



THE FUTURE OF WASTE

EDMONTON 25-YEAR COMPREHENSIVE
WASTE MANAGEMENT STRATEGY

Edmonton

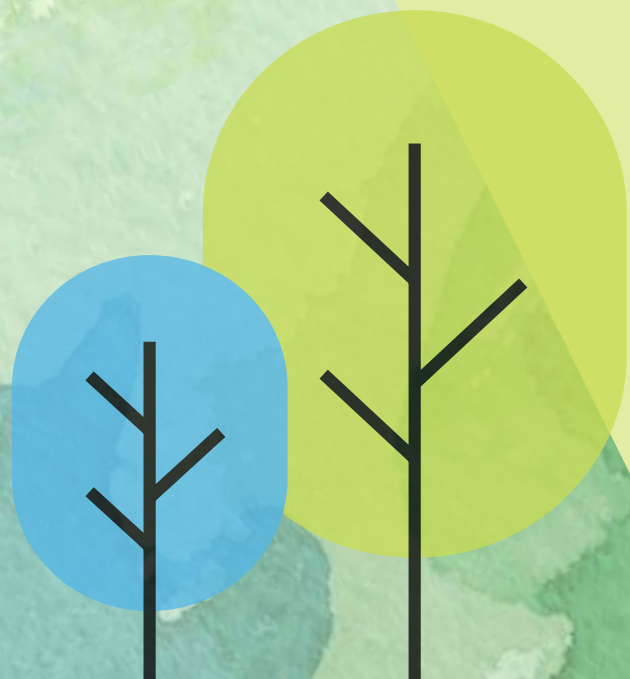


TABLE OF CONTENTS

- 1. Executive Summary** 2

- 2. Strategy Project Overview** 4
 - 2.1. Background: The Policy Path 5
 - 2.2. Strategy Process and Methods 7
 - 2.3. What We Heard 9

- 3. Zero Waste – a New Strategic Framework** 12
 - 3.1. What We Heard – About Zero Waste. 15
 - 3.2. Waste Strategy Strategic Goals and Directions 16
 - 3.3. Corporate Strategic Alignment and Waste Strategy Development.17
 - 3.3.1. Climate Resilience 19
 - 3.3.2. Service Delivery Transformation 19
 - 3.4. Performance Management 20
 - 3.5. Financial Impacts of the Strategy 21
 - 3.6. Measuring Impacts 21
 - 3.7. Recommended Timeline 24
 - 3.8. Operational Assumptions and Limitations 25
 - 3.9. Next Steps 26
 - 3.9.1 Multi-Unit Residential 26
 - 3.9.2 Industrial, Commercial and Institutional Programming 27
 - 3.9.3 Waste Reduction Programming 27
 - 3.9.4 Single-Use Plastics/Single-Use Disposables 27
 - 3.9.5 Regional Alignment 27

1. EXECUTIVE SUMMARY

The Future of Waste: Edmonton 25-year Comprehensive Waste Management Strategy sets the City of Edmonton on a path of ambitious, transformational change. Under the broader framework of Zero Waste, the strategy adopts a broader lens to transform the system with new focus on efforts which will emphasize waste reduction in addition to affirming a commitment to 90 percent diversion of single unit residential waste from landfill. The diversion target is also recommended to be extended across all sectors: regulated and non-regulated and programs will be advanced to support these goals.

The Strategy positions the City's Waste Services Utility for the next 25 years with program developments that will take shape over the next five to seven years. Once programming and new processing facilities are brought on stream, the program can be evaluated and assessed, and any needed adjustments can be made.

The new Strategy seeks to pull on all potential levers to support the Council's strategic goals of Healthy City, Urban Places, Climate Resilience and Regional Prosperity. Its initiatives are aligned with corporate goals and with the inputs over the last year from multiple streams of analysis, along with the passionate voices of customers and stakeholders.

Under a Zero Waste Framework the Waste Strategy seeks a new path through:

- A commitment to a system that continuously improves and rethinks waste (so that products and packages are designed to lessen or eliminate waste at the outset), reused in beneficial ways and repurposed as feedstock within a circular economy. The Zero Waste approach is supported in the strategy by:

- A focused waste reduction strategy, a targeted strategy to prevent more materials from becoming part of the waste stream through operational refinements, increased engagement and partnership with the community and addressing calls for reduction in single-use plastics/ single-use disposables.
- Development and direction of waste feedstocks (types of waste, e.g., organics, plastics, etc.) to support production and innovations in the local economy. The City's expertise in developing Refuse Derived Fuel (RDF) has potential applications beyond the Waste to Biofuels Facility which can be explored. In addition, other feedstocks from plastics to textiles can be directed to appropriate markets.
- Better alignment of the collection of waste at the curb with the processing systems at the Edmonton Waste Management Centre. Past practices contribute to inefficiency and contamination, while future programs will enforce separation of organic waste from residual garbage, including through enforcement of volume limits. Separate collections of yard waste will ensure materials can be segmented from the system for beneficial processing. Together, these practices will enable better processing of waste toward beneficial end products with less contamination in the system.
- Delivering program change including associated capital requirements within the stable, predictable rate framework advanced in the 2018 Business Plan.



- Advancing new programming for single unit residences first, in tandem with the Single Unit Set-out Business Case (CR_7173). Collections systems, processing and waste reduction programming will be integrated to ensure program success.
- Advancing policy initiatives, including source separation, to better position the City in relation to non-regulated sectors. The City will play a role as a regulator, seeking to facilitate market-based responses to new system requirements and will immediately begin to withdraw from directly offering non-regulated services.
- Openness to alignment with regional municipalities as regional systems grow and major new investments are contemplated.
- Asking waste customers to do more to manage their waste at home and in turn, offering more in terms of customer choice and support. Recommendations propose to offer a choice on cart size, excess waste options and potential rate variability associated with cart choices.

Early learnings from the Initial Cart Rollout show how integral customer service and support will be to program success. Learnings from early adoption will continue to ensure programs are responsive and adjusted as required. More work is being done to understand how customers interact with the program and ensure support and education programs, including new digital programs, are responsive to customer needs.

The recommendations advanced in the Strategy will collectively transform the system and position the City to deliver on its goals through creation of a more effective, customer-responsive and efficient service.



2. STRATEGY PROJECT OVERVIEW

This report makes key recommendations in support of the City of Edmonton new 25-year Comprehensive Waste Management Strategy. It assesses the direction of operations and processes at the Edmonton Waste Management Centre (EWMC), new program directions for single and multi-unit residential waste collection, programming to advance waste diversion within the Industrial, Commercial and Institutional sectors (ICI), and a more targeted emphasis on waste reduction activities. Together, the initiatives refocus the City on meeting diversion targets, within a more holistic Zero Waste Framework, and in alignment with the City's strategic goals.

This Strategy emerged from a period of challenge that prompted the City to refocus. A combination of facility and operational challenges at EWMC, an operational review by the City Auditor and the City's Program and Service Review confirmed the need for change.

It points to opportunities to improve operational performance and align residential collections and processing to get the system back on track toward a goal of 90 percent single unit residential waste diversion from landfill. It also looks beyond diversion to identify opportunities to refocus the system toward waste reduction and management to support the City's strategic goals of Healthy City, Urban Spaces, Regional Prosperity and Climate Resilience.

Extensive engagement, best-practice research and program analysis were taken into account, as well as real-time findings from the Edmonton Cart Rollout, which is currently ongoing in 8,000 households. This active project is allowing Administration to learn, prior to citywide implementation, how best to implement changes and to identify key needs and challenges that will impact success.

Beyond program changes, the City's long-term strategic goals for its waste management system will require a new orientation and openness to new partnerships and processes that will not only address base operational needs, though these challenges remain significant, but that begin to refocus the corporate lens on activities that reduce the amount of waste generated and collected. Cumulatively, the 25-year Comprehensive Waste Management Strategy seeks to deliver transformational impacts and excellent service within a well-managed utility.

2.1. BACKGROUND: THE PATH TO EDMONTON'S NEW 25-YEAR COMPREHENSIVE WASTE MANAGEMENT STRATEGY

The development of the new Strategy began in June 2017, when the strategic and operational challenges of the current system came to light in the Waste Services Business Plan. The Plan noted structural challenges at the Edmonton Composting Facility and the implications associated with this development. It highlighted system deficiencies due to ongoing, high levels of contamination within the waste stream resulting from high concentration of organic materials (food and yard waste). Mixed and contaminated waste presents a challenge to processing equipment as it cannot screen out contaminants completely and therefore limits the effectiveness and the ability to produce beneficial end-material outputs like compost. Tackling system challenges requires households to separate organic waste from the waste stream for the plan to be successful in meeting its diversion goals.

In March 2018, a strategic update was provided to City Council recommending key steps to realign the overall Strategy. The following motions were passed:

1. That Administration review the scope and assumptions of the residential waste diversion metric, as outlined in the February 8, 2018, Office of the City Auditor report CR_5555 (Waste Services Audit) and return to Utility Committee by June 2018 with a recommendation on the diversion calculation methodology.

2. That Administration continue with targeted engagement and provide a report on the removal of grass, leaf and yard waste from the waste stream, the availability of alternate disposal options for leaf and yard waste, and further details on the proposed program, to Utility Committee in June 2018, and that Administration:
 - a. continue to collect grass clippings in 2018, pending the results of the public engagement,
 - b. implement special collection on yard waste (e.g. Christmas trees) in fall 2018.
3. That Administration proceed with initial planning for a Source Separated Organics (SSO) Program for organic waste processing and collection, with planned implementation starting in fall 2020 for the units receiving curbside collection.
4. That Waste Services engage citizens on the implementation of potential additional waste diversion programs, report citizen feedback and input to Utility Committee in October 2018, and factor citizen feedback and input into the implementation of any additional waste diversion programs.

Utility Committee also passed the following motions in June 2018:

- That Administration, as part of the Waste Management Strategy Update, provide an analysis of a Zero Waste target and associated calculations and strategy implications for residential, multi-family and non-residential waste and that consideration of a Zero Waste target be included in engagement exercises that will be done to support the waste management strategy update.

- That Administration look at current practises in other jurisdictions that have been used to reduce and/or eliminate the use of single-use plastics, including but not necessarily limited to plastic bags, cups and straws, and report back on mechanisms the City could use to make further progress on this issue.

In addition to the recommendations approved in March 2018, other elements will form part of the overall 25-year Comprehensive Waste Management Strategy, including recent City Auditor's recommendations, as well as those from the City's own internal review processes.

In August 2018, the framing for the 25-year Strategic Outlook Project Overview was presented to Utility Committee. In addition to advancing the recommendations accepted in the March 2018 Strategic Update, the Strategy project was framed to also include:

- Proposed changes to the Waste Management Bylaw (17555), and consideration of:
 - Adopting the goal of becoming a Zero Waste city and managing any potential implications.

- Broadening waste diversion strategies into the multi-unit residential sector, including setting a targeted diversion goal for this sector and determining needed collection programs and associated communications and educational programs.
- Increasing waste diversion in the non-residential sector, including setting a targeted diversion goal for this sector, and determining the appropriate path for the City to maximize its impact.
- Implementing additional waste prevention and reduction initiatives, including potential programs to restrict single-use plastics and to reduce food waste across all sectors.
- Coordinating with the Energy Transition Unit to explore opportunities to address climate change as per the Edmonton Declaration.
- Collaborating with regional partners.

In advance of this document, City Council also passed motions as part of the strategic approach to:

- Advance a Request for Proposal (RFP), seeking an operating partner for the City's Construction and Demolition Recycling Facility (CR_6361 Industrial, Commercial and Institutional Sector Strategic Review on February 1, 2019).
- Participate in strategy development, along with the Alberta Urban Municipalities Association as well as other municipalities to develop and advance an Extended Producer Responsibility policy framework that can be recommended to the Province of Alberta (CR_6363 Extended Producer Responsibility - Information Update on March 22, 2019).



2.2. STRATEGY PROCESS AND METHODS

SITUATIONAL ANALYSIS

The strategy development process began with an assessment of the City's current programming. Challenges were outlined in Council reports and directional recommendations were provided to help shape the process. Figure 1 provides a SWOT (strengths, weaknesses, opportunities and threats) overview of the current state of Waste Services.

Figure 1. Swot Analysis

STRENGTHS

- Strong public support for diverting materials from landfill
- Integrated waste processing infrastructure in place
- Expertise in refuse derived fuel (RDF) production
- Resident participation in previous waste strategies (including early adopting of recycling programs)

WEAKNESSES

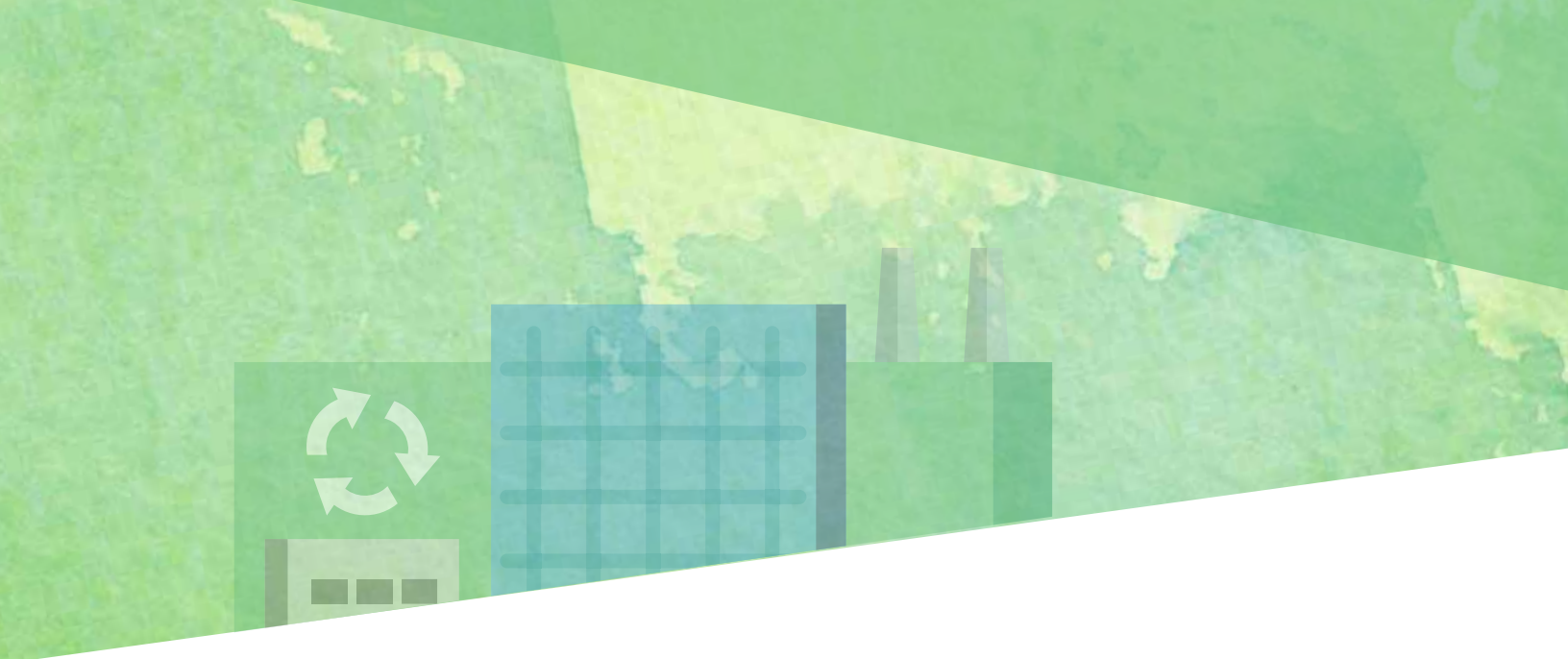
- Processing challenges including shut-down of Edmonton Composting Facility
- No source separation program in place (causes high contamination in the system)
- Limited focus on waste reduction programming
- Limited use of operational performance measures to inform waste business decisions
- Non-regulated programs not meeting stated goals
- Weak business case preparation methodologies

OPPORTUNITIES

- Processing strategies can be renewed at the same time as changes to collection programs
- Source separated organics programming is well established in the Edmonton region
- Growing grassroots campaigns looking for the City to restrict single-use plastics and other single-use disposables
- Zero Waste framing is increasingly well known
- Growing potential of RDF markets provides opportunities to increase diversion based on niche expertise

THREATS

- Lower participation in recycling programs
- Recycling programs, construction and demolition recycling impacted by restricted markets/ inadequate market development
- Reach into ICI markets limited by existing market-based initiatives; City cannot compete with the private sector



In developing a path forward, the Strategy and its components have been informed by a wide range of inputs assembled or commissioned through the City's Waste Services team. Some of these programs are ongoing and will continue to inform the program as implementation plans are prepared. This included:

- Two phases of qualitative and quantitative public engagement activities across the single unit and multi-unit residential sectors, and ICI sector. The engagement processes have collectively received more than 30,000 points of input through online and telephone surveys, meetings, workshops and public events. Waste Services staff and other City of Edmonton staff were also engaged in both phases to assess impacts of proposed changes to operations.
- An internal review through the Program and Service Review (2017-2018), which assessed the current state of the City's four non-regulated business lines:
 - Commercial Collections
 - Commercial Self-Haul
 - Construction and Demolition Processing
 - Aggregate Recycling
- The February 2018 Waste Services Audit Report, which signaled operational challenges including the need to validate diversion methodology (approved for single unit residential sector by City Council in June 2018).
- A rate variability study (2019)
- A cost of service study (2018)
- Ongoing best practice research and market scans conducted internally and by external organizations.
- Submissions made by waste processing organizations about potential technologies, services and processes.
- A Request for Expressions of Interest sent to waste industry members to gauge market interest for operating the City's Construction and Demolition Recycling Facility.
- The development, launch and startup of the Edmonton Cart Rollout to 8,000 households, beginning April 2019.
- The work of the Organics Processing Facilities Steering Committee, which brought forward a business case in support of a new organics processing approach at the Edmonton Composting Facility.
- Assessments of aligned processing streams such as production of refuse derived fuel, changes to the City's recycling program and planned upgrades for the Materials Recovery Facility.

2.3. WHAT WE HEARD

Throughout two phases of public engagement, Waste Services received more than 30,000 points of input. Edmontonians weighed in on the future of their waste system through surveys, public meetings, focus groups, tours of apartments and condo buildings, and at trade shows and events. It quickly became apparent that Edmontonians have passion for the system and a desire to 'get it right'. The What We Heard Report (Attachment 3) provides a fulsome overview of the key themes and details from public engagement which have been used to ground the data and outputs presented. Specific details on each area of engagement are also interspersed within this report to demonstrate how the engagement links to the recommended paths. In addition, comprehensive reports from both phases of engagement are available at edmonton.ca/futureofwaste.

The engagement produced some strong themes which speak to the overall strategic approach, and which helped to inform the Strategic Goals and Directions contained here. Some overarching themes included:

WHAT WE HEARD: ABOUT THE SCOPE AND DIRECTION OF CHANGE	
<p>Edmontonians support progressive waste practices.</p>	<ul style="list-style-type: none"> • But they are skeptical given recent challenges. • People want to get the system back on track and are willing to help, but they also want: <ul style="list-style-type: none"> • To see proof the program is working and they are getting a return on the money they contribute. • More emphasis on customer experience and customer convenience in order to participate fully.
<p>Move towards harmonization of systems across sectors, practices and within the region.</p>	<ul style="list-style-type: none"> • Differences in how programs are administered across the region can cause confusion and deter participation. • More focus on Extended Producer Responsibility (EPR) is needed. • A regional outlook supports market development opportunities and role clarity when people are generally following the same processes and rules.
<p>Just do it!</p>	<ul style="list-style-type: none"> • The program is complex, but the City is not breaking new ground. The majority of public engagement participants across residential and ICI sectors agree it is time to move toward source separation of organics. • The City should be willing to learn from others and apply lessons learned.



WHAT WE HEARD: ABOUT HOW CHANGE NEEDS TO OCCUR

Education and support are key to helping people adapt to a new system.

- People will need instruction, support and reinforcement to get the new process right.

Tools and support must be offered long term.

- This will be a high touch system. Consistent, ongoing support is necessary.

Make it easy

- Time constraints, cold winters with snowy residential streets, changing rules, language barriers, different cultures and different street or building configurations will all present unique challenges for changing overall system behaviour.
- People want clear rules and a program that makes sense, is easy to follow and not onerous to manage.

The yuck factor is real

- Concerns about odour, attraction of insects or rodents and mess are significant. The 'yuck factor' is a consistent worry.

WHAT WE HEARD: ABOUT THE NEED TO EXPAND OPPORTUNITIES FOR PARTICIPATION

Create conditions to help residents divert additional materials.

- The prospect of material dumping is seen as a major concern. Other concerns with program transition include fees at Eco Stations, inadequate management of bins and carts at multi-unit buildings, and insufficient opportunities for people to get rid of large materials, including grass and yard waste.
- A desire for more convenient and varied waste drop-off options.
- Enforcement will be key to making the new system work and ensure participation.

WHAT WE HEARD: ABOUT THE ROLE THE CITY PLAYS IN THE SYSTEM

The City needs to be a strong regulator, but not necessarily a market participant.

- The City should set standards and let the market ensure the standards are met.
- Delivery of system components need not focus on large-scale waste industry participants alone. There are unique, creative initiatives in the not-for-profit sector that can be leveraged to support waste reduction activities.

WHAT WE HEARD: ABOUT THE ROLE OF EMPLOYEES

City and Waste Services employees have been enthusiastic participants in process development.

- Waste Collectors are clear that the new system will work best if the City enforces new standards.
- Extensive education and support is necessary for residents to successfully comply with current and future changes to the waste system.
- Staff perceive the benefits of the new system include increased safety and efficiency.
- It is important for the City to lead by example (e.g., not use plastic materials in its offices and separating food scraps in City buildings).
- There is the potential to use the City's community-based facilities, like recreation centres, fleet service yards, libraries and LRT stations as drop-off locations for big bin and specialty items (e.g., electronics, batteries, printer cartridges).

WHAT WE HEARD: ABOUT MATERIAL RESTRICTIONS AND RECYCLING

Packaging, single-use plastics and other disposable items are clear issues, but the solutions are less clear

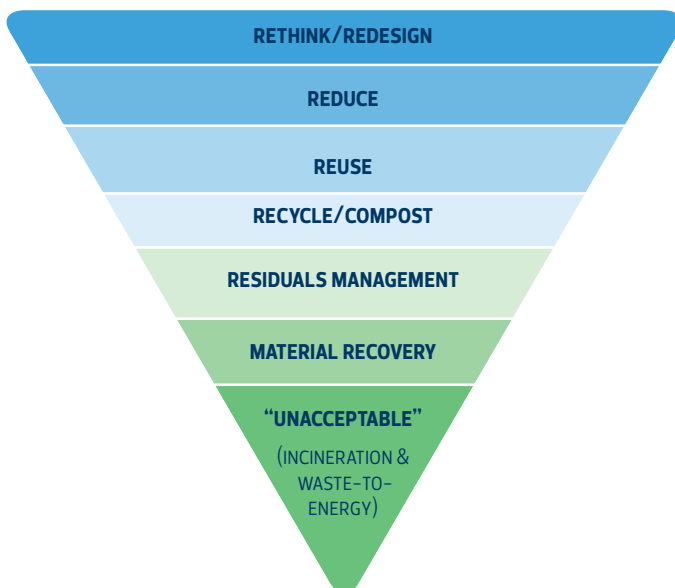
- From plastic bags to take-out containers, many residents and businesses deal with unwanted materials they can't recycle or return.
- People understand recycling markets are changing and materials they thought were being recycled are not. It's understood that a combination of new regulatory requirements, new market development efforts and material restrictions should be integrated to support diversion or reduction of these materials overall.

3. ZERO WASTE: A NEW STRATEGIC FRAMEWORK

In the February 2018 Waste Services Audit Report, the City Auditor noted challenges with the current system's lack of emphasis on waste prevention programming, and recommended deliberate consideration of new strategy components, including spending allocations to ensure programs take a stronger focus on the internationally accepted solid waste management hierarchy (see Figure 2) which indicates prevention and reuse as the most sustainable methods of waste reduction.

The consideration of a Zero Waste Framework for this Strategy was borne out of these cautions, as well as the perspectives from public engagement where people expressed a desire to do more to reduce their impacts. Respondents indicated they are looking for programs, support and options to help them adopt practices to reduce their overall waste production and to see waste directed away from landfill.

Figure 2. Waste Hierarchy
(Source: Zerowastecanada.ca, 2018)



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

[...] a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use. Zero Waste means designing and managing products and processes to systematically avoid and eliminate 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 or air that are a threat to planetary, human, animal or plant health.

Adoption of a Zero Waste Framework is well aligned with collection, processing and waste reduction initiatives within the Strategy and supports the direction of the strategy and all related programs, business lines and services effectively by focusing on:

- More activities at the top of the waste hierarchy (rethink/ redesign, reduce, reuse).
- Circular economy innovations that consider waste as a resource/feedstock in the creation of beneficial projects.
- Measurements beyond diversion, including successful waste reduction, for example, achieving reductions in per capita waste generation.
- Continuous improvement within the waste system, consistent with performance indicators, which measure beyond diversion to capture the full environmental impacts of the system.

With this recognition, program directions in this Strategy all link to an overall Zero Waste Framework, as shown in Figure 3 below.

Figure 3. A Zero-Waste Strategic Framework





Broadly, emphasis on Zero Waste is integrated throughout the Strategy, and through current initiatives, with a focus on:

- Citywide source separation of waste, including in the ICI sector, to support higher diversion and more effective processing of different waste feedstocks.
- An organics processing strategy that seeks to make use of organic materials with potential output of renewable natural gas and compost, materials with beneficial environmental impacts.
- Maximizing the market potential of Refuse Derived Fuel (RDF) within the Waste to Biofuels Facility and exploration of other additional market opportunities.
- Enforcement of volume limits on residual garbage, seeking to motivate maximum utility of organic and recycling waste disposal.
- Leading the Alberta Clean Energy Technology Accelerator (ACETA), which aims to provide access to resources and feedstocks such as processed Municipal Solid Waste (MSW) and biomass, syngas from municipal solid waste residuals, landfill gas, anaerobic digestion gas and other processed materials or byproducts from solid waste processing and conversion. It also provides access to technology for hydrocarbon processing, upgrading and refining as well as experimentation and technology development.
- A range of programming shifts to support and inspire emergent and mature community-based initiatives to enhance waste reduction programming.
- Participation in efforts to promote Extended Producer Responsibility (EPR) policies, as per Council's motion on March 2019, that can ensure those who create products and packaging materials retain responsibility for the management of waste related to those materials, right through to the end of their life cycle. The motion from March 22 reads:
 - That Administration continue to work with and financially contribute \$50,000, from the 2019–2022 Waste Services Branch Operating Budget, towards the Alberta Urban Municipalities Association effort to develop a baseline that can inform the design of a provincial Extended Producer Responsibility program, in cooperation with other Alberta municipalities, producers and recyclers of packaging and paper products, and the Province of Alberta. This year, Edmonton is participating with the Alberta Urban Municipalities Association, the City of Calgary and many partner municipalities in promoting the establishment of an EPR framework in Alberta.
- A process outlined herein that will restrict and better manage single-use plastics/single-use disposables within the City.

3.1. WHAT WE HEARD ABOUT ZERO WASTE

Recommendations for supporting a Zero Waste Framework are also in alignment with results from the public engagement processes. Respondents in the public engagement were asked about their support for a Zero Waste goal, with the description that it would mean more focus of the City's efforts to boost waste reduction and reuse. More than 50 percent of respondents across all surveys indicated they would strongly support a Zero Waste goal¹.

Beyond endorsing a Zero Waste goal, residential survey respondents also offered their ideas for turning the goal into reality, recommending that the City pursue:

- Supporting/advocating for purchasing sustainable items
- Working with businesses to support waste reduction efforts.
- Supporting/advocating for making producers more responsible for their packaging and disposal of their products
- Developing additional waste prevention programming including:
 - Developing Food Waste Prevention Programs
 - Establishing additional Reuse Centres
 - Developing food collaborative recovery programs with the commercial sector
 - Providing support for item donation organizations and programs

Respondents also noted that they would like to see the City improve access and convenience of programs that support waste reduction, including through:

- Additional convenient drop-off locations for common household items like batteries, small electronics, light bulbs, printer cartridges and non-reusable clothing and household fabrics.
- More options for drop off, such as shopping malls, retail centres or grocery stores.
- Improved hours for access to Eco Stations, with more emphasis on evening and weekend hours.

Similar ideas and opinions were offered by the non-residential telephone survey respondents (N=501), 61 percent of whom strongly agreed with advancing a Zero Waste goal for the City. Non-residential respondents further offered that they would be interested in working with other organizations to support material reuse and reduction. Fifty-two percent of telephone survey respondents strongly agreed and a further 74 percent strongly agreed that businesses selling food should be responsible for preventing wasted food and donating.

¹ Results by survey source include 54% of 1000 respondents on the Leger Panel, 59% of 6,777 respondents to the City's online survey, and 56% of 2906 respondents from the City's Insight Community, respondents responded at a level of 8,9 or 10 out of a scale of 10).

3.2. WASTE STRATEGY STRATEGIC GOALS AND DIRECTIONS

The clear, concise messaging from the engagement process has helped to inform new strategic goals for the 25-year Comprehensive Waste Management Strategy. These goals evolve from key themes derived from the citizen engagement program and align with the go-forward direction recommended in the strategy. In addition, the Waste Strategy goals align with the City's strategic goals and will be advanced and assessed in conjunction with ConnectEdmonton, as outlined below:

Figure 4. Strategic Goals and Directions



3.3. CORPORATE STRATEGIC ALIGNMENT AND WASTE STRATEGY DEVELOPMENT

ConnectEdmonton: Edmonton's Strategic Plan 2019–2028 sets the direction for Edmonton's future. Four strategic goals have been adopted, articulating the transformational change required to achieve the City's Vision. The goals, actions and anticipated collaborations and partnerships outlined in this Strategy are developed in alignment with these goals.

The 25-year Comprehensive Waste Management Strategy will fundamentally transform service delivery and deliver outcomes and actions that will primarily impact Council's Strategic Goal of Climate Resilience. Figure 5 below highlights the alignment between Council's strategic goals, service delivery transformation, the strategic focus areas that helped guide the strategy development process and the outcomes and recommendations included in the Strategy.

Figure 5. Council's Strategic Goals


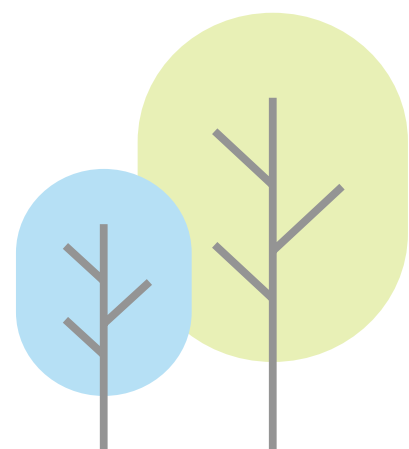
	Strategic Goals	Strategic Directions
<p>Primary Impact CLIMATE RESILIENCE</p> 	<ul style="list-style-type: none"> · Under a Zero Waste Framework, maximize efforts to recover, reduce and reuse materials from the waste stream. · All waste streams, from all sectors, are targeted with the best mix of processes and programs to achieve alignment with Zero Waste 	<ul style="list-style-type: none"> · Reorientation of waste programming to prioritize actions which prevent waste from entering the waste stream/being directed to landfill (volume limits, grasscycling, material restrictions). · Strategies deliver full life cycle benefits of circular economy orientation (organics processing, community benefits). · Effective alignment with the City's climate change goals and targets · Diversion targets of 90 percent set across all sectors to drive towards maximum diversion. · Emphasis on policy and support over direct market participation. · Education and outreach programs developed for non-regulated sector. · City Corporation leads by example · Integrated strategy to reduce single-use plastics/other disposables in landfills (processing, reductions, restrictions).

Figure 5: Council's Strategic Goals (cont'd)

	Strategic Goals	Strategic Directions
<p>Service Delivery Transformation</p>	<ul style="list-style-type: none"> Align all city programs, processes and solutions to best support the strategy and ensure efficiency and effectiveness of the strategy. The waste system prioritizes customer experience, meeting expectations of customers on service delivery and value for money. 	<ul style="list-style-type: none"> Year 1-3 strategic direction focused upon successful implementation of the new waste set-out program including: <ul style="list-style-type: none"> Phased delivery of new cart system programming to all single unit residences. Alignment with interim and long-term organics processing strategy. Development of extensive customer support programming to aid education and adaptation. Focusing waste prevention programming on grass and yard waste. Maximize community and private sectors partnerships where best value and service standards can be met. Deliver stable predictable rate increases (2.5 percent per year until 2022). Optional program elements introduced to support customer choice and program flexibility: <ul style="list-style-type: none"> Variable rates Excess waste collection/ drop-off opportunities



3.3.1. CLIMATE RESILIENCE

The Strategy has a primary impact on Council's Strategic Goal of **Climate Resilience** by:

- Advancing efforts to improve the overall system effectiveness and getting single unit residential waste back on track toward diversion of 90 percent of waste from landfill, activity which will reduce overall emissions as well.
- Adopting a Zero Waste Framework, which will necessitate more robust measurement of the overall system impact including greenhouse gas (GHG) impacts and overall reduction of waste from the system, including through potential restrictions on single-use plastics and other single-use disposables.
- Establishing ambitious targets for waste diversion in the multi-unit residential and Industrial, Commercial and Institutional sectors, along with recommendations that these sectors implement new source separation programming by September 2022.
- Advancing processing strategies that support broader environmental goals, such as:
 - An Organics Processing Facilities development process underway which will process organic materials with renewable natural gas as an end-product (CR_6669), and the production of heat and electricity from the existing Anaerobic Digestion Facility.
 - Increased evaluation and development of Refuse Derived Fuel (RDF) which is produced from municipal solid waste (MSW) feedstocks as a renewable fuel source for the Waste to Biofuels Facility and other production processes.

3.3.2. SERVICE DELIVERY TRANSFORMATION

As the City moves to transition 400,000 households to separate organics at the source, Administration is mindful of the need to ensure equity across service delivery and support efforts to build clean and healthy communities.

- The Strategy structures program implementation to provide the customer support required to make system adaptations. Throughout the public engagement process, respondents articulated the need for support and education, and the same sentiments have been echoed by the participants in the Edmonton Cart Rollout, currently underway in 8,000 homes. Waste Services has provided active, high-touch support for residents through the City's social marketing team and through detailed ongoing opportunities for interaction between the residents and the City. These programs will continue to be developed in anticipation of citywide implementation.
- The Strategy has been refined and shaped through two phases of public engagement:
 - Recommendations to improve customer choice through choices in cart size, Excess Waste Program and rate variability respond to calls for more flexibility in the system.
 - Expanded programming recommendations for grass, leaf and yard waste, respond to resident concerns about the sufficiency of programming.
 - Programming to support those residents who need extra support though the Assisted Waste Programming is being reshaped through the initial cart rollout, with additional resources allocated through the Single Unit Waste Set-out Business Case (CR_7173).



- The strategy prioritizes community-based partnerships that support waste reduction goals. The strategy seeks to extend the potential of community-level programming that is already in place to tackle issues such as food waste. Additional programming will create more robust partnerships focused on waste reuse and recycling of materials.
- By growing emphasis on waste reduction programs, the strategic focus of the City moves towards emphasizing success at the top of the waste hierarchy, where waste can be prevented. It is here that new industries and programs (like food waste programs and textile recycling) can be seeded.
- Promotion of reuse of materials builds access to materials across communities and the Assisted Waste Program will help to ensure all Edmontonians are able to adapt and participate in new programs.
- Fiscal commitments in the Strategy and Single Unit Waste Set-out Business Case are aligned with fiscal commitments and the City's path to regional prosperity, by planning on stable and consistent rate increases all through the strategic transition, even as new infrastructure and programming are brought on stream.
- Improved management of Waste Services is being achieved through satisfaction of the audit recommendations from the February 2018 Waste Services Audit Report, through alignment with capital spending processes including the Organics Processing Facility (OPF) process, and responsiveness to inputs into this strategy. We have satisfied key audit recommendations and continue to utilize the audit findings to improve Waste Services overall.
- Recommendations are being advanced to change non-regulated lines of business, aligned with the recommendations of the City's Program and Service Review process. This will ensure City resources are placed where they are most needed. Program changes being advanced include conducting a Request for Proposal (RFP) for the Construction and Demolition Recycling operations and a recommended wind-down of the City's commercial collections.
- Ongoing business performance work will ensure that the key indicators of success are transparent, fair and aligned with organizational values. The strategy better positions the City to manage coming strategic changes.
- The Utility will be effectively managed, and planning for future programs and capital spending will be completed in potential alignment with regional partners.

As Edmonton plans for the long term, Waste Services will ensure it manages a responsive system that is operationally efficient and nimble enough to adapt to new technologies. It will align with the local market and changing context and take into account key stakeholder input.

3-4. PERFORMANCE MANAGEMENT

As Waste Services moves to implement new programs and processes, there is ongoing alignment with the City's strategic goals. Edmonton's Strategic Plan and the Corporate Business Plan both provide the direction to coordinate activities and efforts to deliver services with the greatest value to Edmontonians. In addition, Waste Services will work collaboratively to ensure new strategic initiatives align with those of the department, corporation, Council and residents and that new performance measures are developed to track the progress and effectiveness of new programs.

City Operations has identified four strategic focus areas to advance business performance across the department: Customer Excellence, Operational Excellence, Financial Accountability and Organizational Excellence. Waste Services will undertake initiatives over the next three years that align with the department's strategic direction, while transitioning service and program models.

Furthermore, all Branch performance measures will align with the newly developed Enterprise Performance Management Framework and measures will be updated as required to support approved initiatives emerging from the Strategy. The Framework lays out strategic objectives at the operational levels, defines internal process and enablers that are supported with performance metrics and challenging targets and aims to improve the Branch's data-driven decision making. Waste Services Key Performance Indicators are outlined in CR_7172 Waste Services Business Plan Report.

3.5. FINANCIAL IMPACTS OF THE STRATEGY

Waste Services continues to strive towards achieving the financial indicators set out in the Waste Management Utility Fiscal Policy C558A. The Branch strives to maintain rates that are fair, stable and consistent while ensuring that the utility is financially sustainable over the long term.

Waste Services' financial indicators incorporate the implementation of Branch initiatives in the 2020 to 2022 business planning period. Initiatives include increasing residential and non-residential waste diversion, citywide implementation of the Source Separated Organics Program for single unit residences, enhancements to the Refuse Derived Fuel Facility and continuously improving the business in a fiscally responsible manner.

The financial indicators are measures of the proposed financial performance of Waste Services. Updated indicators for 2020 to 2022 are included in Attachment 1 of the August 29, 2019, City Operations report CR_7172. A full update to the measures will be presented in fall 2019 as part of the 2020 Waste Services Utility Rate Filing. The rate filing will continue the focus on achieving overall long-term financial sustainability, balancing both capital and operating requirements with achievement of the financial indicators.

3.6. MEASURING IMPACTS

Across all activities, the City's overall diversion of waste from landfill will continue to be a major indicator of the impacts of waste programming. In August 2018, the single unit residential target for waste diversion was reaffirmed as 90 percent, a target first set in 2007 in Waste Management Policy C527. Diversion methodologies and baseline measures for the multi-unit sector and the industrial, commercial and institutional sector will be developed as those program areas are further developed. Methodology for deriving diversion impacts of waste reduction efforts will also be developed.

In August 2018, the single unit residential diversion targets and methodology were updated in alignment with the February 2018 Waste Services Audit Report. Based on the revised diversion rate calculation methodology, the final diversion rate for 2018 is 36 percent, which forms the baseline for the Strategy. This baseline is represented in the top box of the Path to 90% diagram below.

As shown in Figure 6, the low diversion rate for the current program reflects challenges at the Edmonton Waste Management Centre, including structural challenges at the Edmonton Composting Facility (ECF), which had operated intermittently since 2017 and was recently closed. Incremental improvements

can be anticipated as ongoing initiatives begin to impact the City's organics processing capacity, namely ensuring the full operation of the new Anaerobic Digestion Facility (ADF) by Q1 of 2020. Until a new long-term Organics Processing Facility can be brought on stream, the ADF, which has capacity for up to 40,000 tonnes of organic waste per year, will be a major part of organics processing as new programs come on stream in 2020.

In addition to the processing capacity of the ADF, the City is seeking to secure additional interim organics capacity to ensure source separated organics can be processed while the City's direct processing capacity is limited. The Waste Services Business Plan (CR_7172) speaks to the interim processing strategy which is targeting: available processing capacity in the region, development of additional cure site options (at the EWMC and on other available city property) and issuing of a Request for Expression of Interest (RFEOI) to industry to determine whether additional market-based processing (both open and in-vessel composting) can be brought on stream.

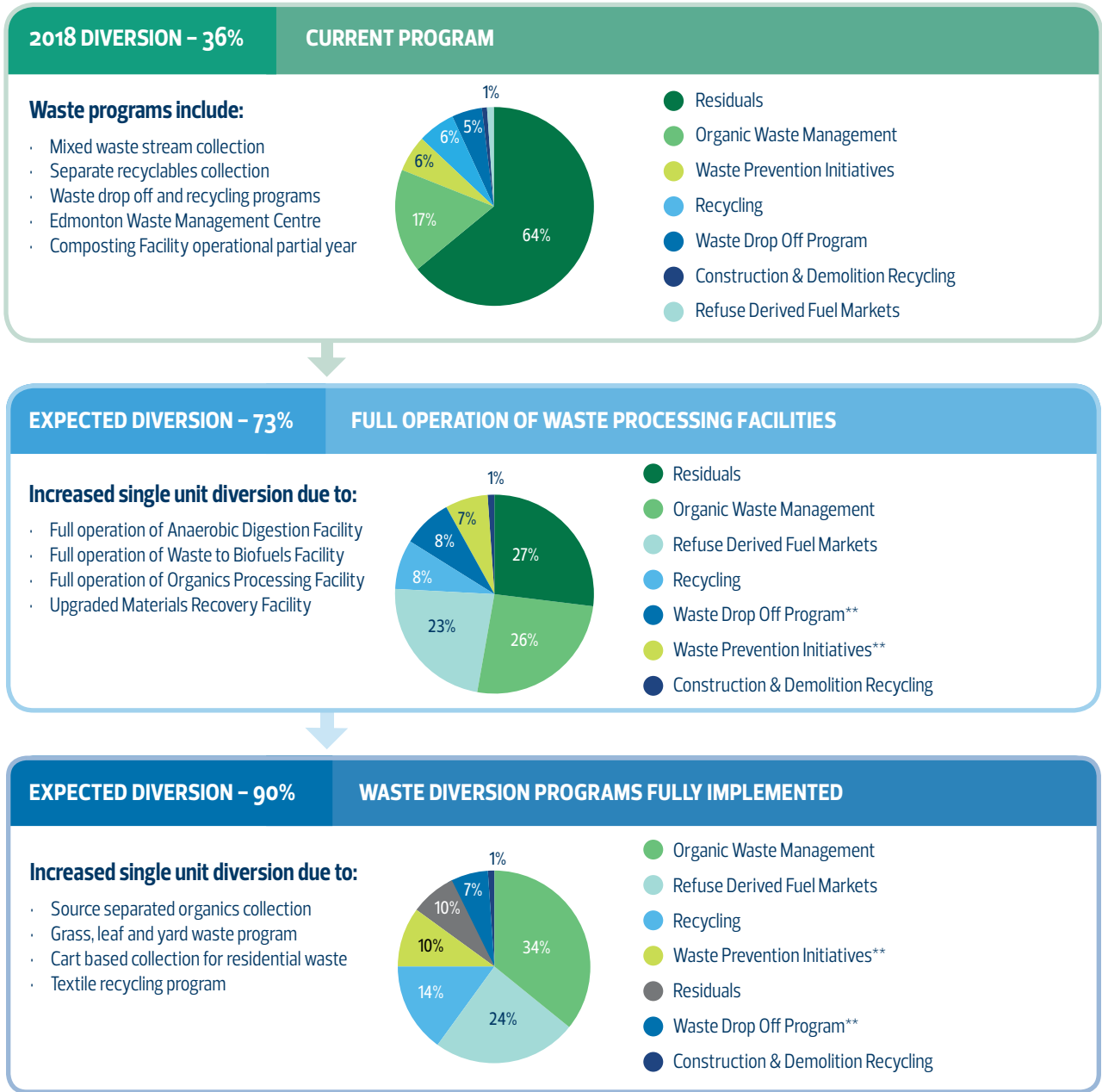
In addition to incremental improvements in organics processing, the production of RDF for the Waste to Biofuels Facility and other potential markets will begin to impact diversion rates over the next three years as production scales up to meet existing facility commitments and potential new market opportunities.

The second box in Figure 6 reflects an optimal processing environment at the Edmonton Waste Management Centre. The potential impacts of current or planned initiatives to increase diversion through additional processing are factored in here. These include securing a replacement for the ECF, as well as scaling up to full performance in terms of RDF production (in service to both the Waste to Biofuels Facility and other markets). As illustrated, bringing these new facilities to full operation, along with deploying the new citywide set-out, can bring the diversion rate to 73 percent within six to eight years.

Reaching 90 percent single unit residential waste diversion demands contemplation of additional factors in addition to achieving all projected operational improvements and high levels of compliance within the new Source Separated Organics (SSO) Program. The numbers in Figure 6 below assume maximum diversion through all initiatives and an additional focus on waste reduction initiatives which are estimated to account for 10 percent of the total diversion target. An extensive program development process will need to be scaled up to support these efforts, starting with a focus on the new set-out process alongside recycling, grasscycling and other efforts. It will take time and extensive, ongoing education and outreach to help residents adapt to new processes, and thus it is not anticipated that full impacts will be seen immediately.



Figure 6. The Path to 90%



3-7. RECOMMENDED TIMELINE

The critical milestones in the overall Strategy rollout are noted on the timeline below (Figure 7), which adheres to the March 2018 Council motion that called for the launch of the single unit residential Source Separated Organics (SSO) Program beginning in fall 2020. Administration expects that this single unit residential program will occur over two phases of implementation with an optional third phase if required.

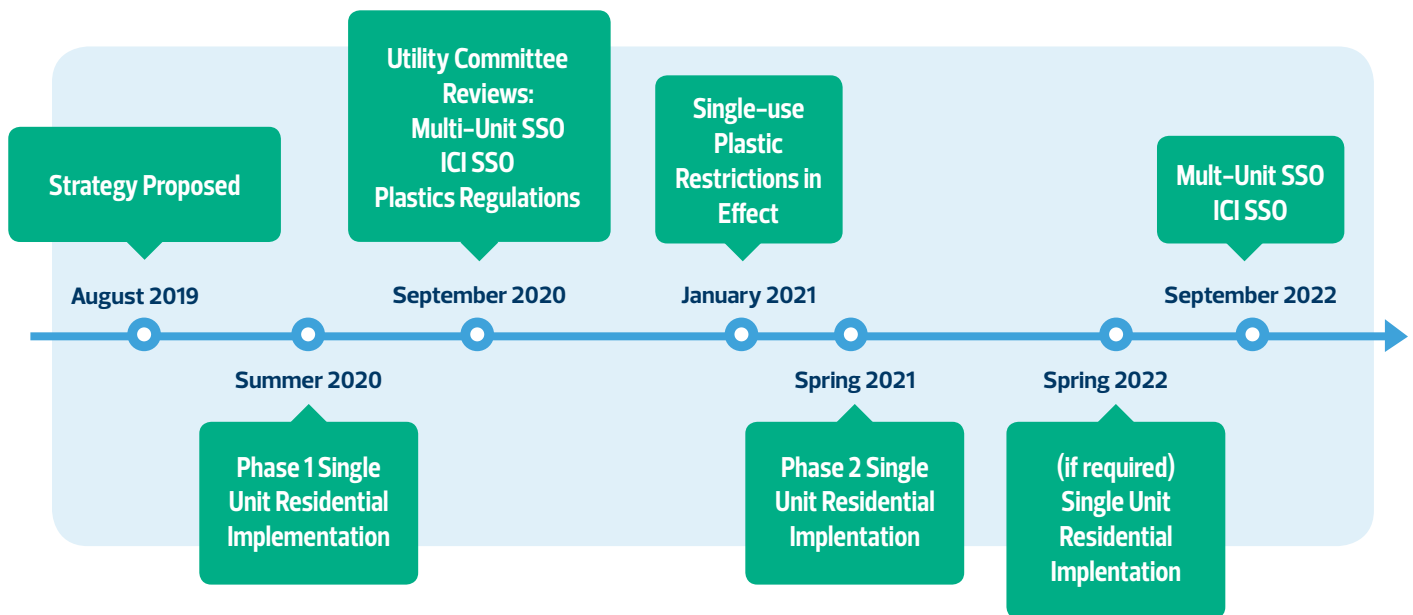
In addition, following approval of the Strategy, additional streams of work will commence to bring forward regulations and bylaws for the following:

- Plastics and single-use items and waste reduction initiatives
- SSO programming for the multi-unit sector
- SSO programming for the ICI sector

These processes will be supported by targeted engagement and best practice research, and business cases will be developed for each additional program stream. In addition, given the need for organizations to adapt infrastructure, some lead-up time is required.

Subject to approval, the restrictions on single-use plastics will be in place as early as Q1 of 2021 and program changes for the multi-unit and ICI sectors will begin implementation in the fall of 2022. Sufficient time will be allowed within the programs to allow impacted organizations to make necessary infrastructure and inventory adjustments.

Figure 7. Recommended Timeline



3.8. OPERATIONAL ASSUMPTIONS AND LIMITATIONS

The strategy is advanced in consideration of a number of key operational assumptions. As was outlined in Waste Services' 25-year Strategy Update (August 23, 2018, CR_6216), the strategic work has been advanced in consideration of the current context of the Edmonton waste system and it seeks to align operations with programs offered as well as with customer input. Several changes were underway prior to the advancement of the strategy work. For example, a decision to commit to moving in the direction of source separated organics was made in March 2018, and structural issues at the Edmonton Composting Facility had already been identified and a process to replace it initiated.

Overall, Edmonton has made significant investments in its existing processing components along with its community facilities, such as Eco Stations and recycling depots. The strategy seeks to maximize the benefits of existing infrastructure while recommending opportunities for system improvement. Given the existing processing profile and investments to date, the strategy is somewhat path-dependent. Recommendations assume existing pathways will be maintained and enhanced.

To this end, a number of contextual assumptions and implications have influenced the strategic direction overall:

Source Separated Organics (SSO) Direction and Implications

- Council directed Waste Services to proceed with the development of an SSO Program in February 2019 (CR_6669). While the strategy development process helped shape and refine the recommended program, it did not consider alternatives to SSO programming.
- Procurements are being planned to support a new residential collection system which will roll out in Q3 2020. Procurements will maintain the current distribution between City and contracted collections in order to ensure the most advantageous transition to the future state, and to ensure that program delivery can meet projected timelines, set by Council in March 2018.
- The launch of citywide SSO programming for the ICI sector will require extensive program development work and development of new programs. The City must be vigilant about ensuring residential rates do not subsidize non-regulated activities; therefore some access to tax levy support may be required as programs are brought on stream.
- Bylaw changes enabling enforcement of new collection programming will come into effect immediately upon commencement of new service delivery.



Capital investment Constraints

- Edmonton has made significant investments in its existing processing facilities, such as improving Refuse Derived Fuel (RDF) production to meet the contractual requirements of the Waste to Biofuels Facility. This production process requires that the City direct up to 100,000 tonnes of municipal solid waste feedstock annually to create RDF for this facility. This commitment constrains the City's ability to otherwise direct that feedstock into other processes. However, where possible, the City will develop additional opportunities to direct excess or unused RDF into other potential market opportunities.
- The Single Unit Waste Set-out Business Case and the framework of a new collection system is aligned with the approved business case for a new Organics Processing Facilities (OPF). Changes to the scope of the new collection system will have a material impact on the OPF and will require impact scope, costs and timeline impacts to this process.
- The City has made significant investments in Eco Stations, the Reuse Centre and community recycling depots. The Strategy seeks ways to maximize the impact of these facilities by addressing customer expectations and leveraging this existing infrastructure to support other program changes or new program development.

Regulatory Context

- This Strategy considers the current regulatory context only. While key advocacy recommendations are made, the overall program approach assumes the status quo.

Recycling Strategy

- Understanding that only 11 percent of Canada's plastic waste is recycled provides a sobering call for new solutions (Environmental Defence, 2018) and this strategy begins to chart a path forward. The strategy recommends that a single-use plastics/single-use disposables approach integrate multiple solutions simultaneously, including regulatory instruments and EPR, reduction and reuse of materials (including through waste-to-energy applications such as production of RDF), new recycling market development and material restrictions.

3.9. NEXT STEPS

Details on program development directions are outlined in Attachment 6: Program Action Plan, which provides an overview of the recommended workplan for each program area as well as the background on direction, including relevant engagement results. Following approval of the Strategy, Administration will move forward with the following actions.

3.9.1. MULTI-UNIT RESIDENTIAL PROGRAM

By September 2020, Administration bring forward a business plan for a Source Separated Organics Program for the Multi-Unit Residential Sector, with a target implementation for the Fall of 2022. The planning process will also include development of diversion methodology for the sector based upon a goal of 90 percent diversion.

3.9.2. INDUSTRIAL, COMMERCIAL AND INSTITUTIONAL (ICI) SECTOR PROGRAMS

Following approval of the strategy and acceptance of the recommendation to wind down commercial collection services, Administration will begin wind-down of this business line commencing on October 1, 2019, and will complete its efforts to secure an operational partner for its construction and demolition operations.

In addition, Administration will move forward with the development of a Source Separated Organics Program for the Industrial, Commercial and Institutional sectors and will develop a business plan by September of 2020. A diversion methodology based upon a 90 percent diversion target, will be developed in conjunction with the waste industry.

3.9.3. WASTE REDUCTION PROGRAMMING

Between 2019 and 2022, current waste reduction programming will be adapted to support the citywide launch of a new single-unit residential waste set-out (CR_7173) and will focus on:

- Promoting grasscycling.
- Advancing opportunities, availability and awareness of options for alternate disposal of materials (Eco Stations, Reuse Centre, Big Bin Events).
- Expanding the reach of household and community composting programming.

In addition, by September 2020, Administration will develop a methodology and performance framework to measure the impact of waste reduction initiatives within the overall strategic framework. In addition, the framework will include recommendations on future program investment criteria.

3.9.4. SINGLE-USE PLASTICS/ SINGLE-USE DISPOSABLES

Administration will conduct additional public and industry engagement to inform regulations and bylaw provisions to support the following directions:

- a. By September 2020
 - i. the elimination of the following single-use plastics: straws and plastic shopping bags (subject to material and other exemptions). Exemptions will be determined prior to regulations being introduced, and will stipulate accepted substitute materials where appropriate.
 - ii. Restrictions of the following items: disposable utensils, takeout containers and plastic or disposable cups, with defined material exemptions and product substitutes to be developed where appropriate.
- b. The target implementation date for new bylaws will be January 1, 2021.

3.9.5. REGIONAL ALIGNMENT

Administration will continue to:

- Work with regional partners to source additional organics processing opportunities over the next one to five years until new processing capacity comes on stream.
- Continue to participate with the Waste Technical Working Group to have input into the final recommendations to the Metropolitan Region Servicing Plan and to seek opportunities to align the Strategy with program and investment planning across the region.

- Involve partners in discussions about investment or processing opportunities that may be realized through the City's Organics Processing Facilities project.

Bring the issue of single-use disposable materials to the Metropolitan Region Servicing Plan Waste Technical Working Group to look for opportunities to harmonize with potential initiatives within the region.

