1. SOLID WASTE MASTER PLAN – PHASE 2

LE PLAN DIRECTEUR DE LA GESTION DES DÉCHETS SOLIDES – PHASE 2

COMMITTEE RECOMMENDATIONS

That Council:

1. **Approve the vision statement, guiding principles and goals of the Solid Waste Master Plan as described in this report and outlined in supporting Document 1; and,**
2. **Receive the Solid Waste Master Plan Phase 2 report and supporting documents relating to the City of Ottawa's long-term waste management needs, the high level long list of options to meet future needs, and the evaluation process to evaluate the options, attached as Document 2 through Document 4, for information.**

RECOMMANDATIONS DU COMITÉ

Que le Conseil municipal :

1. **approuve l'énoncé de la vision, les principes directeurs et les objectifs du Plan directeur de la gestion des déchets solides selon les modalités exposées dans ce rapport et décrites dans leurs grandes lignes dans la pièce jointe 1;**
2. **prenne connaissance du rapport de la phase 2 du Plan directeur de la gestion des déchets solides et des pièces justificatives se rapportant aux besoins à long terme de la Ville d'Ottawa dans la gestion des déchets, à la liste détaillée générale des options à envisager pour répondre aux besoins projetés et au processus qui permettra d'évaluer les options, reproduits dans les pièces 2, 3 et**

4, pour information.

For the information of Council

The Committee also approved the following Motion:

Motion N^{O} EPWWM 2021 17-01

THAT the Standing Committee on Environmental Protection, Water and Waste Management approve:

1. An amendment to the text of Table 10 to include "Behavioural Change Management Strategy" under "Options" in Section 1, Promotion & Education, Sub-Section 1A, Outreach Initiatives and;
2. The substitution of the revised Table 10 be included in the report when it is submitted to City Council.

Pour la gouverne du Conseil :

Le comité a approuvé en outre la motion suivante :

Motion N^{O} EPWWM 2021 17-01

QUE le Comité permanent de la protection de l'environnement, de l'eau et de la gestion des déchets approuve :

1. la modification à apporter au texte du tableau 10 pour intégrer la « Stratégie de gestion des changements de comportement » sous la rubrique « Options » à l'alinéa 1A (Initiatives de sensibilisation) de la section 1 (Promotion et information);
2. l'intégration du tableau 10 révisé dans le rapport à soumettre au Conseil municipal.

DOCUMENTATION

1. General Manager's Report, Public Works and Environmental Services, dated 17 June 2021 (ACS2021-PWE-SWS-0003).

   Rapport du directeur général, Services des travaux publics et des services environnementaux, daté le 17 juin 2021 (ACS2021-PWE-SWS-0003).

2. Extract of Draft Minutes, Standing Committee on Environmental Protection, Water and Waste Management, 29 June 2021.

   Extrait de l'ébauche du procès-verbal, Comité permanent de la protection de l'environnement, de l'eau et de la gestion des déchets, le 29 juin 2021.

Report to
Rapport au:

Standing Committee on Environmental Protection, Water and Waste Management
Comité permanent de la protection de l'environnement, de l'eau et de la gestion des déchets
29 June 2021 / 29 juin 2021

and Council
et au Conseil
7 July 2021 / 7 juillet 2021

Submitted on June 17, 2021
Soumis le 17 juin 2021

Submitted by
Soumis par:
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Ward: CITY WIDE / À L'ÉCHELLE DE LA VILLE

File Number: ACS2021-PWE-SWS-0003

SUBJECT: Solid Waste Master Plan – Phase 2

OBJET: Le Plan directeur de la gestion des déchets solides – phase 2

REPORT RECOMMENDATIONS

That the Standing Committee on Environmental Protection, Water and Waste Management recommend that Council:

1. **Approve the vision statement, guiding principles and goals of the Solid Waste Master Plan as described in this report and outlined in supporting Document 1; and,**

2. **Receive the Solid Waste Master Plan Phase 2 report and supporting documents relating to the City of Ottawa's long-term waste management needs, the high level long list of options to meet future needs, and the evaluation process to evaluate the options, attached as Document 2 through Document 4, for information.**

RECOMMANDATIONS DU RAPPORT

Que le Comité permanent de la protection de l'environnement, de l'eau et de la gestion des déchets recommande que le Conseil municipal :

1. **approuve l'énoncé de la vision, les principes directeurs et les objectifs du Plan directeur de la gestion des déchets solides selon les modalités exposées dans ce rapport et décrites dans leurs grandes lignes dans la pièce jointe 1;**

2. **prenne connaissance du rapport de la phase 2 du Plan directeur de la gestion des déchets solides et des pièces justificatives se rapportant aux besoins à long terme de la Ville d'Ottawa dans la gestion des déchets, à la liste détaillée générale des options à envisager pour répondre aux besoins projetés et au processus qui permettra d'évaluer les options, reproduits dans les pièces 2, 3 et 4, pour information.**

EXECUTIVE SUMMARY

The purpose of this Solid Waste Master Plan (the Waste Plan) Phase 2 report is to seek Council's approval of the proposed vision statement, guiding principles and goals for the Waste Plan. The vision statement defines where the City wants to be in 30 years with

regards to waste management and diversion and will serve as the inspiration and framework for this strategic waste planning process; the guiding principles outline beliefs, defines what is important for success and will guide the City throughout the development and implementation of the Waste Plan; and, the goals define the outcomes the Waste Plan desires to achieve and help transition the vision statement from a broad statement to a more specific direction. Together, each of these form a framework for the waste planning process and will help guide waste management decision making in the future.

This report will also provide members of Council with key information relating to work undertaken to date during Phase 2; identifying the City's future waste management needs, developing a long list of high-level options for consideration which will address these future needs, and establishing the evaluation process to be used to evaluate the options, developed by the Waste Plan's technical consultants, in conjunction with the Waste Plan's Council Sponsors Group (CSG), key City of Ottawa staff and stakeholders.

Extensive engagement was integral to the development of the elements in this Phase 2 report. Staff worked with the CSG, stakeholders both internal and external to the City and members of the public to ensure each aspect of this portion of the Waste Plan incorporated and aligned with Council and community priorities and feedback.

On July 10, 2019, Ottawa City Council approved the Solid Waste Master Plan Roadmap report (ACS2019-PWE-GEN-0007) which outlined the scope and framework for the development of the City's 30-year Waste Plan. Once finalized, the Waste Plan will provide the overall framework, direction, and goals for solid waste management, diversion and reduction policies over the short-, medium- and long-term horizon. The Roadmap report recommended a three-phased approach to the development of the Plan, with each phase being based on a solid foundation of research, data, best practices and extensive consultations with key stakeholders and the public. The three phases include:

1. **Phase 1 (Where We Are)**: to provide Council with a baseline of information for discussion in future phases, as well as to inform Council of what tools are available to influence the City's waste management system and programs.

2. **Phase 2 (Where We Are Going)**: to begin discussions with stakeholders on the vision statement, guiding principles and goals that will provide a framework for the Waste Plan. This phase also identifies future waste management needs, the long list of options to be considered to meet future waste management needs, the evaluation methodology to evaluate each option and will generate the recommended short list of options for consultation and consideration.

3. **Phase 3 (How We Are Going To Get There)**: to outline the recommended options and short-term (five-year) implementation plan and targets for the final Waste Plan. Where appropriate, input on the draft Waste Plan will be incorporated into the final Waste Plan, which will be presented to Committee and Council for consideration in early 2023.

Through the receipt and approval of this Phase 2 report, Council will set the strategic framework for the City's Solid Waste Master Plan, and guide how Ottawa manages and diverts waste over the next 30 years. This will provide staff with the required strategic direction to guide the evaluation process of options identified through extensive engagement as noted above, and shape how future needs and possible options for waste management and diversion are identified and incorporated into the Waste Plan.

Recommendation #1: Approve the vision statement, guiding principles and goals of the Solid Waste Master Plan as described in this report and outlined in supporting Document 1.

Proposed Vision Statement, Guiding Principles and Goals

The Phase 2 report is recommending Council approve the proposed vision statement, guiding principles and goals for the Solid Waste Master Plan. In developing these elements which Council will consider to set the strategic framework for the City's Waste Plan over the next 30 years, staff worked in collaboration with the Waste Plan's Council

Sponsors Group, Stakeholder Sounding Board, City Champion's Group and the general public during Engagement Series 1 to develop the proposal in front of Council today.

The proposed vision statement, guiding principles and goals were designed to reflect recent and future trends in the waste management industry, as identified through the technical work undertaken in Phase 1, which are transforming how solid waste is managed into the future. They were also designed to reflect and consider new City policies and strategies that are influencing the Waste Plan's priorities. This includes Ottawa City Council's declaration of a climate emergency and recognition of the important role the future integrated waste management system will have in helping achieve Council's climate change goals, and a focus on local economic development, supporting healthy, inclusive and equitable communities and services.

One of the key objectives of Engagement Series 1 was to involve key stakeholders in the development of the vision, guiding principles and goals. Engagement Series 1 took place between the spring and fall of 2020. In order to reach and solicit feedback from a broad range of residents and stakeholders, staff utilized a variety of engagement tactics and opportunities so that residents and stakeholders could choose their preferred means to participate. In addition, a robust communications program was implemented to reach a variety of residents and stakeholders to encourage participation in the engagement series and to educate them on the development of the Waste Plan. Furthermore, in applying the City's Equity and Inclusion Lens, staff developed connections with several groups that are at risk of exclusion in order to disseminate information about engagement opportunities and encourage individuals to participate in online workshops and focus groups.

Throughout Engagement Series 1, the project team received comments from over 2,800 participants, whether through surveys, online meetings, emails and comments on Engage Ottawa. A fulsome report on engagement activities, including the results of feedback received during Engagement Series 1, are outlined in the 'As We Heard It' report which is appended to this report as Document 1.

As part of staff's commitment to Council to ensure this Waste Plan is built in partnership with the community, following the broad based community engagement to solicit ideas

and feedback on the vision and future state of waste management in the city over the next 30 years, the feedback was used to draft a list of options for vision statements, guiding principles and goals for the Waste Plan. The drafts were presented to the Council Sponsor's group, City Champions Group and Stakeholder Sounding Board in the fall of 2020 for final input and validation. The proposed vision statement, guiding principles and goals were further refined to reflect input from these key stakeholder groups before being shared again with the Council Sponsors Group for final validation in late 2020.

Staff are recommending Council approve the following long-term strategic vision statement, guiding principles and goals for the Waste Plan, which reflect the technical work undertaken as part of Phase 1 and feedback and priorities shared by residents and stakeholders through Engagement Series 1:

Vision:

> ***A Zero Waste Ottawa achieved through progressive, collective and innovative action.***

Guiding Principles:

- **Honouring the 5Rs waste management hierarchy** by prioritizing options that support waste reduction, reuse, recycling and recovery so that minimal residual waste is sent to landfill.
- **Changing community values** so that residents and stakeholders view waste as a resource, share the responsibility of waste management and play a role in achieving the goals of the Solid Waste Master Plan.
- **Protecting the environment for future generations to come** by mitigating the environmental impacts of managing waste.
- **Leading by example** when managing waste as a corporation by incorporating the 5Rs waste management hierarchy across the City's entire operations.

- **Adopting circular economy principles** to minimize the use of raw materials, recognize waste as a resource, maximize the value of waste and keep products and materials in use, and advocate for industry and other levels of government to take action that supports the transition to this economic model.

- **Embracing innovation** and being open to opportunities to adopt to emerging technologies, policies and industry trends.

- **Keeping waste local** by treating residential waste within the City's boundaries, wherever operationally and economically feasible.

- **Utilizing the triple bottom line** to balance environmental sustainability, City and community desires, and fiscal responsibility.

Goals:

1. Extend the life of the Trail Waste Facility Landfill significantly beyond its existing anticipated end of life to eliminate the need for a new residential landfill.

2. Reduce the amount of waste generated by residents and the City as a corporation.

3. Maximize the reuse of waste generated by residents and the City as a corporation.

4. Maximize the recycling of waste generated by residents and the City as a corporation.

5. Maximize the recovery of materials and energy from the remaining waste stream.

6. Aspire to achieve 100 per cent GHG emission reductions produced by the City's integrated waste management system.

7. Support, influence and partner with the Industrial, Commercial and Institutional (IC&I) sector, including multi-residential, small businesses, the agriculture sector,

and the Construction & Demolition sector, to reduce, reuse and divert waste in the broader community.

8. Maximize participation by enhancing the accessibility, convenience, consistency and affordability of waste management programs and services.

9. Maximize cost containment, revenue generation and the efficient use of waste management resources to help minimize costs to taxpayers.

10. Make sustainable waste management design an essential part of the City's planning process.

11. Collaborate with external stakeholders, including industry and other levels of government, to advance waste management practices.

Further details on the proposed vision statement, guiding principles and goals, including definitions and details on terms such as "Zero Waste" and "Circular Economy" are provided within this report.

With the approval of the Waste Plan's proposed vision statement, guiding principles and goals, Council will set the strategic framework for the City's Waste Plan, and guide how Ottawa manages and diverts waste over the next 30 years. This approval will allow staff to advance to the options evaluation process and set a baseline for different options that may be considered for the Waste Plan through the planned 5-year refreshes.

Recommendation #2: Receive the Solid Waste Master Plan Phase 2 report and supporting documents relating to the City of Ottawa's long-term waste management needs, the high level long list of options to meet future needs, and the evaluation process to evaluate the options, attached as Document 2 through Document 4, for information.

Long-Term Waste Management Needs

With the thorough analysis of the City's current waste system completed in Phase 1, work on identifying the City's future long-term waste management needs started in Phase 2, with the intent of identifying the anticipated short (1-5 years)-, medium (6-15 years)- and long (16-30 years)-term waste management needs for the next 30 years.

To do this, the City's technical consulting team conducted a comprehensive needs assessment analysis. This work included the development of long-term waste projections that estimate the future quantities of waste that the City will need to manage over the 30-year life of the Waste Plan, as the city's population continues to grow. The needs analysis also took into consideration the changing legislative landscape affecting waste management, policies and programs influencing waste management in the city of Ottawa, as well as best practices affecting solid waste management as identified in Phase 1 of the Waste Plan.

Waste Projections

Waste projections were developed by the project's technical consulting team to identify the estimated tonnes that will require management by the City over the next 30 years, to 2052, based on the status quo system. They were calculated using a statistical model that considered growth projections identified through the draft Official Plan, considered economic trends and were based on 2019 data and the current status quo programs and policies that were in place at this time.

According to the City's new draft Official Plan, by 2046, the City of Ottawa's population is expected to surpass 1.4 million people. It is projected that, based on the status quo, the City will generate a total of approximately 487,000 tonnes of waste in 2052. This represents a 37 per cent increase over the amount of waste requiring management by the City in 2020.

Waste projections are further explained and broken down by sector (single family, multi-residential, City facilities and parks and public spaces), and waste stream (green bin organics, leaf and yard waste, Blue Bin, Black Bin, hazardous and special products,

residual waste and residual waste disposed at Trail Waste Facility landfill) within this report, with explicit details on the methodology used to develop the waste projections, as well as the multiple variables affecting the projections, provided in Document 2 appended to this report.

Needs Analysis

A needs analysis was undertaken to identify the City's future waste management system needs, and to identify gaps, constraints and opportunities associated with these needs. The identification of the needs sets the stage for the development of the long list of high-level options the City can consider to address each specific need.

The analysis looked at existing components of the waste management system that have the potential for enhancement/ improvement, new opportunities, and where contracts are expiring, offering the potential to do something different. Gaps, constraints and opportunities for each future need were identified based on the consulting team's experience and review of the Current State System Summary technical memorandum, prepared as part of Phase 1, as well as knowledge and experience of staff. Alignment with the Waste Plan's proposed vision statement, guiding principles and goals were also considered when identifying these future needs.

In addition, the waste projections and key industry and regulatory trends which will have an impact on the City's integrated waste management system into the future, along with the legislative toolkit developed in Phase 1 which provided Council with an overview of the tools (by-laws, licensing, tipping fees, site plan requirements, etc.) it has to work with that influence the City's waste management system and programs, were reviewed and considered when identifying the future needs. Feedback received from stakeholders through Engagement Series 1 were also considered when identifying these needs.

The needs analysis also took into consideration new City policies and strategies that are influencing the Waste Plan's priorities. This includes most notably the Ottawa City Council's declaration of a climate emergency and recognition of the important role the future integrated waste management system will have in helping achieve Council's

climate change goals. Further details on the Waste Plan's consultations with and considerations of the City's Climate Change Master Plan and Energy Evolution Strategy are provided within this report.

A total of 21 needs were identified for the City's future integrated waste management system, which were broken down into seven categories:

- Avoidance, Reduction and Reuse;
- Waste Diversion Programs;
- Collection and Drop-off of Materials;
- Recovery of Waste and Energy;
- Residual Management;
- Managing Waste Generated by City Facilities and Operations; and,
- Supporting System Requirements.

A table summarizing each need and providing a succinct overview of the key gaps/constraints, opportunities and proposed potential timelines for addressing each need is provided within this report.

<u>Key Considerations and Items That May Impact Long-term Waste Management in the City of Ottawa</u>

There are many unknowns regarding the future of waste management, for municipalities in general, and for Ottawa specifically. This report highlights key considerations and items that have the potential to impact long-term waste management in the City of Ottawa and that need to be considered throughout the development of the Waste Plan.

Landfill Life

As detailed in the 2019 Roadmap report, it was and is expected that the waste planning process will result in the identification of various areas where the City is not currently following best practices. One such area that was identified for the City is the manner in which landfill life expectancy is estimated.

To date, the City has relied on the Annual Monitoring Report (AMR), a compliance methodology used for annual reporting to the Ministry of Environment, Conservation and Parks (MECP), which uses historical/lagging indicators, such as previous years' airspace consumption, to estimate remaining landfill life. While this methodology is acceptable for compliance purposes, it is not recognized as a best practice for long term waste planning purposes as it does not take into account various factors that influence the longevity of landfill life.

The Solid Waste Master Plan 2019 Roadmap report and 2020 Phase 1 report used the Annual Monitoring Report to state closure dates of 2042 and 2041. For the purposes of this Phase 2 report, staff undertook a detailed review of the 2019 Annual Monitoring Report calculation, with a specific focus on disposal trends. Based on the remaining available airspace as detailed in the 2019 AMR, it is estimated that there is approximately 30 per cent capacity remaining at the TWFL. This, in conjunction with staffs review of disposal trends, determined that if the City remains status quo with regards to waste reduction and diversion, the Trail Waste Facility Landfill is expected to reach capacity between 2036 to 2038.

Recognizing that the Trail Waste Facility Landfill is filling up more quickly than previously expected, and if minimal effort is made in the short to immediate term to significantly increase the life of the landfill, the Waste Plan may fall short of meeting the proposed goal of extending the life of the landfill beyond the 30-year term of the Plan. To address this, staff will continue to explore improvements for landfill operations, such as the recent transition to a push pad for compaction optimization, which also removed the previous need for automotive shredder residue tonnages. Additionally, staff will be advancing the development of a focused Residual Waste Management Strategy (RWMS).

The RWMS will undertake a review of landfill life calculation methodologies, with the aim of adopting a best practice calculation methodology that gives a more reliable range in terms of years of airspace remaining at the Trail Waste Facility Landfill. It will also explore the possibility of implementing a combination of new policies, programs and mechanisms to reduce the amount of waste sent to the TWFL for disposal and will

analyze a suite of options, consistent with those identified in the long list of options, aimed at preserving airspace and extending the life of the Trail Waste Facility Landfill.

This strategy, in combination with the work on existing component projects aimed at increasing waste diversion from landfill in the short-term will collectively work to achieve Council's goal of extending the life of the Trail Waste Facility landfill beyond the life of the 30-year Waste Plan. Advancing this work aligns with the City's Term of Council priorities, and the proposed vision statement, guiding principles and goals of the Waste Plan.

A Roadmap report providing the scope of the RWMS and additional details on the strategy development will be presented to Committee and Council in Q3 2021.

Regulatory Changes

The provincial government is imposing changes or additional regulations that will inevitably impact the waste master planning process.

In addition to the provincial transition of recycling programs to Individual Producer Responsibility (which will make producers of products and packaging environmentally accountable and financially responsible for the items they produce), the province also has released its Food and Organic Waste Framework which establishes targets for food and organic waste diversion, reduction and resource recovery. As more sectors introduce diversion programs to meet targets, and if and when the province moves forward with its proposed ban on organics from landfills by 2030, there will be increased competition for organics processing capacity throughout the province. This creates a risk as the City approaches the need to determine future processing requirements over the next nine years, but also presents an opportunity for the City to consider developing its own processing facility. Should the City develop its own organics processing facility, there is potential to create a revenue stream to help offset costs from providing processing capacity to other municipalities or to the IC&I sector, and potentially creation of renewable natural gas (RNG) if the City chooses to convert biogas from anaerobic digestion, as envisioned in the Energy Evolution Strategy.

Climate Change and Resiliency

Climate change is also another area that has implications on the City and its waste management system. It will impact the probability of severe weather events such as floods and tornadoes, which can impact the collection, transportation, processing, and disposal of materials impacted by these weather events, as well as the amount of waste that needs to be managed as a result of these events. It may also impact collection staff (summers are predicted to get hotter, which is a risk to workers) and waste generation patterns (longer growing season may result in more leaf and yard waste). These impacts will also need to be considered and included in future waste management planning and decision making.

Other Considerations

Other key risks and considerations that need to be incorporated into future long-term waste management planning activities at the City include:

- Changes to lifestyles and consumer trends;
- The evolving nature of packaging;
- Urban sprawl and densification in Ottawa;
- The need for transfer station capacity in the City's waste collection network;
- Other City plans and strategies, including but not limited to the Official Plan, Climate Change Master Plan, Energy Evolution Strategy, Green Space Master Plan and the Urban Forest Management Plan;
- Provision of waste collection services;
- Acceptance of new and emerging waste management technologies;
- Funding sources;
- Data collection and management; and,

- Performance measures.

The Waste Plan will continue to be developed in a way that remains flexible and adaptable to ensure its success as risks and considerations like the ones mentioned above are mitigated to the greatest extent possible based on known information as the Waste Plan is developed. It is, however, recognized that depending on the nature of the risk and the timing in which it comes to fruition or as more details are known about how it will impact the Waste Plan and the City's future integrated waste management system, some may not be able to be fully addressed throughout the development of the Waste Plan at this time, but will be addressed through future refreshes of the Plan.

High Level Long List of Options to Meet Future Needs

The high level long list of options to address the City's future waste management needs and gaps, that align with the Waste Plan's areas of focus, were identified through a number of sources, including:

- Technical expertise of the projects technical consulting team, based on the extensive research conducted in Phase 1 and professional judgement and industry expertise;
- Council Sponsors Group and City Councillors, based on their knowledge and feedback from constituents;
- General public and project stakeholders through consultations during Engagement Series 1; and,
- City Champions Working Group and City staff, based on their knowledge of the city and its needs and synergies with other City strategies.

All ideas heard through Engagement series 1 were thoroughly documented and responses were provided to the project's technical consulting team to be researched to ensure an evidence-based approach was taken to develop each option and to analyze if they aligned with the future needs of the City's integrated waste management system as well as the Waste Plan's proposed vision statement, guiding principles and goals.

The long list of options are grouped into one of ten categories and have been categorized as either an implementation tool (e.g. a targeted outreach campaign), program (e.g. a repair cafe), policy (e.g. disposal ban for different materials), or facility/infrastructure (e.g. an anaerobic digestion facility for the processing of organics). The long list of options categories are:

1. Promotion and Education
2. Regulations, Policies, By-laws
3. Waste Avoidance, Reduction and Reuse
4. Recycling
5. Collection and Drop-off
6. Organics Management
7. Waste and Energy Recovery
8. Residual
9. Innovation
10. Other

In working with the Waste Plan's CSG, a standardized template was developed to ensure each option would be researched and documented in a consistent and transparent way that considers all the key elements required to support the evaluation and short-listing of options. This information also helps to set the stage for crucial discussions with the community as part of Engagement Series 2 around "how far", "how fast", and "at what cost" the Plan and its recommendations should be designed for.

The high level list of options identified to meet the City's future waste management needs, and their corresponding descriptions, can be found in the High Level Long List of Options Technical Memorandum appended to this report as Document 3.

Evaluation Process

A fundamental part of Phase 2 involves the development of a triple bottom line technical evaluation tool that will use a weighted approach to evaluate the long list of options in a way that balances the social, environmental and financial components of each option or combination of options. The intent of the technical evaluation process is to develop an

approach and technical tool that objectively and transparently evaluates the long list of options to short list them to a set of preferred options and generate different waste systems to be consulted on with all stakeholders and considered in the draft Waste Plan.

The evaluation process and technical tool was developed by the project's technical consulting team, who will also conduct the evaluation, and considered best practices and approaches used in other municipal waste planning processes. The evaluation process and tool was also developed with input and guidance from the Council Sponsors Group, the Stakeholder Sounding Board, City Champions Group and key City Staff.

To ensure a robust and transparent evaluation of the options to identify those best suited to meet the City's needs, the process will consist of two steps: a screening process for all options, and a Triple Bottom Line (TBL) evaluation process, also known as multi-criteria analysis (MCA), for select options identified during the screening process. Further details on the evaluation process are outlined within this report, and provided in Document 4, appended to this report.

Outcome of Evaluation

Following the completion of the evaluation process, options will be grouped into one of the three following categories to build two potential future waste management systems (a "Moderate System" and an "Aggressive System") for consultation with the community and key stakeholders later this year and which will form the basis of "how far" and "how fast" do we want to collectively move as a community:

1. Implementation Tools, Programs and Policies.
2. Recycling, Collection and Drop-Off and Organics Management Options.
3. Waste and Energy Recovery Technologies and Residual Disposal Options.

Both of the potential systems will undergo a high-level comparison against each other, as well as the Status Quo system, examining considerations such as waste diversion

potential, greenhouse gas (GHG) emissions reduction potential, estimated cost, risk and timing, based on the City's short-, mid- and long-term needs. GHG modelling on the moderate and aggressive systems will be compared to the GHG modelling on the baseline system to identify the overall GHG impact of the two potential future waste management systems and to assess how they align with the City's Climate change goals as they relate to waste management.

It is staff's intent to consult on the two potential systems this summer with the CSG, members of Council and the Waste Plan's Stakeholder Sounding Board, and this fall during Engagement Series 2. The feedback received during this engagement series will help inform recommendations of the draft Waste Plan and accompanying 5-year Implementation Plan.

Next Steps in Developing the City's Waste Plan

With Council's approval of the Waste Plan's vision statement, guiding principles and goals, staff will launch the options evaluation process and work towards developing the draft Waste Plan and 5-year Implementation Plan. This will include:

- Evaluating the long list of options using the evaluation process outlined in this report;
- Generating a moderate and aggressive waste management system for consultation;
- Engaging with members of the CSG on the proposed systems in advance of briefing members of Council and the Stakeholder Sounding Board;
- Developing an enhanced Engage Ottawa and social media strategy with the goal of increasing overall Waste Plan engagement participation and launching Engagement Series 2 to solicit feedback from key stakeholders and residents on the proposed systems;

- Briefing members of the CSG on feedback heard from Engagement Series 2 and consulting with the CSG on the proposed Draft Strategy and 5-year Implementation Plan.

By early Q2 2022, Council will receive the Phase 3 report on the draft Waste Plan and 5-Year Implementation Plan for consideration. This Phase 3 report will also bring forward the following items for information:

- a full-cost business case for the recommended waste management system, as well as a 30-year financing plan with high-level estimates for long range financial planning purposes (Class D estimates);
- the 10-year capital infrastructure and operating requirements; and,
- performance measures and monitoring and reporting requirements, including short-, medium- and long-term targets.

Once complete, staff will undertake the third and final Engagement Series for the project, which will include consulting with residents and key stakeholders on the proposed final Waste Plan and 5-Year Implementation Plan before it is presented to Committee and Council for consideration in early 2023.

RÉSUMÉ

L'objectif du rapport de la phase 2 du Plan directeur de la gestion des déchets solides (le « Plan directeur ») consiste à faire approuver, par le Conseil municipal, la vision, les principes directeurs et les objectifs proposés pour le Plan directeur. L'énoncé de la vision définit la situation dans laquelle la Ville souhaite être dans 30 ans dans le domaine de la gestion et du réacheminement des déchets et sert de source d'inspiration et de structure-cadre pour ce processus stratégique de planification de la gestion des déchets; les principes directeurs décrivent dans leurs grandes lignes les convictions, définissent les facteurs essentiels de réussite et guident la Ville dans l'élaboration et la mise en œuvre du Plan directeur; enfin, les objectifs définissent les résultats que le Plan directeur vise à réaliser et permettent d'adopter une orientation plus précise grâce à la déclaration générale que constitue l'énoncé de la vision. Dans l'ensemble, chacun de ces éléments forme une structure-cadre pour le processus de

planification de la gestion des déchets et vient guider les décisions à prendre éventuellement dans la gestion des déchets solides.

Ce rapport apporte aussi aux membres du Conseil municipal de l'information essentielle sur les besoins projetés en gestion des déchets de la Ville, sur la liste détaillée, pour étude, des options globales qui permettront de répondre à ces besoins, de même que sur le processus d'évaluation à appliquer pour évaluer ces options, qui ont été mises au point par les experts-conseils techniques du Plan directeur de concert avec le personnel-cadre de la Ville d'Ottawa et les principaux intervenants.

Une vaste consultation faisait partie intégrante de l'élaboration des éléments de ce rapport de la phase 2. Le personnel a travaillé de concert avec le Groupe des conseillers parrains (GCP), les intervenants internes et externes de la Ville et les membres du public pour veiller à ce que chaque aspect de cette partie du Plan directeur soit intégré dans les priorités et les commentaires du Conseil et de la collectivité et cadre avec ces priorités et commentaires.

Le 10 juillet 2019, le Conseil municipal d'Ottawa a approuvé le rapport sur la Feuille de route du Plan directeur de la gestion des déchets solides (ACS2019-PWE-GEN-0007), qui décrivait dans leurs grandes lignes la portée et la structure-cadre de l'élaboration du Plan directeur de la Ville pour les 30 prochaines années. Lorsqu'il aura été finalisé, le Plan directeur fera état de la structure-cadre générale, l'orientation et les objectifs des politiques sur la gestion, le réacheminement et la réduction des déchets solides à court, à moyen et à long termes. Le rapport sur la Feuille de route recommandait une approche en trois phases dans l'élaboration du plan; chaque phase devait se fonder sur de solides travaux de recherche, des données rigoureuses, les règles de l'art et les vastes consultations menées auprès des principaux intervenants et du public. Voici en quoi consistent ces trois phases :

1. **Phase 1 (Notre situation actuelle)** : donner au Conseil municipal une base d'information pour les discussions dans les prochaines phases, de même que pour l'éclairer sur les outils qui permettront d'orienter le système et les programmes de gestion des déchets de la Ville.

2. **Phase 2 (Notre orientation)** : amorcer des discussions avec les intervenants sur l'énoncé de la vision, les principes directeurs et les objectifs qui définiront la structure-cadre du Plan directeur. Cette phase consiste aussi à recenser les besoins projetés dans la gestion des déchets, à établir la liste détaillée des options auxquelles on fera appel pour répondre aux besoins projetés dans la gestion des déchets, à définir la méthodologie qui permettra d'évaluer chaque option et à dresser la liste abrégée recommandée des options pour la consultation et l'étude.

3. **Phase 3 (Les moyens à prendre pour atteindre l'objectif)** : faire état dans leurs grandes lignes des options recommandées, ainsi que du plan et des cibles pour la mise en œuvre à court terme (sur cinq ans) du Plan directeur définitif. Le cas échéant, les commentaires portant sur la version provisoire du Plan directeur seront intégrés dans la version définitive de ce plan, qui sera présentée au Comité et au Conseil municipal pour étude au début de 2023.

En prenant connaissance du rapport de la phase 2 et en l'approuvant, le Conseil établira le cadre stratégique du Plan directeur de gestion des déchets solides de la Ville et guidera les moyens grâce auxquels Ottawa gérera et réacheminera les déchets dans les 30 prochaines années. Il donnera ainsi au personnel de la Ville l'orientation stratégique nécessaire pour guider le déroulement de l'évaluation des options recensées pendant la vaste consultation évoquée ci-dessus et pour modeler les moyens de recenser les besoins projetés et les options envisageables pour la gestion et le réacheminement des déchets et d'en tenir compte dans le Plan directeur.

Recommandation n^{o} 1 : Approuver l'énoncé de la vision, les principes directeurs et les objectifs du Plan directeur de la gestion des déchets solides selon les modalités exposées dans ce rapport et décrites dans leurs grandes lignes dans la pièce justificative 1.

L'énoncé de la vision, les principes directeurs et les objectifs proposés

Dans ce rapport de la phase 2, nous recommandons au Conseil municipal d'approuver l'énoncé de la vision, les principes directeurs et les objectifs proposés pour le Plan directeur de la gestion des déchets solides. En élaborant ces éléments sur lesquels le

Conseil municipal se penchera pour définir le cadre stratégique du Plan directeur de la Ville pour les 30 prochaines années, le personnel a travaillé en collaboration avec le Groupe des conseillers parrains du Plan directeur, le Groupe de consultation des intervenants, le Groupe des champions de la Ville et le grand public pendant la série de consultations 1 afin d'élaborer la proposition aujourd'hui présentée au Conseil municipal.

L'énoncé de la vision, les principes directeurs et les buts proposés ont été pensés pour tenir compte des tendances récentes et projetées dans l'industrie de la gestion des déchets, selon les modalités définies dans le cadre des travaux techniques menés dans la phase 1, qui transformeront la gestion des déchets solides dans l'avenir. Ils ont aussi été pensés pour tenir compte et faire état des nouvelles politiques et stratégies de la Ville qui se répercutent sur les priorités du Plan directeur. Il s'agit entre autres de la Déclaration de l'urgence climatique du Conseil municipal d'Ottawa et de la confirmation du rôle important du système projeté pour la gestion intégrée des déchets afin de permettre d'atteindre les objectifs climatiques du Conseil, ainsi que de la priorité à donner au développement économique local dans la promotion des collectivités et des services sains, inclusifs et équitables.

L'un des grands objectifs de la série de consultations 1 a consisté à faire participer les principaux intervenants à l'élaboration de la vision, des principes directeurs et des objectifs. La série de consultations 1 s'est déroulée dans la période comprise entre le printemps et l'automne 2020. Pour rejoindre l'ensemble des résidents et des intervenants et pour réunir leurs commentaires, le personnel de la Ville a fait appel à différentes tactiques et activités de consultation pour permettre aux résidents et aux intervenants de choisir les moyens qu'ils préfèrent pour y participer. En outre, le personnel a mis en œuvre un rigoureux programme de communication afin de rejoindre les différents résidents et intervenants pour promouvoir la participation à la série de consultations et pour leur donner de l'information sur l'élaboration du Plan directeur. En outre, en faisant appel à l'optique de l'équité et de l'inclusion de la Ville, le personnel a noué des liens avec plusieurs groupes qui risquent d'être exclus afin de diffuser l'information sur les activités de consultation et de les encourager à participer aux ateliers et aux groupes de discussion en ligne.

Dans le cadre de la série de consultations 1, l'équipe du projet a pris connaissance des commentaires de plus de 2 800 participants, qui se sont exprimés dans des sondages, dans des assemblées en ligne, dans les courriels et dans les commentaires qui nous ont été adressés sur la plateforme Participons Ottawa. Le rapport sur « Ce que nous avons entendu », reproduit ci-joint dans la pièce 1, fait état de l'intégralité du compte rendu des activités de consultation, ainsi que des résultats des commentaires exprimés pendant la série de consultations 1.

Dans le cadre de la volonté du Conseil municipal de s'assurer que le Plan directeur est intégré dans le partenariat avec la collectivité, dans la foulée de la vaste consultation communautaire pour réunir les idées et les commentaires sur la vision et sur la situation projetée de la gestion des déchets sur le territoire de la Ville dans les 30 prochaines années, nous nous sommes inspirés de ces commentaires pour dresser la liste provisoire des options à retenir pour l'énoncé de la vision, les principes directeurs et les objectifs du Plan directeur. Les versions provisoires ont été présentées au Groupe des conseillers parrains, au Groupe des champions de la Ville et au Groupe de consultation des intervenants à l'automne 2020 pour avis final et validation. On a continué d'affiner l'énoncé de la vision, les principes directeurs et les objectifs proposés pour tenir compte des commentaires ce ces principaux groupes d'intervenants avant de les communiquer à nouveau au Groupe des conseillers parrains pour validation finale à la fin de 2020.

Le personnel recommande au Conseil municipal d'approuver l'énoncé de la vision, les principes directeurs et les objectifs stratégiques à long terme ci-après pour le Plan directeur, qui font état des travaux techniques menés dans la phase 1, ainsi que des commentaires et des priorités des résidents et des intervenants dans le cadre de la série de consultations 1 :

Vision

Une ville sans déchets (Ottawa zéro déchet) grâce à une intervention progressive, collective et innovante.

Principes directeurs

- **Respecter la hiérarchie des 5R de la gestion des déchets** en priorisant les options qui permettent de réduire, de réutiliser, de recycler et de récupérer les déchets pour enfouir dans la décharge publique le moins possible de déchets résiduels.

- **Faire évoluer les valeurs collectives** pour que les résidents et les intervenants considèrent que les déchets sont les ressources, pour qu'ils participent à la responsabilité de la gestion des déchets et pour qu'ils jouent un rôle dans la réalisation des objectifs du Plan directeur de gestion des déchets solides.

- **Protéger l'environnement pour les générations futures** en maîtrisant les incidences environnementales de la gestion des déchets.

- **Prêcher par l'exemple** dans la gestion des déchets en tant que municipalité, en intégrant, dans l'ensemble des opérations de la Ville, la hiérarchie des 5R de la gestion des déchets.

- **Adopter les principes de l'économie circulaire** afin de minorer l'utilisation des matières premières, de reconnaître que les déchets sont des ressources, de maximiser la valeur des déchets et de conserver les produits et les matières utilisées, en plus de préconiser que l'industrie et les autres ordres de gouvernement interviennent pour assurer la transition avec ce modèle économique.

- **Maîtriser l'innovation** et rester ouvert aux occasions d'adopter les technologies émergentes, les nouvelles politiques et les tendances de l'évolution de l'industrie.

- **Veiller à ce que la gestion des déchets reste localisée**, en traitant les déchets résidentiels dans le périmètre du territoire de la Ville, dans tous les cas où il est opérationnellement et économiquement viable de le faire.

- **Faire appel à l'approche du triple résultat** pour harmoniser la pérennité environnementale, les volontés de la Ville et de la collectivité et la responsabilité budgétaire.

Objectifs

1. Étendre considérablement la durée utile de la décharge contrôlée du chemin Trail pour qu'elle dépasse sa durée utile existante et prévue et pour éviter qu'il soit nécessaire d'aménager une nouvelle installation pour les déchets résidentiels.

2. Réduire le volume de déchets produits par les résidents et par la Ville en tant que municipalité.

3. Maximiser la réutilisation des déchets produits par les résidents et par la Ville en tant que municipalité.

4. Maximiser le recyclage des déchets produits par les résidents et par la Ville en tant que municipalité.

5. Maximiser la récupération des matières et de l'énergie produites par les autres courants de production des déchets.

6. Ambitionner de réduire de 100 % les émissions de GES produites par le réseau intégré de gestion des déchets de la Ville.

7. Appuyer et influencer le secteur industriel, commercial et institutionnel (ICI), dont les immeubles à logements multiples, les petites entreprises, le secteur agricole et le secteur de la construction et de la démolition, et nouer un partenariat avec le secteur ICI afin de réduire, de réutiliser et de réacheminer les déchets dans l'ensemble de la collectivité.

8. Maximiser la participation en rehaussant l'accessibilité, la praticité, la cohésion et l'abordabilité des programmes et des services de gestion des déchets.

9. Maximiser l'encadrement des coûts, la production des recettes et l'utilisation économique des ressources en gestion de déchets pour permettre de minorer les coûts à l'intention des contribuables.

10. Faire de la conception de la gestion durable des déchets un élément essentiel du processus de planification de la Ville.

11. Collaborer avec les intervenants externes, dont l'industrie et les autres ordres de gouvernement, afin de promouvoir les pratiques de gestion des déchets.

Le lecteur trouvera dans ce rapport d'autres précisions sur l'énoncé de la vision, les principes directeurs et les objectifs proposés, de même que les définitions et les détails de termes comme « zéro déchet » et « économie circulaire ».

En approuvant l'énoncé de la vision, les principes directeurs et les objectifs proposés dans le cadre du Plan directeur, le Conseil instituera la structure-cadre stratégique du Plan directeur de la Ville et guidera les modalités selon lesquelles Ottawa gérera et réacheminera les déchets dans les 30 prochaines années. Cette approbation permettra au personnel d'enchaîner avec le processus d'évaluation des options et d'établir une norme de base pour les différentes options qui pourraient être envisagées dans le Plan directeur dans les réactualisations planifiées tous les cinq ans.

Recommandation n^{o} 2 : Prendre connaissance du rapport de la phase 2 du Plan directeur de la gestion des déchets solides et des pièces justificatives se rapportant aux besoins à long terme de la Ville d'Ottawa dans la gestion des déchets, à la liste détaillée générale des options à envisager pour répondre aux besoins projetés et au processus qui permettra d'évaluer les options, reproduits dans les pièces 2, 3 et 4, pour information.

Les besoins à long terme dans la gestion des déchets

Dans la foulée de l'analyse rigoureuse du réseau actuel de gestion des déchets de la Ville menée dans la phase 1, nous avons lancé dans la phase 2 le travail de recensement des besoins projetés dans la gestion à long terme des déchets de la Ville, afin de dresser la liste des besoins prévus dans la gestion des déchets à court terme

(de 1 an à 5 ans), à moyen terme (de 6 à 15 ans) et à long terme (de 16 à 30 ans) pour les 30 prochaines années.

Pour ce faire, l'équipe d'experts-conseils technique de la Ville a procédé à une analyse exhaustive de l'évaluation des besoins. Ce travail a consisté à mettre au point les projections à long terme de la gestion des déchets afin d'estimer les quantités projetées de déchets que la Ville devra gérer sur l'horizon de 30 ans du Plan directeur, à l'heure où la population de la Ville continue d'augmenter. Dans l'analyse des besoins, nous avons aussi tenu compte de l'évolution du paysage législatif de la gestion des déchets, des politiques et des programmes qui influent sur la gestion des déchets sur le territoire de la Ville d'Ottawa, ainsi que des règles de l'art de la gestion des déchets solides selon les modalités définies dans la phase 1 du Plan directeur.

Les projections dans la gestion des déchets

L'équipe d'experts-conseils technique du projet a mis au point les projections dans la gestion des déchets pour recenser le tonnage estimatif que la Ville devra gérer dans les 30 prochaines années, jusqu'en 2052, d'après le statu quo. Ces projections ont été calculées en faisant appel à un modèle statistique qui tenait compte de projections de croissance établies dans la version provisoire du Plan officiel, qui analysait les tendances économiques et qui se fondait sur les données de 2019 et sur les programmes et les politiques du statu quo en vigueur à l'époque.

Conformément à la version provisoire du nouveau Plan officiel de la Ville, la population d'Ottawa devrait, d'ici 2046, dépasser le chiffre de 1,4 million d'habitants. Selon les projections, d'après le statu quo, la Ville produira un total d'environ 487 000 tonnes de déchets en 2052, ce qui représente une hausse de 37 % sur le volume de déchets à gérer par la Ville en 2020.

Les projections pour la gestion des déchets sont précisées et réparties parmi différents secteurs (les habitations unifamiliales, les immeubles à logements multiples, les infrastructures de la Ville, ainsi que les parcs et les espaces publics), de même que d'après les courants de gestion des déchets (matières organiques dans les bacs verts, feuilles et résidus de jardinage, boîtes bleues, boîtes noires, produits dangereux et

spéciaux, déchets résiduels et autres déchets résiduels jetés dans la décharge contrôlée du chemin Trail (dans le cadre de ce rapport; nous donnons des détails précis sur la méthodologie utilisée pour mettre au point les projections dans la gestion des déchets, ainsi que les différentes variables influant sur les projections, que nous reproduisons dans la pièce 2 de ce rapport.

L'analyse des besoins

Nous avons procédé à l'analyse des besoins afin de recenser les besoins projetés du réseau de gestion des déchets de la Ville et de relever les lacunes, les contraintes et les possibilités se rapportant à ces besoins. Le recensement des besoins ouvre la voie dans l'établissement de la liste détaillée des options globales que la Ville peut envisager pour répondre à chacun de ces besoins précis.

Dans l'analyse, nous nous sommes penchés sur les volets existants du réseau de la gestion des déchets qui permettent d'apporter des améliorations et de réaliser des progrès, d'ouvrir des perspectives nouvelles et d'offrir, dans les cas où les contrats arrivent à expiration, la possibilité de mener des activités différentes. Nous avons recensé les lacunes, les contraintes et les possibilités pour chacun des besoins projetés d'après l'expérience de l'équipe d'experts-conseils et l'examen du mémoire technique de la Synthèse du système dans l'état actuel, préparé dans le cadre de la phase 1, de même qu'en nous inspirant des connaissances et de l'expérience du personnel. Nous avons aussi veillé à ce que la vision, les principes directeurs et les objectifs proposés pour le Plan directeur cadrent avec les besoins projetés recensés.

De plus, nous avons examiné et étudié, dans le recensement des besoins projetés, les projections de la gestion des déchets et les principales tendances de l'évolution de l'industrie et de la réglementation qui auront une incidence sur le réseau intégré de la gestion des déchets de la Ville dans l'avenir, de concert avec la trousse d'outils législatifs mise au point dans la phase 1 et qui donnait au Conseil municipal un aperçu des outils (règlements municipaux, permis, frais de déversement et exigences du plan d'implantation, entre autres) dont il doit se servir et qui orientent le réseau et les programmes de gestion des déchets de la Ville. Nous avons également tenu compte,

dans le recensement de ces besoins, des commentaires exprimés par les intervenants dans la série de consultations 1.

Dans l'analyse des besoins, nous avons également tenu compte des nouvelles politiques et stratégies de la Ville qui orientent les priorités du Plan directeur. Il s'agit essentiellement de la déclaration de l'urgence climatique du Conseil municipal d'Ottawa et du rôle essentiel que jouera le réseau intégré et projeté de gestion des déchets pour permettre de réaliser les objectifs climatiques du Conseil. Le lecteur trouvera dans ce rapport d'autres précisions sur les consultations qui ont porté sur le Plan directeur et sur l'étude du Plan directeur sur les changements climatiques et de la stratégie de l'Évolution énergétique.

Nous avons recensé, dans l'ensemble, 21 besoins dans le cadre du système intégré et projeté de gestion des déchets de la Ville, que nous avons répartis parmi sept catégories :

- l'évitement, la réduction et la réutilisation des déchets;
- les programmes de réacheminement des déchets;
- la collecte et la dépose des matières;
- la récupération des déchets et de l'énergie;
- la gestion résiduelle;
- la gestion des déchets produits par les infrastructures et les opérations de la Ville;
- la promotion des exigences du réseau.

Le lecteur trouvera également dans ce rapport un tableau qui fait la synthèse des différents besoins et qui donne un aperçu succinct des principales lacunes et contraintes, des possibilités et des délais potentiels proposés pour répondre à chacun de ces besoins.

<u>Les principales considérations et les principaux éléments qui pourraient influer sur la gestion à long terme des déchets dans la Ville d'Ottawa</u>

L'avenir de la gestion des déchets comporte de nombreuses inconnues pour les municipalités en général et pour Ottawa en particulier. Dans ce rapport, nous mettons en lumière les principales considérations et les éléments essentiels qui pourraient influer sur la gestion à long terme des déchets dans la Ville d'Ottawa et dont il faut tenir compte dans l'ensemble du travail d'élaboration du Plan directeur.

La durée utile de la décharge contrôlée

Comme le précise le rapport sur la Feuille de route de 2019, l'on s'attendait et l'on s'attend toujours à ce que le processus de la planification des déchets permette de recenser les différents secteurs dans lesquels la Ville n'applique pas, à l'heure actuelle, les règles de l'art. Les modalités selon lesquelles on estime l'espérance de vie utile de la décharge contrôlée constituent l'un de ces secteurs recensés pour la Ville.

Jusqu'à maintenant, la Ville s'en est remise au Rapport annuel de surveillance (RAS), qui constitue une méthodologie de conformité à laquelle elle fait appel pour déposer ses rapports annuels auprès du ministère de l'Environnement, de la Protection de la nature et des Parcs (MEPNP); cette méthodologie fait appel à des indicateurs statistiques décalés comme la consommation de l'espace aérien des années précédentes, pour estimer le reliquat de la durée utile de la décharge contrôlée. Bien que cette méthodologie soit satisfaisante pour les besoins de la conformité, on ne la reconnaît pas comme règle de l'art pour les besoins de la planification à long terme des déchets, puisqu'elle ne tient pas compte de différents facteurs qui influent sur la longévité de la décharge contrôlée.

Dans le rapport sur la Feuille de route du Plan directeur de la gestion des déchets solides de 2019 et dans le rapport de la phase 1 de 2020, on a fait appel au Rapport annuel de surveillance pour fixer les dates de clôture de 2042 et de 2041. Pour les besoins de ce rapport de la phase 2, le personnel a mené un examen détaillé des calculs du Rapport annuel de surveillance de 2019, en se consacrant essentiellement aux tendances dans l'évolution de l'élimination des déchets. D'après ce qui reste de l'espace aérien disponible selon les modalités précisées dans le RAS de 2019, on estime qu'il reste une capacité d'environ 30 % dans la décharge contrôlée du chemin Trail, ce qui permet de constater, de concert avec l'examen mené par le personnel sur

les tendances de l'évolution de l'élimination des déchets, que si la Ville garde le statu quo dans la réduction et le réacheminement des déchets, la décharge contrôlée du chemin Trail devrait atteindre sa pleine capacité entre 2036 et 2038.

En sachant que la décharge contrôlée du chemin Trail s'emplit plus rapidement que prévu auparavant et que si l'on consacre un minimum d'efforts, à court terme ou dans l'immédiat, pour accroître considérablement la durée utile de la décharge, il se pourrait que le Plan directeur ne puisse pas atteindre l'objectif proposé dans le prolongement de la durée utile de la décharge contrôlée au-delà de l'horizon de 30 ans du Plan. Pour corriger ce problème, le personnel de la Ville continuera de se pencher sur les améliorations à apporter aux opérations de la décharge contrôlée, par exemple dans la récente transition avec la plateforme de poussage pour optimiser la compaction des déchets, ce qui fait aussi en sorte qu'il n'est plus nécessaire de prévoir les tonnages des résidus de déchiquetage des carcasses d'automobiles. En outre, le personnel entend accomplir des progrès dans l'élaboration de la Stratégie de la gestion des déchets résiduels (SGDR), qui sera ciblée.

La SGDR permettra de revoir les méthodologies de calcul de la durée utile de la décharge contrôlée, afin d'adopter une méthodologie de calcul qui correspondra aux règles de l'art et qui permettra d'établir une fourchette plus fiable du point de vue du nombre d'années pour ce qui est du volume restant de la décharge contrôlée du chemin Trail. Cette stratégie permettra aussi de se pencher sur la possibilité de mettre en œuvre un ensemble de politiques, de programmes et de mécanismes nouveaux pour réduire la quantité de déchets enfouis dans la décharge contrôlée du chemin Trail pour élimination, en plus d'analyser une série d'options, qui cadreront avec celles qui ont été recensées dans la liste détaillée des options afin de préserver le volume restant et de prolonger la durée utile de la décharge contrôlée du chemin Trail.

De concert avec les travaux consacrés aux projets constitutifs existants, qui visent à rehausser le réacheminement des déchets au lieu de les enfouir dans la décharge publique à court terme, cette stratégie visera dans l'ensemble à atteindre l'objectif du Conseil, soit prolonger la durée utile de la décharge contrôlée du chemin Trail au-delà de la durée de 30 ans du Plan directeur. La promotion de ces travaux cadre avec les

priorités du mandat du Conseil municipal, de même qu'avec l'énoncé de la vision, les principes directeurs et les objectifs proposés pour le Plan directeur.

Le rapport sur la Feuille de route, qui définira la portée de la SGDR et qui donnera d'autres détails sur l'élaboration de la stratégie, sera présenté au Comité et au Conseil municipal au troisième trimestre de 2021.

Les modifications apportées à la réglementation

Le gouvernement provincial impose des modifications ou d'autres règlements qui se répercuteront irrémédiablement sur l'établissement du Plan directeur de la gestion des déchets.

Outre la transition provinciale des programmes de recyclage avec le principe de la responsabilité individuelle des producteurs (qui responsabilisera, environnementalement et financièrement, les producteurs d'articles et d'emballages pour l'ensemble des articles et des emballages qu'ils produisent), le gouvernement provincial a publié le Cadre stratégique pour la gestion des déchets alimentaires et organiques, qui établit des cibles pour le réacheminement des déchets alimentaires et organiques, leur réduction et la récupération des ressources. À l'heure où les secteurs sont plus nombreux à adopter les programmes de réacheminement pour atteindre les cibles, et si, éventuellement, le gouvernement provincial enchaîne avec l'interdiction proposée des matières organiques dans les décharges contrôlées d'ici 2030, la concurrence sera de plus en plus âpre pour la capacité de traitement des matières organiques dans toute la province, ce qui constitue un risque au moment où la Ville est sur le point d'être obligée de déterminer les besoins projetés dans le traitement des matières pour les neuf prochaines années; or, il s'agit aussi d'une occasion pour la Ville de se pencher sur l'élaboration de sa propre installation de traitement. Si la Ville se dote de sa propre installation de traitement des matières organiques, elle pourrait se doter d'un volet productif de recettes en offrant aux autres municipalités ou au secteur ICI une capacité de traitement, et en produisant éventuellement du gaz naturel renouvelable (GNR) si la Ville décide de convertir le biogaz produit dans la digestion anaérobie, comme le prévoit la Stratégie de l'évolution énergétique.

Les changements climatiques et la résilience

Les changements climatiques sont un autre secteur qui a des incidences sur la Ville et sur son réseau de gestion des déchets. Ces changements influeront sur la probabilité d'épisodes météorologiques sévères comme les inondations et les tornades, ce qui pourrait avoir des incidences dans la collecte, le transport, le traitement et l'élimination des matières touchées par ces épisodes météorologiques, de même que sur le volume de déchets à gérer en raison de ces événements. Les changements climatiques pourraient aussi se répercuter sur l'effectif responsable de la collecte (les étés s'annoncent plus chauds, ce qui représente un risque pour les travailleurs) et sur les habitudes dans la production des déchets (la saison de la croissance sera prolongée, ce qui pourrait avoir pour effet d'accroître les feuilles et les résidus de jardinage). Il faudra aussi tenir compte de ces incidences dans la planification projetée pour la gestion des déchets et dans les décisions à prendre.

Les autres considérations

Voici les autres risques et considérations dont il faut tenir compte dans les activités à long terme projetées pour la planification de la gestion des déchets dans la Ville :

- les changements dans les modes de vie et dans les tendances de la consommation;
- le caractère évolutif des emballages;
- l'étalement urbain et la densification d'Ottawa;
- le besoin en capacité de postes de transfert dans le réseau de la collecte des déchets de la Ville;
- les autres plans et stratégies de la Ville, dont le Plan officiel, le Plan directeur sur les changements climatiques, la stratégie de l'Évolution énergétique, le Plan directeur des espaces verts et le Plan de gestion de la forêt urbaine;
- les services de collecte des déchets;

- l'adoption des technologies nouvelles et émergentes de la gestion des déchets;
- les sources de financement;
- la collecte et la gestion des données;
- les indicateurs du rendement.

Nous continuerons de mettre au point le Plan directeur pour qu'il reste souple et adaptable afin d'en assurer le succès en maîtrisant le mieux possible les risques et les considérations qui viennent d'être évoqués d'après l'information connue à mesure que le Plan directeur est élaboré. On sait toutefois que selon la nature des risques et le délai dans lequel ils se matérialisent et à mesure que l'on connaîtra d'autres détails à propos de leurs répercussions sur le Plan directeur et sur le réseau projeté et intégré de la gestion des déchets de la Ville, il se pourrait qu'on ne puisse pas tenir parfaitement compte de certains risques et de certaines considérations dans l'élaboration du Plan directeur; on en tiendra toutefois compte dans les réactualisations projetées du Plan.

La liste détaillée globale des options auxquelles on peut faire appel pour répondre aux besoins projetés

La liste détaillée globale des options qui permettront de répondre aux besoins et de corriger les lacunes dans la gestion des déchets de la Ville, qui cadrent avec les secteurs prioritaires du Plan directeur, a été établie en faisant appel à un certain nombre de sources d'information, dont :

- les compétences techniques de l'équipe d'experts-conseils technique du projet, d'après les vastes travaux de recherche menés dans la phase 1 et selon le jugement professionnel de cette équipe et ses compétences dans l'industrie;
- le Groupe des conseillers parrains et le Conseil municipal, d'après leurs connaissances et selon les commentaires de leurs électeurs;
- le grand public et les intervenants du projet dans le cadre des consultations menées dans la série de consultations 1;

- le Groupe de travail des champions de la Ville et le personnel municipal, d'après leur connaissance de la ville, ainsi que de ses besoins et des synergies avec les autres stratégies de la Ville.

Nous avons rigoureusement consigné toutes les idées exprimées dans la série de consultations 1 et transmis les réponses à l'équipe d'experts-conseils technique du projet pour qu'elle puisse les analyser afin de veiller à adopter une approche fondée sur des statistiques probantes pour élaborer chaque option et pour l'analyser afin de savoir si elle concorde avec les besoins projetés du système intégré de gestion des déchets de la Ville de même qu'avec l'énoncé de la vision, les principes directeurs et les objectifs proposés du Plan directeur.

Les options de la liste détaillée sont réparties parmi les dix catégories et ont été catégorisées dans les outils de mise en œuvre (par exemple une campagne de sensibilisation ciblée) dans les programmes (comme un café-réparation), dans les politiques (par exemple l'interdiction d'éliminer différents matériaux) ou dans les installations et les infrastructures (comme une installation de digestion anaérobie dans le traitement des matières organiques). Voici les catégories auxquelles appartiennent les options de la liste détaillée :

1. promotion et information;
2. règlements d'application, politiques et règlements municipaux;
3. évitement, réduction et réutilisation des déchets;
4. recyclage;
5. collecte et dépose;
6. gestion des matières organiques;
7. récupération des déchets et de l'énergie;
8. déchets résiduels;
9. innovation;
10. autres options.

De concert avec le Groupe des conseillers parrains du Plan directeur, nous avons mis au point un modèle normalisé pour veiller à mener une recherche sur chacune des options et à les consigner dans un souci d'uniformité et de transparence et en tenant

compte de tous les éléments essentiels nécessaires pour étayer l'évaluation et l'établissement de la liste abrégée des options. Cette information permet aussi d'ouvrir la voie à des discussions cruciales avec la collectivité dans le cadre de la série de consultations 2 lorsqu'on se demandera jusqu'où on veut aller, à quel rythme on veut avancer et à quel prix on souhaite réaliser le Plan et ses recommandations.

La liste globale des options recensées pour répondre aux besoins projetés dans la gestion des déchets de la Ville et la description correspondante sont reproduites dans le mémoire technique de la liste globale détaillée des options, reproduit ci-joint dans la pièce 3.

Le déroulement de l'évaluation

Un aspect essentiel de la phase 2 consiste à mettre au point l'outil d'évaluation technique selon l'approche du triple résultat en faisant appel à une méthode pondérée pour évaluer la liste détaillée des options de manière à harmoniser les volets sociaux, environnementaux et financiers de chaque option ou l'ensemble des options. L'objectif de l'évaluation consiste à mettre au point une approche et un outil technique qui permettront d'évaluer objectivement et dans la transparence la liste détaillée des options pour établir la liste abrégée de l'ensemble des options privilégiées et produire des systèmes différents de gestion des déchets sur lesquels on consultera tous les intervenants et dont on tiendra compte dans la version provisoire du Plan directeur.

Le processus d'évaluation et l'outil technique ont été mis au point par l'équipe d'experts-conseils technique du projet, qui mènera aussi l'évaluation et qui s'est penchée sur les règles de l'art et les approches appliquées dans les processus de planification de la gestion des déchets d'autres municipalités. Le processus d'évaluation et l'outil ont aussi été mis au point avec le concours et les conseils du Groupe des conseillers parrains, du Groupe de consultation des intervenants, du Groupe des champions de la Ville et du personnel-cadre.

Afin d'assurer l'évaluation rigoureuse et transparente des options pour cerner celles qui sont le mieux adaptées aux besoins de la Ville, nous avons prévu deux étapes : un processus de présélection de toutes les options et un processus d'évaluation selon

l'approche du triple résultat (ATP), aussi appelé l'« analyse multicritérielle (AMC) pour certaines options recensées dans le processus de présélection. Le lecteur trouvera plus loin dans ce rapport, ainsi que dans la pièce 4 jointe à ce rapport, d'autres précisions sur le processus d'évaluation.

Les résultats de l'évaluation

À la fin du processus d'évaluation, nous répartirons les options parmi les trois catégories suivantes afin de mettre au point deux systèmes potentiels projetés de gestion des déchets (soit un « système modéré » et un « système ambitieux ») afin de consulter la collectivité et les principaux intervenants d'ici la fin de l'année; ces systèmes constitueront le point de départ lorsqu'il s'agira de savoir jusqu'où et à quel rythme nous voulons progresser collectivement :

1. les outils, les programmes et les politiques de mise en œuvre;
2. les options dans le recyclage, la collecte et la dépose des déchets et dans la gestion des matières organiques;
3. les technologies de récupération des déchets et de l'énergie et les options dans l'élimination des déchets résiduels.

Les systèmes potentiels seront alors tous deux soumis à une comparaison globale l'un avec l'autre, de même qu'au système du statu quo, pour se pencher sur les considérations comme le potentiel de réacheminement des déchets, le potentiel de réduction des émissions de gaz à effet de serre (GES), le coût estimatif, le risque et le calendrier, d'après les besoins à court, à moyen et à long termes de la Ville. Nous comparerons la modélisation des GES du système modéré et du système ambitieux avec la modélisation des GES du système de base afin de connaître l'incidence globale des GES sur les deux systèmes potentiels projetés de gestion des déchets et pour les évaluer afin de savoir s'ils cadrent avec les objectifs climatiques de la Ville en ce qui a trait à la gestion des déchets.

Le personnel de la Ville a l'intention de tenir cet été une consultation sur les deux systèmes potentiels auprès du Groupe des conseillers parrains, des membres du

Conseil municipal et du Groupe de consultation des intervenants du Plan directeur; il a aussi l'intention de mener cet automne d'autres consultations dans le cadre de la série de consultations 2. Les commentaires qui seront exprimés pendant cette série de consultations viendront éclairer les recommandations de la version provisoire du Plan directeur et du Plan quinquennal de mise en œuvre qui l'accompagne.

Les prochaines étapes dans l'élaboration du Plan directeur de la Ville

Lorsque le Conseil municipal aura approuvé l'énoncé de la vision, les principes directeurs et les objectifs du Plan directeur, le personnel de la Ville lancera le processus d'évaluation des options et se consacrera à l'élaboration de la version provisoire du Plan directeur et de l'étude quinquennale de la mise en œuvre. Ces travaux consisteront à :

- évaluer la liste détaillée des options en faisant appel au processus d'évaluation décrit dans ses grandes lignes dans ce rapport;
- produire, pour la gestion des déchets, un système modéré et un système ambitieux pour les besoins de la consultation;
- consulter les membres du Groupe de conseillers parrains sur les systèmes proposés avant de tenir les séances d'information destinées aux membres du Conseil municipal et au Groupe de consultation des intervenants;
- mettre au point la stratégie rehaussée à publier sur la plateforme Participons Ottawa et sur les réseaux sociaux afin de promouvoir, dans l'ensemble, la participation aux consultations sur le Plan directeur et de lancer la série de consultations 2 afin d'inviter les principaux intervenants et les résidents à exprimer leur avis sur les systèmes proposés;
- informer les membres du Groupe des conseillers parrains sur les commentaires exprimés dans la série de consultations 2 et consulter ce groupe sur la version provisoire proposée de la Stratégie et du Plan quinquennal de mise en œuvre.

Au début du deuxième trimestre de 2022, le Conseil municipal prendra connaissance du rapport de la phase 3 sur la version provisoire du Plan directeur et du Plan quinquennal de mise en œuvre, pour étude. Le rapport de la phase 3 comprendra aussi les éléments d'information suivants :

- l'analyse de rentabilisation de l'ensemble des coûts du système recommandé pour la gestion des déchets, ainsi que le plan de financement sur 30 ans et les estimations globales pour les besoins de la planification financière à long terme (estimations du type D);
- les besoins infrastructurels et opérationnels sur 10 ans;
- les indicateurs du rendement ainsi que les impératifs de surveillance et de compte rendu, notamment les objectifs à court, à moyen et à long termes.

À la fin de ces travaux, le personnel mènera la troisième et dernière série de consultations du projet, qui consistera à consulter les résidents et les principaux intervenants sur la version définitive proposée du Plan directeur et du Plan quinquennal de mise en œuvre avant de les présenter au Comité et au Conseil municipal pour étude au début de 2023.

BACKGROUND

Waste management is an essential municipal service that requires planning, management and coordination to ensure the successful and efficient operation of the waste system and delivery of this core service to residents. In the local context, the City of Ottawa is responsible for the collection, transportation, processing and disposal of garbage, blue and black Bin recyclables, green bin organics, leaf and yard waste and bulky items from approximately 294,000 single family homes and 1,700 multi-residential buildings. The City successfully manages these activities through a complex, integrated waste management system which maintains public health and supports environmental sustainability.

To help guide these efforts, a municipal Solid Waste Master Plan provides the overall framework, direction, and goals for solid waste management, diversion and reduction over the short-, medium- and long-term horizon. The City of Ottawa has had one Solid

Waste Master Plan in its history (approved in September 2003). In recognition of the need for further waste management plans and guidance, staff developed a Solid Waste Master Plan Roadmap report (ACS2019-PWE-GEN-0007), which was approved by Ottawa City Council on July 10, 2019, and outlined a three-phase approach for developing the City's second 30-Year Solid Waste Master Plan (herein referred to as the Waste Plan) following recognized municipal best practices. These three phases include:

1. **Phase 1 (Where We Are)**: to provide Council with a baseline of information for discussion in future phases, as well as to inform Council of what tools are available to influence the City's waste management system and programs.

2. **Phase 2 (Where We Are Going)**: to begin discussions with stakeholders on the vision statement, guiding principles and goals that will provide a framework for the Waste Plan. This phase also identifies future waste management needs, the long list of options to be considered to meet future waste management needs, the evaluation methodology to evaluate each option and will generate the recommended short list of options for consultation and consideration.

3. **Phase 3 (How We Are Going To Get There)**: to outline the recommended options and short-term (five-year) implementation plan and targets for the final Waste Plan. Where appropriate, input on the draft Waste Plan will be incorporated into the final Waste Plan, which will be presented to Committee and Council for consideration in early 2023.

As previously reported to Council, staff originally intended to bring the final Waste Plan for Council's consideration by the end of 2021. Various factors have contributed to the timeline shift, including:

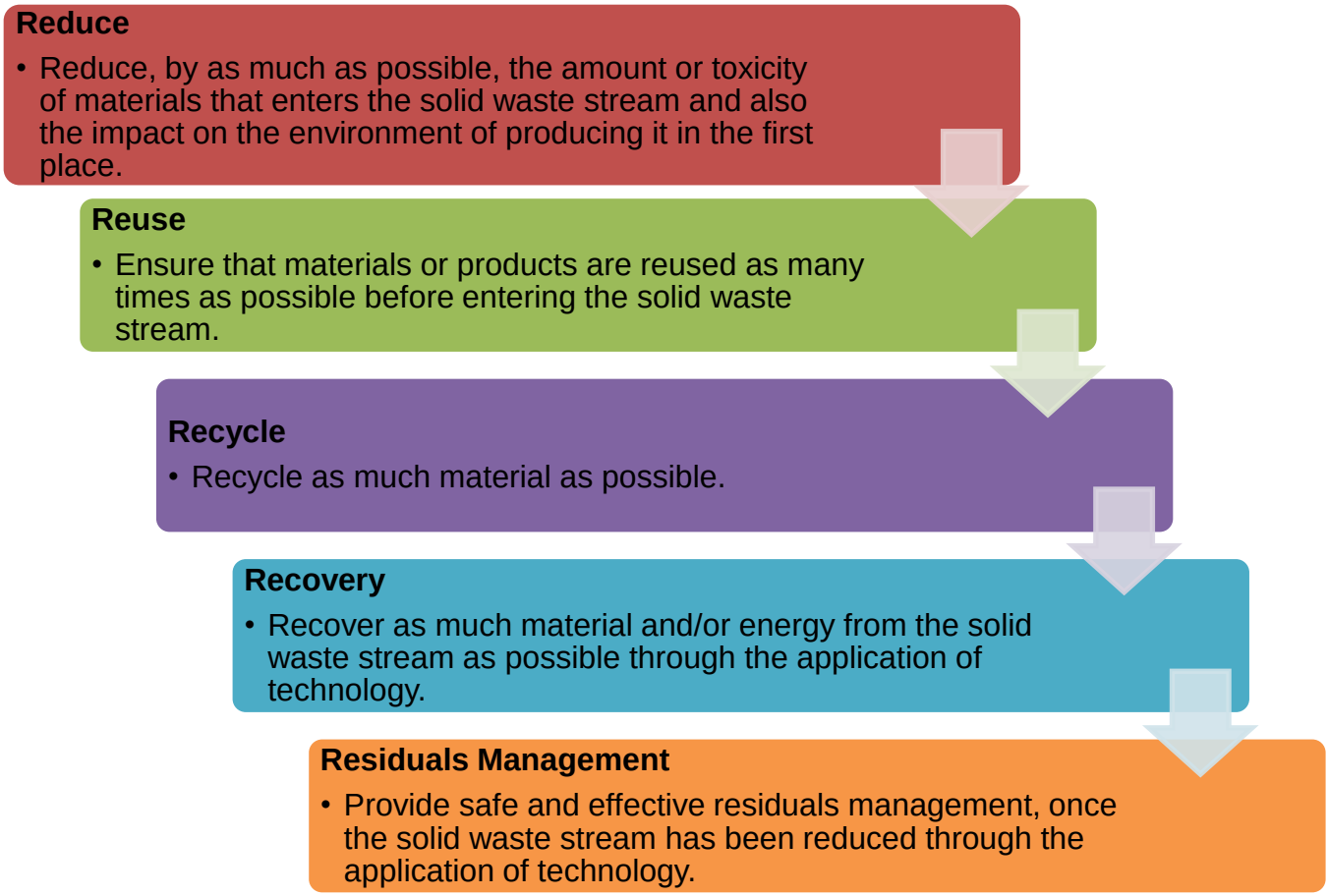
- The COVID-19 global pandemic;
    - Staff were required to adjust their reporting strategies for Phase 1, resulting in a delay in the finalization of Phase 1;
    - Staff were required to adjust engagement techniques to adhere to public health guidelines for Engagement Series 1; and,

    - Staff are working to understand and plan for the pandemic's impacts on the waste system and master planning process.
- The delay in the release of the Provincial regulations for the transition to Individual Producer Responsibility and their unknown impacts on the Waste Plan; and,
- The level of rigor applied to researching the options set forth in the long list to address the City's anticipated future waste needs and added time to ensure resident and stakeholder feedback received in Engagement Series 1 was adequately researched and considered in the long list of options.

Once complete, the Waste Plan will be refreshed every five years to assess performance and to develop the subsequent short-term implementation plans to achieve Council's overall goals and targets. This approach is recognized as an industry best practice for planning which has been used successfully by multiple municipalities in Canada and around the world. This refresh will allow staff to further explore options for waste management and diversion that align with the Waste Plan's vision, guiding principles and goals and that meet the needs, gaps, constraints and opportunities of the anticipated future waste systems. This will allow for the Waste Plan to remain adaptable and flexible to new and emerging trends, regulatory changes and technologies. Staff will also use this refresh to engage with key stakeholders, residents and members of Council on any new options for consideration, prior to presenting them to Council for consideration.

Common elements of the development of Waste Plans include the use of what is commonly referred to as the "5Rs Waste Management Hierarchy" – Reduce, Reuse, Recycle, Recover, and Residuals Management. As outlined in the 2019 Roadmap report, this hierarchy was identified as a key element for inclusion in the development of the City's Solid Waste Master Plan, and staff have worked with the project's technical consultant to ensure that it is followed throughout the Solid Waste Master Plan's planning process, including embedding these philosophies in the project's proposed guiding principles and goals.

Figure 1: 5Rs Waste Management Hierarchy



Through the Roadmap report, Council approved the formation of a Council Sponsors Group (CSG) to provide input and feedback on the Waste Plan and its component projects, key aspects of each phase and detailed timelines. The membership of the CSG was approved on September 25, 2019 (Motion No. EPWWM 5/4), consisting of Chair Moffatt, Vice-Chair Menard, Councillor El-Chantiry, Councillor Dudas, and a representative from the Mayor's Office.

Upon approval of the Roadmap report, staff began engaging with the CSG in preparation for the Phase 1 report. Solid Waste staff worked with the CSG to outline specific stakeholder groups that the Waste Plan engagement efforts should be directed

towards, which included a City Champions Group (CCG) of City staff whose work impacts or is affected by the Waste Plan, as well as a Stakeholder Sounding Board (SSB) consisting of individuals and organizations from across the city who represent a broad range of resident and stakeholder perspectives.

Solid Waste staff also worked in conjunction with staff from the City's Public Information and Media Relations (PIMR) team to develop a Communications and Engagement Strategy which identified several opportunities for members of Council, stakeholders and residents to provide input into the development of the Waste Plan.

Specifically, staff:

- Developed a comprehensive stakeholder list;
- Determined the project's key stakeholders;
- Completed a broad stakeholder impact assessment;
- Developed stakeholder engagement tactics; and,
- Educated and informed residents and stakeholders on the plan.

On February 4th, 2020, Solid Waste staff provided the CSG with a briefing on the Communications and Engagement Strategy, and received their concurrence on the following goals and objectives which were established by staff to ensure the strategy would be successful:

- Ensure high participation in engagement opportunities driven by extensive outreach;
- Provide residents and stakeholders with the necessary information in order to participate meaningfully in engagement opportunities;
- Enable stakeholders to participate fully at key steps of the decision-making process;

- Inform residents and stakeholders how their input contributed to the development of the Waste Plan; and,
- Ensure the Waste Plan is supported by the community and takes their concerns, ideas and feedback into account.

The Communications and Engagement strategy outlines three key junctures, titled Engagement Series 1, Engagement Series 2 and Engagement Series 3, and includes specific objectives per series, to identify when staff will be engaging on certain aspects of the Waste Plan with the above listed stakeholders, and the general public. Details on the strategy are outlined in Table 1 below.

Table 1 - Engagement Strategy

Phase	Objectives	Timing
Phase 1 (Where We Are)	• Develop a comprehensive stakeholder list • Determine the project's key stakeholders • Complete a broad stakeholder impact assessment • Develop stakeholder engagement tactics • Educate and inform residents and stakeholders on the plan	September 2019 - April 2020

Phase	Objectives	Timing
Phase 2 (Where We Are Going)	<u>Engagement Series 1</u> • Consult with residents and stakeholders on the current level of satisfaction and desired future state of solid waste • Involve key stakeholders in the development of the vision, guiding principles and goals • Develop and conduct a survey with residents and stakeholders to validate the proposed vision, guiding principles and goals	May 2020 – September 2020
	<u>Engagement Series 2</u> • Consult with residents and stakeholders on proposed options for solid waste management in Ottawa • Conduct market research to validate feedback on proposed options • Provide feedback to Technical Consultant to inform the Draft Strategy	September to December 2021
Phase 3 (How We Will Get There)	<u>Engagement Series 3</u> • Consult with residents and stakeholders on the Draft Strategy	Q2 2022

As listed in the table above, the engagement process began with a pre-consultative phase during which a series of marketing and promotional activities took place, between September 2019 and April 2020, to raise awareness for the Engagement Series 1 activities. Promotional efforts were designed to raise broad awareness of the opportunities to participate and establish a shared understanding of the solid waste master planning project. Specific communications methods included:

- Advertising;
- Backgrounders and technical memorandums;
- Councillor briefing packages;
- Creation of a project specific Engage Ottawa page;
- Earned media;
- Feature stories and web banners posted to Ottawa.ca;
- Infographics;
- Newsletters;
- News releases/Public Service Announcements (PSAs);
- Short videos explaining the importance of the Solid Waste Master Plan; and,
- Social media posts on the City of Ottawa's Facebook; Twitter; LinkedIn; Instagram.

Engagement Series 1 commenced immediately following the Solid Waste Master Plan Phase 1 (ACS2020-PWE-SWS-0001) report technical briefing. This report was scheduled to be presented to members of Council on April 8, 2020, however, given the ongoing global pandemic due to the Novel Coronavirus (COVID-19), staff were required to alter their approach and instead completed a technical briefing for members of Council, stakeholders, and the public on April 30, 2020.

The technical briefing, which can be found on YouTube, has been viewed over 650 times. It includes the following elements which have fostered productive and meaningful discussions concerning Ottawa's future waste management needs:

- Key baseline information and data on the City's current waste management system;
- Mechanisms available at the municipal level for Council to influence waste reduction and diversion; and,
- A brief overview of emerging policy, program and technology trends.

It also provided an overview of the Waste Plan's Communications and Engagement strategy which was designed in a way that is iterative and flexible to accommodate the growing number of interested or affected stakeholders through the planning process.

The purpose of this Phase 2 report is to seek Council's approval of the proposed vision, guiding principles and goals for the Solid Waste Master Plan, which will form the framework of the planning process and guide the development of the Waste Plan and future options for waste management and diversion. This report will also provide members of Council with key information relating to the City's future waste management needs, a long list of high-level options to address these needs and the evaluation process to be used to evaluate the long list of options, as developed by the Waste Plan's technical consultants, in conjunction with the Waste Plan's Council Sponsors Group, key City of Ottawa staff and stakeholders.

The following section aims to provide an overview of recent changes and developments affecting waste management, followed by an update on key City projects and plans currently or about-to-be underway in support of the Solid Waste Master Plan.

Recent Changes and Developments Affecting Waste Management

Despite the COVID-19 global pandemic presenting an unprecedented number of challenges and competing priorities for all levels of government, work on key solid waste policies has continued. The continuation of these efforts recognizes and signifies a widespread understanding that efforts to reduce waste and protect the environment

cannot wait, even in the midst of a global pandemic. The two most notable developments since the Phase 1 report was released in April 2020 are the additional details on the planned federal ban on designated single-use plastics and the release of the final regulation for the transition of the Province's Blue Box Program (herein referred to as the Blue Bin Program) to Individual Producer Responsibility that was released on June 3, 2021. As a reminder, all three levels of government in Canada play a role in waste management. Municipalities are typically responsible for managing the collection, recycling, composting and disposal of waste, while the federal and provincial governments establish waste reduction and diversion policies and programs, provide regulations and standards for, and the approval and monitoring of, waste management facilities and operations.

Government of Canada's Approach to Plastics Pollution Management

According to a recent study commissioned by Environment and Climate Change Canada (ECCC) and conducted by Deloitte, every year Canadians throw away three million tonnes of plastic waste, of which only nine per cent gets recycled. The rest finds its way to landfills or into the natural environment. In response to this mismanagement of plastics, subsequent leakage into the environment and the wasting of valuable resources, the Government of Canada has, over the last few years, expressed its intent to take steps to reduce plastic pollution and waste. These steps include:

- Banning certain single-use plastics as early as 2021 and introducing regulations that require products to contain a set amount of recycled content;
- Working with provinces and territories to ensure companies that manufacture plastic products are responsible for managing the collection and recycling of this plastic waste;
- Investing in new technologies that help turn plastic waste into valuable resources; and,
- Diverting at least 75 per cent of plastic waste from federal operations by 2030.

On October 7, 2020, the Government of Canada signaled its intention to take prompt action on banning certain single-use plastics, with the Prime Minister announcing that regulations on a ban of these plastics are expected to be finalized by the end of 2021.

The Government of Canada also released a discussion paper on October 7, 2020, on a "*proposed integrated management approach to plastic products to prevent waste and pollution*". In this paper the Government of Canada proposes several measures to be taken, including:

- Managing single-use plastics, including banning or restricting certain products;
- Establishing performance standards to reduce the environmental impact of plastics and stimulate demand for recycled plastics; and,
- Ensuring end-of-life responsibility so that producers are responsible for collecting and recycling plastics.

The discussion paper describes the approach and criteria used to identify those items that meet the requirements for a ban. Single-use plastics that met the criteria proposed by the discussion paper are:

- Plastic cutlery;
- Plastic checkout bags;
- Six-pack plastic rings;
- Plastic stir sticks;
- Plastic straws; and,
- Takeout food and drink containers made of hard-to-recycle plastics.

To implement a single-use plastics ban, and to take other measures on managing plastics, such as introducing recycled content requirements, the House of Commons' Standing Committee on Environment and Sustainable Development recommended that the federal government use the tools of the *Canadian Environmental Protection Act,*

1999 (CEPA) to manage plastics that are scientifically assessed to be toxic to the environment and human health. The results of a Science Assessment of Plastic Pollution conducted by the federal government were also released on October 7, 2020 and states that plastic pollution, in both its microplastic and microplastic form, is everywhere in the environment, and that plastics should be managed in accordance with the precautionary principle.

On May 12, 2021, the Canadian government officially added "plastic manufactured items" to its list of "toxic" substances on Schedule 1 of CEPA. In doing so, the federal government is now able to propose risk management measures under CEPA on certain plastic manufactured items to manage the potential ecological risks associated with those items becoming plastic pollution. Risk management measures include those described in the "*proposed integrated management approach to plastic products to prevent waste and pollution*" discussion paper, including managing single-use plastics using bans or restrictions. The federal government has indicated that they are still considering feedback heard from stakeholders on the discussion paper, and they are expecting to release proposed regulation to ban or restrict certain single-use plastics this fall. Currently, there is no proposed timeline for the introduction of recycled content requirements.

Staff are generally supportive of the measure proposed in the discussion paper to ban or restrict certain single-use plastics that are environmentally problematic and difficult to recycle and recover. As further research is undertaken by ECCC there is the potential for an expansion of plastic items that meet the requirements for a ban, or a restriction, as more evidence becomes available and where other instruments are ineffective at meeting management objectives for those plastics currently not being considered for a ban. The proposed ban will need to be taken into consideration as Waste Plan options are developed and finalized and as the City undertakes the initiative to eliminate the use of single-use and foamed plastics in corporate programs and services.

Transition of Waste Programs to Individual Producer Responsibility (IPR)

Further to recent briefings and memorandums provided to Council, the Province is actively working to make the producers of products and packaging environmentally

accountable and financially responsible for recovering resources and reducing waste associated with their products and packaging after consumers have finished using them – with many of these materials currently collected through municipal programs. This concept is also referred to as Individual Producer Responsibility (IPR). This approach has widespread support amongst policymakers as one of the most effective tools to ensure that the producers of products consider post-consumer treatment and/or proper disposal of their products.

This transition represents a major shift in the Province's waste management system, meaning changes for all Ontario residents. To date, the following three programs have transitioned to IPR:

- Used tires on January 1, 2019;
- Used batteries on July 1, 2020; and,
- Waste electrical and electronic equipment (WEEE) on January 1, 2021.

City staff provided comments on the draft regulations for the transition of all of these items in advance of their finalization, both independently and through the City's collaboration with the Association of Municipalities of Ontario (AMO) and the Municipal 3R's Collaborative (M3RC). The transition of these programs represented minimal impacts to the City's current waste management programs in comparison to the greater magnitude of change expected to occur from the transition of the Hazardous & Special Products (HSP) program and the Blue Bin Program, which includes both Blue and Black Bin Programs for the City of Ottawa.

It is important to recognize, however, the trends in the transitions thus far. WEEE producers, for example, are not yet meeting their obligations under the Province's regulations. With lagging Promotion and Education campaigns, observations by staff indicate that residents are being left unsure of where or how to dispose of their waste. Unfortunately, this could result in waste being wrongfully sent to the Trail Waste Facility Landfill. In understanding this, staff recognize what this could mean for the transition of future programs, specifically the Blue Bin Program. It is vital that the Province work with

Producers to proactively plan for the transitions and educate residents accordingly. If not, the City could see an increase of recyclable items in its waste stream, impacting landfill capacity and further narrowing the life of the Trail Waste Facility Landfill.

Hazardous and Special Products

The current Municipal Hazardous or Special Waste (MHSW) Program, overseen by Stewardship Ontario, provides Ottawa with a flat rate of $1,100 per tonne for materials collected at Household Hazardous Waste (HHW) events, regardless of the actual costs to deliver the service. In the local context, this often results in the City subsidizing the cost of handling and processing these materials, as the funding provided does not fully cover all program costs.

On April 12, 2018, the Ministry directed Stewardship Ontario to wind up the MHSW Program to enable the transition of hazardous or special materials to IPR under the RRCEA. The operation of the current MHSW Program was proposed to wind-up on June 30, 2021 and be replaced with a new IPR regulation on July 1, 2021.

On February 22, 2021, the Ministry released the draft regulation on the transition of designated materials in the current MHSW program to IPR. The draft regulation stated that, on July 1, 2021, the new producer responsibility model for Hazardous and Special Products (HSP) was to come into full effect in order to manage all materials addressed by the current MHSW Program.

Upon reviewing the draft regulation, it is staff's opinion that the Province is striving to standardize the collection and disposal of hazardous waste and special products across the province, however - they do so in a way that ignores the multitude of challenges municipalities face on an individual level. Specifically, the draft regulation poses the following challenges and concerns from the City's perspective:

- There is little-to-no expansion of the designated materials collected, meaning there will be two streams of HSP – those covered under the IPR model and those excluded, with the latter items becoming the responsibility of municipalities to manage. There is potential to work with producers to collect at one location

(rather than operating two separate systems), however - this is not addressed explicitly in the draft.

- Although the City could benefit from permanent collection/disposal sites, there are caveats in the regulation that allow producers to lower the number of sites required to collect HSP.

- There are no requirements to consider population density or accessibility for the location of collection/disposal sites, which could limit the effectiveness of these sites and prove frustrating to residents, especially in Ottawa since the City has such broad geographical boundaries.

- There is no indication of when or how the regulation might be expanded in the future. This ultimately leaves municipalities with a "status quo" scenario and any expansion and associated costs will fall to the municipalities.

Staff have been actively engaging with their counterparts in surrounding municipalities, the Association of Municipalities of Ontario (AMO) and the Ministry to further understand the intent of the regulation. As well, staff hosted four (4) briefing sessions with Members of Council between March 17 and March 22, 2021 to provide an overview of the draft regulation and to solicit feedback and comments on the draft regulation. Staff then worked with the Solid Waste Master Plan's Council Sponsors Group to validate the comments in advance of their submission to the Ministry on March 28, 2021.

Since the submission of these comments, the Ministry provided a new direction in a letter issued on April 29, 2021, indicating that the transition has been delayed to October 1, 2021 due to the continued delay in the release of the final regulation. On June 8, 2021, the HSP regulation was released by the province, which will be reviewed by staff in order to provide members of Council with an update on the final requirements, and any known plans for a successful transition.

Blue Bin Program

Ontario's Blue Bin Program is set to transition to IPR over a three-year period between 2023 and 2025. This transition will make producers responsible for collecting and

managing Ottawa's Blue and Black Bin materials. On October 19, 2020, the Ministry released draft regulation on this transition, with Ottawa expecting to transition by mid-2023.

At a high-level, the proposed draft regulation for the transition of the Blue Bin to IPR included the following key elements:

- Accepted Materials
    - Identifies Blue Bin materials as designated products, packaging, single-use packaging-like products and single-use food and beverage service products made from paper, metal, glass, plastic, or any combination of these materials.
    - Expands the scope of Blue Bin materials collected and managed across the province.
- Accessible and Convenient Services
    - Designated Blue Bin materials would be consistent across the entire province.
    - Producers would have to collect blue Bin materials from residences, facilities, parks and some public spaces across Ontario.
- Diversion Performance
    - Producers would have to achieve some of the highest diversion targets in North America.
- Province-Wide Promotion and Education
    - Producers would provide promotion and education materials to increase consumer knowledge and awareness.
- Verifiable Data on Supply and Diversion

    - Producers, service providers and other applicable persons would register, report, keep records and provide audited data.

- Enforcement for Clear Outcomes

    - The Resource Productivity and Recovery Authority (the Authority) would provide third-party oversight of outcomes.

Despite the many positive aspects of the draft regulation, there are a number of items that staff have identified as concerning or requiring further clarification. For example, the draft regulation indicates that items may be added to the list of accepted materials in the future, however – details on how this will be done remain unclear. As well, the Province has indicated its intention is for producers to be responsible for designated products and packaging, including compostable materials; however, the proposed draft regulation currently exempts compostable materials from collection and management requirements to allow more time to gather information on compostable materials (to be achieved through reporting requirements for producers of these materials).

Following staff's review of the draft regulation, a total of five briefing sessions were held with members of Council in November 2020 to provide an overview of the draft regulation, to outline what is known and unknown, to highlight anticipated decisions for Council to make, to detail ongoing staff efforts to support and inform Council decision making, and to outline anticipated next steps. Staff used these sessions as a forum to gather comments and feedback from Members of Council, which ultimately helped inform staff's submission to the Ministry on December 3, 2020.

Staff continued to be actively engaged on the Provincial shift of the Blue Bin Program IPR while awaiting the final regulation that was released on June 3, 2021. Given the recent release, staff are reviewing the requirements stipulated in the final regulation to determine how they will impact the City of Ottawa's integrated waste management processes. Once reviewed, staff have committed to report back to Council to highlight any notable changes or updates between the final and draft regulations, as well as any impacts to previously communicated next steps that may be necessary as a result of the

final regulation, including what items may or may not be Ottawa's responsibility to manage and divert in the short-term future.

As detailed below in the body of this report, a number of options identified to meet the City's future waste needs will be impacted by IPR. Fortunately, the master planning process approved by Council in June 2019 is flexible and adaptable to waste stream material changes when the Province completes this transition. Furthermore, the establishment of a separate component project to the Waste Plan and a dedicated project team that will oversee the IPR transition for the City will be instrumental in undertaking more analysis to help support the many decisions required by Council as the province transitions to IPR. The work on this project, including key decisions made on the City's future involvement in the programs transitioning to IPR, will support and integrate with waste planning efforts.

Ontario's Food and Organics Policy Statement

On April 30, 2018, the Province issued a Food and Organics Waste Policy Statement under Section 11 of the *Resource Recovery and Circular Economy Act, 2016*, which provides policy direction to provincial ministries, municipalities, industrial, commercial and institutional establishments, and the waste management sector to increase waste reduction and resource recovery of food and organic waste. The policy statement focuses on preventing, reducing, rescuing surplus food, and recovering food and organic waste and supports an Ontario Food Recovery Hierarchy consisting of the following steps in order of importance:

- Reduce: prevent or reduce food and organic waste at the source.
- Feed people: safely rescue and redirect surplus food before it becomes waste.
- Recover Resources: recover food and organic waste to develop end-products for a beneficial use.

On September 30, 2020, the Province issued proposed amendments to the Food and Organic Waste Policy Statement and allowed stakeholders the opportunity to provide feedback on the proposed amendments. The proposed amendments clarify and expand

the categories of food and organic waste and update direction on the management of compostable products and packaging.

The main policy directions provided by the statement that are relevant to City operations include:

- The target for municipalities that already provide curbside collection of source-separated food and organic waste is 70 per cent waste reduction and resource recovery of food and organic waste generated by single-family dwellings in urban settlement areas by 2023. The target for multi-residential buildings is 50 per cent waste reduction and resource recovery of food and organic waste generated at the building by 2025.
    - Of note, pet food waste, compostable coffee pods, soiled paper food packaging and certified compostable bags are included under the category of food and organic waste. Municipalities are also encouraged to enhance their collection programs to include the management of harder types of organic waste such as diapers.
- Targets can be achieved through the prevention or reduction of food and organic waste, the safe rescue and redirection of surplus food and the recovery of food and organic waste. They cannot be achieved through using food and organic waste to generate alternative fuels or energy, for landfill cover or directing discharge of waste into a municipal sewer.
- The statement directs municipalities to assist consumers in preventing and reducing waste by stating that they shall implement their own promotion and education programs aimed at preventing food waste.

Generally, staff were supportive of the original policy statement and proposed amendments but did have a concern with the notion of the Province *encouraging* municipalities to accept harder-to-manage organic waste, such as diapers. Diapers, specifically, are problematic to manage due to difficulties in separating the compostable material from the plastic, plus most of the material is non-compostable and will end up landfilled.

Additionally, as previously discussed during deliberations on the Green Bin Program enhancements in March 2018, the acceptance of compostable coffee pods and bags continues to be problematic for many organics processing facilities across Ontario, including the facility which processes Ottawa's source separated organics. Convertus (formerly Renewi; formerly Orgaworld) cannot process the majority of compostable products, such as coffee pods, within current organic waste processing times, as the facility was designed to process food scraps and leaf and yard waste, which break down much quicker than compostable products and packaging. Existing standards and certifications for biodegradable and compostable packaging are not aligned with existing infrastructure and available technologies that are designed to compost food scraps and yard waste. These issues remain unresolved.

On November 13, 2020, staff submitted a letter to the Ministry of the Environment, Conservation and Parks on behalf of the City of Ottawa, noting the above comments and concerns. Comments prepared by staff were in alignment with submissions to the Province by M3RC, the Ontario Waste Management Association and Convertus. No further information on the policy direction to increase waste reduction and recourse recovery of food and organic waste has been provided from the Province.

Provincial Excess Soils Management Regulation

In December 2019, MECP released a new regulation under the *Environmental Protection Act*, titled "On-Site and Excess Soil Management" to support improved management of excess construction soil.

This regulation is a key step to providing clear rules on managing and reusing excess soil. New risk-based standards facilitate local beneficial reuse which in turn is expected to reduce greenhouse gas emissions from soil transportation, while ensuring strong protection of human health and the environment.

Key elements of the regulation include:

- clear excess soil reuse rules and clarity around when excess soil is not a waste;

- clarifies when excess soil can be reused and replaces or simplifies waste-related approvals with regulatory rules for low-risk soil management activities;
- enhance reuse through improved reuse planning for larger (greater than 2000 cubic meters) and riskier sites (e.g. gas stations and industrial sites), including tracking, registration, an assessment of past uses, and if necessary, soil sampling and characterization;
- greater assurance that reuse sites are not receiving waste soil and requiring larger reuse sites (10,000 cubic meters) to register and develop procedures to track and inspect soil received; and,
- restrictions on landfilling clean soil that is suitable for reuse at a sensitive site (e.g., school, agricultural site).

The new regulation is being phased in over time, as follows:

- January 1, 2021: reuse rules, including risk-based standards, waste designation and approvals
- January 1, 2022: testing, tracking and registration
- January 1, 2025: restrictions on landfilling soils
- grandfathering provisions - applicable from January 1, 2021 to January 1, 2026, to recognize where work to be done is already stipulated in a contract

The expected outcomes of the new regulation and subsequent changes to the processes at the Trail Waste Facility Landfill will provide transparency and accountability around the reuse of excess soils, the testing, tracking and documentation of soil movement. It will also provide those responsible for managing excess soil, such as generators, haulers and receivers the tools needed to address concerns about illegal relocation of soil, therefore providing greater certainty of environmental protection through flexible, risk-based rules and soil reuse standards.

Bill 197: COVID-19 Economic Recovery Act

On July 21, 2020, Bill 197, *COVID-19 Economic Recovery Act, 2020* received Royal Assent at Queens Park. Schedule 6 to Bill 197 adds a new section (6.0.1) to the *Environmental Assessment Act* (EAA). Section 6.0.1 requires all landfill proponents to obtain municipal support for the establishment of a landfill. The requirement to obtain "municipal support" applies not only to each local municipality in which the landfilling site will be situated but also to adjacent municipalities, where an adjacent municipality has allowed residential land use within 3.5 km of the proposed landfilling site. As a result of this, neighbouring municipalities could oppose a landfill development even if the host municipality supports it. Further, this could potentially impede a municipality from being able to manage its waste resources within its own municipal boundaries, and may pose challenges for the City when the current capacity of the Trail Road landfill is exhausted and the City needs to find alternative local residual management capacity.

The City of Ottawa has been actively engaged on this and supported the Regional Public Works Commissioners of Ontario's (RPWCO) submission of a memo expressing concerns with this amendment on April 12, 2021, to the RPWCO Board. Appended to said memo was a presentation from the Ontario Waste Management Association (OWMA) which states that a simple amendment to Schedule 6 in Bill 197 that removes the reference to adjacent municipalities while maintaining the ultimate right of host municipalities to have the final say would likely mitigate Ontario municipality's concerns with the Schedule.

COVID-19: Preliminary Impacts on Waste Management

Since the beginning of the COVID-19 global pandemic, there has been a notable shift in residual waste and recyclable materials from the IC&I sector to the residential sector as a result of many individuals working from home. To-date, the City has seen an increase of 10 per cent in total waste collected from 2020-2021, compared to 2019-2020. Further, a survey completed by Policy Integrity Consulting, a consulting group that has contributed to waste projects for all levels of government in Canada, reported a 5.31 per cent increase in total waste generated in 13 Ontario municipalities (including Ottawa) between the weeks of March 9 to April 27, 2020 when compared to that same timeframe in 2019.

Increases can likely be attributed to the Province's numerous "Stay-at-Home" orders and the recommendation for residents to work from home as much as possible, if their work allows them to do so. There has also been an increase in the number of children participating in virtual schooling, including the time periods when schools closed entirely to in-person learning. With more people spending more time in their homes, comes with it more waste being produced from the residential sector. Waste from the IC&I sector (office buildings, schools) which is often sent to privately managed landfills and processing facilities, is now being sent to the Trail Waste Facility Landfill. It is unknown whether the trend of working from home will continue once the pandemic is over and whether the City will be permanently dealing with additional quantities and types of waste in the future, making this an area the City will have to continually monitor and adapt to.

There has also been an increase in reliance on certain types of single-use plastics (grocery bags, coffee cups) and Personal Protective Equipment (masks, gloves, wipes and disinfectant bottles) due to the nature of this global pandemic which has likely reversed some of the pre-COVID progress towards reducing the dependence on single-use items. According to the COVID-19 Impacts on the Waste Sector report, completed by the IFC; World Bank Group, the volume of medical waste is estimated to have increased by approximately 40 per cent, thereby increasing hazardous waste types.

At this time, the long-term effects and patterns of waste disposal and management are not known. In recognizing the ever-changing nature of waste, staff designed this master planning process, approved by Council through the Roadmap report in 2019, to be adaptable and responsive to unanticipated changes, including significant events such as the one the City and world is currently experiencing. The Waste Plan will consider and reflect the vision statement, guiding principles, goals and objectives of Ottawa's waste system based on the most recent available information, with any supplemental changes or developments in the years that follow being captured as part of the 5-year refresh.

City Projects and Plans Underway in Support of the Solid Waste Master Plan

Solid Waste staff continue to work on various component projects and initiatives that will either supplement or integrate with the Waste Plan.

- **Parks Waste Diversion Pilot**: This initiative is currently underway with approximately 33 parks of different sizes and locations participating across the City. Between 2017 and 2020, Solid Waste Services conducted three pilot programs for Recycling in Parks in order to inform the best way to roll out future comprehensive recycling programs in City Parks. In 2021, staff added 23 new parks to this waste diversion pilot based on lessons learned from past years. Staff will report to Council on the results of the expanded Pilot in Q4 2022.

- **Transition to Individual Producer Responsibility (IPR):** As detailed above, a dedicated project team has been established and is actively planning for the Provincial shift to IPR. With the recent release of both the Blue Bin transition and the Hazardous and Special Products (HSP) regulations on June 3 and 8, 2021, respectively, staff are reviewing the requirements to understand the implications on the City's waste collection, processing and planning. The schedule released as part of the Blue Bin regulation indicates that the City's transition period will begin on July 1, 2023. Further, the wind up for the HSP transition, initially expected to transition on July 1, 2021, has been confirmed by the final regulation to take place on October 1, 2021.

- **Residential Curbside Collection Contracts:** Along with this report, Council will consider the Solid Waste Services 2023 Residential Collection Contract Procurement Strategy report which outlines options and staff's recommendation for the next term of the City's residential curbside collection contracts, which are set to expire on June 4, 2023. Given this expiry date, the extensive lead time required to procure new collection equipment prior to implementing any new contract and the recent release of the Provincial regulation for the Blue Bin Program transition to IPR, staff are recommending that the City enter into a two-year sole-source contract with the City's existing service providers. This will allow the City time to understand and plan for the shift to IPR and reduces the risk of service disruptions to Ottawa's residents. Pending Council approval of this

approach, the short-term curbside collection contracts will be in effect from June 5, 2023 – June 8, 2025.

- **Curbside Diversion Options**: This initiative is currently underway and will be complete by Q1 2022. Recognizing that it can take up to two years to implement a new diversion option after Council's approval, staff are advancing work on this component project to ensure the timely implementation of a new policy option, should Council decide to do so. Advancing work on this aligns with Council's Strategic Priorities, including its interest to support increasing waste diversion from the Trail Waste Facility Landfill and work towards achieving targets set through Council's Climate Change Master Plan and Energy Evolution strategy. Broad based community and stakeholder engagement on Curbside Diversion Options will commence next month and will take place throughout the summer. A recommendation will be presented to Council for consideration in Q1 2022.

- **Multi-Residential Waste Diversion Strategy**: This initiative is currently underway and is expected to be complete and brought forward for Council consideration in Q1 2022. The strategy will provide recommendations on how to increase waste diversion in the multi-residential sector by reviewing, enhancing and developing pilots, policies and initiatives designed to increase participation and tenant engagement in programs offered by the City. A detailed survey of municipal best practices and emerging trends to help inform the development of the strategy was conducted throughout 2020 and into 2021 with further community and stakeholder engagement planned for Q3 2021.

- **Future Organics Processing Capacity (Post-2030):** This initiative will now begin later this year, with a new estimated completion by the end of 2023. This project will involve the development of a study that will analyze the various organics processing and treatment technology options best suited to meet Ottawa's needs beyond its existing contract with Convertus (end of contract 2030); operating and capital costs; climate pollutants and other environmental impacts of the various technology options; a review of markets for end-products; a review of existing local organics processing capacity; various procurement

approaches (e.g., contract services; design, build and operate; P3; etc.); the system capacity requirements to process organic waste based on future organics projections; and, the ideal processing locations based on future system needs. The study will also take into consideration other corporate projects that will have an influence on the City's future organics processing and treatment technology needs, including the Climate Change Master Plan, Energy Evolution the Biogas Optimization Study.

- **Green Bin Program Products Acceptance Policy**: This initiative is currently on hold pending staff's review of the recently released final regulation for the Provincial transition of Blue Bin Program to IPR. The regulation includes compostable packaging, packaging-like products and disposable compostable products. Once a thorough review of the final regulation is completed, the City will have a clearer understanding of how these materials will be managed by producers through the Provincial Blue Bin Program. The policy framework development, in response to Motion ECPC 20/1 approved by Council which directed staff to "investigate the feasibility of expanding Ottawa's Green Bin Program to accept new items", is anticipated to begin once the final regulation has been reviewed, pending resource capacity.

- **Elimination of Single-Use and Foamed Plastics in City Programs and Services**: Work on the Elimination of Single-Use and Foamed Plastics in City Programs and Services initiative is currently on hold due to the ongoing COVID-19 global pandemic and the requirement for cross-departmental collaboration and necessary resource support. To date, an internal waste audit has been completed which sampled various facility types across the City of Ottawa. The audit examined categories specifically relating to single-use plastic items and foamed plastic items to understand what types of problematic single-use plastic products the City is most often seeing in its waste stream. Next steps include, at a high-level, bringing together a cross-functional team of subject matter experts from various City departments to conduct an inventory of single-use plastic and foamed plastic items being used in City operations, an impact assessment for instances where single-use items are no longer available, and a scan of whether

environmentally available alternatives exist, and if so - a financial analysis of the cost differential, and a review of existing supply contracts that could be affected if certain single-use items are banned from City facilities. This exercise will also include a review of health and safety regulations and an evaluation of the needs for persons with disabilities.

- **Waste Diversion at Special Events By-law Review**: Staff received direction from Council to consult on requiring recycling and organics waste diversion at all special events as a part of the Special Event Bylaw Review. Consultation with event organizers started in Q1 2020, but has since been put on hold due to the ongoing COVID-19 global pandemic and the shut-down of special events due to pandemic restrictions. It is unknown at this time when this by-law review will resume.

The decision to undertake these component projects in advance of finalizing the Waste Plan is largely a result of their importance to waste management in Ottawa, as well as their ability to feed into and complement the future Waste Plan, rather than compete with it. In addition to these initiatives, the City has, or is in the process, of developing other long-term plans and strategies that need to be considered through the development of the Waste Plan. Staff have worked with colleagues across all City departments to ensure the Waste Plan has influenced and informed all initiatives impacting Ottawa's waste management system. Staff have also worked to ensure the Waste Plan considers aspects of other City plans which may be impacted by its implementation.

Together, through the development and completion of these plans, strategies, and initiatives, Ottawa's waste management efforts will positively progress, while allowing for a robust solid waste planning process to be undertaken that includes extensive public engagement and consultation as a cornerstone of the development process.

DISCUSSION

The purpose of this report is to seek Council's approval of the Waste Plan's proposed vision statement, guiding principles and goals which were developed in collaboration

with the Waste Plan's Council Sponsors Group, Stakeholder Sounding Board, the general public and other key stakeholders. Staff are seeking Council's approval of these strategic elements of the Waste Plan at this time in order to ensure that Council's strategic priorities are defined to guide the work to follow in the rest of Phase 2 and Phase 3. This will enable staff to develop a draft Waste Plan for Council's consideration early next year that will align and work to achieve Council's direction and vision for the future of waste management over the next 30 years.

Additionally, this report provides members of Council with an update on progress to date in Phase 2 of the Waste Plan's development. This includes key technical information relating to the City's future waste management needs as identified by the project's technical consulting team, the long list of high-level options available to meet these needs, and the triple-bottom-line technical evaluation process that considers key Council approved lenses, including a climate impact lens and an equity and inclusion lens, that will be used to evaluate and short list the options for community and stakeholder engagement this fall.

Recommendation #1: Approve the vision statement, guiding principles and goals of the Solid Waste Master Plan as described in this report and outlined in supporting Document 1.

Proposed Vision Statement, Guiding Principles and Goals of the Solid Waste Master Plan

The Waste Plan's vision statement will define where Council wants to be in 30 years with regards to waste management and diversion and will serve as the inspiration and framework for this strategic waste planning process. Guiding principles will outline beliefs, define what is important for success, and will guide staff throughout the development and implementation of the Waste Plan. Goals will define the outcomes that Council wants the Waste Plan to achieve and help transition the vision statement from a broad statement to a more specific direction.

In developing the proposed vision statement, guiding principles and goals that Council will consider to set the strategic framework for the City's Waste Plan over the next 30

years, staff worked in collaboration with the Council Sponsors Group, the Waste Plan's Stakeholder Sounding Board, the general public and stakeholders during Engagement Series 1 to develop the proposal in front of Council today. This approach was undertaken to ensure that the strategic framework and direction for the Waste Plan is reflective of community beliefs and values. A fulsome report on engagement activities, including the results of feedback received during Engagement Series 1, are outlined in the 'As We Heard It' report which is appended to this report as Document 1.

The proposed vision statement, guiding principles and goals were designed to reflect recent and future trends in the waste management industry, as identified through the technical work undertaken in Phase 1, which are transforming how solid waste is managed into the future. They were also designed to reflect and consider new City policies and strategies that are influencing the Waste Plan's priorities. This includes Ottawa City Council's declaration of a climate emergency and recognition of the important role the future integrated waste management system will have in helping achieve Council's climate change goals, and a focus on local economic development, supporting healthy, inclusive and equitable communities and services.

Engagement Series 1 – Vision, Guiding Principles and Goals

Engagement Series 1 took place between the spring and fall of 2020. The key objectives of which were to:

- Gain input from residents and key stakeholders into the development of a draft vision statement, guiding principles and goals that will provide a framework for the Waste Plan;
- Understand public perception and overall satisfaction with the current state and desired future state of solid waste services in Ottawa;
- Solicit ideas from residents and stakeholders to develop a long list of policy and program ideas and solutions (referred to as "options") that could be considered in the Waste Plan;
- Seek feedback from key stakeholders on the evaluation tool that will be used to assess and prioritize these options; and,

- Provide information to the public on what work has been undertaken to date in the Waste Plan's development and how their feedback will be incorporated into its development.

In order to reach and solicit feedback from a broad range of residents and stakeholders, staff utilized a variety of engagement tactics and opportunities so that residents and stakeholders could choose their preferred means to participate. In addition, a robust communications program was implemented to reach a variety of residents and stakeholders to encourage participation in the engagement series and to educate them on the development of the Waste Plan. Both the engagement series tactics and communications campaign were developed in consultation with the Council Sponsors Group who provided valuable input to ensure the greatest reach and participation from a broad range of residents and stakeholders.

Communications activities included:

- Creation of a project specific Engage Ottawa micro website (www.engage.ottawa.ca/solid-waste-master-plan);
- Newsletter;
- Backgrounders and technical memos;
- Short videos explaining the importance of the Waste Plan;
- Feature stories posted on the City's website;
- Social media posts on Facebook; Twitter; LinkedIn; Instagram;
- Infographics;
- Advertising;
- Earned media;
- News release/PSA;
- Councillor packages; and,
- Web banner on ottawa.ca.

Furthermore, in applying the City's Equity and Inclusion Lens, staff developed connections with several groups that are at risk of exclusion in order to disseminate

information about engagement opportunities and encourage individuals to participate in online workshops and focus groups.

Engagement tactics included:

- Key stakeholder group vision workshops with the Council Sponsors Group (CSG), City Champions Group (CCG), Stakeholder Sounding Board (SSB), and key Solid Waste Services staff;
- A guiding principles survey sent to members of the SSB, CSG, and Solid Waste Services staff;
- Online forums and ideation exercises hosted on Engage Ottawa that asked specific questions related to vision and guiding principles ideas (46 participants);
- Online dialogue sessions with residents and stakeholders (96 participants);
- An online survey hosted on Engage Ottawa (762 participants);
- An internal City of Ottawa staff online survey (1,800 participants);
- Four virtual focus groups with a total of 16 representatives participating from equity-seeking groups (notably, with organizations representing older adults, youth, persons with disabilities, and immigrants);
- Three key informant interviews with representatives of equity-seeking groups;
- Three dialogue sessions with Solid Waste Services staff; and,
- An internal survey completed by frontline Solid Waste Services staff.

Throughout Engagement Series 1, the project team received comments from over 2,800 participants, whether through surveys, online meetings, emails, and comments on Engage Ottawa. Breaking this down further, staff heard from over 950 residents and stakeholders and over 1,850 internal staff. Most of the comments from internal staff

were directed towards waste management improvements within City facilities and operations which were used to develop the long list of options specific to opportunities for the City to lead by example in managing waste generated in City facilities and through City operations, as described later in this report.

The online survey conducted on Engage Ottawa solicited the greatest number of comments from the public, with 762 people completing, and participants represented a cross section of residents living in urban, suburban and rural areas. According to socio-demographic data published by Ottawa Public Health, in 2017, 54 per cent of Ottawa's population lived in urban areas, 36 per cent in suburban centres and 10 per cent in rural areas. Of participants who completed the Engage Ottawa survey, 65 per cent of participants live in urban wards, 27 per cent live in suburban wards, and eight per cent live in rural wards. Almost one third of participants belong to a visible minority group and over 25 per cent were born outside of Canada.

The summary below presents the high-level compilation of ideas and comments specific to developing the proposed vision statement, guiding principles and goals for the Waste Plan which were obtained from residents and stakeholders during Engagement Series 1 while full details on Engagement Series 1 results are outlined in the 'As We Heard It' report which is appended to this report as Document 1. Because a mix of quantitative and qualitative techniques were used to solicit feedback, the summary is being presented as high-level themes which were stated most often by residents and stakeholders in the approximate order of frequency. The use of the expression "most participants" represents a strong support or an impression of near unanimity for an idea. Similarly, the term "many" indicates predominance or support by a large number of respondents, while the expression "several" indicates a frequent but not predominant theme. The expression "some" represents a notable but minority view, while "a few" represents an even smaller minority.

1. Participants generally wanted the City to adopt very high waste diversion rates (80 per cent or higher) with several calling for a "zero waste" target.
2. Many participants believed that behavioral and societal change would be required to meet higher diversion rates, and that the City needed to focus on education and incentives to encourage such changes. Others called for more regulations, including making participation in diversion programs mandatory, and that existing rules needed to be better enforced, such as issuing more fines, refusing to collect non-compliant waste, etc.
3. Many comments related to the need to make it easier for people to divert their waste. Suggestions included providing more waste diversion options, making it easier to understand how to divert, and introducing single-stream recycling.
4. Several participants believed that the City's focus needed to be on waste reduction rather than diversion, and that the City should enact bans on single-use plastics, encourage a circular economy and green procurement, and collaborate with other levels of government to adopt an Individual Producer Responsibility framework to restrict excessive packaging.
5. With respect to multi-residential buildings, several participants noted that processes needed to be in place to make it easier for residents to divert their waste, such as replacing garbage chutes with compost chutes. There were a few recommendations that the City should force building owners to construct or retrofit buildings to make it easier for occupants to divert their waste.
6. Some participants noted that the City should focus on waste as a resource and should investigate new technologies to use waste to generate renewable energy. In this vein, there were mixed opinions about the environmental benefits of waste incineration.

As part of staff's commitment to Council to ensure this Waste Plan is built in partnership with the community, following the broad based community engagement to solicit ideas and feedback on the vision and future state of waste management in the city over the next 30 years, the feedback was used to draft a list of options for vision statements, guiding principles and goals for the Waste Plan. The drafts were presented to the Council Sponsor's group, City Champions Group and Stakeholder Sounding Board in the fall of 2020 for final input and validation. The draft vision statement, guiding principles and goals were further refined to reflect input from these key stakeholder

groups before being shared again with the Council Sponsors Group for final validation in late 2020.

Staff are recommending Council approve the following long-term strategic vision statement, guiding principles and goals for the Waste Plan, which reflect the technical work undertaken as part of Phase 1 and feedback and priorities shared by residents and stakeholders through Engagement Series 1:

Vision:

> ***"A Zero Waste Ottawa achieved through progressive, collective and innovative action."***

Guiding Principles:

- **Honouring the 5Rs waste management hierarchy** by prioritizing options that support waste reduction, reuse, recycling and recovery so that minimal residual waste is sent to landfill.
- **Changing community values** so that residents and stakeholders view waste as a resource, share the responsibility of waste management and play a role in achieving the goals of the Solid Waste Master Plan.
- **Protecting the environment for future generations to come** by mitigating the environmental impacts of managing waste.
- **Leading by example** when managing waste as a corporation by incorporating the 5Rs waste management hierarchy across the City's entire operations.
- **Adopting circular economy principles** to minimize the use of raw materials, recognize waste as a resource, maximize the value of waste and keep products and materials in use, and advocate for industry and other levels of government to take action that supports the transition to this economic model.
- **Embracing innovation** and being open to opportunities to adopt to emerging technologies, policies and industry trends.

- **Keeping waste local** by treating residential waste within the City's boundaries, wherever operationally and economically feasible.

- **Utilizing the triple bottom line** to balance environmental sustainability, City and community desires, and fiscal responsibility.

Goals:

1. Extend the life of the Trail Waste Facility Landfill significantly beyond its existing anticipated end of life to eliminate the need for a new residential landfill.
2. Reduce the amount of waste generated by residents and the City as a corporation.
3. Maximize the reuse of waste generated by residents and the City as a corporation.
4. Maximize the recycling of waste generated by residents and the City as a corporation.
5. Maximize the recovery of materials and energy from the remaining waste stream.
6. Aspire to achieve 100 per cent GHG emission reductions produced by the City's integrated waste management system.
7. Support, influence and partner with the Industrial, Commercial and Institutional (IC&I) sector, including multi-residential, small businesses, the agriculture sector, and the Construction & Demolition sector, to reduce, reuse and divert waste in the broader community.
8. Maximize participation by enhancing the accessibility, convenience, consistency and affordability of waste management programs and services.
9. Maximize cost containment, revenue generation and the efficient use of waste management resources to help minimize costs to taxpayers.
10. Make sustainable waste management design an essential part of the City's planning process.
11. Collaborate with external stakeholders, including industry and other levels of government, to advance waste management practices.

Zero Waste, as defined by the Zero Waste International Alliance is:

> *"'a goal that is both pragmatic and visionary, to guide people to emulate sustainable natural cycles, where all discarded materials are resources for others to use." Zero Waste means designing and managing products and processes to reduce the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all*

discharges to land, water and air that may be a threat to planetary, human, animal or plant health."

Adopting a strategic vision for Zero Waste would seek to guide people in changing their lifestyles and practices over the long term by maximizing recycling, minimizing waste, reducing consumption and sending next to no waste to landfill. The notion of Zero Waste is recognized in the industry as aspirational, a philosophy and a call to action, rather than an absolute target. It is generally recognized by policy makers that achieving Zero Waste cannot be achieved by a municipality on its own, but requires a concerted effort and coordination between all levels of government as well as industry, businesses and consumers. At the municipal level, a Zero Waste vision will require the community and the City to rethink the traditional approach of "managing" waste to creating and supporting opportunities to work towards "eliminating" waste by recognizing that materials traditionally discarded of and sent to landfill are in fact valuable resources.

In adopting a Zero Waste vision, the City would be joining other progressive municipalities in Canada, such as Metro Vancouver, Toronto, Guelph, Montreal; throughout North America, such as Los Angeles (USA), Boston (USA), San Francisco (USA), Washington (USA) and New York City (USA); and more broadly across the world, such as London (England), Sydney (Australia), Paris (France), Dubai (EAU), Copenhagen (Denmark), Tel Aviv (Israel) and Tokyo (Japan). Embracing a Zero Waste vision would also align with provincial and federal direction on waste management as they collectively pursue rethinking and implementing a more sustainable approach to managing waste into the future.

Further to adopting a vision of becoming a Zero Waste city, adopting "circular economy principles" as a fundamental guiding principle also emphasizes the role the City can play in supporting a local paradigm shift from a linear waste management approach of Make-Take-Dispose to a new way of managing waste involving a circular approach: Make – Take – Return, which supports both provincial, federal and early industry efforts. A circular economy emphasizes minimization, reuse and recycling to ensure that unwanted materials destined for disposal become feedstock for manufacturing and

repurposed for reuse. Thus, reducing the reliance on raw materials, decoupling economic activity from the consumption of finite resources, which also creates opportunities to reduce greenhouse gas emissions through re-use, re-manufacturing and recycling.

According to the Circularity Gap Report 2019 released by Circle Economy, a non-profit organization working to accelerate the transition to a circular economy, climate change and material use are closely linked. Circle Economy calculates that 62 per cent of global greenhouse gas emissions (excluding those from land use and forestry) are released during the extraction, processing and manufacturing of goods to serve society's needs; with the remaining 38 per cent emitted in the delivery and use of products and services. Embracing circular economic principles as core principles guiding work under the Waste Plan also aligns with Council's climate change reduction efforts.

According to the Ellen MacArthur Foundation, a UK registered charity which promotes the circular economy, city governments have a unique role to play in enabling the shift to a circular economy because, "*Their proximity to the everyday concerns and needs of urban citizens and businesses, and the policy levers they have at their disposal gives them this key role. City governments see, experience, and often manage the negative consequences of the current 'take-make-waste' linear economy… The challenges of a take-make-waste linear economy concentrate in cities but cities are also centres for change. Cities can catalyze wider system transformation".*

Similar to working towards a Zero Waste future, the success of shifting towards a circular economy, by its nature, cannot be done by municipalities alone. The shift also depends on partnerships between various sectors and throughout supply chains. While some businesses are accelerating their efforts towards developing a circular economy, there is broad recognition within the industry that in order to accelerate the shift required to make the circular economy a reality, governments at all levels will need to consider regulatory changes within their legislative toolkits to help lead and drive the level of required change.

With the approval of the Waste Plan's proposed vision statement, guiding principles and goals, Council will set the strategic framework for the City's Waste Plan, and guide how

Ottawa manages and diverts waste over the next 30 years. This approval will allow staff to advance to the options evaluation process and set a baseline for what options may be considered for the Waste Plan through the planned 5-year refreshes. Staff are confident that the proposed vision statement, guiding principles and goals align with this Term of Council's strategic priorities and reflect City staff, stakeholder and residents' beliefs and values based on the extensive consultations done in Engagement Series 1.

Recommendation #2: Receive the Solid Waste Master Plan Phase 2 report and supporting documents relating to the City of Ottawa's long-term waste management needs, the high level long list of options to meet future needs, and the evaluation process to evaluate the options, attached as Document 2 through Document 4, for information.

Long-Term Waste Management Needs

With the thorough analysis of the City's current waste system completed in Phase 1, work on identifying the City's future long-term waste management needs started in Phase 2, with the goal of identifying the anticipated short-, medium- and long-term waste management needs for the next 30 years.

To do this, the City's technical consulting team conducted a comprehensive needs assessment analysis. This work included the development of long-term waste projections that estimate the future quantities of waste that the City will need to manage over the 30-year life of the Waste Plan as the city's population continues to grow. The needs analysis also took into consideration the changing legislative landscape affecting waste management, policies and programs influencing waste management in the city of Ottawa, as well as best practices affecting solid waste management as identified in Phase 1 of the Waste Plan's development.

The needs were then aligned with the Waste Plan's proposed vision statement, guiding principles and goals, as described earlier in this report, then compared to the status quo system to identify gaps, challenges and opportunities within the existing system, and key risks and considerations that are likely to impact long-term waste management by the City and need to be considered as the Waste Plan is developed.

The fulsome technical memorandum on the long-term waste management needs of the City of Ottawa, including future waste projections and needs analysis, which are summarized below, is appended to this report as Document 2.

Waste Projections

Understanding how the City's population and waste management needs may change over the next 30 years plays an integral role in ensuring the City can make effective and efficient decisions about waste management programs and services, and plan for the proper supporting infrastructure, programs and contracts into the future.

According to the City's new draft Official Plan, by 2046 the City of Ottawa's population is expected to surpass 1.4 million people. The City's increasing population, coupled with changing waste composition and industry trends, all play a role in impacting the quantities and composition of waste requiring management by the City over the term of the Waste Plan.

Waste projections were developed by the project's technical consulting team to identify the estimated tonnes that will require management by the City over the next 30 years to 2052 based on the status quo system. They were calculated using a statistical model that considered growth projections identified through the draft official plan and also considered economic trends. The projections were broken out by sector, which included single-family households, multi-residential buildings, City facilities and parks and public spaces. The projections were also modelled out by core system material streams, including household organic waste, leaf and yard waste, Blue Bin (glass metal and plastic), Black Bin (paper and cardboard), hazardous and special products, and residual waste (garbage and bulky items).

It is important to highlight that these projections are based on statistical analysis of available historical information and how that data can be modelled and projected into the future. There are many factors that affect waste generation, which include changes to household composition, how packaging may evolve in the future, how consumers will spend their money, changes in demographics, severe climate events, etc. It is not possible to speculate the impact of these factors on future waste generation with any

degree of accuracy and as such, the model can only be based on historical and current information. Of note is the slight decline in the projected per capita garbage generation rates, which are estimated at 0.125 tonnes per capita in 2020 to 0.114 tonnes per capita in 2052 for single family residents, representing a nine per cent decline, and similarly for the multi-residential sector, going from 0.254 tonnes per capita in 2020 to 0.229 tonnes per capita, a 10 per cent decline, in 2052. This slight decline is attributed to the combined effects of increasing household counts with decreasing employment rates. There are a number of factors that can contribute to this decline, however, it is anticipated that with the projected decline in employment rate numbers (projected to decline from 64.4 per cent in 2020 to 58.2 per cent in 2052) it is likely that decreasing consumer purchasing power causes less waste, including packaging, to be generated.

In addition, the waste projections are based on 2019 data and the current status quo programs and policies that were in place at this time. Impacts of future Individual Producer Responsibility programs are not considered. It will take time to fully understand the impact of Ontario's new Blue Box regulation (O. Reg. 391/21) and new Hazardous and Special Products regulation (O.Reg. 449/21) including their impacts to the City's future waste stream along with what the City's future role will be in the provision of collection of recycling and hazardous and special products in the future. Furthermore, the projections did not consider the impact of the ongoing COVID-19 pandemic. With many residents working and disposing of more waste at home instead of in the workplace, the City has experienced a shift in waste from the industrial, commercial and institutional sector to the residential sector. It is unclear if these trends experienced today are temporary or if they will be sustained once the pandemic ends.

The waste projections will require regular updating to consider new information as it becomes available. The industry best practice is every 5-years as part of a Waste Plan refresh cycle. Future updates will include updated economic indicators, consideration of the impacts of the proposed Individual Producer Responsibility legislation and the COVID-19 pandemic as the longer term impacts it may have on the City's integrated waste management system are more fully realized.

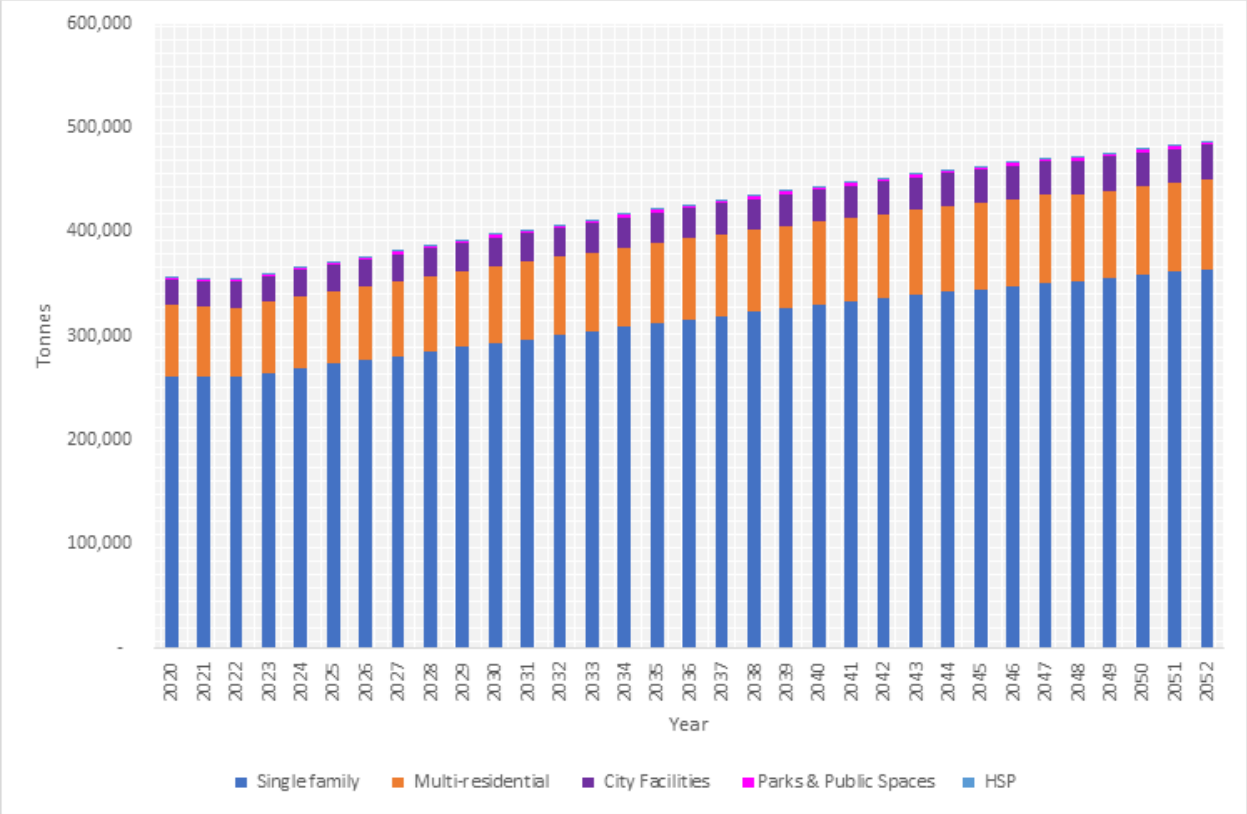
A detailed overview of the methodology used to develop the City's waste projections as well as the multiple variables affecting the projections can be found in appended to this report in Document 2.

Projected Tonnes of Waste by Sector

Total Amount of Waste Requiring Management by the City

Overall, it is projected that when combining single family households, multi-residential, City facilities and parks and public spaces, all four sectors will generate approximately 487,000 tonnes of waste in 2052. This represents a 37 per cent increase over the amount of waste requiring management by the City in 2020, based on the status quo.

Figure 2: Total Projected Annual Waste for Single Family Curbside Residential, Multi-Residential, City Facilitates and Parks and Public Spaces (2020 to 2052)



As is similar to today, the single family sector is projected to continue to generate the largest proportion of waste, followed by the multi-residential sector, City facilities, then parks and public spaces. By 2052:

- Single family households are projected to generate 364,500 tonnes of waste, representing a 39 per cent increase over 2020;
- Multi-residential units are projected to generate 86,000 tonnes of waste, representing a 26 per cent increase over 2020;
- City facilities are projected to generate 33,500 tonnes of waste, representing a 27 per cent increase over 2020; and,
- Parks and public spaces are projected to generate 2,500 tonnes of waste, representing a 45 per cent increase over 2020.

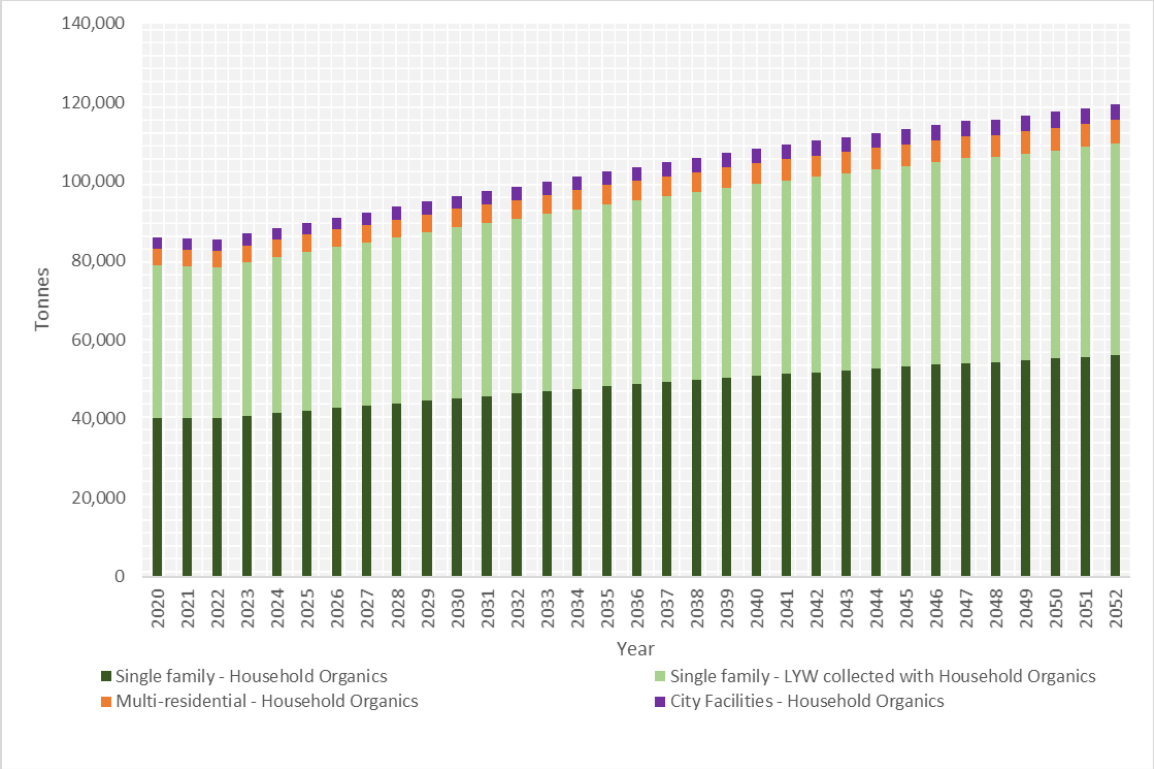
In addition, approximately 980 tonnes of Municipal Hazardous and Special Products (HSP) from single family households and multi-residential units will be generated in 2052, representing a 47 per cent increase over 2020 tonnages.

Projected Tonnes of Waste by Material Stream

Green Bin Organics

The amount of Green Bin Organics, which includes household organics from single family, multi-residential, and City facilities and LYW collected at the curb with household organics in the Green Bin, is projected to increase for all three sectors to a total of 119,500 tonnes in 2052. This represents an increase of 39 per cent over 2020 tonnages.

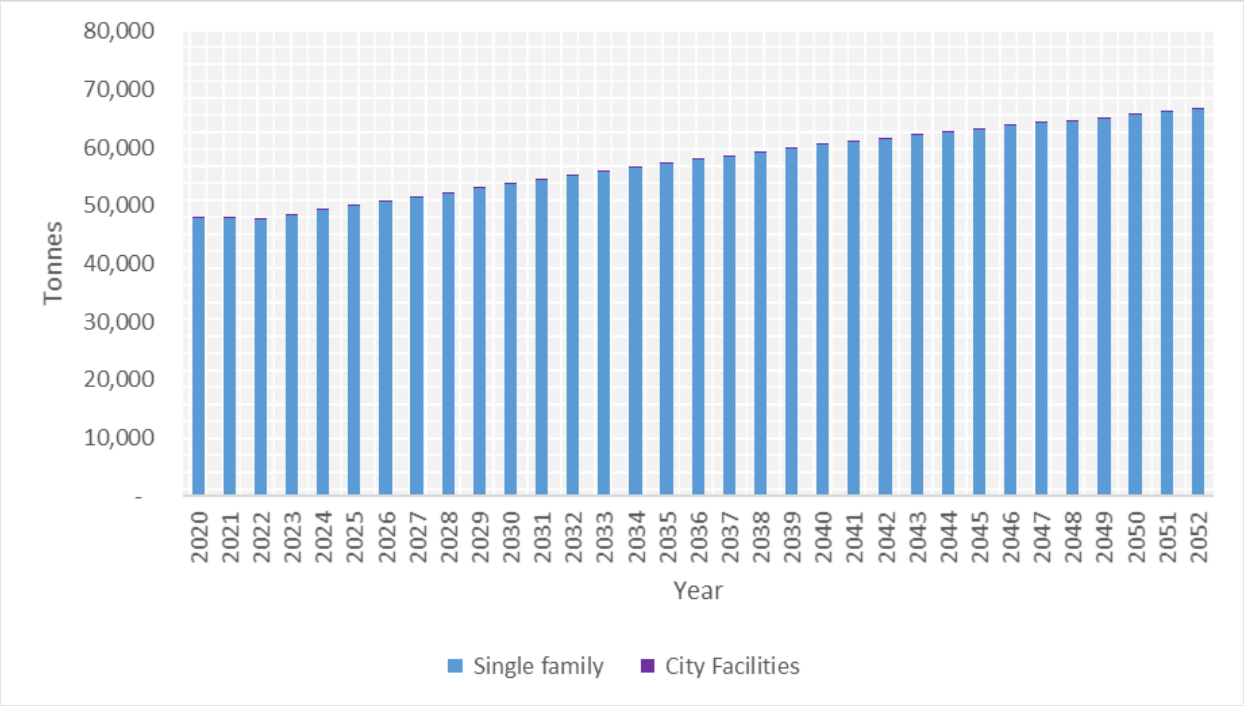
Figure 3: Annual Green Bin Organics Projections (2020 to 2052)



Leaf and Yard Waste

Leaf and yard waste from single-family homes and City facilities was estimated and represents the total amount of LYW generated. It includes LYW that is placed in and set out separately from the Green Bin. While the quantities of LYW are highly dependent on factors such as precipitation, the amount of leaf and yard waste requiring management by the City is projected to increase to 67,000 tonnes in 2052, representing an increase of 40 per-cent over 2020 tonnages.

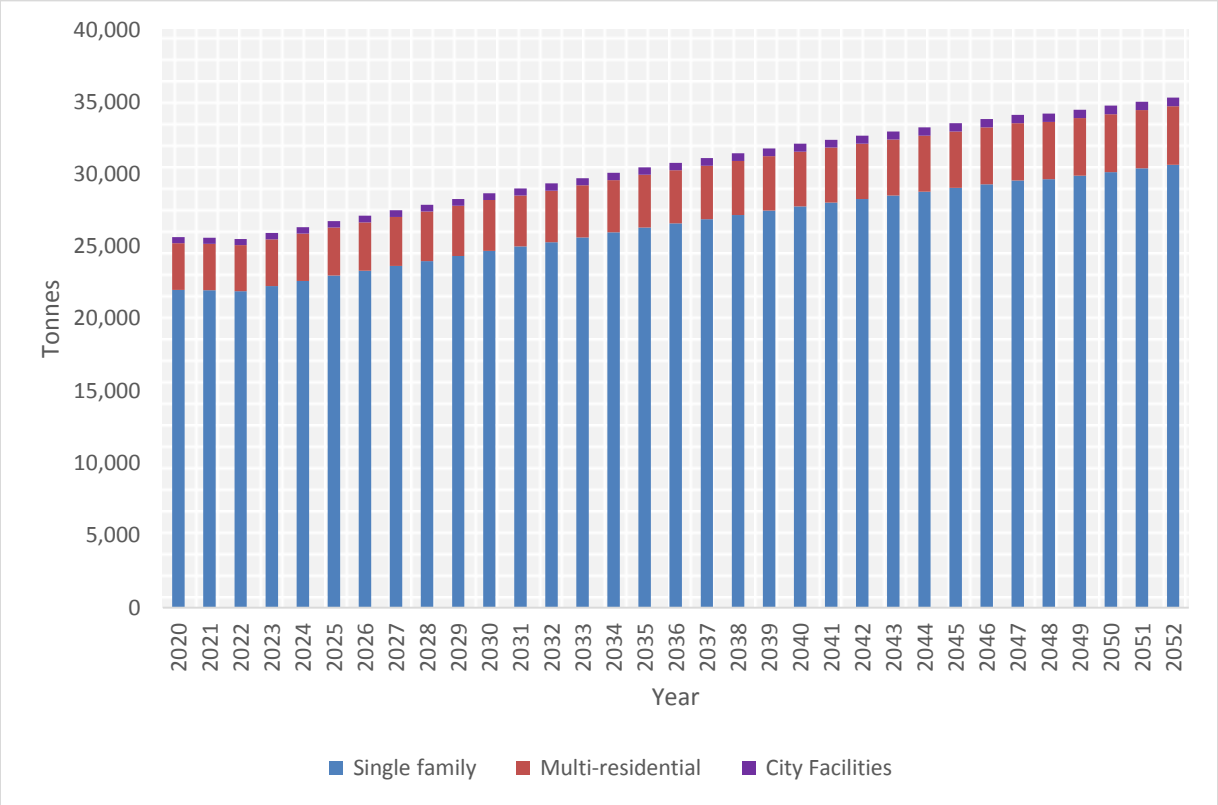
Figure 4: Annual Leaf and Yard Waste Projections (2020 to 2052)



Blue Bin (Glass, Metal & Plastic)

The amount of Blue Bin materials (glass, metal and plastic) generated by single family, multi-residential and City facilities is projected to increase for all three sectors, increasing to 35,299 tonnes in 2052, which represents a 38 per-cent increase over 2020 tonnages. Tonnes of Blue Bin recycling from parks and public spaces is projected to increase to 14 tonnes in 2052, which represents a 44 per-cent increase over 2020 tonnages, based on the status quo.

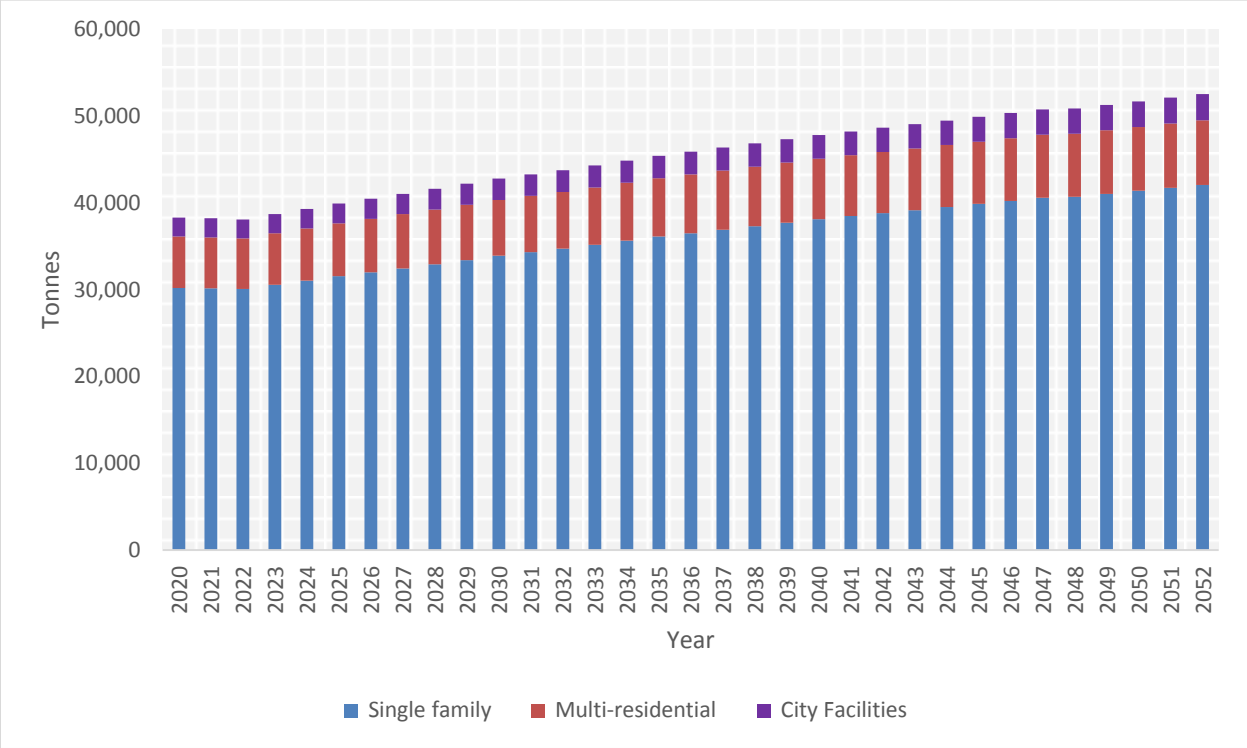
Figure 5: Annual Blue Bin Materials Projections (2020 to 2052)



Black Bin (Paper and Cardboard)

The amount of Black Bin materials (paper and cardboard) generated by single family, multi-residential and City facilities is projected to increase for all three sectors, increasing the total generation to 52,510 tonnes in 2052, representing a 37 per-cent increase over 2020 tonnages.

Figure 6: Annual Black Bin Materials Projections (2020 to 2052)

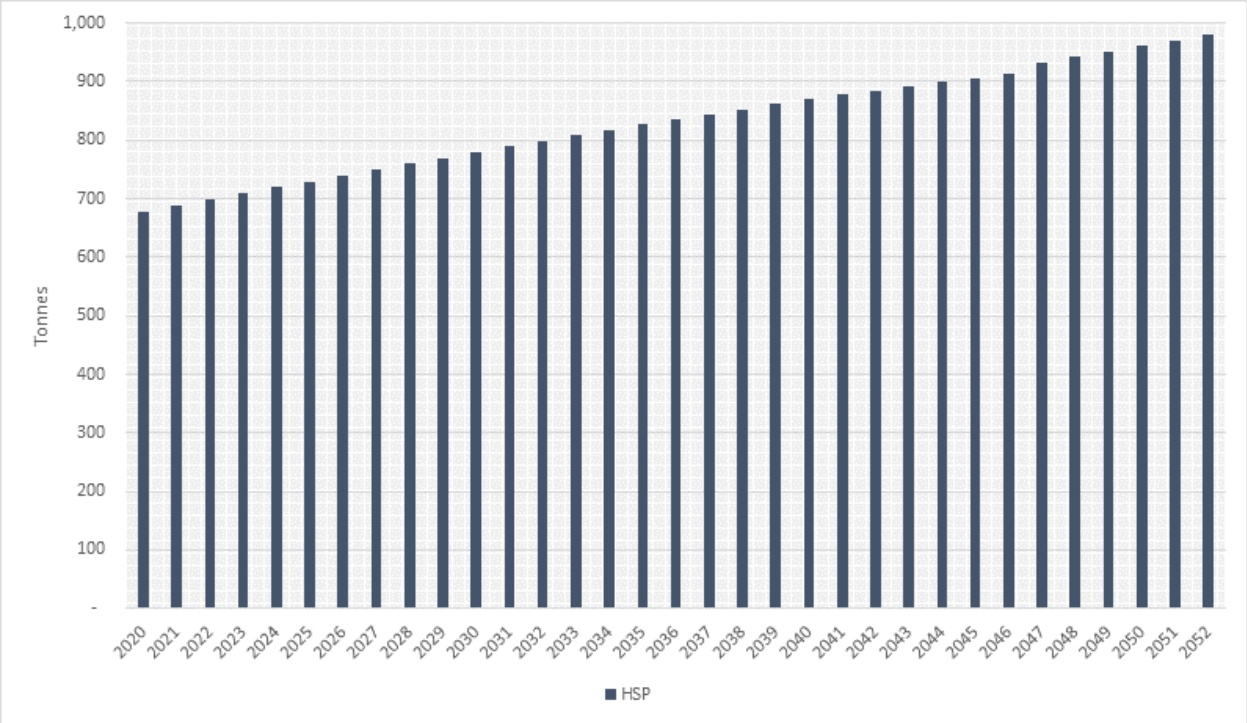


It is important to note that these projections for Blue and Black Bin materials do not take into consideration any changes due to the transition of the Provincial Blue Bin Program (includes City's Blue and Black Bin recycling programs) to Individual Producer Responsibility (IPR). This is because it is next to impossible to predict given the full impact of the transition of the Provincial Blue Bin Program to IPR is unknown at this time. This includes the potential impact of the inclusion of additional materials that may be designated for inclusion in the new Provincial Blue Bin regulation and how this may ultimately impact the remaining residual waste stream.

Hazardous and Special Products

It is expected that Hazardous and Special Products (HSP) quantities from single family homes and multi-residential units that are managed at the City's one-day mobile depots will increase to 980 tonnes in 2052, representing a 47 per-cent increase over 2020 tonnages. Projections for HSP were based on per capita generation rates, assuming the same level of service is provided and the same materials are collected.

Figure 7: Annual Hazardous and Special Products Projections (2020 to 2052)



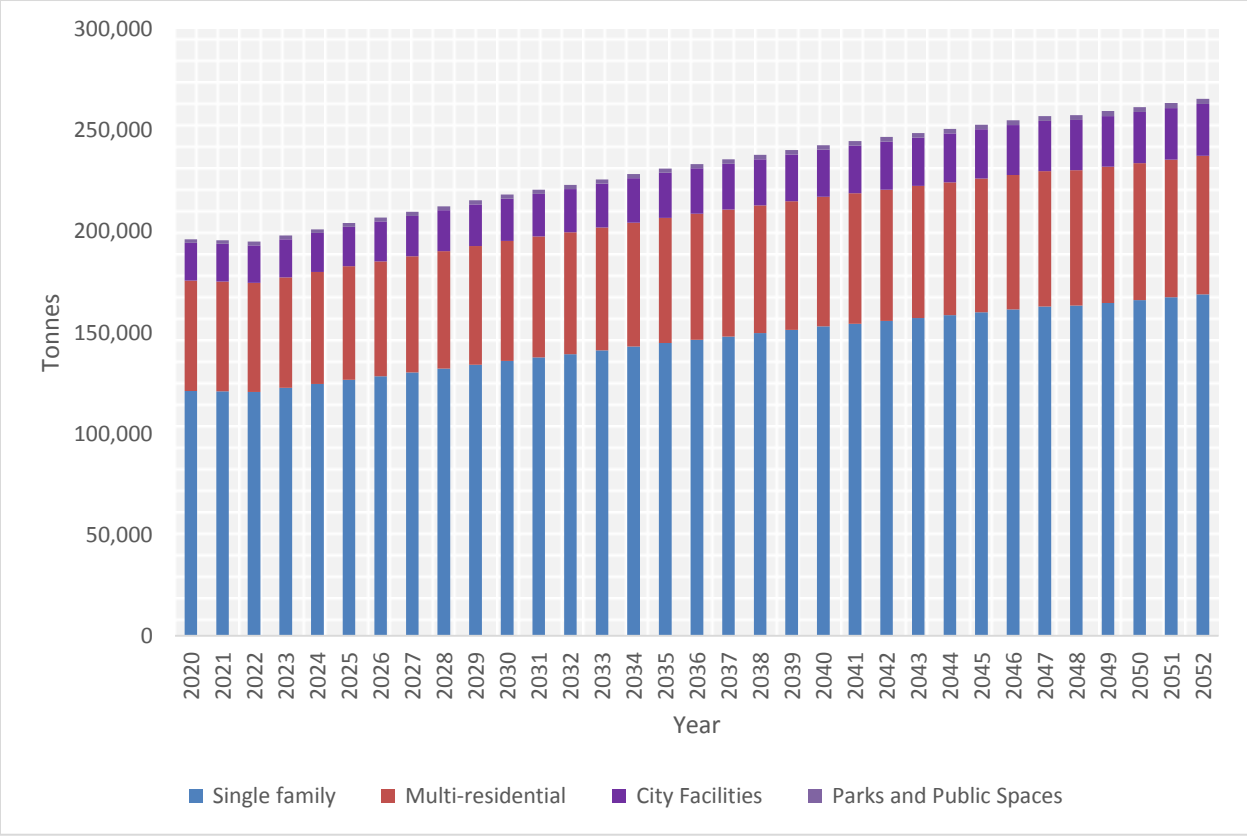
These projections do not take into consideration any changes due to the transition of the Provincial HSP Program, to Individual Producer Responsibility (IPR), including additional materials that may be designated for inclusion in the new Provincial HSP regulation. As was highlighted earlier with the Blue and Black Bin projections, it is

unknown at this time during the Waste Plan development what the full impact of the transition of the Provincial HSP program to IPR will have on future tonnages.

Residual Waste

Residual waste, which includes garbage and bulky waste managed by the City from curbside, multi-residential, City facilities and parks and public spaces, is projected to increase to 265,589 tonnes of garbage in 2052, which represents a 35 per-cent increase over 2020 tonnages.

Figure 8: Annual Garbage Projections from all Sectors (2020 to 2052)



Residual Waste Requiring Management at Trail Waste Facility Landfill

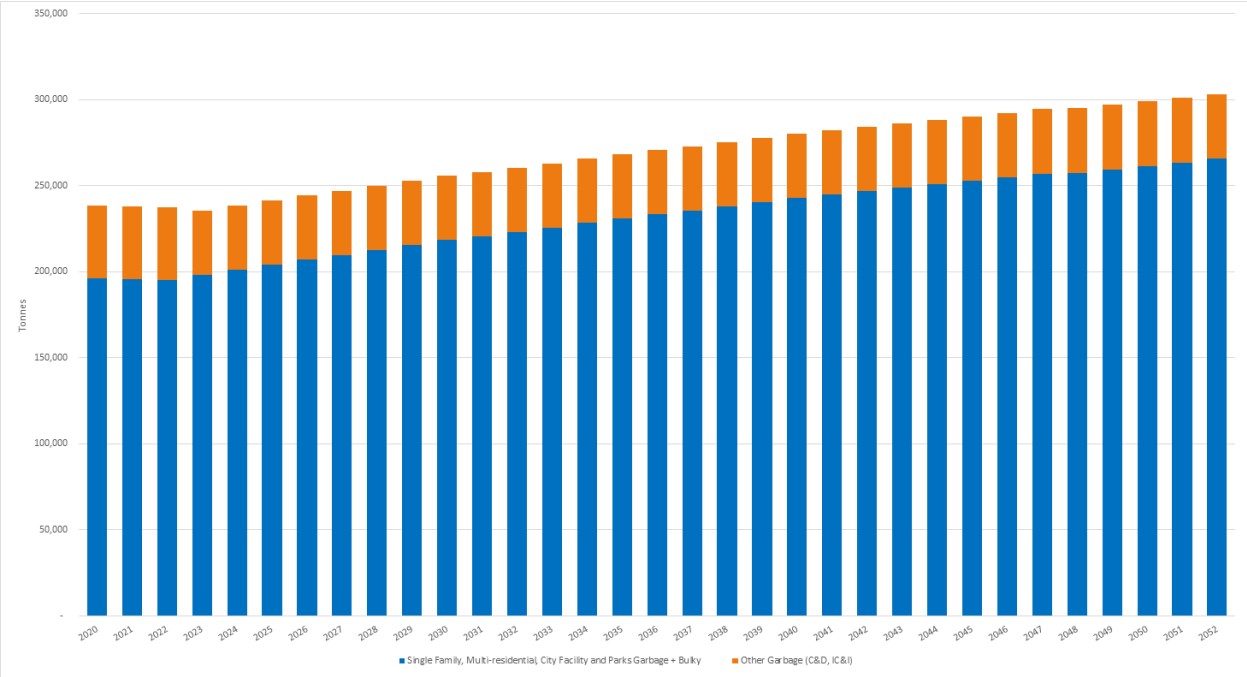
In addition to residual waste generated by curbside and multi-residential households, City facilities and parks and public spaces requiring disposal, the City accepts a small amount of Industrial, Commercial & Institutional (IC&I) and Construction and Demolition (C&D) garbage directly at the Trail Waste Facility landfill. This waste is generated mainly by small businesses regulated as part of the IC&I sector, and small businesses and households looking to dispose of construction and demolition waste.

IC&I waste is typically managed by private sector haulers and waste management companies. C&D waste is produced by construction, renovation and demolition projects and waste generation in each of these sectors varies significantly depending on economic activity from one year to another and development trends.

As can be seen in Figure 9, the Trail Waste Facility landfill accepts a small amount of IC&I and C&D garbage for disposal relative to the amount of garbage the City collects and disposes. This trend is expected to continue over the next 30-years.

When combining the residual waste generated by curbside and multi-residential households, City facilities and parks and public spaces to the residual waste disposed of directly at the Trail Road landfill, it is projected that approximately 303,000 tonnes of garbage will require disposal in 2052, representing a 27 per-cent increase over 2020 tonnages.

Figure 9: Annual Projections for Waste Disposed at Trail Waste Facility Landfill (2020 to 2052)



Needs Analysis

With an understanding of the amount of waste the City is expected to have to manage over the next 30 years, a needs analysis was undertaken to identify the future short (0 to 5 years)-mid (6 to 15 years)- and long-term (16 to 30 years) waste management needs of the City. The identification of the future system needs then sets the stage for the development of the long list of high-level options the City can consider to address each specific need. The analysis looked at existing components of the system that have the potential for enhancement/ improvement, new opportunities, and where contracts are expiring, offering the potential to do something different while ensuring alignment with the Waste Plan's proposed vision, guiding principles and goals.

Gaps, constraints and opportunities for each future need were identified based on the consulting team's experience and review of the Current State System Summary technical memorandum prepared as part of Phase 1, as well as knowledge and

experience of staff. In addition, the waste projections and key industry and regulatory trends which will have an impact on the City's integrated waste management system into the future, identified in Phase 1, along with the legislative toolkit developed in Phase 1 which provided Council with an overview of the tools (by-laws, licensing, tipping fees, site plan requirements, etc.) it has to work with that influence the City's waste management system and programs, were reviewed and considered when identifying the future needs. Feedback received from stakeholders through Engagement Series 1, in terms of their perception and overall satisfaction with the current state and desired future state of solid waste services in Ottawa were also considered when identifying these needs. Staff recognize that the City's needs will change over the course of this Waste Plan and are confident that, through the thorough and robust process detailed in this report, needs will continue to be identified and addressed through the Waste Plan's 5-year refreshes.

In addition to the considerations noted above, and similar to the approach taken to developing the proposed vision statement, guiding principles and goals for the Waste Plan, the needs analysis also took into consideration new City policies and strategies that are influencing the Waste Plan's priorities. This includes most notably the Ottawa City Council's declaration of a climate emergency and recognition of the important role the future integrated waste management system will have in helping achieve Council's climate change goals.

Waste, both solid waste and wastewater treatment, is one of the four sectors reported on in the City's annual greenhouse gas (GHG) inventories. In 2019, the waste sector emitted eight per cent of the City's total GHG emissions, including Corporate and community emissions; buildings were at 45 per cent, transportation at 44 per cent and agriculture accounted for three per cent.

The City's Climate Change Master Plan has targets to reduce GHG emissions by 100 per cent below 2012 levels – by 2040 as a Corporation and by 2050 as a community. It includes the Energy Evolution Strategy, Ottawa's Community Energy Transition Strategy, and has an action plan for how Ottawa as a city will meet its Corporate and community GHG reduction targets. Specific to waste management, the Energy

Evolution Strategy assumes that achieving GHG reductions within the waste sector hinges on two key aspects:

1. eliminating all organics from landfill; and,
2. converting all available waste organic material into usable energy using anerobic digestors or gasifiers to generate renewable natural gas (RNG).

The diversion of organics from landfill and using this material to make RNG is one of the most impactful actions identified in the Strategy to achieve the 100 per cent GHG reduction target specific to the waste sector. The Energy Evolution Strategy recognized that the magnitude of eliminating all organics from landfill is large and complex and will require significant public behavioral change and investment from the City and private industry. Without a strong shift in public behaviour, it is unlikely that the magnitude of change required to achieve the short-term objectives related to this action will be realized, requiring other opportunities to be identified through the Waste Plan to help to work towards achieving the City's 100 per cent GHG reduction targets.

Three of the 20 projects identified in the Energy Evolution Strategy to move the City towards achieving the 100 per cent GHG reduction target have a tie-in to waste management:

1. Municipal Green Fleet Plan Update;
2. Organics Resource Recovery Strategy; and,
3. Renewable Natural Gas Strategy.

These three Energy Evolution Strategy projects related to waste management, along with other opportunities to reduce waste management related GHG emissions, were considered during the development of the future waste management needs and their associated opportunities, constraints and gaps.

The following tables 2 through 8 provide an overview of the needs identified for the City's future integrated waste management system, as well as their gaps/constraints, opportunities and potential timelines. They have been broken down into seven different categories, as follows, and are in alignment with the 5Rs waste management hierarchy:

- Avoidance, Reduction and Reuse;
- Waste Diversion Programs;
- Collection and Drop-off of Materials;
- Recovery of Waste and Energy;
- Residual Management;
- Managing Waste Generated by City Facilities and Operations; and,
- Supporting System Requirements.

Full details of each future need identified below can be found within the Long-Term Waste Management Needs technical memorandum, appended to this report as Document 2.

Table 2: Future Needs - Waste Avoidance, Reduction and Reuse

Future Need 1:
Identify more ways to reduce and reuse waste generated by residents and in its own operations to decrease the amount of waste entering the City's solid waste management system.

Current Gaps/Constraints:	**Opportunities:**
• Limited reuse and reduction programs offered by City. • No formal waste avoidance/reuse strategy for City as a Corporation • Limited P&E around waste avoidance and reduction • No current resources or strategy dedicated to moving Circular Economy forward in the City • Lack of municipal control over consumer behaviour, purchasing habits, product manufacturing and packaging	• Develop a waste avoidance and reuse strategy for the City (operations and facilities) & residents • Use different tools and tactics to encourage waste avoidance, reduction and reuse • Promote waste avoidance and reduction through enhanced P&E efforts • Partner with businesses and non- profits and support more programs for waste reduction • Develop and implement a Circular Economy strategy • Collaborate with local education institutions, businesses and organizations to promote and develop innovative solutions
Potential timeline: Short-, medium- and long- terms	
Future Need 2: Focus on the value of food to increase the prevention of food waste, which is higher in the waste hierarchy.	
Current Gaps/Constraints:	**Opportunities:**
• Food waste generation is high, but food waste has a modest capture rate in the green bin, (45 per cent of curbside garbage contains organics and 39% of multi-residential garbage contains	• Develop a Food Waste Reduction Strategy in collaboration with City partners and non-profit organizations • Education and outreach on food waste and food waste reduction, with a focus on

organics as of 2018/2019 waste audit), meaning a significant percentage is being sent to landfill, consuming landfill capacity and contributing to climate change • Limited/no promotion and education around the benefits of reducing avoidable food waste. • Lack of City jurisdiction over food supply chain's largest waste generators and getting unused food to potential end users. • City has no control over how consumers purchase or manage food in their homes • New provincial regulations (i.e. proposed ban on organics from landfill) and Provincial organics diversion targets are expected to impact organics diversion requirements for the City	increased awareness on the value of food • Support/partner with organizations and business on food waste avoidance and reduction
Potential Timeline: Short-, medium- and long- terms	

Table 3: Future Needs - Waste Diversion Programs

Future Need 3:

Confirm the City has sufficient organics processing capacity prior to 2030 and secure capacity beyond 2030 when the City's current contract with its organics processor expires.

Current Gaps/Constraints:	**Opportunities:**
• Not currently known what mid and long-term processing capacity is required • Current processing approach does not create renewable energy • Ability to plan for future organic waste tonnages is constrained with changing regulatory conditions • Processing capacity of current contracted organics processing facility may not be enough to meet City's needs if diversion increases significantly between 2021 and 2030 • Contract with current organics processor expires in 2030, requiring City to determine future processing capacity post 2030	• Confirm short-, medium- and long- term processing capacity requirements • Explore other technologies to manage organics that also generate energy (alignment with Energy Evolution Strategy) • Investigate the ability to accept and divert additional and emerging material streams from disposal and/or process new streams using different technologies (e.g. compostable packaging)
Potential timeline: Short-term and concurrent to development of the Waste Plan	
Future Need 4: Tied to the future Green Bin processing capacity needs, consider potential options to manage future quantities of Leaf and Yard Waste (LYW), both in the short and medium term.	
Current Gaps/Constraints:	**Opportunities:**
• Total quantity of LYW collected is unknown, as the material is collected with household organics • Difficult to accurately forecast tonnages of	• Potential to reduce processing costs by redirecting LYW from the Green Bin to the City's Barnsdale Road composting facility • Assess potential to collect and processing

LYW, including impacts of climate change, as it is very dependent on climatic conditions such as drought or rainfall • Other City departments also utilize the Barnsdale LYW processing site for various operational needs • Current Put or Pay requirement with Convertus necessitates co-mingling of household organics and some LYW, which limits the amount of LYW that can be processed separately. • Separate leaf and yard waste collection may be required in short term to manage processing capacity and longer term for certain future processing technologies and would likely result in additional costs and GHG emissions	LYW separately from household organics, including decentralized LYW outdoor composting sites at strategic locations across the city • Explore other technologies to process LYW, beyond composting, that may also generate energy and/or biogas (alignment with Energy Evolution Strategy
Potential Timeline: Short-term	
Future Need 5: Decide if a comprehensive and consistent public spaces waste diversion program, including recycling and organics diversion, should be implemented.	
Current Gaps/Constraints: • No formal waste diversion program for parks currently exists • Diverted waste collected in parks and public spaces tends to have high levels of contamination, impacting recycling marketability	**Opportunities:** • Implement a waste diversion program for parks, leveraging data and information from ongoing parks pilot • Explore green bin/dog waste collection for on-street waste diversion program • Explore the use of technology to optimize

• Transition of the provincial Blue Bin Program to individual producer responsibility (IPR) expected to impact recycling in parks and some public space	collection
Potential Timeline: Short- to medium-term	
Future Need 6: Identify an approach to support increased curbside waste diversion performance by increasing participation in waste diversion programs.	
Current Gaps/Constraints: • Large quantities of divertible materials that have existing diversion programs in place of where additional diversion opportunities can be considered are being disposed unnecessarily in the Trail Waste Facility landfill (ex. organics, bulky items, textiles) • The current Solid Waste By-law includes mechanisms to increase curbside waste diversion, however these are not fully enforced. • Current policy and enforcement approach focus on education to achieve compliance, which has not yielded optimal diversion results	**Opportunities:** • Determine policies and education/outreach and enforcement approaches to implement to increase participation in curbside waste diversion programs, including enforcement of existing by-law • Based on current waste audit data, organics represent the biggest opportunity for diversion • Targeted enforcement blitzes to increase awareness and participation in diversion programs and to reduce contamination • Increase P&E budget to allow for increased education
Potential Timeline: Short-term and continue in the medium- and long-terms	

Future Need 7: Recognizing the inherent challenges that exist in increasing participation and the waste diversion rate in the multi-residential sector, actively work with stakeholders (property owners, property management and residents) in this sector to improve multi-residential waste diversion performance.

Current Gaps/Constraints:	**Opportunities:**
• Lack of participation and incentive for this sector to implement or improve diversion collection programs without sufficient regulatory requirements, enforcement and incentives • Decision to expand diversion programs at multi-residential properties resides with property management staff, not residents • Outdated development guidelines or standards aimed at increasing program participation/diversion • Challenges with the amount of space available both in-unit and on property for waste management bins • Low recycling capture rate and high contamination rates	• Update existing waste management requirements for new development applications to incorporate best and better practices • Create a Multi-Residential Waste Strategy recommending specific policies, programs, and initiatives to support diversion in this sector • Develop a P&E and outreach diversion strategy and campaigns targeted to the multi-residential • Explore different technologies that could increase waste diversion in the multi-residential sector (ex. mixed waste processing) • Work with building owners and explore incentives to retrofit existing garbage chutes to facilitate waste diversion

Potential Timeline: Short-term and continue in the medium- and long-terms

Future Need 8:

Identify specific waste streams that can be diverted from landfill disposal and develop new collection and diversion programs to capture these streams.

Current Gaps/Constraints:	**Opportunities:**
• Limited waste audit data on the different waste streams that could be diverted, as well as data on quantities generated • Lack of locations with year-round access for public drop-off of waste streams • Lack of local recycling options and infrastructure to support new waste diversion programs • Participation in new waste diversion programs can take some time for residents to become aware of and/or change behavior	• Identify opportunities for reuse and potential end markets for materials that are currently landfilled (e.g., textiles, carpets, mattresses, C&D materials) • Determine how existing textile recycling programs could be enhanced • Explore bulky recyclable program • Implement supporting policy mechanisms when new diversion programs are introduced to encourage waste diversion and support source separation (e.g. bans, increased tipping fees).
Potential Timeline: Planning for new programs should begin in the short-term and implementation in the medium- and long- terms	
Future Need 9: Waste management practices at special events should support and facilitate waste minimization and waste diversion.	
Current Gaps/Constraints:	**Opportunities:**
• No specific waste avoidance/reduction policy or mandatory diversion/recycling requirements for special events • City has limited ability to control consumer and business purchasing decisions and therefore has very limited ability to control the types and amounts of waste generated at special events	• Develop a plan to phase-in additional waste management requirements at small and large events over the short, medium- and long- term including City supported education partnerships (ex. toolkit, city outreach at special events) • Explore introductions of by-law requirements to addressing how materials are collected, processed and disposed of

	at special events and festivals • Review City facility rental agreement to integrate waste avoidance, reduction and recycling into small and large events held at City facilities
Potential Timeline: Short-term	

Table 4: Future Needs - Collection and Drop-off of Materials

Future Need 10: Building on the current systems, services and programs, identify more ways to efficiently collect materials, that are more convenient and accessible to residents and customers.	
Current Gaps/Constraints: • Future changes to the Blue Bin Program as a result of IPR are unknown at this time and will have an impact on future residential collection programs and contracts • Not understood if/when it would be appropriate for the City to start using a transfer station(s) as part of the collection system. • Collection contracts restrict timing in which major changes can be made to collections system/approach • As the City grows and traffic increases, travel time to waste facilities for residential waste collection vehicles will increase, resulting in increased collection costs and GHG emissions	**Opportunities** • Explore alternatives to collecting bulky items, including separately collected, call-in or fee for service options • Investigate expanding the list of materials that are collected at the curb • Investigate feasibility and cost implications of separate collection of LYW, considering the future processing technology for organics post-2030 • Conduct a curbside collection efficiency study • Investigate potential to automate collection • Investigate alternative collections technologies to support efficiency and carbon reduction initiatives

Potential timeline: Short-term

Future Need 11:

Progressively work towards a zero-emissions solid waste fleet.

Current Gaps/Constraints:	**Opportunities:**
• Currently no reasonable lower carbon alternatives to diesel • Fully electric collection vehicle technology still in early trial phases for waste collection fleet • Significant investment will be required for infrastructure to support electrification of a future waste collection fleet • Slower than anticipated development of technology for alternatives to heavy diesel vehicles and equipment, including compactors used in landfill operations	• Transition to a zero-emissions solid waste fleet over time as technology becomes operationally viable • Replacing cars, pickups and light SUV vehicles for City staff such as Waste Inspectors and Parks waste collection vehicles with hybrid or electric models once current vehicles are at the end of their lifecycle • Trialing proven technologies and alternative fuels to determine their applicability to Ottawa and the City's operational needs • Determining requirements for greener fleet for future waste collection contracts • Continuing investigations into options for lower carbon alternatives for vehicles and fuel types for the City's waste collection and landfill fleet until electric fleet proven

Potential Timeline: Short-, medium- and long—term, as technology becomes viable for operational needs and as contracts come up for renewal and vehicles reach the end of their useful life.

Future Need 12: Provide enhanced convenience and additional drop-off opportunities for residents to reduce, reuse and recycle.	
Current Gaps/Constraints: • Limited drop-off opportunities available for residents beyond Take-it-back partners and mobile hazardous waste depots • Current mobile drop-off depot approach to disposing of MHSW is not available year-round or convenient for all residents and impact of transition to IPR not fully known	**Opportunities:** • Expand the number of existing Municipal Hazardous Solid Waste mobile one-day depots, including the potential to offer year-round depots • Explore feasibility of hosting reuse drop-off events, Temporary or permanent neighbourhood drop-off depots including partnering with local charities or other not-for-profit groups • Investigate feasibility of specialized reuse centres, which could be temporary or permanent, and involve partnerships with community or charitable reuse organizations • Expand current drop-off area at the Trail Waste Facility to include more divertible martials
Potential Timeline: Short-term	

Table 5: Future Needs – Recovery of Waste and Energy

Future Need 13: Determine what, if any, waste recovery technologies or approaches will be employed to extend the life of the Trail Waste Facility landfill**.**	
Current Gaps/Constraints: • Trail Waste Facility has an estimated 30	**Opportunities:** • Conduct a study to determine if waste

percent remaining capacity, and if minimal efforts are made to extend its useful life in the short-term, there will be very little time to implement an alternative technology to assist with extending capacity given lengthy and uncertain regulatory approvals and permitting and times • How waste recovery technologies will count towards diversion are currently unknown from a Provincial regulatory perspective • Some waste recovery technologies are unproven at the scale required for the City's needs and require a homogenous waste stream • Capital and operating costs, net of revenues, for alternative technologies are very high when compared to the cost of landfilling	recovery technologies or approaches should be employed to extend the life of the Trail Waste Facility landfill and if so, confirm the preferred technology and/or approach to recover waste • Explore funding, revenue and partnership opportunities
Potential timeline: Begin **studying** in the **short-term,** through a business case or feasibility study. It is anticipated that **siting and permitting** of a facility would not occur until the **medium term** and **facility operation** may begin in the **medium-long term**.	
Future Need 14: Identify an approach to utilizing landfill gas and producing energy once the current contract with PowerTrail expires in 2027.	
Current Gaps/Constraints:	**Opportunities:**

• Timing of the implementation of more aggressive measures for diversion of organics is unknown and will impact quality and availability of landfill gas into the future • Modeling done through the Energy Evolution Strategy requires combustion–based electricity generation to be phased out, unless it is required for redundancy and/or resilience.	• Investigate alternative uses for landfill gas generation (e.g., renewable natural gas (RNG)) • Estimate future quantities of landfill gas can then be made to assist with determining how the City will manage the gas from the Trail Waste Facility landfill, • Explore opportunities to capture the increased amounts of greenhouse gases that are expected to be generated at the Trail Waste Facility landfill from 2021 onwards
Potential Timeline: Short-term	
Future Need 15: Determine what energy recovery technology/ies or approaches will be employed to recover as much energy as possible from the waste stream and create renewable energy from waste.	
Current Gaps/Constraints: • Current organics processing technology does not produce renewable energy and the contract is in place until 2030 • All residential garbage is currently disposed of at the Trail Waste Facility landfill, which has limited opportunity to generate renewable energy from this waste • Significant resident behavioral change required to support further organics diversion to support renewable energy generation	**Opportunities:** • Explore the range of technologies that are available to recover energy from waste to identify suitable options, including technologies to create renewable energy from household organics • Identify technologies that may reduce greenhouse gases and produce offsets, which would assist the City in meeting its greenhouse gas reduction targets • Explore opportunities to include forestry waste from City operations as a supplemental waste stream to generate

	energy • Explore and leverage opportunities that future Provincial regulations such as an organics disposal ban, may create to more cost-effectively develop larger facilities to manage materials from other municipalities and potentially the IC&I sectors (e.g. partnerships, contracts). • Works towards achieving the greenhouse gas reduction and renewable energy generation targets noted in the City's Climate Change Master Plan
Potential timeline: Short-term	

Table 6: Future Needs – Residual Management

Future Need 16: Being a key City asset, determine ways to extend the life of the Trail Waste Facility landfill to maximize the life of the asset and plan for new disposal capacity, when required.	
Current Gaps/Constraints: • Uncertainty around the estimated date the landfill will be at capacity because of the many factors that impact landfill life and in part due to the fact that the current methodology used for landfill life assessment does not consider forward-looking factors such as projected population growth, waste generation and estimated diversion rates • Currently there is a lot of change	**Opportunities:** • Adopt a calculation methodology for landfill life planning and reporting purposes that includes forward-looking considerations such as population growth, waste generation, and estimated diversion rates (see section below on key considerations for more detail) • Develop a residual disposal strategy, in the short term, that considers options to extend the life of the Trail Waste facility (see section below on key considerations

occurring in the waste management industry which will impact future quantities of waste to be disposed (e.g., regulations, waste composition changes) - the impact of these changes on the landfill capacity is uncertain at this point in time	for more detail) • Minimize materials being landfilled to increase the capacity • Adjust and upgrade landfill operations to maximize the capacity of the landfill • Explore potential options to expand the landfill vertically • Contract out disposal to other landfill/s
Potential timeline: Short-term	
Future Need 17: Determine the future use of bufferland properties, including for operational, community use and or pilot/demonstration opportunities.	
Current Gaps/Constraints: • City owns a number of properties abutting or in the vicinity of the Trail Waste Facility site and the closed Nepean Landfill, with some of them currently undeveloped • Each bufferland property has constraints (e.g., available area) that would need to be fully examined prior to determining potential future uses	**Opportunities:** • Potential uses for these sites beyond operational needs, including future waste management sites, community use (e.g., BMX park, bird observatory, or nature trails) or for innovation pilot/demonstration opportunities.
Potential Timeline: Short-term	

Table 7: Future Needs – Managing waste Generated by City Facilities and Operations

Future Need 18: Develop a strategy that identifies ways in which City facilities and operations can

avoid, reduce and divert more waste from disposal.	
Current Gaps/Constraints: • No waste reduction and diversion strategy specific to City facilities or operations • No comprehensive and consistent waste diversion program in place across the City facilities and operations • No requirements for waste avoidance or reduction in vendor or contractor contracts • Decentralized approach to the management of waste across the Corporation, leads to lack of standardization in waste management programs, contract requirements and services	**Opportunities:** • Develop a Corporate waste reduction and reuse strategy • Review opportunities to advance waste reduction and circular economy best practices and principles throughout all City operations • Utilize City's purchasing power to advance waste reduction, reuse and circular economy principles • Implement a consistently branded waste management program in all City facilities • Leverage building and construction specifications to support a circular economy • Fund and/or partner with like-minded organizations to incubate innovative technologies and business concepts that support circular economy/Zero Waste initiatives to implement at City facilities or in operations
Potential timeline: Short-term	

Table 8: Future Needs – Supporting System Requirements

Future Need 19: Expand and/or modify technologies and approaches used to reach the City's diverse customer base, to create the desired behavioural changes and to support program priorities.

Current Gaps/Constraints:	**Opportunities:**
• Need to build on and expand existing P&E initiatives to create and sustain desired behavioural change(s) and to support program priorities • Solid Waste Services does not have its own social media account, as the City uses one account for social media platforms (Twitter, Facebook, Instagram, LinkedIn) to promote all City departmental news. While this broadens the audience, waste management updates compete with updates from City other departments. • P&E and outreach budget and staff limited to status quo • Difficulty measuring the impact of education and engagement campaigns on waste management program performance	• To engage more with residents and other stakeholders to change behaviour related to their current waste management practices • Create and deliver tailored, specific messaging and outreach tactics that align with market research findings to raise awareness of diversion programs and promote behavioural change • Complete door-to-door outreach to households not participating in diversion programs and provide answers to their questions and focused P&E materials • Rewarding customers for good waste management behavior/practices (e.g., Gold Star program) • Accommodating cultural diversity through the delivery of multi-language campaigns and resources.
Potential timeline: Short-, medium- and long-term	
Future Need 20: Having appropriate regulatory tools in place can facilitate the prevention of waste	

entering the system and improve sorting practices and participation rates in the City's waste diversion programs.

Current Gaps/Constraints:	**Opportunities:**
• Lack of enforcement of current by-law and curbside garbage setout limits defined in the Solid Waste By-law • Use of development and planning-related tools to encourage the incorporation of waste diversion design in new developments and redeveloped properties is currently limited • No mandatory requirement for City facilities to implement waste diversion programs, including recycling and green bin programs, regardless of size, function or amount of waste generated	• Consider implementing new policy approaches that are in alignment with the Solid Waste Master Plan's vision, guiding principles and goals (e.g., pay-as-you-throw, use of clear bags for garbage and reduced garbage set out/allocation limits, materials bans at curb and landfill, mandatory by-law). • Update the Solid Waste By-law to reflect IPR changes to ensure designated materials that producers are responsible for are not accepted in the City's waste management system • Implement planning and development guidelines, policies and by-laws to support the best practices in waste management • Consider imposing conditions on some or all licensed businesses in order to include waste management and diversion in the community

Potential Timeline: Short-term

Future Need 21:

Ensure long-term financial sustainability of the solid waste management system for

effective operations and management of solid waste assets.	
Current Gaps/Constraints: • Absence of an existing long-range financial plan for Solid Waste Services • Funding sources for future capital program needs, including increasing the Solid Waste Reserve Fund • Uncertainty around the timing and cost implications for transition of the Blue Bin Program and Municipal Hazardous Solid Waste programs to IPR • Affordability envelope will limit timing, scope and magnitude of what can be considered through the Waste Plan • Achieving GHG reduction targets may require more costly waste management technologies to be implemented compared to those that would otherwise be implemented	**Opportunities:** • Expanding current user rates to cover more costs, including the potential for a full rate-based/utility based service • Reallocation of any surplus funds currently spent on Provincial producer responsibility programs (e.g., Blue Bin) to future waste management system needs • On-going monitoring of grants available for capital projects. • Public/Private Partnerships for construction of future capital projects. • Exploring opportunities to partner with other municipalities to offset operating and capital costs of new facilities (e.g., anaerobic digestion). • Identification of other revenue generating and/or cost saving opportunities
Potential timeline: Short-term	

As Council may observe, some of the listed gaps, constraints and opportunities are already being addressed by staff either through Waste Plan component projects (e.g., the Curbside Diversion Options review which is exploring regulatory tools to put place to prevent waste from entering the system and improve sorting practices and participation rates in the City's waste diversion programs), and other City plans (e.g., the Solid Waste Services Long Range Financial Plan which will ensure long-term financial sustainability

of the solid waste management system for effective operations and management of solid waste assets). Through the Waste Plan's 5-year refreshes, staff will work to ensure accurate and updated needs are being captured and addressed.

Key Considerations and Items That May Impact Long-term Waste Management in the City of Ottawa

Building on the comprehensive needs outlined above, there are many unknowns regarding the future of waste management, for municipalities in general, and for Ottawa specifically. The following discussion highlights key considerations and items that have the potential to impact long-term waste management in the City of Ottawa and that need to be considered during the development of the Waste Plan. These will also require consideration in future Waste Plan updates in order for the City to remain flexible and adaptable as these risks and considerations evolve.

Landfill Life

As detailed in the June 2019 Roadmap report, recognizing that the City had not undertaken a full update of its Integrated Waste Management Master Plan since it was approved in 2003, it was expected that this master planning process would identify a number of areas where the City was not currently following best practice. One such area that was identified through the master planning process and highlighted in the needs assessment analysis is the manner in which landfill life expectancy is estimated.

As Council may recall, in the early 2000s, the Trail Waste Facility Landfill (TWFL) was estimated to reach capacity and close in 2009. In 2005, the Ministry approved an Environmental Assessment for the TWFL Expansion, which estimated an additional 10 to 40 years of landfill life (between 2019 and 2049). At the time, the lower end of the estimate assumed no change in waste diversion and no use of private landfills, and the upper end assumed significant improvements to waste diversion and the use of private landfills.

To date, the City has relied on the Annual Monitoring Report (AMR), a compliance methodology used for annual reporting to the Ministry of Environment, Conservation

and Parks, which uses historical/lagging indicators, such as previous years' airspace consumption, to estimate remaining landfill life. The Needs Analysis completed in this phase of the waste planning process has identified that the AMR is not suitable for long term waste planning purposes as it does not take into account various factors such as evolving landfill operational practices (compaction, use of cover), population growth, expansion of diversion programs, increased diversion or changing consumption habits.

The Solid Waste Master Plan 2019 Roadmap report and 2020 Phase 1 report used the Annual Monitoring Report to state closure dates of 2042 and 2041. For the purposes of this Phase 2 report, staff undertook a detailed review of the 2019 Annual Monitoring Report calculation, with a specific focus on disposal trends. Based on the remaining available airspace as detailed in the 2019 AMR, it is estimated that there is approximately 30 per cent capacity remaining at the TWFL. This, in conjunction with staffs review of disposal trends, determined that if the City remains status quo with regards to waste reduction and diversion, the Trail Waste Facility Landfill is expected to reach capacity between 2036 to 2038.

Recognizing that the Trail Waste Facility Landfill is filling up more quickly than previously expected, and if minimal effort is made in the short to immediate term to significantly increase the life of the landfill, the Waste Plan may fall short of meeting the proposed goal of extending the life of the landfill beyond the 30-year term of the Plan. To address this, staff will continue to explore improvements for landfill operations, such as the recent transition to a push pad for compaction optimization, which also removed the previous need for automotive shredder residue tonnages. Additionally, staff will be advancing the development of a focused Residual Waste Management Strategy (RWMS).

The RWMS will undertake a review of landfill life calculation methodologies, with the aim of adopting a best practice calculation methodology that gives a more reliable range in terms of years of airspace remaining at the Trail Waste Facility Landfill. It will also analyze a suite of options, consistent with those identified in the long list of options, aimed at preserving airspace and extending the life of the Trail Waste Facility Landfill. This strategy, in combination with the work on existing component projects aimed at

increasing waste diversion from landfill in the short-term, including the Curbside Diversion Options and Multi-Residential Diversion Strategy, will collectively work to achieve Council's goal of extending the life of the Trail Waste Facility Landfill beyond the life of the 30-year Waste Plan. Advancing this work aligns with the City's Term of Council priorities, and the proposed vision statement, guiding principles and goals of the Waste Plan.

The RWMS will explore the possibility of implementing a combination of new policies, programs and mechanisms to reduce the amount of waste sent to the TWFL for disposal. It will also explore a suite of options including banning certain materials (e.g., construction and demolition waste) for disposal at the TWFL, increasing tipping fees for certain types of materials, leveraging technologies and exploring options to showcase technologies at the TWFL and exploring opportunities to dispose of waste at other local private sector landfills. A Roadmap report providing the scope of the RWMS and additional details on the strategy development will be presented to Committee and Council in Q3 2021.

Regulatory Changes

As stated in the Background section of this report, there are proposed changes to two key Provincial waste diversion programs that will impact the waste management system for Ottawa in the near future. The first being the provincial transition of the Blue Bin Program to IPR, which will undoubtedly have an impact on the amount of waste and how it will be managed by the City. Secondly, the province will be transitioning the Hazardous and Special Products (HSP) program, formerly the Municipal Hazardous and Special Products (MHSW) program, to IPR in the near future.

The final Blue Bin regulation was released by the province on June 3, 2021. Staff are reviewing these in detail to determine the short and longer-term implications of transitioning the City's recycling program to IPR. Although the final regulation has been released, there remains significant unknowns around how this change will affect the City's future waste processing and planning. The timing of the release of this regulation aligns well with the master planning process, as those options that had been identified as being on hold until the final regulation was released, can now be reviewed to

determine whether they can be integrated into the evaluation process based on the level of detail provided in the regulation.

With respect to the HSP program, the final regulation was released on June 8, 2021. Staff will undertake a thorough review of the final regulation to determine how the requirements will impact City's future role in managing HSP. However based on the draft regulation issued by the Province, only a select portion of HSP is expected to become the full responsibility of producers to manage and cover the full cost of properly recycling or disposing of these materials. A large portion of materials the City currently manages through its HSP program that are not covered by existing regulation are expected to continue to be the responsibility of the City to collect, recycle and safely dispose of. This responsibility means that the City will need to cover the full cost associated with managing these select materials. There is a risk that in having two different bodies responsible for the management of HSP i.e. producers and municipalities, that the City will require its own system to collect the items not covered under IPR alongside the system set up by producers, which could prove inconvenient and confusing to residents. Producers will be responsible to operate a collection network of their own and may wish to coordinate collection at municipal depots, as the regulation allows them a variety of options to satisfy consumer accessibility requirements. The draft HSP regulation gives producers 18 months after the October 1, 2021 transition date to set-up the collection network, so it is likely that details on the future HSP collection system in Ottawa will not be known until after the completion of the Waste Plan.

Aside from the transitioning of the above Provincial waste diversion programs, the province also has released its Food and Organic Waste Framework. The Framework is comprised of two components:

- The Action Plan - which outlines provincial commitments on food and organic waste; and
- The Policy Statement - which provides direction to municipalities, the IC&I sector, owners and operators of resource recovery systems and others to take action to reduce and recover food and organic waste.

The City will need to consider the impact of this Framework on its own operations, policies and programs in future solid waste management planning.

The Food and Organic Waste Policy Statement establishes targets for food and organic waste reduction and resource recovery by sector, including municipalities and multi-residential buildings. On September 30, 2020, proposed changes to the Statement were released that expanded the categories of food and organic waste that municipalities should make efforts to reduce and recover, to include compostable coffee pods, soiled paper food packaging and certified compostable bags. Amendments also state that municipalities should support the use of pilot projects and research on the processing of compostable products and packaging, and encourages municipalities to consider adopting technology to collect and process compostable products and packaging in their systems when they are planning for new processing technology.

Under the *Resource Recovery and Circular Economy Act*, the Policy Statement requires municipalities to ramp up diversion of organics to meet the 70 per cent target for curbside households by 2023 and 50 per cent target for multi-residential properties by 2025. Additional quantities of source separated organic material may need processing as more curbside residents participate in the program and multi-residential buildings increase organics diversion, particularly given that the City services nearly all of these buildings in Ottawa. While this has the potential to drive increased waste diversion rates and help extend the life of the Trail Waste Facility landfill, it will have increased cost implications associated with processing more organic waste. A recent announcement from the province states that their priority is to move to phase out food and organic waste sent to landfill by 2030.

As more sectors introduce source separated organics programs to meet these provincial targets, and/or if organics are banned from landfill disposal by 2030, there will be increased competition for organics processing capacity locally and across Ontario. Should the City develop its own organics processing facility, there is potential to create a revenue stream from providing processing capacity to other municipalities or to the IC&I sector, and potentially creation of renewable natural gas (RNG) if the City chooses

to convert biogas from anaerobic digestion, as envisioned in the Energy Evolution Strategy.

Should the City develop its own organics processing facility, it would also assume the risk of designing, building, operating and maintaining the facility. The City would also take on responsibility for finding suitable markets for end-products such as finished compost or digestate and energy. When the processing of organic material is contracted out, as is the current case, the City does not incur these risks or costs.

Climate Change and Resiliency

Climate change is also another area that has implications on the City and its waste management system. It will impact the probability of severe weather events such as floods and tornadoes, which can impact the collection, transportation, processing, and disposal of materials impacted by these weather events, as well as the amount of waste that needs to be managed as a result of these events. It may also impact collection staff (summers are predicted to get hotter, which is a risk to workers) and waste generation patterns (longer growing season may result in more LYW). These impacts will also need to be considered and included in future waste management planning and decision making.

Other Considerations

In addition to the above four elements (the life of the Trail Waste Facility landfill, transition to IPR, the Province's Food and Organic Waste Framework and climate change and resiliency, other key risks and considerations that need to be incorporated into future long-term waste management planning activities at the City include:

- Changes to lifestyles and consumer trends;
- The evolving nature of packaging;
- Urban sprawl and densification in Ottawa;
- The need for transfer station capacity in the City's waste collection network;

- Other City plans and strategies, including but not limited to the Official Plan, Climate Change Master Plan, Energy Evolution Strategy, Green Space Master Plan and the Urban Forest Management Plan;
- Provision of waste collection services;
- Acceptance of new and emerging waste management technologies;
- Funding sources;
- Data collection and management; and,
- Performance measures.

Full details of the above-listed key considerations and items that may impact long-term waste management in the can be found in the Long-Term Waste Management Needs technical memorandum appended to this report as Document 2.

The Waste Plan will continue to be developed in a way that remains flexible and adaptable to ensure its success as risks and considerations like the ones mentioned above are mitigated to the greatest extent possible based on known information as the Waste Plan is developed. It is, however, recognized that depending on the nature of the risk and the timing in which it comes to fruition or as more details are known about how it will impact the Waste Plan and the City's future integrated waste management system, some may not be able to be fully addressed throughout the development of the Waste Plan at this time, but will be addressed through future refreshes of the Plan.

High Level Long List of Options to Meet Future Needs

The next step in developing the Waste Plan includes identifying the high-level long list of options that address the City's future waste needs and gaps and align with the Waste Plan's areas of focus, including single family residential, multi-residential, City facilities and operations, parks and other public spaces, current partner programs, and also considers emerging policy and program trends, waste processing and disposal

approaches, and current and emerging technologies. The long list of options was identified through a number of sources, including:

- Technical expertise of the projects technical consulting team, based on the extensive research conducted in Phase 1 and professional judgement and industry expertise;
- Council Sponsors Group and City Councillors, based on their knowledge and feedback from constituents;
- General public and project stakeholders through consultations during Engagement Series 1; and,
- City Champions Working Group and City staff, based on their knowledge of the city and its needs and synergies with other City strategies.

Specifically, through Engagement Series 1, staff looked to identify and collate ideas proposed by key stakeholders and residents that could potentially be added to the long list of options for managing and diverting waste through the Waste Plan.

The following are examples of questions that were asked during virtual workshops, meetings and through online surveys to solicit appropriate feedback:

- What can we do to improve our current waste management system in Ottawa?
- Imagine it's 2052 and we've just completed our 30-year solid waste strategy. What does success look like to you?
- What are the key considerations for this success?

All ideas heard were thoroughly documented and responses were provided to the project's technical consulting team to be researched to ensure an evidence-based approach was taken to develop each option and to analyze if they aligned with the future needs of the City's integrated waste management system as well as the Waste Plan's proposed vision, guiding principles and goals.

The long list of options are grouped into one of ten categories and have been categorized as either an implementation tool (e.g. a targeted outreach campaign), program (e.g. a repair cafe), policy (e.g. disposal ban for different materials), or facility/infrastructure (e.g. an anaerobic digestion facility for the processing of organics).:

1. Promotion and Education
2. Regulations, Policies, By-laws
3. Waste Avoidance, Reduction and Reuse
4. Recycling
5. Collection and Drop-off
6. Organics Management
7. Waste and Energy Recovery
8. Residual
9. Innovation
10. Other

In working with the Council Sponsors Group, a standardized template was developed to ensure each option would be researched and documented in a consistent and transparent way that considers all the key elements required to support the evaluation and short-listing of options. This information also helps to set the stage for crucial discussions with the community as part of Engagement Series 2 around "how far", "how fast", and "at what cost" the Plan and its recommendations should be designed for.

Table 9: Option Descriptions Template

Consideration	Description
Overview	A short description of the proposed option and whether the option is proven or emerging (i.e. implemented by other municipalities or countries).
Source of Option	Whether the option was identified by the technical consultant as part of the Phase 1 work or through subsequent research, by staff or City Councillors, or through consultation undertaken by the City as part of Phase 1.
Proposed Strategic Alignment	Identification of alignment with the guiding principles and/or goals that are applicable to the option.

Consideration	Description
Needs Assessment Alignment	Identification of the alignment with the needs described in the Long-Term Waste Management Needs Technical Memorandum, appended to this report as Document 2.
Individual Producer Responsibility (IPR) Impact	Whether or not the upcoming transition to IPR is expected to have an impact on the implementation of the option.
System Considerations	Whether an option is a core system component (i.e. integral to the City's waste management system) or a secondary system component that would be implemented as part of the core system.
Sector Applicability	What sector the option would be applicable to Single Family (SF), Multi-residential (MR), Parks and Public Spaces (PPS), City Facilities/Operations (CF) and/or Partner Programs (PP).
Environmental Considerations	High level planning estimates of the anticipated impact on waste diversion, greenhouse gas (GHG) emissions and/or potential impacts to air or water quality which will be used for comparative purposes during the evaluation process.
Social Considerations	The anticipated level of resident effort and behaviour change required, potential to impact public health, public safety, community interruption, accessibility, equity and/or inclusion.
Technical / Operational Considerations	Including the need for siting, ease of implementation, integration with existing systems and/or level of effort required by the City to implement the option which may impact how quickly the option can be considered for

Consideration	Description
	implementation by the City.
Regulatory Considerations	Anticipated approvals required, timing of permitting/approval process which impacts how quickly the option can be considered for implementation by the City, and estimated costs.
Financial Considerations	Estimated capital and operating costs, additional staffing requirements and/or cost savings. The cost estimates included are high level planning estimates to show order of magnitude costs and will be used for comparative purposes during the evaluation process.
Unknowns / Assumptions	Made in the absence of industry information or data.
Supporting System Requirements for Success	System interdependencies such as additional infrastructure or policies that would be needed for a successful outcome.
Potential Outcomes	Anticipated results from implementation of the option (e.g. impact on remaining life of the Trail Waste Facility landfill).
Measurement	If/how option can be measured when implemented to asses performance/success (e.g. quantitative measures such as tonnes disposed or diverted).
Case Studies / Evidence of Results	Descriptions of other jurisdictions who have implemented similar options.

Consideration	Description
Recommendation	Whether the option should proceed to the evaluation stage or be held until further information is available (particularly for those options impacted by IPR).

The long list of high-level options identified to meet the City's future waste management needs and their corresponding descriptions can be found in the Long List of Options Technical Memorandum and are appended to this report as Document 3. Table 10 below presents the long list of options and their associated category.

Table 10 – Long List of Options

Category	Option
1. Promotion & Education	
1A - Outreach Initiatives	Develop and Implement New/Expanded Outreach Initiatives
	Develop and Maintain Dedicated Waste Portal
	Develop and Implement Call – Click – Visit Campaign
	Develop and Implement Food Waste Reduction Initiatives
	Behavioural Change Management Strategy
1B - Educational Initiatives	Develop and Implement Educational Initiatives
1C - Marketing & Communication Tools	Develop and Implement Marketing and Communication Tools

2. Regulations, Policies, By-laws	
2A - Material Bans	Disposal Bans
	Single-Use Item Reduction Strategy
2B - By-laws	Enforce Set-out Limits for Garbage and Reduce Container Limit
	Mandatory Waste Diversion in All City Facilities
	Enforce Source Separation Requirements for Recycling and Organics
	Mandatory C&D Waste Diversion By-law
	Making Green Bin a Prerequisite to Receive City Waste Management Services
2C - Policy	Develop a Circular Economy Strategy
	Supporting Waste Minimization and Diversion at Special Events
Category	**Option**
	Multi-residential Building Development Standards
	Chute Closure Program at Multi-residential Buildings
	Pay As You Throw (PAYT)
2D - Financial Mechanisms	Waste Diversion Infrastructure Fee for New Development
	Development Charges for Waste Diversion Growth
	Bonds for Green Building
	Tipping Fee Strategy for Trail Waste Facility

3. Waste Avoidance, Reduction and Reuse	
3A - Waste Avoidance/ Reduction/ Reuse Strategies	Sharing Space/Swaps/Sharing Library/Repair Cafes (for various materials)
	Community Reuse Events
	Specialized Reuse Centres
	Develop Community Strategies, Opportunities and Partnerships to Increase Reuse and Recycling and Avoid Waste
	Develop Corporate Strategy to Increase Waste Avoidance, Reduction, Reuse and Recycling
	Implement a Food Waste Reduction Strategy
	Expand and Improve the Take It Back! Program
3B - Subsidies/ Rebates/ Grants	Subsidies, Rebates, Grants for Options That Avoid, Reduce or Reuse Waste
4. Recycling	
4A - Textile Management	Textile Waste Diversion Enhancement
Category	**Option**
4B - Municipal Hazardous Solid Waste Collection	Mobile MHSW Home Collection
	Expand Number of Existing Mobile One Day MHSW Depots
4C - Bulky Items Management	Separate Bulky Waste Collection and Recycling

4D - Waste Diversion Drop-off	Temporary Neighbourhood Drop-off Depots for Divertible Materials
	Permanent Neighbourhood Drop-off Depots for Some or All Materials
	Expanded Drop-off Areas for Divertible Materials at Trail Waste Facility
5. Collection & Drop-off	
5A - Expanded Collection/Diversion	Collection of More Materials at the Curb
	Expanded Diversion Program at City Facilities and Operations
	Optibags
	Vacuum Collection System
	Automated Cart Collection for Curbside Garbage
	Clear Bags for Curbside Garbage
	Single Stream Collection of Recycling
5C - Parks / Public Space Collection	Waste Diversion Program in Parks and Other Public Spaces
	Use of Alternate Collection Containers in Parks, Public Spaces and Multi-residential Properties
	RFID Technology on Waste Collection Containers
	5Undertake a Review of the Yellow Bag Program
Category	**Option**

5D - Service Enhancements/ Efficiencies	Identify Curbside Collection Efficiencies
6. Organics Management	
6A - Household Organics Management	Aerobic Composting
	Anaerobic Digestion
	Animal Feed Production
	Co-digestion of Sewage and Organics at ROPEC or Co-location of Anaerobic Processing Facility for Organics at ROPEC
	On-Site Organics Management
6B - LYW Management	Separate Composting of LYW
	Gasification of LYW
7. Recovery	
7A - Use of Technologies to Recover Materials	Mixed Waste Processing (Mechanical Pre-sort Only)
	Mechanical Biological Treatment (MBT)
	Mass Burn Incineration (Direct Combustion)
	Emerging Technologies (Gasification, Pyrolysis, Hydrolysis, Chemical Recycling)
	Landfill Mining at Trail Waste Facility
	Landfill Gas Management Strategy
8. Residual	

8A - Landfill Disposal	Purchase an Existing Landfill
	Use of a Private Landfill
Category	**Option**
	Develop a New Landfill
	Trail Waste Facility Landfill Expansion
	Trail Waste Facility Landfill Optimization Strategy
9. Innovation	
9A - Integrating Innovation into Solid Waste Technologies and Approaches	Innovation and Technology Strategy
10. Other	
10A - Other Considerations	Future Use of Bufferlands Around Trail Waste Facility and Nepean Landfill
	Working Towards a Zero Emissions Solid Waste Fleet

It should be noted that the development of the Waste Plan, including the identification of options for inclusion in the Waste Plan is an iterative process. As such, the long list of high-level options developed to date should not be interpreted as final and not to be revisited over the term of the 30-year Plan. Over the next 30 years, options will be added, removed and put on hold in order to keep this Plan adaptable to emerging industry trends and changes within the waste management industry. With the evolution of technologies, results of pilots, introduction of new programs and the change and evolution in industry best practices, staff will work to continually identify new options to consider as the Waste Plan is refreshed on a 5-year basis.

As was touched on earlier in this report, the high-level options proposed in the long list have been identified based on extensive research and engagement, and thoroughly vetted by technical consultants, City subject matter experts and members of Council. Staff are confident that the list of options is fulsome and includes all feasible options for the City to consider in the short-, medium- and long-term. If Council chooses to add additional options for consideration at this stage of the master planning process, it should be understood that project timelines may need to shift to allow time to research, analyze and evaluate any additional options. As noted above, this planning process is fluid and during each five-year refresh, members of Council and the public will have an opportunity to provide input on options to consider moving forward.

Evaluation Process

As Council will recall and as outlined in the Solid Waste Master Plan Roadmap report approved by Council in June 2019, and in the Phase 1 report received by Council in June 2020, a fundamental part of Phase 2 involves the development of a triple bottom line technical evaluation tool that will use a weighted approach to evaluate the long list of options in a way that balances the social, environmental and financial components of each option or combination of options. The intent of the technical evaluation process is to develop an approach and technical tool that objectively and transparently evaluates the long list of options to generate different waste systems to be consulted on with all stakeholders and considered in the draft Waste Plan.

The evaluation process and technical tool was developed by the project's technical consulting team, who will also conduct the evaluation, and considered best practices and approaches used in other municipal waste planning processes. The evaluation process and tool was also developed with input and guidance from the Council Sponsors Group, the Stakeholder Sounding Board, City Champions Group and key City Staff.

To ensure a robust and transparent evaluation of the options to identify those best suited to meet the City's needs, the process will consist of two steps: a screening process for all options, and a Triple Bottom Line (TBL) evaluation process, also known

as multi-criteria analysis (MCA), for select options identified during the screening process.

Screening Process

The screening process will be applied to all options on the long list to determine which options warrant proceeding to a detailed TBL evaluation. To assist with making this determination, a series of five questions will be applied to each option, as follows:

1. Does the option have potential for positive social impacts?
2. Does the option have potential for an environmental benefit?
3. Is the option a relatively low order of magnitude cost (capital investment and/or staff time and/or other resources) and lower effort for the City to implement?
4. Is it difficult to reasonably quantify the individual contribution (e.g., increased diversion) of this option to the overall system?
5. Would further TBL evaluation be expected to result in similar outcomes as other options in this category?

Any option where the answer to all questions is 'yes' will not be evaluated further and will be automatically carried forward for consideration as part of the short list. Each option carried forward through this process will be grouped into one of two categories: implementation tools (e.g., outreach and educational programs, marketing and communication tools, policies and by-laws) or programs (e.g., reduction and reuse and some recycling programs).

It is anticipated that the types of options that would only undergo the initial screening process would include:

- Promotion and Education Tools (e.g., Educational/Outreach/Marketing and Communication Tools)
- Regulations, Policies, By-laws (e.g., set-out limits, disposal bans)

- Waste Avoidance, Reduction/Reuse/Recycling Programs (e.g., community and corporate strategies and opportunities)

All of these types of options would have clear environmental and social benefits and, in general, have lower costs and resource requirements compared to options that require significant capital costs and operational staff requirements.

Any option where at least one of the answers is 'no' during initial screening will be evaluated further using the TBL evaluation process detailed below.

Triple Bottom Line (TBL) Evaluation Process

The TBL evaluation framework was developed to more extensively evaluate screened options for their environmental sustainability, health and social implications, and financial viability. It is a made-to-measure tool that uses a structured approach to compare different options based on a consistent set of criteria that reflect the priorities identified by stakeholders. This framework is essential to evaluating options where the potential benefits, costs, and/or impact on diversion are not well-understood, and therefore, requires a more rigorous evaluation process to determine which ones offer the greatest potential value to the City.

A comprehensive TBL framework has been developed uniquely for the evaluation of the options identified through the Waste Plan and consists of the following elements:

- **Categories**: environmental sustainability, health and social implications, and financial viability;
- **Criteria**: a set of nine criteria, three in each TBL category, that reflect stakeholder objectives and priorities; and
- **Indicators**: each criterion has its own set of indicators.

Criteria and indicators have been identified, based on technical knowledge and professional experience of the technical consulting team, as well as through consultations with City staff. The criteria and indicators selected for this process are those that are commonly used in other solid waste planning studies.

Using the elements detailed above, the TBL evaluation process will be carried out, as follows:

- Using the framework to derive scores for each of the criteria based on expert judgment and quantitative evidence, where available;
- Establishing a scoring system where each criterion receives a score of between five points (i.e. the highest/best) and one point (i.e. the lowest/worst) based on an assessment of the criteria indicators; and
- Applying weights to the criteria scores to generate "category" level weighted scores and a total score value that can be compared across various options, or groups of options.

The evaluation and scoring of each option will be based on a number of technical factors, including professional judgement, experience in other jurisdictions, research and City-provided data and a scoring guide will be developed to ensure consistency in evaluating options and assigning scores. Each of the three TBL categories, that is, environmental sustainability, health and social implications, and financial viability, have been assigned equal weighting (i.e., 33.3 per cent each).

The types of options that would undergo the TBL evaluation process would include:

- Collection Approaches – for example, clear bags, automated cart collection, bulky item collection, mobile collection of HSP, collection containers (in-ground), colour coded sorting bags;
- Organics Management - for example, aerobic, anaerobic, animal feed production;
- Waste and Energy Recovery technologies - for example, mixed waste processing, alternative technologies (e.g. gasification), landfill mining; and
- Residual Management - for example, landfill optimization/expansion, use of alternate landfills, development of a new engineered landfill.

Table 11 shows the TBL framework that will be used to evaluate the options that pass through the screening process.

Table 11 - Triple Bottom Line (TBL) Framework

Weighting	Categories & Criteria	Indicators
33 per cent	**Environmental Sustainability**	
	Resource Efficiency	Potential to avoid/reduce/reuse waste
		Potential to increase diversion of materials from landfill
		Potential to recover additional reusable, recyclable, organic, or other marketable materials
	Climate Impact	Potential to reduce GHG emissions (e.g. from facility operations / material transportation or material recovery/energy offset)
		Potential to reduce energy consumption (transportation fuel, electricity, etc.)
	Local Environmental Impact	Impact on land and water quality
33 per cent	**Health and Social Implications**	

Weighting	Categories & Criteria	Indicators
	Safety and Health Impact	Potential for impacts to public and staff safety
		Potential for impacts to public health from criteria air contaminant emissions
		Potential for impacts to public health from noise, vibration, odour and ground water contamination
		Risk of increased litter and vector / vermin
	Equity and Inclusion	Potential issues with stakeholder acceptance
		Potential level of effort for stakeholders to use the option. Consider any physical or design impediments that may inhibit use or understanding of a program.
		Risk of community interruption from increased traffic, odour and noise
	Economic Development	Potential to create new local jobs (development and operations)
		Potential to support economic growth and innovation
33 per cent	**Financial Viability**	
	Direct Cost	Initial and future replacement capital costs for City

Weighting	Categories & Criteria	Indicators
		Annual operating and maintenance costs for City (including contract costs, administrative costs and city staffing needs)
	Revenue and Savings Potential	Potential cost savings to other components of the integrated waste management system
		Potential to generate revenue from sale of recovered materials (plastics, metals, compost, etc.) or from generated energy
	Risk and Reliability	Cost and schedule implications associated with implementation, approvals and permit complexity
		Risk of issues with reliability or availability of facilities/vendors/technology
		Impact to system complexity and flexibility
		Risk of contractual issues and liability

Outcome of Evaluation

Following the completion of the screening and TBL evaluation process, options will be grouped into one of the three following categories to build two potential future waste management systems (a "Moderate System" and an "Aggressive System") for consultation with the community and key stakeholders later this year and which will form the basis of "how far" and "how fast" do we want to collectively move as a community:

4. Implementation Tools, Programs and Policies.
5. Recycling, Collection and Drop-Off and Organics Management Options.
6. Waste and Energy Recovery Technologies and Residual Disposal Options.

Within each future waste management system, the specific options would be identified for implementation, grouped by sector (i.e., single family; multi-residential; City facilities/operations; parks and public spaces; and partner programs) and by planning period (i.e., Short (1-5 years), Medium (6-15 years) and Long (16-30 years)) to align with available budget, available facilities, contracts, advancement of technologies, etc.

Each of these potential systems will undergo a high-level comparison against each other, as well as the Status Quo system, examining considerations such as waste diversion potential, greenhouse gas (GHG) emissions reduction potential, estimated cost, risk and timing, based on the City's short-, mid- and long-term needs. GHG modelling on the moderate and aggressive systems will be compared to the GHG modelling on the baseline system to identify the overall GHG impact of the two potential future waste management systems and to assess how they align with the City's Climate change goals as they relate to waste management.

It is staff's intent to consult on the two potential systems this summer with the CSG, member of Council and the SSB, and this fall during Engagement Series 2. The feedback received during this series will help inform recommendations as part of the draft Waste Plan and accompanying 5-year Implementation Plan.

Consideration of Stakeholder Feedback

A series of virtual technical workshops were hosted with key City Staff from the City Champions Working Group with expertise in social, public health, environmental and financial lenses, the Council Sponsors Group, and the Stakeholder Sounding Board. The purpose of the workshops was to inform each group of the development of the triple bottom line evaluation framework, and to hear their thoughts and seek their feedback about its proposed design and application of the tool. There was a high level of interest at the Stakeholder Sounding Board workshop around the proposed weighting approach being applied to the tool's triple bottom line categories. As a result, a second workshop was held with this group to provide more time for detailed discussion and to delve deeper on the topic of the weighting of the triple bottom line categories.

Overall, based on the feedback received from the technical workshops, some amendments were made to the TBL evaluation process to ensure an appropriate breadth of indicators were identified within each triple bottom line category. Detailed notes from these workshops and the associated changes made to the evaluation tool based on input received are provided in the 'As We Heard It' report in Document 1. Below is a summary of stakeholder feedback including the validation of the TBL evaluation tool and any modifications made based on stakeholder feedback.

- The weighting across all categories of the TBL evaluation tool (Environmental Sustainability, Health and Social Implications, and Financial Viability) was made equal to emphasize the importance of balancing each category when evaluating options;

- The importance of viewing the options from a public health lens, and not just an environmental health lens was raised by many as an important consideration and thus:

    - "Health" was added to the Social Implications category;

- "Potential for impacts to public health from noise, vibration, odour and ground water contamination" was added as a new indicator under the Safety and Health Impact criteria; and
- "Vehicle emissions" was added to the air contaminant emissions indicator in the Safety and Health Impact criteria.

- "Risk of increased litter and vector/vermin" which was originally an indicator in the Equity and Inclusion criteria, was moved to the Safety and Health Impact criteria;
- The importance of the health and safety of staff was strongly emphasized and as such, the "health and safety of staff" was added to the Health and Safety indicator; and,
- The importance of considering opportunities to partner with the social enterprise community, not solely private business, was further emphasized by recognizing social enterprises as an important way to support local economic growth in the Economic Development criteria.

Following modifications made to the tool based on stakeholder feedback, staff presented the proposed changes to the Council Sponsors Group to ensure all feedback was appropriately considered and to validate the changes before finalizing the tool. Furthermore, Ottawa Public Health has shared their support of the updated TBL evaluation framework in the context of its consideration of key elements related to the protection of public health.

The robust process followed to develop the technical evaluation process will ensure not only key technical considerations are thoroughly evaluated and considered when objectively comparing options, but it also ensures key community and Council priorities are thoroughly considered and reflected in the final tool.

Next Steps

Through the receipt and approval of this Phase 2 report, Council will set the strategic framework for the City's Solid Waste Master Plan, and guide how Ottawa manages and diverts waste over the next 30 years. This allows staff to advance to the options evaluation process, which will produce a short list of options for consultation and consideration and support the development of the draft Waste Plan and 5-year Implementation Plan.

The project's technical consulting team will complete the evaluation of the long list of options using the evaluation process described in this report to generate two potential future waste management systems for consideration and consultation - a moderate and an aggressive system. Once generated, staff will brief the Council Sponsors Group, members of Council, and the Stakeholder Sounding Board on the systems in advance of initiating Engagement Series 2. During this time, staff will explain the difference between the two proposed future systems and how they meet the City's short-, medium-, or long-term waste management needs. They will also note which options have been put on hold due to either the unknowns of the waste environment relating to provincial or federal initiatives, or due to the lack in industry experience or available progressive technologies.

Prior to the above-referenced briefings and the discussions to take place during Engagement Series 2, staff believe it is important to provide some context in terms of what the next steps are likely to entail to ensure that stakeholder expectations are carefully managed. Specifically, it is worth noting that short-term opportunities (such as policies, promotion and education, and programs) are likely to be the primary focus of the immediate five-year implementation plan, as opposed to some of the more substantial program/service changes and emerging technologies that are included in the long-list of options. While it is recognized that Council and key stakeholders have an ambitious vision for the future of waste management in this city, and that the approach approved by Council for developing the Waste Plan aligns with that vision, staff's assessment of other municipal waste plans confirms that many of the more substantial and significant options to be considered take time to fully understand, evaluate and

implement. As such, staff expect that the five-year implementation plan will consist of a suite of mostly short-term opportunities aimed at addressing the goals of the Waste Plan - some of which are likely to be difficult but necessary decisions in order to make meaningful progress on improving waste reduction and diversion.

Kicking off the ramp up to Engagement Series 2, staff will present the two proposed waste management systems to the Waste Plan's City Champions Group and Solid Waste staff. In addition to these key stakeholder groups, staff will engage with two of the City's advisory committees; the Environmental Stewardship Advisory Committee and the Accessibility Advisory Committee. Staff will develop and distribute a presentation that will detail the two proposed systems in order to ensure they are understood by residents and stakeholders who have little to no waste management knowledge or experience.

Staff will also develop an enhanced Engage Ottawa and social media strategy with the goal of increasing overall engagement participation for the development of the Waste Plan. While the formal engagement series won't start until fall 2021, staff will begin connecting with marginalized and at-risk communities in July and August 2021, through engagement events, focus groups, and an online survey, to establish trust and connection in order to identify barriers to participation and address those barriers to ensure inclusive feedback is received. Specifically, staff will engage with the City's Gender and Race Equity, Indigenous Relations, Diversity and Inclusion branch to ensure Engagement Series 2 follows a culturally and contextually appropriate Equity and Inclusion engagement process with equity-deserving groups.

In fall 2021, staff will begin Engagement Series 2 which is expected to last approximately two months and will solicit feedback from residents and community stakeholders on the future waste management systems being considered for the Waste Plan, including feedback that will be used to inform the development of performance targets. When Engagement Series 2 is complete, the Council Sponsors Group will be briefed on the outcomes of the consultations before being asked to provide further guidance on the selection of the preferred waste management system that will form the basis of the draft Waste Plan.

In addition to engaging on the future waste management systems during Engagement Series 2, staff will consult with their four key stakeholder groups on the draft objectives for the Waste Plan before seeking Council's approval of them through the Waste Plan's Phase 3 report.

Once all consultations are complete, staff will use feedback heard during Engagement Series 2 to support the development of the draft Waste Plan and 5-year Implementation Plan. As staff have done for Phase 1, an "As We Heard It" report will be developed to outline what was done and heard through Engagement Series 2. Staff will also reconnect with groups engaged through the community meetings and interviews to review the feedback and discuss the next steps of the Waste Plan. This will conclude the work in Phase 2 of the development of the Waste Plan, which seeks to determine Where Are We Going, through the identification of the City's long-term waste management needs, identification and evaluation of different options to meet these needs and align with Council's strategic vision, goals an guiding principles for the Waste Plan, and considers extensive community and stakeholder input on the short listed options to inform the development of the draft strategy.

By early Q2, 2022, Council will receive the Phase 3 report on the draft Waste Plan and 5-Year Implementation Plan for consideration. This Phase 3 report will also bring forward the following items for information:

- a full-cost business case for the recommended waste management system, as well as a 30-year financing plan with high-level estimates for long range financial planning purposes (Class D estimates);
- the 10-year capital infrastructure and operating requirements; and,
- performance measures and monitoring and reporting requirements, including short-, medium- and long-term targets.

Once complete, staff will undertake the third and final Engagement Series for the project, which will include consulting with residents and key stakeholders on the proposed final Waste Plan and 5-Year Implementation Plan before it is presented to Committee and Council for consideration in early 2023.

RURAL IMPLICATIONS

This is a city-wide report.

CONSULTATION

The Solid Waste Master Plan Phase 1 report outlined a Consultation and Engagement Strategy to be executed throughout the Phases of this project. The strategy takes into consideration consultation and public engagement best practices at the City of Ottawa, as well as the best practices of other municipalities that have undertaken similar projects. Staff adjusted the strategy during Engagement Series 1 to abide by all public health guidelines in response to the COVID-19 global pandemic.

COMMENTS BY THE WARD COUNCILLOR(S)

This is a city-wide report.

ADVISORY COMMITTEE(S) COMMENTS

A member from the Environmental Stewardship Advisory Committee (ESAC) belongs to the Stakeholder Sounding Board, a key stakeholder group identified to support the development of the Waste Plan. This member was engaged throughout the development of this report. Additionally, staff spoke to the Waste Plan's development and progress at an ESAC meeting on October 22, 2020.

INDIGENOUS, GENDER AND EQUITY IMPLICATIONS

Through the development of the Waste Plan, staff are committed to completing extensive consultations to ensure the Waste Plan is considering Indigenous and Gender Equity implications. As explained within this report, staff engaged with equity-deserving groups as part of Engagement Series 1 and will continue engagement efforts with these groups throughout the rest of the waste planning process. In particular, a culturally and contextually appropriate Equity and Inclusion engagement process will take place for Engagement Series 2 as it is recognized that Waste Plan options have the potential to impact these groups in terms of service access, experiences, impacts and outcomes.

LEGAL IMPLICATIONS

There are no legal impediments associated with the Committee and Council's approval of the recommendations of this report.

RISK MANAGEMENT IMPLICATIONS

There are risk implications. These risks have been identified and explained in the report and are being managed by the appropriate staff.

ASSET MANAGEMENT IMPLICATIONS

The recommendations documented in this report are consistent with the City's Comprehensive Asset Management Program objectives. The implementation of the Comprehensive Asset Management program enables the City to effectively manage existing and new infrastructure to maximize benefits, reduce risk, and provide safe and reliable levels of service to community users. This is done in a socially, culturally, environmentally and economically conscious manner.

FINANCIAL IMPLICATIONS

There are no financial implications associated with this report. Costs for the various options being proposed in the draft Waste Plan will be identified in the Solid Waste Master Plan Phase 3 report in 2022.

ACCESSIBILITY IMPACTS

Staff will ensure all applicable accessibility standards are adhered to during the execution of the initiatives and activities identified in this report.

ENVIRONMENTAL IMPLICATIONS

The Waste Plan will outline various recommended options for achieving the City's environmental goal with respect to waste management, diversion and reduction.

CLIMATE IMPLICATIONS

In January 2020, Council unanimously approved the Climate Change Master Plan, which is the overarching framework for how Ottawa will mitigate and adapt to climate change over the coming decades. It set short, mid, and long-term targets to reduce community GHG emissions by 100 per cent by 2050 and corporate emissions by 100 per cent by 2040. In 2019, emissions from solid waste accounted for 7 per cent of total emissions in Ottawa and 10 per cent of total emissions from municipal operations.

The Climate Change Master Plan is supported by two key strategies:

- Energy Evolution: Ottawa's Community Energy Transition Strategy: Received by Council in October 2020, this strategy is the framework for how Ottawa can achieve its GHG reduction targets.
- Climate Resiliency Strategy: Still under development, this strategy will assess how Ottawa is vulnerable to climate change and identify strategies to mitigate the greatest risks.

The work to date on the Waste Plan aligns with the Climate Change Master Plan, the Energy Evolution Strategy, and the future Climate Resiliency Strategy. The proposed vision statement, guiding principles and goals were designed to reflect Council's declaration of a climate emergency in 2019 and recognition of the important role the future integrated waste management system will have in helping achieve Council's climate change goals.

The waste and renewable natural gas sector is one of the smaller contributing sectors to emissions in Ottawa, however, it presents a significant opportunity to create net zero emission fuel source. Energy Evolution identified the diversion of organics and the creation of renewable gas as one of the top actions that can be taken to help achieve Ottawa's GHG targets. Additionally, Energy Evolution identified 20 projects to help accelerate action and investment towards achieving these targets, three of which directly relate to the Waste Plan:

- Municipal Green Fleet Plan Update;

- Organics Resource Recovery Strategy; and,
- Renewable Natural Gas Strategy.

These projects informed the identification of future needs and options to meet these future needs as they relate to reducing the City's GHG emissions related to waste management, including the solid waste fleet, increasing the diversion of organics from landfill disposal and the desire to generate renewable energy from the processing of organics waste. Staff from the Energy Evolution project team have been an integral part of the Waste Plan project to-date. While climate resiliency is not in scope for the development of the Waste Plan, Solid Waste Services staff have been an integral part of the process to develop the Climate Resiliency Strategy to-date and will continue their involvement in the future.

TERM OF COUNCIL PRIORITIES

The Solid Waste Master Plan aligns with the Environmental Stewardship priority, to grow and protect a healthy, beautiful and vibrate city that can adapt to changes. Outcomes that support this priority include:

- The City is a leader in energy management and in conserving, recycling and reusing resources.
- The City's long-term plan for solid waste includes more diversion from landfills.

SUPPORTING DOCUMENTATION

Document 1: "As We Heard It" report

Document 1A: "As We Heard It" report Appendices

This document is available in English only and may be translated in whole or in part upon request. For more information, please contact Nichole Hoover-Bienasz at 613-580-2424, extension 25145.

Ce document n'existe qu'en anglais et pourrait être traduit en partie ou en totalité sur demande. Renseignements : Nichole Hoover-Bienasz, 613-580-2424, poste 25145.

Document 2: Long-Term Waste Management Needs

This document is available in English only and may be translated in whole or in part upon request. For more information, please contact Nichole Hoover-Bienasz at 613-580-2424, extension 25145.

Ce document n'existe qu'en anglais et pourrait être traduit en partie ou en totalité sur demande. Renseignements : Nichole Hoover-Bienasz, 613-580-2424, poste 25145.

Document 3: High Level Long List of Options

This document is available in English only and may be translated in whole or in part upon request. For more information, please contact Nichole Hoover-Bienasz at 613-580-2424, extension 25145.

Ce document n'existe qu'en anglais et pourrait être traduit en partie ou en totalité sur demande. Renseignements : Nichole Hoover-Bienasz, 613-580-2424, poste 25145.

Document 4: Evaluation Process

This document is available in English only and may be translated in whole or in part upon request. For more information, please contact Nichole Hoover-Bienasz at 613-580-2424, extension 25145.

Ce document n'existe qu'en anglais et pourrait être traduit en partie ou en totalité sur demande. Renseignements : Nichole Hoover-Bienasz, 613-580-2424, poste 25145.

DISPOSITION

Upon approval of this report, staff will continue work on the Waste Plan, as well as its component projects. The long list of options for managing and diverting waste, as proposed in this report, will be evaluated and then brought to key stakeholders and the public for engagement.