DILLON CONSULTING

Town of Newmarket

Downtown Waste Management Strategy - DRAFT

Background Study

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Downtown Waste Management Strategy – Background Review

Dillon Consulting Limited (Dillon) is pleased to provide this Background Review report which summarizes the information collected as part of the Town of Newmarket's (Town) Downtown Waste Management Strategy.

Through this report we believe that we have efficiently collected information on the Town's current practices through background research, stakeholder consultation and waste assessments. We have collected information on best practices and lessons learned from leading jurisdictions that have implemented downtown waste management programs and strategies. Based on the research and analysis completed we have developed a set of high level options, including potential impacts to the Town.

We look forward to discussing this report and the next steps of the project with you and your team.

Sincerely,

DILLON CONSULTING LIMITED

Alida Kusch
Project Manager, Associate
Our file: 20-2354

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Acronyms and Abbreviations

a.m.	ante meridiem
BIA	business improvement area
BID	business improvement district
CAD	Canadian dollars
COVID-19	coronavirus disease of 2019
Dillon	Dillon Consulting Limited
DSNY	New York City Department of Sanitation
e.g.	exempli gratia
EFW	Energy from waste
GFL	Green for Life Environmental Inc.
GHG	greenhouse gas
Hwy	Highway
IC&I	industrial, commercial and institutional
i.e.	id est
IPR	individual producer responsibility
km	kilometre
m	metre
MECP	Ministry of Environment, Conservation and Parks
MLS	Municipal Licencing and Standards
MSW	Municipal Solid Waste
Newmarket	Town of Newmarket

NYC	New York City
NYC DOT	New York City Department of Transportation
p.m.	post meridiem
RFID	radio frequency identification
RUAC	residential units above commercial
Strategy	Downtown Waste Management Strategy
SSO	Source Separated Organics
SUP	single-use plastic
SUPs	single-use plastics
Town	Town of Newmarket
US	United States
York Region	Regional Municipality of York

Definitions

Contamination: Commingling of garbage, refuse or other material having unsuitable physical or chemical properties with recyclable materials or organic wastes, thereby rendering the recyclable materials or organic wastes unfit for further reuse, requiring processing prior to reuse, or decreasing their value for reuse.

Collection: The collection of collectible waste and includes delivery to a waste management site, a materials recovery and transfer facility or any other facility designated by a designated municipal official.

Diversion: Re-direction of recyclable materials from disposal through resource recovery.

Diversion rate: Amount of waste diverted as a proportion of waste generated.

Garbage: Any refuse that is listed under the Town's Schedule A of By-law Number 2017-19. Generally, this refers to any collectable waste that is not recyclable material, source separated organics, large metal appliances or yard waste.

Green Bin: Container that is clearly and easily identifiable as containing Source Separated Organics.

Industrial, commercial and institutional (IC&I) waste: Waste generated by all non-residential sources in a municipality and is excluded from the residential waste stream. This includes:

- Industrial waste, which is generated by manufacturing, primary and secondary industries and is managed off-site from the manufacturing operation and is generally picked up under contract by the private sector.
- Commercial waste, which is generated by commercial operations such as shopping centres, restaurants, offices, etc. Some commercial waste (from small street-front stores, etc.) may be picked up by the municipal collection system along with residential waste.
- Institutional waste, which is generated by institutional facilities such as schools, hospitals, government facilities, senior homes, universities, etc. This waste is generally picked up under contract with the private sector.

Municipal Solid Waste (MSW): Solid waste other than hazardous wastes comprised of commercial, household and institutional wastes.

Organics or Source Separated Organics (SSO): Any Refuse that is listed under the Town's Schedule A of By-law Number 2017-19 under Source Separated Organics or in Schedule B as an SSO Accepted Item. This includes solid wastes containing carbon compounds that are capable of being biologically degraded, including paper, food residuals but not metals and glass or plastic.

Participation Rate: Ratio of generators (e.g. individuals, households or businesses) of recyclables materials that actually participate in a recycling program by setting out recyclables for collection during a prescribed period of time, to generators who are served by the recycling program and could participate in the recycling program.

Recycling: Process where a material is diverted from the waste stream and remanufactured into a new product or is used as a raw material substitute. Includes (1) collection, sorting, marketing, processing and transforming or remanufacturing recyclable materials into recycled materials and recycled products, including marketing thereof; and (2) the purchase and use of recycled products.

Recyclable Material: Substance that can potentially be reused as or recycled into a recycled material or recycled product

Refuse: Any object, material, or substance that has been discarded by any person or that is no longer in use or reasonably · intended to be used by any person having ownership or control over such object, material or substance.

Residential waste: Solid waste from residential sources (households) and includes waste that is picked up by the municipality (either using its own staff or through contracting firms), or residential waste that is taken by the generator to depots, transfer stations and disposal facilities.

Solid Waste Management: Planned and organized handling of solid waste and recyclable materials in an environmentally and economically sound manner, encompassing the generation, storage, collection, transfer, transportation, processing, resource recovery, reuse and disposal of solid waste and recyclable materials and including all administrative, financial, educational, environmental, legal, planning, marketing and operational aspects thereof.

Tag: Refers to a sticker purchased from the Town for the purpose of being affixed to a Container/Bag or an item of Special Waste.

Waste Generation: Total amount of disposed MSW and diverted recyclable materials.

Waste Disposal: Materials not wanted by their generator and which are discarded for management at waste disposal facilities (excludes materials destined for recycling and composting).

Waste Diversion: Quantity of materials diverted from disposal facilities and represents the sum of all materials processed for recycling at an off-site recycling or composting facility.

Yard Waste: Organic materials, including leaves, hedge trimming, tree pruning, weeds, yard plants, shrubbery, brush, Christmas trees, tree trimming, pumpkins, or other garden debris identified under the Town's Schedule A of By-law Number 2017-19. Yard Waste does not include food waste or grass.

Executive Summary

As part of developing a Downtown Waste Management Strategy (Strategy) for the Town of Newmarket (Town), a background study was completed to understand the needs of the Town and stakeholders. This included completion of the following:

- Assessment of the Town's current waste management situation for the downtown residential and business sector and public waste containers;
- Waste diversion performance review;
- Obtaining feedback through stakeholder engagement and consultation activities;
- Assessment of legislative and population growth impacts to the Town;
- Best practice review; and
- Development of potential options.

Engagement with Town staff and stakeholders throughout the background study indicated that illegal dumping and odour concerns are prevalent; there is a lack of space available for garbage due to the volumes of waste generated; and cardboard is not being set out properly. Central locations for both residential and business sectors to dispose of waste could be beneficial in the downtown area as they would provide convenient and accessible collection, improve aesthetics and decrease pests.

When developing potential Strategy options, there are a number of potential impacts to the Town that need to be considered such as legislative changes and population growth. Legislative changes include the Federal Government's Single-Use Plastics ban and the Provincial Government's Food and Organic Waste Policy disposal ban on organic waste and transition of the Blue Box Program to Individual Producer Responsibility. Additionally, based on the 2021 Statistics Canada Census data, the Town has grown by over 4% since the 2016 census. If this trend continues, the Town could see an increase of approximately 4,000 new residents by 2026. This has the potential to impact the downtown area as more people will use its services and amenities, increasing the volume of waste material generated downtown.

As part of this background study, a series of assessments were completed to assist in determining the immediate and long-term concerns for improving waste management in the Town's downtown core:

1. **Public Space Waste Container Usage:** Discreet user observations to analyze how downtown business customers and pedestrians access public space waste containers to determine how adequate the containers meet their intended purpose. Observations indicated that some individuals take the time to read signage, while others appeared to just want to dispose of their waste regardless if it's disposed of correctly.
2. **Visual Waste Audits:** Assessment of waste set outs over three occasions to identify the types of wastes, quantities and ongoing issues with waste management in the study area. Results indicated that the participation rate in organics is approximately 20% of curbside set outs and over 80% of recycling set outs had contamination. Over 60% of garbage set outs were observed to have materials that are divertible in the Town's existing curbside diversion programs.
3. **Manual Waste Audits:** Waste composition study where waste was sorted into categories to understand composition across the study area. The results indicated that the garbage stream of curbside waste is comprised of 44% organics and over 70% of the garbage stream could be diverted in the Town's existing curbside diversion programs. More than 60% of curbside recycling is fibre materials, of which 60% is corrugated cardboard. Waste found in public space waste containers was generated from the public, residents and businesses and there was 40% residential waste and 7% business waste observed. Waste was comprised of 46% organics, 20% plastics and 13% fibre materials. The front-end containers located in Market Square contained both residential and business waste and was comprised of 52% organics, 24% fibre and 10% plastics. More than 80% of the materials, by weight, found in the front-end container could have been diverted in the Town's existing programs.

The different types of waste assessments indicate that there is a high contamination rate in both the recycling and organic streams and high amounts of divertible material in the garbage stream.

As part of this project, a literature review of best practices from other jurisdictions was undertaken on five jurisdictions (Cities of Toronto, Guelph, New York City, District of Noord - City of Amsterdam (Netherlands) and Bergen (Norway)). Each of the five jurisdictions has implemented different waste management strategies in their downtown cores for managing business and residential waste. Key findings indicated the following:

- **Costs:** There are many costs to consider when implementing a new waste system. Capital and operating costs can determine whether a system may be feasible in the Town.
- **Infrastructure:** Improved infrastructure can assist with managing waste, reduce garbage overflow and introduce additional waste collection streams, noting that there is not a one-system-fits-all solution.
- **Ease of use:** Residents and businesses are likely to participate in a waste system if it is convenient and easily accessible to their everyday needs. If waste systems are easy to use, it will help make behaviour changes on how participants feel about waste.

Based on the Town's current waste management system and position, nine potential waste management options for the Town have been developed, noting that these will be further refined and evaluated in the project's next steps.

Option List by Category

Category	Option
Infrastructure	1. Consider new collection system/infrastructure for downtown residents and businesses including: • Variable rate-based system (similar to Toronto) for curbside collection with garbage bags; • In-ground collection system; • Underground waste collection system; • Transfer responsibility to the BIA. New collection system/infrastructure may include: • Garbage, recycling and organics; • RFID/fob access; and • Additional collection points such as behind businesses.
Infrastructure	2. Consider new and/or improved public space waste containers that include: • Improved recycling signage; • Pet waste stream;

Category	Option
	• Flaps on recycling and pet waste streams to prevent odours and pests. Will also encourage those who want to divert material to use the flaps versus the open-faced garbage.
Enforcement	3. Use co-op/summer students to conduct daily/weekly visual audits of public containers and residential/business waste containers.
Enforcement	4. Install cameras for illegal dumping and improper use of business/residential containers.
Enforcement	5. Increase enforcement of the Town's Waste Collection By-Law.
Education	6. Develop toolkits for tenants, landlords and businesses.
Education	7. Develop a business waste management coaching program and use co-op/summer students to assist with the education/implementation.
Education	8. Continue to work with the Downtown BIA to provide waste management assistance to businesses.
Policy	9. Update Waste Collection By-law to ban businesses and residents from using public space containers.

1.0 Background

In 2019, Dillon Consulting Limited (Dillon) was retained by the Town of Newmarket (Town) to conduct a Downtown Waste Management Strategy (Strategy). The project was initiated in early 2020; however, shortly after initiation a global pandemic (COVID-19) began which had significant impacts to the study area. As a result, the project was agreed to be put on hold by both the Town and Dillon. In September 2021, the project resumed at the request of the Town.

This Strategy is being developed through public and stakeholder consultation and a thorough review of successful programs from other jurisdictions. This Background Study Report highlights the research, analysis and public consultation that has been completed to-date in order to develop a Strategy that meets the needs of the Town and stakeholders. This report includes the following:

- Assessment of the Town's current downtown/Business Improvement Area (BIA) waste management situation in regards to operations, programs and infrastructure;
- Waste diversion performance;
- Feedback obtained through stakeholder engagement and consultation activities;
- Overview of best practices from other jurisdictions prioritized for relevance/applicability/budgeting requirements;
- Options including infrastructure and technologies and identification of location(s) that would be appropriate for the Town; and
- Analysis and commentary on the impacts to the Town when analyzing options including the following:
    - Relevant legislative changes (Ontario's Food and Organic Waste Policy, Waste Diversion Transition Act, 2016, Resource Recovery and Circular Economy Act, 2016);
    - Anticipated population growth; and
    - Potential cost impacts including operating (e.g., staffing), capital (e.g., containers, advertising, vehicles) and any other costs.

2.0 Introduction

The Town of Newmarket (Newmarket) is home to approximately 88,000 residents and is one of nine local municipalities within the Regional Municipality of York (York Region). Solid waste processing and disposal, public transit, water, emergency medical and police services are overseen by York Region; however, each local municipality is responsible for their own curbside waste collection, local parks and libraries.

The historic area of downtown Newmarket is a major focal point of the Town with Main Street considered to be the heart of the community. In the mid-1800s, the community grew and prospered with farmer's markets held regularly and the downtown area a busy centre for commerce. Where the farmers market originally operated is now the location of Old Town Hall.

Downtown Newmarket contains some of the oldest historical buildings within the community. Some buildings continue to be used according to their initial design and purpose (e.g., churches); while many buildings have adapted to change and current demands (e.g., restaurants). Surrounded by many high-traffic streets, Newmarket's downtown core is a vibrant mix of residential, commercial and community areas. Recently, the downtown area has had several new restaurants open and is redefining itself as the "restaurant and after hours entertainment district".

The Town is seeking to develop a comprehensive waste management strategy for the Main Street area. A strategic, Newmarket–specific plan that values current and future community needs requires consideration of a number of factors. This includes, but is not limited to, the following:

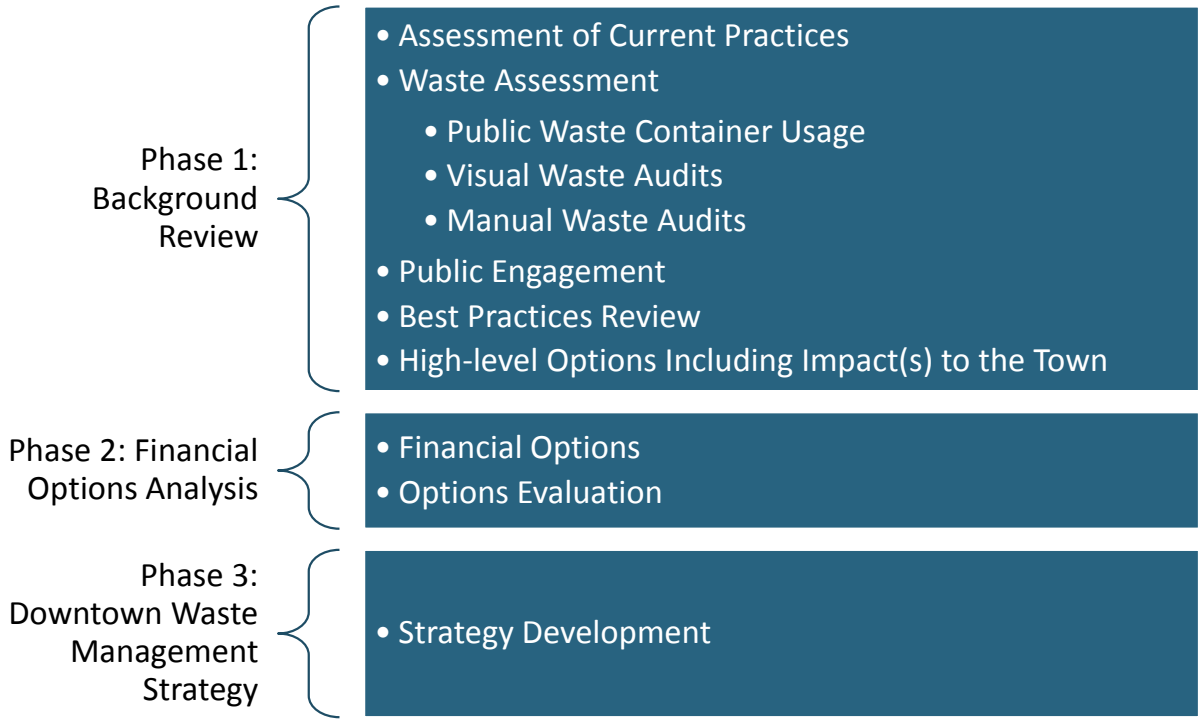
- Waste generation and composition;
- Collection of additional waste streams (e.g., pet waste, recycling and/or organics containers placed beside garbage containers that generate high volumes of these waste streams);
- Analysis of existing infrastructure and identification of any improvements (e.g., new vehicles to better service containers), technology that indicates when containers are full;
- Analysis of public versus private collection for waste streams by area;

- Promotion and education approaches for effective participation that reduces contamination in waste streams (e.g., signage, colour coding and container design are considerations in the approaches);
- Stakeholders involved in waste diversion, collection and maintenance including community buy-in and public perceptions of any recommendations;
- Analysis of financing options such as user pay or tax levy;
- Understanding of the potential impacts to relevant and proposed legislative changes and provide flexibility in the Strategy to adapt to future changes that are currently not defined (i.e., Blue Box Program plan);
- Incorporating waste diversion guidelines and requirements into the Waste Collection By-law (2017-19); and
- Understanding of the Town's existing waste collection programs and ensuring that any recommendations complement each program and are easily understood, especially for non-Town residents (e.g., out-of-town visitors).

2.1 Project Approach and Methodology

The Strategy proceeds through three phases with this report focusing on the first Phase (**Figure 1**). Activities undertaken and information collected for Phase 1 are detailed throughout this report.

Figure 1: Downtown Waste Management Strategy Approach



2.2 Research and Analysis

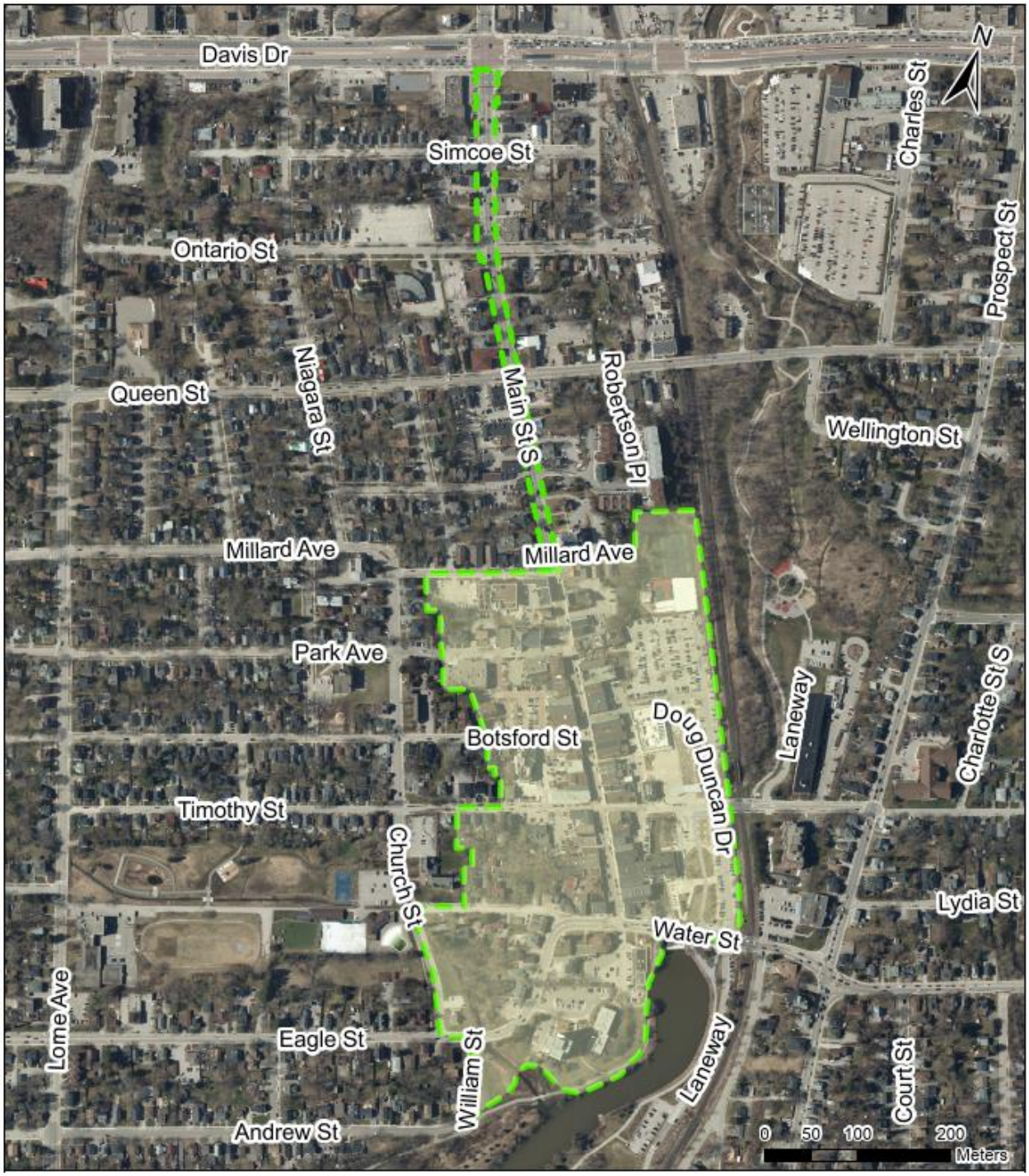
One of the first components in the development of the background study was a review of the Town's existing operations through information provided by the Town (**Section 3.0**). Following a review of the information, a waste assessment was completed in the study area. This included observations of the public interacting with public waste containers, visual waste audits and manual waste audits from various collection points (**Section 4.0**). Public engagement was completed with both Town staff, the BIA and the public through several workshops and an interactive website. These engagement activities informed stakeholders of the project that was being undertaken and provided participants with the opportunity to provide their feedback on challenges and opportunities for managing waste in Downtown Newmarket (**Section 5.0**). A review of best practices from other jurisdictions that had addressed waste management solutions for their downtown areas was also completed. Five jurisdictions were reviewed and different components were focused on to determine program successes and lessons learned (**Section 6.0**).

Based on the research and analysis completed, a set of high level program options that include impacts to the Town were developed and are presented in **Section 7.0.** Recommendations/next steps are presented in **Section 7.2**.

2.3 Project Study Area

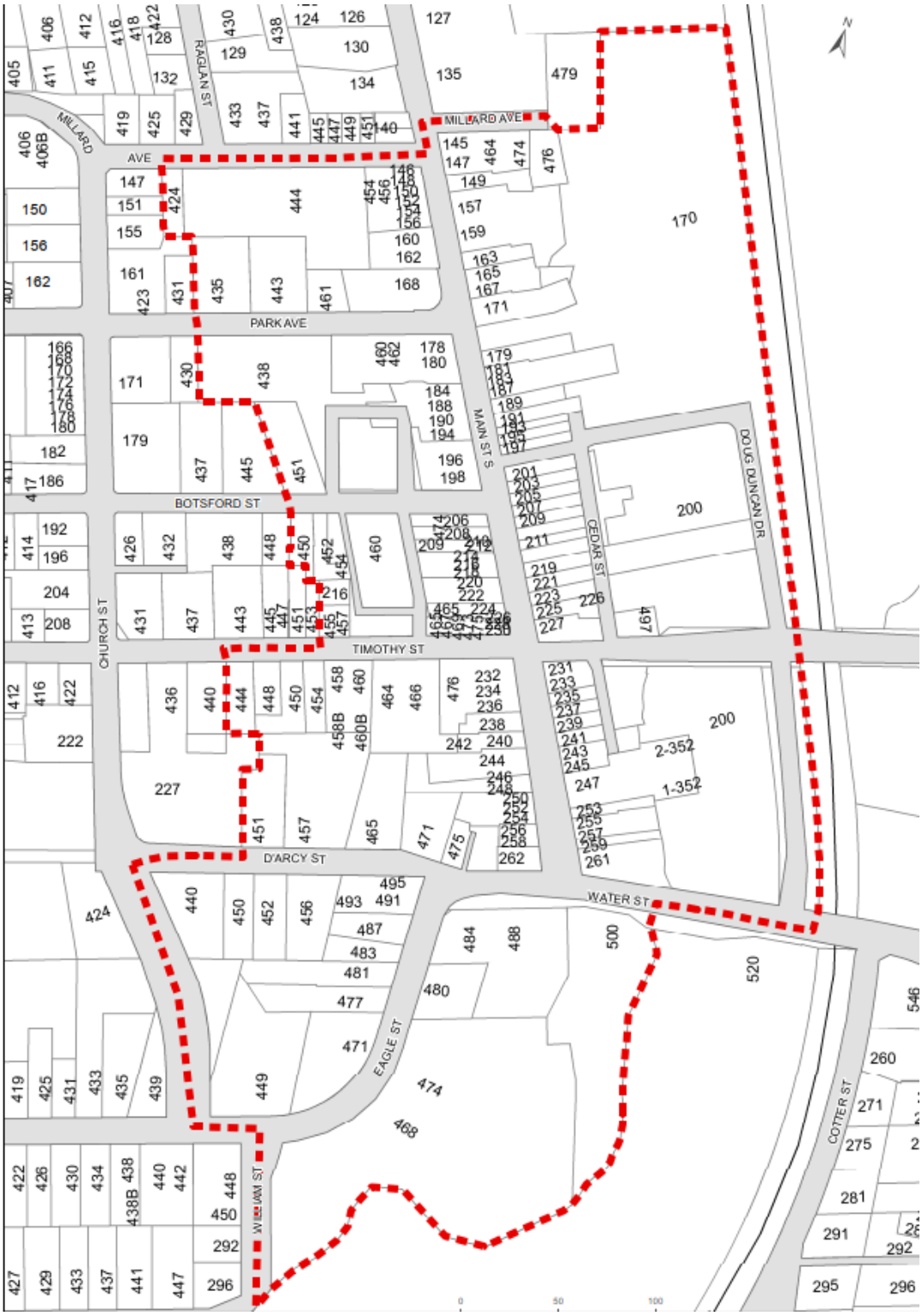
The study area for this project is included in **Figure 2** noting that the study area is similar to the BIA boundary (**Figure 3**), with an extension from Main Street South and Millard Avenue to Main Street South and Davis Drive. The BIA is comprised of more than 75 business and property owners including over 25 fast food, restaurants and pubs; over 25 stores and services (i.e., hair salon, clothing, jewelers, flower shop); and several mixed use properties with most buildings containing street level businesses with residential uses above.

Figure 2: Study Area Boundary



Source: Town of Newmarket

Figure 3: Business Improvement Association Boundary



Source: Town of Newmarket

3.0 Town Operations

Over the past several years, there has been significant growth and change in the downtown area. Most notably, there has been an increase in food service establishments along Main Street, resulting in changes to the composition of waste generated. COVID-19 had, and continues to have, a significant impact on the downtown area as many businesses were required to close or modify service offerings due to Provincial lock-down measures. With eat-in dining options restricted and at times closed, food service establishments shifted towards offering delivery and pick-up options. In 2020, the Town developed a Temporary Outdoor Patio Program from July to November which allowed for expanded patios on Town lands including sidewalks, street side parking spots, laneways, parking lots and urban park space. This program continues to be offered in 2022. The Town has received several complaints from the public regarding the observance and/or smell of waste that has been set out on Town streets which has hindered enjoyment of sitting on an outdoor patio.

3.1 Assessment of Current Practices

This assessment provides an overview of current operations and programs in place within the study area and has been compiled from information provided by the Town. The **References** section provides a list of information the Town provided.

3.1.1 Community Improvement Plan

The Newmarket Historic Downtown Community Improvement Plan was released in November 2001 to steer direction in the development of land use regulations and capital improvements. It also addressed an increase in retail and service-based business vacancies and put forth incentives for property owners and residents. Its efforts aimed to improve community wellbeing, streetscape appearances, develop links with surrounding areas, promote economic vitality and support participation in nearby cultural and recreation activities.

Improvements since the release of the 2001 Community Improvement Plan include the following:

- Riverwalk Commons creation, which included an urban park, splash pad, skating rink and performance stage (2001);
- Main Street South Road and streetscape improvements (2003);
- Redevelopment of the Community Centre (2011);
- Redevelopment of the Old Town Hall into a performance and art theatre (2015);
- Creation of the Historic Conservation District; and
- Construction of a York Region Transit VIVA bus Rapid way along David Drive (2015).

In 2016 a community assessment of the Historic Main Street was conducted with a goal to examine economic development and urban design in the downtown area. It took note of inconsistent garbage enclosures along Cedar Street and recommended the installation of more standardized garbage enclosures to improve visual appearance and to facilitate an increase in pedestrian use of Main Street at the Riverwalk Commons.

While the study area has been revitalized in many ways since the 2016 community assessment, this report consolidates information and concerns from the Town, local businesses and residents so that additional options to improve waste management practices in the area can be considered.

3.1.2 Current Service Provision

All waste management activities are subject to the Waste Collection By-law which requires a system for the collection and disposal of garbage, recycling, organics and yard waste.

The majority of the Town's waste management services are provided via the Town's contract with Green for Life Environmental Inc. (GFL). In additional to collection services, GFL is responsible for:

- Following the Waste Collection By-law, including bag limits and rejecting material unacceptable per York Region guidelines;
- Placing stickers on containers at the curb to inform residents of rejected materials due to non-compliance;
- Administering the broken container exchange program for residents; and
- Staffing their own customer call centre to provide customer service to residents regarding waste collection information and missed collections.

Within the study area, some waste collection services are conducted by Town staff. **Table 1** clarifies which services are provided by the Town and GFL within the study area and identifies current service delivery challenges.

Table 1: Current Downtown Waste Management Service Level

Service	Provider and Service Level	Challenges
Two garbage containers located in Market Square (each with a four cubic yard capacity) are available for local businesses and residents who live above store fronts on Main Street (see **Figure 4**).	GFL collects four times per week on Monday, Wednesday, Thursday and Friday. This collection is part of the Town's curbside collection contract.	Previously one of these containers was dedicated for cardboard only, but due to too much contamination, it is now designated as a garbage container.
12 garbage containers on Main Street are available for public use (e.g., pedestrians) (see **Figure 5**).	The Town empties garbage containers on Monday, Wednesday and Friday. Due to increased waste generation in the summer, the Town also collects on Saturday and Sundays.	Garbage containers are inappropriately used by local residents and businesses to dispose of residential waste. Recycling and organic waste disposal is not available on Main Street for public use.
Tri-sort (organic, recycling and garbage) public containers behind Main Street and along Riverwalk Commons and Community Centre (see **Figure 6**).	The Town's Parks and Recreation staff check containers every two days and empty as needed.	There is contamination due to poor source separation (i.e., materials are not put into the correct waste stream).

Service	Provider and Service Level	Challenges
Garbage, recycling and organic waste is collected at the curb from businesses and residents above businesses between 6:30 a.m. and 7:45 a.m. (see **Figure 7, Figure 8** and **Figure 9**) within the study area boundary.	Within the study area, GFL collects all three waste streams on Tuesday and Friday. This collection is part of the Town's curbside collection contract. GFL is responsible for following the contract and the Waste Collection By-law.	If businesses exceed the allowable volume of waste for set out, they are responsible for contracting a private waste service provider. Town staff have consistently needed to pick up one to two bags of waste on non-collection days.

Figure 4: Market Square Garbage Container

Figure 5: Waste Container on Main Street

Figure 6: Tri-sort Container

Figure 7: Curbside Collection – Main Street Residential and Business

Figure 8: Curbside Collection – Main Street Residential and Business

Figure 9: Curbside Collection – Main Street Business

3.1.3 Town's Waste Collection Costs

Town staff provided a breakdown of costs for waste collection along Main Street. It is estimated that the annual cost to collect from the 12 public containers three times per week is $21,840. This estimated amount includes staffing and collection vehicle costs and does not include disposal costs. The Market Square collection costs for pick-up only was approximately $5,000 plus tax in 2021 noting that this does not include disposal costs. The tonnes collected from Market Square are unknown as they are combined with curbside tonnages.

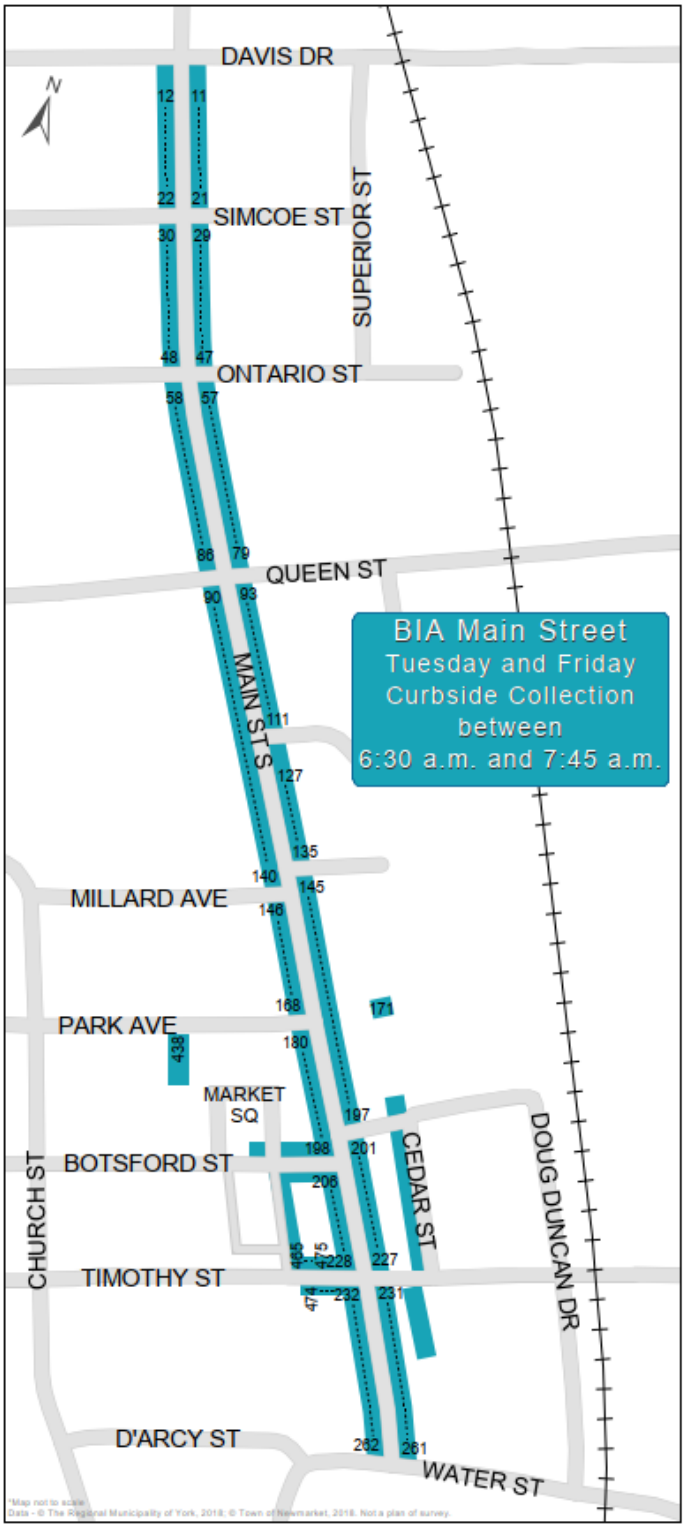
As previously noted, the Town's Parks and Recreation department is responsible for waste collection in the public areas behind Main Street as well as the Riverwalk Commons and Community Centre. These costs are unknown.

3.1.4 GFL's Collection Route

As highlighted in **Figure 10**, GFL's collection route for the BIA spans along Main Street South from Davis Drive (Hwy 31) to Water Street and includes residential collection on Civic Drive, Cedar Street, Timothy Street, Market Street and Botsford Street.

The collection route has 35 separate collection points that include a total of 141 units: retail and office units, restaurants, a retirement home, a place of worship and a recreational sports club.

Figure 10: GFL's BIA Collection Route



Source: Town of Newmarket

GFL's collection occurs twice a week in the downtown core on Tuesdays and Fridays. The Waste Collection By-law requires that all garbage, recycling and organics be set out on the curb no later than 7 a.m. the morning of collection and no earlier than 5 p.m. the night before. All emptied containers and uncollected items must be removed from the curb by 8 p.m. Residents have a limit of three bags/containers per household and businesses are limited to six bags/containers per collection. Residents can place out up to three additional garbage bags/containers provided they each have a Town of Newmarket garbage bag tag attached. Guidelines for acceptable items in the garbage, recycling and organics waste streams are consistent for all of Newmarket, including the downtown area.

3.1.5 Main Street Initiatives in the BIA

Within the BIA (i.e., Main Street area), the Town has performed waste assessments and outreach initiatives to support improved waste collection. Waste audits took place along Main Street in the summer of 2018. These audits found that waste diversion was poor, as approximately a quarter of the sampled garbage was recycling. Furthermore, it was found that garbage bags often contained smaller bags of organic waste.

To address waste management issues in the BIA, Town staff created a reference sheet to explain the collection schedule, container set out and where to obtain blue boxes and green bins. The BIA assisted Town staff in distributing the reference sheet. Town staff also used the Hey Newmarket online engagement platform to provide information, collect feedback and host a waste management survey in 2018 and 2019.

3.2 Staff Engagement

To further identify downtown waste management concerns and solicit feedback, staff engagement activities were facilitated and included an internal survey and an interactive workshop, both of which were hosted through Social Pinpoint (see **Section 5.1.2**).

3.2.1 Internal Staff Survey

A staff survey was launched on October 20, 2021 until November 4, 2021 and solicited feedback on:

- Perceived challenges for waste management in the study area;

- Opportunities for improvement;
- The impact of changes in the study area, specifically those due to COVID-19; and
- Anticipated outcomes of the Strategy.

3.2.1.1 Survey Feedback Summary

Survey results indicated that staff are concerned about:

- An increase in call volumes reporting waste concerns;
- An increase in waste arising from take-out and food delivery as a result of COVID-19;
- Illegal dumping, littering and limited space for waste storage;
- Poor diversion, limited options for residents and businesses and that businesses see waste removal expenses as a barrier;
- Decreasing appeal of the area due to the visibility of waste; and
- A lack of public containers for visitors.

The survey also indicated that staff would like to see:

- An increase in engagement to encourage proper waste diversion;
- The current level of service maintained;
- An increase in accountability for illegal dumping;
- Increased monitoring and enforcement;
- More public containers; and
- The relocation of waste containers away from sidewalks.

3.2.2 Internal Interactive Workshop

On October 26, 2021, Town staff participated in a virtual meeting that gathered feedback on downtown waste management planning and operations. The attendees represented a variety of roles, including customer service, operations, enforcement and administration.

3.2.2.1 Staff Feedback Summary

Feedback received during the staff workshop identified the following solid waste challenges:

- There is a need for an increase in the level of service provided. More specifically, comments indicated:

- The volume of medical waste (e.g., masks) and take-out containers increased as a result of COVID-19;
- The Temporary Outdoor Patio Program exasperated waste management complaints due to the presence of waste on the sidewalk becoming more significant and apparent;
- On weekends, a greater volume of waste is generated and not collected;

- There is a need for increased enforcement. More specifically, comments indicated:
  - Illegal dumping and littering are of concern to several staff;
  - "Mixed uses" or "multiple stakeholders" make it difficult to determine which sector – business or residential – generated the garbage;
  - It is difficult to know whether enforcement efforts should target residents or businesses or both;
  - Illegal dumping and odour concerns are prevalent around privately collected containers;
- There is a lack of proper storage space for garbage. More specifically, comments indicated:
  - Simcoe Street at Davis Drive and at the Museum are problematic areas due to a lack of containers and the volume of food take-out containers disposed of in that vicinity;
  - A lack of proper storage space is a challenge and garbage bags block sidewalks which is particularly challenging when there is snow on the sidewalks too;
  - Wild animals make a mess when they have access to bagged garbage;
- There is poor waste diversion: More specifically, comments indicated:
  - Recycling containers are contaminated and overloaded; and
  - Parks are of particular concern for contamination.

The following ideas for managing waste in the downtown area were suggested by staff:

- Increase enforcement efforts:
  - Fine businesses for Waste Collection By-law contraventions and use video monitoring to track illegal dumping;
- Develop a pay-for-use system for both residents and businesses:

- Apply a financial rate to a defined service level. One comment suggested implementing a paid system that would require an access key to use waste containers;

- Increase collection:
  - More private service is required;
  - Increase collection frequency based on the volume set out, or based on the day of week (i.e., establish a Monday collection route);
- Increase storage and improve the container system:
  - Have a central container for waste from both sectors – residential and business – to eliminate curbside collection at Simcoe Street and Main Street;
  - Have a central container specifically for residents living on Main Street;
  - Implement innovative, technology-based solutions; adopting an in-ground container system with recycling, organics and garbage streams; and using containers that can compact waste (no specific technologies/brands were named);
- Improve diversion:
  - Use a targeted approach to improve restaurant participation in organics diversion;
  - Implement a green bin program for residents in multi-family units;
- Increase promotion and education:
  - More discussion with business owners and residents; and
  - Putting educational signage on containers.

3.2.3 Staff Engagement Summary

Based on feedback obtained from staff, some of the consistent and/or overriding concerns expressed by staff include the following:

- Illegal dumping and odour concerns are prevalent;
- Lack of proper storage space for garbage (i.e., lack of containers), volume of take-out containers and greater volumes of waste generated on certain days;
- A financial rate for a defined service level could be applied (e.g., paid system with fob access to containers);

- There should be central locations for both residential and business sectors to dispose of waste; and
- A targeted approach should be made to improve restaurant participation in organics diversion.

3.3 Potential Town Impacts

There are a number of potential impacts to the Town related to relevant legislative changes and anticipated population growth in the development of a Strategy. A brief overview of these trends and polices is highlighted below.

3.3.1 Legislation and Policy

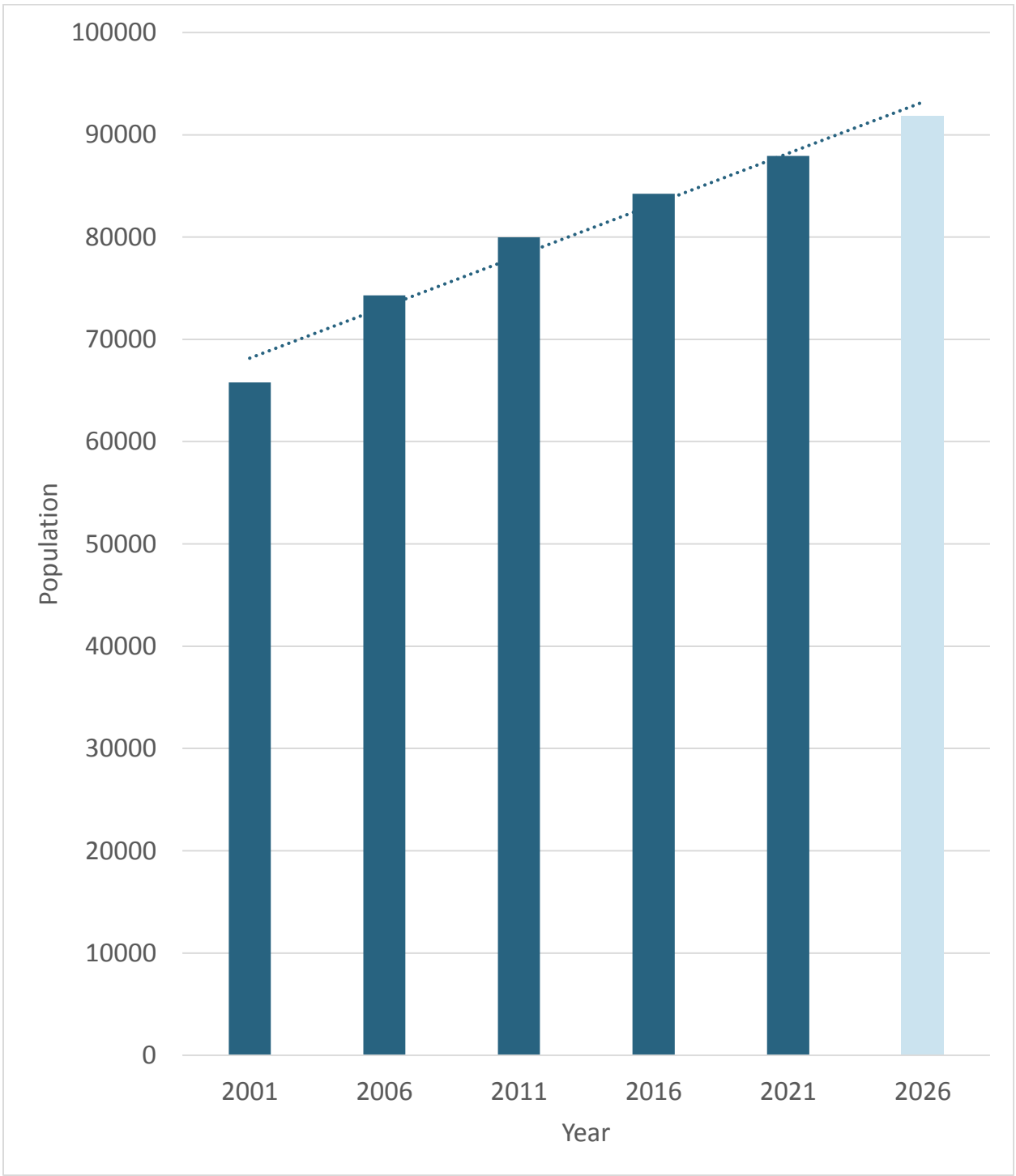
- **Ontario Landfill Capacity:** Based on population growth, and assuming a constant waste generation rate per capita, the Province's remaining landfill capacity is expected to be depleted by 2036, assuming waste continues to be exported to United States (US) disposal facilities. Should the US border close to Ontario waste, this capacity is estimated to be depleted by 2032;
- **Single-Use Plastics (SUPs):** The Federal Government plans to achieve zero plastic waste by 2030 including a ban on six SUP items (plastic checkout bags, straws, stir sticks, six-pack rings, cutlery and food ware made from hard-to-recycle plastics). The goal is to ban the listed items and achieve a pathway to develop further regulations with provinces and territories. The draft SUP Prohibition Regulations recently closed for public comment (March 5, 2022);
- **Food and Organic Waste Policy:** The policy identifies 17 action items focused on reducing the quantity of compostable organic materials being directed to disposal facilities for each of the single-family residential, multi-residential and industrial, commercial and institutional (IC&I) sectors including targets for each sector. Most notable was the identification of the year 2022 as an anticipated start date to phase in a potential organic waste disposal ban in the province of Ontario;
- **Circular Economy and Zero Waste:** The *Waste-Free Ontario Act, 2016* is the declaration of 17 specific "provincial interests" (Part 1 of the Act) that serve as the framework for policies to be developed by the Ministry of the Environment, Conservation and Parks (MECP). These "interests" are consistent with **circular economy** and **zero waste** thinking; and,

- **Producer Responsibility:** The *Waste-Free Ontario Act, 2016* makes producers **individually responsible** and accountable for their products and packaging at end-of-life. Under this regime, producers are directly accountable for recovering resources and reducing waste as required by regulation. The regulation lists the Town of Newmarket transitioning to Individual Producer Responsibility (IPR) on December 31, 2025, along with all other municipalities within York Region.

3.3.2 Population Growth

- Based on the 2021 Statistics Canada Census data, the Town has grown by over 4% since the 2016 census (**Figure 11**). If this trend continues, the Town could see an increase of approximately 4,000 new residents by 2026. This has the potential to impact the downtown area as more people will use its services and amenities, increasing the volume of waste material generated downtown. Additionally, the downtown area could see an increase in the amount of residential waste with more people sharing a unit (e.g., moving in to spare rooms of existing living spaces) due to the increasing cost of living.

Figure 11: 2011 to 2021 Town Population and 2026 Population Estimates



Source: Statistics Canada Census Data, 2001 to 2021

4.0 Waste Assessment

To understand the accessibility and composition of downtown waste, Dillon staff completed a series of assessments, including:

1. **Public Waste Container Usage.** Completed discreet user observations to analyze how downtown business customers and pedestrians access public space waste containers to determine how adequate the containers meet their intended purpose.
2. **Visual Waste Audits.** Visually assessed waste set outs over three occasions to identify the types of wastes, quantities and ongoing issues with waste management in the study area (**Figure 12**).
3. **Manual Waste Audits.** Completed a three-day waste composition study where waste was sorted into categories to understand composition across the study area.

Figure 12: Waste Set Out for Curbside Collection

The purpose of these assessments was to assist in determining immediate and long-term concerns for improving waste management in the Town's downtown core. This section of the report details the results of the three types of assessments and describes the high-level information obtained during the evaluations.

4.1 Public Waste Container Usage

The Dillon team completed an analysis of how downtown business customers and pedestrians access public space waste containers to determine how effective the containers are at meeting their intended purpose in terms of signage, contamination, convenience and capacity (**Figure 13**). In addition, members of the team monitored and recorded how public space waste containers were used and their impacts on street operations and aesthetics.

Figure 13: Public Waste Containers Along Main Street

The exercise focused on recording who used the containers, how frequently the containers were used, traffic flow to the containers and litter issues around the containers. The observations were conducted discretely so that users did not feel that they were being judged or tested. Dillon staff completed public waste container usage observations on three occasions: November 2, November 4 and November 11, 2021 during busy periods (e.g., evening rush hour).

No illegal dumping occurred and users generally spent less than five seconds at containers. Four users were observed and their behaviour was as follows:

- One user took the time to read signage;
- One user littered around the containers;
- One user had to force their material into the container as the opening was too small for their material; and
- One user had to move around a large pile of garbage to dispose of their material. During this instance, the user appeared to be inconvenienced by the waste and their inability to use the container without first having to move around garbage piles.

In addition to behavioural observations, the team completed user interviews to capture opinions and feedback regarding downtown waste management. Dillon staff were able to facilitate interviews with two individuals on November 4, 2021. The key takeaways from the interviews included the following:

4.1.1 Strengths of Existing Program

- Collection frequency; and
- Collection crews work hard.

4.1.2 Areas for Improvement

- Implement more By-laws for specific waste streams (e.g., hazardous waste); and
- More food waste programs.

4.1.3 Opinions on Existing Containers

- They are emptied frequently, which is good; and
- Signage works and makes sense.

4.1.4 Opinions on Waste Diversion in the Public Realm

- Not needed as people do not sort their residential waste; and
- Would be good to have.

4.2 Visual Waste Audits

To identify the types of wastes, quantities and ongoing issues with waste management, the Dillon team completed visual waste audits of disposed waste within the study area. These surveys were completed on three occasions: November 2, November 4 and November 11, 2021.

The visual waste audits assessed the following:

- Description of materials set out for collection and where they were placed (e.g., **Figure 14**);
- Assumed sectors of origin;
- Description of observable materials within each waste stream; and
- Percentage of materials that do not belong in a specific waste stream (i.e., recyclable materials in the garbage stream and contamination in the recycling and organics streams).

Figure 14: Waste Set Out for Curbside Collection 2

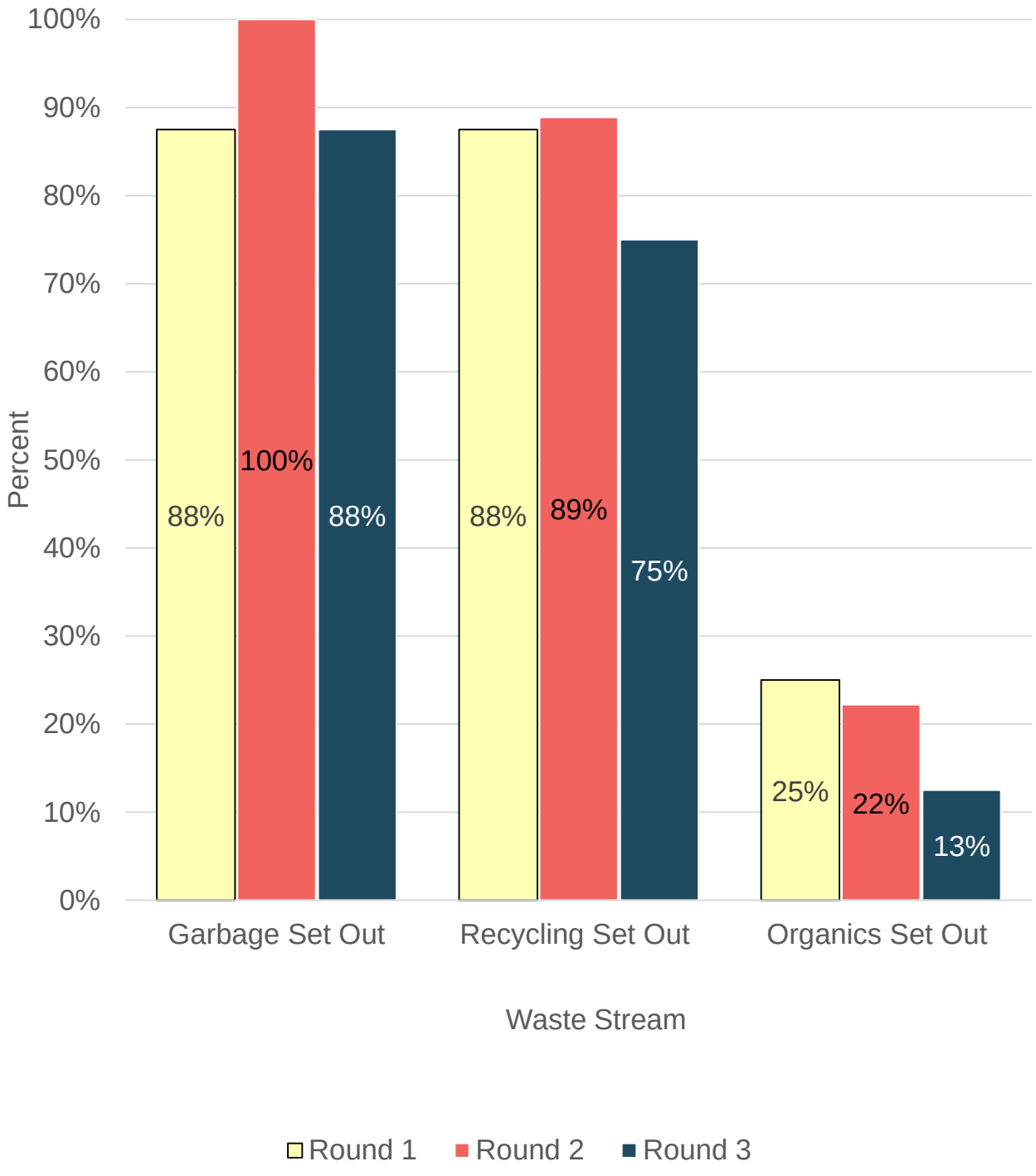
4.2.1 Waste Material Set Out for Collection

Table 2 provides the overall number of observations completed during each of the three rounds of visual audits. **Figure 15** illustrates the overall set out rate for each waste stream. Overall, garbage was the most frequently set out material, followed by recycling and lastly organics.

Table 2: Waste Material Set Out During Visual Audits

Visual Audit Round	Overall Number of Observations	Garbage Set Out	Recycling Set Out	Organics Set Out
1	8	7	7	2
2	9	9	8	2
3	8	7	6	1
Total	**25**	**23**	**21**	**5**

Figure 15: Set Out Rate for Visual Audits



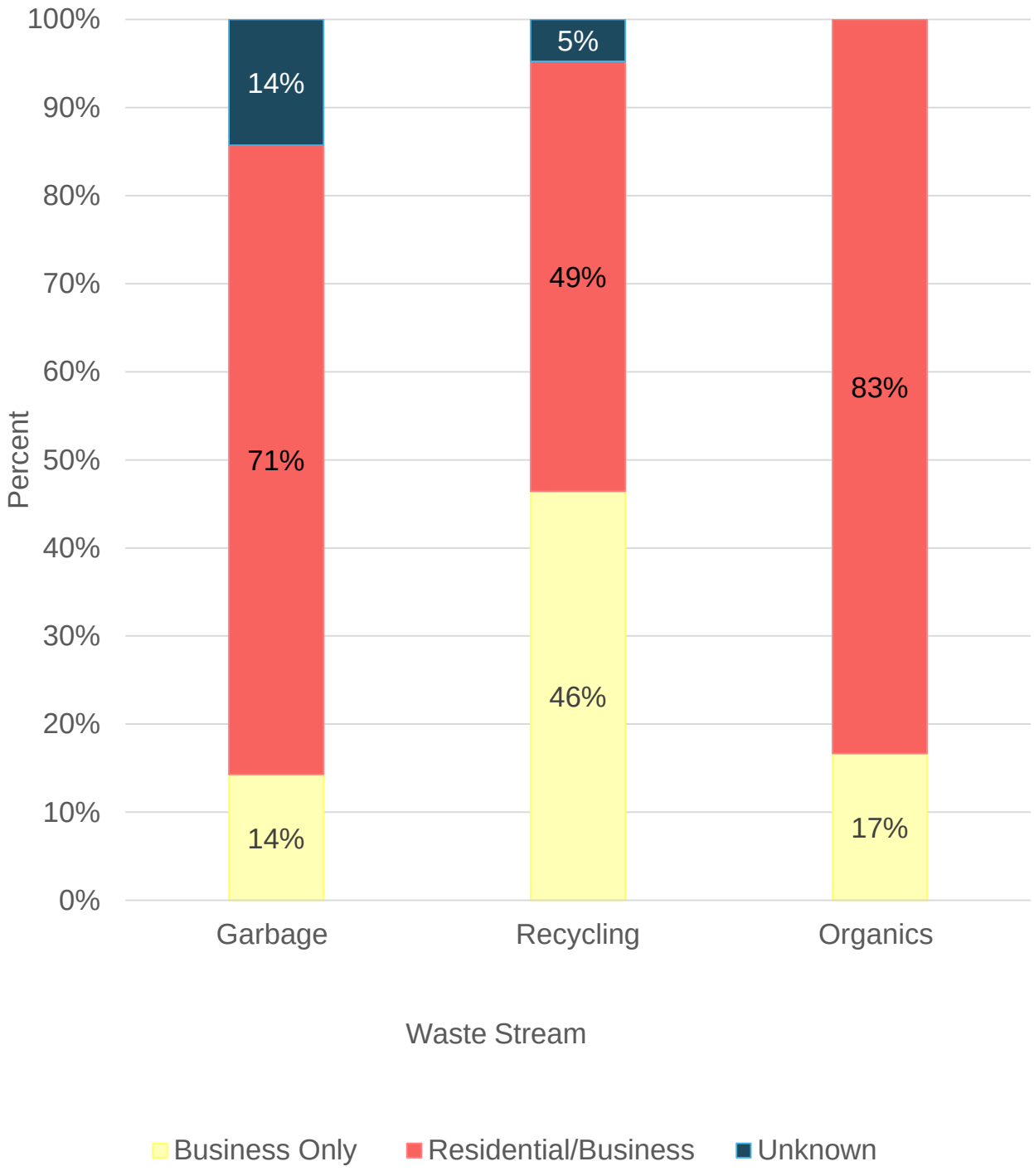
4.2.2 Assumed Sectors of Origin

When completing the visual assessment, the assumed sector of origin was recorded for each set out. **Table 3** provides the overall sectors of origin based on waste stream. Generally, garbage set outs were from either the residential/business sector (54%) or business sector (41%); recycling was similar (49% residential/business and 46% business only); and organics was mostly from the residential/business sector (83%). **Figure 16** highlights the assumed sector of origin.

Table 3: Assumed Sector of Origin

Assumed Sector	Garbage	Recycling	Organics
Residential Only	0%	0%	0%
Business Only	41%	46%	17%
Residential/Business	54%	49%	83%
Unknown	5%	5%	0%

Figure 16: Assumed Sector of Origin



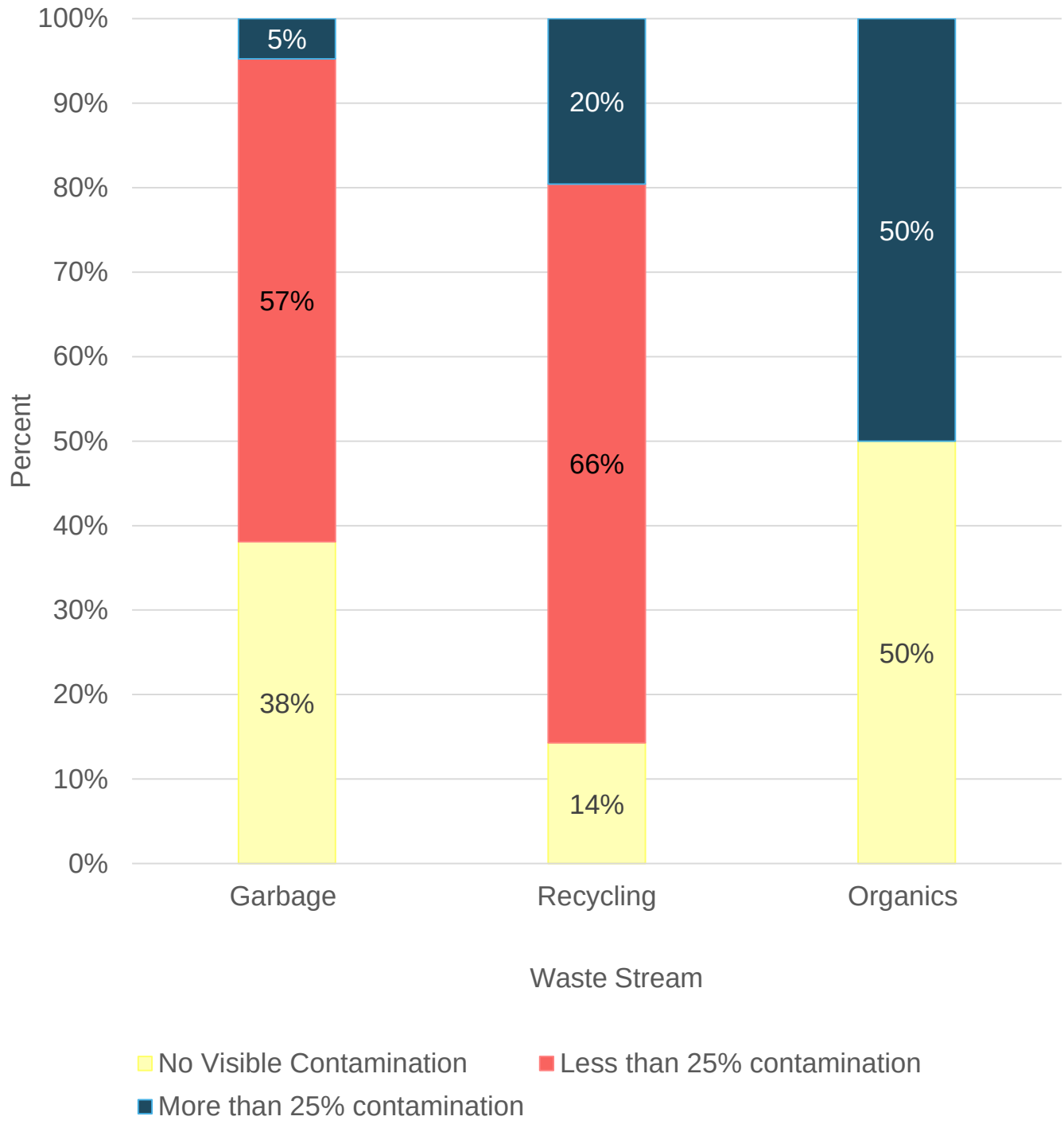
4.2.3 Visual Assessment of Waste Contamination

Dillon staff recorded the overall visual contamination of materials placed curbside for collection. **Table 4** and **Figure 17** provide the results of this assessment. Of the garbage samples set out, 57% had less than 25% visible contamination (divertible materials) and 38% had no visible contamination. Recycling results indicated that 66% of set outs had less than 25% visible contamination and 20% had more than 25% contamination. Organics samples were evenly split between no visible contamination and more than 25% contamination. It should be noted that samples were only observed visually, samples were not touched or sorted as a result of this assessment.

Table 4: Material Composition

Material Composition	Garbage	Recycling	Organics
No Visible Contamination	38%	14%	50%
Less than 25% contamination	57%	66%	0%
More than 25% contamination	5%	20%	50%

Figure 17: Material Contamination



4.3 Manual Waste Audits

Dillon staff completed a three day waste composition study in an effort to fully understand the composition of waste generated downtown from curbside waste, public space waste containers and front-end container waste. This assessment was designed to assist in determining specific waste diversion and reduction recommendations which can be incorporated as part of the Strategy.

Dillon staff collected and sorted waste from three collection points (curbside, public space waste containers and front-end) over three days (November 9 to 11, 2021). Waste collected each day was sorted based on set out to better understand how each sector (residential, business, public, etc.) disposes of waste within their given collection point. Waste was sorted into six primary categories: organics, glass, fibre, metal, plastic and other.

4.3.1 Curbside Results

Waste was collected from curbside collection points during all three days of the waste composition study included garbage, recycling and organics. The process involved Dillon staff analyzing the waste to assess the likelihood of it originating from each sector and recording the sector to which it best matched. Dillon staff recorded which sector they assumed the waste originated when collecting the material. The assumed sector was based on several criteria including where the waste was placed, surroundings and overall material composition.

4.3.1.1 Curbside Garbage Results

Curbside garbage was collected from 14 different set outs over the three days of auditing. The number of samples based on sector are as follows:

- Residential: six samples;
- Business: four samples;
- Mixed (business and residential): two samples; and
- Unknown: two samples.

Table 5 provides the composition for curbside garbage based on sector by primary category. The overall composition is illustrated in **Figure 18**. Overall, organics comprised the largest category of waste material in the garbage stream for all sectors (43% to 47%).

Other materials (largely textiles) was the second largest category within the garbage stream and comprised 17% to 33% of waste material sampled. **Figure 19** shows the secondary categories within the organics composition. Of the 44% of organics found in the garbage stream, over 26% was comprised of food scraps, which accounts for more than half of the organics. There was 9% food soiled paper (mostly paper towels), 7% pet waste and less than 1% of leaf litter from unwanted planters.

Table 5: Curbside Garbage Composition

Category	Residential (6)	Business (4)	Mixed (Business &Residential) (2)	Unknown (2)	Overall
Organics	44.3%	43.9%	46.8%	42.6%	44.1%
Glass	3.1%	0.6%	6.5%	2.6%	2.5%
Fibre	12.1%	11.1%	8.0%	10.2%	10.7%
Metals	2.8%	1.6%	5.0%	1.7%	2.4%
Other	24.4%	30.1%	17.4%	32.9%	27.8%
Plastic	13.2%	12.6%	16.4%	10.0%	12.6%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Figure 18: Overall Curbside Garbage Composition

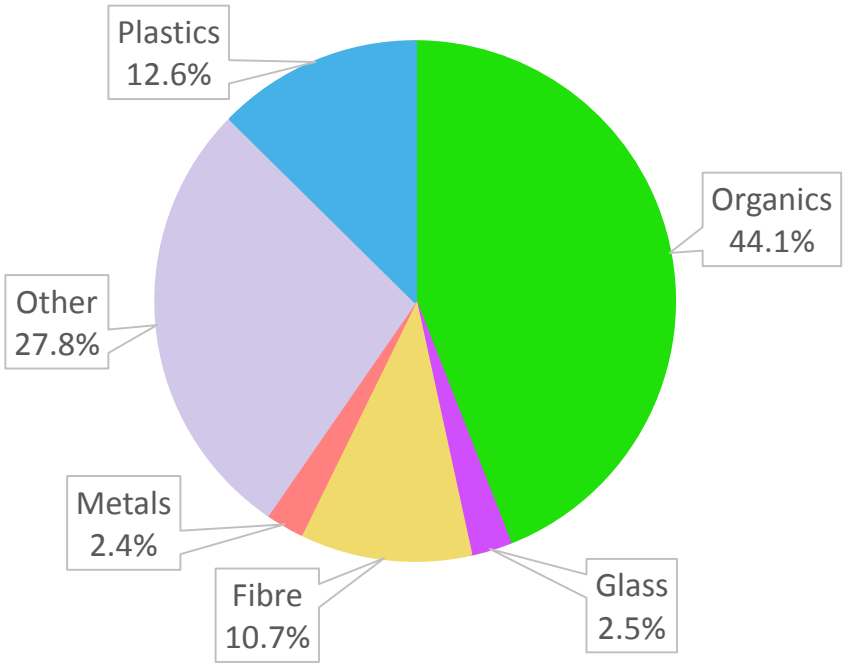
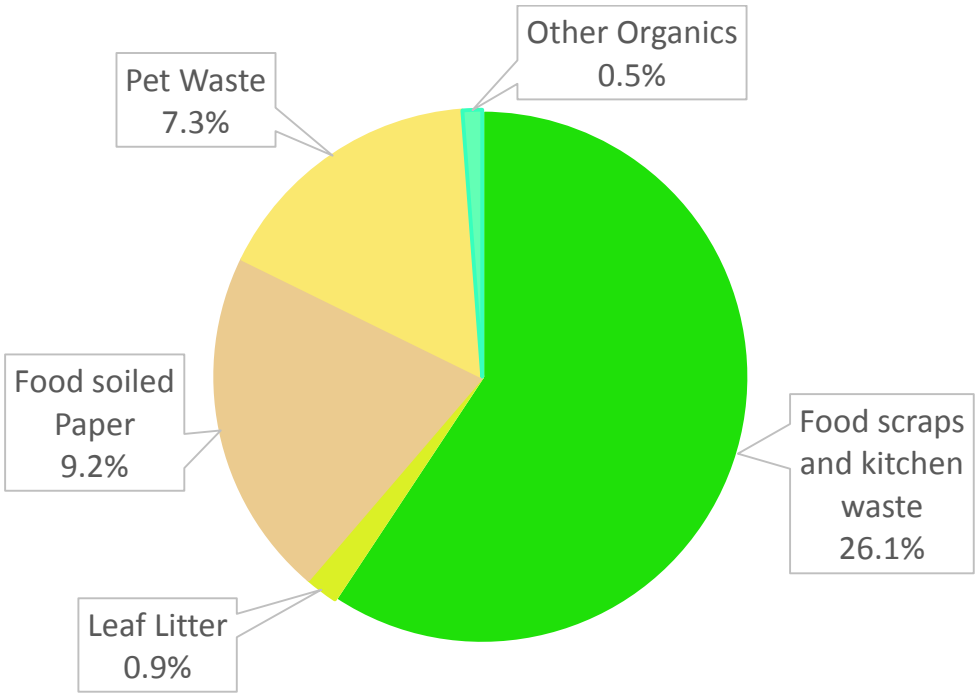


Figure 19: Curbside Garbage Organics Composition



4.3.1.2 Curbside Recycling

Curbside recycling was collected from six set outs over the three day audit. Recycling samples were collected from the following sectors:

- Residential: one sample;
- Business: four samples; and
- Mixed (business and residential): one sample.

The composition of curbside recycling was largely fibre (54% to 88%) and plastic (11% to 25%) (**Table 6** and **Figure 20**). The fibre category was comprised of 35% corrugated cardboard, 21% recyclable paper and 2% of beverage containers. Corrugated cardboard accounted for 60% of overall fibre composition **Figure 21**).

Table 6: Curbside Recycling Composition

Category	Residential (1)	Business (4)	Mixed (Business &Residential) (1)	Overall
Organics	0%	0.8%	2.1%	1.2%
Glass	0%	4.9%	4.3%	4.6%
Fibre	87.5%	54.1%	73.4%	60.6%
Metals	0%	13.8%	9.0%	12.1%
Other	0%	1.6%	0.4%	1.2%
Plastic	12.5%	24.8%	10.7%	20.2%
Total	**100%**	**100%**	**100%**	**100%**

Figure 20: Overall Curbside Recycling Composition

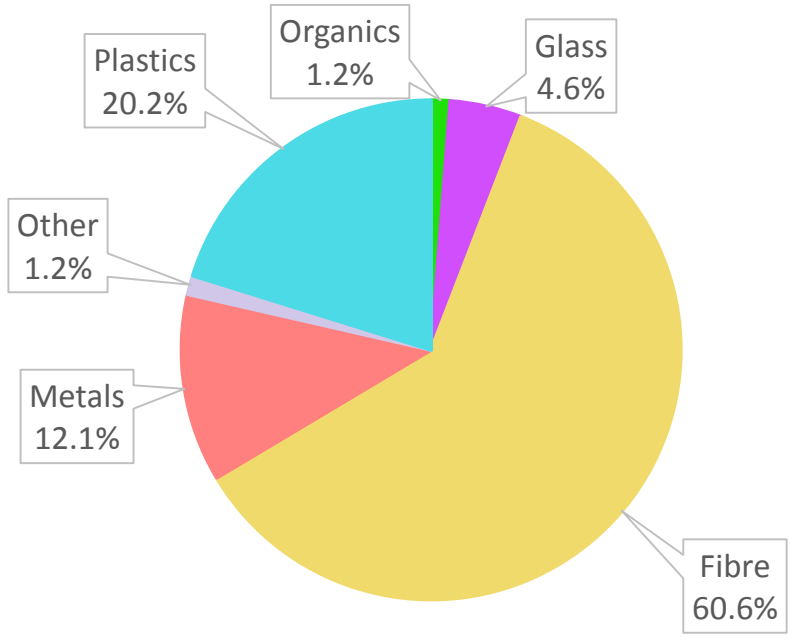
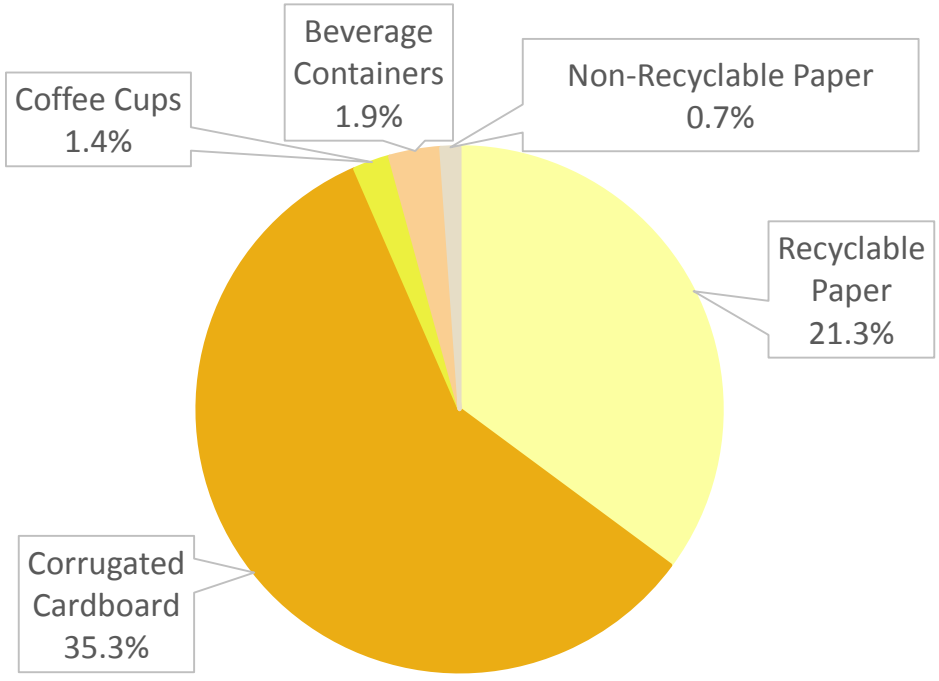


Figure 21: Curbside Recycling Fibre Composition



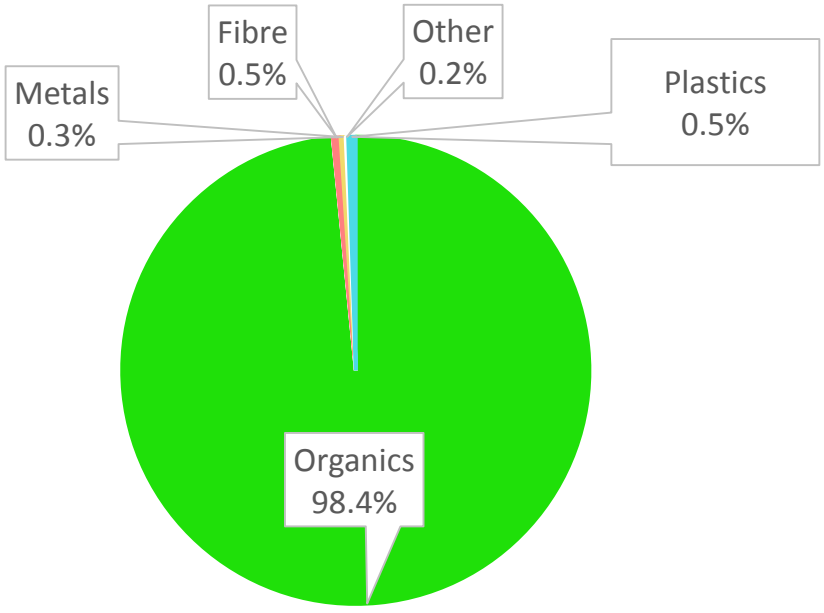
4.3.1.3 Curbside Organics Results

Three set outs included curbside organics. Two of these samples were collected from the business sector and one from mixed (business and residential) sources. Each sample was over 87% organics. **Table 7** and **Figure 22** highlight these results.

Table 7: Curbside Organics Composition

Category	Business (4)	Mixed (Business & Residential) (2)	Overall
Organics	99.3%	87.2%	98.4%
Glass	0%	0%	0%
Fibre	0%	7.7%	0.5%
Metals	0%	5.1%	0.3%
Other	0.2%	0%	0.2%
Plastic	0.6%	0%	0.5%
Total	**100%**	**100%**	**100%**

Figure 22: Curbside Organics Overall Composition



4.3.2 Public Space Waste Container Results

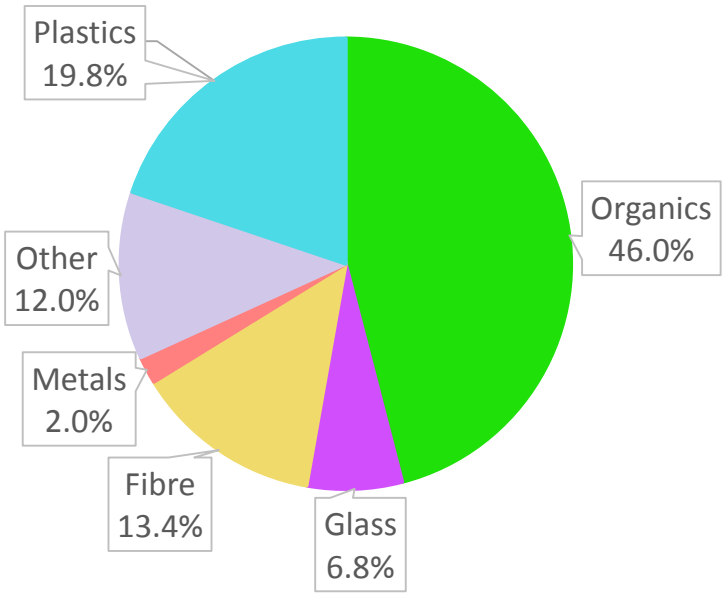
Waste was collected from public space waste containers on November 10, 2021 and it was all collected as garbage. Waste materials were sorted based on where auditors assumed the waste had originated: public space waste containers, business or residential.

Table 8 provides the composition for garbage collected in public space waste containers based on its assumed origin and is sorted into primary categories. The overall composition is illustrated in **Figure 23**. Overall, organics comprised the largest category of materials in the garbage stream for all sectors (36% to 59%). Other materials (largely textiles) was the second largest category within the garbage stream, this comprised 15% to 22% of the samples.

Table 8: Public Space Waste Container Garbage Composition

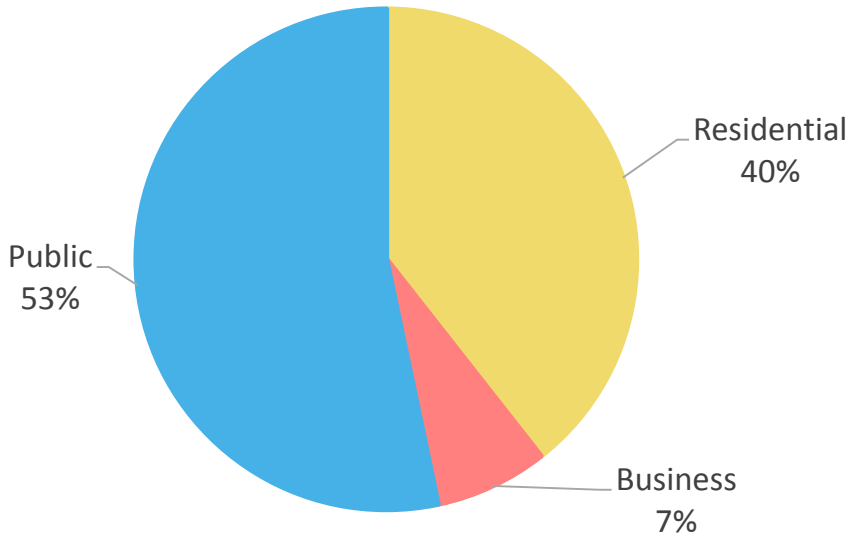
Category	Residential	Business	Public	Overall
Organics	59.4%	46.5%	35.9%	46.0%
Glass	6.3%	0.0%	8.2%	6.8%
Fibre	9.7%	12.7%	16.3%	13.4%
Metals	2.1%	0.0%	2.1%	2.0%
Other	7.9%	11.3%	15.1%	12.0%
Plastic	14.7%	29.6%	22.3%	19.8%
Total	**100%**	**100%**	**100%**	**100%**

Figure 23: Public Space Waste Container Overall Composition



Approximately half of the waste appeared to have been generated from those using the public space waste containers (e.g., coffee cups, take out containers from local establishments). 40% appeared to be generated from the residential sector and was typically identified as all of the waste materials were packaged inside a smaller garbage bag. Approximately 7% of waste appeared to have been disposed of by a local business into the waste container (e.g., mail addressed to the business, back-of-house waste) (see **Figure 24**).

Figure 24: Origin of Waste Material from Public Space Waste Containers



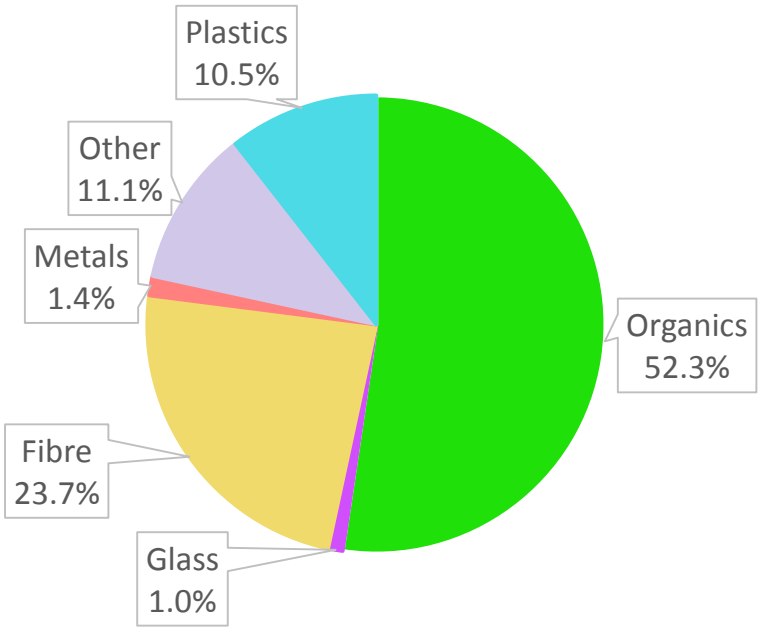
4.3.3 Front-End Container Results

Two samples were collected from front-end containers (November 9 and 10, 2021). Both samples originated from the mixed business and residential sector. **Table 9** and **Figure 25** provide the composition for front-end container garbage based on primary category. Overall, organics comprised the largest category of materials in the sorted waste category (52%) followed by fibre (24%).

Table 9: Front-End Container Garbage Composition

Category	Overall
Organics	52.3%
Glass	1.0%
Fibre	23.7%
Metals	1.4%
Other	11.1%
Plastic	10.5%
Total	**100%**

Figure 25: Overall Front-End Container Garbage Composition



4.4 Summary Audit Observations

The following highlights key findings of the visual and manual waste audits.

4.4.1 Visual Audits

More than 70% of garbage set out during the visual audits appeared to be generated by a mix of the residential and business sector. The visual audits confirmed that businesses and residents are actively participating in the Town's garbage and recycling programs. The participation rate for organics averages approximately 20%, which is significantly lower than garbage and recycling. This could be due to the "ick" factor of using an organics system, the system could be inaccessible to users, there could be a lack of awareness on how to use the program, there may not be on site storage capacity and/or there could be concerns regarding odours. Although there are many restaurants located along Main Street which are known to generate high volumes of organic waste, the participation rate in organics diversion was low.

High levels of contamination were observed in all three waste streams. A sample was considered to be highly contaminated if staff observed more than 25% organics and recycling, such as plastic shopping bags full of organic waste. More than 60% of garbage

and over 80% of recycling had high levels of contamination which were uncovered during the visual audits. This demonstrates that there was recycling and organics in the garbage stream and improper sorting in the recycling stream. Half of curbside organics that were visually audited were found to have more than 25% of contamination.

4.4.2 Manual Audits

Curbside manual waste audits included samples from residential, business and mixed properties. The garbage stream comprised of 44% organics, 28% other materials and 13% plastics. The organics category included food scraps and kitchen waste, food-soiled paper (e.g., paper towels, napkins) and pet waste. More than 70% (by weight) of the items found in the garbage stream could have been diverted through the Town's current waste collection programs. The recycling stream consisted of 61% fibre materials, 20% plastics and 12% metals. More than 60% of the fibre category comprised of corrugated cardboard and 35% recyclable paper.

Waste found in public space waste containers was generated from the public, residents and businesses and 40% residential waste and 7% business waste was observed. Waste comprised of 46% organics, 20% plastics and 13% fibre materials. Residential waste was found in small grocery store plastic bags and had items that a typical household would generate such as bathroom and kitchen waste. Business waste primarily consisted of restaurant food waste and food packaging.

Front-end containers were found to have a stronger mix of residential and business waste. Waste comprised of 52% organics, 24% fibre and 10% plastics. Most of the organics audited consisted of food waste from restaurants such as chicken bones, condiment containers and restaurant napkins. Small volumes of household organics were also found such as food scraps and paper towels that did not appear to have been generated by restaurants. More than 80% of waste material (by weight) found in front-end containers could have been diverted in the Town's existing waste collection programs.

Both types of waste assessments performed indicate that there is a high contamination rate in both recycling and organics waste streams with high volumes of divertible materials found in the garbage stream. Education could assist users to properly utilize

public space waste containers and the Town's existing curbside waste collection programs.

5.0 Public Engagement

As part of phase 1, feedback was solicited from stakeholders and information was gathered on the following:

- Perceived challenges for waste management in the study area;
- Opportunities for improvement;
- The impact of changes in the study area, specifically those due to COVID-19; and
- The locations within the study area that are of concern to stakeholders.

5.1 Public Engagement Methods

Engagement activities took the form of virtual engagement events, web-based tools and surveys. The Town's social media accounts (Twitter and Facebook) and email were used to notify stakeholders of engagement events. Web-based tools were maintained regularly throughout the background study to inform the community of updates and opportunities to get involved.

5.1.1 Virtual Engagement Events

Virtual engagement events were open to all members of the public and took place on November 18, November 25 and December 16, 2021. The events provided information on the Strategy as well as additional opportunities ways to become involved and engaged (i.e., through participating on Social Pinpoint (see **Section 5.1.2**)).

5.1.1.1 Virtual Event 1: November 18, 2021

The first virtual event was targeted towards stakeholders in the business community from the BIA, Economic Development and Chamber of Commerce; however, all members of the public were invited through notifications posted through the Town's social media accounts. No participants attended the event; however, project staff members were available on Zoom throughout the scheduled event time.

5.1.1.2 Virtual Event 2: November 25, 2021

A total of eight participants attended the second virtual event, which included a presentation on the Strategy, a Social Pinpoint demonstration and a discussion session.

5.1.1.3 Virtual Event 3: December 16, 2021

The third virtual event was held at the request of the BIA and its form and content were in keeping with Virtual Event 2. A total of four participants attended this event, three of which participated in the previous virtual event.

5.1.2 Social Pinpoint

A Social Pinpoint webpage was implemented and maintained throughout the project as a central location for engagement activities. During the fall of 2021, the website received approximately 2,480 visits overall through three web-based tools provided by Social Pinpoint: an ideas wall, interactive map and public survey.

5.1.2.1 Ideas Wall

An Ideas Wall is a Social Pinpoint tool that provides a virtual space for users to exchange ideas and provide feedback. The following questions were posted to solicit comments:

- How can waste management (i.e., collection, storage, location, etc.) be improved as we recover from the COVID-19 pandemic?
- How has the pandemic changed how you experience Downtown Newmarket?
- How could residential waste collection in the Downtown area be improved?
- What types of infrastructure would you like to see for downtown residents to dispose of their waste?
- What have you seen other downtown areas do with waste management that you would like Newmarket to do?

5.1.2.2 Interactive Mapping

An interactive mapping tool was launched for participants to provide feedback on specific locations within the downtown area. Participants were able to virtually drop pins on a map of the downtown area and add comments, upload images and respond to existing content (e.g., voting). A total of 19 pins were placed on the map along with comments under the pin headings “Places to Improve” and “Ideas for the Future.”

5.1.2.3 Public Survey

Between December 20, 2021 and January 7, 2022, a public survey was utilized to solicit feedback on how residents, businesses and visitors manage their waste, perceived challenges and ideas for improvement.

To increase survey participation, the Town offered a $50 gift card to a randomly selected participant. At the close of the survey, 81 people had participated.

5.2 Public Feedback Summary

The virtual events, Social Pinpoint tools and public survey findings are summarized below and provide a comprehensive list of waste related concerns and recommendations from the public. Public feedback indicates that there are concerns regarding the following:

- Illegal dumping, odour, overfilling of public waste containers, littering and improper sorting;
- Convenient and accessible collection;
- Limited areas to store waste coupled with insufficient collection frequency;
- Animals/pests;
- Aesthetics;
- Lack of accountability and poor Waste Collection By-law enforcement;
- Mixed use of public waste containers by residents and businesses;
- Improper set out of cardboard;
- Poor waste diversion; and
- Lack of private garbage collection services for businesses.

Key recommendations to improve waste management in the downtown area included:

- Increase the number of waste containers, specifically commercial containers behind stores and restaurants;
- Improve the attractiveness of waste containers;
- Purchase underground waste containers;
- Increase service levels:
    - To improve the level of convenience;
    - To support restaurants by providing more nighttime collection;

- Enhance waste diversion education;
- Incentivize waste diversion for residents and businesses;
- Enhance outreach to property owners and conduct surveys to increase participation in diversion programs in multi-residential buildings; and
- Construct a retaining wall to hide waste containers.

Feedback and recommendations that named a specific location included the following:

- Main Street:
  - Remove waste containers on Main Street for patio customers and in front of Metropolis Café;
  - Move waste containers from Main Street to a less visible location;
- Main Street and Botsford Street:
  - Address improper waste disposal of cooking oil, cigarette butts and general waste along Main Street and Botsford Street;
  - Address illegal dumping from residents on Botsford Street; and
- Old Town Hall and Market Square Laneway:
  - Address odours and unpleasant aesthetics.

6.0 Best Practices Review

As part of this project, Dillon undertook a literature review of best practices from other jurisdictions. A list of jurisdictions that fit the context of this project were compiled by Dillon and submitted to the Town for review. In consultation with the Town, the following five jurisdictions were selected:

1. City of Toronto, Ontario
2. City of Guelph, Ontario
3. New York City, USA
4. District of Noord, City of Amsterdam, Netherlands
5. Bergen, Norway

Reviews were completed through internet research and phone interviews with jurisdiction/organizational staff. Highlights of each review are provided in **Section 6.1** to **Section 6.5**. Conclusions and the relevance of the findings are discussed in **Section 6.6.**

6.1 City of Toronto, Ontario

6.1.1 Jurisdiction Overview

The City of Toronto has a population of 2.73 million residents (Statistics Canada, 2016) covering 630 km^2. Toronto is the most populated city in Canada and ranked fourth in North America by population. The City of Toronto provides waste management services to residential, mixed-use, commercial retail, charities, institutions and religious organizations. The City of Toronto collects waste from approximately 11,000 Residential Units Above Commercial (RUAC) establishments and approximately 7,000 IC&I customers.

6.1.2 Program Overview

In 2008, the City of Toronto launched Solid Waste Commercial Collection Services for small businesses and mixed-use commercial spaces with different levels of service and frequency of collection based on a fee structure. All waste streams collected under this service (garbage, recycling and green bin) include BIAs and downtown areas. Collection is provided during the night for major streets and during the day if on a residential route.

The program is financed through a variable rate system and charged to the utility bill of the location of each property. All of the City of Toronto's customer types, including single-family, multi-residential and IC&I customers, are charged for waste services through their utility bill, which includes water and waste charges.

The City of Toronto and its contracted collection services providers use automated vehicles equipped with a lift arm rather than manual collection. As a result, all waste is containerized in wheeled containers (carts) and customers choose the appropriate size of cart for their property needs. While the City of Toronto provides carts to its residents, customers who are IC&I and/or property managers for multi-residential buildings must purchase carts from the City of Toronto, or be approved (based on exception criteria) to use garbage tags for bagged waste. Currently, some customers approved to use bags-only, can purchase commercial yellow bag tags to be able to receive pickup (**Figure 26**). Revenue generated through the rate system funds the Solid Waste Management Services' operating budget (it is forecasted to comprise approximately 86% of operating revenue in 2022). The City of Toronto has a mixture of in-house and contracted collections service providers, servicing its various type of customer and geographic area. Most IC&I waste is collected at night by in-house staff as many of the serviced locations are on routes with high traffic volume. However, IC&I pick up points, as well as residential customers who live above commercial establishments, may be part of any residential collection route.

Figure 26: City of Toronto Garbage Tag

Source: Toronto Star

Eligibility for collection services requires the property to be categorized under "Small Commercial" which means the property must have fewer than four floors and less than 500 m^2 of ground floor space or at least one-third of space is residential.

Enforcement activities for this program include daily audits in collection areas to ensure participants are registered and paying for collection services. Daily audits also include monitoring for compliance of proper set out and the use of yellow bag tags as well as contamination in recycling containers.

6.1.3 Program Successes

The service provides all three streams of waste collection (garbage, recycling and organics) to small commercial properties at a fraction of the cost compared to a

scenario in which small commercial properties each contract a private sector waste service provider. This results in higher participation in recycling and organics collection. The registration process is simple for small business owners and landlords as payment is integrated with utility bills. Providing collection services at night reduces traffic congestion and delays on major streets.

6.1.4 Lessons Learned

It is recommended in the City of Toronto's Long Term Waste Management Strategy to re-visit the eligibility criteria for small commercial businesses and explore opportunities to improve diversion in the IC&I sector.

Toronto's Municipal Licencing and Standards Division (MLS) is responsible for the enforcement of the by-law 841 "Waste Collection, Commercial Properties" and the MLS Division includes staff that are dedicated to waste management enforcement. Since 60% of commercially service properties are located in the downtown core, there is an efficiency of scale involved in having a dedicated enforcement team.

Between 2002 and 2018, the City of Toronto had a Yellow Bag program for non-residential curbside customers; however, this program was discontinued due to the costs of procuring and distributing bags for this program and the circulation of counterfeit bags in the City of Toronto.

6.2 City of Guelph, Ontario

6.2.1 Jurisdiction Overview

The City of Guelph is situated in southern Ontario with a population of over 131,000 residents (Statistics Canada, 2016) and spans 87 km^2. The demographic of users in the downtown core includes 424 businesses and 460 residential units which include mixed-use, commercial retail, commercial food services, multi-residential and other institutions.

6.2.2 Program Overview

The City of Guelph's BIA Collection Pilot is currently in development which will roll out in the winter of 2022. This program is responsible for providing garbage, recycling and organics collection to businesses in the downtown core and bringing waste material to a

centralized location for further processing and disposal. The multi-system approach includes providing door-to-door collection service using yellow bags for garbage that businesses would purchase from participating outlets distributed by the City of Guelph. This is to differentiate between commercial and residential waste. Residents do not have to pay for yellow bags and can use regular garbage bags. Recycling and organics will also be collected at the curb when the program rolls out. All businesses, institutions and residents in the downtown core will have access to the program.

The collection party is to be determined and will include daily collection from either the BIA, the City of Guelph or a third-party contractor. The loads will be transported directly to a waste facility or the City of Guelph will provide a central compactor to reduce the number of trips. Door-to-door collection services will be on a variable rate schedule depending on the collection needs of the businesses.

In addition to curbside waste collection, businesses and residents will have access to in-ground containers for managing recycling, organics and garbage. Access to these in-ground containers may require an access card or tag and access will be permitted both day and night. The City of Guelph plans to redesign the downtown Core with the intent to replace multiple municipal infrastructures above and below ground which provides an opportunity to install the in-ground containers. Enforcement will be the responsibility of the Downtown BIA including monitoring and reporting program progress.

User fees are still in development and will include either a flat fee, full user-pay or a combination of both. These fees are only applicable to businesses and will include both door-to-door collection and in-ground containers. Capital and operational costs will vary due to different infrastructure implementations. No preliminary costing analysis has been undertaken at the time of this report.

The City of Guelph is currently delayed in developing an approach to user fees due to the impacts of COVID-19. The City Council of Guelph is focused on assisting businesses in the downtown area resume with their business operations and do not want to impose any fees to businesses at the present time.

6.2.3 Program Successes

The program is still in the development phase. Outreach with the BIA indicates businesses want collection services provided seven days per week or have a system that provides equivalent access to the level of services.

6.2.4 Lessons Learned

The City of Guelph currently provides a six-day per week cart-based collection of garbage, organics and recyclables from commercial properties and public spaces in the downtown core, which is an expensive system to provide due to the high service level. City of Guelph staff would prefer a more realistic and cost-effective solution to the current system. Implementing in-ground containers could offload curbside collections services as it would remove the need for high-frequency collection; however, no preliminary costing analysis has been undertaken at the time of this report.

6.3 New York City, New York

6.3.1 Jurisdiction Overview

New York City (NYC) is the most populated city in North America with 8.4 million residents spanning over 778 km^2. New York City comprises five boroughs and is home to one of the world's major commercial, financial and cultural centers. There are an estimated 350,000 commercial buildings in NYC which include business districts, commercial properties and non-profit organizations.

6.3.2 Program Overview

A pilot program for commercial waste started in the spring of 2021 called Clean Curbs Pilot. This program allows commercial establishments and Business Improvement Districts (BIDs) to apply for sealed, on-street containers to store garbage and recyclables generated by businesses. The container systems are to be situated in parking spaces and on public sidewalks (**Figure 27**).

Figure 27: Clean Curb Unit Illustration

Source: New York City Department of Sanitation

Each business entity responsible for the containers must enter into a maintenance agreement with the New York City Department of Sanitation (DSNY) to ensure containers and surroundings are kept clear of dirt, debris and rubbish as well as snow and ice. Entities must have commercial general liability insurance covering operations under the maintenance agreement. The specifications for the container system include size, placement and aesthetics.

New York City is not responsible for servicing the containers as the onus lies solely on the businesses. Businesses must make arrangements for collection with private waste management companies. There are no capital and operating costs associated with this program.

Any neighborhood group, BID, non-profit organization or company is eligible to apply to construct and operate a Clean Curbs site. Approval and support from adjacent property

owners and two departments (DSNY and the Department of Transportation (NYC DOT)) must be obtained.

6.3.3 Program Successes

Success of the program is intended to be measured by the following:

- Increased diversion;
- Reduction in the volume of garbage set out for collection;
- Reduced collection vehicle miles and related greenhouse gases (GHGs);
- Improved cleanliness of streets and sidewalks;
- Enhanced collection efficiency;
- Reduction in rat population; and
- Improved pedestrian movement.

However, as of October 2021, no sealed garbage container has been installed since the announcement of the Clean Curbs Pilot program. Since no containers have been installed, there is no data to support the success of the program. New York City staff have attributed the program's poor update to the timing of its implementation (during COVID-19). New York City has indicated that there has been much financial uncertainty for businesses during this time.

At the same time as implementing the Clean Curbs Pilot program, New York City also implemented a pilot program for the centralized collection of residential organic waste which also did not gain much traction. This was implemented in the neighbourhood of Astoria with 20 containers set up for residents to drop off their organic waste. Residents were able to order a fob, or sign up for a cell phone app that would allow them to access organic waste containers. It has been reported that the time required for the fob to arrive in the mail, as well as a lack of a public information campaign has resulted in poor participation.[1]

[1] New "Smart Bins" Show City's Slow Progress on Composting Goals. December 27, 2021. Kozweek. At https://kozweek.com/new-smart-bins-show-citys-slow-progress-on-composting-goals/

6.3.4 Lessons Learned

The approval process could be deterring business owners from participating in the program. Two separate departments are overseeing the approval process as the NYC DOT has jurisdiction over roads and spaces and DSNY has jurisdiction over waste collection.

Implementing during COVID-19, when businesses have financial uncertainties could also be a deterrent for participating in the program.

6.4 District of Noord, City of Amsterdam, Netherlands

6.4.1 Jurisdiction Overview

The District of Noord, Amsterdam means Amsterdam-North, which is located north of central or downtown Amsterdam but separated by the River IJ in the Netherlands. The City of Amsterdam has 1.15 million residents with 90,000 located in the District of Noord. There are approximately 14,000 households and surrounding businesses which include mixed-use, commercial retail, commercial food services and multi-residential.

6.4.2 Program Overview

There is no curbside garbage collection in Noord. All residents and businesses are required to bring their garbage, recyclables and organics to centralized underground containers. These collection containers are located in every neighborhood or within 50 meters away from one another. It is not known if these containers meet accessibility requirements for individuals with disabilities or could be serviced in the winter.

There are an estimated 13,000 underground collection containers throughout the City of Amsterdam and approximately 520 in the District of Noord. These containers can be emptied on location, using a specially adapted collection truck that has a hydraulic arm/crane that hoists the containers out of the ground and empties the contents into the top of the collection vehicle as seen in **Figure 28** and **Figure 29.**

Figure 28: Noord District EcoVision Underground Garbage Containers

Source: EcoVision

Figure 29: Noord District EcoVision Truck

Source: EcoVision

In Noord District, all underground containers used for garbage are locked and can only be accessed using a special Radio Frequency Identification (RFID) card. This technology helps the district monitor the container's use and stores information about the number of uses by user. All other underground containers for recycling and food waste are free of charge to use. Residents of Noord can receive an RFID card at no charge while businesses must pay for the access card to use the in-ground containers. Businesses are charged per usage.

All businesses are eligible to use the underground containers and receive an RFID access card if they generate nine bags of garbage or less. Businesses that generates more than nine bags are required to sign a waste collection contract with the City of Amsterdam with approved waste collection services. Businesses that generate four bags or less a week pay $608 CAD annually and nine bags or less a week pay $1,288 CAD annually.

The initial capital costs of the in-ground containers range from $15,900 to $17,350 CAD and are often set up in pairs costing roughly $36,100 CAD. The operating costs for the

in-ground containers are due to the access cards which cost up to $4.33 CAD a card and require ongoing replacements due to users losing their cards.

6.4.3 Program Successes

The implementation of in-ground containers makes waste collection easier for the City of Amsterdam as collection does not need to occur as frequently. The user identification system makes residents feel accountable for their waste habits and provides an incentive to reduce and separate waste. The proximity of containers to businesses makes the program convenient for commercial users and diversion is easy for commercial and residential customers as the containers for different waste streams are clustered together. An online map is available to show businesses and residents the locations of containers across the region.[2] The City of Amsterdam also has ongoing efforts to educate citizens and raise awareness on recycling. Users find the underground containers to be aesthetically pleasing as they blend in well with the surrounding infrastructure. The containers can be easily accessed by authorized residential and commercial users and the structure of the containers helps keep out vermin.

6.4.4 Lessons Learned

Waste can be illegally dumped outside the locked containers or the unlocked recycling and organics containers which causes contamination. There have also been cases of businesses claiming they generate less than nine bags of garbage when they have actually generated more, increasing costs for the City of Amsterdam to service the containers more frequently.

The requirement for RFID access cards has resulted in higher operating and maintenance costs than other containers that do not have access card capabilities. The City of Amsterdam Council also approved the addition of 14 patrol officials to hand out fines for illegal dumping in the vicinity of waste containers, as a result of illegal waste being left beside containers in several neighbourhoods.[3]

[2] See Afvalcontainers (amsterdam.nl)
[3] Amsterdam officials hand out over 2,400 fines for dumping waste - DutchNews.nl

The City of Amsterdam has decided to replace the in-ground containers and access cards over the next couple of years. The new, more simplified approach still uses in-ground containers but the use of the containers will no longer require access cards and the containers can be emptied on the spot using a hydraulic arm and open top collection truck. The new containers will also have the ability to compact the material in the underground containers to reduce the number of collections. This system will replicate the underground container system currently in use throughout the rest of Amsterdam.

6.5 Bergen, Norway

6.5.1 Jurisdiction Overview

The City of Bergen is located in Norway with 280,000 residents over 97 km^2. Bergen is the second-largest city in Norway that has an old medieval inner city, characterized by old wooden buildings. The City of Bergen has 311 businesses and 8,650 residential units. Businesses include mixed-use, commercial retail, commercial food services, multi-residential and institutions.

6.5.2 Program Overview

The City of Bergen installed an underground vacuum system for waste collection. This was to help prevent traffic congestion as well as prevent fires in the old medieval wooden buildings. The City of Bergen installed a central district heating system at the same time since the streets were already in construction. The system, named "Bossnett", is used to manage residential and business waste and spans seven kilometers of underground tubes that run under the streets of the downtown city centre as illustrated in **Figure 30**. Residents and businesses bring their waste to specially designed outdoor units, called inlets, located throughout the city's core. The inlets are dedicated to garbage, recyclables or cardboard. Garbage can be placed in any type of plastic bag. Plastics must be placed in an orange-coloured bag (available free of charge from grocery stores and recycling stations while paper and cartons are to remain loose to throw into the inlet. Where plastics and paper/cartons are placed in the recycling inlet, cardboard is placed into a specially designed inlet that shreds the cardboard as it enters, avoiding the issue of large cardboard items becoming stuck.

Figure 30: Bossnett Underground Waste System

Source: https://makeasmartcity.com

When material is deposited into the inlet, it is stored in an underground tank. When it is time for stored material, (e.g., garbage) to be transported, the hatch to the storage tank is opened and the vacuum system sucks the material through the pipes at 70 km/hour to one of two waste collection stations. When all the garbage has been sucked away, the process for the paper and plastic waste is repeated which happens twice a day. At the waste collection stations, waste material is transferred to trucks for hauling to end-use destinations. Garbage is sent to a local energy-from-waste (EFW) facility and recyclables are sent to a material recycling facility.

All residents have access to the underground vacuum system within the designated areas. Businesses can access the system but must apply first. Each inlet is designed to accept designated materials from three different users using three different hatches. A smaller hatch opens for residential users using a fob, a larger hatch opens for business users using a fob and a small opening at the front can be used as a public space container for the general public (no fob required).

6.5.3 Program Successes

The system has had very few technical issues since its operation and has contributed to a higher level of recycling among residents and businesses. Bergen reports that plastic recycling has risen 29% and non-recyclable waste volumes have fallen 8%. The City of Bergen estimates a savings of $2 million CAD per year in garbage collection costs. GHGs are reduced by the elimination of garbage trucks on the road and traffic congestion has significantly been reduced. All users have access to waste inlets 24 hours a day, 365 days a year.

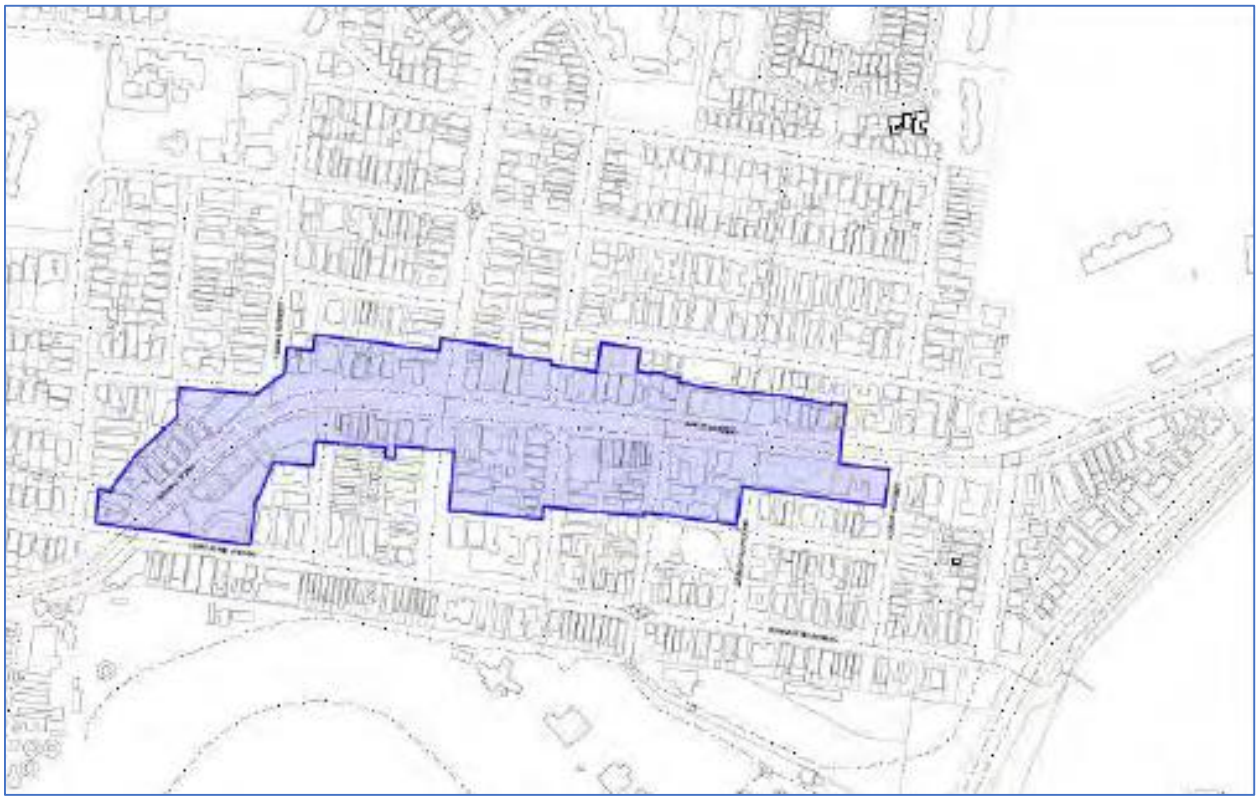
6.5.4 Lessons Learned

The underground pipe network is anticipated to last approximately 50 years. The Bossnett system is operated by Envac Norway, a subsidiary of Swedish Envac AB, which has had an operating agreement in place for ten years. Capital costs after construction was $178 million CAD. The system is financed through municipal contributions and user fees paid by residential and business users.

The City of Bergen took advantage of when the downtown roads were being reconstructed for the new centralized district heating system, to install the vacuum system and at the same time to improve the water and sewage network and build a new tram line. Installing an underground pipe system was only possible with the cooperation of other infrastructure utilities. Repairs can be expensive and there must be an alternative collection system available for when they must be carried out.

Although specific data on the energy requirements for the operation of the pneumonic vacuum system is not available, it differs from other systems in that it involves energy dependence. A recent Feasibility Study conducted for the downtown study area of Kensington within the City of Randwick, New South Wales, Australia evaluated the energy requirement for a pneumonic vacuum system that would service the study area. **Figure 31** shows the study area being considered.

Figure 31: Kensington Study Area



Source: Randwick City Council Automated Waste System for Kingsford and Kensington, April 2020. Prepared for the Randwick City Council, NSW, Australia at https://www.randwick.nsw.gov.au/__data/assets/pdf_file/0003/283881/Automated-Waste-Collection-System-AWCS-Feasibility-Study-Report.pdf

The primary energy consumers are as follows:

- **Exhauster:** Vacuum pump or fan, used as single or multiple setup, in series or parallel, to create negative pressure and air flow in the transport pipe;
- **Compactor:** Machine, consisting of a compacting unit and container that compacts loose materials into a container. The compactor is usually connected directly between the cyclone and the container maintaining the full vacuum seal;
- **Rotating screen:** Included as part of the gas clean-up system to remove dust from the ventilation air; and
- **Compressor:** Provides compressed air to the control system.

Table 10 identifies the collection station equipment and power requirements.

Table 10: Collection Station Equipment and Power Requirements

Item	Number of Units	Power Rating (kW)	Installed Power (kW)
Exhauster	5	110	550
Compactors	3	15	45
Rotating screens	3	7.5	22.5
Compressor	1	15	15
Total			632.5

6.6 Additional Research

The following section provides examples from other jurisdictions where waste management solutions have been developed that could be applicable in downtown areas.

6.6.1 Town of Newmarket, City of Guelph and University of Guelph, Ontario

EarthBin, based in Hamilton, Ontario, is a manufacturer of underground collection containers. These containers have been installed in commercial settings throughout Ontario, including the two installed behind a business at Timothy Street and Main Street South in Downtown Newmarket, throughout the City of Guelph and at the University of Guelph. From the ground, the EarthBin appears to be a six cubic yard front-end container (**Figure 32**). However, the in-ground portion of the container provides more than double the storage capacity of a front-end container. A standard front-end container can be used to collect from an EarthBin, despite the additional capacity.

Figure 32: EarthBins in Downtown Newmarket

Source: https://www.google.com/maps/

6.6.2 St. Catharines, Ontario

The City of St. Catharines has 13 front-end cardboard recycling containers throughout the downtown business area. These communal containers are available for use by any business free of charge and are collected once to twice per week. Previously, the City of St. Catharines also provided front-end containers for garbage and Blue Box recyclables to be used by businesses in lieu of curbside collection. However, issues of illegal dumping and contamination were encountered and the containers were frequently used by non-businesses. In 2010, the Region of Niagara, which manages the City of St. Catharines curbside collection, re-introduced curbside garbage and recycling collection services for downtown businesses.

6.6.3 Greenville, South Carolina

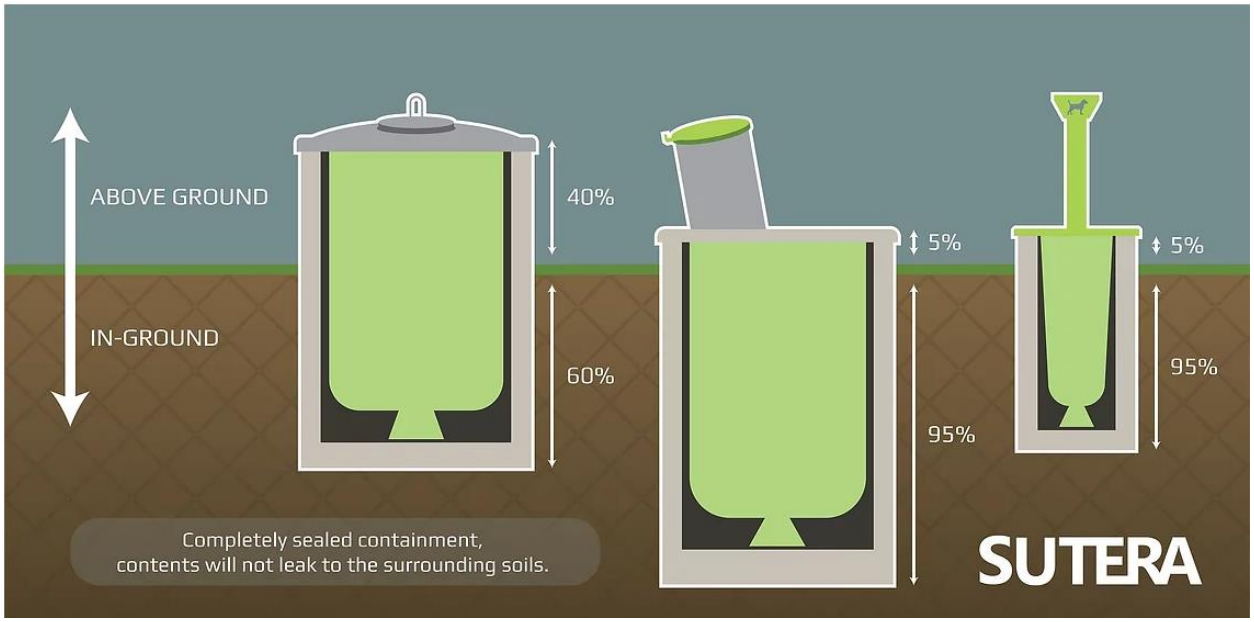
The City of Greenville has established a partnership with SUTERA[4], (offices in Waterloo, Ontario and Greenville, South Carolina). Four in-ground centralized collection containers were installed in downtown Greenville which has eliminated the need for 30 garbage and recycling carts that were previously used by businesses (**Figure 33**). Commercial customers bring their garbage and recycling to the centrally located containers that have a small above ground container and a large in-ground container (**Figure 34**). The in-ground containers are emptied by service hauler using collection vehicles with arms that vertically lift the container out of the in-ground well. Alternatively, a vacuum suction system can be used to empty the container.

Figure 33: Centralized In-Ground Garbage and Recycling Stations in Downtown Greenville, South Carolina

Source: CBC News, July 2019

[4] https://www.sutera-inground.com/

Figure 34: Profile of SUTERA In-Ground Containers



Source: https://www.sutera-inground.com/copy-of-why-in-ground

6.6.4 Metro Vancouver, British Columbia

In 2012, Emily Carr University of Art and Design was approached by Metro Vancouver to develop standardized container designs for all Metro Vancouver municipalities due to a lack of consistency in container designs. Metro Vancouver retained the University of British Columbia to complete pilot programs with the containers before they were rolled out. The results indicated that the best approach for graphics utilization was ensuring that icons could be seen from a distance. As the user approaches the container the text becomes visible as an additional prompt. The intent is to give the user enough time to make a decision. Consistency in icons and text, designing with the user in mind and conducting waste audits to confirm the appropriateness of the placement of containers in public spaces was a key focus of the container design. Over several years the containers and design was modified. The latest designs are being used by the City of Vancouver as zero waste stations in downtown areas and parks (**Figure 35**).

Figure 35: City of Vancouver Zero Waste Stations

Source: https://vancouver.ca/streets-transportation/on-street-and-park-recycling.aspx

6.6.5 Buenos Aires, Argentina and Barcelona, Spain

In Buenos Aires, street parking spots in central locations have been converted to garbage collection areas (**Figure 36**). Containers are used to avoid bagged garbage piling up on the streets. Similarly, in Barcelona, parking spots have also been converted to collection areas; however, these are for recycling containers which are accessed by residents and businesses. In both of these examples, side-load collection vehicles are used to empty the containers.

Figure 36: Buenos Aires Garbage Collection Container

Source: https://nyc.streetsblog.org/2014/07/08/eyes-on-the-street-keeping-trash-off-the-sidewalks-in-buenos-aires/

6.7 Conclusions

Each of the reviewed jurisdictions has implemented different waste management strategies in their downtown cores for managing business and residential waste. A summary of the best practices review is included below:

Costs: There are many costs to consider when implementing a new waste system. Capital and operating costs can determine whether a system may be feasible in the Town.

- In-ground containers can have high upfront capital costs for the container, shipping and installation; however, these containers may reduce long-term operating costs, depending on the frequency of collection in the area. These containers can also

encourage a reduction in the amount of garbage generated due to potential costs savings from decreased collections which may increase recycling rates;

  - It is estimated that a 6.5 cubic yard EarthBin costs approximately $8,000 and a 4 cubic yard EarthBin costs approximately $5,000. Freight for the delivery of the container from Hamilton to Newmarket is expected to be up to $2,000. Installation costs are not included in these amounts;

- One entity (such as a municipality or BIA) may be able to provide waste collection services for less costs (through either municipal collection or a private contract) than each business individually contracting with a hauler. This can result in higher participation in recycling and organics collection; and
- There are some additional costs that need to be considered depending on the type of collection system that is being implemented. Some systems that require access through fobs and/or RFID tags incur replacement costs as well as costs to manage illegal dumping that may be placed in front of the containers. Additionally, repairs to systems may be costly and require alternative collection systems in place when the system is down for scheduled and unscheduled maintenance.

Infrastructure: Improved infrastructure can assist with managing waste, reducing garbage overflow and introduce additional waste collection streams, noting that there is not a one-system-fits-all solution.

- Infrastructure can be costly and have high upfront capital costs; however, if there is opportunity to install systems, such as the Bossnett system while other infrastructure projects are taking place there can be installation cost savings. Backup plans and budgeting should also be in place for when there is scheduled and unscheduled maintenance;
- There appears to be a desire from businesses to have an ability to dispose of their garbage, recycling and organics frequently. For some businesses such as restaurants, waste material is typically removed and disposed of on a daily basis. For other businesses in a downtown core, there are space limitations and waste materials cannot remain onsite. Keeping organic waste on site risks attracting vermin and insects, as well as causing unpleasant odours. Frequent collection can be expensive; however, in-ground containers can permit businesses to access waste disposal 24 hours a day, 7 days a week without the added daily collection cost;

- Some types of systems may be taken advantage of by users that must self-declare the amount of waste that is generated versus a pay-by-weight/pay-per-use system. Ongoing enforcement will be required to determine which users may be taking advantage of the system.
- User identification systems make users feel more accountable and provides an incentive to reduce and separate waste materials; and
- Night collection services (whether in-ground containers or garbage bags/carts) can reduce traffic congestion and delays on major streets.

Ease of use: Residents and businesses are likely to participate in a waste system if it is convenient and easily accessible for their everyday needs. If waste systems are easy to use, it will help support behaviour changes on how participants feel about waste.

- Containers (i.e., front-end containers, carts or in-ground containers) can reduce pests compared to using garbage bags;
- In-ground collection containers make waste disposal and waste collection convenient when placed strategically in places that users and collection vehicles can easily access;
- Infrastructure such as in-ground containers are more aesthetically pleasing versus bags of garbage on the streets; and
- Registration processes should be simple for users as long approval processes will deter participation in new programs.

7.0 Program Options

Based on the Town's current waste management system and position, potential waste management options for the Town have been developed, noting that these will be further refined and evaluated following the financial analysis. A summary of proposed options is included in **Table 11**.

Table 11: Option List by Category

Category	Option	Include in Final Strategy	Cost out for Financial Analysis (next Task)
Infrastructure	1.Consider new collection system/infrastructure for downtown residents and businesses including: • Variable rate based system (similar to Toronto) for curbside collection with garbage bags; • In-ground collection system; • Underground waste collection system; and • Transfer responsibility to the BIA. New collection system/infrastructure may include: • Garbage, recycling and organics; • RFID/fob access; and • Additional collection points such as behind businesses.	TBD	Yes
Infrastructure	2. Consider new and/or improved public space waste containers that include: • Improved recycling signage; • Pet waste stream; and • Flaps on recycling and pet waste streams to prevent odours and pests. Will also encourage those who want to divert material to use the flaps versus the open-faced garbage.	Yes	No

Category	Option	Include in Final Strategy	Cost out for Financial Analysis (next Task)
Enforcement	3. Use co-op/summer students to conduct daily/weekly visual audits of public containers and residential/business waste containers.	Yes	No
Enforcement	4. Install cameras for illegal dumping and improper use of business/residential containers.	Yes	No
Enforcement	5. Increase enforcement of the Town's Waste Collection By-Law.	Yes	No
Education	6. Develop toolkits for tenants, landlords and businesses.	Yes	No
Education	7. Develop a business waste management coaching program and use co-op/summer students to assist with the education/implementation.	Yes	No
Education	8. Continue to work with the Downtown BIA to provide waste management assistance to businesses	Yes	No
Policy	9. Update Waste Collection By-law to ban businesses and residents from using public space containers.	Yes	No

7.1 Preliminary Option Review

The proposed nine options have been described in further detail below along with potential impacts to the Town. These options will be further discussed with the Town, including the development of a draft evaluation methodology.

7.1.1 Infrastructure

7.1.1.1 Option 1: Consider new collection system/infrastructure for downtown residents and businesses

Description and Assumptions

Four options related to collection systems and infrastructure for residents and businesses include:

1. Variable rate based system for curbside collection with the ability to purchase additional garbage tags.
   Description: Each business and resident pays for their waste collection using a variable rate. All businesses can also purchase waste tags for an additional garbage allowance. These tags will help differentiate between residential and business waste. Businesses are only allowed to set out garbage for curbside collection if it is tagged. Eligibility criteria for providing service to the residential and business sector would also need to be established and a monitoring system put in place to better understand who is accessing the services.
2. In-ground collection system.
   Description: Centralized in-ground containers for residents and businesses to dispose of waste that are easy to access and available to use 24/7. Containers can be accessed by fob/RFID system for both residents and businesses.
3. Underground collection system.
   Description: New underground vacuum system with various collection points for public space, residential and business use. All waste streams are accepted in different inlets within a collection point. Residents and businesses can access large opening inlets by fob/RFID. The public can also use small openings along the inlets to dispose of waste. This service would be available and accessible 24/7 while vacuum cycles will vary. Waste would be collected in one central location within the vacuum system's radius.
4. Transfer responsibility to the BIA.
   Description: The BIA would be fully responsible for overseeing waste collection and management within the downtown area which would also include overseeing a

contractor to manage waste materials on behalf of businesses and mixed use properties.

Assumptions:

- Council approval is required for all options
- All options must include public space, residential and business waste disposal
- Location(s) of new containers must be accessible to all sectors (i.e., one container on every street corner)

Impacts to the Town

Social:

- Increase public awareness of waste management systems
- Creates a more aesthetically pleasing streetscape
- Higher waste collection efficiency

Environmental:

- Decrease in GHG emissions from less pick-ups for in-ground and underground options
- Increase in participation from all sectors

Financial:

- Financials will be provided in the next step.

Sector Impacts (Residential, Businesses, Public Space): All

7.1.1.2 Option 2: Consider new and/or improved public space waste containers

Description and Assumptions

Three separate options for public space waste containers include:

1. Improve labelling on existing containers to distinguish garbage and recycling.
   Description: The current public space containers have two containers, one for accepting garbage and one for accepting recycling. Improving labelling may assist with distinguishing the two containers from each other and improving sorting/diversion.
2. Addition of a pet waste stream.
   Description: Add a separate smaller container for pet waste (approximately 3% of

garbage stream) to separate pet waste from the garbage stream. This option is only feasible if this can be collected/composted locally and what the requirements are for disposal (e.g., if plastic bags accepted).

3. Flaps on recycling and pet waste stream to prevent odours and pests.
   Description: Add an extra flap on recycling and pet waste containers to help deter unwanted odours and pests. This will also encourage those who want to divert to use the flaps versus the open-faced garbage. Flaps may act as a deterrent due to the public not wanting to touch them; however, by leaving the garbage stream without a flap, only those that want to recycle typically use the diversion streams which reduces contamination.

At this time, organics was not considered due to high contamination rates of the organics stream. Most of the organics in the public space waste containers was from the residential and business sector.

Assumptions:

- Collection can be completed by Town staff or third party contractor
- All public space garbage containers must be paired with recycling containers
- All public space garbage containers must be paired with pet waste containers
- Signage to be changed with new system(s)

Impacts to the Town

Social:

- Makes recycling and pet waste disposal more accessible in public spaces

Environmental:

- Increase in waste diversion with the addition of recycling and pet waste containers
- Container flaps will help decrease contamination rates

Financial:

- Financials will be provided in the next step

Sector Impacts (Residential, Businesses, Public Space): Public space

7.1.2 Enforcement

7.1.2.1 Option 3: Use co-op/summer students to conduct daily/weekly visual audits of public containers and residential/business waste containers.

Description and Assumptions

Description: Use co-op and/or summer students as daily or weekly enforcement staff to conduct visual audits on waste containers. Data reported from the program would be used to track the efficiency of the containers, contamination and illegal dumping.

Assumptions:

- Enforcement to be conducted during four-month rotation due to staffing schedules
- New training materials will need to be provided to co-op/summer students

Impacts to the Town

Social:

- Provide youth/students an opportunity to gain work experience
- Improve streetscape with additional enforcement

Environmental:

- Confirm containers are being used correctly to decrease contamination in waste streams

Financial:

- Additional summer staff would increase staffing costs

Sector Impacts (Residential, Businesses, Public Space): All

7.1.2.2 Option 4: Install cameras for illegal dumping and improper use of business/residential containers.

Description and Assumptions

Description: Install cameras in high traffic areas around business and residential containers along with signage indicating there are cameras in the vicinity.

Assumptions:

- Cameras are for reporting abusers and/or illegal dumpers

Impacts to the Town

Social:

- Prevent illegal dumping and non-compliance along high traffic areas
- Cleaner streetscape which could increase traffic and visitors

Environmental:

- Decrease in illegal dumping and reduction in waste managed by the Town

Financial:

- Decrease in physical enforcement
- Potential increase in capital costs

Sector Impacts (Residential, Businesses, Public Space): Residential, businesses

7.1.2.3 Option 5: Improve Enforcement of the Town's Waste Collection By-law

Description and Assumptions

Description: Utilize the Town's By-law Officers to improve enforcement of the Town's current Waste Collection By-law 2017-19. Enforcement of the Waste Collection By-law includes responsibilities of property owners and occupants, approved containers, set out times and user fees.

Assumptions:

- The Town will staff By-law Officers

Impacts to the Town

Social:

- Cleaner streetscape
- Increase public image

Environmental:

- Decrease in contamination in waste streams

Financial:

- Potential increase in the Town's staffing costs

Sector Impacts (Residential, Businesses, Public Space): All

7.1.3 Education

7.1.3.1 Option 6: Develop toolkits for tenants, landlords and businesses.

Description and Assumptions

Description: Create new marketing and educational materials for tenants, landlords and businesses to help them understand acceptable items for each waste stream, time of collection and set out rules. Material can include posters for indoor use, signage for outdoor use and at-home activities for kids. Material(s) would be combined to create individual toolkits for each sector.

Assumptions:

- Marketing can be completed in-house using the Town's resources or through a third-party organization
- Marketing materials can be Downtown/Main Street and sector specific.

Impacts to the Town

Social:

- Clear and concise information will assist with behaviour changes

Environmental:

- Decrease contamination rates
- Increase waste diversion rates
- Increase capture rates

Financial:

- Potential increase to marketing costs

Sector Impacts (Residential, Businesses, Public Space): Residential, businesses

7.1.3.2 Option 7: Develop a business waste management coaching program and use co-op/summer students to assist with the education/implementation

Description and Assumptions

Description: Using Town staff to help train and coach businesses with waste management concerns. Staff can be recruited through co-op/summer student programs. Training would include understanding accepted and non-accepted materials

for each waste stream, how to set up garbage and recycling services, how to pay for waste services and where to dispose of waste materials. Additional training and coaching sessions would be needed during the roll-out of new collection programs. Businesses who require more assistance with waste reduction if new program is implemented, can request individual training.

Assumptions:

- Training to be provided by Town staff to keep information consistent

Impacts to the Town

Social:

- Higher sense of knowledge for business owners

Environmental:

- Increase participation in waste programs

Financial:

- Potential increase to staffing costs
- Additional marketing materials would be needed

Sector Impacts (Residential, Businesses, Public Space): Businesses

7.1.3.3 Option 8: Continue to work with the BIA to provide waste management assistance with businesses

Description and Assumptions

Description: Work with the BIA to conduct ongoing check-ins, identify barriers to newly implemented programs and provide other assistance as needed. Engage often with landlords and business owners through the BIA and/or setting up a feedback system (e.g., surveys) to give them a platform to voice concerns and develop future programs.

Assumptions:

- Ongoing initiative and assistance will depend on assigned responsibilities with respect to downtown waste management
-

Impacts to the Town

Social:

- Create a better understanding of the waste management needs of businesses
- Foster stronger working relationships between the Town and BIA

Environmental:

- Increase waste diversion

Financial:

- Potential increase to staffing costs

Sector Impacts (Residential, Businesses, Public Space): Businesses

7.1.4 Policy

7.1.4.1 Option 9: Update Waste Collection By-law to ban businesses and residents from using public space containers

Description and Assumptions

Description: The current Waste Collection By-law does not specify who can use public space waste containers. This makes it difficult to enforce and educate users. Updating the Waste Collection By-law to include a ban on business and residents from using public space waste containers will help address illegal dumping concerns.

Assumptions:

- Council approval to update Waste Collection By-law
- Enforcement to be included in option implementation. This would require stronger By-Law Officer presence in the downtown area to either catch business/residents in the act as well as audits of waste containers to determine if business and/or residential waste is being disposed of in the public containers and to see if there is any identifying information that has been disposed.

Impacts to the Town

Social:

- Create a better understanding for residents and businesses for Waste Collection By-law
- Opportunity to educate users and encourage behaviour changes

Environmental:

- Decrease illegal dumping practices

Financial:

- Potential to increase staffing costs

Sector Impacts (Residential, Businesses, Public Space): All

7.2 Recommendations and Next Steps

Based on the Town's current position and potential impacts due to legislative changes and increased population growth, it is recommended that the Town review the proposed preliminary options to determine which ones to pursue as part of the next steps of the Strategy's development. Following the Town's review, a meeting will be set up with Dillon and the Town to discuss the proposed options as well as next steps which includes a financial review and development of an evaluation methodology.

References

The Town of Newmarket provided the following files to support the preparation of this report:

2019-122 - Sch D - 2020 Public Works

47. 2017-39 Downtown Waste Management

BIA _Waste Best Practices Guide (final)

BIA Hey Newmarket Summary Report

BIA_Main Street_Assessment Results

BIA-Agenda-2018-01-23

Community Assessment - Historic Main Street Newmarket (2016)

Community Improvement Plan (2001 Report)

Cost Breakdown & Other Data

GFL Collection Map for Main Street

Main Street - Collection Reminder Letter

Main Street Waste Assessment Results (summary of findings)

Material Collected Curbside - Tonnage Summary

OTH_Blue Box Litter Letter_Main Street Business & Residents

Summary_Property Count

York Region_Posters_Handed Out to BIA