

Solid Waste Workshop

Governance and Services Committee Meeting

April 8, 2021

1450 K.L.O. Road
Kelowna, BC, V1W 3Z4
rdco.com



A large, chaotic pile of electronic waste and scrap metal. The pile includes various items such as metal frames, wires, plastic components, and parts of electronic devices. A semi-transparent dark grey banner is overlaid across the middle of the image, containing the title text in white. In the bottom right corner, there is a small logo consisting of three colored squares: purple, green, and blue.

Solid Waste Management Plan Overview

Section Outcomes



- What is a SWMP?
- How was our SWMP developed?
- What is the goal of the SWMP?
- Are we on track to achieve goals?
- What are the key undertakings in 2021?
- What's next for the SWMP?

What is the Solid Waste Management Plan?

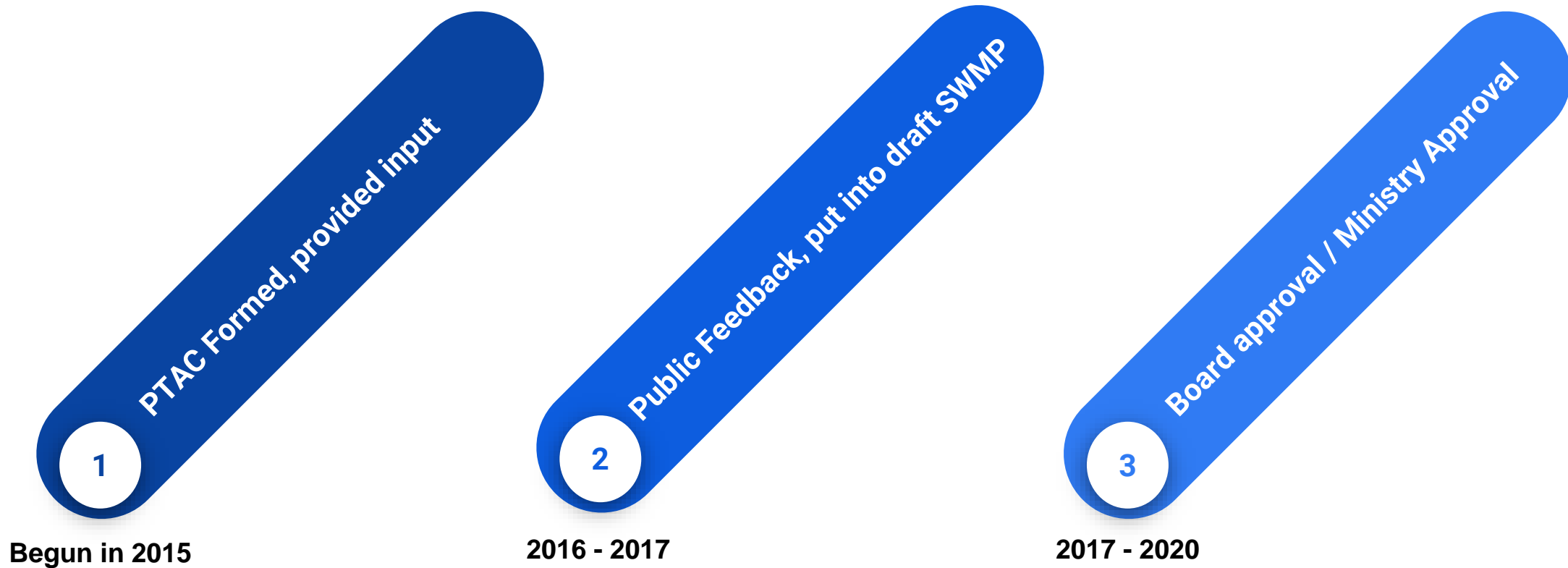
- Environmental Management Act
- Public review and consultation required

SWMP: 10 years of direction

Current SWMP expires 2030



How was the SWMP Developed?



Approximately 4 years to initiate consultation, consolidate feedback, draft, and receive approval

SWMP Goals



1

The goal is zero waste

2

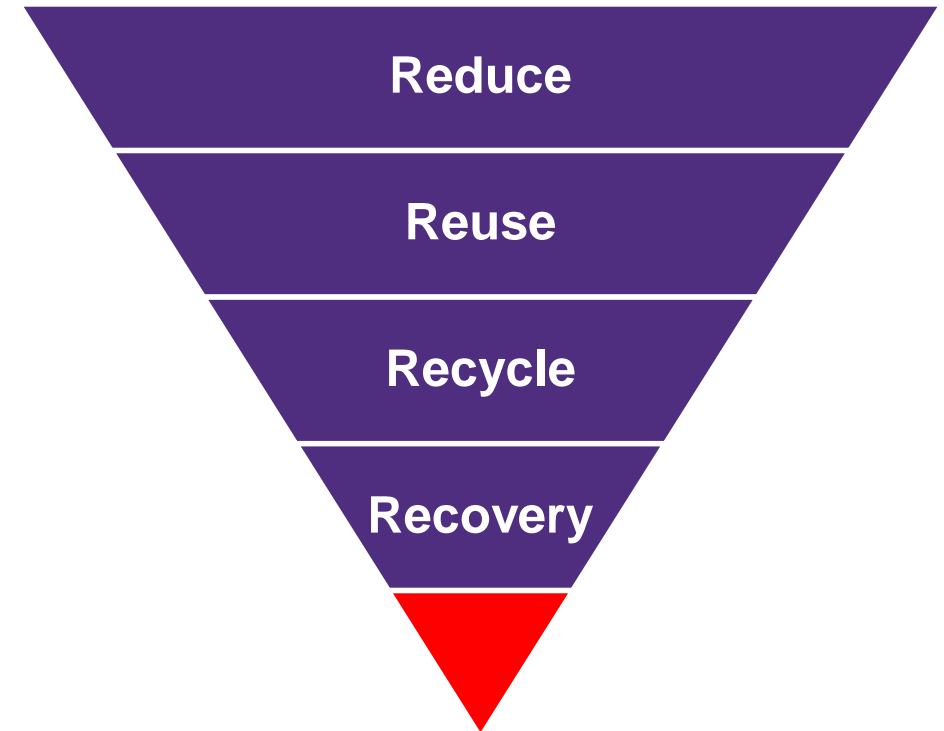
Citizens are actively engaged

3

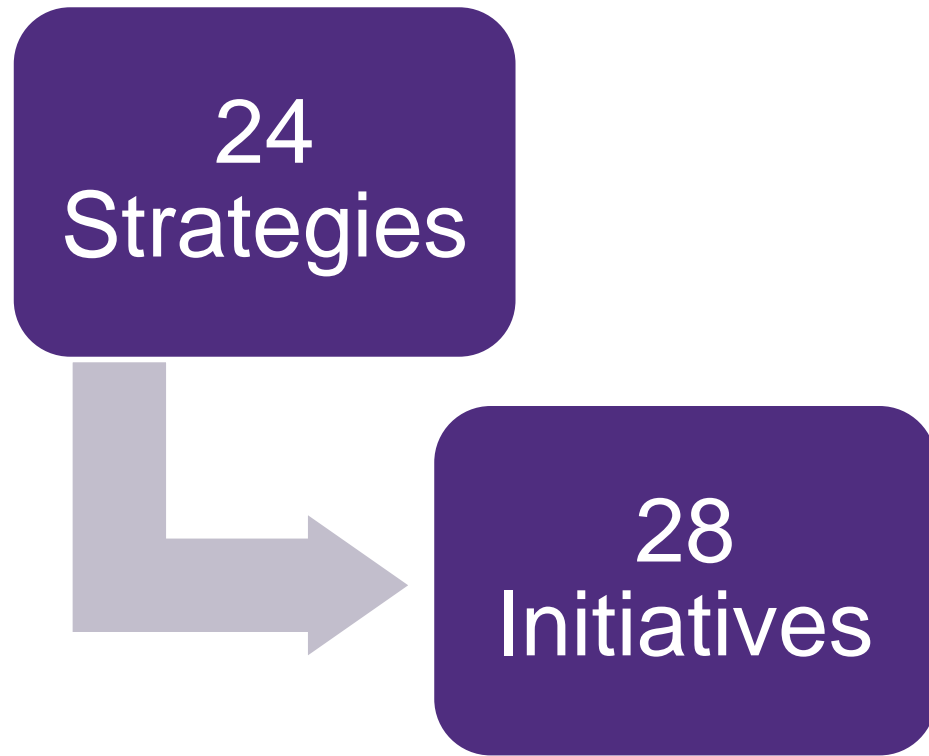
Make it easy

Guiding Principles

- Developed by BC Ministry of Environment
 - Promote the 3 R's
 - Promote zero waste approaches
 - Support a circular economy
 - Maximize beneficial use
 - Support polluter and user-pay approaches
 - Collaborate with other regional districts
 - Level the playing field for private business and public solid waste management

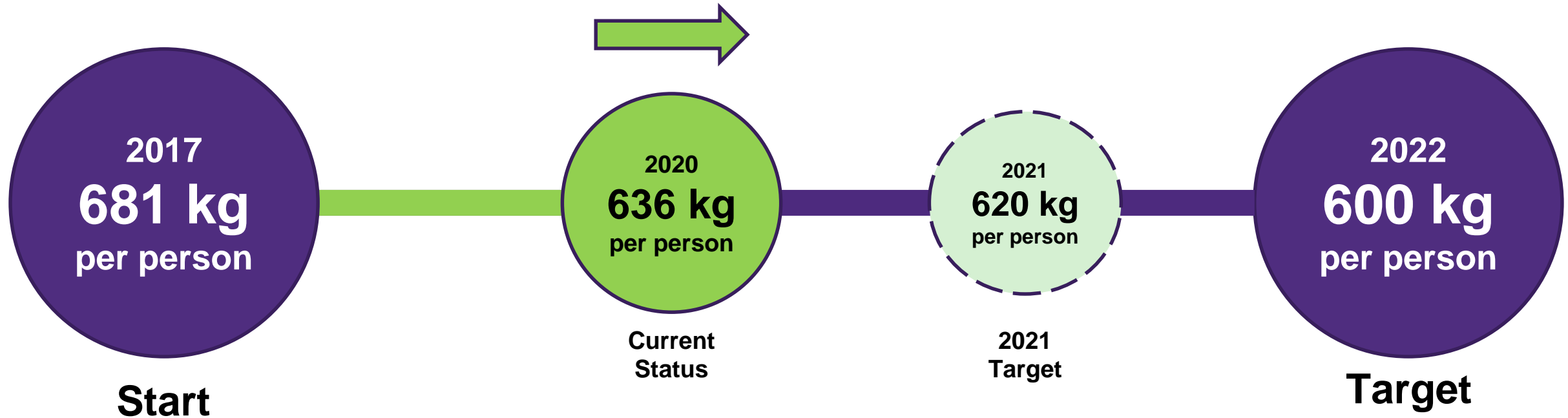


Planned Outcomes

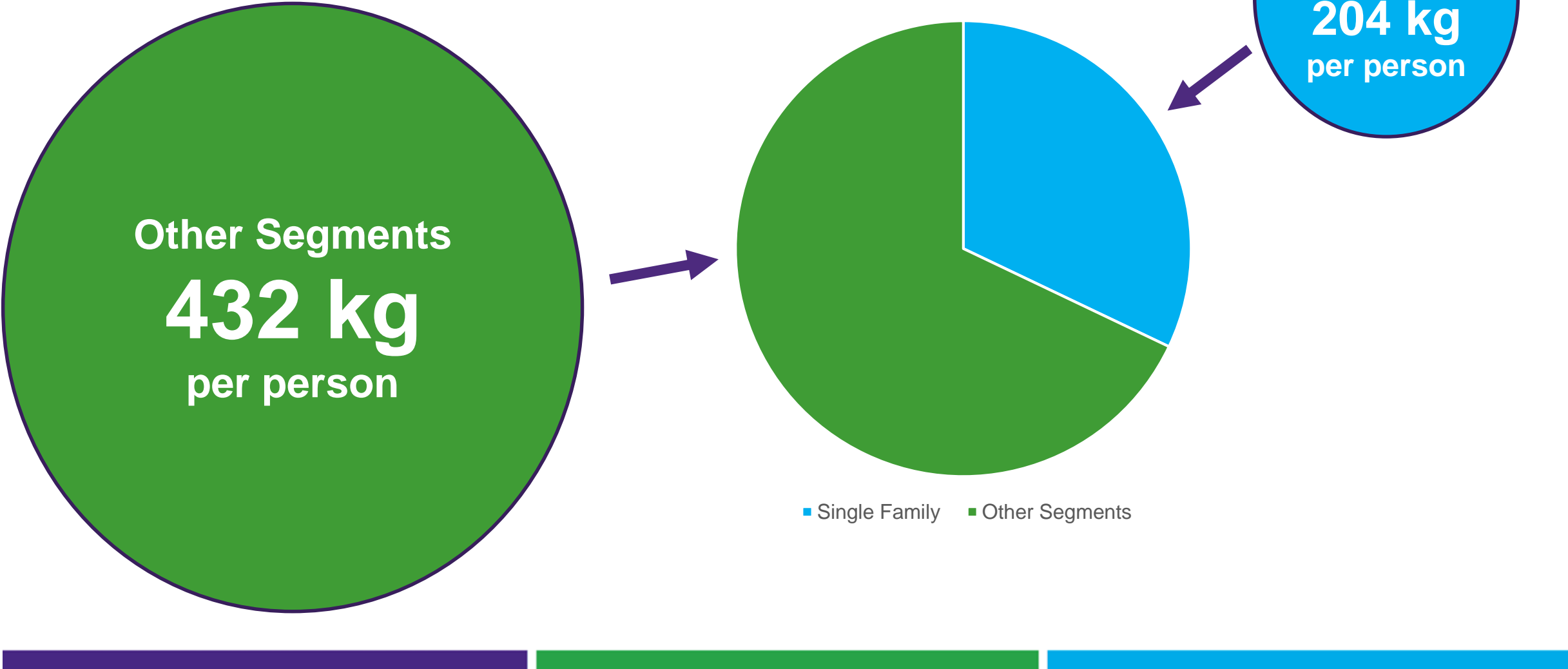


- Desired Outcomes:
 - Waste reduction
 - Reuse of materials
 - Increase collection of recyclable and compostable components

Target: Total Waste Disposed



Another Perspective



To achieve our target with Single Family alone, we require a 18% reduction in waste from 2020 levels.

Institutional, Commercial, Industrial & Construction: 8%....

Key Diversion Initiatives (SWMP)

Re-evaluate Organics

Investigate Policy Options

Increase Public
Awareness



Key 2021 Deliverables (Waste Reduction Office)

Organics Gap
Analysis

Multifamily
Policy/Bylaw
Recommendations

Contamination
Reduction Plan

Expanded Student
Ambassador
Program

SWMP – Next Steps

2021 - 2023

Complete Initiatives

**Consider
recommendations
informed by SWMP
initiatives**

2024

**Effectiveness
review**

**Consider
amendments**

2024-2030

**Complete SWMP
initiatives as amended**

**Begin consultation for
2030 SWMP**

A photograph of a wooden tunnel, likely a culvert or drainage pipe, viewed from the interior looking towards a bright, open end. The walls of the tunnel are constructed from dark, weathered wooden planks arranged in a circular pattern. The floor of the tunnel is covered with dark, smooth stones. The bright light at the end of the tunnel creates a strong contrast with the dark interior, highlighting the texture of the wood and the smoothness of the stones.

Solid Waste Timeline

Section Outcomes



- What has happened so far?
- How have we improved?
- What are we doing now?
- How are we delivering on the SWMP and Strategic Priorities?
- What is planned for the future?

Business as usual - Engagement

SWTAC



Campaigns



Annual Events



Business as usual - Operations

Transfer Stations



Curbside Collection



Business as usual – Contamination Reduction



Business as usual – Monitoring / Clean-up

Landfill Monitoring



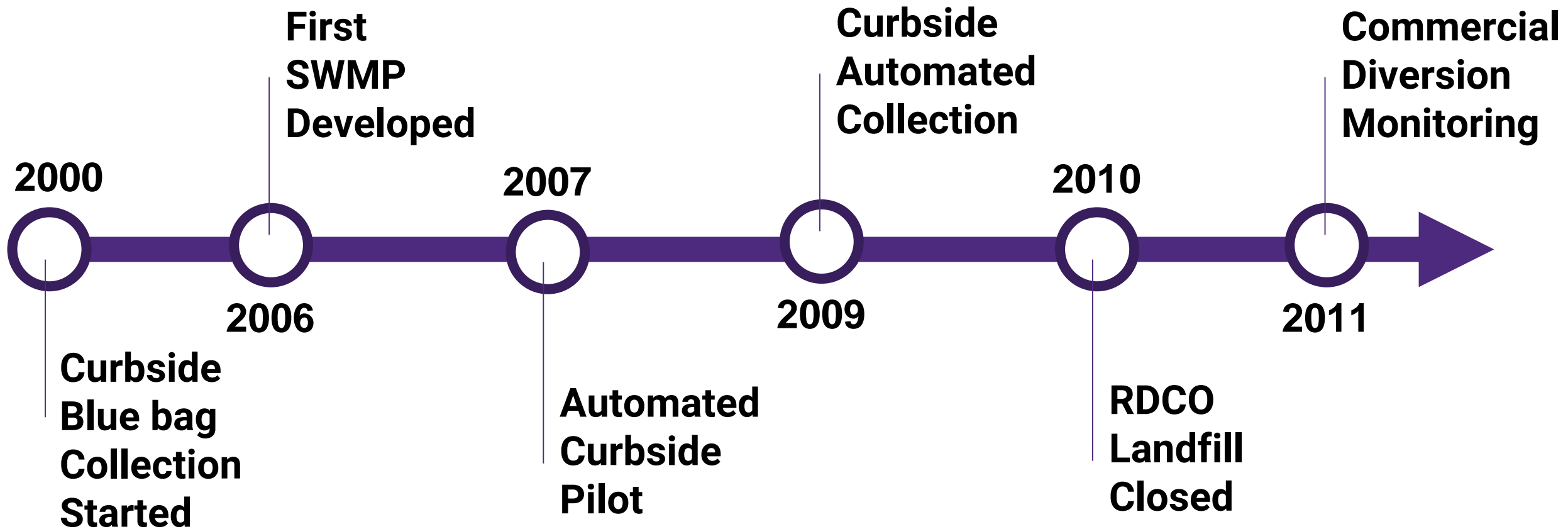
Illegal Dumping



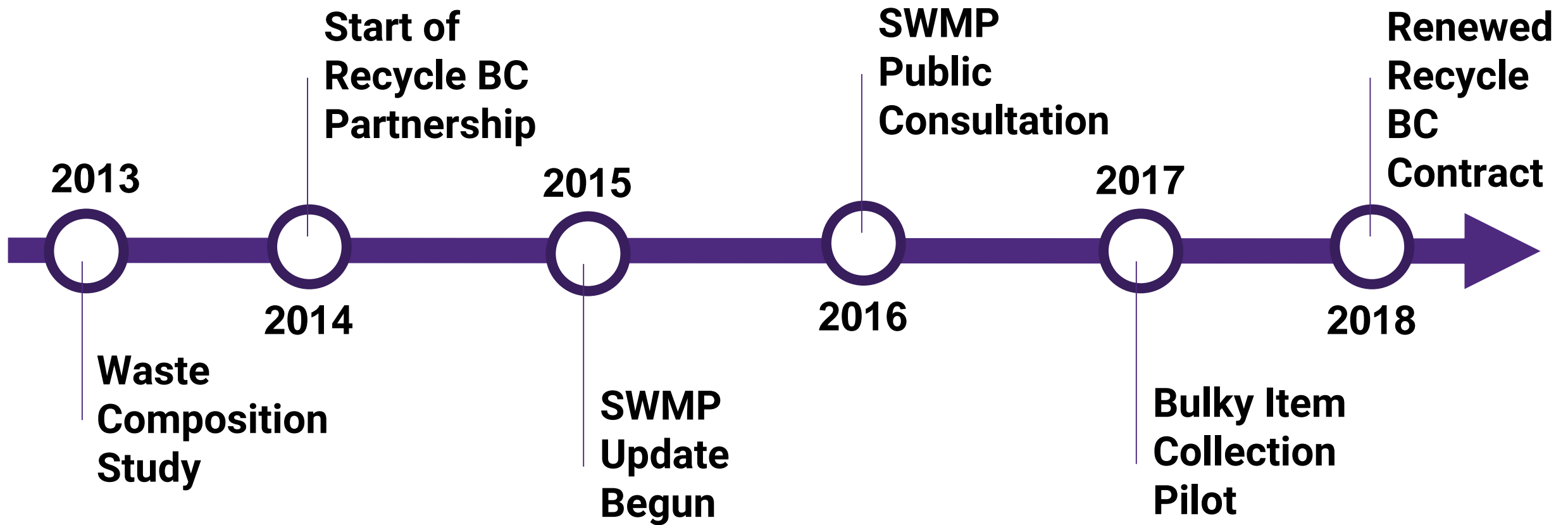
Contamination



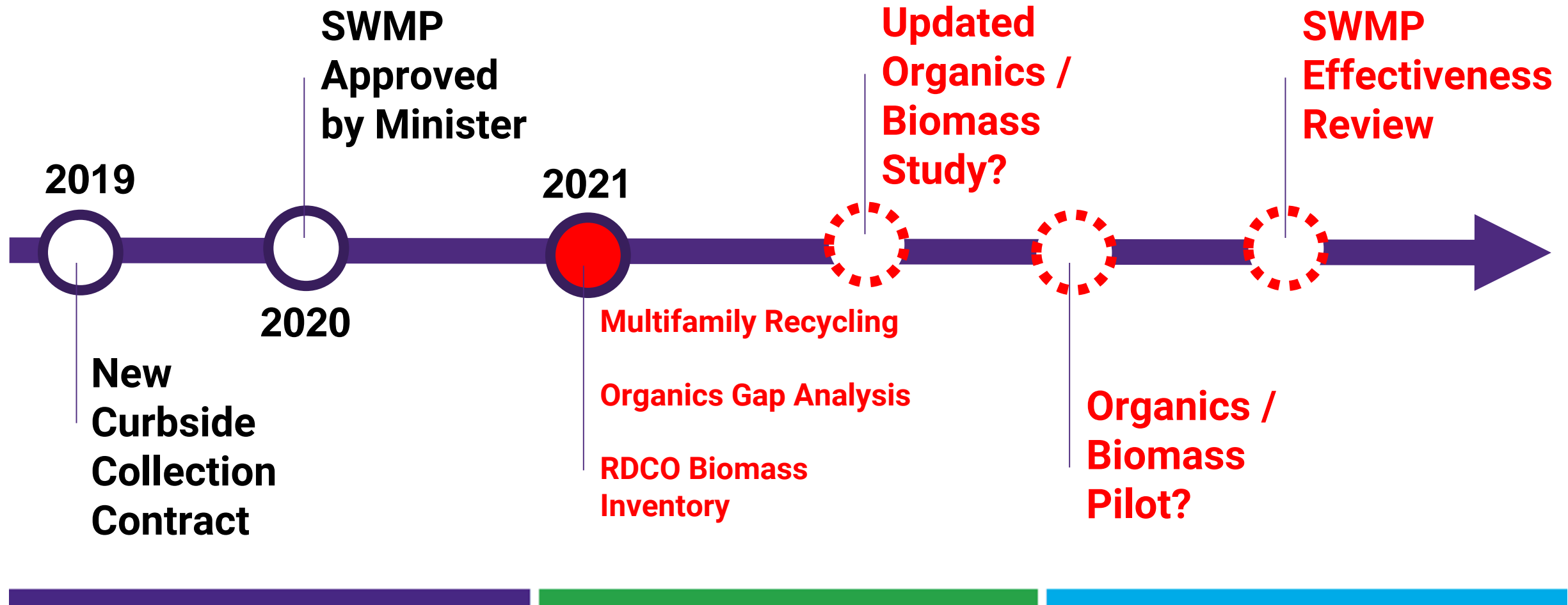
Timeline of Major Changes & Milestones



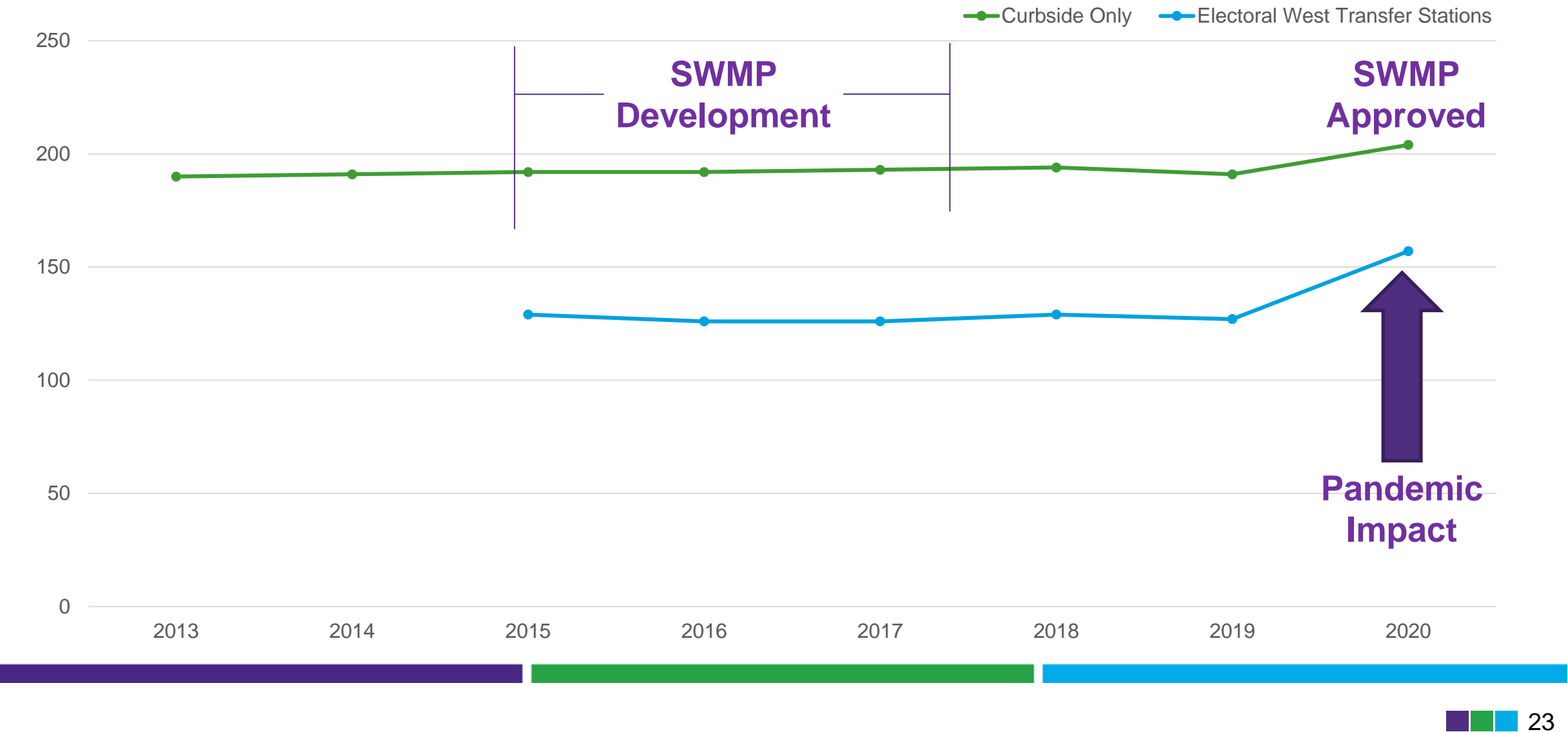
Timeline of Major Changes & Milestones



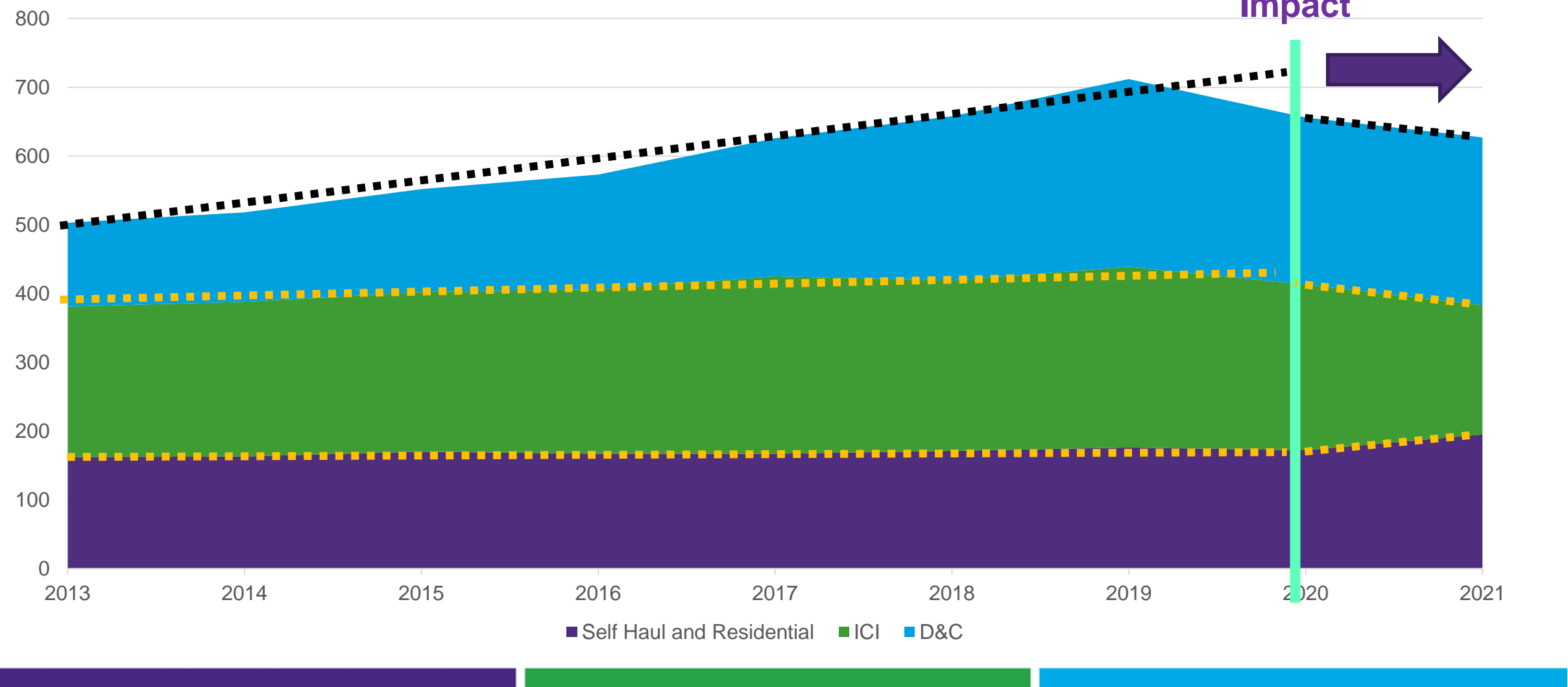
Timeline of Major Changes & Milestones



Residential Disposal Rates



Total Disposal Rates



Wildlife Resistant Cart Program (2021)

Strategic Priority

- **Environment Priority**
 - Initiate and support efforts to reduce our environmental footprint, adapt to climate change, and connect with nature.

SWMP

- Assess opportunities to make curbside garbage collection carts wildlife proof

2021 Project

- Complete ongoing Pilot Program
- Provide recommendation to the Board

Organics Analysis & Inventory (2021)

Strategic Priority

- **Environment Priority**
 - Initiate and support efforts to reduce our environmental footprint, adapt to climate change, and connect with nature.

SWMP

- Re-evaluate organic waste diversion opportunities while considering the need to maintain landfill gas collection.

2021 Project

- Organics Lifecycle Assessment report (Gap Analysis)
- Biomass Inventory Project
- Investigate need to maintain landfill gas collection

Expand Multifamily Recycling (2021)

Strategic Priority

- **Environment Priority**
- Initiate and support efforts to reduce our environmental footprint, adapt to climate change, and connect with nature.

SWMP

- Investigate facilitating waste audits to educate businesses/organizations on what is in their waste stream and to initiate discussion on diversion options.
- Investigate policy options to encourage recycling.

2021 Project

- Develop waste reduction educational materials
- Host waste reduction guidance and training sessions for multifamily units
- Recommend policy and bylaw for consideration

Transfer Station Service Improvements (2021)

Strategic Priority

- **Environment Priority**
 - Initiate and support efforts to reduce our environmental footprint, adapt to climate change, and connect with nature.

SWMP

- Conduct feasibility studies to review overall services at transfer stations and potential improvements.

2021 Project

- Consider extending hours and days of service at Transfer Stations
- Improve upon sites as recommended within the 2019 Transfer Station Review

Beyond 2021 - Timeline

Next Year

Re-evaluate organic waste diversion opportunities

Support further commercial waste reduction opportunities

Consideration Wildlife Resistant Curbside Cart program

Relaunch 'gathering' events, post pandemic

Next 5 Years

Consider expanding organics diversion

Continue to complete SWMP initiatives

Consider policy and bylaw recommendations

Effectiveness Review (2024)

Next 10 Years

Complete SWMP initiatives as amended

Begin consultation for 2030 SWMP



Solid Waste Update

Section Outcomes



- What is happening in the industry?
- What does our waste stream look like?
- What options or alternatives are we exploring to reduce waste?
- How do we compare to other communities?
- What are we doing about contamination?

What is happening in BC?

Single Use Plastic Ban

- Province supports civic bylaws banning single-use plastics
- Province wide single-use plastic bans are on the way

CleanBC organics diversion

- Program in place with \$25.7M for infrastructure funding for 2021
- Target to divert 95% of organics from landfills in BC

Recycle BC Curbside Glass Collection

- North Okanagan Regional District and other 'Recycle BC' communities
- RDCO and member municipalities have a different relationship

EPR Program Expansion

- Additional products considered for inclusion within BC EPR program

Emerging Issue - EPR (BC)

- RDCO provided feedback Nov 2020 on EPR Intentions Paper
- New categories being considered under Recycling Regulation
 - Mattresses
 - Additional hazardous wastes (pressurized tanks, additional products)
 - Additional electronics (electric vehicle batteries)
 - Paper and packaging beyond residential sources



What is happening in Canada?

EPR expansion

- Ontario, Saskatchewan, Alberta, New Brunswick, even the Federal government
- Everyone wants to follow in BC's footsteps

Limited Recycling Markets

- China's National Sword policy in 2018 - many communities landfilling recyclables
- Calgary, Alberta: previously recycled plastic clamshells, landfilled 92 semi-trailer loads.

Single-Use Plastic Ban

- National framework for the consideration and banning of single use plastics
- Comes into effect 2021

Emerging Issue - Single Use Plastic (Canada)

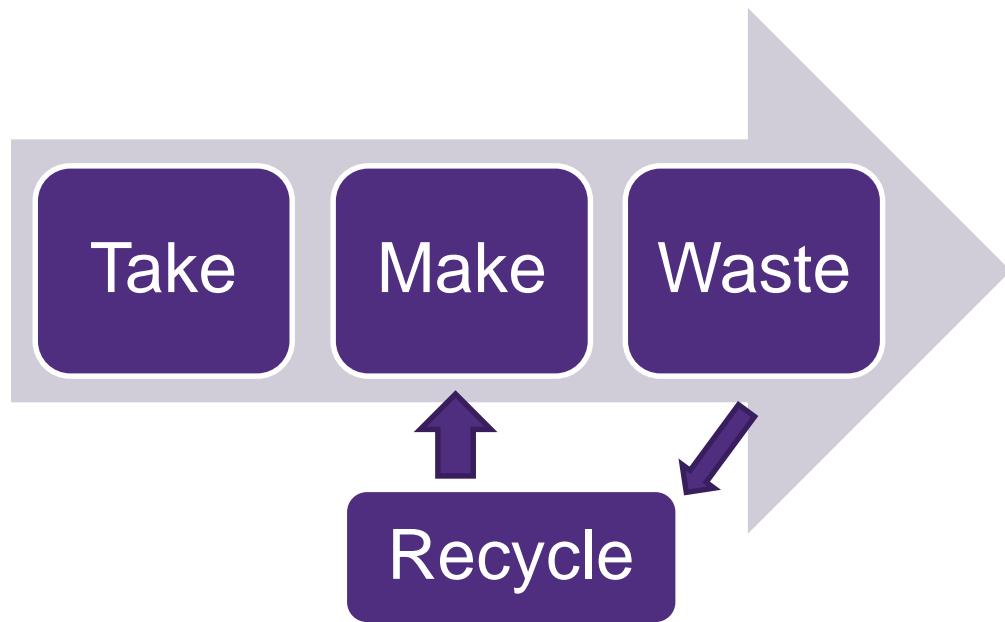
Federal ban of specific single-use plastic products by end of 2021:

- Plastic grocery bags
- Straws
- Stir sticks
- Six-pack rings
- Cutlery
- Foodware made from hard to recycle plastics

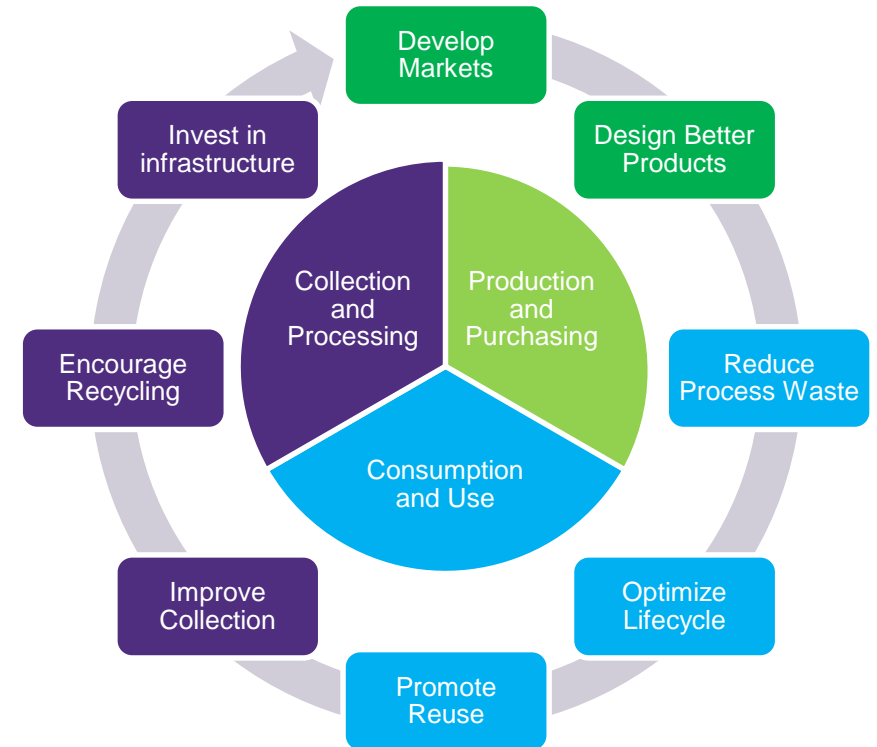


What is happening in North America?

Traditional linear economy



Circular economy



Developing Technology

Waste to Energy

- Still developing for use in North America, widespread in Europe/Asia
- BC requires regional districts to explore all possible options to reduce and reuse before considering WTE

Biogas and Organic Digesters

- Food Scrap anaerobic digestion
- Thermal Decomposition, scalable approach

Aerobic Landfilling

- Under development, two locations in North America
- May reduce landfill closure life from +100 years to <15 years

Waste Conversion

- Converting waste into other products
- Limited pilot scale facilities in US

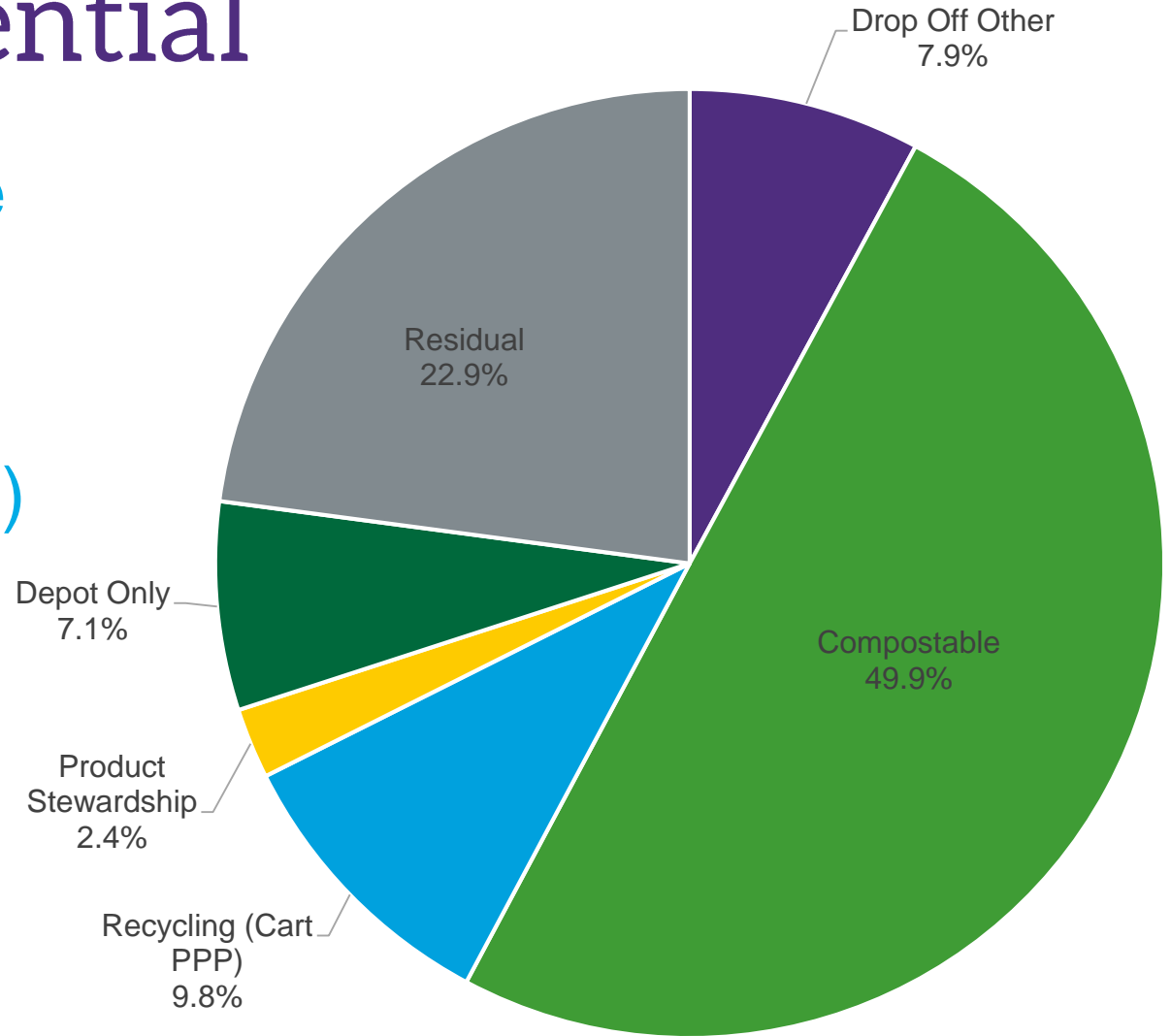
Waste Diversion Potential

- Single Family Curbside Waste

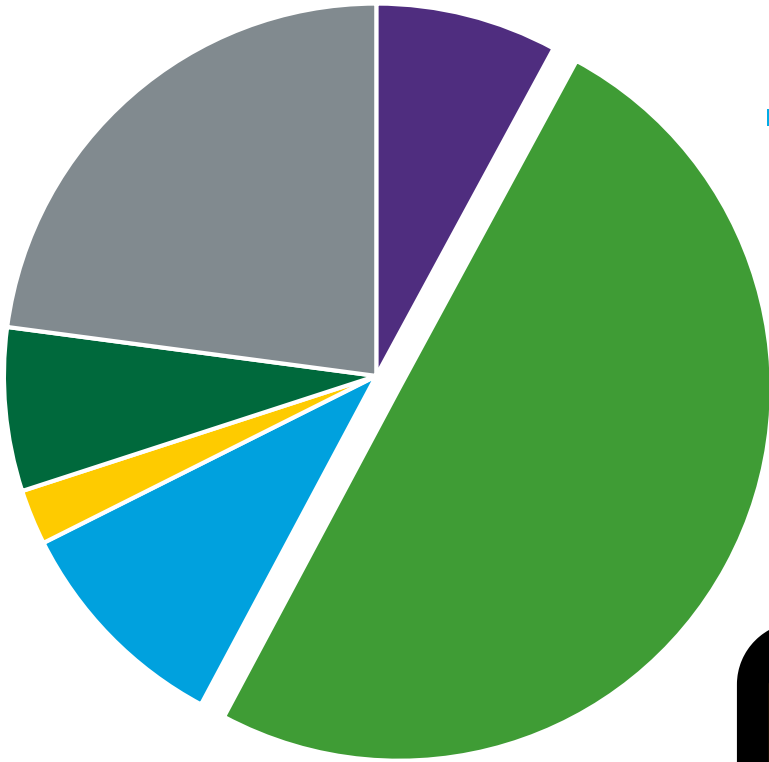
- 204 kg/person/year

- Waste Diversion Potential (SF)

- Compostables: 49.9%
- Depot Only: 7.1%
- Curbside Recycling: 9.8%
- Other Drop Off: 7.9%



Alternative Collection Strategies



- **Curbside Organics Collection**

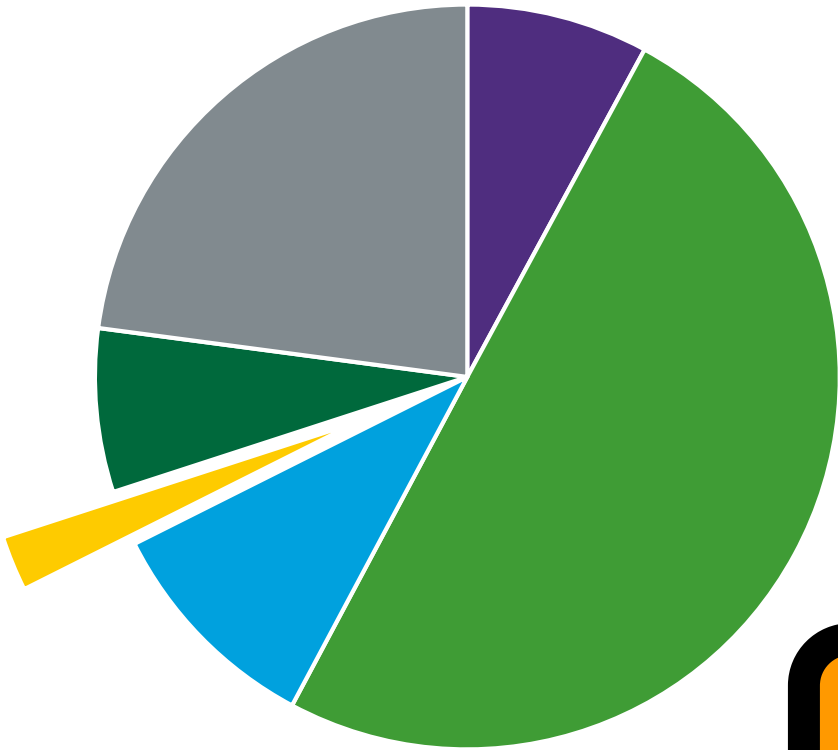
- Est. Service Expense: \$3.1M - \$7.4M per year
- Other BC communities: \$5 - \$10 / month / dwelling
- Implementation and Start-up costs vary
- 49.9% of landfill bound RDCO residential waste
- Need to investigate further: SWMP requirement

Service Cost
\$5 - \$10/mth

Diversion
< 15,000
MT/year

GHG
< 6,000
MTCO₂E

Alternative Collection Strategies



■ Curbside Glass Collection

- Est. Service Expense: \$430k to \$2.4M per year
 - \$0.75 to \$3.25 per month / dwelling
- Start up: \$300k to \$600k
- Revenue: \$80/MT + Landfill Airspace

1.0% of landfill bound waste

Service Cost
\$1 - \$3 / month

Diversion
< 300 MT/year

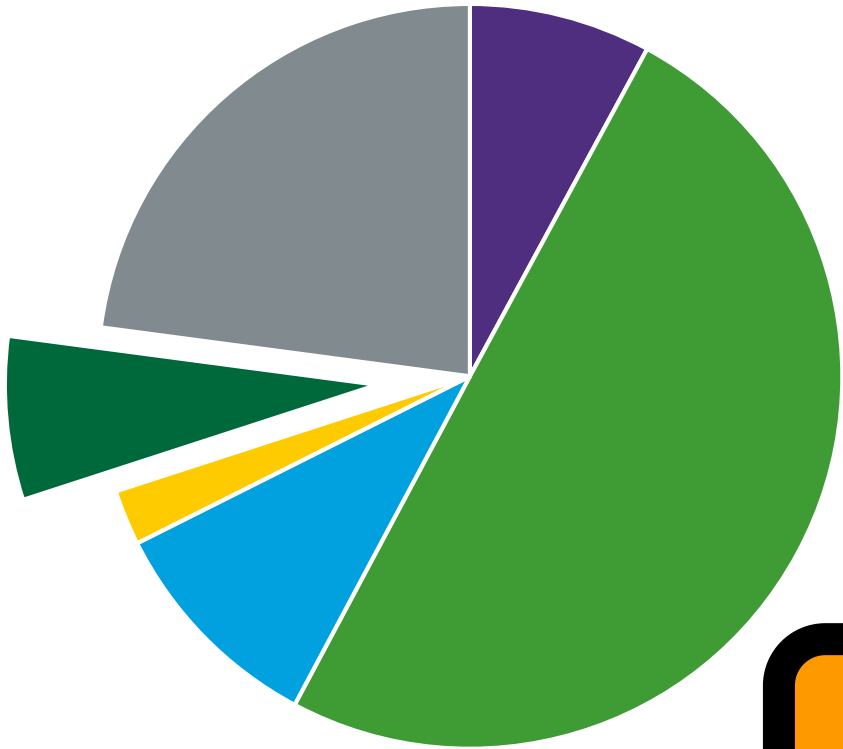
GHG
< 75
MTCO₂E

Alternative Collection Strategies



- Automated Collection (Express & GO)
 - Cost: Nil (\$0)
 - No significant GHG reduction
 - No significant landfill diversion
 - May reduce returns to existing bottle depots in RDCO
- Viable option for 'making it easy'

Alternative Collection Strategies



- **Curbside 'Depot Only' materials**
 - No existing comparable in BC
 - Outside BC: \$20 - \$50 per month
 - Unmarketable products would be landfilled
 - 7.6% potential diversion, likely lower

Service Cost
< \$50/month

Diversion
< 2,264
MT/year

GHG
< 6,452
MTCO₂E

Alternative Collection Strategies



- **Pop-up Recycling Depot**
 - Operate for a day, staffed
 - Some expected additional waste diversion
 - Reduced travel to depot locations
 - Convenience for residents
 - Low likelihood of contamination

Diversion
< 40
MT/year

GHG
< 50
MTCO₂E

Alternative Collection Strategies

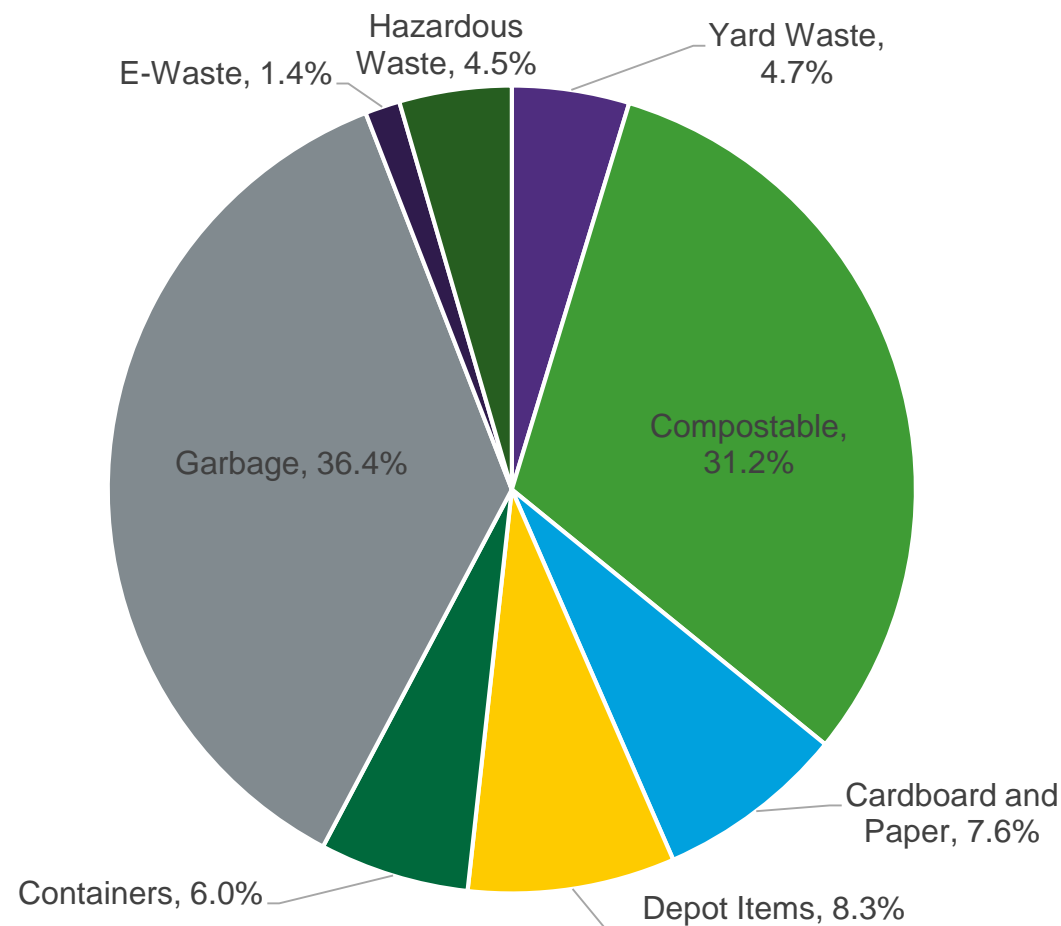


Source: City of Winnipeg

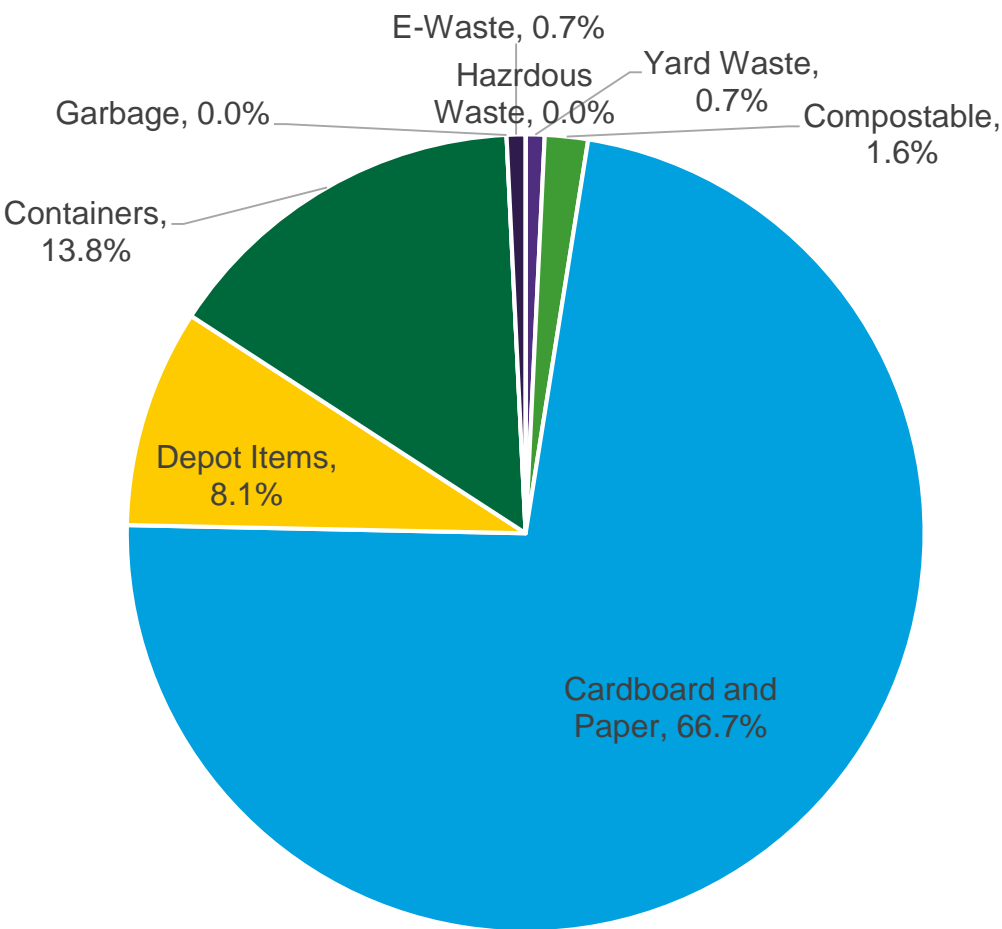
- **Unmonitored Parking Lot Depots**
 - No significant environmental benefit over existing programs
 - Minimal additional waste diversion
 - High likelihood of contamination
- Reduced travel to Depots

2020 Multifamily Study - Findings

Garbage



Recycling



2020 Multifamily Study - Recommendations

- Create educational tool kits
- Develop 'multifamily' communication program
- Offer multifamily units onsite training/coaching
- Continue to engage with Strata councils/residents



2020 Multifamily Study - Recommendations



- **Program Improvements:**
 - Partner with Recycle BC
 - Consider updates to bylaws
 - Consider development guidance to implement further source separation for multifamily recycling programs

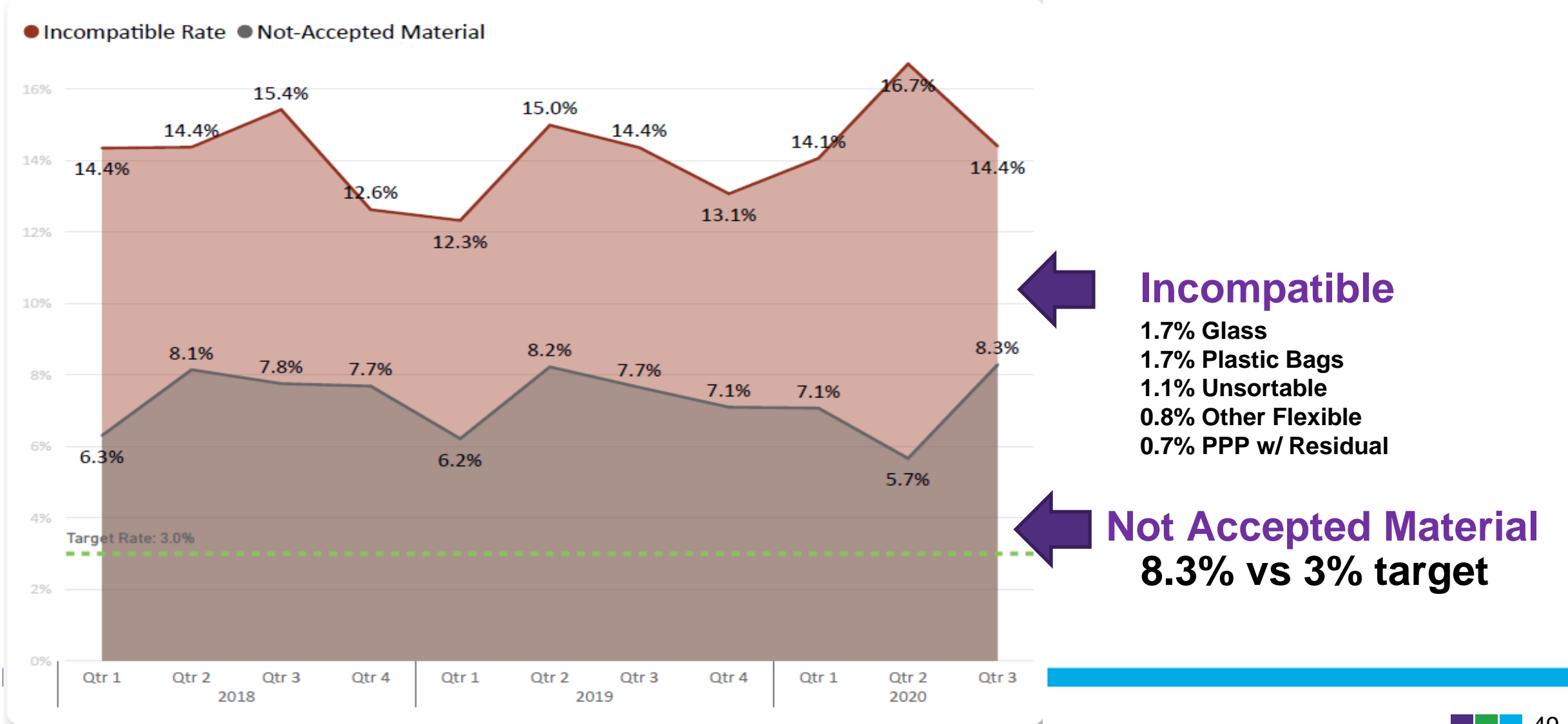
Recycling Contamination

- **3% target of Not Accepted Material**
 - (i.e. garbage, construction material, textiles, books, electronics, plastic products, scrap metal, hazardous wastes, multi-material PPP)
- **No target for Incompatible Material**
 - Depot only recyclables (Flexible Plastics, Glass, Styrofoam, Plastic Bags)
 - Packaging with residual (ie: Uncleaned Peanut butter jar)
 - Unsortable or nested packaging (ie: Paper and plastic shoved in a box)

Not Accepted + Incompatible = Contamination

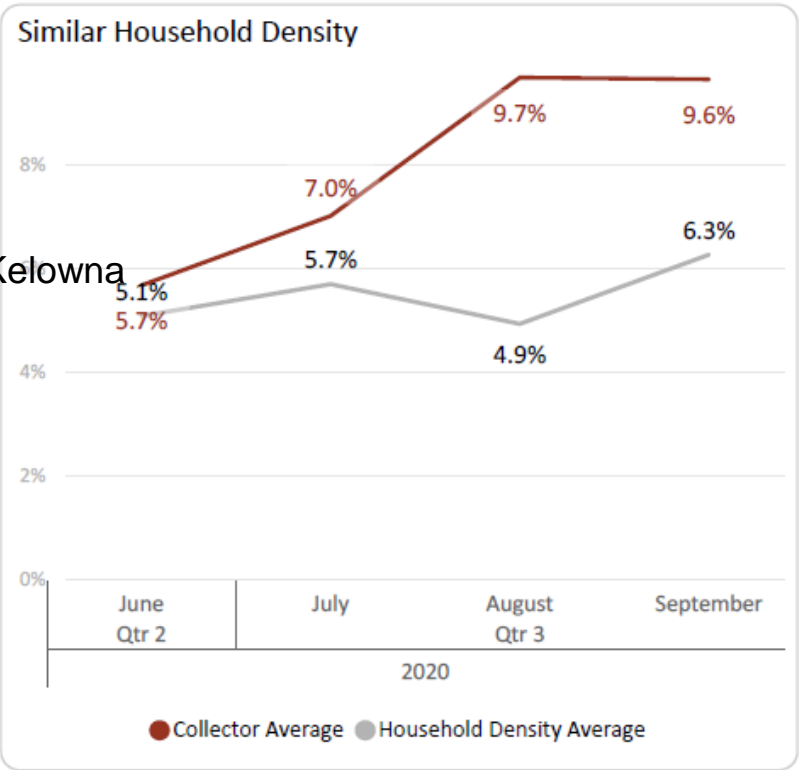
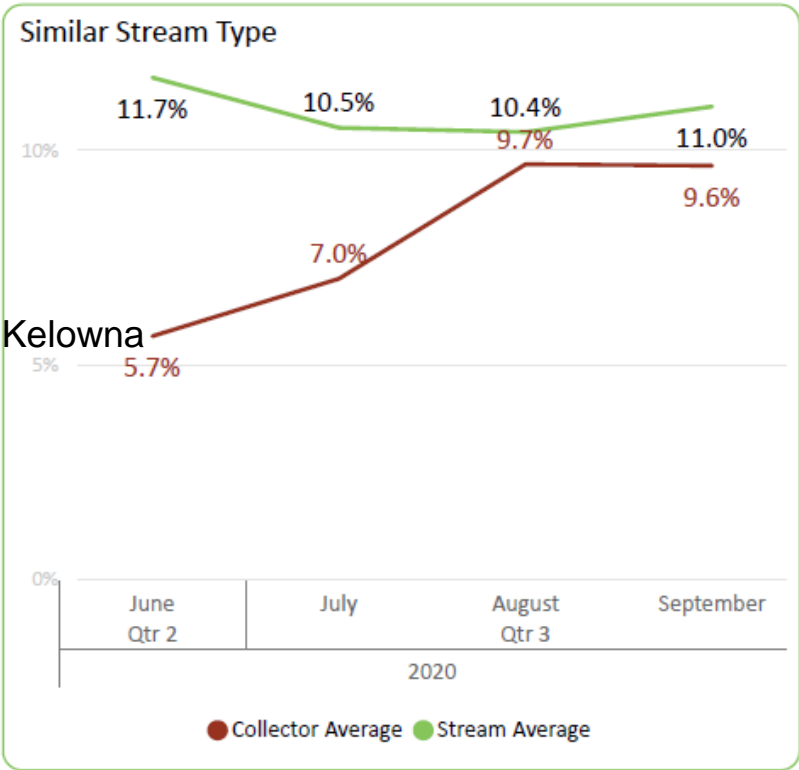
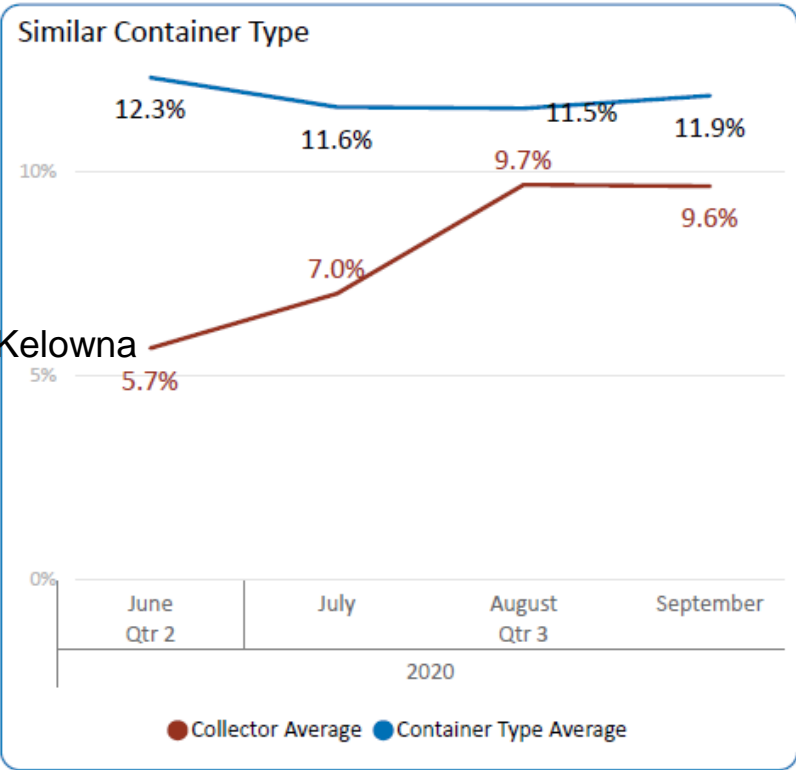
Recycling Contamination Comparison

Kelowna Q3 2020 Score Card

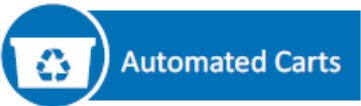


Recycling Contamination Comparison

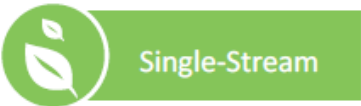
Not-Accepted Material in Q2 and Q3 2020 by:



Container Type:



Stream Type:



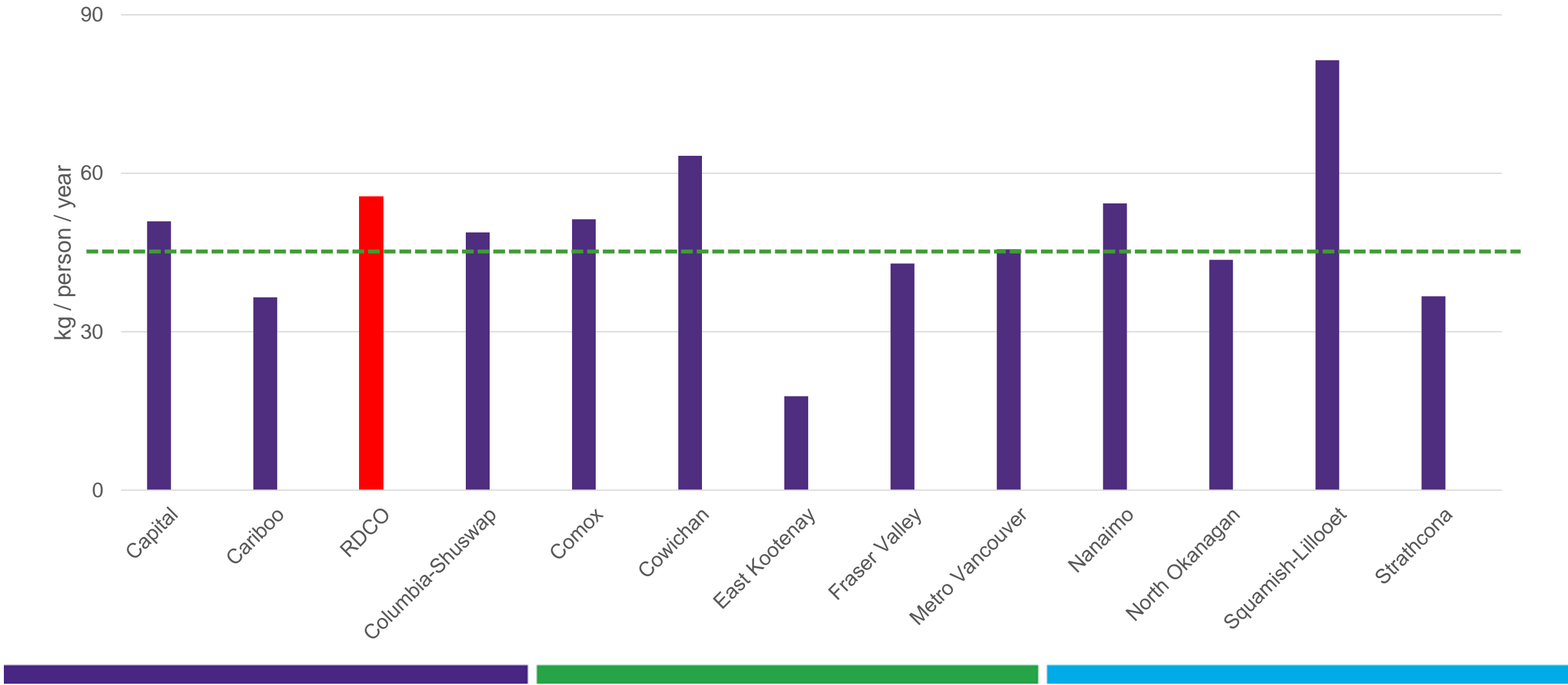
Household Density (HH / Hectare):



Contamination Communication Plan

- Analyze and address consumer behaviours that result in recycling contamination
- Focused messaging through specific media
- Future consideration for all aspects of Waste Reduction

Recycling Collection Comparison



Key Items and Recommendations

- RDCO on track to achieve 2022 Waste Reduction target
- SWMP effectiveness review to occur in 2024
- RDCO continue as per the SWMP to:
 - Bring policy and bylaw recommendations for Board consideration;
 - Investigate organics diversion potential;
 - Investigate ICI & C&D diversion opportunities; and,
 - action all other strategies and initiatives within the SWMP.



End of Presentation