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Together, Edmonton is creating a future with less waste.

Edmonton's first Waste Reduction Roadmap is an action-oriented work plan that identifies programs, services and regulations that will result in less waste being produced by residents, businesses, public institutions, and other organizations.

Recognizing that shifting our collective mindset about waste requires reaching beyond the City's own municipal waste system across sectors and in partnership with many actors, the City's focus is on catalyzing change by:

- Supporting Edmontonians in making the behavioral and operational shifts necessary to reduce waste;
- Removing barriers to zero waste innovation and circular economy initiatives, and
- Increasing awareness of and participation in waste reduction programs.

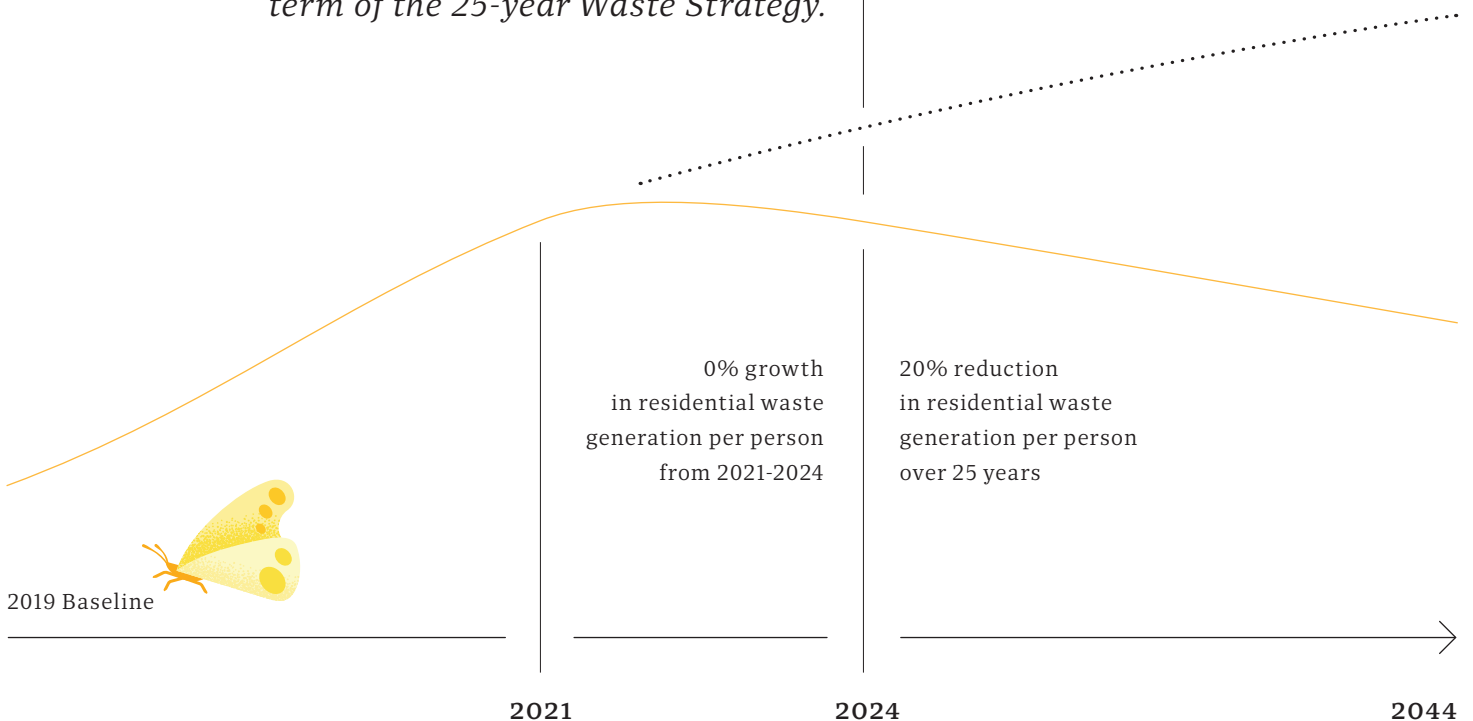
Guided by our 25-year Waste Strategy, Edmonton is on a path to transform how residents, businesses and institutions think about and handle their waste.

Whereas other significant Waste Strategy projects like the Edmonton Cart Rollout enable better management of the waste we generate, this Roadmap, and those that will follow, will define how we will inspire Edmontonians to prevent waste from being created in the first place.

Setting the Stage for Roadmap'24

As the first in a series, this roadmap will guide our actions until 2024. The roadmap to 2024, or “Roadmap’24” has an ambitious target to stop the upward trend in the quantity of waste generated per person.

Future roadmaps will carry forward these focus areas, building on the strong foundation of Roadmap’24 and lessons learned over the next three years, to deliver a twenty percent reduction in waste generation per person over the term of the 25-year Waste Strategy.



2019 Baseline

2021

2024

2044

Scope of Waste Reduction

As defined by the 25-year Waste Strategy, Roadmap'24 addresses what is sometimes called 'the top of the waste management hierarchy'. Whereas waste diversion demonstrates the responsible management of waste we currently generate, the ultimate aim of a zero waste framework is to avoid valuable resources from ever becoming waste in the first place. Waste can be reduced as a result of rethinking/redesigning, reducing consumption, and reusing, as illustrated in Figure 1.



RETHINKING AND REDESIGNING happens when products and systems are redesigned or completely reconsidered even before production to minimize waste and support a circular economy.

REDUCING shrinks the quantity of material that needs to be managed by waste systems. Reducing is often associated with changing consumer habits, such as using something already owned instead of buying something new.

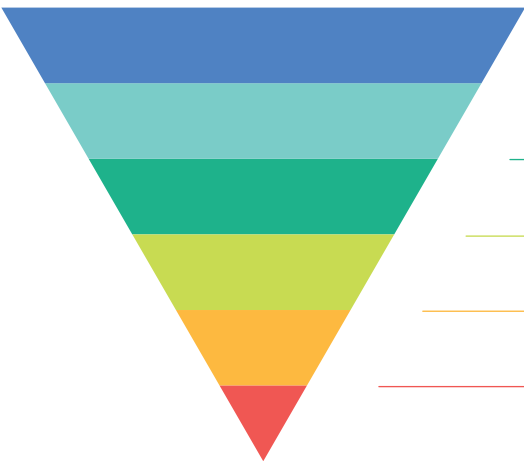
REUSING means using, donating or selling a product back into the market for its original intended use. Reuse can be informal, such as passing along books and toys to other users, or more formal, such as donating clothing and other textiles to social agencies.

RECYCLING AND COMPOSTING

RECOVERING

MANAGING RESIDUALS

FIGURE 1. WASTE MANAGEMENT HIERARCHY



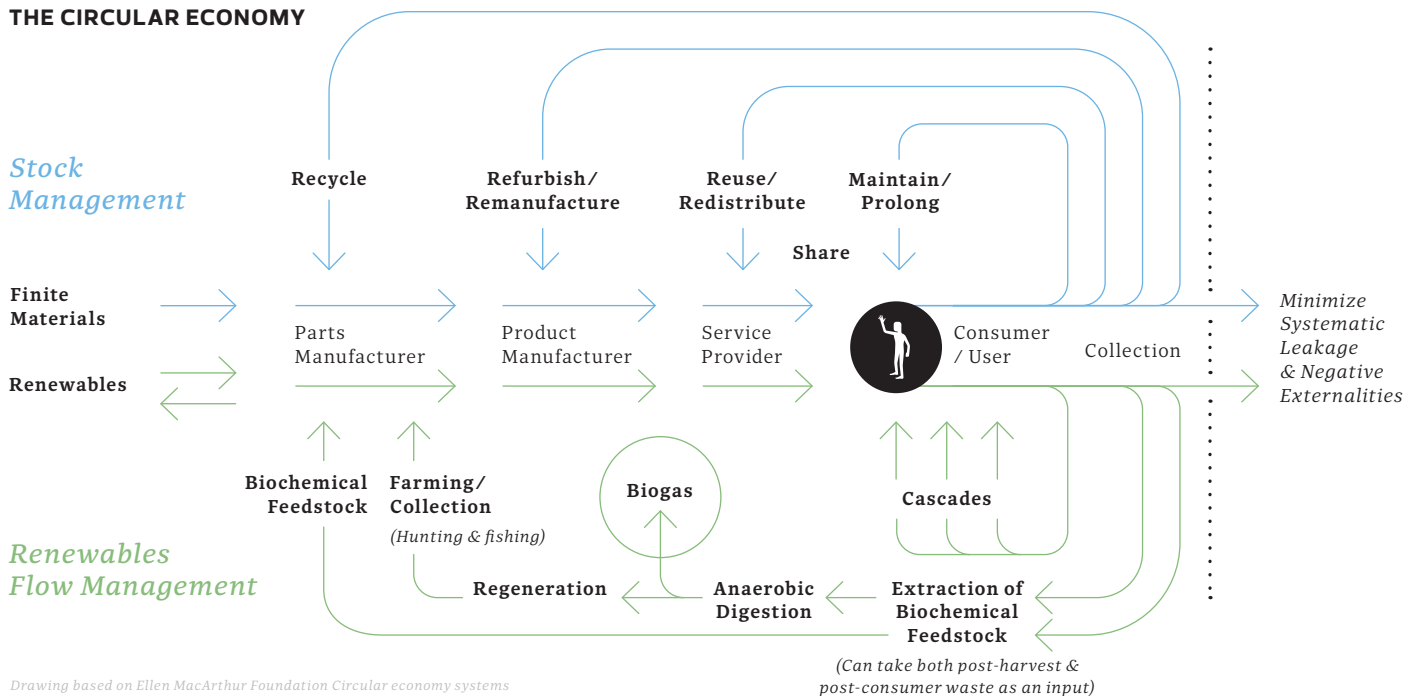
The National and Global Context

Reducing waste is an increasingly important global issue. There is pressure from consumers, advocacy groups, non-governmental organizations and governments for industry to be innovative and rethink product composition and design to better reflect the value, scarcity and environmental impact of our resources.

Federal legislation is anticipated to address the overuse of plastics designed to be used once and thrown away. Provincial regulations that set the framework for extended producer responsibility are also expected to be established soon in Alberta. Other notable initiatives driven by industry include the Canada Plastics Pact, of which Edmonton is an Implementation Partner, and the Plastics Alliance of Alberta.

These industry initiatives, in particular, focus heavily on the circular economy – a model that seeks to gradually redesign the economy so that products are made and re-made without generating waste. This allows economic activity to continue without the consumption of finite resources (Figure 2).

FIGURE 2.
THE CIRCULAR ECONOMY



Drawing based on Ellen MacArthur Foundation Circular economy systems diagram (Feb 2019) and Braungart & McDonough, Cradle to Cradle (C2C)

For example, even though smartphones are made of durable materials that have ongoing value, they are used for relatively short periods of time before they are no longer considered useful.

Within the traditional linear economy, which follows a “take-make-waste” process, an old smartphone would simply be discarded.

Over the past several years, shortages of some rare earth elements and precious metals has helped to increase the number of phones that are recycled, but even still only a small fraction of the different materials they contain is ultimately recovered.

Under a circular economy model, a smartphone would be purposefully designed to be reused, repaired,

refurbished and eventually disassembled in a way that easily strips out reusable components to be remade into something new.

While the potential resource savings and waste avoidance outcomes are clear, this example highlights the significant commitment and action required by industry, with support from government, to advance the circular economy.

Edmonton's Evolving Waste Management System

This Waste Reduction Roadmap was developed in the context of the broad changes being implemented as part of Edmonton's 25-year Waste Strategy. This in turn supports Edmonton's climate commitments and is a critical element of the Big City Move to be Greener as We Grow as defined in The City Plan. In addition to the actions defined here, several

major changes are underway or planned for the next two years that will affect how Edmonton residents, businesses and organizations sort and set out their waste. These changes are mandatory, and will require Edmontonians to change their waste habits. A brief overview of these changes is provided below.



EDMONTON CART ROLLOUT MARCH TO AUGUST 2021

Edmonton's new cart-based curbside waste collection system started rolling out to approximately 250,000 homes in March 2021. While sorting waste into four streams (food scraps, yard waste, recycling, and garbage) is designed to increase the residential diversion rate, the introduction of volume limits (through fixed cart sizes) and variable rates (based on the size of garbage cart selected) will prompt residents to be more aware of the waste they generate and is expected to nudge residents toward overall waste reduction.

MANDATORY MULTI-UNIT WASTE SORTING PROGRAM TARGET FOR IMPLEMENTATION BEGINNING 2023

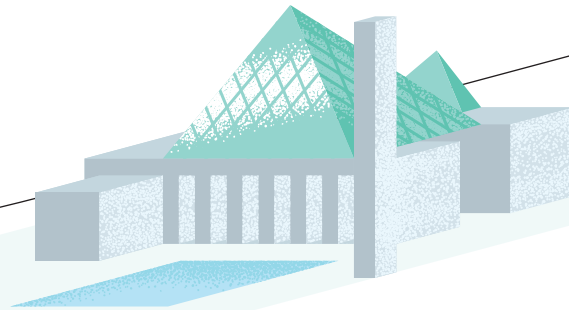
Changes coming to the multi-unit sector through a mandatory waste sorting program will require residents who receive communal collection service to sort waste into three streams (foods scraps, recycling and garbage). Like the Edmonton Cart Rollout, these changes will be designed to increase waste diversion. Some form of volume limits and variable rates is also expected to be introduced for the multi-unit sector to incentivize overall waste reduction.

MANDATORY NON-RESIDENTIAL WASTE SORTING PROGRAM TARGET FOR IMPLEMENTATION BEGINNING 2023

Separation requirements are also under development for the non-residential sector, including businesses, not-for-profit organizations and public institutions (generally referred as the Industrial, Commercial and Institutional sector (ICI) by the waste industry). Similar to the residential sector, these regulations will prompt more attention for waste generation and greater incentives for overall waste reduction. The new requirements will also give the City more access to data from the non-residential sector, allowing the City to better target and measure the impact of waste reduction programs in this sector.

*Roadmap'24 is designed to complement the transformational changes already underway in Edmonton's waste system, **with consideration for Edmontonians' capacity for change.***

*As such, the actions in this first Roadmap lay the foundation for long-term waste reduction efforts: **building capacity** amongst waste reduction champions, **accelerating the activities** of waste reduction enthusiasts, and **introducing concepts** and opportunities to Edmontonians who are just starting to learn about waste reduction.*

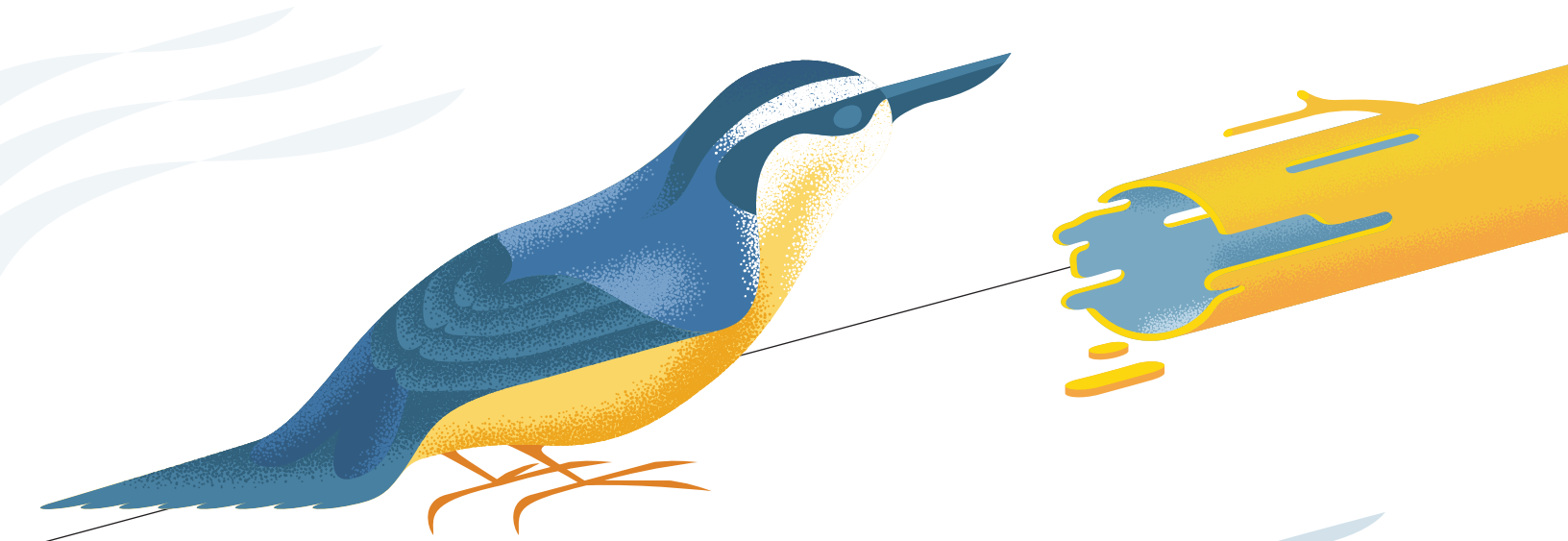


Beyond Roadmap'24

As changes to the City's waste system take hold and the momentum for waste reduction builds, future roadmaps are expected to leverage more transformational actions to accelerate the path to Edmonton's zero waste future.

The City continues to engage with its neighbours to explore regional alignment, as defined by the Edmonton Metropolitan Regional Board's 2019 Metropolitan Region Servicing Plan. This work includes a review of the success of landfill bans on successful waste diversion, establishing common reporting protocols, and regional advocacy to the provincial government for extended producer responsibility legislation.

The City will also continue to explore how and when to ramp up the direct incentives and disincentives that will be required to reverse the upward trend in Edmonton's residential waste generation per person. Future roadmaps may recommend a more robust 'pay-as-you-throw' cost model, more strict volume limits, and actions to address construction and demolition waste.



Roadmap Development Process

Roadmap'24 is based on extensive research and engagement. Twenty-two jurisdictions were included in a scan of waste reduction practices and measures. Research identified several levers that can be used to influence waste generation such as education, outreach and engagement; regulations; financial incentives; procurement policies; voluntary programs and partnerships.

Forty-two stakeholder groups were identified for engagement, representing a diverse array of interests. Twenty-six participated in the engagement process, including representatives from:

- Environmental and advocacy groups;
- Charitable service organizations that redistribute durable goods;
- Food rescue organizations;
- Commercial waste generators;
- Government of Canada; and
- Government of Alberta.

Stakeholders were given opportunities to advise on the actions that should be considered for the Roadmap, and to refine the actions and performance framework. A survey was also used to gather feedback from stakeholders and the general public on a list of potential waste reduction programs and services. The commitments made in this roadmap reflect the input received.

More detailed information about the research and engagement processes and findings is included in the What We Heard report and Waste Reduction Background Research report.

Waste Generation in Edmonton

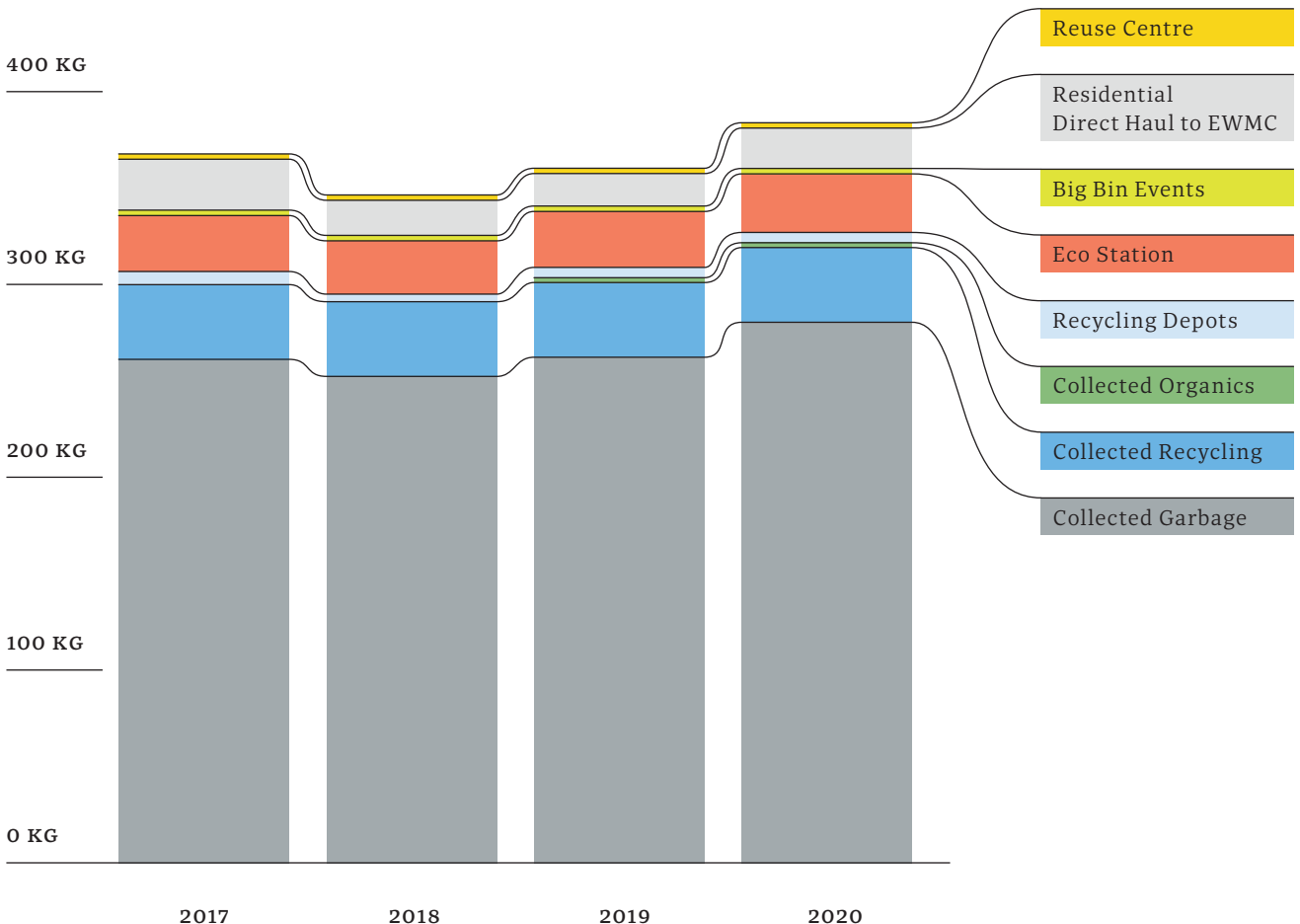
In 2020, Edmonton residents generated 380,500 tonnes of residential waste. This includes waste that was collected from residents (including portions that were recycled and composted) along with waste dropped off by residents at Community Recycling Depots, Eco Stations, the Residential Transfer Facility, and Big Bin Events.

Figure 3 shows how the quantity of residential waste generated per person has changed over the past four years. It is important to look at the quantity generated per person, since the population of Edmonton continues to grow.

The average year-over-year change from 2017-2020 is an increase of 1.5%. This is equivalent to an increase of about 5 kg per person per year.

The City has not historically exercised influence on these rates, which fluctuate largely in response to factors like economic conditions and consumer trends. As an example, municipalities across the country observed significant increases in residential waste in 2020, as a result of the COVID-19 pandemic which resulted in many people generating and disposing of more waste at home.

FIGURE 3.
RESIDENTIAL WASTE GENERATED PER CAPITA BY SOURCE



Waste Composition Estimates

Edmonton’s Residential Four-Season Waste Composition Study (2016) and the Cart Rollout Demonstration Phase Waste Characterization Study (2019) were used to estimate streams and materials from the residential sector to target for waste reduction (Figure 4). These studies characterize waste that is collected from residents, but do not capture waste that is self-hauled to Eco Stations, the Residential Transfer Station, Community Recycling Depots, Big Bin Events and community bin events.

A 2019 waste characterization study from Calgary was used to estimate streams and materials generated by the non-residential sector. The data was adjusted to reflect Edmonton’s non-residential sector. These estimates are shown in Figure 5.

FIGURE 4.
RESIDENTIAL COLLECTION
MATERIAL COMPOSITION (2016)

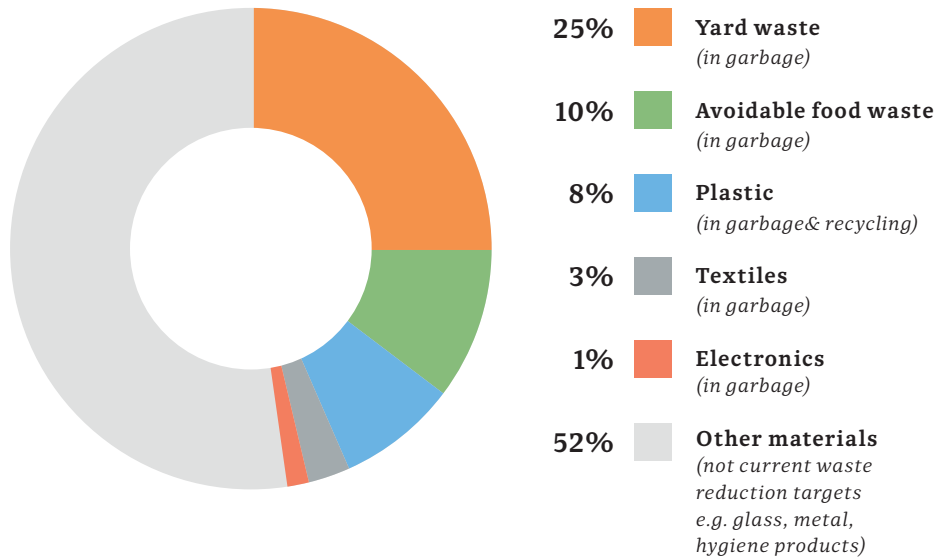
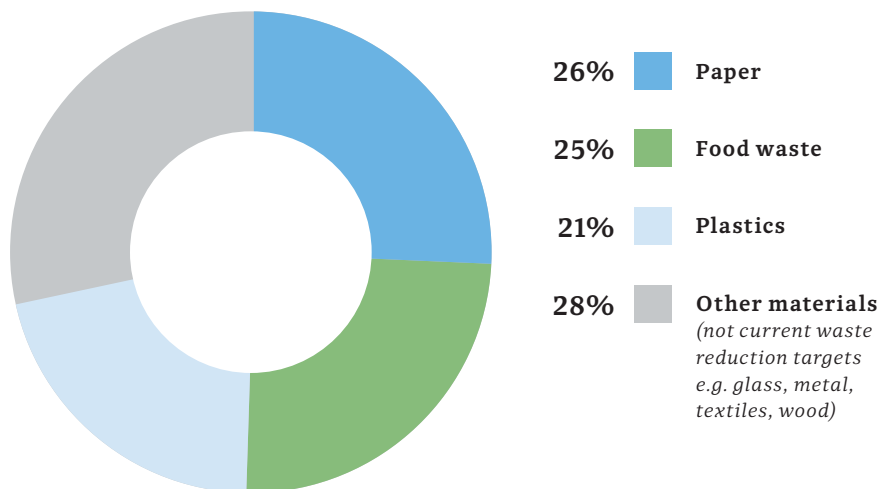


FIGURE 5.
NON-RESIDENTIAL COLLECTION
MATERIAL COMPOSITION (ESTIMATE)



References:

2016 Edmonton Four-Season Waste Composition Study

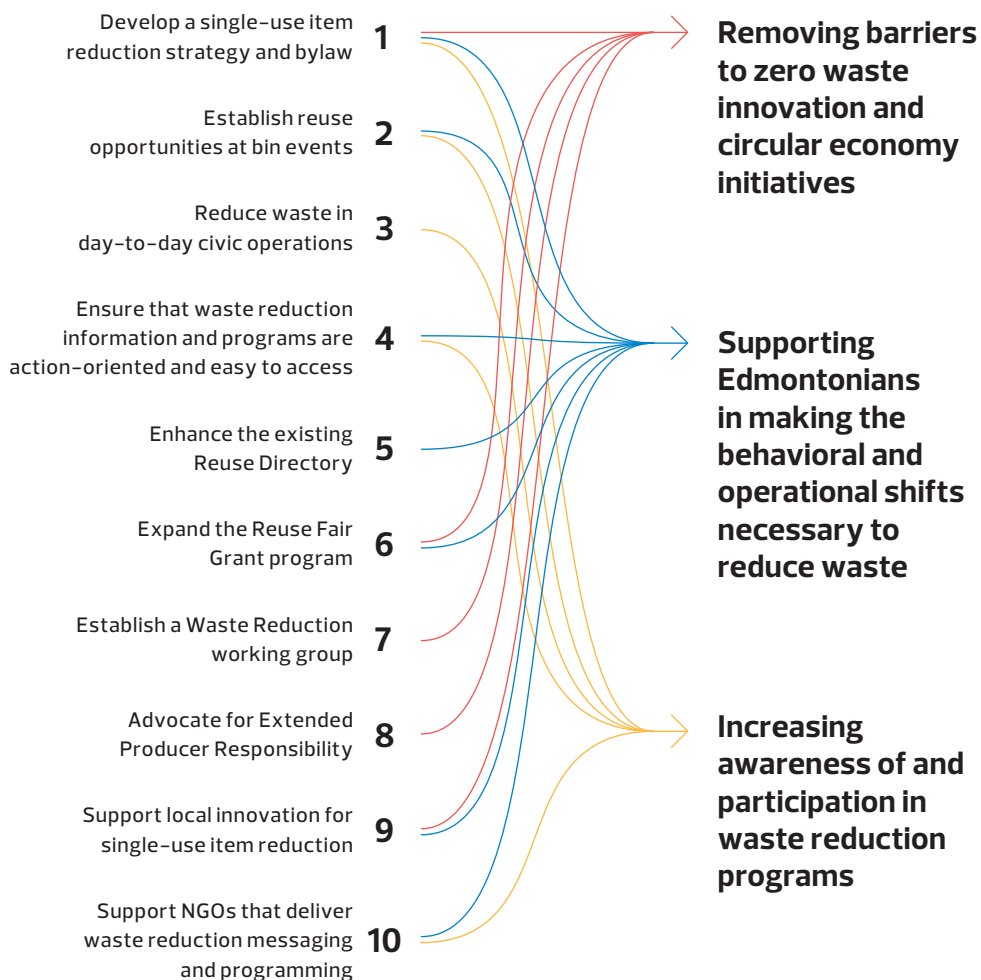
2019 Edmonton Cart Rollout Demonstration Phase Waste Characterization Study Final Report

City of Calgary - Industrial, Commercial, and Institutional Garbage Composition

Actions and Implementation Timeline

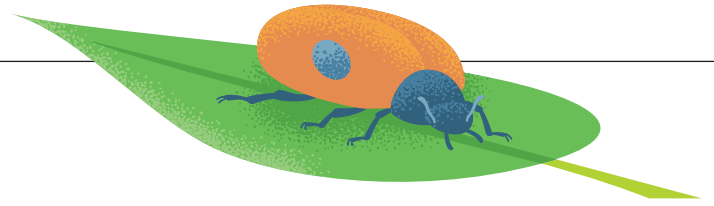
Ten actions have been identified for the City to implement over the next three years to achieve the target for Roadmap'24 of avoiding increases to the waste generation rate per person.

These actions extend across the City's three focus areas to contribute to corresponding outcomes, which are aligned to key performance indicators and three-year targets as defined in a new waste reduction performance framework (page 16).



The following pages describe these actions in detail, with actions grouped according to the City's level of influence, using the Ensure, Promote, Support structure found in ConnectEdmonton and the City Plan. Measures for each action will be monitored internally to gauge effectiveness and enable continuous improvement. Further details on the overall performance framework are provided in the implementation section of this document.

In addition to these actions, the City aims to apply a waste reduction lens to City policy and day-to-day decisions in order to lead by example in advancing Edmonton's zero waste future. Waste Reduction is integrated into the operations of the City's Waste Services in ways that are not explicitly described in the Roadmap. This includes work that will be undertaken to improve the City's understanding of baseline conditions and the impact of individual waste reduction actions. Targets and actions will be refined and adjusted in response to additional data through ongoing performance management.



Ensure DIRECT INFLUENCE

ACTION

1) Develop a single-use item reduction strategy and bylaw that builds on leading federal and provincial regulations

2) Work with internal and external partners to establish reuse opportunities at bin events

3) Consistently apply existing internal waste reduction directives in the City's day-to-day operations

RATIONALE

The single-use items strategy and bylaw are commitments from the 25-year strategy. Now that the federal government has released its draft plan for single-use items and the provincial government has released a discussion paper on extended producer responsibility (covering many single-use items), the City can develop a strategy that is in alignment with and fills any regulatory gaps.

Many bulky items brought to bin events are suitable for reuse, and this action will result in rescuing those items for local recirculation and use. Funding to incentivize community event organizers to work with a reuse partner has been confirmed to help overcome potential barriers. Lessons learned will be used to investigate the possibility of providing reuse opportunities at City of Edmonton Big Bin events.

The City has a variety of existing directives and programs that focus on a range of waste streams, such as single-use items and office furniture. This action recognizes that additional work is needed to realize the full benefits of these policies. This will be done in a way that nurtures a zero waste culture within City Administration. The City will lead by example and inspire community action for waste reduction.

IMPLEMENTATION TIMING

Develop in Q2-4 2021, release in Q1 2022
Bylaw timing to be coordinated with the provincial Extended Producer Responsibility (EPR) framework and the federal ban on specific single-use plastics

Revised program guidelines for community events released March 2021
Evaluate 2021 and adjust for 2022, 2023

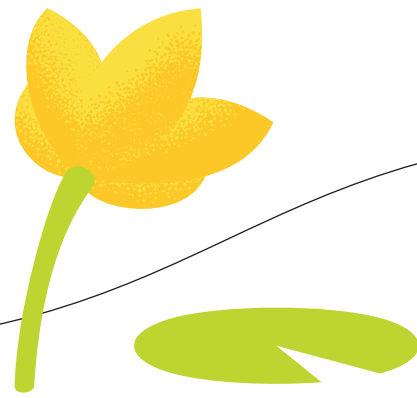
After the majority of employees have returned to offices and waste from civic operations approaches pre-pandemic levels

MEASURES

% of residential waste (by weight) that is single-use items

of community bin events with reuse opportunities
Quantity of durable goods recovered through bin events

of embedded waste reduction approaches documented and showcased through regular reporting

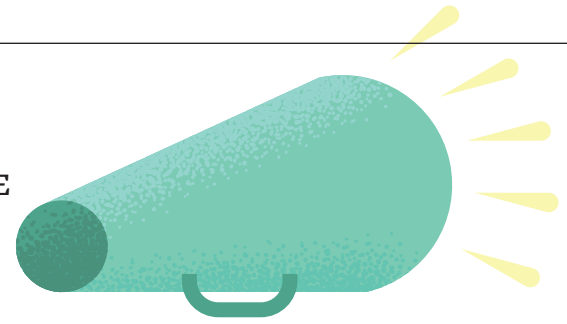


Ensure

ACTION	<p>4) Ensure Edmontonians have easy access to waste reduction information and programs that deliver clear and consistent messaging</p>	<p>5) Enhance the existing Reuse Directory to include information for residential and non-residential sectors</p>	<p>6) Expand the scope of the Reuse Fair Grant program to include other waste reduction activities</p>
RATIONALE	<p>The City has a wide range of education, outreach, and engagement offerings, and runs programs designed to support residents in changing their habits to reduce waste. Providing consistent information on the same priority topics across programs will enhance the impact of these programs and resources.</p>	<p>The Reuse Directory is an online resource that directs Edmontonians to organizations that accept donations of previously used items. The scope of the directory will be expanded to include more types of waste reduction activities such as renting, repairing, refilling, rescuing, reusing and donating.</p>	<p>Reuse Fair grants have been available for many years to support community groups who collect reusable items for charities, non-profits, artisans and schools that need them. This action will expand the list of eligible activities to include repair. This will pave the way for repair cafes to become established in Edmonton and expand the reach of textile repair activities.</p>
IMPLEMENTATION TIMING	<p>Ongoing; this action is a continuation and expansion of existing programs</p>	<p>Finalize structure in Q3 2021 & solicit listings in Q1&2 2022 Maintain: 2022 & 2023</p>	<p>Finalize structure & raise awareness in 2021 Implement in 2022 & 2023 (COVID- dependent)</p>
MEASURES	<ul style="list-style-type: none"> # of Edmontonians trained in waste reduction through City programs (with GBA+ disaggregated data tracking) # of unique visits to waste reduction pages on edmonton.ca # of programs consistently addressing priority waste reduction topics 	<ul style="list-style-type: none"> # of organizations in Reuse Directory # of page views of Reuse Directory Perception of Reuse Directory value from organizations listed (satisfaction survey) 	<ul style="list-style-type: none"> # of applications # of grants provided # of attendees at events # of items exchanged/ swapped/ repaired/ reused



Promote MODERATE INFLUENCE



ACTION

7) Establish a waste reduction working group representing the diversity of Edmonton’s non-residential sector to identify priority actions and how the City can reduce barriers to waste reduction for the sector

8) Continue to advocate for Extended Producer Responsibility legislation and implementation

RATIONALE

This action will help the City understand what the non-residential sector is already doing to reduce waste, what help they need, and what role the City can play. By working with this group, our goal is to help catalyze change.

The provincial government began consultation on an Extended Producer Responsibility framework for packaging and paper products and household hazardous waste in March, 2021. The City has a role to play in advocating for a framework that meets municipal needs and requires producers to report on waste reduction. This action also includes implementation planning, as the City may play a role in delivering services under an Extended Producer Responsibility framework.

IMPLEMENTATION TIMING

Begin in Q3 2021
Continue for the duration of Roadmap’24 and beyond

Begin in Q2 2021
Continue until the implementation plan is finalized (expected 2024)

MEASURES

of members recruited and retained
% of actions from annual work plan initiated/ completed
Member perception of working group value (satisfaction survey)

% of engagement opportunities leveraged to provide input to Extended Producer Responsibility

Support INDIRECT INFLUENCE

ACTION

9) Support local innovation by piloting a grant or rebate program for single-use item reduction

10) Support NGOs that deliver waste reduction messaging and programming by sharing content and working together to identify priority topics

RATIONALE

The role of the City in reducing waste from the non-residential sector is to help catalyze change. This grant is intended to spark change and test what can be successful.

This action recognizes that there are non-government groups who reach different audiences than the City does, and the City can leverage the reach of these groups by making sure they have accurate information to share and understand the City's priorities.

IMPLEMENTATION TIMING

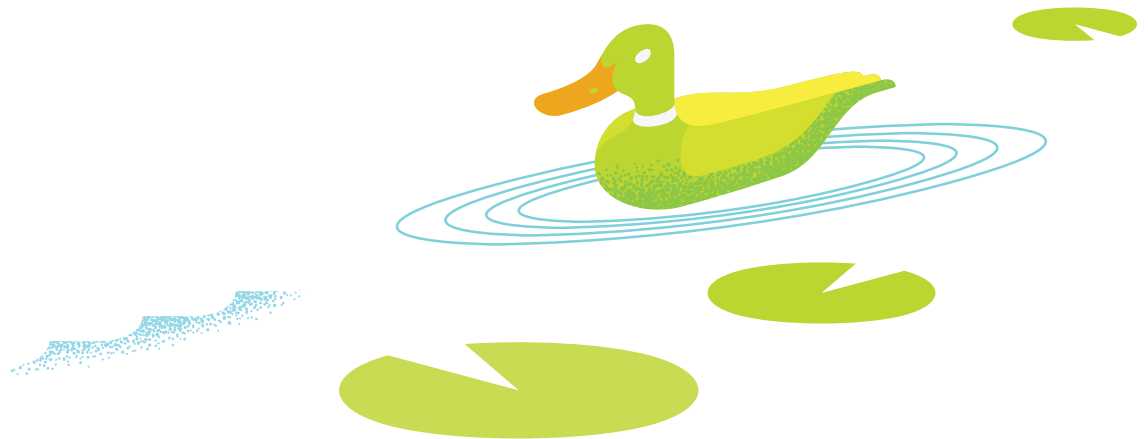
Plan in Q2-4 2021, launch in Q1 2022
Evaluation required to determine actions for 2023 & 2024

Begin in Q2 2021
Continue for the duration of Roadmap'24 and beyond

MEASURES

of applications
\$ provided
of single-use items avoided as a result of grant/rebate program

of people engaged across all non-City platforms (as reported by partners)
of stakeholders leveraging common messaging for identified priority topics



Implementing The Roadmap

**GOAL: REDUCE THE QUANTITY OF WASTE
GENERATED PER PERSON IN EDMONTON**

25-year Target

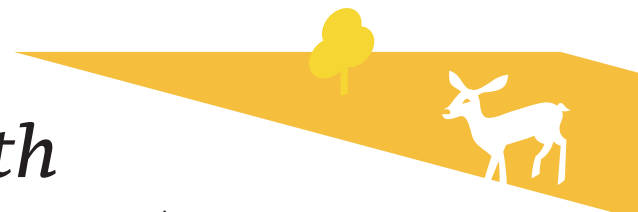
20%
reduction

*in residential waste generation
per person (2019 baseline)*

Roadmap'24 Target

0%
growth

*in residential waste generation
per person from 2021 to 2024*



Performance Measurement

Waste reduction is ultimately measured by changes in the quantity of waste generated per person. This number tends to vary in response to economic conditions, consumer trends, and changes to products available on the market, including product packaging. These external forces can both mask and overwhelm the impact of municipal waste reduction initiatives. Many jurisdictions have found that they are not able to document a direct link between municipal waste reduction actions and changes in the quantity of waste generated per person.

A more comprehensive approach to measuring incremental progress is required to better understand the impact of specific waste reduction actions and ensure that Edmonton's efforts to reduce waste deliver significant, measurable change in support of the 25-year Waste Strategy.

The actions and their measurements (pages 11 to 14) will support effective internal oversight of Roadmap'24 implementation. In addition, the following performance framework aims to build a robust basis for managing and evaluating the City's waste reduction activities. This approach is unique among the other plans reviewed during the development of the Roadmap. Outcomes, aligned to the waste reduction focus areas, are directly connected to key performance indicators and specific three-year targets that contribute to the overarching target of Roadmap'24, and bring Edmonton closer to our 25-year target of 20% reduction in residential waste generation.

Outcomes, Key Performance Indicators and Three-Year Targets

OUTCOMES	Edmonton residents and the non-residential sector make the behavioral and operational shifts necessary to reduce waste	Barriers to zero waste innovation and circular economy initiatives are reduced	Awareness of and participation in waste reduction programs increases
KEY PERFORMANCE INDICATORS	<ul style="list-style-type: none"> 1) % of curbside collection customers choosing small (120L) garbage cart 2) Avoidable food waste, yard waste, single-use items, textiles as % of all waste streams 3) Self-reported changes in waste generation habits 	<ul style="list-style-type: none"> 1) % of available City funding distributed to zero waste innovation and circular economy initiatives 2) % of bin events held with reuse partners 	<ul style="list-style-type: none"> 1) Awareness/impression monitoring of social media and other online waste reduction content 2) Number of participants in City programs that teach zero waste/waste reduction concepts 3) Variety of waste reduction programs supported by the City
THREE-YEAR TARGETS	<ul style="list-style-type: none"> 1) % increase from 2021 baseline to be defined in 2022 2) Downward trends 3) Increase in waste reduction efforts 	<ul style="list-style-type: none"> 1) Year over year increase 2) Reuse partner at at least 50% of community bin events 	<ul style="list-style-type: none"> 1) Year 1: Establish baseline Year 2 & 3: Observable increase in web visits/downloads of waste reduction content 2) Year-over-year increase 3) Increased number of ways to participate

Although current data limitations impact the ability to set meaningful three-year targets, the period of Roadmap'24 will be used to gather data to establish baseline conditions and trends so that more specific targets can be set in subsequent roadmaps. This will be enabled by the enhanced data collection that is part of the commitment made in this roadmap, including anticipated improvements to information about non-residential waste generation and disposal.

Progress Reporting

Progress on the implementation of Roadmap'24, including results for the **key performance indicators** will be reported every year as part of the annual reporting of the Waste Services Branch. **Measures for actions** will be monitored internally to support ongoing performance management, with a summary report to be prepared at the end of the Roadmap'24 cycle as part of delivering the City's next Waste Reduction Roadmap.