

Program Action Plan

This document outlines the detailed actions that will occur based on the 25-year Comprehensive Waste Management Strategy and across multiple program areas including:

- Multi-Unit Residential Programming
- Industrial, Commercial and Institutional (non-regulated) Sector
- Waste Reduction Programming
- Single-Use Plastics/Single-Use Disposables
- Environment and Innovation
- Regional Alignment

Multi-Unit Residential Programming

Overview

The multi-unit residential sector has distinct circumstances and challenges in advancing a Source Separated Organics Program. Key challenges identified by residents, property owners and managers included:

- Limited, inconsistent or fragmented access to basic recycling services and infrastructure to accommodate these services.
- High resident turnover, which can hinder the effectiveness of building practices and impact the effectiveness of educational programs.
- The need for ongoing high-touch education and outreach to support behavioural and operational change management in this sector.
- A perception that residents' participation in recycling is low and that may be indicative of how broader programming will be received.
- High perception of risks for increased contamination and dumping, given the extent to which property managers currently deal with these issues.
- Waste Services staff identified the same challenges as listed above, with particular emphasis on enforcement, illegal dumping, and contamination. Staff also had concerns about the operational impacts of bin access.

What we heard about improving diversion in the multi-unit sector

In both phases of engagement, multi-unit residential representatives noted specific infrastructure challenges that would have to be overcome in order to accommodate a new system. Overall, support for a more progressive approach, including a Zero Waste goal, had the strong support of 50 percent of multi-unit residences, and the moderate support of an additional 18 percent.

Phase 2 of the engagement took a more qualitative approach which included approximately 25 multi-unit site visits to a range of building styles, including apartment buildings, condos, walk-ups, townhomes, non-market housing and high-rise properties. Each site presented a unique configuration and management style and the visits functioned as mini design charrettes, during which waste inspectors and building representatives were able to talk through potential solutions that may enable accommodation of proposed changes.

The problem solving exercises helped to inform staff of the range of issues to be managed. The approach demonstrates a more intensive, hands-on, educational change management program. Resources, as well as support for current and future infrastructure, operational, and policy changes, will be required for this customer group. Additional details from this engagement are available in the Multi-unit Engagement Appendix, available at edmonton.ca/futureofwaste.

In addition, the initial cart rollout programming areas include multiple multi-unit homes, which used to be serviced by hand collection due to the nature of these complexes and are now being serviced with carts. There are multiple points of learning from these multi-units, mainly revolving around the methods of communication and education needed. For example, meeting with the condo board or property management company to get their buy-in when possible was found to be extremely helpful in reducing complaints and confusion.

The recommended approach with the multi-unit sector allows more time for preparation and transition to help meet the sector's unique challenges and educational needs. Still, the overall goal is to make the transition and to target similar diversion metrics as the single unit residential sector. Multi-unit diversion results have been taken out of the City's overall diversion metric, which is now based solely on single unit residences. This change was approved in August 2018 and is consistent with municipal practice in Canada. As part of moving forward, a diversion target of 90 percent is recommended in alignment with the single unit diversion. But it is recommended that the methodology and baseline measurements for the sector be provided, along with a Program Business Case and recommended bylaw provisions by the end of Q3 2020.

Next Steps

Following approval of the strategy, Administration will move forward with the development of a source separated organics program for multi-unit residences. By June 2020, Administration will work through business planning and engagement processes to provide the following for Utility Committee's consideration:

1. A plan for a Source Separated Organics Program for the multi-unit residential sector, to be implemented effective fall 2022.
2. A business case for multi-unit residential source separated organics programming by the end of September 2020, along with recommended bylaw provisions.
3. A diversion methodology based upon 90 percent and baseline measurement for the sector.

Industrial, Commercial and Institutional Sector

Overview

It is estimated that Edmonton's total waste amounts to approximately one million tonnes each year (City Auditor Report, February 2018). Only 40 percent of that is impacted by regulated municipal programs, leaving a remaining 600,000 tonnes of waste that is predominantly managed through private sector providers. Waste Services is only legislated to provide services for residential properties within city limits -- the regulated waste service. In Edmonton, this also includes providing waste collection and processing for the entire multi-unit residential sector, something which is unique in Canada.

The City of Edmonton is not legislated to offer non-regulated waste services, but has nonetheless been active in this space since 2008, seeking to improve diversion rates in the non-regulated sectors.

As part of the Strategy work, an assessment was conducted of the City's current non-regulated business lines to determine whether participation in non-regulated business activities is the most effective way to influence diversion in these sectors. An extensive, preliminary review of the business lines was conducted by the City's Program and Service Review in 2018.

Building on the work from the Program and Service Review, public engagement was conducted to seek clarification from a variety of organizations on the ways the City can most effectively and efficiently impact waste reduction and diversion in the non-residential sectors.

Waste Services currently offers several lines of business within its non-regulated services which, at present, include:

- Industrial, Commercial and Institutional (ICI):
 - Commercial Collections: Waste Services, under contracts, collects non-residential waste and recyclables from commercial businesses, industrial businesses and institutions. Most contracts include

pre-processing at the Edmonton Waste Management Centre to enable diversion of waste materials from landfill.

- Commercial Self-Haul: Businesses may haul waste to the Edmonton Waste Management Centre and pay tipping fees for Waste Services to dispose of their waste. Currently this material is not being diverted from landfill.
- Construction and Demolition Recycling: This stream of business operates at the Edmonton Waste Management Centre and encompasses two major functions: recycling of mixed and segregated construction and demolition materials. These City services result in diversion of waste materials from landfill.

The City also provides aggregate recycling for concrete and asphalt from reconstruction projects, household renovations and private demolition. This service results in diversion of waste material from landfill and is free for customers. Aggregate recycling was not included in the strategic review. The business line was transferred to Waste Services in 2017 and while it experienced a net loss in 2017, transfer pricing changes were implemented in summer 2018 to better reflect fair market value and to position the line for a net neutral financial position going forward. Given this and that the City is the end-recipient of almost 100 percent of the recycled product, no changes are anticipated for this business line.

The balance of the program was reviewed, building on the work done by the Program and Service Review, which made clear that the City's participation in the non-regulated sector has failed to acquire a sufficient market share to truly impact the overall diversion in the ICI sectors or construction and demolition industry.

In assessing business lines, the strategic review maintained focus on the three key objectives which were established for participation in the non-regulated business, as noted below:

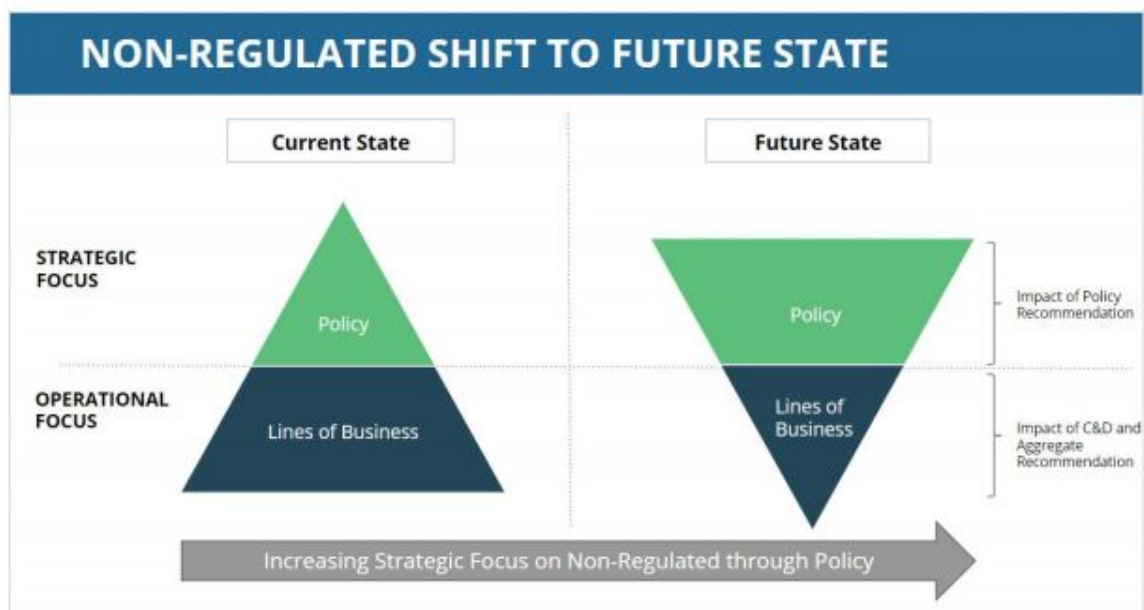
- Objective 1: Provide a financial contribution to the regulated services**
- Objective 2: Encourage diversion of non-residential waste material from landfill**
- Objective 3: Utilize excess capacity that exists at the Edmonton Waste Management Centre**

With respect to the overall achievement of program objectives, operational reviews have already established key issues:

- In terms of financial results, since 2012, the non-regulated program has collectively faced challenges in achieving break-even or positive net income. Since 2012, cumulative losses total \$6.2 million. This includes a one-time 'commodity transfer' a \$2.4 million adjustment in 2016 that was based on estimated value of inventory in construction and demolition. Despite changes to operational practices, this trend has not changed.
- Diversion calculations and methodology are not clearly defined or transparent and do not assess or report on effectiveness by line of business. The ability to properly ascertain diversion rates for the non-regulated sector is further impacted by the fact that it is estimated that only four percent of the sector's waste is processed by the City, and estimating diversion for the entire sector based on this highly segmented sample size is not useful.

Further, the City's ability to impact diversion in this sector is further affected by its current processing challenges, including the closure of the Edmonton Composting Facility. In order to measure the long-term diversion impact of non-regulated programs and policies, information from private haulers who collect for this sector must be reliable.

Figure 1. Non Regulated Shift to Future State



Moving forward, as shown in Figure 1, it is recommended that the City focus less on direct market participation and more on policy initiatives and programming that can impact how ICI organizations manage waste without the City being the direct service provider. Changes to ICI sector initiatives are made in line with this overarching strategic objective.

The non-regulated strategy is informed by the Program and Service Review report, as well as:

- A public engagement process that gathered input from non-regulated sector organizations to better understand their thoughts on the City's goals and role, as well as understanding the desired scope, breadth and mechanisms by which the City could support the maximum, cost-effective diversion of waste possible.
- Consideration of policy instruments, such as EPR and Leadership in Energy and Environmental Design (LEED) for green buildings, as well as the City's role in collecting and processing waste from this sector have been considered.
- In light of current challenges to the processing capacity, the Edmonton Waste Management Centre was assessed and findings contributed to the recommended direction.
- Opportunities to advance further partnerships with the private sector in the collection and processing of materials from the ICI and construction and demolition waste streams were also considered and, in the case of construction and demolition waste, advanced.

What we Heard about Improving Diversion in the Industrial, Commercial and Institutional Sector

The initial goal of advancing non-regulated programming in 2008 was to impact diversion rates in the ICI sector. Direct intervention in the sector has not achieved the desired results, but there is stakeholder support for broader diversion activities in this sector, as well as for endorsing a 90 percent diversion target. Phase 2 public engagement showed strong support for advancing waste diversion in the ICI sector, with 76 percent of non-residential respondents to the City's telephone survey indicating strong agreement that business and industry should be required to meet the 90 percent diversion target. This echoes early Phase 1 engagement results, where 71 percent of respondents strongly agreed that business and industry should be required to separate their waste.

Phase 2 engagement respondents also articulated what they see as the City's role in supporting a transition to a larger scale diversion program, including:

Areas where the City could provide support	Percentage of respondents who agreed	
	Non-Residential Survey (N=500) ¹	Mixed Topic Survey (N=179)
Being a role model by implementing waste sorting and reductions at City facilities	78%	65%
Providing large collection carts for pickup of sorted waste	76%	53%
Providing access to waste sorting and processing facilities or services for organizations	73%	50%
Providing sorting carts for businesses, including for staff or visitors	70%	49%

Further, 49 percent of respondents indicated they would require less than a year to meet a 90 percent diversion target within their own organizations. Sixty-two percent of respondents indicated they would need no additional resources from the City to make the transition, while 23 percent indicated they would favour a tax break or other credit as an incentive.

Other common themes carried across both phases of engagement included strong support of a Zero Waste goal (61 percent support in Phase 2 and 57 percent in Phase 1). Twenty-two percent of respondents indicated that they would like to be part of an advisory committee to help the city navigate the sector transition. Striking a broad-based stakeholder advisory committee will be part of the next phase of work, and those who indicated a desire to participate will be invited to do so.

Risks/Challenges

The potential effectiveness of an ICI-based SSO Program is potentially limited by the lack of processing capacity in the region. ICI respondents, including existing Waste Services customers, expressed frustration about the current state of

¹ Percentages indicate strong agreement, ratings of 8, 9 or 10

organics processing at the Edmonton Waste Management Centre, which is impacting their diversion targets, and about their inability to source sufficient processing regionally. Some waste haulers expressed frustration with being unable to access processing services at EWMC.

Several additional challenges were raised by respondents:

Challenges raised	Percentage of respondents who agreed	
	Non-Residential Survey (N=500) ²	Mixed Topic Survey (N=179)
Additional financial costs	40%	39%
Space to sort waste and/or store carts on site	43%	37%
Finding a company or business that will sort your mixed waste	36%	34%
Staffing or time needed to sort and manage waste	35%	33%
Communicating with others about how to sort waste	35%	29%
Lack of information about how to sort and manage waste	29%	n/a
Customer convenience and safety	35%	25%
Personal staff safety with sorting waste	34%	23%

A key challenge will involve the City's ability to track the effectiveness of the policy, something that is not currently possible within the ICI sector, given that 96 percent of waste is collected by the private sector and limited information is made available on how or if that waste is diverted. Increased transparency and reporting will be required to properly gauge the impact of the new policy.

² Percentages indicate strong agreement, ratings of 8, 9 or 10

Mitigations

In order to manage program development and implementation, a number of initiatives will be undertaken including:

- Establishment of stakeholder working committees (involving ICI customers and waste industry representatives) to help guide the changes and to anticipate what organizations will require to ensure a successful transition.
- Establishment of an Early Adopters Program, consisting of current City commercial customers who are targeting high waste diversion. The intent of the program will be to ensure the program is effectively launched in a number of organizations ahead of time in order to demonstrate key learnings and mitigate concerns or challenges prior to rollout across the ICI sector.
- A waste characterization study to profile ICI sector waste to help organizations understand diverse organizational profiles and plan for sector-specific responses.
- Development of educational program materials, case studies and resources to support business transition.
- Consideration of processing capacity issues, which can proceed in alignment with the development of the Organics Processing Facility (OPF) business case. While the City's responsibility is to process residential waste first, the OPF process will contemplate other potential sources of feedstocks, as well as potential market opportunities within the region. It is possible that some excess capacity at a new OPF can be utilized short-term and on a cost-recovery basis. This will allow the market to gauge potential feedstocks available for processing and help stimulate market response, while providing short-term processing capacity if required.
- Development of a diversion/environmental impact committee with waste industry representatives to determine an appropriate mechanism for public reporting on waste volumes, emissions and diversion successes, which would become part of the new policy.

Non-regulated Business Lines: Commercial Collections

The following recommendation is being advanced as part of the 25-year Strategy Report (CR_5829) for approval:

Recommendation:

1. Cessation of new Commercial Waste Collection services effective October 1, 2019, and commencement of the wind-down and transition of existing commercial collection accounts. That wind-down exceptions be made for those commercial organizations who are willing to move to three-stream source separation (organics, recyclables and residual garbage) as part of an Early Adopters Program.

Rationale for Recommendation:

The City's involvement in direct collection of waste from the ICI sector has been presented as inadequate in its efforts to impact waste diversion in the non-regulated sectors. While the business line has successfully grown a modest client base, its impacts are only felt on approximately four percent of the industry, and only a small number of city clients have been able to fully participate in waste diversion programming, now made more challenging with the closure of the Edmonton Composting Facility.

In addition, the City's direct participation in the marketplace is seen as a barrier to cooperation with the waste industry, which perceives conflict with the City's dual roles as regulator and market participant. However, opinions are mixed. Approximately 36 percent of ICI telephone survey respondents strongly agreed that the City shouldn't compete with the private sector, but 45 percent strongly agreed that the City should make waste services available to organizations. In addition, as was noted in the previous section, ICI respondents have expectations of how the City can mitigate challenges they anticipate.

While it is clear that the City will have a role to play in ensuring the success of a mandatory Source Separated Organics Program, operational constraints, industry resistance and limited market success all underline the recommendation that the City move away from direct market participation and instead play a larger role as a regulator, providing rules, facilitating market development and providing resources and educational support.

It is recommended that the City cease to offer commercial waste collection. Given the range of contractual obligations and the need to engage current clients on this decision, a firm date for cessation of commercial collections has not yet been determined.

In addition, the City has now established long-term relationships with a number of organizations who have worked closely with the EWMC to help them meet diversion targets. For this customer group, efforts will be made to transition them into an Early Adopters Program, where ongoing work will be done to support customer diversion efforts, such as processing sorted organic waste.

Risks/Challenges

The largest challenge in the City stepping away from direct participation will be in working with industry to identify opportunities for processing of separated materials, including organics, and in gaining insight into how pre-sorted waste is collected and processed. In addition, the City has ongoing contractual obligations to current clients so the wind-down period cannot be precisely scoped.

Mitigations

Risk mitigations will be aligned with overall ICI sector SSO Program development including:

- Existing high diversion customers will be accommodated through the transition and beyond in order to ensure minimal disruption to their programs. For those customers who wish to continue to work with the City as part of an Early Adopters Program, they will continue to receive processing from the City directly. Longer term processing support will be determined through processes aligned with the Organic Processing Facility business case development.
- Development of a diversion/environmental impact committee with waste industry representatives to determine an appropriate mechanism for public reporting on waste volumes and diversion rates as part of the new policy.
- The City will continue to communicate impacts of the program change to clients and will prioritize obligations to existing clients while working to transition accounts.

Commercial Self-Haul

Rationale for Recommendation

The Strategy does not recommend any immediate change to the current Commercial Self-Haul business line for at least the next five years. In the Program and Service Review, it was clear that this business line is effectively meeting its strategic goals. By continuing to allow hauling of non-regulated waste through the EWMC, the City continues to provide transfer facility services consistent with overall goals to impact the sector, and to secure feedstocks which can be processed to increase the City's overall diversion. However, given operational constraints at the EWMC, the potential to expand processing is not feasible in the near term.

Once operational issues are addressed, the City should reassess its commercial self-haul business line to better align with its policy environment, which will require source separation across all sectors. The City can continue to serve as a transfer station but its activities must support segregated waste streams.

To the extent that capacity exists at City facilities, opportunities may be pursued to support the overall policy direction. This is consistent with Phase 2 engagement telephone survey results, which found that 73 percent of respondents strongly agree they would like to see private sector operators given access to the City's processing facilities in order to ensure that sorted waste can be properly processed.

In addition, as the City explores avenues like Refuse Derived Fuel (RDF) market development, there is the potential that additional feedstocks may be required from beyond the residential base to ensure supply is available.

Finally, the revenue earned from this business line provides an ongoing revenue source to support non-regulated program development including development of the citywide Source Separated Organics Program for the ICI sector, and other non-residential waste diversion efforts.

Risks/Challenges

The City needs to strike the right balance between competing for processing business and providing needed processing capacity. It is not desirable that the City take actions that would stifle the efforts of the private sector to provide needed waste processing, however, it is not clear how the market will respond to emerging policies.

Mitigations

Consideration of processing capacity issues can proceed in alignment with the development of the Organics Processing Facility (OPF) business case. While the City's responsibility is to process residential waste first, it cannot subsidize non-regulated activities within City facilities. The OPF process will contemplate other potential sources of feedstocks, as well as potential market opportunities within the region. It is possible that some excess capacity at a new OPF can be utilized short-term and on a cost-recovery basis. This will allow the market to gauge potential feedstocks available for processing and help stimulate market response, while providing short-term processing capacity if required.

Construction and Demolition Waste

Construction and Demolition (C&D) waste recycling operations commenced in 2008 with the intention to reduce the amount of waste going to landfill. In 2012, this line of business expanded and a new mixed sorting facility was built to generate additional revenue from non-residential collection and increase diversion. The new facility provided customers with options to either bring source

separated materials or mixed loads of materials to be separated and processed on site.

Recent reviews, including the Program and Service Review, clearly show that the construction and demolition recycling program was accruing financial losses and could not meet the objectives set forth by Council. Further, the operational review found that:

- The construction and demolition diversion rate was 32 percent in 2017.
- There has been a downward trend the City's ability to secure end markets for materials.
- The use of construction and demolition recycled material at the Edmonton Waste Management Centre fell by 78 percent between 2015 and 2017.
- There has been a lack of detailed and accurate operational and managerial data available for waste management leadership to enable holistic, evidence-based management decisions.
- Pile (inventory) size has an Occupational Health and Safety impact and represents a safety and financial liability.

As mentioned in CR_6217 Industrial, Commercial and Institutional Sector report (August 23, 2018), Administration recommended revising the business model of the current construction and demolition waste processing operations. A Request for Expression of Interest (RFEOI) was issued to assess interest from potential proponents in managing the construction and demolition waste. As Canada's only municipal operator of a Construction and Demolition Recycling Facility, Waste Services wanted to seek opportunities to work with the private sector in an effort to:

- Improve Construction and Demolition Recycling Facility operations by incorporating business best practices, including more optimal orientation as a vertically integrated business that better manages both feedstock collection and development of end markets.
- Enhance the efficiency and effectiveness of current construction and demolition operations.
- Achieve growth in new markets by generating leads and setting new strategies to promote the products of the Construction and Demolition Recycling Facility.

- Accelerate the development and commercialization of the material produced at the Construction and Demolition Recycling Facility.
- Improve the overall diversion rate at the Facility.
- Ensure ongoing access to feedstocks that are optimally incorporated into other waste processing operations, including feedstocks required for the current Waste to Biofuels Facility.
- Improve the overall financial results of the Construction and Demolition Recycling Facility and ensure full cost recovery or better.

Waste Services received 11 submissions from interested bidders and, based on this response, received approval from City Council on February 1, 2019 to pursue a formal Request for Proposal (RFP) to seek an operator for the C&D operations at the Edmonton Waste Management Centre.

The main objective of the RFP is to create partnerships to continue providing construction and demolition services to the ICI sector, while achieving better diversion and improving the overall bottom line.

By reaching out to the private sector for this RFP, Waste Services wants to:

- Maximize diversion of construction and demolition materials from landfill by providing consistent service.
- Conserve the capital investment and ensure the long-term reliability and efficiency of the facility and process equipment by performing adequate preventative and corrective maintenance, and upgrading or replacing components and assemblies.
- Meet or exceed the City's existing diversion rate for C&D material on the site, specifically, 95 percent or higher diversion for segregated material and 50 percent or higher for mixed material.

The RFP will close on August 22, with the contract to be awarded in the fall.

Next Steps

Following approval of the strategy and acceptance of the recommendation to wind down commercial collection services, Administration will complete its efforts to secure an operational partner for its construction and demolition operations and wind down Commercial Collections.

In addition, Administration will move forward with the development of a Source Separated Organics Program for the Industrial, Commercial and Institutional

sectors. By September 2020, Administration will work through business planning and engagement processes to provide the following for Utility Committee's consideration:

1. An implementation plan for waste diversion programming with mandatory recycling and source separation of organic materials outlined for Industrial, Commercial and Institutional sector organizations within the City of Edmonton, with implementation to begin in fall 2022.
2. A business case for a new Industrial, Commercial and Institutional sector Source Separated Organics Program, along with recommended bylaw provisions.
3. A diversion methodology based upon a 90 percent diversion target, to be developed in conjunction with the waste industry.

Waste Reduction Programming

Overview of Program

Waste reduction programming focuses on the City's overall efforts to reduce the amount of waste generated within the City. The need for a concentrated focus on waste reduction was highlighted in the February 2018 City Auditor's report which noted that the City was not aligned with the internationally accepted solid waste management hierarchy (Zero Waste hierarchy) which prioritized prevention and reuse as the most sustainable methods of waste reduction.

The acute need for emphasis on reduce and reuse is observable by considering the waste footprint of Albertans. Where Canada's lowest waste generated per capita is seen in Nova Scotia at 386 kilograms annually, Alberta's per capita rate is more than double at 1,007 kilograms. Alberta's rate is also well above the national average of 720 kilograms (Conference Board of Canada, 2012).

Waste reduction strategies seek to impact diversion both through the beneficial management and processing of waste (recycling, composting) and preventing materials from entering the waste stream by changing habits of residents and businesses (lowering food waste, changing consumption patterns), by regulating reductions of some materials (restrictions of single-use plastics) and by changing inputs into the system through Extended Producer Responsibility (EPR) programs. EPR is "an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle" (Alberta Recycling Council).

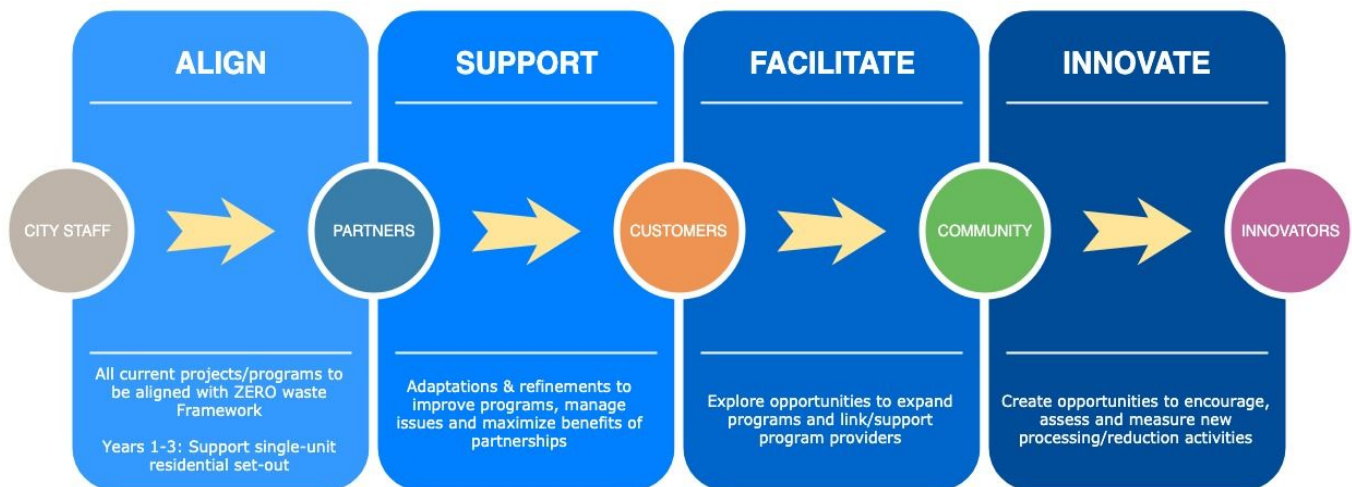
As noted in Section 3, accepting a Zero Waste goal necessitates more emphasis on waste reduction activities and a goal has been set for up to 10 percent of the City's total diversion to come from reduction. This target is supported by input from the engagement process which included targeted meetings with residents, community groups and the not-for-profit sector. These inputs have reinforced the need to focus more deliberately in this direction and have also provided some inspiration for the program framework contained herein which emphasizes providing more opportunities for residents to participate in waste reduction programming, as well as emphasizing much more collaboration with not-for-profits and for-profit organizations in this area.

Overall the waste reduction approach will:

- Prioritize programming and supporting education and outreach initiatives that complement the new residential waste programming from 2019-2022.
- Ensure that the impact of waste reduction efforts can be measured, and that the path to achieving 10 percent of the city's diversion target through waste reduction efforts is clear.
- Focus on waste reduction in all sectors, single unit residential, multi-unit residential, and the Industrial, Commercial and Institutional sector.
- Consider how materials diverted from landfill will be processed, reused or recycled. Programming must consider complete life cycles of targeted materials, from collection to processing and end use.
- Emphasize the need for a regulatory structure to support Extended Producer Responsibility (EPR).
- Support families and communities through the City's education efforts, especially around issues of food waste.
- Anticipate changes in the market, how shopping and consumption patterns impact waste generation (e.g., through increased online shopping and food delivery, with associated packaging impacts) and impact the system overall, as well as changes in recycling markets that will impact the City's ability to market recyclable materials.

There are four streams of activities that the City will pursue to begin to shift emphasis on waste reduction, as shown in Figure 2 below.

Figure 2. Four Streams



Align

The first tier of activity focuses on how current education, outreach and waste reduction programming will align with the new strategy and support an overall Zero Waste Framework.

From 2019-2022, it is anticipated that program emphasis will be directed primarily in support of the new residential set-out program through:

- Reconfiguring current education and outreach programs and promotions to support the new single-unit residential set-out program.
- Education and outreach in support of grasscycling.
- Expansion of programming in support of home and community composting through the Master Composter Recycler Program.
- Improving awareness and availability of alternative drop-off opportunities through:
 - Eco Stations
 - The Reuse Centre
 - Big Bin Events
 - Expansion of alternative drop-off locations/events for materials like batteries
 - Food waste programming and household educational support
- Supporting program development to support organics separation in the multi-unit residential and ICI sectors.
- Expand public outreach to provide consistent education, support and resources on reuse and reduction opportunities, including messaging on

grasscycling, Waste Free Holidays and Waste Free Back to School.

Quick Wins

The second tier of activity will also be initiated within the 2019-2022 term, involving refining programming to better support the new Strategy and collection systems. The focus is on improving the waste reduction efforts of residents and businesses, and working more strategically with current and potential partners in the community, including the not-for-profit sector. Some of the work here will involve troubleshooting issues between the City, residents and partner organizations. Addressing these items should not require resource allocations or involve policy change.

Within this context, the City will begin to advance some key initiatives that will include:

- Assessing spacing arrangements at existing facilities to leverage additional waste reduction opportunities, including through partnerships with community groups or the not-for-profit sector.
- Assessing existing partnerships with community organizations and not-for-profits, to consider opportunities for scope and performance improvement that allow the partnerships to grow and expand.
- Establishing a Waste Reduction Community of Practice between Waste Services and key stakeholder organizations (non-profit and commercial enterprises and organizations), with the City acting as a central coordinator for discussion and information-sharing, and to assist with quick escalation of issues and removal of barriers.
- Making educational materials available to non-profits who provide reuse and food waste programming to extend the City's educational efforts (including by identifying appropriate food for donation and providing information on proper sorting of recyclable materials).

Facilitate

There are multiple areas where existing community-based programming is challenged by resource or structural issues but where the City could play a direct facilitation role, including by bridging gaps between organizations. In addition to meeting waste reduction goals, these efforts support the City's broader strategic goals for a Healthy City and Urban Places. A number of potential initiatives originated from community members, who noted key gaps and identified opportunities for the City to step more overtly into this facilitating role.

Unlike the quick wins, these efforts will require more flexibility within the City organization, including shifting resources or changing existing program

structures. They are, however, well aligned with the City's overall strategic goals and the focus of this Strategy.

The goal here is to better align existing resources to support community-based efforts and improve overall program effectiveness. The City will work within its new Waste Reduction Community of Practice to prioritize, assess and problem-solve initiatives within this category. The following list of program initiatives will be considered:

- Assess the fee structure applied to not-for-profit organizations (including through comparisons with other city programs).
- Play a larger role in coordinating activities between organizations seeking to reduce food waste and support food redistribution, by:
 - Ongoing participation in national campaigns wherein resources and local models can be leveraged in Edmonton.
 - Advancement of new educational programs to change behaviour/helping with new shopping strategies.
 - Work with social agencies that are already facilitating food redistribution efforts (FRESH/Food strategy).
- Work to leverage connections between producers/retailers of food with end agencies that can support redistribution.

Innovate

A number of organizations are seeking to launch new business models, technologies and initiatives that could substantially improve the City's waste reduction and diversion efforts. However, activities in this category would require new resources and the support of an underlying process that streamlines and evaluates the advancement of qualified initiatives. The City should be oriented around ongoing assessment and evaluation of opportunities to improve the waste system, in alignment with its overall focus on Zero Waste.

As noted in the lead recommendation, a key part of materially shifting emphasis onto waste reduction activities involves understanding the performance impacts of waste reduction initiatives on the waste management system as a whole, and providing sound analysis to support potential resource allocations for new programming. Further, a process for migrating a portion of existing resource allocations to support and grow support for qualified new initiatives must be identified.

The focus for innovation activities will include:

- Creating an open-call forum wherein organizations seeking feedstock

materials (plastics, RDF, textiles, other materials), new technology solutions or partnership opportunities with the City (community composting, Big Bin Events) can be assessed through a regular, formal process. While proposals can be submitted at any time, Waste Services will initiate a formal assessment process bi-annually, supported by cross-industry technical experts and community representatives on a peer review committee. Proposals will be assessed on their potential to align with or enhance current programming, boost waste reduction or diversion efforts, or improve the development of circular economy.

- Direct technology-based proposals for assessment within the emergent system being developed for the Alberta Circular Economic Technology Accelerator (ACETA) initiative. This initiative will boost the City's efforts to use the feedstock and technical base at EWMC to support further economic spin-off activity.
- Partner with universities or research institutions to develop process and/or product improvement opportunities and apply to operations.
- Establish a grant allocation program and criteria to support community-based waste reduction initiatives, validated through the performance management framework.
- Evaluate future program opportunities (e.g., textile recycling) against potential markets for reuse or processing of target feedstocks.

Next Steps

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.

Single-Use Plastics/Single-Use Disposables

Overview

In addition to jurisdictional and best practice research reviewed in Phase 1 of public engagement, Waste Services has conducted additional engagement and commissioned additional external research (Attachment 4, Report by Elevated Enviro) to shape recommendations for managing single-use plastics and other single-use disposable items (single-use plastics/single-use disposables).

There is a growing understanding that Edmonton, like many cities, has problems in managing plastics and single-use disposables. The City is not immune to the challenges of increasingly sparse recycling markets and the sobering reality that in Canada, only 11 percent of recyclable materials are actually recycled. Research shows that waste levels can be reduced through material restrictions and outright bans, but research and engagement data note issues and caution care in how the City moves forward.

There is no one simple path.

While bans and restrictions are effective, there is no realistic catch-all restriction that can remove all materials from the waste stream, and all restrictions or bans will have to be applied in a manner that permits necessary exemptions within the overall rule framework.

As restrictions are applied, the City must assess the potential impacts presented by proposed substitutes, for example, in terms of increased greenhouse gas (GHG) impacts and production costs that offset the benefits of the restrictions. Where applied, restrictions must have a solid rationale, including in terms of how overall system consequences are to be measured.

The recommendations being advanced here suggest moving forward along two different lines:

- 1) Elimination of target items including plastic shopping bags and straws, with defined material and organizational exemptions to be developed.
- 2) Restriction of target items including disposable utensils, takeout containers and plastic or disposable cups, with defined material exemptions and product substitutes to be developed.

The recommendation seeks to simultaneously advance work on identifying additional or new processing opportunities. While there is market potential, the local industrial response is nascent and underdeveloped and insufficient market development work has been done. The City has an opportunity to direct materials to support industrial processes from large-scale development of Refuse Derived

Fuel (RDF) markets or other waste-to-energy applications, and to direct small scale support for new enterprises and not-for-profits who are seeking to advance solutions.

Across the ICI sectors however, there is a need to support a framework to ensure that materials collected are directed towards processing opportunities where appropriate, and that the impacts of any restrictions can be measured.

Efforts should also align with ongoing work in support of an Extended Producer Responsibility (EPR) framework. Alberta municipalities are disadvantaged by the lack of a framework which could offset municipal costs, set clear guidelines and provide material support to a struggling recycling industry. Ongoing efforts must include continuing to lobby the Government of Alberta to bring new rules forward under an EPR framework.

These recommendations seek to align actions to address the challenge of diverting these materials from landfill and away from failed recycling processes through an integrated policy framework that will advance simultaneous streams of activity. Further, because the context of recycling markets is changing and new regulatory structures, including the recent announcement of a forthcoming Federal single-use plastic ban, have the potential to change conditions, there is a mandatory five-year assessment period applied to this framework. This will obligate ongoing assessment to ensure goals are being met and consequences managed. In addition, as the new Federal rules come on stream, the City will have an opportunity to align its regulations with those that develop Federally.

What We Heard – Single-Use Plastics/Single-Use Disposables

It is clear from engagement that issues of single-use plastics and single-use disposables are topical, with engagement respondents indicating high levels of awareness. There is support for managing materials more effectively, including moving toward outright bans or restrictions on key items. Residential survey respondents indicated support for taking action to reduce the use of single-use plastics and disposables:

Item	Leger Panel (N=1,000)	Open-link Survey (N=6,773)	Insight Community Survey (N=2,096)
Plastic Straws			
Reduce (no fee)	30%	25%	26%
Eliminate	37%	48%	44%

Attachment #4

Do not restrict, but charge a fee	13%	9%	11%
No restrictions	17%	16%	16%
Plastic Shopping Bags			
Reduce their use	21%	16%	15%
Eliminate their use	31%	45%	36%
Do not restrict, but charge a fee	30%	23%	31%
No restrictions/no fee	15%	15%	16%
Styrofoam			
Reduce their use	22%	18%	17%
Eliminate their use	45%	59%	56%
Do not restrict, but charge a fee	14%	8%	10%
No restrictions/no fee	9%	5%	6%
Disposable Utensils			
Reduce their use	29%	26%	26%
Eliminate their use	22%	31%	24%
Do not restrict, but charge a fee	22%	20%	26%
No restrictions/no fee	19%	18%	19%
Takeout Containers			
Restrict their use	32%	28%	27%
Eliminate their use	15%	23%	17%

Do not restrict, but charge a fee	22%	22%	27%
No restrictions/no fee	23%	21%	22%

Among non-residential telephone survey respondents the results were similar:

Item	Telephone Survey
Plastic Straws	
Reduce (no fee)	26%
Eliminate	45%
Do not restrict, but charge a fee	11%
No restrictions	17%
Plastic Shopping Bags	
Reduce their use	22%
Eliminate their use	39%
Do not restrict, but charge a fee	27%
No restrictions, no fee	12%
Styrofoam	
Reduce their use	30%
Eliminate their use	42%
Do not restrict, but charge a fee	12%
No restrictions, no fee	13%
Disposable Utensils	
Reduce their use	28%
Eliminate their use	27%
Do not restrict, but charge a fee	21%

No restrictions, no fee	21%
Takeout Containers	
Restrict their use	24%
Eliminate their use	20%
Do not restrict, but charge a fee	26%
No restrictions, no fee	26%

At the same time, both individuals and organizations caution against reactionary policy responses that may appear out of context with larger environmental issues and potential opportunities.

People want to see the City advance an integrated policy response that:

- Addresses the challenge of plastic and disposable materials ending up in landfill;
- Provides solutions that do not solely replace one problematic item with another;
- Seeks to work with local industry, the community and innovators who are advancing initiatives to better use or reuse materials, e.g., as a potential fuel source.

Next Steps

Following approval of the strategy, 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.

In addition to public engagement, Administration will conduct further analysis to inform final recommendations including, but not limited to:

- A waste composition study to determine a baseline measure of plastic materials within the residential and Industrial, Commercial and Institutional streams, including waste disposed in public areas.
- Additional market scanning and research to support the definition of material exemptions and bring forward approved material lists which represent the lowest overall environmental footprint (emissions and diversion measures considered).
- Additional market analysis to assess opportunities to process current feedstock.
- Potential impacts of any prospective new Federal (or Provincial) legislation that may impact the shape of these activities.

Environment and Innovation

The overall orientation of the new Waste Strategy lies within a broader Zero Waste Framework, which encourages residents and organizations to participate in programs which divert waste at the source through reuse and reduction. In turn, the success of these programs, which will be measured on the diversion rate, will also support the City's broader sustainability goals.

The environmental footprint of the waste system is impacted by material disposed, material diverted from landfill and by what is reduced and prevented from ever becoming part of the waste stream. In addition, waste provides potential feedstocks such as RDF, an alternative fuel source developed primarily in support of the Waste to Biofuels Facility but with potential additional functions as a fuel replacement for petroleum in certain production processes. In addition, the transformation of organic materials into resources such as renewable natural gas and compost, as contemplated in the Organics Management report (CR_6669), also supports the City's overall environmental resilience.

Additional opportunities for environmental innovation are being lead by a new initiative: the Alberta Clean Energy Technology Accelerator (ACETA). The City is partnered in this initiative with CanmetENERGY, Natural Resources Canada, the University of Alberta and InnoTech Alberta. The project has received seed funding from Alberta Innovates' Climate Change Innovation and Technology Framework (CCITF)'s Clean Technology Facilities Support Program, and it aims to create a clean energy technology accelerator that would support and

accelerate the use and valorization of municipal and biomass waste feedstocks to support the circular economy and reduction of greenhouse gas emissions. Through the accelerator, potential processes will be given 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 can also provide access to technology for hydrocarbon processing, upgrading and refining as well as experimentation and technology development. This initiative will be centred at the Advanced Energy Research Facility, which is located at the Edmonton Waste Management Centre.

Further developing opportunities related to environmental innovation supports the continued integration of environmental and economic development outcomes. These outcomes are identified in two of the four Corporate Business Plan Goals: Climate Resiliency and Regional Prosperity. The opportunities for leveraging multiple outcomes through these goals demonstrates how environmental innovation can be directly tied to economic opportunity.

In addition, environmental benefits will be derived from efforts to reduce the City's overall waste footprint. Initiatives on single-use plastics, textile recycling, food waste, segregated collection of yard waste during high seasons, volume limits on residual garbage and Extended Producer Responsibility (EPR) all aim to support overall environmental resilience by reducing the amount of material that has to be managed by the waste system.

In addition, Waste Services is measuring environmental performance by working closely with the City's internal environment team on all aspects of governance and accountability and is constantly reviewing and discussing with representative areas where greenhouse gas (GHG) emissions could be reduced.

Currently, Waste Services is working within internal corporate programs to reduce GHG emissions and to ensure the corporation is resilient to future climate change (COE-EMP-006). As part of this program, Waste Services is developing its GHG Balance and SMART reduction targets. This effort will align with the Strategy's recommendation to pursue new diversion targets for the non-regulated Industrial, Commercial and Institutional sector, where currently the City has very limited access to information on amounts of waste collected and diverted.

Waste Services continuously monitors regulations, trends and changes. Each year, Waste Services collects nearly 15 million cubic metres of landfill gas (306,500 GJ), from Clover Bar Landfill, although this is diminishing as the waste decomposes and no more waste is being landfilled. Once fully operational, the Anaerobic Digestion Facility is also set to produce 4.1 million cubic metres of biogas (155,800 GJ) annually. Waste Services is looking at how to best use

these fuel sources, by taking into account all current and forecasting future term trends and developing cash flow models and business cases.

Waste Services will work with the City's corporate GHG team to assess upstream impacts from changes in waste programs as they come on stream to ensure that GHG emissions calculations are as accurate as possible.

Regional Alignment

Overview

Discussions that could impact the Edmonton Waste System are ongoing with our regional partners, including those in regard to Extended Producer Responsibility (EPR) initiatives and broader questions of aligning growing systems. Regional alignment of waste services and programming is undergoing consideration by the Metropolitan Regional Servicing Plan Task Force, which consists of elected representatives from municipalities around the region; Mayor Iveson is the City of Edmonton's representative. The Task Force work is supported by the Waste Technical Working Group, which consists of administration representatives from the Edmonton Metropolitan Regional Board municipalities. The Task Force and Waste Technical Working Group are building upon preliminary scoping conducted for the Metropolitan Regional Servicing Plan (Environmental Scan) in 2018. Recommendations of the Waste Technical Working Group will be made to the Board in October 2019.

To date, discussions at the Working Group have considered the changing context of solid waste management and the growing sense that more can be done to reduce environmental impacts and advance 'Circular Economy' initiatives, which focus on diverting materials from the waste stream back into the market. This work is also positioned as an alternative to the linear economy (make, use, dispose) (National Zero Waste Council).

The Working Group is also exploring how the region might work together to manage some key challenges over the next 10 to 25 years, including:

- Recycling capacity and availability for relevant materials.
- Organics processing capacity.
- Urban densification and associated service levels.
- Changes in waste stream characterization.
- Disposal capacity for construction and demolition waste.
- Funding constraints, especially for major facilities.
- Changes in technology for waste processing.
- Climate change impacts.

Participating municipalities will consider opportunities for collaboration that could include:

- In the context of major infrastructure development, whether processing needs could be examined at a regional level.
- In the overall effort to enhance the environmental resilience of the region, understanding that waste reduction and diversion help to significantly offset greenhouse gas (GHG) emissions and support climate change mitigation.
- Regional opportunities to create economies of scale and reduce costs overall, while providing similar or improved access to facilities and services.
- Regional opportunities to improve resident and organizational participation in programs by ensuring some level of harmonization, especially around product restrictions and initiatives to support EPR.

Moving forward, Waste Services will continue to seek to align its existing program planning processes with the ongoing regional discussions at both a political and administrative level, in line with Draft Metropolitan Regional Servicing Plan Principles, including:

- Act in a regional manner with a unified metropolitan services voice.
- Pursue leading and innovative practices.
- Share information and knowledge of metropolitan services and research.
- Recognize the distinct cultures and position of local jurisdictions.
- Encourage and support subregional initiatives.
- Build consensus on regionally-scaled investments.

And in line with Service Area Principles including:

- Promote life cycle thinking, based on the solid waste hierarchy.
- Support consideration and investment in regionally-scaled infrastructure.
- Seek economic and results-oriented opportunities for delivery of services on a regional scale.
- Support and encourage innovation within the region, with the goal of aligning solid waste management practices with the Draft Metropolitan Regional Servicing Plan.

Next Steps

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 Facility plan.
- 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.