

DRAFT MULTI-RESIDENTIAL WASTE DIVERSION STRATEGY

City of Ottawa
Public Works Department
April 2022

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Multi-Residential Waste Diversion Strategy

Introduction

The Multi-Residential (MR) Waste Diversion Strategy is one of the first component projects of the City of Ottawa's Solid Waste Master Plan (SWMP). The SWMP will provide the overall framework, direction, and goals for solid waste management, diversion, and reduction over the short-, medium- and long-term horizon. Through an extensive research, evaluation, and public consultation process, 57 initiatives were identified to support the City in achieving the Council-approved vision and guiding principles of the SWMP.

In the scoping and development of the Solid Waste Master Plan in 2019, it was identified by City Council, staff, and residents that proactive planning for multi-residential waste diversion should begin immediately to address low diversion rates. The multi-residential waste diversion rate is 16 per cent¹, a rate that has remained relatively unchanged for several years and is 35 per cent lower than it is for curbside properties. For this reason, the MR Waste Diversion Strategy was developed concurrent to the SWMP to advance work on improving waste diversion at multi-residential properties and align with SWMP strategic directions and anticipated recommendations.

The development of the Multi-Residential Waste Diversion Strategy has allowed the City to recommend a holistic planning approach to improving waste diversion at multi-residential properties. The strategy's recommendations consider factors that influence how residents and tenants use waste programs, challenges faced by property management staff in delivering and managing diversion programs, and the influence of Provincial regulations, directions, and initiatives on waste programs. A strategy endorsed by Ottawa City Council that considers the complexities of multi-residential waste management aims to support the City moving forward with a consistent and approved approach to increasing waste diversion across the multi-residential sector.

The goal of this strategy is to increase waste diversion at multi-residential properties over a five-year planning horizon. The proposed approach to do so is to implement the evidence-based pillars outlined in this document, which were identified after assessing participating rates in diversion programs, understanding barriers and challenges faced by residents, tenants, and property staff to participating in diversion programs, and

¹ Based on 2020 collected tonnages.

gleaning insight on industry best practices to support increasing resident knowledge and awareness of recycling and organics programs.

Ottawa's Current Multi-Residential Waste Management Program

The City of Ottawa provides waste collection service to 2,150 multi-residential properties. The City of Ottawa defines multi-residential properties under the [Solid Waste Management By-law](#) as a group of residential dwellings containing six or more residential units. These properties include rental and condominium properties comprised of townhomes, walk-ups and high-rise buildings. These properties contain 115,000 units (representing 28 per cent of Ottawa households²) and are home to 21 per cent of Ottawa's one million residents.

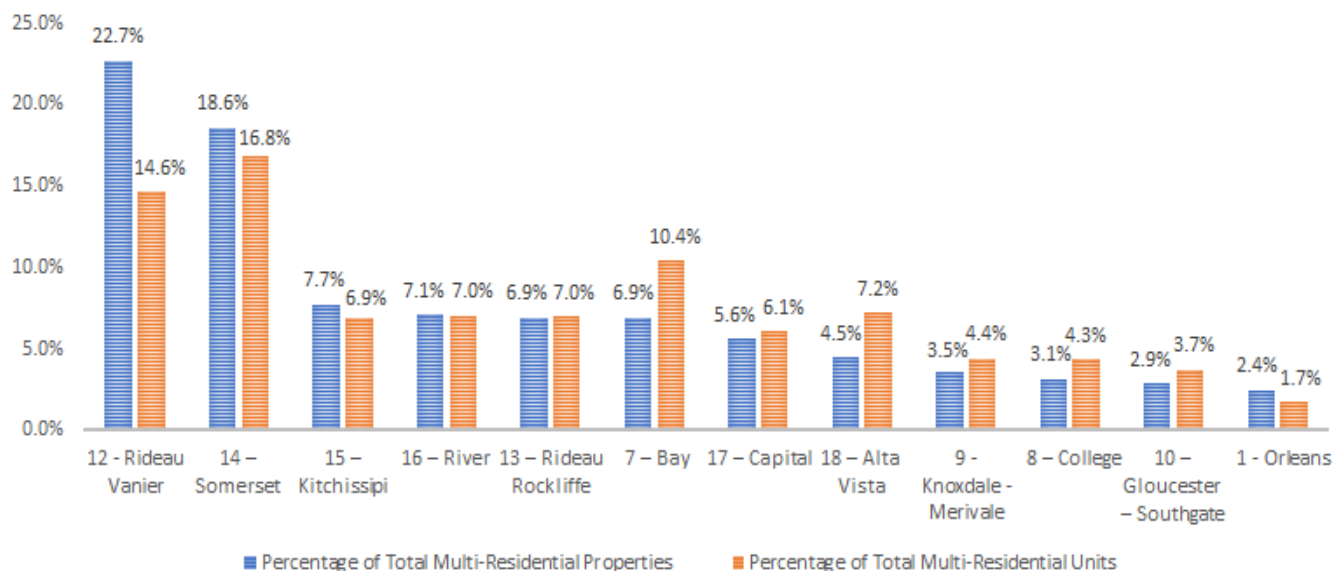
Multi-residential properties include a mix of property types that, for the purposes of waste collection, have been categorized as either "high-rise" or "low-rise" properties: "High-rise" properties that have five or more storeys with a common entrance for residents represent 73 per cent of the multi-residential properties serviced by the City of Ottawa.

Twenty-seven per cent of the properties are classified as "low-rise" properties consisting primarily of townhome complexes or apartments that are less than 5 storeys.

While these properties are spread across the City, there is a significantly higher proportion of properties located in the urban area of the City and along the Rideau River. Figure 1 shows the percentage of multi-residential properties and residential units serviced by the City of Ottawa in each ward. All wards not included in Figure 1 have less than one per cent of all multi-residential properties and less than one percent of multi-residential units.

² Based on 2021 taxation.

Figure 1: Proportion of Multi-Residential Properties and Residential Units in Each Ward



Approximately 18 per cent of the waste collected by the City is from multi-residential properties, with the remaining 82 per cent being collected from curbside households. The City collected 67,569 tonnes of waste from multi-residential properties in 2021. During that year, 83 per cent of waste disposed of at multi-residential properties was thrown away as garbage (totalling 56,303 tonnes) and 17 per cent was diverted from landfill.

A Multi-Residential Waste Audit Study was completed in 2019 to understand the composition of waste disposed of in each waste stream. The Waste Audit Study found that 58 per cent of waste disposed of as garbage could have been diverted through the City’s multi-residential diversion programs. Green bin organic material represented 39 per cent of the material sent to landfill, while 7 per cent consisted of black bin material and 12 per cent consisted of blue bin material (by weight).

The capture rate³ for recyclable material was 35 per cent, meaning that 65 per cent of recyclable material disposed of was thrown in the garbage. The same study found that properties with a Green Bin program in place had a capture rate of 30 per cent, meaning 70 per cent of food and organic waste was incorrectly thrown in the garbage.

³ Capture rate measures how much of a specific material is being diverted from landfill, compared to the total amount of that material in the waste stream.

Key Considerations in Developing the Multi-Residential Waste Diversion Strategy

In developing recommendations to support increasing waste diversion, it is important to understand and consider factors that influence waste disposal in the multi-residential sector and that may impact it in the future.

Provincial Regulations and Directions

While all three levels of government may impact waste management and diversion, residential waste management is primarily regulated at the provincial level and carried out by local municipalities. The City of Ottawa is responsible for the collection, transportation, processing, and disposal of residential waste. Multi-residential properties, however, are classified as Industrial, Commercial and Institutional (IC&I) under Provincial regulations. Under this regulation, property owners are responsible for establishing waste management programs that align with Provincial regulations. This means that municipalities have no statutory role to play in waste collection and diversion services at multi-residential properties. Despite this, most municipalities in Ontario offer waste collection service to multi-residential properties⁴. The City of Ottawa has offered waste collection to the multi-residential sector since the amalgamation of Solid Waste programs in 1995.

Both the Strategy for a Waste-Free Ontario: Building the Circular Economy and the Food and Organic Waste Policy Statement provide direction on improving waste diversion and reducing the environmental impact of waste:

- [Strategy for a Waste-Free Ontario: Building the Circular Economy](#):
 - o Under *Resource Recovery and Circular Economy Act*, the Minister of Environment, Conservation, and Parks was responsible for developing a “*Strategy for a Waste-Free Ontario*” intended to build a system that puts valuable materials destined for landfill back into the economy.
 - o The Strategy sets Province-wide goals, including:
 - 50 per cent waste diversion by 2030;

⁴ The Office of the Auditor General of Ontario estimates that approximately 80 per cent of multi-residential households in the Province receive municipal garbage and recycling collection.

- Zero-waste Ontario; and,
 - Zero greenhouse gas emissions from the waste sector.
- [Food and Organic Waste Policy Statement](#)
 - Enacted under Section 11 of the *Resource Recovery and Circular Economy Act* and sets a policy direction for the Province for food and organic waste.
 - The Policy Statement includes:
 - Target of 50 per cent food waste reduction and recovery target for multi-residential properties by 2025.
 - That all multi-residential properties shall provide collection of food and organic waste to their residents.
 - Engaging in public consultations on the province's commitment to phase out food and organic waste from landfill by 2030
- [Made-in-Ontario Environment Plan](#)
 - Released in 2018 and outlined commitments to prevent food from becoming waste and keeping organics out of landfill.
 - The Province released a [discussion paper](#) in 2019 to further consult on the waste related actions in the Made-in-Ontario Environment Plan. This included developing a proposal to ban food and organic waste from landfill.
 - In November 2020, the Province stated its intent to phase out food and organic waste from landfill by 2030.

All municipalities providing waste collection service to multi-residential properties have the legislative authority to monitor and enforce recycling requirements. The City of Ottawa has the ability to regulate and influence multi-residential waste management and diversion within the City boundaries so long as municipal bylaws do not contradict Provincial regulations or impede a multi-residential property from complying with both municipal and Provincial regulations.

Municipal Strategic Plans and Targets

Strategic planning for municipal programs is seldom an independent undertaking. Improving waste diversion at multi-residential properties is informed or influenced by numerous other City initiatives. Alignment and consideration of other City projects underpin the importance of City staff working collaboratively as One City, One Team – a cross-departmental approach to leverage expertise across the organization to deliver a seamless client experience while maximizing creativity, innovation, and relationship building. Recommendations in this strategy consider the following other City priorities:

- **2019-2022 City Strategic Plan:** This document defines Council’s priorities and serves as a roadmap to guide work for the 2019-2022 Term of Council. The Multi-Residential Waste Diversion Strategy supports Council’s strategic priority of *Environmental Stewardship: grow and protect a healthy, beautiful and vibrant city that can adapt to change.*
- **Energy Evolution and the Climate Change Master Plan (CCMP):** The Multi-Residential Waste Diversion Strategy supports the Energy Evolution and CCMP’s targets and initiatives. Energy Evolution calls for 98 per cent organics diversion from landfill and 100 per cent of paper material diversion to achieve Council-approved greenhouse gas emission reduction targets. Increasing waste diversion at multi-residential properties is outlined in Energy Evolution’s Organics Resource Recovery Strategy, aimed at achieving significant increases in organics diversion starting in 2023.
- **Solid Waste Master Plan:** The Multi-Residential Waste Diversion Strategy is being developed as a component project of the SWMP. Projects undertaken through this Strategy will integrate or contribute to initiatives recommended through the SWMP or will allow the City to adopt industry best practices to support a stronger multi-residential waste diversion program. Key aspects of how the SWMP is being considered for this strategy are outlined later in this document.
- **The City’s Official Plan:** Addressing low waste diversion at multi-residential properties is important as the City of Ottawa continues to grow. According to the City’s new Official Plan, by 2046, the City of Ottawa’s population is expected to surpass 1.4 million people. Housing intensification targets include the development of 52,600 new multi-residential units in Ottawa by July 2046. Given this target, the SWMP estimates that annual collected tonnages in the multi-residential sector will increase by 23 per cent and anticipates an additional

11,985 tonnes of garbage being sent to landfill in 2046 compared to 2020⁵, assuming no improvement to diversion is made.

Barriers and Challenges to Participating in Waste Diversion Programs

Low diversion and capture rates are influenced by barriers and challenges to using recycling and organics programs faced by multi-residential stakeholders. Multi-residential waste diversion is influenced by residents and tenants responsible for sorting their waste and participating in recycling and organics programs, as well as the property management sector⁶ that is responsible for delivering waste management programs, communicating with and educating residents and tenants, and complying with provincial regulations and targets.

Barriers and challenges consist of a combination of intrinsic and extrinsic factors that deter or make it difficult for residents, tenants, and property staff to participate in or deliver waste management programs. An important consideration is that existing barriers and challenges are not mutually exclusive: many barriers and challenges occur simultaneously and across stakeholder groups. Addressing the challenges independent of one another will not necessarily lead to increased diversion. This further bolsters the need for an integrated and strategic approach in developing the Multi-Residential Waste Diversion Strategy to recommend the most appropriate combination of options that will address barriers and challenges in a timely manner to increase waste diversion over the five-year period.

Some of the key challenges experienced by residents that impact the success of waste diversion programs include:

- **Inconvenient to participate in waste diversion programs.** Residents living at multi-residential properties in Ottawa identified inconvenience as the top barrier to participating in diversion programs. Thirty-one per cent of residents said that recycling and green bin programs are too inconvenient to

⁵ Garbage includes garbage and bulky waste. Projections derived from Solid Waste Master Plan “Long Term Waste Management Needs” Technical Memo. Appendix D, Tables 13 and 14.

⁶ For the purposes of this document, property management sector includes multi-residential property owners, managers, building managers, superintendents, leasing agents, and any stakeholders contributing to the maintenance and operation of waste programs at multi-residential properties in the City of Ottawa.

start using (31 per cent) and that inconvenience serves as a barrier to using the programs more (26 per cent)⁷. The issue of ‘inconvenience’ is not unique to Ottawa. Studies in Ontario and across the world have found that convenience is one of the strongest barriers (and influential factors) in waste diversion⁸⁹¹⁰. Seventy-six per-cent of residential units at multi-residential properties in Ottawa have access to a garbage chute, with five per cent having access to recycling chutes. Participation in waste diversion programs often involves residents bringing recycling and organic waste to an internal refuse room or bins located outside. The majority of low-rise properties (approximately 85 per cent of units) access communal waste bins outside¹¹.

- **Access to waste diversion programs.** Despite all multi-residential properties being serviced by the City having recycling programs in place and Provincial regulations mandating this, 25 per cent of multi-residential residents said they do not have access to recycling programs¹². Furthermore, about two-thirds of multi-residential residents said they don’t have access to green bin disposal¹³. Access to diversion programs means

⁷ City of Ottawa (2019). A Study of Waste Diversion Behaviours and Attitudes. *City of Ottawa Committee Report June 25, 2019*.
<https://app05.ottawa.ca/sirepub/mtgviewer.aspx?meetid=7784&doctype=minutes&itemid=388765>

⁸ Miafodzyeva, S., & Brandt, N. (2013). Recycling behaviour among householders: synthesizing determinants via a meta-analysis. *Waste and Biomass*, 4(2), 221-235.

⁹ Lakhan, C. (2016). Effectiveness of recycling promotion and education initiatives among first-generation ethnic minorities in Ontario, Canada. *Social Sciences*, 5(2), 23.

¹⁰ Ho, E. (2018). Exploring the social dimensions of multi-residential recycling. *Resources, Conservation and Recycling*, 132, 77-78.

¹¹ Based on City of Ottawa waste collection data retrieved May 2020.

¹² City of Ottawa (2019). A Study of Waste Diversion Behaviours and Attitudes. *City of Ottawa Committee Report June 25, 2019*.
<https://app05.ottawa.ca/sirepub/mtgviewer.aspx?meetid=7784&doctype=minutes&itemid=388765>

¹³ City of Ottawa (2021). Green Bin Enhancement Campaign: Behaviour, Awareness, and Impact. *City of Ottawa Committee Report May 17, 2021*.

that residents can participate in the program, are aware of where the containers are stored and know how they can participate. Access should consider and ensure that all residents have the opportunity to participate.

- **No space in residential units to store diversion containers.** Almost one-third (30 per cent) of multi-residential residents not using diversion programs indicated they do not have enough room in their unit to organize and store recyclables¹⁴. Not all multi-residential properties are designed with space for residents to store garbage, recycling, and green bin containers in their units, or with adequate sorting space near the property’s centralized waste containers.
- **The “yuck” factor.** The belief that diversion programs are smelly, messy, and gross and that they attract bugs and vermin is commonly referred to as the “yuck” factor. While this barrier has been cited by multi-residential residents for all diversion programs, the sentiment is strongest with the Green Bin program. Thirty-eight per cent of MR residents cited the “yuck” factor as the reason they wouldn’t use a Green Bin even if they had access to one¹⁵.
- **Lack of knowledge and awareness of diversion programs.** Proper and full participation in diversion programs cannot be achieved if residents are unaware of a program’s existence or how to use the programs that are in place. An audience segmentation was completed as part of market research in 2018 to group Ottawa residents based on their attitudes and behaviours towards waste programs. Thirty-nine percent of residents living at multi-residential properties fall into the ‘disconnected’ market segment¹⁶. This

<https://app05.ottawa.ca/sirepub/mtgviewer.aspx?meetid=8339&doctype=minutes&itemid=412468>

¹⁴ City of Ottawa (2019). A Study of Waste Diversion Behaviours and Attitudes. *City of Ottawa Committee Report June 25, 2019*.

<https://app05.ottawa.ca/sirepub/mtgviewer.aspx?meetid=7784&doctype=minutes&itemid=388765>

¹⁵ City of Ottawa (2021). Green Bin Enhancement Campaign: Behaviour, Awareness, and Impact. *City of Ottawa Committee Report May 17, 2021*.

<https://app05.ottawa.ca/sirepub/mtgviewer.aspx?meetid=8339&doctype=minutes&itemid=412468>

¹⁶ City of Ottawa (2019). A Study of Waste Diversion Behaviours and Attitudes. *City of Ottawa Committee Report June 25, 2019*.

group has low participation rates in diversion programs and half of this market segment identified that they have a low-moderate knowledge of diversion programs. Only 4 in 10 are satisfied with waste diversion programs in place. When asked in market research to indicate what bin specific waste items were to be disposed in, residents in multi-residential properties had fewer correct scores than residents living at curbside properties. (for example, only 59 per cent of multi-residential respondents correctly placed milk containers in the Blue Bin compared to 71 per cent of curbside respondents).

Some of the key challenges experienced by the property management sector in offering successful waste diversion programs include¹⁷:

- **Limited space for waste programs.** Many multi-residential properties in the City of Ottawa were designed with limited or no space to accommodate recycling and green bin programs. Sixty-five per cent of properties in the City of Ottawa were built before 1990 when recycling programs were not a mandated requirement under Provincial regulations. Furthermore, 84 per cent of all multi-residential properties in the City were constructed before the implementation of the Solid Waste Collection Guidelines for Multi-Unit Residential Development, which includes requirements and best practices for waste management planning at all multi-residential properties receiving City collection services. Seventy per cent of survey respondents indicated limited space is a contributing factor to why their properties are not participating in the green bin program.
- **Smell and pests.** The “yuck” factor is a top concern for both residents and the property management sector. Property staff have acknowledged that smell is not an issue in the winter months but is a top concern in the warmer

¹⁷ As heard from the City’s Multi-Residential Working Group in 2019 and a property management sector survey in 2022. The Working Group’s active members in 2019 represented approximately one-third of all multi-residential properties serviced by the City of Ottawa. The 2022 survey was circulated by members of the working group among their networks to obtain feedback from superintendents, building managers, property owners, and tenant liaisons that are not members of the Multi-Residential Working Group.

<https://app05.ottawa.ca/sirepub/mtgviewer.aspx?meetid=7784&doctype=minutes&itemid=388765>

seasons. Some worry that existing pest issues will be exacerbated with the introduction of a food and organic waste collection program. Sixty-three per cent of survey respondents identified issues with smell as a factor to not participating in the green bin program while 64 per cent said concerns with pests is a barrier to introducing the program.

- **Tenants not participating.** While multi-residential property owners are responsible for delivering and managing waste programs at multi-residential properties, it is difficult to monitor, measure and encourage residents to participate. It can also be difficult for property staff to convey information on the program to those whose first language is not English or may be new to Canada. Seventy-three per cent of survey respondents indicated tenants not properly participating in the green bin program as the top contributing factor to why their properties do not offer green bin collection at their property.

Multi-Residential Waste Diversion Strategy

Alignment with the Solid Waste Master Plan

The Solid Waste Master Plan identified a High-Level Long List of options for managing and diverting waste in the City over the 30-year lifespan of the Waste Plan. The options were evaluated and placed in proposed “options suites” to show interdependencies and take advantage of costs saving, where available.

One of the options suites, “Options Suite 4: Supporting Additional Diversion in Multi-Residential Properties”¹⁸, proposes three options that pertain solely to waste management and diversion at multi-residential properties:

- **2B6:** Making Organics Diversion a Prerequisite to Receive City Waste Management Services
- **2C3:** Multi-residential Building Development Standards
- **2C4:** Chute Closure/Conversion to Organic Chutes Program at Multi-residential Buildings

Each of the options within Options Suite 4 are supported through one or more of the

¹⁸ As of March 2022. The proposed options suites may change prior to being presented to Council for consideration in 2023.

project pillars in this Strategy.

The projects completed under each pillar will supplement or integrate into work being completed through the Solid Waste Master Plan. Based on the Waste Plan's recommendations, the anticipated key benefits of Option Suite 4 include:

- It's potential impact to directly divert waste and, therefore, have a direct impact on the life of the Trail Waste Facility Landfill; and,
- It's relative impact on Greenhouse Gas emissions reductions (~6 per cent of total greenhouse gas emissions reductions attributed to waste-diverting options in the Waste Plan).

It is important to note, however, that these figures are estimates developed at this point in the waste planning process for illustrative purposes to help depict the influence of various scenarios. Estimates were derived using existing landfill capacity figures and consider projected waste tonnages developed as part of Phase 2 which considered population growth and status quo landfill optimization practices.

By preparing this Multi-Residential Waste Diversion Strategy in advance of the completion of the Waste Plan, the City has an opportunity to achieve improvements in multi-residential waste diversion prior to the finalization of the Waste Plan. The work being done on this Multi-Residential Waste Diversion Strategy integrates with and contributes to initiatives being considered through the Waste Plan and will allow for the City to adopt industry best practices to support a stronger multi-residential waste diversion program.

Recommended Pillars to Support Increasing Waste Diversion

The Multi-Residential Waste Diversion Strategy is recommending an integrated approach to increasing waste diversion at multi-residential properties. Five pillars have been identified to support increasing waste diversion by aiming to reduce or remove challenges and barriers faced by residents, tenants, and the property management sector. The pillars were developed after completing an analysis of the City's current waste management program, understanding the needs of the multi-residential waste management system, analyzing feedback from stakeholders, and completing a municipal scan and literature review. The pillars are:

1. Expanding Organics Diversion to all Multi-Residential Properties
2. Enhancing Promotion and Education

3. Exploring Pilots
4. Dedicating and Redesigning Space for Waste Disposal
5. Driving Change Moving Forward through the Collection Contract

Each of the recommended pillars include specific projects or initiatives the City can explore to support the success of the pillar. Descriptions of each pillar including the rationale for its inclusion, anticipated outcomes, approaches to managing challenges, and key performance indicators are outlined below.

| | |
|-------------------------|---|
| Project Pillar 1 | Expanding Organics Diversion to all Multi-Residential Properties |
| Description | <p>The City of Ottawa has offered Green Bin collection to the multi-residential sector since 2011. This program is voluntary and is introduced at the discretion of property owners. As of 2012, all new developments must include space for the storage of City-issued Green Bins as per the Solid Waste Collection Design Guidelines for Multi-Unit Residential Development. Green bins are delivered to all new multi-residential developments prior to City collection service commencing.</p> <p>While the City’s Solid Waste Management By-law requires that building owners shall ensure garbage is separated from recyclable material, yard waste, and organic material when placed out for collection, it has not traditionally been enforced.</p> <p>In Ontario, multi-residential properties are regulated by the Province as part of the Industrial, Institutional and Commercial sector and are subject to different regulations than curbside households. Until recently, there has not been direction on organics diversion at multi-residential properties. While O. Reg 103/94 (known as one of the “3Rs” regulations) does not require organics diversion at multi-residential properties*¹⁹, the Province’s Food and Organic Waste Policy Statement issued under Section 11 of the <i>Resource Recovery and Circular Economy Act, 2016</i>, includes that multi-unit residential buildings shall provide collection of food and organic waste to their residents. This is to support the target of a 50 per cent reduction and recovery target for food and organic waste from multi-residential properties by 2025. On November 27, 2020 the Provincial Government announced its priority to move towards phasing out food and organic waste sent to landfill by 2030, however no further public details have been made available by</p> |

¹⁹ (the Province has announced its intention to amend the 3Rs regulations to increase resource recovery across all sectors, however at the time of this writing this has not yet happened).

the Province. The 2019 Multi-Residential Waste Audit study found that up to 42% of waste in the garbage at multi-residential properties without a Green Bin was food and organic waste that could be diverted through the Green Bin program.

On January 29th, 2020, Ottawa City Council unanimously approved the Climate Change Master Plan, including new targets to reduce carbon emissions by 100 per cent – by 2040 as a corporation and by 2050 as a community. The City’s Energy Evolution Strategy sets the framework for what it will take for Ottawa to meet the Council-approved long-term GHG emission reduction targets. An Organics Resource Recovery Strategy to divert 98% of organic material from landfill was identified as a requirement to achieve the Council-approved target. The project acknowledges that a strong shift in public behaviour and exploring opportunities to increase organic waste diversion from multi-residential properties will be required to reduce GHG emissions from solid waste management.

As of December 2021, 929 of multi-residential properties were participating in the organics program (totalling 43,764 residential units with access to a Green Bin). This accounts for approximately 43% of all properties serviced under the Multi-Residential waste collection contract and approximately 36% of MR units.

Members of Council and residents have expressed strong interest in increasing access to Green Bin programs at multi-residential properties and mandating program participation. City-wide market research found that just over one-third (34%) of respondents living at a multi-residential property said they have access to a Green Bin program, and intensity of use among those who use the program is twenty-seven percentage points lower than curbside residents. More than 8 in 10 respondents

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| | <p>(83%) without Green Bin access said they would participate if the program were introduced at their property²⁰.</p> <p>When offering a new waste program to residents it is important to equip them with the knowledge and information required to participate in the program. The market research identified that 39% of residents at multi-residential properties fall into the “disconnected” market segment. This is a group that is classified as one that does not divert much waste and has little knowledge about waste diversion programs. Raising awareness of a new diversion program, providing information to residents and educating the community are essential for the success of a diversion program^{21,22}.</p> <p>Multi-residential property owners are responsible for delivering and managing waste programs at multi-residential properties under Provincial regulations and the City’s Solid Waste Management By-law. The City formed a Multi-Residential Working Group in 2019 aimed at expanding the implementation of the green bin program to all multi-residential properties. The working group identified the top barriers to introducing the green bin program: tenants refusing to participate, limited space, smell, and pests. The group acknowledged that there are property staff that strongly resist the program. While working group members understood the rationale for expanding the implementation of the</p> |
|--|--|

²⁰ City of Ottawa (2021). Green Bin Enhancement Campaign: Behaviour, Awareness, and Impact. *City of Ottawa Committee Report May 17, 2021*. http://app05.ottawa.ca/sirepub/cache/2/szkyfgpu2kb0wgbtrtjfs124y/70489011122021021_345861.PDF

²¹ Timlett, R.E., Williams, I.D. (2008). *The impact of transient populations on recycling behaviour in a densely populated urban environment*. Resources, Conservation, and Recycling, 53, pages 498-506.

²² Lakhan, C (2014). *Exploring the relationship between municipal promotion and education investments and recycling rate performance in Ontario, Canada*. Resources, Conservation and Recycling, Issue 92, pages 222-229

green bin program, support was requested to work through the identified challenges.

As per the Multi-Residential Waste Diversion strategy legislative report (ACS2022-PWE-SWS-001), this project will advance Option 2B6 from the Solid Waste Master Plan, making Green Bin collection mandatory at multi-residential properties receiving City waste collection. The Waste Plan is considering the option that organics diversion becomes a prerequisite of receiving City waste services. Approximately 1,000 multi-residential properties are not receiving green bin collection. Advancing a policy decision on green bin requirements will enable City staff and the property management sector to collaborate on addressing anticipated challenges with the green bin program and commence proactively onboarding all properties.

The project will also explore:

- Mandatory P&E requirements for all properties starting Green Bin service to ensure residents have the knowledge and tools needed to participate in the program.
- Opportunities to work with multi-residential properties that are limited by space and the built environment to discover ways to overcome challenges and arrange for Green Bin collection.
- Consider options for Green Bin design and features to reduce smell and pest barriers.
- Advocacy to provincial government to amend O.Reg 103/94 to make organics diversion mandatory for the multi-residential sector and partner with the Association of Municipalities of Ontario and the Municipal 3Rs Collaborative to make this a strategic advocacy priority

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| | <p>While the Ministry of Environment, Conservation, and Parks has indicated that organics diversion through a municipal Green Bin program is the most desirable way to divert organic material as there is lower contamination and can create a beneficial end product²³, the City recognizes that there are challenges for some properties to introduce Green Bin due to site configuration and design. For this reason, the project will also explore alternative methods and technologies for source-separation of organics to support multi-residential properties in complying with City policies and Provincial direction on organics diversion.</p> |
| <p>Alignment with the Solid Waste Master Plan</p> | <p>The Solid Waste Master Plan is recommending that Green Bin participation become a prerequisite to receive City waste management services for all multi-residential properties (Option 2B6). Recognizing the amount of time, logistics and support required to launch Green Bin collection at more than 1000 multi-residential properties, this project is proposing a plan to proactively introduce Green Bin service at properties not participating. Commencing the phased-in onboarding of properties ahead of the Solid Waste Master Plan approval will put the City in a better position to implement the recommendation to make the Green Bin program a prerequisite to receive City waste management services in a timely manner.</p> <p>This project supports the following Solid Waste Master Plan guiding principles:</p> <ul style="list-style-type: none"> - Honour the 5Rs waste management hierarchy by prioritizing recycling and recovery over landfilling. - Change community values by providing access, knowledge and tools for residents to participate in the Green Bin program. <p>This project supports the following Solid Waste Master Plan goals:</p> |

²³ [Province of Ontario's Food and Organic Waste Policy Statement.](#)

| | |
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| | <ul style="list-style-type: none"> - Extending the life of Trail Waste Facility Landfill by increasing accessibility to the Green Bin program to support more participation from multi-residential residents. - Maximize the recycling of waste generated by residents by mandating an additional diversion stream. - Aspire to achieve 100 per cent GHG emission reductions by diverting organic material from landfill. - Supporting the multi-residential sector to divert waste by requiring Green Bin service and educational support at the onset of new services. - Maximizing participation by enhancing the accessibility of waste management programs, and - Partnering with government to advance waste management practices by advocating to the Province |
| Key City Branches | Leads: Solid Waste Services and Business Technical and Support Services |
| Timing and Estimated Project Milestones | <p>Approximately half of all multi-residential properties are not participating in the Green Bin program. This project will take several years to complete to support the successful onboarding of new properties and provide property staff and residents with the knowledge, tools and resources required to participate in the Green Bin program. This will also include properties being developed during this time that will commence Green Bin upon move-in.</p> <p>Q1 – Q2 2022: Project Scoping</p> <p>Q2 2022: Project Kick-off</p> <p>Q2 – Q4 2022: Project Planning</p> <p>Q1 2023 – onward: Commence proactive onboarding of all multi-residential properties to the green bin program</p> |

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| | It is important to note that properties will continue to be onboarded to the green bin program on a voluntary basis while the proactive onboarding plan is being developed. |
| Resources Required | <ul style="list-style-type: none"> - Temporary staffing support may be required to oversee and coordinate the Green Bin roll-out, provide on-site operational support to property staff, host engagement activities, deliver educational material, and conduct visual monitoring of the program to ensure participation. - This project will have financial implications associated with green bin collection and processing will impact the tax base for MR properties. |
| Anticipated Outcomes | <ul style="list-style-type: none"> - Increased access to Green Bin programs. - Improving resident knowledge and information on the Green Bin program. <p>Based on current green bin participation rates and tonnage projections through the Solid Waste Master Plan, it is estimated that requiring organics diversion at multi-residential properties could increase the waste diversion rate by up to 11%²⁴. There are many factors that can influence waste generation and disposal in the future, including household and population growth, changes in waste composition, acceptable materials for organics processing, the economy, demographic changes, and severity of climate events. This makes it difficult to estimate with a high degree of accuracy exactly what the outcome of a new waste policy will be. Positive reception from property management requiring additional outreach support to educate residents.</p> |
| Approaches for Addressing | <ul style="list-style-type: none"> - Properties may refuse to enroll in City collection services and seek private collection to avoid introducing Green Bin program. Staff will continue to communicate with property |

²⁴ Assumes all properties receiving City waste collection are onboarded to the program by the end of 2025. Impact on the multi-residential waste diversion rate was completed using tonnage projections developed through the Solid Waste Master Plan.

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| <p>Potential Challenges</p> | <p>managers to further educate and remind them of the provincial targets and non-compliance may lead to no longer receiving City waste collection services.</p> <ul style="list-style-type: none"> - While introducing a Green Bin program to a multi-residential property is required to allow for participation, it is not sufficient on its own²⁵. Regular and ongoing program monitoring will be necessary to evaluate if and how properties are participating and follow up with appropriate outreach and educational support, as required²⁶. - Residents may refuse to participate even if supplied with information and tools. In developing an outreach program to support introducing the Green Bin program it will be important to review market research and focus group feedback to understand motivators and barriers to participating in the program and incorporate appropriately²⁷. - Increased contamination of the Green Bin stream. While the 2019 Multi-Residential Waste Audit found very low contamination rates among properties participating in the Green Bin program (2.6% contamination during the audit period) participation in the Green Bin program is currently very low among properties receiving service. There is a risk that contamination could increase with more participation. This challenge will be addressed by mandatory P&E to provide residents with knowledge and information on how to properly participate in the program, foster two-way |
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²⁵ Taylor, D. L. (2009). *PARTICIPATION IN AND WILLINGNESS TO PAY FOR CURBSIDE RECYCLING IN THREE SMALL CITIES IN BRITISH COLUMBIA* by (Doctoral dissertation, Thompson Rivers University).

²⁶ Vitor, F. M. C. B. S. (2008). *Factors Influencing Households' Participation in Organic Waste Separation* (Doctoral dissertation, FCT-UNL).

²⁷ Vitor, F. M. C. B., & Mathinho, M. (2009, October). Factors influencing households' participation in organic waste separation. In *Proceedings of the International Solid Waste Association 2009 World Congress, Lisbon, Portugal* (pp. 12-15).

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| | <p>communication by having City staff available to answer questions and provide clarity about the program, and follow-up monitoring to ensure proper program participation.</p> <ul style="list-style-type: none"> - Existing properties may not have the space to store Green Bins while complying with the Property Standards By-law, Property Maintenance By-law, and Fire Code. Staff will work with these properties to devise solutions to integrate organics waste collection. |
| Measurement | <ol style="list-style-type: none"> 1. Number of properties that start receiving Green Bin collection each year. 2. Percentage of all properties and units with access to Green Bin. 3. Review of collected tonnages. 4. Review of waste audit data to analyze quantity of food and organic waste diverted from landfill. 5. Green Bin collected tonnages (Measured as tonnages collected from all multi-residential properties and the average tonnages collected per unit with access to the green bin program) 6. Number of properties using Green Bin after program introduction and robust P&E. 7. Qualitative and quantitative data from property staff and residents. |

| Project Pillar 2 | Enhancing Promotion and Education |
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| Description | <p>As a best practice, municipalities develop and deliver outreach initiatives (commonly referred to as “promotion and education” or “P&E”) to educate residents about waste programs and encourage participation in diversion activities. P&E efforts are often seen as a cornerstone of municipal waste programs.</p> <p>A variety of tactics are regularly used to inform residents of acceptable materials for each waste stream, including posters in garbage rooms and informative labels on waste receptacles. Sixty-two per cent of multi-residential residents reference these posters for information on waste programs²⁸. The multi-residential sector traditionally has a much lower diversion rate than curbside households (16% in 2020 compared to 52% for curbside) and residents can be more difficult to reach and engage with²⁹. This can be for a variety of reasons including higher resident turnover, language barriers, attitudes and behaviours towards waste programs, and personal priorities.</p> <p>About 75% of multi-residential residents in Ottawa have access to recycling programs³⁰, and 34% have access to a green bin³¹. Even for those with access, use rates are significantly lower than residents with curbside waste collection. While residents in Ottawa tend to have progressive views on waste management, about 39% of residents living at multi-residential</p> |

²⁸ City of Ottawa (2019). A Study of Waste Diversion Behaviours and Attitudes. *City of Ottawa Committee Report June 25, 2019*. http://app05.ottawa.ca/sirepub/cache/2/szkyfqu2kb0wgbtrtjfs124y/58958911122021021_528915.PDF

²⁹ Diversion rate is based on collected tonnages.

³⁰ Access implies that the resident is aware the program is offered at their property and/or that they can access the containers to participate.

³¹ City of Ottawa (2021). Green Bin Enhancement Campaign: Behaviour, Awareness, and Impact. *City of Ottawa Committee Report May 17, 2021*. http://app05.ottawa.ca/sirepub/cache/2/szkyfqu2kb0wgbtrtjfs124y/70489011122021021_345861.PDF

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| | <p>properties fall in the “disconnected” market segment (compared to about 13% of curbside residents). This market segment is defined by lower participation rates and knowledge about diversion programs. This is evidenced in both capture rates³² and tested knowledge on waste sorting. The 2019 Multi-Residential Waste Audit Study found capture rates for recyclable material ranged between 12.5% and 89%, meaning that between 11% and 87.5% of recyclable material was being lost to landfill from these properties. The same study found that properties receiving Green Bin collection had capture rates between 26% and 84%, meaning that between 16% and 74% of organic material was being lost to landfill from these properties. When residents were tested on their sorting knowledge, only 59% correctly placed milk containers in the Blue Bin; 67% correctly placed cereal boxes in the Black Bin; and 41% correctly placed kitty litter in the Green Bin³³.</p> <p>Proper and full participation cannot be achieved if residents are unaware of a program’s existence or how to use the programs that are in place^{34,35}. Given that P&E is most effective when levels of program awareness are low or when a program has</p> |
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³² Capture rate is the amount of divertible material that is successfully diverted from landfill compared to the total amount of divertible material disposed of.

³³ City of Ottawa (2019). A Study of Waste Diversion Behaviours and Attitudes. *City of Ottawa Committee Report June 25, 2019*.
http://app05.ottawa.ca/sirepub/cache/2/szkyfgpu2kb0wgbtrtjfsI24y/58958911122021021_528915.PDF

³⁴ Timlett, R. E., & Williams, I. D. (2009). The impact of transient populations on recycling behaviour in a densely populated urban environment. *Resources, Conservation and Recycling*, 53(9), 498-506.

³⁵ Lakhan, C. (2014). Exploring the relationship between municipal promotion and education investments and recycling rate performance in Ontario, Canada. *Resources, Conservation and Recycling*, 92, 222-229.

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| | <p>recently been implemented³⁶, the multi-residential sector presents the optimal opportunity to utilize P&E to increase program knowledge and awareness and encourage participation in diversion initiatives.</p> <p>In 2019, the City spent approximately \$292,000 on communication activities related to solid waste promotion and education, including \$163,000 for the Green Bin campaign to inform residents about the changes to the program that came into effect on July 1, 2019. Approximately \$43,300 was spent on outreach and communication material specifically targeted at multi-residential customers (15% of total spent). This equates to approximately \$0.38 per multi-residential household. The proportion of the budget spent on multi-residential outreach initiatives varies year to year and is influenced by branch priorities, waste program changes, operational needs and program performance. A recent study suggests that increased funding for promotion and education can have a positive effect on waste diversion rates³⁷. Comparator municipalities for the City's Solid Waste Master Plan (SWMP) spend between \$2.28 and \$6.50 per household each year. The City of Ottawa averages \$0.47 per household annually with a lower proportion of funds being directed at the multi-residential sector.</p> <p>The Food and Organic Waste Policy Statement issued under Section 11 of the Resource Recovery and Circular Economy Act states that multi-residential properties must be diverting 50% of organic waste by 2025. The policy statement directs municipalities to provide promotion and education material to</p> |
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³⁶ Lakhan, C. (2014). Exploring the relationship between municipal promotion and education investments and recycling rate performance in Ontario, Canada. *Resources, Conservation and Recycling*, 92, 222-229.

³⁷ Chiasson, C. (2018). The price of garbage: an analysis of the effect of user-pay programs on waste diversion in Ontario municipalities. <https://ruor.uottawa.ca/bitstream/10393/37894/1/Chai%20Christina%20The%20Price%20of%20Garbage%20Analysis%20of%20the%20effect%20of%20user%20pay%20programs%20on%20waste%20diversion%20in%20Ontario%20municipalities.pdf>

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| | <p>residents that support and increase participation in resource recovery efforts available to residents of their community.</p> <p>Promotion, outreach and education needs to be targeted and ongoing to reinforce diversion options and encourage participation³⁸. Low capture rates and low resident knowledge of diversion programs presents an opportunity for the City to build upon and enhance its current suite of P&E initiatives by exploring opportunities to communicate differently with residents, better understand and address barriers and challenges to increasing participation in diversion programs. This project proposes exploring opportunities to build upon and enhance current P&E tactics used by the City by gaining a better understanding of motivating and deterring factors that influence participation in diversion programs. This project will explore several options, including:</p> <ul style="list-style-type: none">- Regularly occurring evidence-based campaigns targeting the multi-residential sector.- P&E material in multiple languages.- Enhanced outreach tactics including in-person events, virtual workshops, direct mailouts, and door-to-door delivery of information.- Different education and engagement approaches based on the property design and tenant profile of the property.- Use of behaviour change tactics such as prompts and community commitments to encourage participation. |
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³⁸ Dello, R. S. (2019). *CIF Project 979: Promotion & Education Engagement to Establish Multi-Residential Best Practices*. Continuous Improvement Fund. https://thecif.ca/wp-content/uploads/2019/02/979-Toronto_Final_Report.pdf

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| | <ul style="list-style-type: none"> - Incorporate data on waste attitudes, behaviours, and socio-economic factors of residents not participating in diversion programs when developing outreach tactics. - Methods to support how new tenants and multi-residential residents receive information and tools to increase knowledge and awareness of waste programs. - A multi-residential ambassador program. - Incentives for residents and property staff. - Exploring tools to ensure new residents receive information on waste programs as soon as possible. |
| <p>Alignment with the Solid Waste Master Plan</p> | <p>Public outreach and education is a major component of the Solid Waste Master Plan as the success of waste diversion programs rely heavily on resident knowledge, awareness, and motivation to participate in available programs. Options 1A1 (Develop and implement New/Expanded Outreach Initiatives), 1B1 (Develop and Implement Educational Initiatives) and 1C1 (Develop and Implement Marketing & Communications Tools), focus directly on public outreach and education.</p> <p>These options in the SWMP will be focusing on waste avoidance, reduction, reuse and recycling (and program performance) and include broad-based engagement initiatives to increase awareness. This project will take a more directed approach, focusing on recycling initiatives, using proven, evidence-based tactics to increase knowledge and awareness of programs and support resident behaviour change to achieve the goals of the Strategy. Work investigated and completed through the MR Diversion Strategy will compliment work being done on the previously listed SWMP options and will integrate into the development of a Behaviour Change Strategy (Option 1A5).</p> <p>This project supports the following Solid Waste Master Plan guiding principles:</p> |

- **Honouring the 5Rs waste management hierarchy** by continuing to promote and educate residents on prioritizing recycling over garbage disposal.
- **Changing community values** by enhancing promotion and education tactics to support improving household waste diversion and encourage shifts in attitudes towards waste diversion.
- **Embracing innovation** by investigating and embracing new P&E tactics.

This project supports the following Solid Waste Master Plan goals:

- **Extending the life of Trail Waste Facility Landfill** by educating residents and encouraging participation in diversion programs.
- **Reduce the amount of waste generated** by encouraging and informing residents about the options surrounding diversion.
- **Maximize the recycling of waste generated** by promoting and educating residents to empower residents to correctly sort household waste.
- **Aspire to achieve 100 per cent GHG emission reductions** by using promotion and education tactics to encourage participation in the Green Bin program and divert this material from landfill.
- **Support, influence, and partner with the multi-residential sector to reduce, reuse and divert waste** by promoting programs and educating stakeholders.
- **Maximize participation** by promoting and educating residents on the programs available and how to use them.

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| Key City Branches | Leads: Solid Waste Services, Public Works’ Business Technical and Support Services, and Public Information and Media Relations. |
| Timing and Estimated Project Milestones | It is proposed that this project begin immediately. Opportunities for more promotion and education initiatives within the 2022 calendar year will be identified. Going forward, more multi-residential focused initiatives will be incorporated into annual P&E planning. |
| Resources Required | Existing staff resources will support the development of new promotion and education material and consideration of new approaches to P&E. Future staffing needs to further enhance promotion and education will be considered in departmental workplans starting in 2022/2023. |
| Anticipated Outcomes | <ul style="list-style-type: none"> - Improving resident knowledge of waste diversion programs. - Potential to communicate program guidelines with harder to reach communities, such as those whose first language is not English or French. - Increased participation in waste diversion programs. |
| Approaches for Addressing Potential Challenges | <ul style="list-style-type: none"> - Having a diversion program in place does not mean that residents will participate in the program. While the City’s 2019 Multi-Residential Waste Audit Study found multi-residential households to generate 2.43 kg of organic waste during the week of the audit (9.72 kg/unit/month), the City collected an average of 2.09 kg/unit/month in 2021³⁹. Lack of knowledge and awareness can be a contributing factor to lower participation in diversion programs. Studies suggest that when perceived control of a behaviour (e.g. lack of knowledge) residents may be discouraged from participating in recycling and organics |

³⁹ Based on monthly 2021 collected tonnages and number of residential units receiving Green Bin collection.

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| | <p>programs, even if they have positive attitudes towards waste diversion⁴⁰. The project will evaluate opportunities for regular, on-going education opportunities to reinforce proper sorting and encourage behaviour change.</p> <ul style="list-style-type: none"> - It is recognized that while critical to the success of any waste program, P&E efforts alone will not yield significant increases in waste diversion⁴¹. Rather, robust, evidence-based P&E initiatives are a necessary compliment to policy decisions and program pilots that aim on overcoming systemic barriers, such as access and convenience⁴². The City will consider using insight on attitudes and behaviours obtained from market research, public engagement, and focus group sessions to develop evidence-based campaigns to support diversion programs and perceived barriers and challenges to participating in programs. - While it is recognized that low diversion rates present an opportunity to increase P&E to support more diversion, there is significant behaviour change required in order to achieve desired performance levels in waste diversion programs. Promotion, outreach and education needs to be ongoing to reinforce diversion options and encourage participation⁴³. |
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⁴⁰ Lakhan, C. (2014). Exploring the relationship between municipal promotion and education investments and recycling rate performance in Ontario, Canada. *Resources, Conservation and Recycling*, 92, 222-229.

⁴¹ Mouw et al. (2020). *2020 State of Curbside Recycling Report*. The Recycling Partnership. https://recyclingpartnership.org/wp-content/uploads/dlm_uploads/2020/02/2020-State-of-Curbside-Recycling.pdf

⁴² Lakhan, C. (2014). Exploring the relationship between municipal promotion and education investments and recycling rate performance in Ontario, Canada. *Resources, Conservation and Recycling*, 92, 222-229.

⁴³ Dello, R. S. (2019). *CIF Project 979: Promotion & Education Engagement to Establish Multi-Residential Best Practices*. Continuous Improvement Fund. https://thecif.ca/wp-content/uploads/2019/02/979-Toronto_Final_Report.pdf

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| | <ul style="list-style-type: none"> - There may be low response rates to P&E initiatives from residents living at multi-residential properties. The project will need to understand meaningful outreach tactics and balance delivering these tactics within budgetary requirements. - Depending on the tactic used, it is difficult to measure if residents receive and absorb the information communicated. A study conducted in southern Ontario found that recycling ads were not the most noticed content in newspapers reviewed by a focus group as waste diversion is not seen as an immediate priority for most households⁴⁴. Furthermore, twenty-six per cent of Ottawa residents say they look to their building manager for information on the City’s recycling and green bin programs⁴⁵. The project will explore a variety of tactics to distribute information and will solicit feedback from residents, the Multi-Residential Working Group, and other multi-residential stakeholders to promote waste education and use of new P&E tactics. |
| Measurement | <ol style="list-style-type: none"> 1. Amount of communication material distributed. 2. Number of annual outreach events hosted by City staff in the multi-residential sector. 3. Post-event surveys and feedback forms circulated to solicit feedback on the effectiveness of the event or outreach tactic used. 4. Qualitative data from property staff and residents. |

⁴⁴ Lakhan, C. (2016). Effectiveness of recycling promotion and education initiatives among first-generation ethnic minorities in Ontario, Canada. *Social Sciences*, 5(2), 23.

⁴⁵ City of Ottawa (2019). A Study of Waste Diversion Behaviours and Attitudes. *City of Ottawa Committee Report June 25, 2019*.
http://app05.ottawa.ca/sirepub/cache/2/szkyfqu2kb0wgbrtjfs124y/58958911122021021_528915.PDF

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| | <ul style="list-style-type: none">5. Waste audit data to identify shifts in capture rates and diversion rate. 6. Annual collected tonnages from the multi-residential sector. |
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| Project Pillar 3 | Exploring Pilots |
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| Description | <p>Residents living at multi-residential properties, property staff, and City staff have identified barriers and challenges to multi-residential waste management that if the City were to support mitigating would require research, funding, and piloting.</p> <p>The purpose of pilot studies is to assess the feasibility of an opportunity to be implemented more broadly across the City. Pilots will help determine if emerging and proven opportunities can integrate with the City of Ottawa’s multi-residential waste management program while considering the financial, social, and environmental implications of these opportunities.</p> <p>Pilot programs are intended to investigate opportunities to address a system need or barrier in multi-residential waste management. The outcome of the studies explored through this project may support informing Solid Waste Master Plan options including a review of building development standards and use of alternative collection containers, as well as inform future collection contracts. Pilot programs may investigate opportunities pertaining to program delivery, outreach and education, enforcement, technology, and building operations, and could include:</p> <ul style="list-style-type: none"> - Investigating opportunities to reduce challenges faced by residents trying to participate in waste diversion programs. - Promoting alternative waste program configurations at older properties. - Explore options to reduce challenges faced by multi-residential property staff with limited space to accommodate organics diversion. - Explore alternative options and technologies to support source-separation of organics at multi-residential |

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| | <p>properties to support properties in complying with municipal policies and Provincial direction.</p> <ul style="list-style-type: none"> - Test alternative waste collection methods such as organic waste in front-end loading containers. - Use existing technology to produce collection report cards to MR properties. - Emerging educational tactics such as gamification. - Partnering with Energy Evolution to explore the feasibility of in-unit food grinders. - Partnering with Ottawa Community Housing and members of the Multi-Residential Working Group on pilot opportunities being explored. |
| <p>Alignment with the Solid Waste Master Plan</p> | <p>The Solid Waste Master Plan is recommending several options that will impact the multi-residential sector, including:</p> <ul style="list-style-type: none"> • 9A1 – Innovation and technology strategy • 5D1 – RFID technology • 5C2 – Use of alternate collection containers at Multi-Residential properties • 2C3 – Multi-residential development standards • 1B1 – Develop and implement educational initiatives <p>Many of the pilot project opportunities listed in the previous section support one or more of the Solid Waste Master Plan options. By advancing work on some of these specific initiatives, this project can commence research to ensure the timely implementation of various pilot initiatives and compliment work being completed through the Solid Waste Master Plan.</p> <p>This project supports the following Solid Waste Master Plan guiding principles:</p> |

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| | <ul style="list-style-type: none"> • Honouring the 5Rs waste management hierarchy by exploring opportunities to prioritize recycling over landfilling waste. • Changing community values by exploring opportunities to educate residents through tactics that are new to the City of Ottawa. • Embracing innovation by considering emerging and proven technologies to support waste diversion at multi-residential properties. <p>This project supports the following Solid Waste Master Plan goals:</p> <ul style="list-style-type: none"> • Support Extending the life of the Trail Waste Facility Landfill by allowing pilots that can increase diversion at various properties. • Maximize the recycling of waste generated by residents through new and innovative opportunities. • Maximize participation by enhancing the accessibility and convenience through investigating opportunities to support removing barriers to participating in waste diversion programs. • Conducting pilots will allow staff to test opportunities and make recommendations that may support making sustainable waste management design an essential part of the City’s planning process • Collaborate with external stakeholders, including industry and other levels of government, to advance waste management practices. |
| <p>Key City Branches</p> | <p>Solid Waste Services</p> |

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| Timing and Estimated Project Milestones | A considerable amount of work is required when investigating and initiating pilots, including industry research, focus groups with residents and property staff, business case development, coordination with collection contractors, and implementation planning. This project proposes investigation of pilot opportunities starting in Q1 2023 with a target implementation timeframe of Q2 – Q3 2024. |
| Resources Required | Funding requirements may vary depending on the pilot project(s) that move forward to support increasing waste diversion. Future staffing needs and funding requirements will be identified in departmental workplans starting in 2023. |
| Anticipated Outcomes | <ul style="list-style-type: none"> - Incorporation of innovative and effective initiatives to support improved diversion rates. - Evidence-based recommendations for future Solid Waste Master Plan initiatives and collection contracts. |
| Approaches for Addressing Potential Challenges | <ul style="list-style-type: none"> - Limited funding to support pilot initiatives. Additional funding support will be requested through future budget approval processes. Financial support through grants and other mechanisms will also be explored to support pilot initiatives in the multi-residential sector. |
| Measurement | <p>Depending on the pilot opportunity explored, potential KPIs include:</p> <ol style="list-style-type: none"> 1. Feedback on the pilots obtained through resident, property staff, and City staff surveys. 2. Collected tonnages to assess impact of the pilot study on waste diversion rate. 3. Waste collection data and/or waste composition study data. |

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| Project Pillar 4 | Dedicating and Redesigning Space for Waste Disposal Programs |
| Description | <p>Building and property design can encourage or deter residents from participating in waste diversion programs⁴⁶. There are opportunities to integrate best practices into new property development requirements and evaluate solutions at existing properties to reduce barriers to participating in waste diversion programs.</p> <p>Requirements for solid waste collection were added to the City’s site plan application and development review process in 2012 to ensure that multi-residential properties were designed to allow on-site collection of waste and ensure adequate storage space of garbage, recycling, and green bin containers. To compliment this, the City developed the Solid Waste Collection Guidelines for Multi-Unit Residential Development in 2012. This initiative was led by the Planning Infrastructure and Economic Development department in consultation with Solid Waste Services and developed by an external consultant. The guidelines include requirements to receive City waste collection as well as best practices that developers can consider integrating into the building design to facilitate better participation in waste diversion programs.</p> <p>The City’s current development review includes specifications for high-rise and low-rise multi-residential developments with 6 or more residential units to provide adequate space for garbage, recycling, and organics containers as well as enough space for collection trucks to access containers. This leaves the opportunity to require waste management best practices into the</p> |

⁴⁶ Labahn, S. (2019). *Zero Waste Design Strategies in Multi-Unit Residential Buildings* (Doctoral dissertation, University of British Columbia).

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| | <p>property design to ensure accessible and convenient waste programs that facilitate participation in diversion initiatives⁴⁷.</p> <p>Property design can significantly impact the motivation and desire of residents to participate in waste diversion initiatives⁴⁸. Market research suggests that access and inconvenience remain the largest barriers to participating in diversion programs by multi-residential residents⁴⁹. The top barriers have not changed from those identified in 2011⁵⁰.</p> <p>Industry studies have concluded that considering and incorporating waste management best practices into the property and building design can reduce inconvenience for residents, building staff, and collection contractors⁵¹ ⁵². Programs that are accessible, convenient, safe and secure have been found to be successful in encouraging resident participation in waste diversion programs⁵³.</p> |
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47 KPMG, 2009. *Blue Box Program Enhancement and Best Practices Assessment Project*.

48 Labahn, S. (2019). *Zero Waste Design Strategies in Multi-Unit Residential Buildings* (Doctoral dissertation, University of British Columbia).

49 City of Ottawa (2021). Green Bin Enhancement Campaign: Behaviour, Awareness and Impact. *City of Ottawa Committee Report May 17, 2021*.
http://app05.ottawa.ca/sirepub/cache/2/ohq51atol501cmfo4lqehpwk/704891110420211_13400330.PDF

50 City of Ottawa Waste Diversion Quantitative Study Key Findings. January 2011.
<https://app06.ottawa.ca/calendar/ottawa/citycouncil/ec/2011/04-11/ACS2011-ICS-ESD-0002%20-%20Doc%202.pdf>

51 SITA UK (2010). *Looking Up: International recycling experience for multi-occupancy households*. <http://kelleherenvironmental.com/wp-content/uploads/2012/07/SITAUk-LookingUp-web.pdf>

52 Labahn, S. (2019). *Zero Waste Design Strategies in Multi-Unit Residential Buildings* (Doctoral dissertation, University of British Columbia).

53 Timlett, R. E., & Williams, I. D. (2009). The impact of transient populations on recycling behaviour in a densely populated urban environment. *Resources, Conservation and Recycling*, 53(9), 498-506.

The City's new Official Plan (OP), which was approved by City Council on October 27th, 2021, includes population growth projections of 40% between 2018 and 2046. Most growth will occur within the urban area of the City, with most of the residential growth taking place within the built-up area through intensification. A 60% intensification target is anticipated to be achieved by developing existing areas at a higher density. Much of the housing stock to support an increased population is anticipated to come through infill housing and "missing middle housing" which generally refers to low-rise, multiple unit infill residential development of between three and sixteen units, or more in the case of unusually large lots and for the lower-density types is typically ground oriented. These properties will vary slightly from traditional multi-residential properties as the buildings will take up most of the lot and there will be limited or no on-site parking. This deviates from the City's current development standards for multi-residential properties that include specifications for properties that permit the safe access of waste collection vehicles and may present challenges for waste collection under the current development review requirements. With a larger building footprint and the intention of maximizing residential space within the development, there may be limited space for waste containers to be stored in an accessible and convenient manner.

As a part of the Climate Change Master Plan, the City of Ottawa's Planning Committee approved the High Performance Development Standard (HPDS) in March 2022. The HPDS is a tool for advancing sustainable and resilient building design through planning applications. Collaboration between the Climate Resiliency team and Solid Waste Services resulted in waste management specifications being included in the Tier 2 requirements. This includes optional requirements for developers to design multi-residential units with adequate space to store separate garbage, recycling and organics containers to encourage proper sorting.

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| | <p>As new property types emerge to accommodate growth and intensification, it is crucial that waste programs are considered in the building design to facilitate participation and that design specifications are established that consider the unique needs of these new property types. This will also be important for property owners as they will be responsible for complying with organics diversion targets outlined in the Food and Organic Waste Policy Statement. The Policy Statement also states that multi-unit residential buildings should implement best practices that support convenient access to resource recovery efforts⁵⁴.</p> <p>This project proposes enhancing waste management design requirements for new infill housing and missing middle housing developments (6 or more units) that consider the unique property and building design of these housing types. This will involve partnering with Economic Development Services on the Zoning Bylaw review to explore the feasibility of integrating standardized collection and waste container storage that remove access and inconvenience barriers to facilitate improved convenience and waste diversion in new buildings. The project will also consider opportunities to enhance the High-Performance Development Standards during regularly scheduled updates to the Standards. Staff will continue to advocate in partnership with other municipalities for the Ontario Building Code to be amended to include source separation requirements in multi-residential property design⁵⁵.</p> <p>Alongside the exploring pilots and collection contract pillars, this project recognizes the opportunity to investigate solutions to</p> |
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⁵⁴ [The Province of Ontario’s Food and Organic Waste Policy Statement, Section 4.12](#)

⁵⁵ The Province of Ontario outlined this intention in the Food and Organic Waste Framework in 2018. Since that time, the portion of the framework containing this intention (Part A – Food and Organic Waste Action Plan) has been retracted. The Ministry of Environment, Conservation and Parks has stated this is an action item for them to work on but announced it will not be explored prior to the 2022 Provincial Election.

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| | <p>overcome challenges with accessibility and inconvenience with waste programs in existing multi-residential properties.</p> <p>The inconvenience of multi-residential diversion programs has been well-studied and identified as a major barrier for resident participation^{56 57 58}, and access and convenience remain the top identified challenge for multi-residential residents in the City of Ottawa⁵⁹. Seventy-six percent of multi-residential units in apartment buildings have access to a garbage chute, and only five per cent have chute systems for recycling. The remaining 95% of units in high-rise properties have to either bring their recycling and organics to an internal refuse room or bins located outside the building. The majority of low-rise properties (approximately 85% of units) access waste programs outside⁶⁰. Even with positive environmental attitudes, systemic barriers such as access and inconvenience can deter residents from participating in waste diversion programs⁶¹.</p> <p>Limited waste storage space at multi-residential properties has been identified as one of the top challenges by Ottawa property</p> |
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⁵⁶ SITA UK (2010). *Looking Up: International recycling experience for multi-occupancy households*. <http://kelleherenvironmental.com/wp-content/uploads/2012/07/SITAUK-LookingUp-web.pdf>

⁵⁷ Ho, E. (2018). Exploring the social dimensions of multi-residential recycling. *Resources, Conservation and Recycling*, 132, 77-78.

⁵⁸ DiGiacomo, A., Wu, D. W. L., Lenkic, P., Fraser, B., Zhao, J., & Kingstone, A. (2018). Convenience improves composting and recycling rates in high-density residential buildings. *Journal of environmental planning and management*, 61(2), 309-331.

⁵⁹ City of Ottawa (2019). *A Study of Waste Diversion Behaviours and Attitudes. City of Ottawa Committee Report June 25, 2019*. http://app05.ottawa.ca/sirepub/cache/2/utf1ersa0ruxm1by35bw0k4g/589589102920211_05829435.PDF

⁶⁰ Based on City of Ottawa waste collection data retrieved May 2020.

⁶¹ Lakhan, C. (2014). Exploring the relationship between municipal promotion and education investments and recycling rate performance in Ontario, Canada. *Resources, Conservation and Recycling*, 92, 222-229.

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| | <p>managers when it comes to introducing the Green Bin program⁶². About sixty-five per cent of properties in the City of Ottawa were built before 1990 when recycling programs were not a mandated requirement under Provincial regulations. Furthermore, approximately 84% of all multi-residential properties in the City were constructed before the implementation of the Solid Waste Collection Guidelines for Multi-Unit Residential Development, which set the requirements for waste management planning at all multi-residential properties receiving City collection services⁶³. While many properties have managed, there are properties that have no capacity to expand diversion programs due to parking, storage, and Fire Code constraints.</p> <p>This project will also:</p> <ul style="list-style-type: none"> - Explore opportunities to remove access and inconvenience barriers to facilitate better opportunities for residents to use waste diversion programs at properties where it is currently difficult to do so. - Advocate to have the Ontario Building Code amended to include waste diversion requirements. |
| <p>Alignment with the Solid Waste Master Plan</p> | <p>The Solid Waste Master Plan is recommending improvements to the built environment by reviewing Multi-Residential Development Standards (Option 2C3) and implementing a Chute Closure Program (Option 2C4). This project focuses on looking at housing prioritized in the City’s new Official Plan (infill housing and missing middle housing) to ensure adequate space for safe and efficient waste collection, whereas the SWMP will look at reviewing existing standards and recommending changes to encourage diversion in high-rise and low rise multi-residential properties.</p> |

⁶² City of Ottawa Multi-Residential Working Group, 2019.

⁶³ PRIZM, DemoStats ©2021 Environics Analytics. Retrieved May 4, 2020.

For existing properties, this project will investigate opportunities to reconfigure waste rooms and program setup to overcome access and convenience challenges whereas the SWMP will consider garbage chute closures and converting garbage chutes to organics chutes (2C4). The work completed through this project on older multi-residential properties may integrate into the SWMP's review of the Multi-Residential Development Standards.

This project supports the following Solid Waste Master Plan guiding principles:

- **Honouring the 5Rs waste management hierarchy** by integrating resident waste diversion considerations at the onset of a property development and investigating opportunities at older properties to remove existing barriers to resident participation in waste diversion programs.
- **Changing community values** by having developers consider waste diversion planning during the application process. Removing barriers to program participation at existing properties will support increasing awareness of diversion programs and support the incorporation of waste diversion into their daily lives.
- **Embracing innovation** by encouraging developers to come up with creative solutions for meeting property configuration requirements to accommodate waste diversion. Proven and emerging innovative solutions will be considered for existing properties.

This project supports the following Solid Waste Master Plan goals:

- **Support, influence, and partner with the Industrial, Commercial, and Institutional (IC&I) sector and multi-residential properties to help reduce, reuse and divert waste** by introducing waste management and diversion

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| | <p>requirements for emerging property types and collaborating with property staff of existing properties on creative solutions to remove barriers to participation in diversion program associated with the built environment.</p> <ul style="list-style-type: none"> • Maximize participation by ensuring that all new infill, missing middle housing, and 613 Flats with six or more units have the necessary space and access to diversion programs to encourage resident participation from the onset of the property’s occupation. Configurations to older multi-residential properties will encourage participation in diversion programs. • Make sustainable waste management design an essential part of the City’s planning process by ensuring that all new infill, missing middle housing, and 613 Flats are designed with sustainability in mind to promote participation in waste diversion programs. • Collaborate with external stakeholders by working with developers and property management companies. |
| Key City Branches | Solid Waste Services, Economic Development Services, Planning Services |
| Timing and Estimated Project Milestones | <p>Requirements for infill housing and missing middle housing will be explored and considered through the Zoning Bylaw update being led by Economic Development Services. It is anticipated that the recommendations for the bylaw review will be presented to Council for consideration in Q4 2024. During this time, staff will build upon already completed research to recommend best practices to integrate that do not delay property development or require variances for site applications.</p> <p>The next review and refresh of the High-Performance Development Standard is anticipated to be brought forward for Council consideration in 2025. Solid Waste Services will work with the Climate Resiliency Unit in Economic Development Services on recommending requirements and opportunities to</p> |

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| | <p>integrate waste management best practices at multi-residential properties.</p> <p>In exploring opportunities with existing multi-residential properties, it is recommended this work commence in 2023. The project will include a municipal scan to glean insight on best practices or opportunities that the City of Ottawa can consider, collaboration with local property management companies to pilot opportunities, and engagement with residents to solicit feedback on opportunities. This work may produce recommendations to be implemented City-wide to support removing barriers to participating in waste diversion programs at older multi-residential properties.</p> |
| Resources Required | No additional resources required. |
| Anticipated Outcomes | <ul style="list-style-type: none"> - Design requirements for multi-residential infill housing that require accessible and convenient waste management programs. - Recommendations for property owners / managers of older multi-residential properties of evidence-based solutions to reduce access and inconvenience barriers associated with participating in waste diversion programs. |
| Approaches for Addressing Potential Challenges | <ul style="list-style-type: none"> - Any recommendations must comply with municipal site plan requirements, the Solid Waste Management By-law, Zoning By-law, Building Code, Fire Code, Property Standards By-law, and any other applicable guidelines or regulations must also be met. Recommendations for waste design will be reviewed by the appropriate branches to ensure alignment with other City by-laws that impact waste storage at multi-residential properties. - Existing properties may not have the space to store Green Bins while complying with the Property Standards By-law, Property Maintenance By-law, and Fire Code. Staff will |

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| | <p>work with these properties to devise solutions to integrate organics waste collection.</p> <ul style="list-style-type: none"> - Developers may not support waste management and diversion design requirements recommended for infill housing. The City will conduct industry best research and engage with developers prior to making a recommendation to City Council. - The City of Ottawa declared a housing emergency in 2020 due to a shortage of affordable housing in the City. It is important to incorporate enhanced waste considerations into new developments without overburdening developers or causing delays in development applications. The City will engage with developers through the Zoning By-law review for feedback on waste considerations for infill housing in advance of presenting a recommendation for Council consideration. |
| Measurement | <ol style="list-style-type: none"> 1. Monitoring collected tonnages of infill developments designed according to the recommended specifications to measure diversion program participation. 2. Level of support for recommended options from stakeholders. 3. Qualitative and quantitative data from property staff and residents working and living at properties subject to the development requirements. |

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| Project Pillar 5 | Driving Change Moving Forward Through the Collection Contract |
| Description | <p>Collection services for the City of Ottawa are contracted out in accordance with the service standards established by City Council which are guided by Provincial legislation. The contract includes specifications regarding the conditions to which garbage, recycling, organics, and special projects are to be carried out. Provisions for distributing tools for residents to participate in recycling programs, refusing collection of contaminated diversion containers, and collecting weights of material collected to assess diversion, all of which are written into the current collection contract, support the success of multi-residential waste diversion programs.</p> <p>As the City’s waste program continues to evolve, there are opportunities to enhance the multi-residential waste management program through provisions included in the collection contract. This project will explore opportunities to add contract specifications to the 2025 Multi Unit Residential and City Facilities Solid Waste Collection Contract that build upon the success of the current contract and continue to promote waste diversion, efficient waste collection, and a successful multi-residential waste program. Options to explore will include:</p> <ul style="list-style-type: none"> - Industry best practices in contract development to support waste diversion. - Efficient delivery of service and best value for taxpayer dollars. - Contract specifications to support more cost-effective waste collection for waste audits and other special pilot projects. - Opportunities for the contract to support recommendations approved in the Solid Waste Master Plan. |

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| | <ul style="list-style-type: none"> - Opportunities for improved performance measurement and monitoring, such as collecting organics tonnages from each property. - Regular delivery of in-unit recycling bags and organics kitchen containers to properties, as needed, versus a one-time supply. - Requirements for property staff to sign waste diversion plans and commitments upon renewal of collection services. - Need for and feasibility of multiple green bin pickups each week, optional green bin cleaning service, carbon filters on green bin to reduce smell, and alternative collection containers to accommodate operational needs. |
| <p>Alignment with the Solid Waste Master Plan</p> | <p>While some options recommended through the Solid Waste Master Plan may have implications on the multi-residential collection contract, none are exploring utilizing the contract to support increasing waste diversion. This project is prioritizing how the City can encourage waste diversion and remove barriers identified by the property management sector by adding and modifying contract specifications in the Multi-Residential City Facilities Collection Contract.</p> <p>This project supports the following Solid Waste Master Plan guiding principles:</p> <ul style="list-style-type: none"> - Honour the 5Rs waste management hierarchy by prioritizing recycling and recovery over landfilling - Change community values by providing access, knowledge and tools for residents to participate in diversion programs via an updated collection contract. - Embracing innovation by looking at different opportunities when it comes to the overall collection contract and how to encourage and grow Green Bin collection. |

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| | <p>This project supports the following Solid Waste Master Plan goals:</p> <ul style="list-style-type: none"> - Extend the life of Trail Waste Facility Landfill by encouraging diversion at multi-residential properties through the collection contract it will help to increase the stagnant diversion rates; - Maximize the recycling of waste generated by residents by mandating an additional diversion stream; - Aspire to achieve 100 per cent GHG emission reductions by diverting organic material from landfill; - Supporting the multi-residential sector to divert waste through tools and mechanisms in the collection contract. - Maximize cost containment, revenue generation and the efficient use of waste management resources to help minimize costs to taxpayers by evaluating fee structures in the contract. - Maximizing participation by enhancing the accessibility of waste management programs. |
| Key City Branches | Solid Waste Services, Procurement |
| Timing and Estimated Project Milestones | The current collection contract is set to expire June 1, 2025 with the option for two, 1-year extensions that could extend the existing terms until May 30, 2027. Research into opportunities will take place in 2023 to support the development of contract specifications. |
| Resources Required | No additional resources required. |
| Anticipated Outcomes | <ul style="list-style-type: none"> - Integration of contract specifications that go beyond waste collection and support waste diversion through collection process. |

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| | <ul style="list-style-type: none"> - Opportunity for improved performance tracking because of readily available data obtained through collection process. - Consistency between new contract specifications and the Solid Waste Management By-law to support new specifications. |
| <p>Approaches for Addressing Potential Challenges</p> | <ul style="list-style-type: none"> - Proposed recommendations for incorporation in the waste collection contract may take time for the collection contractor and/or City to implement, therefore may not be ready for the first day of the new collection contract. Contract development team will conduct research into other municipal experiences pertaining to all opportunities recommended for inclusion in the next collection contract to understand required lead times, challenges, and lessons learned. The City will work with the successful bidder to ensure the timely compliance with contract specifications. |
| <p>Measurement</p> | <ol style="list-style-type: none"> 1. The number of contract specifications or changes to the contract that support waste diversion. 2. Establishment of metrics for each specification/change added to measure the effectiveness of each on waste diversion program performance. |

Reporting on Strategy's Progress

Solid Waste Services and the key branches identified in the project descriptions will commence work on the Strategy according to the timelines outlined in previous sections. Staff will provide annual status updates on the Strategy's Key Performance Indicators (KPIs) alongside Solid Waste Master Plan updates. The project website will be updated with new information, as it is available.

A full review and update of the Multi-Residential Waste Diversion Strategy will take place alongside the Solid Waste Master Plan refresh (anticipated to be complete in 2028 – 2029) and will consider merging the documents together.

Conclusion

The challenges and barriers faced with waste management in the multi-residential sector are complex and contribute to lower diversion rates compared to curbside households. Provincial direction and municipal initiatives call for more recycling and organic waste to be diverted by multi-residential households. This Strategy presents evidence-based recommendations to support overcoming the challenges and barriers identified by residents, the property management sector, and other key stakeholders to support increasing waste diversion at multi-residential properties.

As the Strategy is implemented, it is important to remember that resident behaviour change takes time. Behaviours and attitudes do not change over night and shifting deep-seated social practices takes time. The projects outlined under each project pillar will support reducing barriers to using recycling and Green Bin programs, increasing resident knowledge and awareness of diversion programs, and encouraging behaviour change and more participation in these programs over the next five years. The outcomes of this Strategy will contribute to achieving the anticipated results of options being considered in the Solid Waste Master Plan.