Technical Briefing

April 30, 2020

Solid Waste Master Plan

Agenda

	Item
1.	Background
2.	Communications and Engagement Strategy
3.	Municipal Legislative Toolkit
4.	Technical Memorandums
5.	Next Steps
6.	Questions

Background

Recap – Phased Approach and Estimated Timeline

Phase 1 –
Where We Are
Q2 2019 to Q2 2020

- Document current state of City's waste system
- Status of legislation and development of legislative toolkit
- Develop and Recommend Consultations and Engagement Plan
- ***Report to Committee and Council***

Phase 2 –
Where We Are Going
Q2 2020 to Q2 2021

- Identify the City's long term waste management needs
- Consult on draft vision, guiding principles and objectives
- Needs Assessment Analysis Technical Memo
- Develop triple bottom line evaluation framework
- Identify and evaluate options to manage City's waste in future
- ***Report to Committee and Council***
- Evaluate options, consult and prioritize
- Prepare draft plan

Phase 3 –
How We Will Get There
Q2 2021 to Q1 2022

- ***Report to Committee and Council –*** Draft Strategy with options and short term (5 year) implementation plan
- Engage and consult public and stakeholders on draft strategy
- ***Final Report to Committee and Council***

Announcements and Events Affecting Waste Management

- Since the Roadmap report was approved in July 2019, the waste management landscape has continued to evolve and shift

- Provincial Wind-Up of various Stewardship Ontario waste diversion programs continues (impact of COVID-19 currently unknown):
  - Municipal Hazardous or Special Waste
  - Waste Electrical and Electronic Equipment
  - Blue Box Program

- Federal ban on single-use plastics in Canada

Solid Waste Component Projects

- Multi-Residential Diversion Strategy
- Elimination of Single-Use Plastics and Foamed Plastics in City Programs and Services
- Parks Waste Diversion Pilot
- Waste Diversion at Special Events
- Green Bin Program Products Acceptance Policy
- Curbside Service Level Options, Tender and Contracts
- Future Organics Processing Capacity (Post-2030)
- Transition of Waste Programs to Individual Producer Responsibility

Communications and Engagement Strategy

Engagement Timeline Overview

Phase 1

Where We Are:

September 2019 – March 2020

- Analyze stakeholders
- Develop Strategy
- Inform residents and stakeholders

Phase 2

Where We Are Going:

May 2020 – February 2021

- Engagement Series 1: May 2020 – July 2020
  - Vision, guiding principles and objectives
  - Current state and priorities for future
- Engagement Series 2: December 2020 – February 2021
  - Options

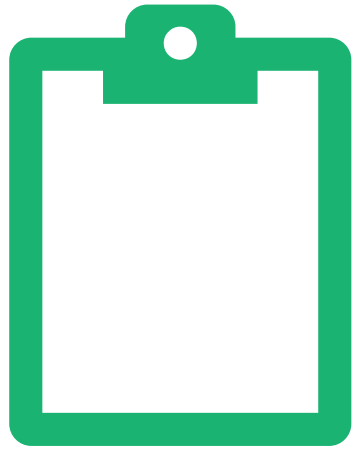
Phase 3

How We Will Get There:

July 2021 – October 2021

- Engagement Series 3
  - Solicit feedback on the Draft Waste Plan

Tactics and Tools



Municipal Legislative Toolkit

Overview of Government Roles

Federal	• Regulate movements of hazardous waste and hazardous recyclable material • Identify best practices • Provide funding for projects to reduce waste
Provincial	• Establish waste reduction policies and programs for residential and IC&I waste • Approve and monitor waste management
Municipal	• Manage the collection, recycling, composting and disposal of household waste

Roles of the City of Ottawa

Waste Producer

- Source separation requirements
- Waste reduction workplans
- Waste audits

Owner/Operator of Waste Management System

- Establish blue box and leaf and yard waste system
- Environmental Compliance Approval

How Council can Influence Waste Management

Solid Waste Management By-law (No. 2012-370)

Business Licensing By-law (No. 2002-189)

Special Events on Public and Private Property By-law (no. 2013-232), as amended

Single-Use Plastics By-Laws

Fines

Development Review

Anticipated Regulatory Changes

Current State Overview

Ottawa's Current Waste State

- Ottawa's population = 1,000,000 residents
- 2,800 square km and 5,600 kilometres of roadways
- Mix of urban (55%), suburban (35%) and rural communities (10%)
- 42% single-detached dwellings, 39% semi-detached, row houses, or low-rise apartment buildings, 18% multi-residential dwellings with 5 or more stories, and less than 1% mobile dwellings
- Responsible for the collection, transportation, processing and disposal of residential household waste for:
  - 294,000 curbside homes & 1,700 multi-res properties
  - 240 City-owned facilities
  - 485 small businesses
  - 1,300 on-street waste bins and 900 City parks

2019 Waste Tonnages Generated in Ottawa

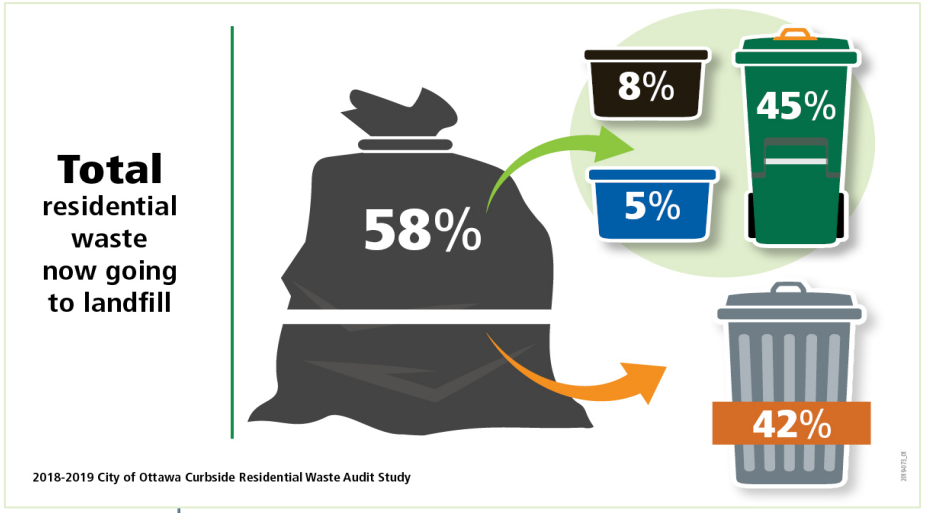
Garbage	Curbside (Residential)	**137,355**
	Containerized (Multi-Res & City Facilities)	**50,373**
	City Parks	**330**
Recycling (Blue and Black Box)	Curbside (Residential)	**51,977**
	Containerized (Multi-Res & City Facilities)	**9,516**
Green Bin & Leaf and Yard Waste	Curbside (Residential)	**89,343**
	Containerized (Multi-Res & City Facilities)	
	Total	**338,894**

55.5% garbage	18.1% recyclable materials	26.4% organics & yard waste

What Residents are doing with their Waste

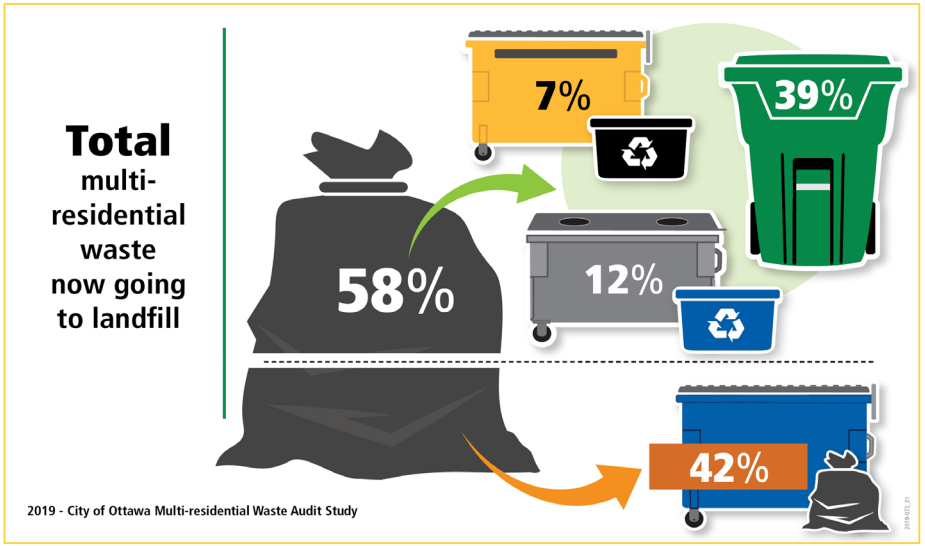
Curbside Collections:

- 2019 Diversion Rate – 49%
- 47% of waste went to Trail Waste Facility
  - 58% was wrongfully disposed of



Multi-Res & City Facilities:

- 2019 Diversion Rate – 17%
- 74% of waste went to Trail Waste Facility
  - 58% was wrongfully disposed of



Ottawa's Waste Diversion Programs

- Yellow Bag Program
- Waste Electrical and Electronic Equipment Program
- Take It Back! Program
- Household Hazardous Waste

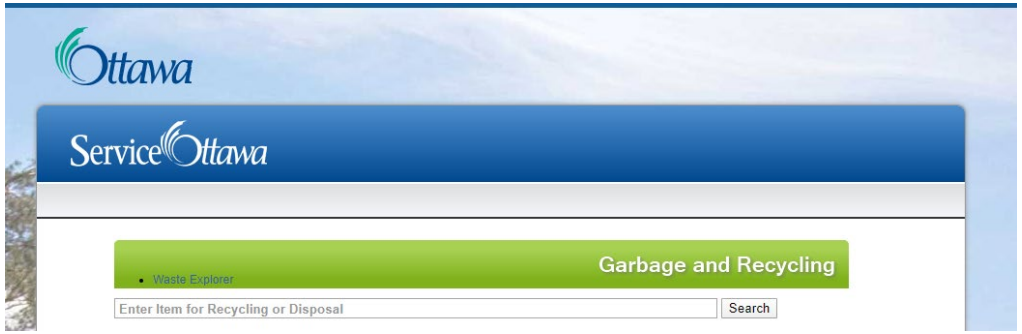
Solid Waste Promotion and Education

When is collection day?

Find out your collection schedule. Search for your address to begin.

SEARCH

Example: 110 Laurier Avenue West, Ottawa, ON



Home > **Garbage and recycling**

Garbage and recycling

Garbage

collection calendar, waste explorer, Trail Road landfill, report missed collection...

Recycling

get a bin, collection calendar, what goes in my bins, waste explorer, report missed collection...

Waste explorer

find out where to dispose of your household items...

Green bin and leaf and yard waste

get a bin, collection calendar, what goes in my bin, school programs, report missed collection...

Hazardous waste and special items

what is hazardous waste, disposal locations, electronic waste, schedules...

Solid Waste Master Plan

read about waste issues, share ideas, provide feedback, ask questions, find answers...

Apartment and multi-unit programs

information for property owners, managers and superintendents, residents and tenants...

Waste reduction and education

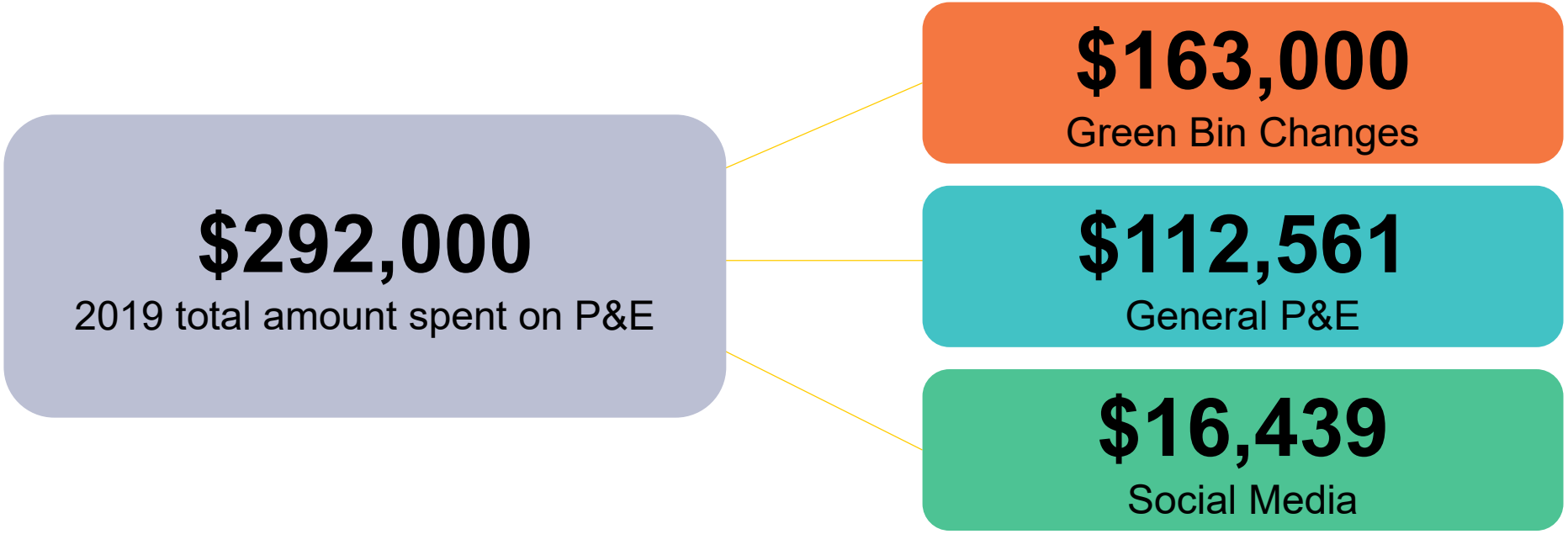
tips to reduce waste, educational materials, activity book...

Solid waste – data and reports

waste plan, recycling and green bin statistics...

Ottawa | **Solid Waste Master Plan**

Funding Waste Promotion and Education



Current Waste Collection Programs

Curbside Collection Contract

Multi-Res Collection Contract

On-Street Receptacles

Integrated Street Furniture

City Parks

Special Events <500

Where Ottawa's Diverted Waste Goes

Cascades | RECOVERY+

24,414 tonnes sent for processing in 2019

37,137 tonnes sent for processing in 2019

renewi
waste no more

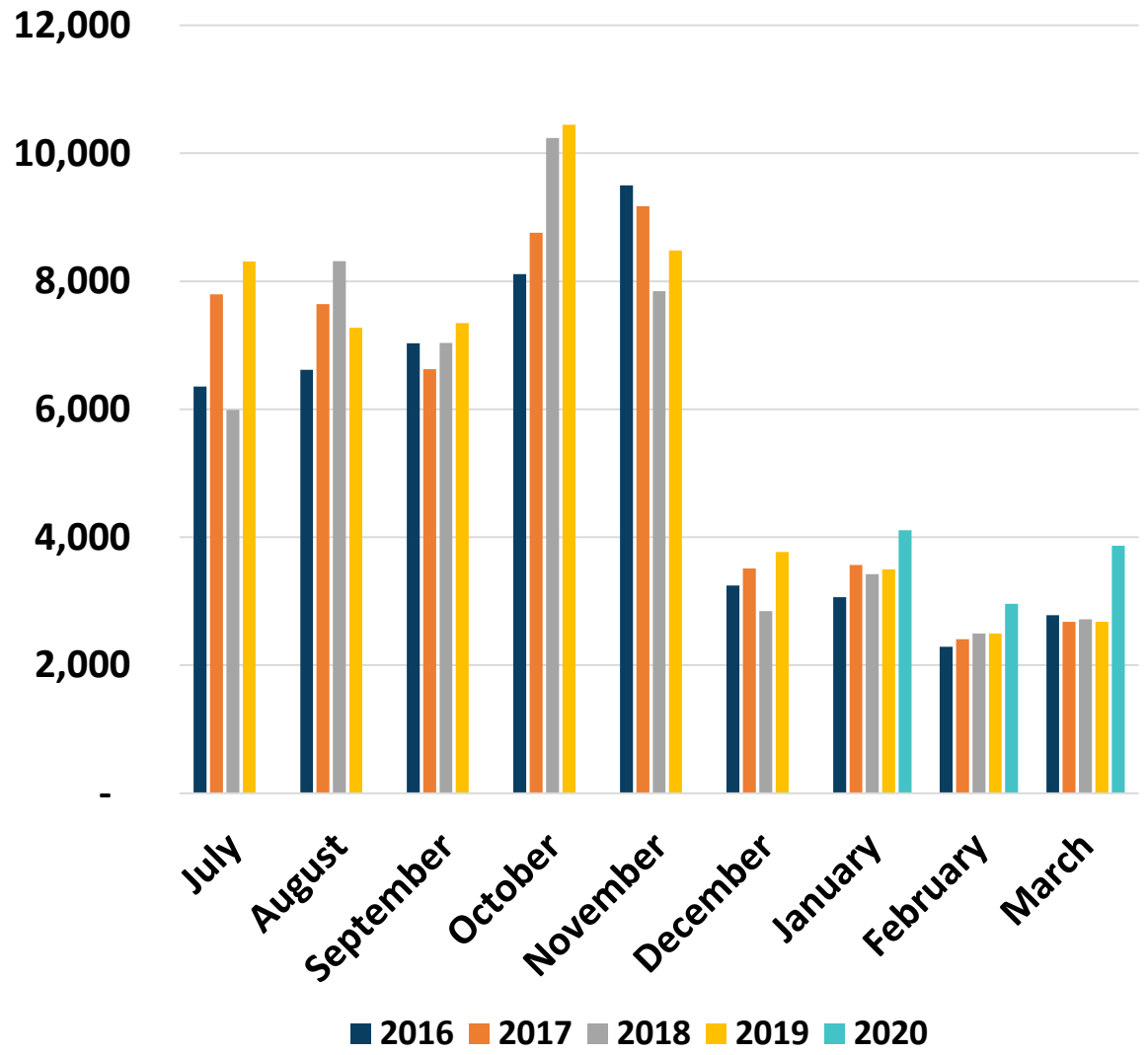
80,321 tonnes sent for processing in 2019

9,022 tonnes sent for processing in 2019

Green Bin Program Enhancement

- Winter tonnages tend to be more representative of household organics as there is very consistent and small amounts of LYW

	2016	2017	2018	2019	2020
January	3,064	6,546 (+16.3%)	3,425 (-3.9%)	3,497 (+2.1%)	4,111 (+17.5%)
February	2,288	2,409 (+5.2%)	2,497 (+3.7%)	2,494 (-0.1%)	2,961 (+18.7%)
March	2,782	2,677 (-0.04%)	2,719 (+0.2%)	2,676 (-0.02%)	3,869 (+44.6%)



Incoming Residential Tonnages during COVID-19

Compared to the same week in 2019

Week Of	Garbage	Recycling	Green Bin (incl. LYW)
March 9	+2.0% (+59 tonnes)	+16.4% (+140 tonnes)	+32.5% (+190 tonnes)
March 16	+4.2% (+139 tonnes)	+10.3% (+109 tonnes)	+34.9% (+233 tonnes)
March 23	+6.6% (+271 tonnes)	+12.3% (+291 tonnes)	+41.7% (+291 tonnes)
March 30	+19.2% (+679 tonnes)	+23.7% (+261 tonnes)	+105.8% (+696 tonnes)
April 6	+25.3% (+860 tonnes)	+19.8% (+237 tonnes)	+333.7% (+2,716 tonnes)
Total	+11.8% (+1,954 tonnes)	+16.6% (+909 tonnes)	+120.6% (+4,126 tonnes)

The City's Waste Facilities

- The City is fully responsible for the Trail Waste Facilities
  - 85 hectares for landfilling
  - 68 hectares serving as buffer land
- Expected to reach capacity in 2041
- Approximate asset replacement value of $42M
- Annual disposal rates:
  - 83% from collections contracts
  - 17% disposal rate from IC&I and C&D sector
- The City is partially responsible for two additional landfills:
  - The Nepean Landfill
  - The Springhill Landfill

Trail Waste Facility

2 common by-products of landfill waste:

1. Leachate
   - Collected and initially treated at the Landfill
   - Then transported to ROPEC for final treatment and discharge
   - In 2019, approximately 171,000 cubic meters of leachate from the Trail Waste Facility was treated at ROPEC
2. Methane Gas
   - The City repurposes this gas to create energy
   - Excess gas is safely flared off
   - Repurposed gas:
     - Generates ~$200K in annual royalty revenue
     - Saves the city ~$250K in maintenance and rehabilitation costs

Waste Diversion Rates at City Facilities

Community Centres
34.8%

Fire Stations
38.8%

Public Works Depot
53.5%

Day Cares
6.9%

Arenas
4.3%

Administrative Facilities
26.4% - 85.4%

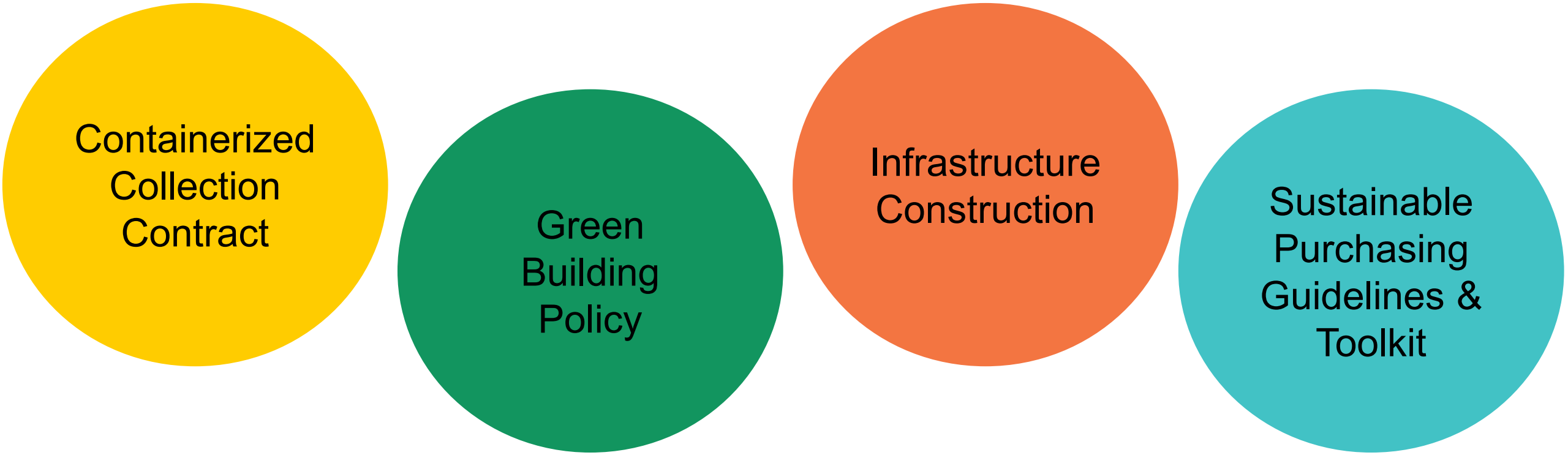
Recreation Centres
29.1%

Theatres
12.7%

Libraries
52.2%

Long-Term Care Facilities
60.9%

Managing Waste Generated by the City



How Solid Waste Operations are Funded

The 2020 total cost to deliver solid waste services to the city's residents is approximately $86M.

The Hybrid Funding Model

Waste Diversion & Recycling
funded by all tax classes

Residual Garbage Collection & Waste Collection & Landfill Disposal
funded by the differential flat fee

Funding & Revenue

Funding
The following programs provided these approximate funds for 2019:

- Provincial Subsidies: $5.9M
  - The Blue Bin Program
  - The Household Hazardous Waste Program
  - The Waste Electrical and Electronic Equipment Program

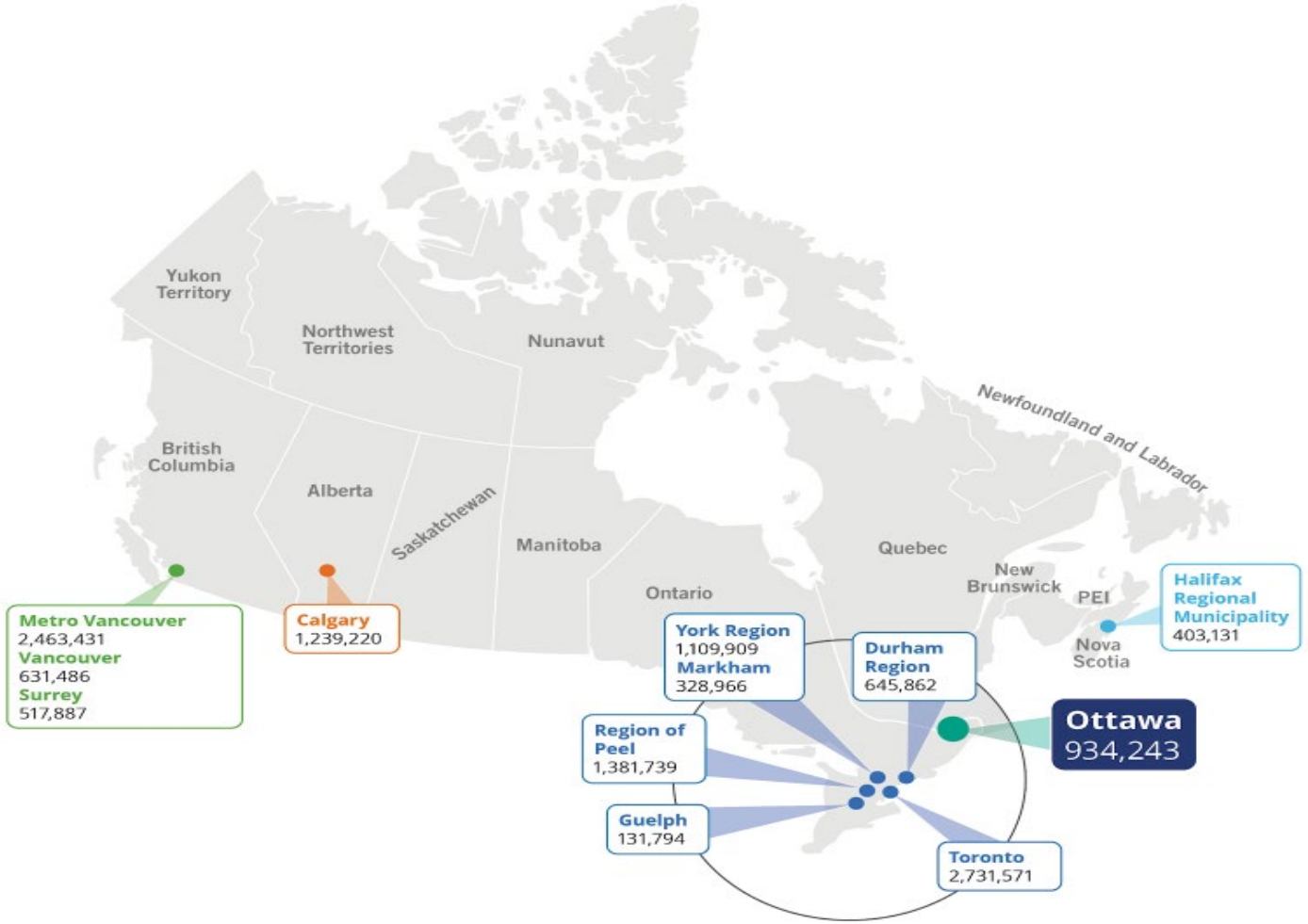
Revenue
The following programs generated these approximate revenues for 2019:

- The Solid Waste User Fee: $31.0M
- The Blue & Black Bin Program: $6.7M
- Trail Waste Landfill Tipping Fees: $5.8M
- Other Revenue Sources: $1.1M
- Internal recoveries: $4.4M

The total funding and revenue budgeted for 2020 is approximately $59M.

Municipal Comparator Scan

Municipal Comparator Scan



- Waste avoidance, reduction, reuse, recycling and diversion
- Source separated organics diversion
- Residuals management
- Promotion, education and engagement initiatives
- Sustainability practices
- Service Delivery Approaches and Staffing Levels
- Funding Models for Solid Waste Management Services
- Special events
- Waste Management and Reduction Practices in Municipal Buildings, Yards, Operations
- Management of industrial, commercial and institutional (IC&I) waste

Comparator Diversion Rates

Jurisdiction	Population	Population Density (ppl/km2)	Demographics	Performance (Diversion &/or Generation)
Ottawa	***934,243***	***333.4***	***Urban / suburban / rural***	***Diversion Rate - 41.4% Generation Rate - 362 kg/capita***
Halifax regional Municipality	403,390	73.4	Urban / suburban / rural	Diversion Rate - ~ 61.0% (2016)
Durham Region	645,862	255.9	Urban / suburban / rural	Diversion Rate – 64.7% Generation Rate - 376 kg/capita
York Region	1,109,909	629.9	Urban / suburban / rural	Diversion Rate - 68.0% Generation Rate - 314 kg/capita
Markham	328,966	1,549.2	Urban / suburban	*Not estimated separately – assume York Region performance.
Guelph	131,794	1,511.1	Urban / suburban / rural	Diversion Rate - 57.7% Generation Rate - 444 kg/capita
Toronto	2,731,571	4,334.4	Urban	Diversion Rate - 51.6% Generation Rate - 283 kg/capita
Peel Region	1,382,000	1,108.3	Urban / suburban / rural	Diversion Rate – 48.6% Generation Rate - 360 kg/capita
Calgary	1,239,220	1,501.1	Urban / suburban	Diversion Rate (all sectors) – estimated 49% (2018) Generation Rate (all sectors) - 368 kg/capita
Metro Vancouver	2,648,493	854.6	Urban / suburban / rural	Diversion Rate – 54% (2018) Generation Rate (all sectors) – 1360 kg/capita (2018) Generation Rate (SF) – 450 kg/capita (2018)
Vancouver	631,486	5,492.6	Urban	Not estimated separately – assume Metro Vancouver performance Generation Rate - 318 kg/capita
Surrey	517,887	1,636.8	Urban / suburban	*Not estimated separately – assume Metro Vancouver performance.

Review of Policies and Trends

Review of Policies

Prominent Provincial Strategies

- Disposal bans on materials (paper products and packaging, electronic waste, etc.)
- Diversion of food waste
- Extended Producer Responsibility / Stewardship Programs
- Single-Use Plastics Ban

Canadian Policies and Programs – Areas of Focus

- Food Waste
- Single-Use Plastics
- Green Procurement
- Circular Economy
- Greenhouse Gas Reduction

International Trends

- Circular Economy
- Single-Use Plastics
- Landfill Taxes
- Food Waste

Review of Trends

Societal and Demographic Changes – The "Convenience" Trend

- Increasing access to technology – needing the newest and best, resulting in the disposal of electronic goods on a regular basis
- Increasing access to cheap and convenient food – increasing amounts of wasted food and packaging, especially single-use plastics
- Increasing access to cheap goods – requiring replacement rather than repair, resulting in more items sent to landfills

Design of Products and Packaging

- Changes in packaging (heavier packaging is replaced by lightweight packaging)
- Slow decline of the hard print newspaper and magazine industry as they move to an online format
- Increase of cardboard packaging as e-commerce continues to grow retail market share

Collections Trends

- Lack of drivers and collections crews
- Strenuous, dangerous industry
- Increased pressures to explore automated options

Waste Management Technologies and Approaches

Technologies Review

Waste Avoidance, Reduction and Reuse

- Disposal bans
- Repair cafes and sharing libraries
- Move-out programs

Waste Diversion

- Regulation
- Pay as you throw, clear bags, Designated materials collection
- Enhanced promotion and education

Collection Fleet Technologies

- Electric vehicles
- Autonomous vehicles

Collection Approach Technologies

- In-ground containers
- Radio Frequency Identification technologies and sensors
- Solar compaction

Technologies Review

Recycling Processes

- Sorting technologies
- Chemical recycling

Source Separated Organics

- Anaerobic digestions
- Co-digestion of sewage and organics
- In-sink disposal units

Mixed Waste Processing

- Mechanical and biological treatment with refuse derived fuels

Recovery

- Mass burn incineration
- Gasification
- Pyrolysis
- Hydrolysis

Landfill Disposal

- Bioreactor
- Biocell

Next Steps

Next Steps

Phase 2 will:

- ❑ Develop and finalize project vision, goals, guiding principles, and objectives
- ❑ Identify the City's future needs
- ❑ Identify and evaluate options to meet these needs
- ❑ Develop a triple bottom line evaluation tool
- ❑ Generate a short list of options to be considered by Committee and Council

Questions?