management Plan, current and upcoming regulations and legislations, emerging trends, public engagement and consultation with City staff were incorporated into the proposed options.

7.1 Long List of Options

With an understanding of the City's current position and priorities, an initial list of 35 options were developed. The following outlines these options organized by theme.

- Organics:
  - Enhance the backyard compost program;
  - Explore developing a green bin curbside collection program;
  - Explore developing seasonal curbside collection of L&Y waste;
  - Enhance the Compost Site;
- Recycling:
  - Increase cardboard collection frequency;
  - Increase Blue Box collection frequency;
  - Collect additional materials in the Blue Box program;
  - Expand the HSP Drop-Off event;
- Garbage:
  - Consider utilizing automated garbage collection trucks;
  - Explore developing a large item collection program;
- Reuse:
  - Coordinate community reuse events;
  - Partner with local businesses in reuse and reduction workshops;
  - Promote goods exchange opportunities;
- Waste Reduction:
  - Explore single-use items management;
  - Incentivize businesses to reduce their use of single-use items;
  - Establish new permanent drop-off depots(s);
  - Develop a circular economy roadmap;
  - Promote zero waste businesses in the community;

- Program Improvement/Development:
  - Conduct regular waste composition studies;
  - Explore waste-to-energy options;
  - Explore developing a three stream multi-residential program;
  - Monitor and evaluate success of waste-related programs;
- Litter Prevention:
  - Enhance public space container management and systems;
  - Develop a litter strategy;
- P&E:
  - Conduct workshops on waste management best practices;
  - Develop a P&E strategy;
- Compliance:
  - Explore incentive programs or reward systems;
  - Update the Solid Waste By-law;
  - Enhance enforcement mechanisms in waste-related programs;
- Other:
  - Improve waste management services in the River District;
  - Explore landfill mining/excavation at the Genoe Landfill;
  - Develop an IPR transition plan;
  - Explore partnership opportunities; and
  - Develop climate change mitigation targets and policies.

7.2 Preferred Options

The list of 35 options were presented to the City for review. A collaboration session was completed between the City and Dillon which involved identifying which options were the highest priority to include in the Strategy, which options might be beneficial to explore in the future and which should be removed. In consultation with the City, and accounting for feedback heard through the first survey, the list was narrowed down to 16 options to research for the Strategy. **Sections 7.2.1** to **7.2.16** provide a description of each option, supporting rationale and a summary of the research from other jurisdictions that was completed on each option. The 16 options were evaluated using the identified indicators and criteria in **Section 7.3**. A summary of the evaluation is included in **Section 7.4**. **Appendix B** provides further research and analysis on **Sections 7.2** to **7.4**.

7.2.1 Option 1: Enhance Backyard Compost Program

Description: This option explores various strategies that could support enhancing the backyard composting program. Enhancements may include increasing resident awareness and participation through coaching and/or workshops and developing partnerships with community gardens.

Supporting Rationale: The previous Long Term Waste Management Plan as well as the City's Official Plan included enhancing the existing backyard compost program. The results in the public survey conducted during this project indicated that many respondents were unaware the City had a backyard compost program. Several communities have implemented successful home compost/backyard compost programs including:

- **Wellington County:** Offers a 'Master Composter Program' to residents which helps them successfully manage their organics through home composting.
- **City of London:** Developed a City Compost Education Program which is an initiative to encourage residents to compost organics at home through workshops, information at drop-off depots and selling home composters.
- **Township of Langley:** Conducted a pilot program to test various strategies to improve the use of the backyard composting program which included door-to-door visits, kitchen prompts, verbal or written commitments and personal coaching. The results showed the highest participation rates were experienced when residents had personal coaching.

7.2.2 Option 2: Complete a Business Case and Pilot Program for a Green Bin Curbside Collection Program

Description: Complete a cost-benefit analysis to assess if a green bin curbside collection program is feasible. Upon completion of this analysis, careful planning for the pilot including the identification of organic materials end markets to determine processing options, potential partnerships and collection options will be required.

Supporting Rationale: The previous Waste Management Plan, the City's Official Plan and responses from the public online survey conducted during this project indicated that developing a green bin curbside collection program to manage food scraps is a priority. The Province's Food and Organic Waste Statement (2018) requires

municipalities to have residential source separated organic collections system in place for 80 to 90% of the population by 2025.

- **City of Windsor:** Conducted a study to evaluate food waste management alternatives in the community which resulted in a list of recommended next steps including a regionalized approach to manage organic materials. The City will be using a private processing facility to manage their organic waste until a regional decision on the best approach to manage organics is made.
- **County of Peterborough:** Currently has two pilot organics curbside collection programs in Selwyn and Cavan Monaghan. The Township of Cavan Monaghan initiated their organic waste pilot project in 2019 and involved curbside collection of kitchen waste from approximately 1,000 households.
- **City of Lethbridge:** Conducted a feasibility study which compared two methods to manage organic materials: a self-haul program to existing drop-off centres and a curbside collection program. The study concluded costs and diversion rates would both favour a curbside collection program. An organics curbside collection pilot program was implemented successfully and the City plans to implement a full residential green bin curbside collection program in 2023.

Based on the results of the two recent confidential studies, high-level estimated costs have been developed for the City for a pilot (assuming 100 households) and for the roll-out of a City-wide curbside organics program with weekly cart collection for year 1. Pilot program estimated costs have been scaled based on City-wide Program estimated costs. City-wide Program estimated costs are a snapshot and are based on current industry knowledge noting that the industry continues to change due to ongoing pressures, including procurement and staffing. Accurate costs would be provided through procurement processes (e.g., issuing Request for Proposals [RFPs], Request for Tenders [RFTs]). A more detailed financial analysis will be required to be completed once the City has determined how the City would roll-out the program.

- Cart Costs: Includes carts, cart exchanges, assembly and delivery, ongoing repair costs, replacement parts (lift bars, wheels and lids) and hot stamping. Due to the number of options that the City could select from, a range has been provided:
    - Pilot: $7,000 to $10,000 for initial cart costs and $7,000 to $10,000 for ongoing operations;

  - First year at 0.26% growth rate: $0.5 million to $0.6 million for initial cart costs and $50,000 to $150,000 for ongoing operations; and
  - First year at 1% growth rate: $0.5 million to $0.6 million for initial cart costs and $50,000 to $150,000 for ongoing operations.
- Waste Collection: Assumes that the City will contract out weekly organics collection and that organics will be brought to a location within Owen Sound for transfer to an approved facility. Estimates below do not include transfer to the approved facility or processing costs.
  - Pilot: $20,000 to $50,000;
  - First year at 0.26% growth rate: $400,000 to $650,000; and
  - First year at 1% growth rate: $400,000 to $650,000.
- Transportation to Approved Facility: Not estimated as it will be dependent on where the facility is located;
- Processing: Processing costs range from $110 to $410 per tonne based on facility type. Based on projected tonnages for the City's two growth rates and processing costs it is estimated that the following costs could be incurred for the initial year of an organics program noting that as the program is established capture rates will likely increase which will increase processing costs.
  - Pilot: $1,000 to $5,000;
  - First year at 0.26% growth rate: $50,000 to $240,000; and
  - First year at 1% growth rate: $50,000 to $245,000.

7.2.3 Option 3: Explore Long Term Operations at the City Compost Site

Description: Explore various opportunities for enhancement of the current L&Y Compost Site. Options may include hiring dedicated part-time waste management staff, improving compliance to the Solid Waste By-law regarding illegal dumping, adequate fees and charges for exceptions (non-residents and contractors), forming a financial agreement and/or partnership with neighbouring municipalities for resident access, resource recovery opportunities, opportunities to accept additional materials and exploring excess soil management strategies.

Supporting Rationale: The City does not currently collect L&Y waste through any curbside collection programs, instead materials are brought to an unstaffed Compost Site. The City has indicated that there is potential for improvement and growth at the Compost Site.

- **York Region:** Has several waste depots across the region which allow residents to drop-off various materials to be processed or disposed (IC&I waste is not accepted). Fees are required for certain materials such as construction waste, yard waste and white waste.
- **County of Wellington:** Has L&Y waste drop-off programs at each community's waste facility. The program occurs from the spring to the fall each year where residents can drop off L&Y materials in brown paper yard waste bags, reusable containers or loosely. Charges apply for certain materials such as wood and commercial materials.
- **Chatham-Kent:** Has L&Y depots in nine communities which allow residents to drop-off 25 bags of L&Y materials free of charge. Materials dropped off are ground into mulch and become available free of charge to residents to use in their gardens and yards.

7.2.4 Option 4: Explore Options for Increasing the Number of HSP Drop-Off Events

Description: Conduct a cost-benefit analysis of increasing the number of HSP drop-off events that occur each year.

Supporting Rationale: The previous Long Term Waste Management Plan and public survey indicated increasing HSP Drop-Off events is a priority.

- **City of Sudbury:** Has a HSP depot that is open on select days of the year for residents to drop off materials free of charge. The City website also provides further information on alternative locations nearby which accept HSP.
- **City of Toronto:** Has six HSP Drop-Off locations at transfer stations which is free of charge for residents other than when dropping off fluorescent tubes over a certain quantity.
- **City of Hamilton:** Has three HSP Drop-Off locations at their community recycling centres which is free of charge to residents.

7.2.5 Option 5: Explore Enhancing Service Levels such as Weekly Garbage Collection

Description: Explore the feasibility of collecting garbage on a weekly basis.

Supporting Rationale: The City currently provides bi-weekly garbage collection but does not have a green bin curbside collection program. Residents add any organic waste into their garbage stream which often results in odours and increased volumes of garbage.

With the potential implementation of a green bin curbside collection program (Option 2), weekly garbage collection may not be necessary as organics will no longer be in the garbage stream.

- **City of Sudbury:** Transitioned from weekly to bi-weekly garbage collection in 2021 to increase diversion, extend landfill life and save an estimated $950,000. The number of garbage bags permitted remained the same (two), only the collection frequency changed.
- **City of Hamilton:** Provides weekly garbage collection for single family units; however, their Waste Management Plan outlines a transition to bi-weekly garbage collection to encourage the use of diversion programs. Public consultation on this transition occurred and found that residents were overall supportive of the change.
- **Region of Durham:** Transitioned to bi-weekly garbage collection and increased its bag limit from three to four. A study showed 27% less garbage collected and 67% more green bin materials collected due to these changes.

7.2.6 Option 6: Enhance the Promotion of the Goods Exchange Day

Description: Develop a P&E strategy to increase the participation and awareness of Goods Exchange Days. The Plan could include a dedicated page on the City website, the establishment of a team to plan and execute event and public surveys.

Supporting Rationale: The previous Long Term Waste Management Plan, the City's Official Plan and the public survey indicated that promoting the Goods Exchange Day was a priority.

- **City of Guelph:** Has Goods Exchange Weekends twice a year where residents can put out used items such as furniture and toys for others to pick up. The events are promoted via the City website, social media platforms, news outlets and posters.
- **City of Thunder Bay:** Hosts Treasure Exchange Days twice a year where residents can exchange reusable household items, furniture, small appliances and more. Residents are instructed to label their items as "free" and place them on their curbs for the weekend; anything not picked up is encouraged to be donated.
- **City of North Bay:** Has Goods Exchange Days twice a year to promote diversion of gently used items. The event is promoted on the City website, news outlets and social media platforms.

7.2.7 Option 7: Evaluate Curbside Service Level Options

Description: Conduct a cost analysis study on curbside service level options including pay-as-you-throw (PAYT), bag tags and bag and container limits to determine the impacts to residents and the City's programs.

Supporting Rationale: The public survey indicated that exploring various service level garbage collection approaches and/or programs is a priority.

- **PAYT (bags):** PAYT is a user-pay based waste collection approach to generate revenue to cover waste management costs, while reducing waste and increasing diversion. PAYT can be implemented through a partial or full approach. After implementing a full PAYT approach, Wellington County observed a 15% decrease in the total number of curbside-collected garbage bags in 2021.
- **Clear Bag Garbage Collection:** The Continuous Improvement Fund indicates that approximately 40 Ontario municipalities have successfully implemented a clear bag waste collection policy. Clear bag waste policies have been implemented in municipalities across North America for over a decade and in Canada, over half a million households receive clear bag waste collection. The use of a clear bag permits the collector to see if there are unacceptable or divertable materials in the garbage and to leave the bag at the curb if the materials are present.
- **Bag/Container Limits:** Before implementing a bi-weekly three-bag limit, 85% of households in the Region of Halton set out three or less bags with 15% setting out more than three bags. After implementing the bag limit, the percentage of households setting out three or less bags increased from 85% to 97%.

7.2.8 Option 8: Enhance Public Space Container Management and Systems

Description: Explore approaches to enhance the current public space container management systems which can include conducting a feasibility and siting study to identify litter hotspot locations, considering technology for managing overflowing public space containers and identifying locations for signage in hot spot areas.

Supporting Rationale: The public survey indicated that enhancing public space container management and systems is a priority.

- **Sensor/Camera Technology for Waste Containers:** In-bin cameras are a technology that can monitor the fullness of waste containers. When a certain level of fullness is detected it can signal a pickup to the municipality and/or waste collection contractor.
- **City of Toronto:** Increased the collection frequency by collecting waste from public spaces containers in hot spots where they often overflowed.

7.2.9 Option 9: Develop Strategy for Managing Litter

Description: Develop a litter strategy with a focus on the River District that includes a communication plan to inform the public on the litter strategy. This could include incorporating a bold slogan and/or local artwork to bring attention to the litter strategy.

Supporting Rationale: Input from the City and from the public survey indicated that developing a litter strategy is a priority.

- **City of Burlington:** Burlington Green hosts events litter clean up events for residents. Approximately 10,000 residents participate per year.
- **York Region:** Developing both a single-use plastics and litter reduction strategy. Developed and implemented public consultation and online surveys and quizzes to support development of the strategies. The Region is developing single-use item reduction policies in collaboration with local businesses to further support development of the strategies.
- **City of Ottawa:** Hosts different initiatives for litter prevention and cleanup, including the “Cleaning the Capital Campaign” and the “Bucket Brigade.”

7.2.10 Option 10: Develop a Promotion and Education Strategy

Description: Develop a P&E strategy for waste management programs to help educate and involve residents in the City’s waste management programs. The strategy could include incentivizing businesses to reduce their use of single-use items, developing workshops on waste management best practices and hiring a student or new staff member to act as a Waste Educator.

Supporting Rationale: The previous Long Term Waste Management Plan and responses from the public online survey indicated that developing a P&E strategy is a priority.

- **City of Toronto:** Organized four speaker series to focus on local initiatives changing how waste is reduced, reused and recycled. Topics included reuse, fast fashion / clothing, food and the circular economy.
- **City of Kawartha Lakes:** Developed an Integrated Waste Management Study, a Future Waste Options Study and a Corporate Waste Reduction Initiatives Study to be a leader and positive influence in the community with respect to waste management practices. P&E activities, such as workshops, open houses and training, are key components of each of the three documents.

7.2.11 Option 11: Update the Solid Waste By-law

Description: Update the Solid Waste By-law.

Supporting Rationale: The SWOT analysis and the public survey responses indicated that updating the Solid Waste By-laws is a priority. The transition to individual producer responsibility of the Blue Box program will also require an update to the By-laws.

- **City of Guelph:** The Single-Use Items By-law will be updated in 2023 to include banning certain single-use items and adding new waste collection standards for the IC&I sector.
- **City of Nanaimo (British Columbia [BC]):** Implemented the Mandatory Waste Source Separation By-law and the Waste Hauler Licensing By-law in 2021. The goal of these by-laws is to increase diversion of recyclable and organic material from waste generated by multi-residential buildings and the IC&I sector.

7.2.12 Option 12: Enhance Enforcement Mechanisms of the Solid Waste By-Law

Description: Enhance enforcement mechanisms for waste-related infringements. This could include conducting research into best practices, implementing littering fines and retaining a dedicated solid waste By-law officer.

Supporting Rationale: The public survey responses indicated that enhancing enforcement mechanisms is a priority.

- **City of Markham:** Enforces recycling program compliance by requiring clear bags to be used for waste materials. Waste collection staff place stickers on dark bags that are placed at the curb, indicating that they will not be collected until the infraction is corrected.

- **City of Coquitlam (BC):** Uses curbside collection audit blitzes as a means of enforcement. The number of recorded non-compliances decreased by 64% from 2018 to 2020 and decreased an additional 40% from 2019 to 2020.
- **City of Port Moody (BC):** Increased fines for certain solid waste by-law infractions, such as increasing first offences from $50 to $500.

7.2.13 Option 13: Improve Waste Management Services in the River District

Description: Complete a cost analysis for various scenarios that improve waste management services within the River District. This Option supports and crosses over with Option 8: Enhance public space container management and systems as well as Option 9: Develop a litter strategy.

Supporting Rationale: The SWOT analysis indicated that improving waste management services in the River District is a priority.

- **City of Guelph:** Implemented a Business Improvement Area (BIA) Collection Pilot. Garbage, recycling and organics collection services are provided to businesses in the downtown area. User fees apply only to applicable businesses and include either a flat fee, full user-pay or a combination of both.
- **City of Toronto:** Provides commercial waste collection services for garbage, recycling and green bin streams in the downtown area. There are different levels of service and frequency of collection based on a fee structure. The program is financed through a variable rate system and charged to the utility bill of the location of each property.

7.2.14 Option 14: Develop a Transition Plan for IPR

Description: Develop a transition plan for IPR to understand what needs to stop, start, change and continue as a result of the transition of the Blue Box program.

Supporting Rationale: The City's statutory obligations related to the Blue Box program will change as a result of the transition. A transition plan will assist the City to understand how the Blue Box Regulation will impact components of the City’s waste management system. Transition planning can support staff in understanding the budgetary implications, mitigate risks and have the information it needs to provide to decision makers. As part of this Strategy a tool was developed for the City to assist with

identifying which components in the City's system need to stop, start, change and continue; however, this will need to be further developed.

- **City of Barrie:** Developed a comprehensive transition plan identifying the City's responsibilities during the transition of the Blue Box program to Ontario's producer responsibility program. The plan includes a timeline with critical milestones, activities to be completed before and after the transition and key decision points. A Transition Tool spreadsheet supported decision-making in the lead up to the transition.
- **City of Hamilton:** Currently developing its transition plan by working through a series of nine modules. The City is using the Transition Tool spreadsheet to support decision-making.

7.2.15 Option 15: Explore Opportunities with Neighbouring Municipalities

Description: Explore partnership opportunities with neighbouring municipalities to co-own processing options for waste materials.

Supporting Rationale: Previous partnerships existed with neighbouring municipalities for the use of City-owned waste management facilities.

- **Guelph-Wellington:** The County of Wellington and City of Guelph have partnered to build a Circular Food Economy through a federally funded project called 'Our Food Future'. The partnership's goals include increasing access to healthy food by 50%, developing 50 new circular food businesses, collaborations and social enterprises and increasing economic benefit by unlocking the value of waste by 50%.
- **Durham-York:** The Durham-York Energy Plant is a waste-to-energy facility that powers 10,000 households in the Durham-York regions. The Durham-York Energy Plant is one hundred percent publicly owned by both Durham and York and only residential garbage from the two regions is accepted (processing capabilities of up to 110,000 tonnes from Durham and 30,000 tonnes from York per year).
- **County of Peterborough and City of Peterborough:** The County and the City of Peterborough both share the Peterborough County/City Waste management Facility (PCCWMF) which is located in the Township of Otonabee-South Monaghan. In June 2002 the PCCWMF became the joint property of the County and City of Peterborough.

7.2.16 Option 16: Establish Climate Change Targets/Policies for Waste Management

Description: Establish climate change targets and/or policies for waste management activities that are in alignment with the City's Climate Action Strategy.

Supporting Rationale: Discussions with the City indicated that it is a priority to develop climate change mitigation targets and policies specific to waste management that align with the City's existing climate change targets. The City's 2021 Corporate Climate Change Adaption Plan currently does not address climate change-related impacts to the waste management sector. Some municipalities are part of the Partners for Climate Protection program, which provides municipalities with resources to assist them in meeting and implementing their climate change-related goals:

- **Muskoka District Municipality:** Developed the New Leaf Climate Action Plan which includes ongoing efforts to develop a corporate waste reduction strategy to further reduce GHG emissions.
- **Township of King:** Developed the King Climate Action Plan which considers the impacts of implementing a community organics pilot program, agricultural anaerobic digestion and implementing a circular economy waste model.
- **City of Timmins:** Developed a GHG Reduction Plan which details emissions from the waste industry in the City and includes planned solid waste reduction programs.

7.3 Options Evaluation Criteria

In collaboration with the City, evaluation criteria was developed using a triple bottom approach: economic feasibility, social impact and environmental impact. The criteria, indicators (e.g., annual operating costs) and evaluation scale included the following, noting that a score of 1 is least preferred and a score of 3 is most preferred.

Economic Feasibility

- Annual Operating Costs:
  - 1 = $500,000 or greater;
  - 2 = $100,000 to $500,000;
  - 3 = $100,000 or less;
- Capital Costs:

  - 1 = $500,000 or greater;
  - 2 = $100,000 to $500,000;
  - 3 = $100,000 or less;
- Level of Risk:
  - 1 = Very high risk (e.g., results, liability, environmental impacts, control by City);
  - 2 = Moderate risk (e.g., some risks but they can be mitigated); and
  - 3 = Very low risk (e.g., good results, good for the environment, limited liability).

Social Impact

- Proven or Unproven:
  - 1 = Unproven (e.g., currently at a pilot or small scale, no full scale implementation);
  - 2 = Proven in jurisdictions smaller than the City;
  - 3 = Proven in jurisdictions like the City of larger;
- Level of Effort:
  - 1 = High level of effort to develop and implement (e.g., more than 5 years);
  - 2 = Moderate level of effort to implement (e.g., some additional resources are needed, can be implemented in 3 to 5 years); and
  - 3 = Easy to implement (e.g., can be done with existing staff resources).

Environmental Impact

- Climate Change Impacts:
  - 1 = Results in little to no reduction in GHG emissions;
  - 2 = Results in moderate reduction in GHG emissions;
  - 3 = Significant reductions in GHG emissions;
- Potential for Diversion:
  - 1 = 2% diversion or less, difficult to measure;
  - 2 = 2 to 5% diversion; and
  - 3 = 5% diversion or more.

7.4 Options Evaluation

Figure 9 to **Figure 12** outline the individual criteria evaluations and a summary of the final evaluation for each of the 16 preferred options. The highest score overall that could be achieved was 21 and the lowest overall score that could be achieved was 7.

The following options had the highest score of 18:

- Option 1: Enhance the backyard compost program;
- Option 4: Explore increasing the number of HSP Drop-Off Events; and
- Option 6: Increase promotion of the Goods Exchange Day.

The second highest scoring options (17) included:

- Option 2: Complete a business case and pilot program for a green bin curbside collection program;
- Option 7: Evaluate curbside level service options; and
- Option 14: Develop a transition plan for IPR.

The lowest score based on the evaluation was 10 which was:

- Option 5: Explore enhancing service levels such as weekly garbage collection.

With the potential implementation of a green bin curbside collection program (Option 2), weekly garbage collection may not be necessary as organics will no longer be in the garbage stream.

The 16 preferred options are as followed:

- Option 1: Enhance backyard compost program
- Option 2: Green bin curbside collection program
- Option 3: Enhance existing Compost Site
- Option 4: Increase HSP Drop-Off Events
- Option 5: Implement weekly garbage collection
- Option 6: Increase Goods Exchange Day promotion
- Option 7: Evaluation curbside collection options
- Option 8: Enhance public space waste management
- Option 9: Develop litter strategy
- Option 10: Develop P&E strategy
- Option 11: Update Solid Waste By-laws
- Option 12: Enhance enforcement mechanisms

- Option 13: Improve River District services
- Option 14: Develop IPR Transition Tool
- Option 15: Explore partnership opportunities
- Option 16: Establish climate change targets/policies

Figure 9: Evaluation - Economic Feasibility

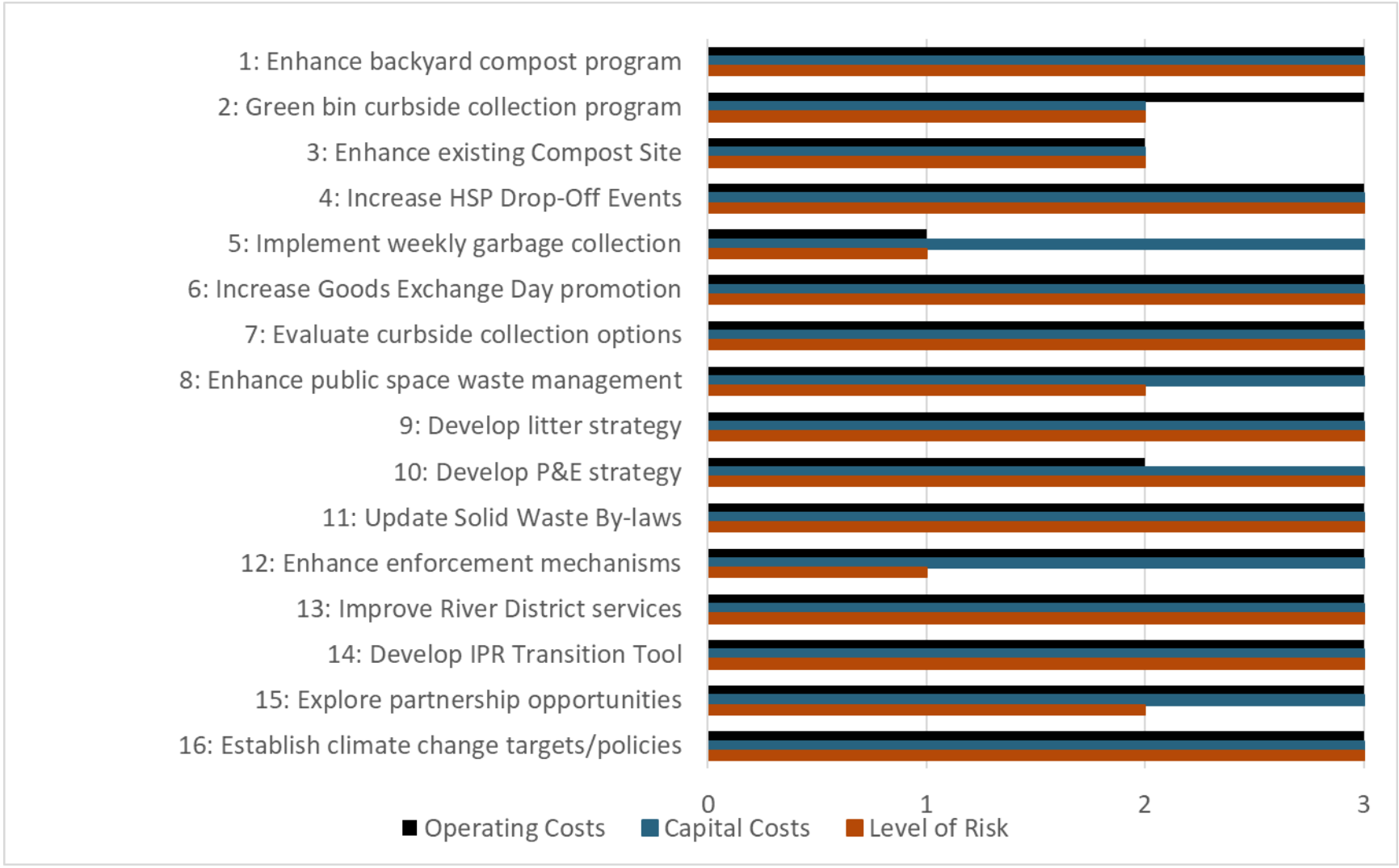


Figure 10: Evaluation - Social Impacts

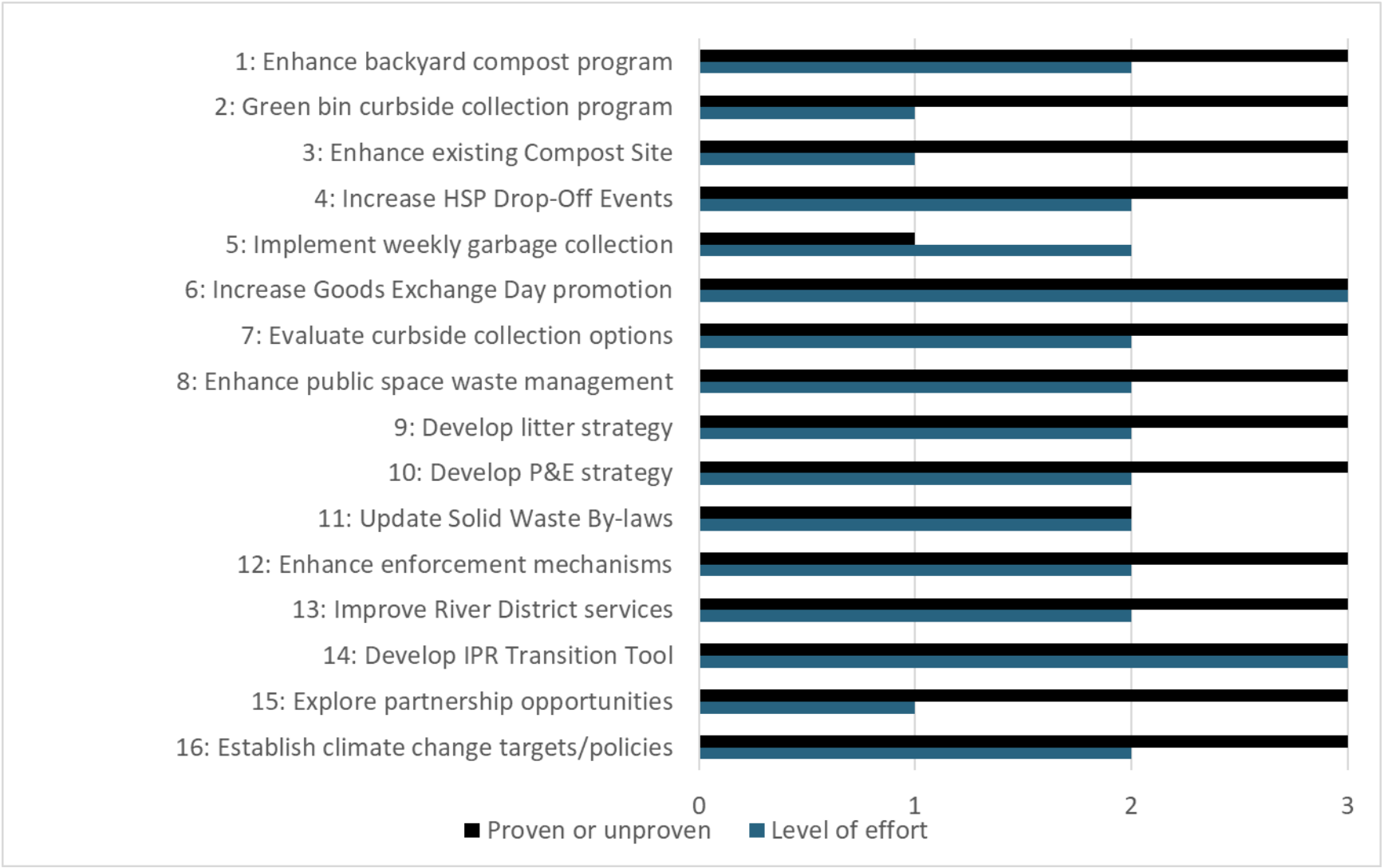


Figure 11: Environmental Impacts

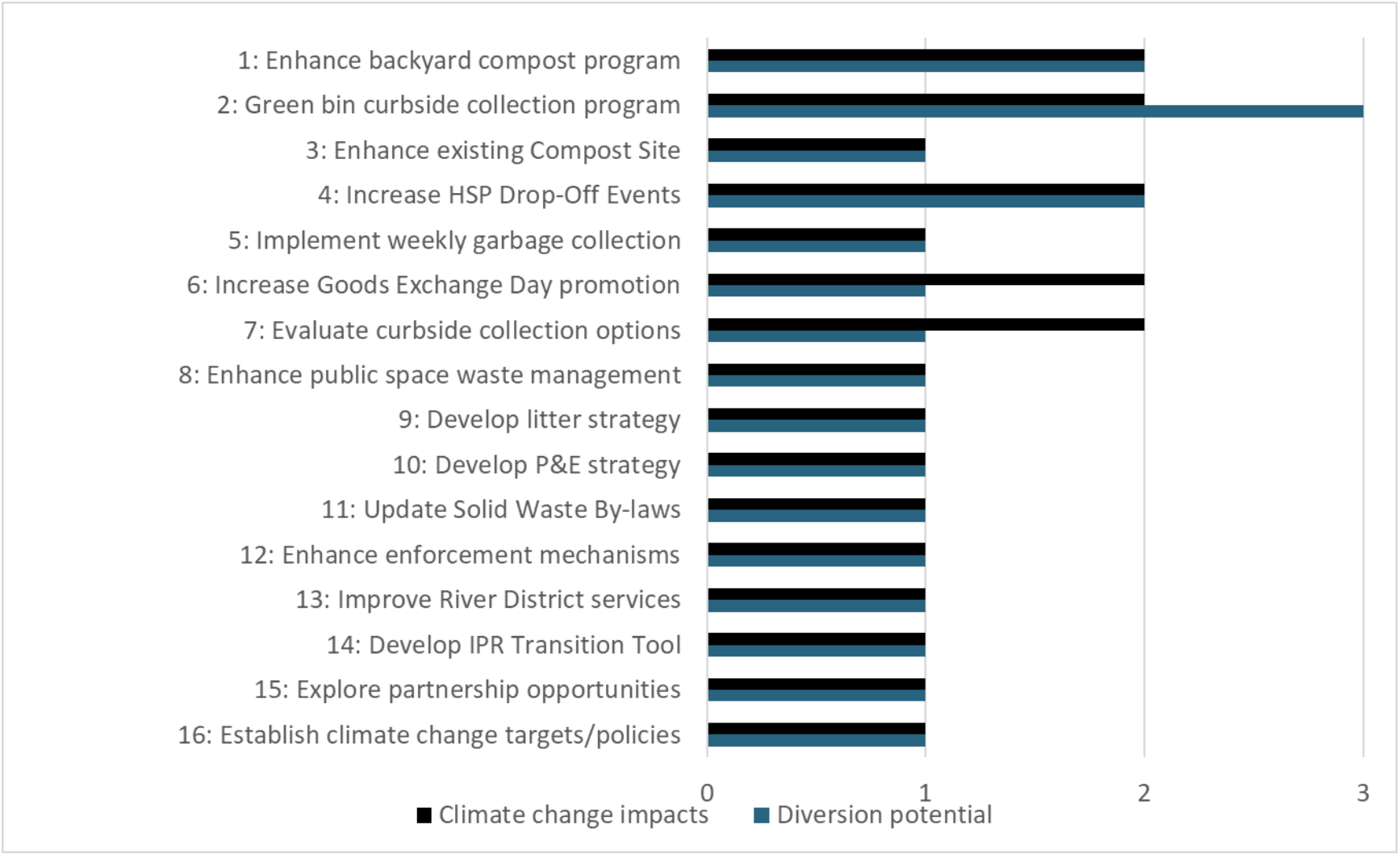
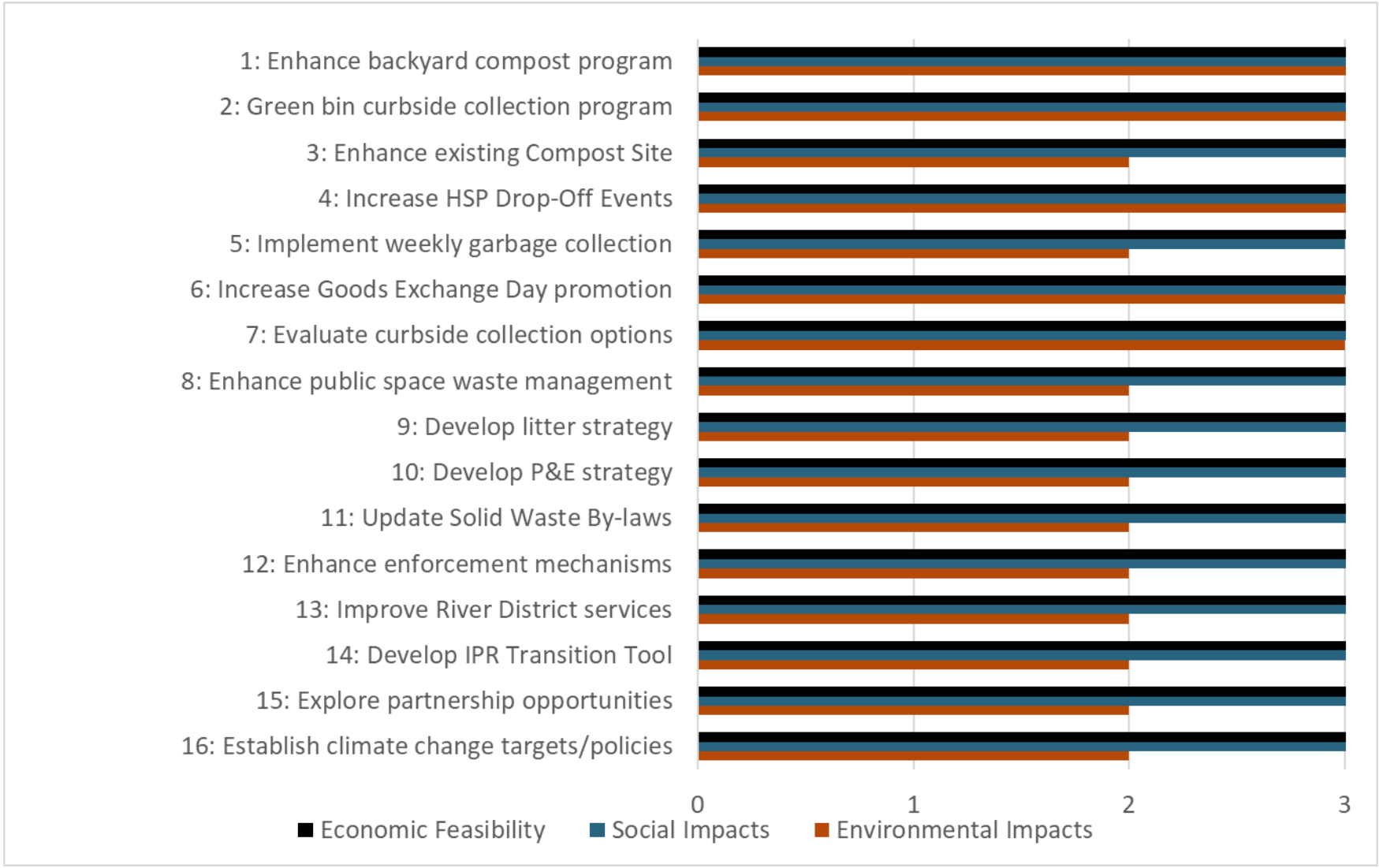


Figure 12: Evaluation Summary



7.5 Options for Future Consideration

During the initial review of the list of 35 options it was identified that four options should be considered for future implementation but would not be evaluated in this Strategy which are summarized in **Table 2**.

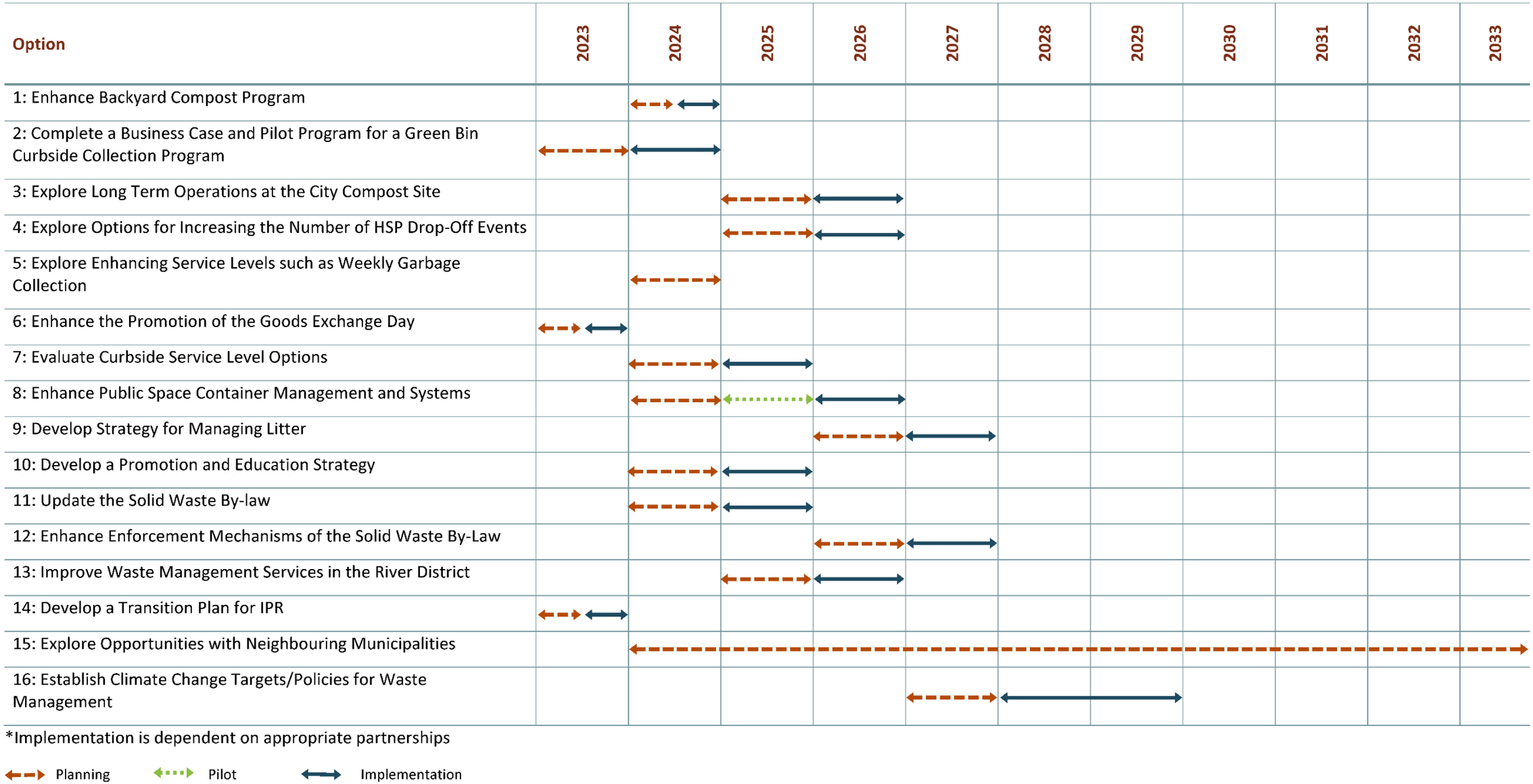
Table 2: Options for Future Consideration

Option	Description
Explore developing seasonal collection of L&Y waste	Conduct a feasibility study to determine if seasonal collection of L&Y waste should occur, including the number of collections that should be provided. Identify L&Y processing facility options.
Consider utilizing automated garbage collection trucks	Consider requiring automated collection trucks in the next collection contract.
Conduct regular waste composition studies	Conduct waste composition studies in single family, multi-residential and IC&I sectors. This should be completed on an annual basis with every 2 to 4 years conducting a quarterly audit to obtain season analysis, data, trends and if there are any variances following changes to City waste programs. A trained subject matter expert should be utilized to confirm data is collected and calculated accurately.
Explore incentive programs or reward systems	Conduct a jurisdictional scan of best practices of incentivizing desired behaviour in waste management programs. Based on the results, develop a public survey to determine which best practice or systems the public would be most receptive. Conduct a pilot program of the preferred approaches.

7.6 Strategy Map and Action Plan

Figure 13 outlines the proposed implementation timeline for the 16 options. Not all options require in-depth planning periods as they may already be occurring in the City. Similarly, some options will not move past the exploration stage as the findings may not be suitable to the City. However, the timeline does assume that all options will move forward into an implementation phase to show how options may overlap.

Figure 13: Implementation Timeline



8.0 Conclusion

The intent of the Strategy was to evaluate the City's current waste management services, review the previous Long Term Waste Management Plan and complete consultation with the community to develop options to explore and implement in the future. The Strategy identified improvements to current programs, additional programs to explore through feasibility studies and pilot programs. These options, if implemented, could support the goal to build healthy lifestyles in the City as well as build resilience and capacity for mitigating and adapting to climate change impacts.

Completion of this Strategy have provided the City with the following:

- An understanding of current and upcoming legislation (including IPR);
- Population and waste generation projections over the ten-year planning period;
- Comprehensive insights into best practices informed by research and waste management industry experience;
- Recommendations that can enable Owen Sound to pursue waste management and City goals; and
- A timeline for planning and implementation of the recommended options.

Appendix A

Long Term Waste Management Plan Progress Update

Long Term Management Plan – Diversion Options

Options Included in Plan	Progress Update
Develop Public Policy to support reduction of packaging and HHW	• Not implemented
Increase Waste Reduction and Reuse Initiatives	• Composters sold at Public Works
Weekly Blue Box Collection	• Not implemented
Explore Electronics Recycling Options/Programs	• No curbside collection • Drop off depot
Biweekly Yard Collection (leaf, grass, brush)	• No curbside collection • Drop off Compost Site
Source Separated Organics Collection Programs	• Not implemented
Focus on Improving Residential C&D Diversion	• Not implemented
Implement Bag Limits	• 4 bag limit for garbage
Develop a Comprehensive P&E/ Social Marketing Campaign on environmentally sustainable practices	• Not implemented
Explore a HHW collection program	• City hosts HHW events

Long Term Waste Management Plan – Disposal Options

Options Included in Plan	Progress Update
Incineration and Ash Disposal	• Not implemented
Contingency Plan For Waste Disposal	• Not implemented
Residue Waste Composting	• Not implemented
Export Waste	• Waste is currently sent to Greenlane Landfill in London, Ontario
Develop a Municipal/Jointly Operated Landfill	• Not implemented

Long Term Waste Management Plan – Waste Reduction Options

Options Included in Plan	Progress Update
Increase Promotion of Packaging Reduction and Standards throughout governments	• Council support • Not implemented
Incorporate waste reduction into City's Strategic Plan and Policies	• Water stations deployed throughout City
Enhance Waste Reduction Program	• Minimal expansion

Long Term Waste Management Plan – Reuse Options

Options Included in Plan	Progress Update
Enhance material reuse opportunities in the City	• Goods Exchange Days increased to 3 days/year
Enhance the HHW program	• Not implemented

Long Term Waste Management Plan – Recycling Options

Options Included in Plan	Progress Update
Improve capture rates and implement additional curbside collection programs	• Not implemented
Enhance existing recycling curbside collection program	• Additional materials accepted • No outreach to date
Enhance use of the depot system	• Habitat for Humanity added as drop off location
IC&I waste minimization	• Not implemented

Long Term Waste Management Plan – Source Separated Organics Options

Options Included in Plan	Progress Update
Source separated organics collection and processing	• Additional waste audits conducted
Enhance capture rates of L&Y waste	• Not implemented

Long Term Waste Management Plan – P&E Options

Options Included in Plan	Progress Update
Develop a P&E strategy	• Not implemented
Implement community-based social marketing campaign	• Not implemented
Enhance communications materials	• Not implemented
Establish small seed fund	• Not implemented
Obtain partner funding	• Not implemented
Develop monitoring programs	• Not implemented

Long Term Waste Management Plan – Monitoring and Continual Improvement Options

Options Included in Plan	Progress Update
Enhance and expand the Owen Sound Management Model	• Waste and recycling collection added to model
Implement an Adaptive Management and Continual Improvement Approach	• Not implemented

Long Term Waste Management Plan – Partnership and Collaboration Options

Options Included in Plan	Progress Update
Work with non-governmental organizations (NGOs)	• Earth Day Clean up hosted with the Sydenham Sportsmen Association
Develop co-marketing with Liquor Board of Control Ontario & Association of Municipalities in Ontario (AMO) to encourage bottle return	• Not implemented
Develop a partnership with neighbouring municipalities and the IC&I sector to implement a Source Separated Organics program	• Not implemented

Options Included in Plan	Progress Update
Develop a partnership with neighbouring municipalities to plan and develop an environmentally sound landfill site	• HHW program developed with neighbouring municipalities
Work with Georgian College and/or students to conduct waste audits	• Waste audits completed in 2008, 2020 and 2021

Long Term Waste Management Plan – Community Engagement Options

Options Included in Plan	Progress Update
Develop a multi-stakeholder committee	• Currently working with Owen Sound Waste Watchers on cigarette butt recycling program • Environmental and Waste Management Advisory Committee joined to form the "Operations Committee"

Long Term Waste Management Plan – Green Economic Development Options

Options Included in Plan	Progress Update
Attracting C&D waste recycling businesses	• Not implemented
Implementing green procurement policies	• By-law No. 2020-002 aims to encourage environmental considerations in City procurement
Establishing a reuse center	• Private/Community organizations (e.g., Habitat for Humanity) continue to offer these services
Expanding the composting facility	• Not implemented Compost Site is currently well used
Create jobs through development of a landfill site	• Not implemented – politically challenging
Use local businesses to promote waste reduction	• Not implemented

Appendix B

Supporting Documentation

Options Research and Evaluation Approach

In collaboration with the City of Owen Sound (City), 16 options were shortlisted for consideration in the Waste Management Strategy. For each of the options, research was conducted to support the rationale of the option and a high level evaluation was conducted. The Option Research table provides an overview of the information that was collected for each of the 16 options. The evaluation with research for each option is provided below. A description of the options evaluation and indicator ranking has been provided in the Option Evaluation table.

Option Research

Option #	Option Description
Description	Description of the option.
Assumptions	Assumptions that were made when completing research, estimating costs and providing supporting rationale.
Area(s) of Focus	Areas of focus for developing rationale and completing the jurisdictional reviews.
Proposed Timing	Proposed timing for planning and/or implementation.
Supporting Rationale (City)	Supporting rationale for the option based on the City's experience.
Supporting Rationale (Research)	Supporting rationale for the option based on research.
Key Performance Indicators (KPIs)	Key performance indicators to measure success of the option.

Option Evaluation

Evaluation Criteria	Indicator	Indicator Description	Indicator Rank
Economic Feasibility	Annual Operating Costs	Estimated annual operating costs	1 – $500,000 or greater 2 – > $100,000 to < $500,000 3 – $100,000 or less
Economic Feasibility	Capital Costs	Estimated capital costs	1 – $500,000 or greater 2 – > $100,000 to < $500,000 3 – $100,000 or less

Evaluation Criteria	Indicator	Indicator Description	Indicator Rank
Economic Feasibility	Level of Risk	Liability or environmental (e.g., low risk, expected results, may vary, City has little control)	1 – Very high risk (e.g., results, liability, environmental impacts, control by City) 2 – Moderate risk (e.g., some risks but they can be mitigated) 3 – Very low risk (e.g., good results, good for the environment, limited liability)
Social Impact	Proven or Unproven	Proven or unproven (e.g., unproven, proven at smaller scale, proven at larger scale)	1 – Unproven (e.g., currently at a pilot or small scale, no full scale implementation) 2 – Proven in jurisdictions smaller than the City and/or in other jurisdictions in Ontario 3 – Proven in jurisdictions like the City or larger in Ontario
Social Impact	Level of Effort	Level of effort to develop, implement, operate and maintain the option (e.g., low to high level of effort)	1 – High level of effort to develop and implement (e.g., more than 5 years) 2 – Moderate effort to implement (e.g., some additional resources are needed, can be implemented in 3-5 years) 3 – Easy to implement (e.g., can be done with existing staff resources)
Environmental Impacts	Climate Change Impacts	Climate change impacts (e.g., estimated GHG reductions)	1 – Results in little to no reduction in GHG emissions 2 – Results in a moderate reduction in GHG emissions 3 –Significant reduction in GHG emissions
Environmental Impacts	Diversion Potential	Potential for diversion from landfill disposal	1 – 2% diversion or less or is difficult to measure 2 – 2 to 5% waste diversion/reduction 3 – >5% waste diversion/reduction

Options Research and Evaluation Results

Option 1	Enhance Backyard Compost Program
Description	This option explores various strategies that could support enhancing the backyard composting program. Enhancements may include increasing resident awareness and participation through coaching and/or workshops and developing partnerships with community gardens.
Assumptions	• Assumes the City has a community garden and that if they do not that there will be appropriate resourcing (e.g., staff) to develop a community garden; and • Residents will participate in backyard composting program improvements.
Area(s) of Focus	• Ontario based examples, if possible.
Proposed Timing	Planning: 2024 Implementation: 2024
Supporting Rationale (City)	The City's Official Plan and 2007 Waste Management Plan indicated that enhancing backyard composting is a priority in Owen Sound. Additionally, during the first public survey many respondents indicated that they were unaware of the City's existing backyard compost program. The City currently does not have a curbside organics program; however, the City does provide information on the City website regarding where backyard composters can be purchased and how to use them. Backyard composters are currently sold for $23.73 per unit at the City of Owen Sound Public Works building.
Supporting Rationale (Research)	**Wellington, ON:** The County of Wellington has a 'Master Composter Program" which is an initiative to assist residents successfully manage their organics through home composting. The program focuses on education through workshops and promotes participation through the use of a neighbourhood captain program where volunteers are available to answer residents' questions about composting one-on-one. In the future, the program hopes to build demonstration gardens and create opportunities for partnerships for food and beautification projects.

Option 1	Enhance Backyard Compost Program
	London, ON: The City Compost Education Program is an initiative to encourage residents to compost organics at home in the City of London. This project involves partnerships between the City of London, London Middlesex Master Gardeners and Garden Club of London as well as Try Recycling and the Thames River Ecological Association (TREA). Elements of the project include providing home composting educational workshops, information for depot users about the home composting and advertising the sale of the City's home composters to residents. Many municipalities, such as York Region, Town of Newmarket, County of Simcoe and City of Waterloo include detailed instructions on their websites on how to use backyard composters, provide free giveaways events for a limited number of composters and mulch/compost, conduct workshops and provide contact information for any inquiries residents may have. On all of these municipalities' webpages, there is information on how and where to purchase composters once the municipalities' free giveaways have been sold out. **Township of Langley, BC:** The Township of Langley (Township) conducted a pilot program to test various strategies to support improving their backyard composting program. Some strategies included utilizing Community-Based Social Marketing (CBSM) tools to influence and foster behavioural change in the community. A best practices study was conducted to determine barriers and benefits to backyard composting across North America. It was identified that a major barrier was the lack of knowledge of backyard composting even though there was no lack in promotion and information of backyard composting in the Township. The two strategies implemented for a seven week period were a 'high intensity approach' including personal coaching and a 'medium intensity approach' without personal coaching. Methods used for evaluation included auditing curbside quantities before, during and after the pilot. The two strategies included: door-to-door visits, kitchen prompts, seeking verbal/written/public commitments, follow-up visit, "We Compost" stickers, published newspaper ad and media release and public recognition. The results showed the high intensity

Option 1	Enhance Backyard Compost Program
	strategy with coaching was more successful in participation rates, garbage reduction and food scraps composted. Other CBSM tools used to complement the two approaches included: • Network of demonstration gardens; • Backyard composting in schools and other public areas; • Commitments by public figures; and • Neighbourhood backyard composting champions.
KPIs	• Number of composters sold; and • Attendance at any workshops/events.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	3 – Annual operating costs are estimated to be under $100,000
Economic Feasibility	Capital Costs	3 – Capital costs are estimated to be under $100,000
Economic Feasibility	Level of Risk	3 – There is low risk involved with the enhancement of a backyard composting program and good results environmentally
Social Impact	Proven or Unproven	3 – Proven in jurisdictions like the City or larger in Ontario
Social Impact	Level of Effort	2 – The enhancement of backyard composting will require planning time, resourcing needs for workshops and extra promotion. It will also include dedicated staff time and ongoing program monitoring.
Environmental Impacts	Climate Change Impacts	2 – Backyard composting programs can have a moderate impact on GHG emission reduction depending on the participation by residents
Environmental Impacts	Diversion Potential	2 – Enhancements to the backyard composting program is anticipated to improve participation rates and decrease the amount of food scraps going to landfills. This program could lead to higher levels of diversion after the initial uptake of the enhanced program.

Option 2	Complete a Business Case and Pilot Program for a Green Bin Program
Description	There is potential for the City to increase its diversion rate if a Green Bin curbside collection program is implemented for food scraps. Careful planning needs to occur including the identification of organic material end markets to determine processing options, potential partnerships and collection options. The City will need to complete a cost-benefit analysis to assess if a green bin curbside collection program is feasible. Collection frequency will depend on the material, material quantity, processing, end of life management and budget. The City may decide to charge a fee for separate collection of organics or the cost may be built into the overall solid waste management fees charged to residents. Funding for a Green Bin program may be available through grants such as the Partnerships stream of the Government of Canada's Low Carbon Economy Challenge and the Ministry of Municipal Affairs grant to modernize small and rural communities.
Assumptions	• Provincial and federal changes will occur that will impact the management of organics; • For the pilot, the City will not build their own processing facility and will use the composting pad for the small amount of organics generated; • Following the pilot, the City will assess the feasibility of building a processing facility and/or partnerships with other municipalities based on the expected amount of organics; and • Organic material will be beneficially used.
Area(s) of Focus	• Ontario based examples, if possible.
Proposed Timing	Planning: 2023 Implementation: 2024
Supporting Rationale (City)	The City's Official Plan, 2007 Waste Management Plan and responses from the public survey indicated that developing a green bin program is a priority in Owen Sound. The Food and Organic Waste Statement (2018) requires municipalities to have residential source separated organic collections systems in place for 80 to 90% of the population by 2025.

Option 2	Complete a Business Case and Pilot Program for a Green Bin Program
	Implementing a curbside green bin collection program is likely to increase the City's diversion rate and reduce the amount of garbage that requires landfilling.
Supporting Rationale (Research)	**Windsor, ON:** In 2018 the City of Windsor conducted a study to evaluate food waste management alternatives in the community. The study explored current and future regulations, historical waste generation, population trends, organic management best practices, various processing technologies, alternative organics management and resulted in a list of recommended next steps. In 2020, the City developed a Waste Management Plan, which recommended a regional approach to managing organic waste. This strategy was approved by the Essex Windsor Solid Waste Authority; however, not all communities agreed to participate due to the high anticipated costs. The City of Windsor has indicated that they may utilize a private company to process the City's organic waste in the short term, until a long term regional decision is made. **Peterborough, ON:** The City of Peterborough currently has two pilot organics curbside collection programs. The organics programs have been operating since 2006 and 2019, in Selwyn and Cavan Monaghan, respectively. There are various drop-off sites for food waste around the communities which can be used free of charge by residents. In 2020, the federal government provided the City of Peterborough $6 million dollars to develop a centralized composting centre. The funding also supports the City's expansion of the pilot green bin program. The funding comes from the Partnerships stream of the Government of Canada's Low Carbon Economy Challenge which invests in projects that reduce carbon pollution. The Township of Cavan Monaghan initiated an organic waste pilot project in 2019 which ran for a total of nine months. Curbside collection of organic waste (kitchen waste only) from approximately 1,000 households was completed. The capital costs of curbside collection services and kitchen collection bins totalled $26,000, with the total pilot project costing $110,000; funded by the Ministry of Municipal Affairs grant to modernize small and rural communities. The Township created a "Household Waste Sorting Guide" which outlined what is accepted, what liners can be used in kitchen collectors and bins, where to pick up bins, pickup schedules and other useful information. After a

Option 2	Complete a Business Case and Pilot Program for a Green Bin Program
	successful pilot program, the Town implemented a weekly organics curbside collection program. **Lethbridge, AB:** The City of Lethbridge plans to implement a full residential curbside Green Bin program in 2023 after a Feasibility Study was presented to Council and a successful curbside Green Bin pilot was conducted. A specific focus in the Feasibility Study was to evaluate and compare two options: costs of a self-haul program to existing recycling drop-off centres compared to a curbside collection program. The drop-off centres currently accept yard waste; however, in order to accept food waste they would require more space, additional staff and would need to transport food waste to a processing facility. Monthly costs to residents for a self-haul (or optional drop-off program) was estimated to be $8 and mandatory curbside collection was estimated at $5. Diversion rates were measured for the two options and it was estimated that 11,000 tonnes of organic material would be diverted through curbside collection whereas only 3,000 tonnes was estimated to be diverted through the self-haul program. **Winnipeg, MB:** The City of Winnipeg recently offered $65,000 in funding to the local social enterprise "Compost Winnipeg" which is an organization that offers compost collection services. Compost Winnipeg has been conducting a two-year pilot program for residential food waste collection to 4,000 households in six communities. This pilot program will end in March 2023 and cost a total of $222,000. The funding will go towards supporting outreach in multi-family households to increase buy-in and participation in the program and to assist with the purchase of a new collection truck. Service charges for the current program (serving 1,000 households and 200 commercial customers) is $360 annually, or $35 per month per commercial customer. Upon conclusion of the pilot program, a report will be submitted to Council which will outline the results of the program and advocate for the implementation of a full collection service.

Option 2	Complete a Business Case and Pilot Program for a Green Bin Program
KPIs	• Waste diversion (tonnes of food waste diverted); • Waste composition study results (amount of food waste in the garbage stream); • Public support/acceptance; and • Pilot results.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	3 – Annual operating costs are estimated to be less than $100,000 for a Green Bin pilot program, depending on how it's developed/implemented and number of pilot households.
Economic Feasibility	Capital Costs	2 – Capital costs are estimated to be between $100,000 and $500,000 for a Green Bin pilot program, depending on how it's developed/implemented and number of pilot households.
Economic Feasibility	Level of Risk	2 – Significant risks are not involved with the feasibility study; however, the pilot of a green bin program will have moderate risks involved with the collection of organic materials, as well as potential contractual and/or legal risks with the collection services contractor.
Social Impact	Proven or Unproven	3 – Green bin curbside collection has been proven in similar Ontario jurisdictions and throughout Canada.
Social Impact	Level of Effort	1 – A high level of effort would be expected to implement a full green bin curbside collection program. The planning period for a pilot program will be approximately six months to one year with the pilot lasting up to one year. The City would need to determine details of the program, including: method(s) of collection and developing/tendering a collection contract. The City will need to consider timelines for ordering/delivering bins and securing a contractor for collections services.

Evaluation Criteria	Indicator	Evaluation
Environmental Impacts	Climate Change Impacts	2 – There will be an increase in GHG emissions due to the addition of collection vehicles for organics. Methane emissions will decrease at landfills in correlation with the quantity of organics that are diverted through the green bin program.
Environmental Impacts	Diversion Potential	3 – Implementing a green bin program following successful pilot results would be expected to decrease the amount of material entering the landfill. Studies from similar jurisdictions showed up to a 50% decrease of organic materials in garbage bins.

Option 3	Explore Long-Term Operations at the City Compost Site
Description	This option explores various opportunities for enhancement of the current L&Y compost site. Options may include hiring dedicated part-time waste management staff, forming a financial agreement and/or partnership with neighbouring municipalities for resident access, resource recovery opportunities, opportunities to accept additional materials and exploring excess soil management strategies.
Assumptions	• Assumes the City has resources to hire part-time waste management staff; and • Assumes there is partnership interest from neighbouring municipalities if a partnership option is selected.
Area(s) of Focus	• Ontario based examples, if possible.
Proposed Timing	Planning: 2025 Implementation: 2026
Supporting Rationale (City)	The City does not collect L&Y waste at the curb; instead, materials must be brought to the Compost Site which uses windrow composting. The site currently is un-staffed. The City has indicated that there is potential for improvement and growth of the site operations. Currently, the City charges $1,400 per neighbouring municipality plus a cost per vehicle for these municipalities' residents to participate in the City's HHW days. A similar model could exist at this facility for L&Y materials and any additional materials that could be accepted at this site.
Supporting Rationale (Research)	Diversion rates through L&Y depots depend on the level of education and awareness of the program, number and location of the depot and the physical accessibility of the drop-off site. Piles and bunkers are commonly used at L&Y drop-off locations as they generally assist with maintaining a cleaner-looking site and pile. Bunkers can be constructed from a number of materials and are convenient for front-end or skid-steer loaders. The use of low-sided roll-off containers at drop-off depots is less common, yet equally functional. Containers eliminate the handling required to load materials into trucks; however, they require the use of a roll-off truck to transport the materials which could be purchased or contracted out. Rather than providing drop-off locations, some municipalities choose to provide several "neighbourhood drop-off sites" to boost convenience and participation. These sites generally use large waste

Option 3	Explore Long-Term Operations at the City Compost Site
	containers such as a front-end bin. Unsupervised sites are less costly; however, there is increased risks of materials not being acceptable and/or vandalized. These sites need to be checked and emptied on a weekly basis, have good road access and have clear signage to provide directions to site users. Best management practices for excess soil management include some of the following best practices according to a guide by the Ministry of the Environment, Conservation and Parks (MECP): • Develop a Traffic and Transportation Management Plan for the excess soil; • Develop a Soil Management Plan; • Provide erosion and run-off controls, audit sampling protocols and a stormwater management plan; and • Consider operational best management practices for temporary soil storage sites such as store soil on a paved surface and cover soil storage piles when not in use. **York Region, ON:** There are several waste depots across York Region which allow residents to drop off garbage, recycling, yard waste, electronics and other items for disposal. The Georgina Transfer Station, Household Waste and Recycling Depot accepts a wide range of materials in different sections of the depot. Materials accepted are required to be generated by residents only, IC&I waste is not accepted. Fees are charged for certain materials, such as mixed loads (C&D waste, yard waste, e-waste, metals, etc.) and refrigerated appliances (without a chlorofluorocarbon [CFC] removal sticker), whereas there is no charge for materials such as blue box recyclables, textiles, household hazardous waste, refrigerated appliances (with CFC removal sticker), scrap metal, shredded paper and tires. Residents and/or businesses will drive up to the scalehouse where an attendant identifies the waste material and issues the appropriate waste ticket. The customer will go to the designated area to drop off their materials. On the way out of the depot, the customer will pay for their materials. **Durham – York Partnership, ON:** The Durham-York Energy Centre (DYEC) is a waste-to-energy facility located in Clarington, Ontario. The facility is co-owned by York Region and Durham Region and

Option 3	Explore Long-Term Operations at the City Compost Site
	processes residential garbage generated from both regions. Annually, the facility processes about 30,000 tonnes of residential garbage from York Region and 110,000 tonnes from Durham Region. This tonnage is diverted from landfill and produces electricity to power about 10,000 houses per year. **Wellington, ON:** The County of Wellington has a L&Y waste drop-off program at all six County waste facilities available for residents to use. Materials are accepted by County residents, free of charge, from spring through to fall every year. Fees apply for wood, brush and commercial/business loads. L&Y materials need to be brought in brown paper yard waste bags, a reusable can or loose. Accepted materials include leaves, small twigs, garden trimmings, dead plants, mulch, grass edging, pine cones, fallen fruit and nuts, pumpkins, straw and corn stalks. Accepted material collected is then transferred to All Treat Farms where it is turned into compost which becomes the main ingredient in lawn care and garden soil products. **Chatham-Kent, ON:** Chatham-Kent has municipal L&Y depots operating in nine different communities. Residents are permitted to drop off two cubic metres (25 garbage bags) free of charge per day and are charged $1 per bag in excess. Residents must provide proof of residency upon request and bring cash for excess materials. All L&Y waste delivered to the depots is ground into mulch and available free of charge to residents to use in their yards and gardens. All bags and containers must be emptied on site by residents and cardboard boxes flattened before being placed in the dumpster. The municipality has been experiencing some issues with residents violating rules, they are considering adding a gate across the areas so that residents are only allowed to use the depot during operating hours. **Halton, ON:** The Halton Waste Management Site is a drop-off location for residents to use which accepts a variety of materials including recyclables, green bin organics, household hazardous waste, mixed yard waste, leaves and brush, large appliances and C&D materials. The Site is located on 311 acres of land, designed for approximately 8 million cubic meters of domestic, commercial and non-hazardous solid waste. There is a designated depot for the

Option 3	Explore Long-Term Operations at the City Compost Site
	collection of hazardous and special waste and reusable items, a depot for domestic and commercial solid waste, a compost pad which accept L&Y waste, a brush and yard waste pad which accepts over-size brush and a wood pad.
KPIs	• Revenue generated from processing of L&Y waste; • Diversion rate; and • Participation rates.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	2 – Annual operating costs are estimated to be between $100,000 and $500,000.
Economic Feasibility	Capital Costs	2 – Capital costs are estimated to be between $100,000 and $500,000 if the municipality does not partner with neighbouring municipalities 3 – Capital costs are estimated to be less than $100,000 if the municipality partners with neighbouring municipalities Note that a score of 2 was used for evaluation purposes.
Economic Feasibility	Level of Risk	2 – Depending on the approach(es) the City decides to move forward with, there may be partnership and/or financial agreements which may increase risk if not properly reviewed. There may also be increased risk of accepting different types of waste material if they are hazardous. Appropriate protective gear and management of these materials will be needed to mitigate risk.
Social Impact	Proven or Unproven	3 – Many municipalities in Ontario and throughout Canada have implemented enhancements and operational changes to their L&Y site

Evaluation Criteria	Indicator	Evaluation
Social Impact	Level of Effort	1 – Operational changes, official partnership and/or financial agreements and hiring a dedicated staff will take high effort to implement as there are strict protocols to use. Depending on the pursued approach(es), there may be additional consultant, legal support and/or financial support required.
Environmental Impacts	Climate Change Impacts	1 – No significant impacts to GHG emissions are expected from enhancing the compost site
Environmental Impacts	Diversion Potential	1 – Enhancements to the compost site are not expected to result in significant increases in diversion rates

Option 4	Explore Options for Increasing the Number of HSP Drop-Off Events
Description	Conduct a cost-benefit analysis of increasing the number of HSP (HHW) drop-off events that occur each year once the transition to producer responsibility has been fully enacted.
Assumptions	• There are and will continue to be sufficient quantities of HHW to warrant expansion of the program; and • Residents will actively participate in the expanded program.
Area(s) of Focus	• Ontario based examples.
Proposed Timing	Planning: 2025 Implementation: 2026
Supporting Rationale (City)	The 2007 Waste Management Plan and responses from the public survey indicated that expanding the HHW drop-off event is a priority in Owen Sound. The City does not currently have a HHW depot; however, the City organizes eight events each year. Photech disposes of the HHW collected at these events. Residents from neighbouring municipalities can use this program, as the City receives money from these municipalities. Neighbouring municipalities pay the City $1400 plus a fee per car for their residents to be able to participate in the events. Residents are experiencing long wait times at current HHW drop-off events and would like to see this program expanded to increase accessibility and reduce wait times.
Supporting Rationale (Research)	**Sudbury, ON:** The City of Sudbury provides residents with a free Toxic Taxi program that collects HHW. Residents can call or email to arrange a collection time. Residents must be home at the time of their scheduled pick-up. The City of Sudbury also has a HHW Depot that is open on select days of the year where residents can drop-off their HHW free of charge. On the City's website, there are clear instructions for how materials must be labeled, packaged and separated prior to being dropped at the Depot. The website also provides alternative locations to drop off certain waste, as well as useful educational materials such as alternative cleaning products and information on HHW management and disposal. **Toronto, ON:** The City of Toronto provides a free Toxic Taxi pick-up service for HHW. Residents must call to arrange for a pick-up and must follow the guidelines listed on the City's website (i.e., containers must be labeled, materials must be kept separate etc.). The City of Toronto also has HHW drop-off locations at six of their

Option 4	Explore Options for Increasing the Number of HSP Drop-Off Events
	transfer stations. Drop-off of HHW is free with the exception of fluorescent tubes over a certain quantity. **Hamilton, ON:** The City of Hamilton has HHW drop-off locations at all three of their Community Recycling Centres (CRC). The program is free of charge; however, only residents living in Hamilton are permitted to drop off materials at the CRCs; IC&I properties are not permitted to drop off waste. The City's website contains information on less toxic alternatives that residents can use to reduce their HHW generation, as well as how to report spills and illegal dumping.
KPIs	• Annual HHW tonnages received; • Waste audit results; and • Number of cars that drop off materials.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	3 – Annual operating costs are estimated to be under $100,000
Economic Feasibility	Capital Costs	3 – Capital costs are estimated to be under $100,000
Economic Feasibility	Level of Risk	3 –The risk associated with adding an additional HHW drop-off event would be relatively similar as existing risks
Social Impact	Proven or Unproven	3 – HHW drop-off events are already proven within the City
Social Impact	Level of Effort	2 – An increase in staff resources would be required
Environmental Impacts	Climate Change Impacts	2 – Expected to result in moderate reduction in GHG emissions. GHG emissions would be reduced as the approach would help to mitigate system inefficiencies from improper HHW disposal (e.g., reduced contamination of recycling loads)
Environmental Impacts	Diversion Potential	2 – Expected to increase the amount of diversion of HHW from the landfill

Option 5	Explore Enhancing Service Levels such as Weekly Garbage Collection
Description	Explore the feasibility of collecting garbage on a weekly basis.
Assumptions	• The City wants to reduce costs, where possible. Bi-weekly collection of garbage can reduce costs; • The City wants to minimize the amount of major changes to collection to maintain as much consistency as possible; and • It is highly likely that the City will be implementing a food scraps curbside collection program. This can reduce the amount of materials in the garbage stream.
Area(s) of Focus	• Ontario based examples.
Proposed Timing	Planning: 2024 Assess as part of the roll-out of a City-wide green bin program and/or service level options for garbage collection Implementation: Dependent on results of assessment
Supporting Rationale (City)	The City currently provides bi-weekly garbage collection but does not have a curbside Green Bin program. Residents currently dispose of organics in the garbage stream. Organics in the garbage for a two week period creates odour and increases the volume of garbage. Residents may want to explore service level enhancement for these reasons. However, with the implementation of a Green Bin program weekly garbage collection may not be necessary as the organics will be removed from the garbage stream.
Supporting Rationale (Research)	To further support exploring options to enhance service levels including bi-weekly garbage collection, the following municipalities provide insight into their transitions from bi-weekly to weekly garbage collection, or vice versa. A number of municipalities including the Cities of Barrie and Ottawa implemented bi-weekly garbage collection which resulted in a decrease in garbage set out by residents, increased green bin participation and cost savings. Bag limits were maintained during the transition to bi-weekly collection, where for example, a three bag weekly limit became a six bag bi-weekly limit. By implementing bi-weekly garbage collection, both the Cities of Barrie and Ottawa experienced, on average, 15% less garbage being collected and 27% more Green Bin materials being collected, showcasing the large

Option 5	Explore Enhancing Service Levels such as Weekly Garbage Collection
	diversion potential of utilizing a bi-weekly garbage collection program when paired with a food scraps curbside collection program. **Sudbury, ON:** The City of Sudbury transitioned from weekly to bi-weekly garbage collection in 2021 to increase diversion, extend landfill life and save an estimated $954,000. The number of bags collected (2) remained the same, only the collection frequency changed. The City provides select programs for exemptions such as diapers. The City also has a Green Bin program. **Hamilton, ON:** The City of Hamilton currently provides weekly garbage collection for single family units; however, their Solid Waste Management Master Plan outlines service level modifications such as implementing bi-weekly garbage collection. Bi-weekly collection is intended to encourage residents to maximize use of available diversion programs. Public consultation on the proposed bi-weekly collection option found that residents were overall supportive of the change; however, residents did have concerns regarding increased illegal dumping if the bi-weekly garbage collection occurred without appropriate enforcement. They City's bag limit is one bag of garbage per week, noting that the City has a green bin collection program. **Durham, ON:** The Region of Durham transitioned to bi-weekly garbage collection and reduced its bag limit from three bags weekly to four bags bi-weekly. Results of the change to bi-weekly were 27% less garbage collected and 67% more green bin material collected. **North Grenville, ON:** The Township of North Grenville provides bi-weekly garbage collection to its residents, with a ten bag limit. The Township provides weekly recycling and organics collections, alternating between a paper/fibre collection week and a plastics/containers collections collection week for recycling. **Wellington, ON:** Wellington County provides its residents with weekly collection of recyclables and green bin material and bi-weekly collection of garbage. Residents can place out an unlimited number of bags of garbage for collection; however, they must purchase user pay garbage bags. In 2021, the County saw a 15% decrease in the number of garbage bags collected at the curbside, which the County attributes to an increased participation in diversion programs.

Option 5	Explore Enhancing Service Levels such as Weekly Garbage Collection
	Grey Highlands, ON: The Municipality of Grey Highlands has been providing weekly garbage collection and bi-weekly recycling collection. The municipality is in the process of changing garbage to bi-weekly collection due to an estimated cost savings of $147,500 on annual collection costs. Additionally, the municipality is switching to a bin/cart system for garbage and recycling. Currently there is no Green Bin program in place.
KPIs	• Cost savings; • Diversion rates (specifically when coupled with a green bin program); and • Contamination rates.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	1 – Annual operating costs are estimated to be over $500,000
Economic Feasibility	Capital Costs	3 – Capital costs are estimated to be less than $100,000
Economic Feasibility	Level of Risk	1 – The cost of increasing garbage collection from every other week to weekly is estimated to double the current garbage collection costs paid by the City. Environmentally, providing weekly collection may increase the amount of waste that is going to the landfill (and therefore the amount of landfill gas produced, landfill airspace consumed and money spent maintaining the landfill during and after its landfilling lifespan).
Social Impact	Proven or Unproven	1 – This is the opposite direction that municipalities are headed towards.
Social Impact	Level of Effort	2 – Changing from every other week to weekly collection would require additional resources to implement (additional funding, staff, scheduling, etc.).

Evaluation Criteria	Indicator	Evaluation
Environmental Impacts	Climate Change Impacts	1 – This option could result in an increase in GHG emissions since collection vehicles would need to double their current collection efforts. Emissions from increased landfill gas would also increase GHG emissions.
Environmental Impacts	Diversion Potential	1 – This option would not help diversion efforts and may decrease the amount of materials diverted.

Option 6	Enhance the Promotion of the Goods Exchange Day
Description	This option involves the City developing a Promotion and Education Plan to increase participation and awareness of the Goods Exchange Days. The Plan could include elements such as: • Create a dedicated page on the City website for the Goods Exchange Days which could include a calendar, common items at the events and frequently asked questions; • Establish a team of staff and/or volunteers who are engaged in the event and its continuation; • Support local waste avoidance, reuse, reduction and recycling initiatives through the event(s); • Include promotion and education material in a tax insert and/or with other mail out material; and • Conduct surveys to get a better understanding of resident participation.
Assumptions	• Assumes the majority of residents in the City will have access to the internet and a computer to access the webpage.
Area(s) of Focus	• Ontario based examples.
Proposed Timing	Planning: 2023 Implementation: 2023
Supporting Rationale (City)	The City's Official Plan, 2007 Waste Management Plan and recent survey responses indicated that promoting the Goods Exchange Day is a priority in Owen Sound.

Option 6	Enhance the Promotion of the Goods Exchange Day
	Waste Exchange Events promote reuse within a community and assist the City to achieve its waste reduction targets. These types of events are useful tools to promote waste reduction in a convenient manner to residents and require minimal costs and staff time. At minimum these events should be held once in the spring due to being a common 'clean up' time for residents.
Supporting Rationale (Research)	**Toronto, ON:** Businesses and non-profits in the Toronto area can participate in the Materials Exchange program offered by Partners in Project Green (a partnership between the Greater Toronto Airports Authority and the Toronto and Region Conservation Authority). Organizations provide information on the type and quantity of materials needed or in surplus to the Material Exchange team and the team facilitates the exchange of the materials for reuse or recycling. Charitable organizations that can reuse the materials are prioritized. Materials are not exchanged for money, instead organizations save on the cost related to disposal or purchase of new materials. The program is inter-municipal with funding for the program received from partnering municipalities. **Guelph, ON:** The City of Guelph has Goods Exchange Weekends twice a year (spring and fall) where residents can put out used items such as furniture and toys for others to pick up; after 5pm, the City will collect all remaining items. Promotion of the event occurs on the City website, social media platforms, local news outlets and through posters around the City. **Thunder Bay, ON:** The City of Thunder Bay hosts Treasure Exchange Days twice a year (spring and fall) where residents can exchange reusable household items, furniture, small appliances, toys and more. Residents are instructed to leave items labelled "free" on their curbs for the weekend until 7pm on the Sunday to avoid penalties. If items are not claimed over the weekend by other residents, it is suggested to donate the items to a locate Humanity ReStore, Salvation Army Thrift Store or other reuse stores. **North Bay, ON:** The City of North Bay has a bi-annual Goods Exchange Day in support of diverting usable items that homeowners no longer want or use. The event instructs residents to leave usable goods on their curb for neighbours to pick up. These events are

Option 6	Enhance the Promotion of the Goods Exchange Day
	promoted on the City website as well as in various news outlets and social media platforms.
KPIs	• Public awareness; • Website visits; • Number of inputs from public; and • Partner organization feedback and foot traffic.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	3 – Annual operating costs are estimated to be less than $100,000
Economic Feasibility	Capital Costs	3 – Capital costs are estimated to be less than $100,000
Economic Feasibility	Level of Risk	3 – Increased promotion of the goods exchange program will not generate high risk environments or liabilities for the City
Social Impact	Proven or Unproven	3 – Many communities across Canada support similar based programs
Social Impact	Level of Effort	3 – The City already has a Goods Exchange Program; this option looks at methods for enhancement and improvement which will not require high levels of effort and/or resourcing
Environmental Impacts	Climate Change Impacts	2 – Sharing items in the community or buying second hand could decrease the amount of GHG emissions by reducing the amount of raw materials needed to create brand new products
Environmental Impacts	Diversion Potential	1 - 2% diversion or less or is difficult to measure

Option 7	Evaluate Curbside Service Level Options
Description	This option involves conducting a cost analysis study on various curbside service level options including pay-as-you-throw (PAYT) (containers or bag tags), clear bags, and bag/container limits to determine the impacts to residents and the City's programs
Assumptions	• The City will provide enforcement training for the selected preferred option and/or approach; and • One of the explored options will be selected and implemented.
Area(s) of Focus	• Ontario based examples.
Proposed Timing	Planning: 2024 Implementation: 2025
Supporting Rationale (City)	Recent survey responses indicated that exploring various service level garbage collection approaches and/or programs is a priority in Owen Sound.
Supporting Rationale (Research)	**PAYT (bags):** Pay-As-You-Throw (PAYT) is a user-pay based waste collection approach to generate revenue to cover waste management costs, while reducing waste and increasing diversion. • Partial PAYT: provides residents with a set number of “free” bags, with any additional bags being paid for by the resident, as required; and • Full PAYT: requires residents to pay for all bags of garbage. The City of Kingston uses a partial PAYT bag program and Wellington County uses a full PAYT bag program. After the PAYT system was implemented, Wellington County saw a decrease of 15% in the total number of curbside collected garbage bags in 2021. The Municipality of Meaford uses a full PAYT bag program ($4.00 per bag) which allows a maximum of three bags of garbage to be set out on a biweekly basis. The Municipality of Grey Highlands currently uses a partial PAYT program where residents are provided with one free garbage bag per week and need to pay $3.00 for additional bags (noting that their collection system is changing to carts and bi-weekly garbage collection). Garbage bags are often tagged with a purchased garbage tag or, in some cases, specific bags need to be purchased to use for garbage

Option 7	Evaluate Curbside Service Level Options
	materials. A limit on the number of tagged garbage bags set out for collection may be applied under both of the systems. In this case, residents would have to make alternative arrangements for the disposal of any material over this limit. With PAYT, the cost to set out garbage provides the incentive to produce less waste and divert more waste. Residents determine their costs based on how they manage their waste. **PAYT (containers):** Cart programs typically do not accept excess garbage as they carts are collected via semi- or fully automated collection vehicles. These programs typically require residents with excess garbage to drop it off at local depots, transfer stations or landfills. The City of Toronto uses a full PAYT container program where residents pay based on the size of their garbage bin, while the City of Gatineau has a partial PAYT container program where residents provided one 120L gray bin and are required to purchase bag tags ($2.50 for 5 bags) for any excess garbage. Bin sizes and costs in Toronto are as follows: • Small (75L) - $278.34 per year; • Medium (120L) - $337.89 per year; • Large (240L) - $458.91 per year; and • Extra Large (360L) - $532.29 per year. Implementing a full PAYT container program in Owen Sound would require the City to purchase or contract the collection services using trucks compatible with various sized carts, the partial PAYT container program would require a truck capable of handling both carts and bags. The City would also need to consider how to approach managing stockpiled carts that would be available to residents upon request and payment. **Clear Bag Garbage Collection:** According to CIF, approximately 40 Ontario municipalities have successfully implemented a clear bag waste collection policy. Clear bag waste policies have been implemented in municipalities across North America for over a decade and in Canada, over half a million households receive clear bag waste collection. Despite the benefits, municipalities with a clear bag program received strong community opposition to the policy

Option 7	Evaluate Curbside Service Level Options
	change. Privacy concerns were cited as the most pressing issue with a clear bag policy. The Continuous Improvement Fund (CIF) highlights that pre-implementation surveys and consultations typically find over 75% opposition to a clear bag program. The City of Markham permits an unlimited number of clear bags of garbage as long as the contents comply with municipal waste regulations. The allowance of unlimited garbage bag set out was viewed as an advantage to Councillors and residents. Garbage must be put at the curb in regular sized clear bags or in a garbage can. For each collection, up to four small privacy bags are permitted and they should be placed in a clear garbage bag or garbage can. **Bag/Container Limits:** The City of Hamilton and Region of Halton both implement garbage bag/container limits; the City of Hamilton implements a weekly one-bag limit and the Region of Halton implements a bi-weekly three-bag limit. Bag tags are available in both jurisdictions to residents needing to set out additional bags or containers; Hamilton provides 14 additional garbage bags once per year at no charge and Halton sells tags at $2 per tag. Prior to Halton's implementation of the three-bag limit, approximately 85% of households set out three or less bags. Currently, 95% to 97% set out three or less bags on a bi-weekly basis. Some residents do use the largest bags or cans that they are allowed to; however, there are several households that only place out one bag. At the beginning of implementation Halton did see a spike in blue box and green cart tonnes which could have been contamination; however, this jump reduced slightly and normalized as residents realized that they could maintain three bags or less per collection period. Overall success of the City of Hamilton's program has been tied to promotion and education, customer service and enforcement at the curb.
KPIs	• Sale of tags; • Curbside audit results; • Waste composition study results; and • Participation studies (to identify the number of bags per household and use of tags).

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	3 – Annual operating costs to conduct a cost analysis study of options are estimated to be less than $100,000.
Economic Feasibility	Capital Costs	3 – Capital costs to conduct a cost analysis study of options are estimated to be less than $100,000.
Economic Feasibility	Level of Risk	3 – This service level evaluation of garbage collection options is low risk. Once the preferred option and/or approach is selected, there may be moderate risk which can be easily mitigated.
Social Impact	Proven or Unproven	3 – All suggested service level options are proven in Cities similar or larger than Owen Sound.
Social Impact	Level of Effort	2 – The selected preferred option needs to be enforced at point of collection in order to achieve the objective of reducing waste; training will be required for the collectors to ensure they understand the importance of not acceptance criteria.
Environmental Impacts	Climate Change Impacts	2 – This option is anticipated to reduce the amount of waste in the landfill and more diversion, therefore there will be moderate reductions in GHG emissions.
Environmental Impacts	Diversion Potential	1 – The selected preferred option is likely to see a 1 to 2% increase in diversion.

Option 8	Enhance Public Space Container Management and Systems
Description	Explore approaches to enhance the current public space container management systems through the following actions: • Conduct a feasibility and siting study to identify where litter hotspots are in the community (specifically in the River District); • Consider a program or technology for managing overflowing waste receptacles; • Identify locations for signage in hot spot areas and develop/place signage; and • Consider how IPR will impact public space container management and integrate this knowledge into the approaches for enhancing public space container systems.
Assumptions	• Technology to identify container overflow and locations where overflow occurs will result in further methods (including educational programming or increased pick up) to manage waste overflow; and • Programs to enhance public space containers, including public education, will result in better management of public space containers.
Area(s) of Focus	• Ontario based examples, if possible.
Proposed Timing	Planning: 2024 Pilot: 2025 Implementation: 2026
Supporting Rationale (City)	The recent survey responses indicated that enhancing public space container management and systems is a priority in Owen Sound.
Supporting Rationale (Research)	**Sensor/Camera Technology for waste containers:** In-bin cameras are a technology that can monitor the fullness of waste containers as well as contamination. The camera is protected by a plastic cover and can identify up to six types of contamination. Identifying contamination may be beneficial as reducing contamination might help to reduce waste overflow. When a certain level of fullness is detected it can signal a pickup up to the municipality and/or waste collection contractor. Additionally, the technology includes a tilt sensor to identify when a container has been emptied. This allows the container fullness measurement to be reset. Radio Frequency

Option 8	Enhance Public Space Container Management and Systems
	Identification (RFID) tags on waste containers are another technology example for tracking container locations and waste material weights, which could help to identify and better manage waste overflow in specific areas. Peel Region has placed RFID tags on several waste containers for multi-residential buildings to measure parameters including garbage generation rate. These technologies have typically been used for multi-residential waste containers; however, the technologies may also be applicable to public space waste containers. **Toronto, ON:** The City of Toronto increased the frequency of collection by collecting waste from public space containers in hot spots where containers often overflow. Waste from containers is collected day and night, rather than only at night. The City has dedicated staff who collect waste during the day when overflowing containers are observed. **Halton Region, ON:** Halton Region is an upper-tier municipality with four local municipalities. In two of the municipalities there are some public space containers that use the Molok system. With the Molok system, containers are partly underground. Since there is more volume for waste containment and vertical storage, gravity helps to compact the waste. Waste overflow is reduced since the Molok system containers can hold up more waste than typical waste containers. Molok's typically require a crane to lift the containers and empty into a waste collection vehicle. **Newmarket, ON:** The Town of Newmarket is currently using in ground bins called EarthBins for some ICI properties. They are similar to Molok; however, they can be collected by a front-loading collection vehicle. **Langley, BC:** In 2015, the Township of Langley developed a Litter and Illegal Waste Management Strategy. A key component of the strategy was education, which involved a communication campaign with a bold slogan. As part of the campaign, the Township used signage in a bold and creative method to educate the public about illegal dumping. This signage could be used similarly in litter hot spots. Some locations where illegal dumping had occurred were

Option 8	Enhance Public Space Container Management and Systems
	taped off as a crime scene along with the campaign signage discouraging illegal dumping. Additionally, to catch the attention of the public and further discourage illegal dumping, in high traffic areas, the Township placed furniture along the road with the bold campaign slogan signage attached to the furniture.
KPIs	• Contamination rates in public space containers; • Diversion rates (i.e., tonnage of material diverted through public space containers); • Observational studies to indicate public reading signage; and • Number of reports on overflowing public space containers.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	3 – Annual operating costs estimated to be less than $100,000
Economic Feasibility	Capital Costs	3 – Capital costs are estimated to be less than $100,000
Economic Feasibility	Level of Risk	2 – There may be risk in investing in technology if it does not lead to better system management and cost reduction from better management
Social Impact	Proven or Unproven	3 – Signage has resulted in increased participation in some jurisdictions. Increased pick up of waste has reduced overflow of containers
Social Impact	Level of Effort	2 – A feasibility study is needed. Technology or programs may need to be piloted
Environmental Impacts	Climate Change Impacts	1 – Some reduction in GHG emissions could occur in better management of public space containers, including less waste to landfill through improved diversion
Environmental Impacts	Diversion Potential	1 – Improved management from public education and technology can increase waste diversion

Option 9	Develop a Strategy for Managing Litter
Description	Develop a litter strategy with a focus on the River District that includes a communication plan to inform the public on the litter strategy. This includes informing the public of the goals, objectives and recommendations. The strategy could include a bold or catchy slogan and/or local artwork to showcase litter to bring attention to the strategy.
Assumptions	• The public shares the same motivation as the City to decrease litter; • The City has/would gather the required information to inform a litter strategy; and • A litter strategy would have a positive impact of decreasing the amount of litter throughout the City.
Area(s) of Focus	• Ontario based examples, if possible.
Proposed Timing	Planning: 2026 Implementation: 2027
Supporting Rationale (City)	Input from the City and recent survey responses indicated that developing a litter strategy is a priority in Owen Sound.
Supporting Rationale (Research)	**Burlington, ON:** Burlington Green (sponsored by the City of Burlington and local partners) hosts events where residents can organize litter clean up events from spring until fall. Free supplies and instructions are provided to participants and prizes are awarded. The program has approximately 10,000 participants per year. **York Region, ON:** York Region is an upper-tier jurisdiction in Ontario. The Region has been developing single-use plastics and litter reduction strategies for approximately three years. Due to the COVID-19 pandemic, the remaining development and implementation of the strategies has been delayed until 2023. The Region understands that single-use items contribute to littering in the Region. To better understand public behaviours, attitudes and knowledge towards single-use items, the Region developed and implemented public engagement tools, including online surveys and quizzes and public consultation. Strategies are under development and will include an education strategy to encourage the public to reduce the use of single-use items, 'Ask-First' program to encourage businesses to ask customers before providing single-use items and a

Option 9	Develop a Strategy for Managing Litter
	communications strategy to reduce contamination of recycling (Blue Box) materials. Communication tools for the communications strategy include print and digital advertisements, signage and social media. Additionally, the Region is developing policies to collaborate with local businesses in reducing single-use items. **Ottawa, ON:** The City of Ottawa has several initiatives for litter prevention. This includes the "Cleaning the Capital Campaign" which occurs each spring and fall where volunteer teams register for litter cleanups citywide. Registered teams can request litter cleanup kits. The "Bucket Brigade" occurs in the summer and students regularly empty waste containers. The students also collect litter from the City's downtown core. In the central area of the City advertisements are not permitted on waste containers. This provides space for educational signage.
KPIs	• Contamination rates in downtown waste containers; • Diversion rates; • Participation rate for litter disposal (from observational studies); • Public feedback from surveys; and • Number of litter incident reports/complaints from the public.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	3 – Annual operating costs are estimated to be less than $100,000
Economic Feasibility	Capital Costs	3 – Capital costs are estimated to be less than $100,000
Economic Feasibility	Level of Risk	3 – There is not much risk anticipated to be associated with developing a litter strategy. If implemented, the intent of the strategy would be to have positive impacts on the environment.
Social Impact	Proven or Unproven	3 – Litter strategies and/or initiatives have been developed in a number of municipalities across Canada.

Evaluation Criteria	Indicator	Evaluation
Social Impact	Level of Effort	2 – Implementation will be dependent on City resources and priorities. Additional resources such as a consultant or a third party contractor may be needed to complete the strategy.
Environmental Impacts	Climate Change Impacts	1 – There would be no reduction in GHG emissions related to developing a litter strategy.
Environmental Impacts	Diversion Potential	1 – There would be no diversion related to developing a litter strategy.

Option 10	Develop a Promotion and Education Strategy
Description	Develop a promotion and education (P&E) strategy for waste management programs including key objectives, goals, awareness campaigns, activities, etc. which help educate and involve residents in waste management programs. The strategy may include: • Promote single-use items management; • Incentivize businesses to reduce their use of single-use items; • Develop workshops on waste management best practices; • Hire a student or new staff member to act as a Waste Educator. Tasks of the Waste Educator could include: monitoring hotspot litter areas, going to schools for waste-related events and/or hosting a booth at a Farmers Market; • Identify local businesses participating in circular economy and zero waste initiatives; • Develop a communications program regarding sharing information with the community and/or the creation of a newsletter; • Improve social media presence and determine target audiences and/or geographies; and • Enhance the City's Waste Management webpage to include tools, resources, local waste-related events, highlights of local businesses supporting reuse. It should be noted that not all residents in Owen Sound will have access to internet and/or computers; therefore, the P&E strategy for waste management programs should ensure there is a mix of in-person and virtual activities and objectives.
Assumptions	• There are accessibility options for online users to be included in the strategy; • The City adds a new full-time equivalent (FTE) where a component of their role (0.25 FTE) is to oversee the P&E Strategy; and • The City assigns a waste management budget for promotion and education related activities.
Area(s) of Focus	• Ontario based examples, if possible.

Option 10	Develop a Promotion and Education Strategy
Proposed Timing	Planning: 2024 Implementation: 2025
Supporting Rationale (City)	The 2007 Waste Management Plan and recent survey responses indicated that developing a waste-related P&E strategy for waste management programs is a priority in Owen Sound.
Supporting Rationale (Research)	**Toronto, ON:** As part of their long term waste strategy, the City organized four speaker series called Waste(ED) that focused on local initiatives that were changing the way waste was reduced, reused and recycled. The topics included reuse, textiles, food and circular economy and involved community organizations local businesses. Events were held at different locations throughout the City and were facilitated by City staff. One event included a Doodle artist who developed a Doodle drawing throughout the event based on the topic and discussion. **Kawartha Lakes, ON:** The City of Kawartha Lakes has an Integrated Waste Management Strategy (2020 to 2024) which outlines promotion and education activities to utilize including: social media, recycle coach app, various methods of advertising and earth and waste reduction week activities. Providing public education to support existing waste services and programs is a key initiative in the City. Recently, the City conducted a Future Waste Options Study to identify the best approach to manage future residual waste and throughout this process various engagement activities such as open houses (both in person and virtual), focused stakeholder sessions, surveys and dedicated web pages were developed. The City also wants to be a leader and be a positive influence for the community and has developed Corporate Waste Reduction Initiatives with key performance indicators to ensure accountability. Corporate Waste Reduction Initiatives include additional training for staff on waste reduction, purchasing policies that promote recycling and reusable materials and improved waste practices in municipal buildings.

Option 10	Develop a Promotion and Education Strategy
KPIs	• Website hits, views or comments; • Positive and supportive public feedback; • Increase in recycling participation rate; • Increase in diversion from landfill rate; • Decrease in recycling contamination rate; and • Decrease in disposal costs.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	2 – Annual operating costs estimated to be between $100,000 to $500,000 and will include the cost of a new staff member
Economic Feasibility	Capital Costs	3 – Capital costs estimated to be less than $100,000
Economic Feasibility	Level of Risk	3 – The City will have full control of the P&E programming and content
Social Impact	Proven or Unproven	3 – Proven in jurisdictions such as smaller municipal governments and also in Ontario jurisdictions
Social Impact	Level of Effort	2 – Education and promotion plan can be implemented with a new staff member or other departments such as communications and website/online development, content, updates and social media communications. Other specific tasks such as public engagement can be carried out by staff or contracted out at the discretion of City.
Environmental Impacts	Climate Change Impacts	1 – Implementation of a P&E strategy does not directly impact GHG; however, if it impacts a reduction in recycling contamination and increases recycling activity, this will indirectly result in some reduction in GHG emissions.
Environmental Impacts	Diversion Potential	1 – A diversion rate impact directly due to P&E is difficult to measure; however, improvement to diversion is anticipated

Option 11	Update the Solid Waste By-law
Description	Update the Solid Waste By-Laws
Assumptions	• Assumes the City has or would enlist the proper expertise to ensure the by-laws are updated to reflect what the waste sector needs.
Area(s) of Focus	• Ontario based examples, if possible.
Proposed Timing	Planning: 2024 Implementation: 2025
Supporting Rationale (City)	The SWOT analysis conducted by Dillon and the City for this Strategy development as well as the recent survey responses indicated that updating the Solid Waste By-law is a priority in Owen Sound. The transition to producer responsibility of the Blue Box program will also require an update to the by-laws.
Supporting Rationale (Research)	**Guelph, ON:** The City of Guelph plans to update its Single-Use Items By-law in January 2023 to include banning single-use items and add new waste collection standards for the IC&I sector. The two by-law updates were recommended to Council through the City's Solid Waste Management Master Plan with the aim to create a greener and healthier environment. The City plans to engage and educate residents and businesses of the changes to ensure there is adequate understanding and compliance of the approved updates. **Nanaimo, BC:** The Regional District of Nanaimo implemented two new solid waste by-laws including Mandatory Waste Source Separation and Waste Hauler Licensing in 2021. The goal of these by-laws was to increase diversion of recyclable and organic material from waste generated by multi-family buildings and the IC&I sector. The Regional District engaged with key stakeholders including businesses, residents, local municipalities and First Nations communities to provide feedback to ensure the by-laws reflect a collective interest. Engagement activities included online webinars, private presentations to interested groups and a feedback form with a Q&A section.
KPIs	• Number of penalties enforced.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	3 – Annual operating costs are estimated to be less than $100,000
Economic Feasibility	Capital Costs	3 – Capital costs are estimated to be less than $100,000
Economic Feasibility	Level of Risk	3 – The risk of updating Solid Waste by-laws would have low risk associated with it. The by-laws could help the City enforce current by-laws if they were updated to reflect the City's current Waste Management procedures and needs.
Social Impact	Proven or Unproven	2 – Proven in jurisdictions smaller than the City and/or in other jurisdictions in Ontario
Social Impact	Level of Effort	2 – Updating Solid Waste by-laws would take a moderate level of effort to implement
Environmental Impacts	Climate Change Impacts	1 – Updating Solid Waste by-laws do not have a direct impact on GHG emissions. Implementing the by-laws could impact GHG emissions in the future; however, no immediate impacts would be seen.
Environmental Impacts	Diversion Potential	1 – Updating Solid Waste by-laws do not have a direct impact on diversion. Implementing the by-laws could impact diversion in the future; however, no immediate impacts would be seen.

Option 12	Enhance Enforcement Mechanisms of the Solid Waste By-Law
Description	Enhance enforcement mechanisms for waste related infringements, including: • Conducting research into best practices (e.g., compliance blitz's); • Implementing fines for littering and/or other unacceptable behaviours as per the waste by-law; • Considering retaining a by-law officer dedicated to solid waste for managing all litter incidents and set out issues including at the compost pad; and • Conducting periodic visual curbside audits and provide residents with immediate feedback on unacceptable materials using tags or notices.
Assumptions	• Assumes changes would be made to the current waste by-law to define and enforce waste related infringements; and • The City has the resources to retain a dedicated solid waste by-law officer and staff for compliance with the bylaw.
Area(s) of Focus	• Ontario based examples, if possible.
Proposed Timing	Planning: 2026 Implementation: 2027
Supporting Rationale (City)	The recent survey responses indicated that enhancing enforcement mechanisms is a priority in Owen Sound.
Supporting Rationale (Research)	If a solid waste enforcement program is going to be effective it is important to have an enforcement officer designated for the solid waste by-law. The enforcement officer typically is the primary person for residents to contact when dealing with non-compliance of the solid waste by-law. Roles and responsibilities vary throughout communities; however, typically they are responsible for identifying existing litter hotspots, establishing procedures for receiving, processing, investigating and resolving waste-related issues and/or complaints, maintaining up-to-date knowledge of waste systems, programs, laws and regulations and participating in the development of waste-related events and promotion. **Markham, ON:** The Town of Markham enforces compliance in recycling programs by requiring clear bags to be used for waste materials. While the City of Owen Sound does not have a clear bag program, some learnings can be made from Markham's enforcement

Option 12	Enhance Enforcement Mechanisms of the Solid Waste By-Law
	efforts, which is conducted by their waste collection operators. Waste collection staff place stickers on dark bags that are placed at the curb, indicating that they will not be collected. The tagged waste bag is left at the curb and residents are required to place the waste in a clear bag and set it out the following week for collection. Markham also monitors waste collection operators and audits collection vehicles to see if there are any dark bags in the loads when unloaded on the tipping floor. **Coquitlam, BC:** The City of Coquitlam has incorporated several curbside collection audit blitzes as a part of their enforcement program. The City has specific set-out requirements in relation to early set-outs. Residents are not permitted to set-out their garbage or green waste containers before 5 am on the day of collection due it being an attractant to bears. The blitzes are completed for all waste collection routes in the City. The number of recorded non-compliances decreased by 64% from 2018 to 2020 and decreased an additional 40% from 2019 to 2020. The overall City blitz was used as a first warning to residents. If the same households have materials set-out prior to 5 am during a second audit, they will receive a fine. **Port Moody, BC:** The City of Port Moody was facing a growing concern of human and bear safety during the summer of 2019, reporting an increase of bear sightings by 31%. The reason for this was due to an increased level of non-compliance of the solid waste by-law such as leaving waste carts unlocked on non-collection days. An update to the by-law was implemented to prevent conflicts between people and bears which increased fines for certain infractions such increasing first offences from $50 to $500.
KPIs	• Reporting from collection staff; • Enforcement; • Waste contamination levels; and • Waste tonnages.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	3 – Annual operating costs are estimated to be less than $100,000
Economic Feasibility	Capital Costs	3 – Capital costs are estimated to be less than $100,000
Economic Feasibility	Level of Risk	1 – Enhancing enforcement mechanisms would be expected to have limited risk associated with it
Social Impact	Proven or Unproven	3 – Enhancing enforcement mechanisms has been proven in larger cities in and outside of Ontario
Social Impact	Level of Effort	2 – Enhancing enforcement mechanisms would require the hiring of a dedicated by-law officer, as well as the promotion and education of the new programs for residents
Environmental Impacts	Climate Change Impacts	1 – Enhancing enforcement mechanisms is not expected to have a significant impact in GHG emissions
Environmental Impacts	Diversion Potential	1 – Enhancing enforcement mechanisms could lead to a minimal increase in diversion of recyclables from landfills if enhanced enforcement is properly executed

Option 13	Improve Waste Management Services in the River District
Description	A cost analysis for various scenarios that improve waste management services within the River District should be completed. This option supports and has cross over with Option 8: Enhance public space container management and systems and Option 9: Develop a litter strategy.
Assumptions	• Assumes that the cost analysis would include a ranking or suggestions on which options would be best to consider moving forward with based on the analysis.
Area(s) of Focus	• Ontario based examples, if possible.
Proposed Timing	Planning: 2025 Implementation: 2026
Supporting Rationale (City)	The SWOT analysis conducted by Dillon and the City for this Strategy development indicated that improving waste management services in the River District is a priority in Owen Sound.
Supporting Rationale (Research)	**Newmarket, ON:** The Town of Newmarket is in the process of developing a Downtown Waste Management Strategy. The project includes three phases of development. Phase 1 includes a background review through waste audits, observational studies, public engagement and presentation of options based on best practices. The second phase involves a financial analysis of options that are carried forward and the third phase involves the development of the actual strategy. **Guelph, ON:** The City of Guelph has rolled out a BIA Collection Pilot. Garbage, recycling and organics collection services are provided to businesses in the downtown area. The collected waste is transported to a centralized location. Businesses can purchase yellow bags for garbage from the City of Guelph. Door-to-door collection is available for yellow bag garbage, recycling and organics on a daily basis. Businesses and residents will also have access to in-ground containers for managing recycling, organics and garbage. User fees include either a flat fee, full user-pay or a combination of both. These fees are only applicable to businesses and will include both door-to-door collection and in-ground containers.

Option 13	Improve Waste Management Services in the River District
	Toronto, ON: The City of Toronto provides commercial waste collection services for garbage, recycling and green bin streams in the downtown area. Collection is provided during the night for major streets and during the day if on a residential route. These services are available to small businesses and mixed-use commercial spaces with different levels of service and frequency of collection based on a fee structure. The program is financed through a variable rate system and charged to the utility bill of the location of each property. The City of Toronto provides carts to residents free of charge. Customers who are IC&I and/or property managers for multi-residential buildings must purchase carts from the City or be approved (based on exception criteria) to use garbage tags for bagged waste. Customers approved for bagged waste can purchase commercial yellow bag tags. A mixture of in-house and contracted collections service providers are available, servicing various types of customers and geographic areas. Most IC&I waste is collected at night by in-house staff as many of the serviced locations are on routes with high traffic volume. Enforcement activities for this program include daily audits in collection areas to ensure participants are registered and monitor for proper waste set out procedures.
KPIs	• Number of customers in compliance (i.e., proper waste set out, proper use of services); • Diversion rate for waste collected in downtown areas; • Contamination rate for waste collected in downtown areas; • Customer feedback through surveys; and • Number of customer and resident complaints.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	3 – Annual operating costs are estimated to be less than $100,000
Economic Feasibility	Capital Costs	3 – Capital costs are estimated to be less than $100,000
Economic Feasibility	Level of Risk	3 – Some risk is associated with changing or entering new contracts for additional waste management services

Evaluation Criteria	Indicator	Evaluation
Social Impact	Proven or Unproven	3 – Greater waste diversion and waste management system efficiency has resulted from improving waste management services in downtown areas in other jurisdictions
Social Impact	Level of Effort	2 – A cost analysis and options evaluation will be required. Surveys to gather feedback and pilot studies may be required.
Environmental Impacts	Climate Change Impacts	1 – GHG emissions could be reduced through increased waste management services, since this could improve waste diversion. Transporting waste to a centralized location may result in reduced GHG emissions from waste collection vehicles.
Environmental Impacts	Diversion Potential	1 – Diversion may result from improved waste management services

Option 14	Develop a Transition Plan for IPR
Description	Develop a transition plan for IPR to understand what needs to stop, start, change and continue as a result of the transition of the Blue Box program. Planning should also include the development of a transition plan schedule. As part of the City's Waste Management Strategy the first steps of the transition plan were provided to the City by Dillon.
Assumptions	• Transitioning the Blue Box program to IPR is a legislative requirement. The City will no longer have a statutory obligation to provide Blue Box services; and • Under the IPR Blue Box program, some customers currently serviced by the City are not included under the Blue Box Regulation such as small businesses in the River District.
Area(s) of Focus	• Ontario based examples, if possible.
Proposed Timing	Planning: 2023 Implementation: 2023
Supporting Rationale (City)	The City's statutory obligations related to Blue Box program will change as a result of the transition. A transition plan will assist the City to understand how the Blue Box regulation will impact component of the City's waste management system. By identifying what will stop, start, change and continue for the people (e.g., customers, staff and contracted services), business processes (e.g., administration) and facilities/ assets (e.g., equipment used for recycling operations, containers, blue boxes), the City will be prepared to transition. Transition planning can support staff in understanding the budgetary implications (e.g., revenue changes, staffing needs, etc.), mitigate risks (e.g., customer confusion, contamination) and have the information it needs to provide to decision makers (e.g., Council).
Supporting Rationale (Research)	**Barrie, ON:** The City of Barrie (population of 147,800) developed a comprehensive transition plan that identifies what the City needs to do with regards to the transition of the Blue Box program to Ontario's producer responsibility program. The City will transition on May 1, 2024 and the plan includes a timeline with critical path milestones and activities that need to be completed before and after the

Option 14	Develop a Transition Plan for IPR
	transition, as well as key decision points. A Transition Tool spreadsheet was also used to support decision making in the lead up to the transition. **Hamilton, ON:** The City of Hamilton (population of 579,200) is working through a series of modules to develop its transition plan. The plan uses a change management approach that identifies what will stop, start, change and continue through the integrated waste management system before and after the City's April 1, 2025 transition date. The City requires a number of decisions to be made as a result of the transition and the Transition Tool spreadsheet is a useful tool for it to have impacts to various parts of the system laid out. A Gantt chart is used to keep the City informed of tasks required due to the transition and the dependencies that some tasks have on others. Modules include the following: 1. System Current State. Summarize components of the municipality's integrated solid waste management system impacted by transition 2. IPR Transition Tool. Based on change management principles, summarize impacts of various scenarios of future states. 3. Transition Plan Schedule. Identify critical paths and milestones for each activity and task over 3 years. 4. Risks and Mitigation. Develop a risk register and identify mitigation strategies. 5. Relationship with PROs. Summarize potential arrangements and considerations when negotiating agreements with PROs. 6. Supporting Studies. Identify additional studies or information to support a seamless transition. 7. Financial Analysis. Analyze financial components and impacts on future state scenarios. 8. Collection Modelling. Model various scenarios based on changes to the collection system and policy changes including options such as a cart feasibility analysis. 9. Transition Plan. Document each module into an action plan to support decision making.

Option 14	Develop a Transition Plan for IPR
KPIs	• Council receives a report for information about the Blue Box transition; • Council and senior management is informed when reviewing proposed budgets and making decisions; and • Successful transition of the Blue Box Program

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	3 – Annual operating costs are estimated to be less than $100,000
Economic Feasibility	Capital Costs	3 – Capital costs are estimated to be less than $100,000. No capital costs will be required
Economic Feasibility	Level of Risk	3 – The financial risk to the City is very low as a result of the transition to EPR, due to the City being able to proactively anticipate risks and mitigate them
Social Impact	Proven or Unproven	3 – Transition plans for IPR are common among Ontario municipalities as each municipality must consider what will stop, start, change and continue within each component of the waste management system once the Blue Box program is no longer part of the overall system.
Social Impact	Level of Effort	3 – The level of effort is low and good planning can reduce the level of effort required later or in other areas of the system
Environmental Impacts	Climate Change Impacts	1 – Transition planning will not reduce GHG emissions
Environmental Impacts	Diversion Potential	1 – Developing a transition plan in itself will not impact diversion; however, implementing well planned activities, such as effective monitoring, can resolve issues and support diversion

Option 15	Explore Opportunities with Neighbouring Municipalities
Description	Explore partnership opportunities with neighbouring municipality to co-own processing options for waste materials.
Assumptions	• Assumes neighbouring partners are open and willing to engage in conversations regarding various processing partnership options.
Area(s) of Focus	• Ontario based examples, if possible.
Proposed Timing	Planning: 2024 Implementation: Dependent on appropriate partnerships
Supporting Rationale (City)	Previously there were partnerships with other neighbouring municipalities for the use of City-owned waste management facilities which no longer exist.
Supporting Rationale (Research)	**Guelph-Wellington, ON:** The County of Wellington and City of Guelph have partnered to build a Circular Food Economy through a federally funded project called 'Our Food Future'. A joint proposal from Guelph-Wellington was submitted in 2019 after nine months of planning with over 150 community partners and resulted in a successful $10 million prize for Canada's Smart Cities Challenge. The Challenge is a nation-wide competition open to all communities encouraging 'smart' approaches to improve the lives of residents through innovation, data collection and technology solutions. Guelph-Wellington has three bold goals to: • Increase access to affordable, nutritious food by 50%; • Develop 50 new circular food businesses, collaborations and social enterprises; and • Increase economic benefit by unlocking value of waste by 50%. **Durham-York, ON:** The Durham-York Energy Plant (DYEC) was a project developed by Covanta Durham York Renewable Energy Limited Partnerships in 2016. The project supplies clean energy through combustion to power 10,000 households in the Durham-York regions. There is a DYEC co-owners agreement which establishes terms and obligations with respect to the operations of the energy plant. Covanta Durham-York Energy Limited Partnership is the O&M contractor for the project for a 20-year period. The facility is one hundred percent publicly owned by Durham and York Regions and only residential garbage from the two regions is

Option 15	Explore Opportunities with Neighbouring Municipalities
	accepted (processing capabilities of up to 110,000 tonnes from Durham and 30,000 tonnes from York per year).
KPIs	• Number of discussions with neighbouring partnerships; and • Number of initiatives with other municipalities which meet both parties' objectives and goals.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	3 – Annual operating costs are estimated to be less than $100,000.
Economic Feasibility	Capital Costs	3 – Capital costs are estimated to be less than $100,000.
Economic Feasibility	Level of Risk	2 – Depending on the partnerships the City decides to move forward with, there may be financial agreements and terms and conditions for each party which may increase risk if not properly reviewed. There is also risk involved with municipalities pulling out of the agreement before it moves forward which would leave the City in a difficult position.
Social Impact	Proven or Unproven	3 – There are several municipality partnerships in Ontario which involve waste management and services.
Social Impact	Level of Effort	1 – This option will take a high level of effort to implement as there are multiple steps included in identifying and exploring who partnerships might occur with and what types of partnerships parties will agree upon.
Environmental Impacts	Climate Change Impacts	1 – This option occurs before planning or implementation, therefore GHG emissions will not be impacted. If the City decides to move forward with implementing this option, GHG emissions may be reduced.

Evaluation Criteria	Indicator	Evaluation
Environmental Impacts	Diversion Potential	1 – This option occurs before planning or implementation, therefore no diversion improvements or impacts will occur. If the City decides to move forward with implementing this option, diversion could be impacted and improve.

Option 16	Establish Climate Change Targets/Policies for Waste Management
Description	Establishing climate change (e.g., GHG emissions) targets and/or policies for waste management activities to adhere to that are in alignment with the City's Climate Action Strategy.
Assumptions	• The policies created would be acceptable/approved; • Climate change initiatives will continue receiving the support and funding needed to achieve them; and • Targets would be S.M.A.R.T. (Specific, measurable, attainable, relevant and time-based).
Area(s) of Focus	• Ontario based examples, if possible.
Proposed Timing	Planning: 2027 Implementation: 2028/2029
Supporting Rationale (City)	The project kick off meeting indicated that developing a climate change mitigation targets and policies specific to Waste Management is a priority in Owen Sound that align with other climate change targets that the City has developed. The City developed a Corporate Climate Change Adaptation Plan in 2021 in cooperation with the Grey Sauble Conservation Authority (GSCA) and with funding by the Federation of Canadian Municipalities (FCM). The Plan follows the Building Adaptive and Resilient Communities (BARC) framework and details the City's current Climate Change efforts, identifies local threats of Climate Change and their impacts and provides a vulnerability assessment which ranked the risk of impacts that were identified as having medium-high vulnerability rankings. The Plan does not include any specific assessments or plans to address Climate Change related impacts to the Waste Management sector.
Supporting Rationale (Research)	**Muskoka, ON:** The District Municipality of Muskoka has been a part of the Partners for Climate Protection (PCP) program since 2019. The PCP program is managed and implemented by the Federation of Canadian Municipalities (FCM) and Local Governments for Sustainability (ICLEI) Canada with funding from the Government of Canada and ICLEI Canada. The program provides municipalities with resources to assist them in meeting and implementing their Climate Change related goals. In 2019 the District produced their New Leaf Climate Action Plan. The Plan mentions their ongoing efforts to develop a corporate waste reduction strategy as a part of their incentives to reduce GHG emissions. The strategy will investigate

Option 16	Establish Climate Change Targets/Policies for Waste Management
	ways to increase participation, education and potential expansion of diversion programs; and will consider potential funding options and partnerships with other Municipalities to construct a facility that could convert organic material to renewable natural gas. **King, ON:** The Township of King has been a part of the PCP program since 2019. The Township has created the King Climate Action Plan which details plans to consider creating a community organics pilot program, considering the feasibly and funding options for agricultural anaerobic digestion, as well as considering implementing the York Region circular economy waste model. **Timmins, ON:** The City of Timmins has been a part of the PCP program since 2018. The City has developed a GHG Reduction Plan which details emissions from the Waste industry in the City and includes planned solid waste reduction programs.
KPIs	• GHG reductions based on waste management activities/programs.

Evaluation Criteria	Indicator	Evaluation
Economic Feasibility	Annual Operating Costs	3 – Annual operating costs are estimated to be less than $100,000.
Economic Feasibility	Capital Costs	3 – Capital costs are estimated to be less than $100,000.
Economic Feasibility	Level of Risk	3 – Development of Climate Change documentation (i.e., policies, reports. etc.) would be expected to have good results for the environment, the community and would not have significant liability for the City.
Social Impact	Proven or Unproven	3 – Climate Change Plans which include waste related goals and planned actions have been created by municipalities larger than Owen Sound. Funding and support is available through the PCP program.

Evaluation Criteria	Indicator	Evaluation
Social Impact	Level of Effort	2 – The City may require additional funding to help produce Climate Change documentation. The timeline for the documentation would depend on numerous factors; however, would likely be able to make progress in the next five years.
Environmental Impacts	Climate Change Impacts	1 – Creating Climate Change documentation would not have any immediate GHG emission reductions; however, the policies or action plans created in the documentation could lead to GHG emission reductions in the future.
Environmental Impacts	Diversion Potential	1 – Creating Climate Change documentation would not have any immediate impacts on diversion rates; however, the policies or action plans created in the documentation could lead to an increase in diversion in the future.

Evaluation Summary – Economic Feasibility

Evaluation Indicator	Operating Costs	Capital Costs	Level of Risk	Subtotal
1: Enhance Backyard Compost Program	3	3	3	9
2: Complete a Business Case and Pilot Program for a Green Bin Curbside Collection Program	3	2	2	7
3: Explore Long Term Operations at the City Compost Site	2	2	2	6
4: Explore Options for Increasing the Number of HSP Drop-Off Events	3	3	3	9
5: Explore Enhancing Service Levels such as Weekly Garbage Collection	1	3	1	5
6: Enhance the Promotion of the Goods Exchange Day	3	3	3	9
7: Evaluate Curbside Service Level Options	3	3	3	9
8: Enhance Public Space Container Management and Systems	3	3	2	8
9: Develop Strategy for Managing Litter	3	3	3	9
10: Develop a Promotion and Education Strategy	2	3	3	8
11: Update the Solid Waste By-law	3	3	3	9
12: Enhance Enforcement Mechanisms of the Solid Waste By-Law	3	3	1	7
13: Improve Waste Management Services in the River District	3	3	3	9
14: Develop a Transition Plan for IPR	3	3	3	9

Evaluation Indicator	Operating Costs	Capital Costs	Level of Risk	Subtotal
15: Explore Opportunities with Neighbouring Municipalities	3	3	2	8
16: Establish Climate Change Targets/Policies for Waste Management	3	3	3	9

Evaluation Summary – Social Impacts

Evaluation Indicator	Proven or Unproven	Level of Risk	Subtotal
1: Enhance Backyard Compost Program	3	2	5
2: Complete a Business Case and Pilot Program for a Green Bin Curbside Collection Program	3	1	4
3: Explore Long Term Operations at the City Compost Site	3	1	4
4: Explore Options for Increasing the Number of HSP Drop-Off Events	3	2	5
5: Explore Enhancing Service Levels such as Weekly Garbage Collection	1	2	3
6: Enhance the Promotion of the Goods Exchange Day	3	3	6
7: Evaluate Curbside Service Level Options	3	2	5
8: Enhance Public Space Container Management and Systems	3	2	5
9: Develop Strategy for Managing Litter	3	2	5
10: Develop a Promotion and Education Strategy	3	2	5
11: Update the Solid Waste By-law	2	2	4
12: Enhance Enforcement Mechanisms of the Solid Waste By-Law	3	2	5
13: Improve Waste Management Services in the River District	3	2	5
14: Develop a Transition Plan for IPR	3	3	6
15: Explore Opportunities with Neighbouring Municipalities	3	1	4
16: Establish Climate Change Targets/Policies for Waste Management	3	2	5

Evaluation Summary – Environmental Impacts

Evaluation Indicator	Climate Change Impacts	Diversion Potential	Subtotal
1: Enhance Backyard Compost Program	2	2	4
2: Complete a Business Case and Pilot Program for a Green Bin Curbside Collection Program	2	3	5
3: Explore Long Term Operations at the City Compost Site	1	1	2
4: Explore Options for Increasing the Number of HSP Drop-Off Events	2	2	4
5: Explore Enhancing Service Levels such as Weekly Garbage Collection	1	1	2
6: Enhance the Promotion of the Goods Exchange Day	2	1	3
7: Evaluate Curbside Service Level Options	2	1	3
8: Enhance Public Space Container Management and Systems	1	1	2
9: Develop Strategy for Managing Litter	1	1	2
10: Develop a Promotion and Education Strategy	1	1	2
11: Update the Solid Waste By-law	1	1	2
12: Enhance Enforcement Mechanisms of the Solid Waste By-Law	1	1	2
13: Improve Waste Management Services in the River District	1	1	2
14: Develop a Transition Plan for IPR	1	1	2
15: Explore Opportunities with Neighbouring Municipalities	1	1	2
16: Establish Climate Change Targets/Policies for Waste Management	1	1	2

Evaluation Summary

Evaluation Criteria	Economic Feasibility	Social Impacts	Environ-mental Impacts	Total
1: Enhance Backyard Compost Program	9	5	4	18
2: Complete a Business Case and Pilot Program for a Green Bin Curbside Collection Program	7	4	5	16
3: Explore Long Term Operations at the City Compost Site	6	4	2	12
4: Explore Options for Increasing the Number of HSP Drop-Off Events	9	5	4	18
5: Explore Enhancing Service Levels such as Weekly Garbage Collection	5	3	2	10
6: Enhance the Promotion of the Goods Exchange Day	9	6	3	18
7: Evaluate Curbside Service Level Options	9	5	3	17
8: Enhance Public Space Container Management and Systems	8	5	2	15
9: Develop Strategy for Managing Litter	9	5	2	16
10: Develop a Promotion and Education Strategy	8	5	2	15
11: Update the Solid Waste By-law	9	4	2	15
12: Enhance Enforcement Mechanisms of the Solid Waste By-Law	7	5	2	14
13: Improve Waste Management Services in the River District	9	5	2	16
14: Develop a Transition Plan for IPR	9	6	2	17

Evaluation Criteria	Economic Feasibility	Social Impacts	Environ-mental Impacts	Total
15: Explore Opportunities with Neighbouring Municipalities	8	4	2	14
16: Establish Climate Change Targets/Policies for Waste Management	9	5	2	16