

**Municipality of North Cowichan  
Committee of the Whole  
ADDENDUM AGENDA**

Tuesday, February 9, 2021, 6:00 p.m.  
Electronically

**Pages**

**5. BUSINESS**

**5.2. Automated Trucks for Residential Curbside Collection of Solid Waste**

**5.2.1. *Presentation from Carey McIver & Associates***

**2 - 45**

# CURBSIDE COLLECTION REVIEW

---

Municipality of North Cowichan  
February 9, 2021

# Agenda

1. Introductions
2. Project Purpose
3. Current Collection Program Review
4. Manual or Automated Cart-based Collection
5. Collection Fleet
6. Cart Sizes and Costs
7. Other Service Considerations
8. Recommendations

# INTRODUCTION

---

Curbside Collection Review

February 9, 2021

# Who Are We?

Carey McIver

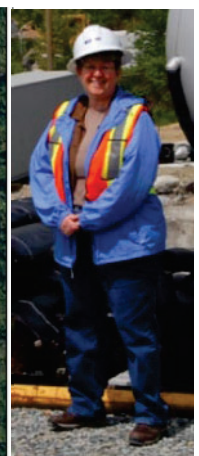


Jeff Ainge



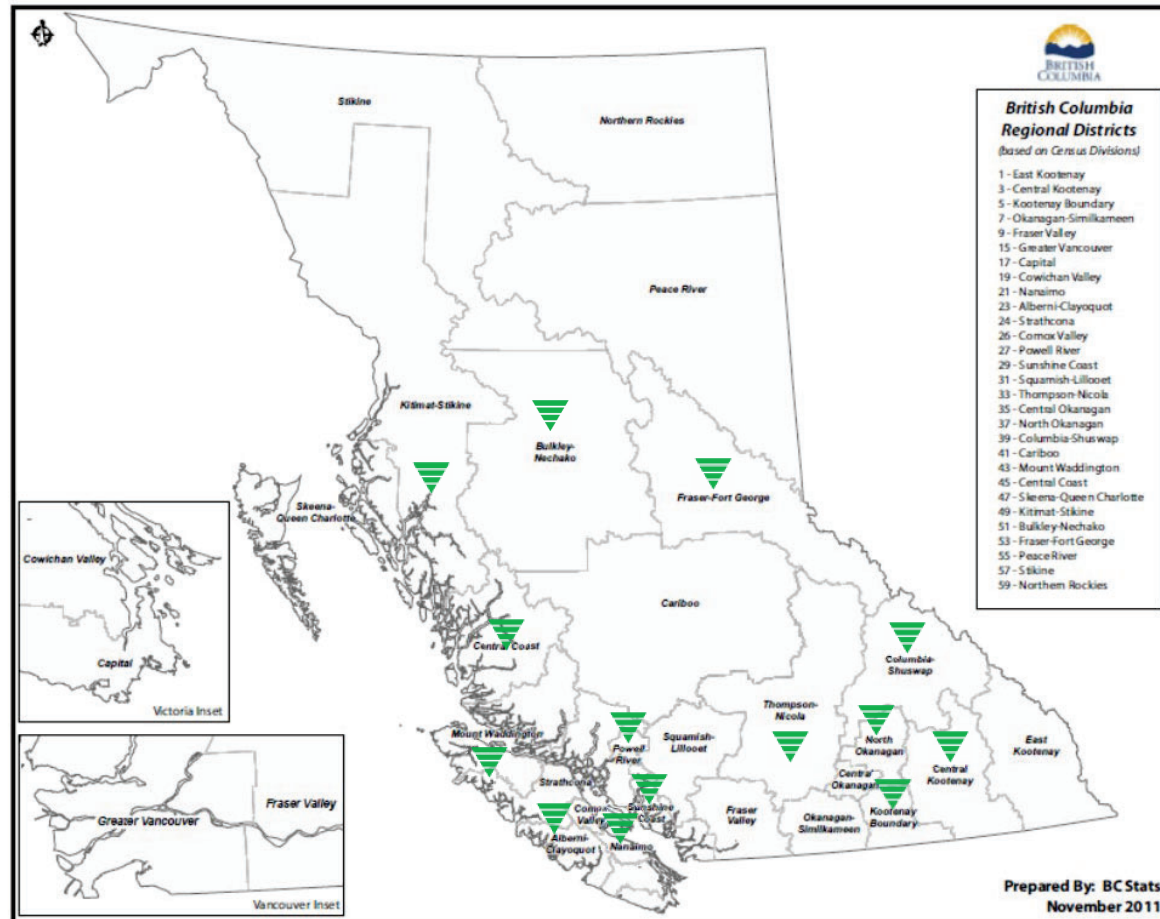


Carey McIver demonstrates how easy recycling is.





# Planning Experience





A Publication of  
the Regional District of Nanaimo  
Fall 2007

#### Pilot project shapes future region-wide program TURNING COMPOSTABLE FOOD AND KITCHEN WASTE INTO A RESOURCE

Congratulations on being chosen to participate in the Regional District of Nanaimo curbside food waste collection pilot project.

The project is a partnership of the RDN, the City of Nanaimo, the Town of Qualicum Beach, Waste Services Inc. and the International Composting Corporation. It includes 2,000 households on three routes in Cedar (Route E2), Nanaimo (Route E-3), and Qualicum Beach (Charwell). Your participation will help determine how much household organic material we can divert from the Regional Landfill, the costs and the best way to design a program for the entire region.

#### Getting started...

Today you received a green bin and kitchen container, a supply of compostable bags, and decals listing acceptable and unacceptable materials.

1. Attach the small decal to the lid of your kitchen container and the large decal to the lid of your wheeled green bin.
2. Review any changes to your collection schedule. See page 3 for food waste collection start-up date.
3. Please read this guide to start participating in the project.

#### BENEFITS OF RECYCLING FOOD AND KITCHEN WASTE

Food waste and other compostable organic comprise up to 50% of household garbage. As part of the RDN's Zero Waste commitment to eliminating garbage, reducing greenhouse gases, and creating a more sustainable region, compostable organics are being diverted from the landfill to the region's only licensed composting facility. Since 2006, restaurants, grocery stores and other businesses have participated in this initiative. The next step is conducting a residential pilot project.

The benefits of your participation in the pilot project include:

- Turning waste into a resource by providing valuable feedstock for the region's only licensed composting facility;
- Extending the life of the region's only landfill and reducing greenhouse gases and leachate caused by decomposing organic landfill waste;

- Determining the feasibility of using a single truck with two compartments to collect garbage and food waste;
- Reducing waste you take to the curb by up to half and enabling a garbage collection service of one standard-size container collected once every two weeks;
- Helping staff to design an effective and efficient residential program.

#### ATTEND A DROP-IN INFO SESSION

Pilot project participants are invited to attend a drop-in information session in their area. The sessions will provide displays and have staff available to answer your questions.

#### Times:

2 p.m. - 4 p.m.  
and 7 p.m. - 9 p.m.

#### Dates and Locations:

Oct. 16 - Charlwell Route  
Qualicum Beach Civic Centre  
747 Jones St., Qualicum Beach

Oct. 18 - Nanaimo - Route E-3  
Hope Lutheran Church  
2174 Departure Bay Rd.,  
Nanaimo

Oct. 23 - Cedar - Route 52  
Cedar Heritage Centre  
1044 MacMillan Rd., Cedar



## RDN workers explain green b

Some residents have been confused about implementation of waste diversion

WALTER CORDERY DAILY NEWS

Because people are still confused about what will and will not be accepted into the Regional District of Nanaimo's food waste diversion program, the RDN is setting up displays at community events in the district between now and when the program is launched in mid-October.

This week, Sarah Richardson and Robert Stover of the RDN were at the Cedar Farmers Market explaining how the program, which will help the district achieve its aim to divert 75% of the waste that was going into the Cedar Road landfill during the 1990s away from the facility and extend the landfill's life.



Regional District of Nanaimo  
Solid Waste Services  
Vol. 4, No. 1,  
Spring 2010

#### THE GREEN BIN PROGRAM COMING SOON TO A KITCHEN NEAR YOU

The Regional District of Nanaimo and its municipal partners - Nanaimo, Lantzville, Parksville and Qualicum Beach - will soon be launching the Green Bin Program. This new service follows a successful pilot project and will have the biggest impact on reducing household garbage since curbside recycling began.

In recent years, communities across Canada have been introducing curbside food waste collection. Ladysmith has operated a Green Bin Program since 2006, Port Coquitlam launched its program in 2009, and Vancouver recently began collecting non-cooked food waste.

Residential food waste collection is the final step in the region's Organics Diversion

Strategy. Since 2005, the commercial and institutional sector has been sending food waste to the ICC Group's composting facility at Duke Point. The new Green Bin Program will enable households to help divert all food and kitchen waste from the Regional Landfill and recycle it into compost.

#### Why food waste diversion matters to our region

Fig. 1 illustrates the impact food waste collection can have on reducing your household garbage. When curbside food waste collection is fully implemented, it will divert an estimated 6,000 tonnes of food and kitchen waste annually to the ICC composting facility. That equals sending 800 fewer garbage trucks to the Regional Landfill.

The Green Bin Program goes beyond what is suitable for backyard composting as it will accept cooked food, meat, fish, bones and food-soiled paper packaging. A 2004 residential waste composition analysis showed that food waste and compostable paper products make up 50 per cent of household waste.

"We tested the Green Bin Program, proved it worked and was broadly supported," said RDN Board Chair Joe Stanhope.

"Households more than doubled the amount of waste they divert from the landfill. When green bin collection goes region-wide, we will be on track to achieving our 75 per cent waste diversion goal and leading the way in BC and Canada."

The Green Bin Program is an investment in sustainable waste management. Diverting food waste from our garbage will extend the life of the region's only landfill and reduce its greenhouse gas emissions. Best of all, a local company will convert food waste into a soil amendment and renewable fuels, creating jobs and building an emerging green economy.





# Collection Experience



# PROJECT PURPOSE

---

Curbside Collection Review

February 9, 2021

# Scope of Work

- Undertake a review of the current curbside collection program.
- Provide an analysis for considering a switch from manual load to automated cart-based collection.



# NORTH COWICHAN CURBSIDE COLLECTION REVIEW

---

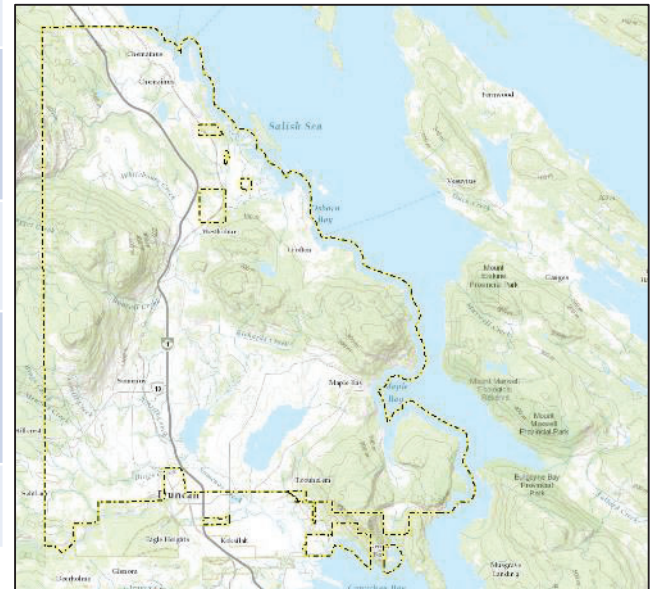
Curbside Collection Review

February 9, 2021



# Collection Program

Mandatory service	Bylaw No. 3466 (2014)
Serviced properties <i>up to max 4 dwelling units</i>	9,780 homes
What	Garbage + Kitchen Organics + Recycling
How	Manual
When: Add-a-Day schedule	Organics = Weekly G + R = Bi-weekly
Who	In-house = G+O Contractor = R (Waste Connections)
Support	1 x 77 litre garbage container \$3.00 extra cans (2 can limit)
Metrics (kg/hh)	G = 152 kg/hh/yr O = 127 kg/hh/yr R = 107 kg/hh/yr
User Fee	\$ 102 annual



# Financials

## 2020 Garbage Collection and Recycling Program Budget

### Revenue

User fees (\$102 x 9,777 homes)	\$ 997,254
---------------------------------	------------

Recycle BC	\$ 382,769
------------	------------

<b>Total Revenue</b>	<b>\$ 1,380,023</b>
----------------------	---------------------

### Expenditure

Collection costs (garbage & kitchen waste)	\$ 561,588
--	------------

Tipping fees	\$ 334,920
--------------	------------

Recycling program & contractor	\$ 337,780
--------------------------------	------------

<b>Total Expenditure</b>	<b>\$ 1,234,288</b>
--------------------------	---------------------

<b>Surplus</b>	<b>\$ 145,735</b>
----------------	-------------------

# Occupational Health & Safety



- A high injury classification with WorkSafe BC.
- 2017 – 2019 = nine WorkSafe BC claims were filed by MNC refuse operators.
- 116 lost-days.
- 14 first aid responses (which includes incidents not requiring Worksafe BC claims).

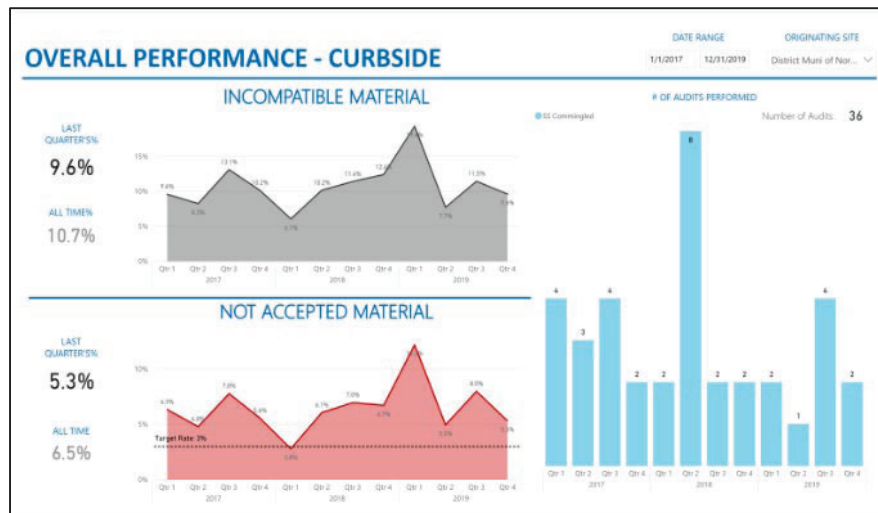


# Recycling Collection





# Recycling Performance - scorecard



- Allowable contamination rate = 3%
- 36 recycling loads audited over three-year period
- 9 audits were performed in 2019
- Average amount of incompatible material in the audit samples was 10.7%, which included:
  - 6.5% not acceptable material (garbage, books, electronics, hazardous items etc.)
  - 4.2% other incompatible material
- Contamination is consistently worse than the provincial average compared to other programs with resident-provided containers



# MANUAL OR AUTOMATED CART-BASED CURBSIDE COLLECTION

---

Curbside Collection Review

February 9, 2021

# Collection Methods

## Manual

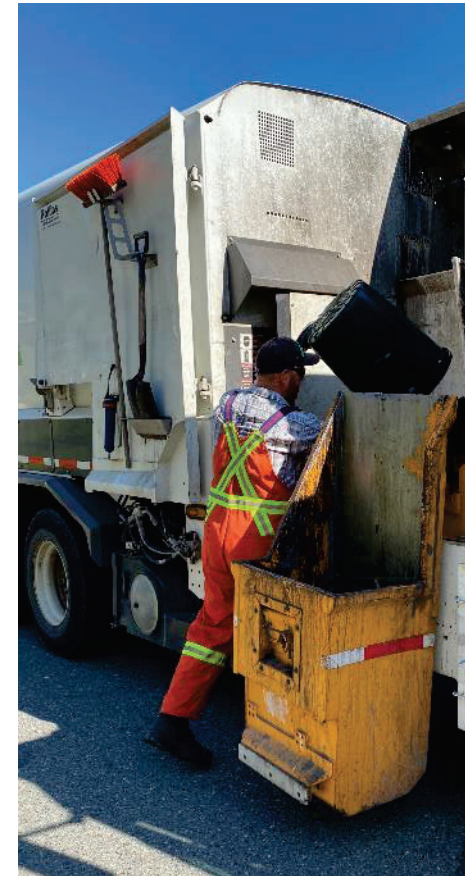


## Automated



# Manual Collection

- Current collection method
- Residents are familiar with it
- Recycle BC preferred collection method for recycling stream
- Suitable for food waste collection
  - Smaller organic waste carts
- Less expensive to implement
- Flexible (excess volume, special collections)
- Variety of container types





# Labour Considerations

- Physically demanding
- 3.5 – 5.2 tonnes lifted per day
- Lifting, twisting, & overhead dumping motions – repeated hundreds of times a day
- High claim rate with WorkSafe BC
- It's a young person's game



# Automated Cart-based Collection

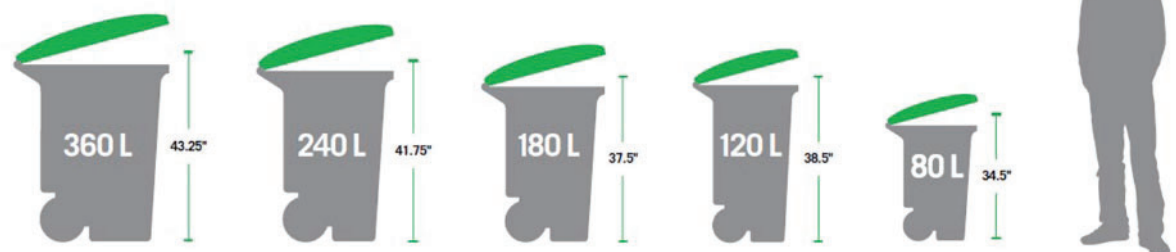


- Wheeled carts
- Driven by OHS concerns
- Growing number of programs use carts
- Require mechanised lifting
- Faster collection times



MUNICIPALITY OF  
**NORTH**  
Cowichan

Alternate Sizes Available



# Cart-based Collection

## Pros

- Less worker injuries
- Increased labour pool
- Animal resistant carts + bear resistant with clips
- Less potential for street litter
- Improved data gathering (RFID tags and readers)
- Enhanced street aesthetics
- Range of cart sizes to help with diversion goals & user needs
- Can co-collect yard and food waste



## Cons

- Higher capital costs
- Risk of greater levels of contamination
- Restricted curbside placement
- Implementation = significant staff time + administration
- Excess material is not easily handled
- Cart procurement and ongoing management (space to store new & replacements + maintain broken carts)
- Cart forward – front & centre on residential properties

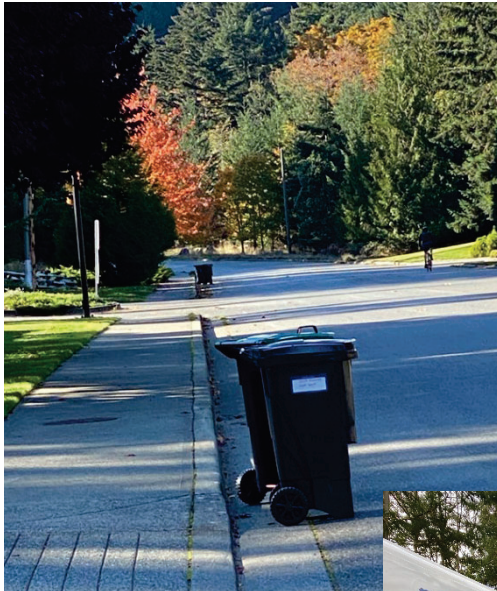
# Co-collecting Yard and Food Waste: is it an option to consider?

Pros	Cons
Convenience	Increased Volume of Material
Odour & Pest Management	Increased Cost of Disposal
Fills the space in large carts	Free to self-haul to CVRD
Meets customer demand	May not be wanted by all
Processor may welcome it	Seasonal fluctuations





# Cart-based programs on the Island



- City of Victoria
- District of Saanich
- District of Oak Bay
- Town of View Royal (contracted)
- Cowichan Valley Regional District
- Town of Lake Cowichan
- City of Nanaimo
- Regional District of Nanaimo (contracted)
- City of Port Alberni

# COLLECTION FLEET

---

Curbside Collection Review

February 9, 2021

# Current Fleet

TRUCK UNIT #	MODEL YEAR	CHASSIS	BODY	SINGLE / SPLIT	AXLE	HOPPER CU/YD	PACKER CU/YD
938	2006	TBC	Labrie	Single	Single	4	15
939	2012	International 7400	Labrie	70/30 split	Single	4	17
942	2014	Freightliner	Labrie Expert 2000	70/30 split	Tandem	4	29
943	2014	Freightliner	Labrie Expert 2000	70/30 split	Tandem	4	29



# Replacement Fleet Cost Estimates

## Manual replacement fleet

Body	Packer	Axle	Packer Capacity Cu/Yd	Price Estimate
<b>Labrie Expert Sideloader</b>	Single	Single	15	\$295,000
<b>Labrie Expert Sideloader</b>	70/30 split	Single	17	\$315,000
<b>Labrie Expert Sideloader</b>	70/30 split	Tandem	29	\$335,000
<b>Labrie Expert Sideloader</b>	70/30 split	Tandem	29	\$335,000

## Cart-based fleet

Body	Packer	Axle	Packer Capacity Cu/Yd	Price Estimate
<b>Labrie Automizer</b>	Single	Single	15	\$305,000
<b>Labrie Automizer</b>	60/40 split	Single	17	\$325,000
<b>Labrie Automizer</b>	60/40 split	Tandem	29	\$345,000
<b>Labrie Automizer</b>	60/40 split	Tandem	29	\$345,000



# CART SIZES AND COSTS

---

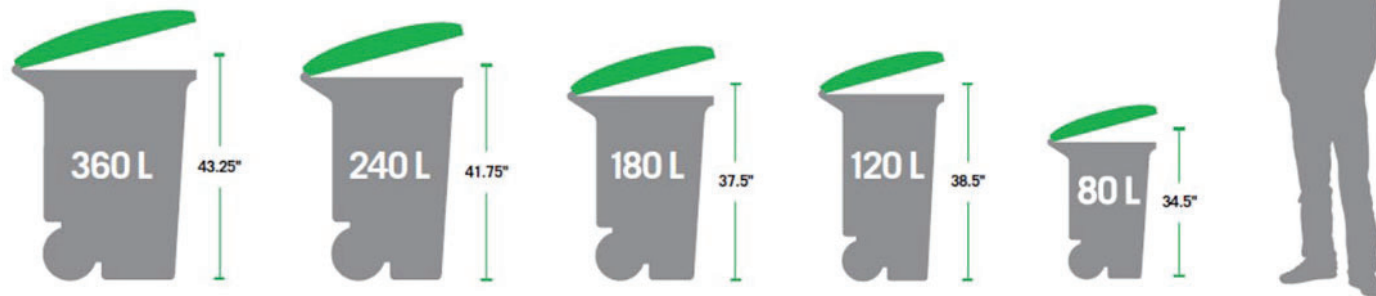
Curbside Collection Review

February 9, 2021

# Cart Sizes

- Range of sizes to meet diversion objectives

## Alternate Sizes Available



# Cost Estimates

- Estimates from two suppliers – not a formal competitive request
- 80 litre is smallest cart size
- 80 litre organics carts + 100 litre garbage carts = \$600,000

Supplier	\$ per unit based on 10,000 units	80 litre organics	100 litre organics	120 litre organics	100 litre garbage	120 litre garbage
Supplier A		\$ 42.00	-	-	-	-
Supplier B		\$ 28.00	\$ 32.00	\$ 35.00	\$ 32.00	\$ 35.00
Note: The per unit estimates exclude taxes and may exclude freight costs.						

# Cart Size Selection Options

1. Provide a set size to minimize costs and program administration
2. Provide a default size and allow cart exchanges with commensurate adjustment for individual utility billing

## Single Family Dwelling Unit

Recyclables (same rate for any recyclable cart size)	Food Waste	Garbage (utility fee determined by garbage cart size only)	Payment after Due Date	Prompt Payment Rate (\$15 flat fee discount)
100L	100L	80L	\$165	\$150
240L		100L	\$175	\$160
360L		240L	\$250	\$235

- *Regional District of Nanaimo user fees (2020)*



# OTHER SERVICE CONSIDERATIONS

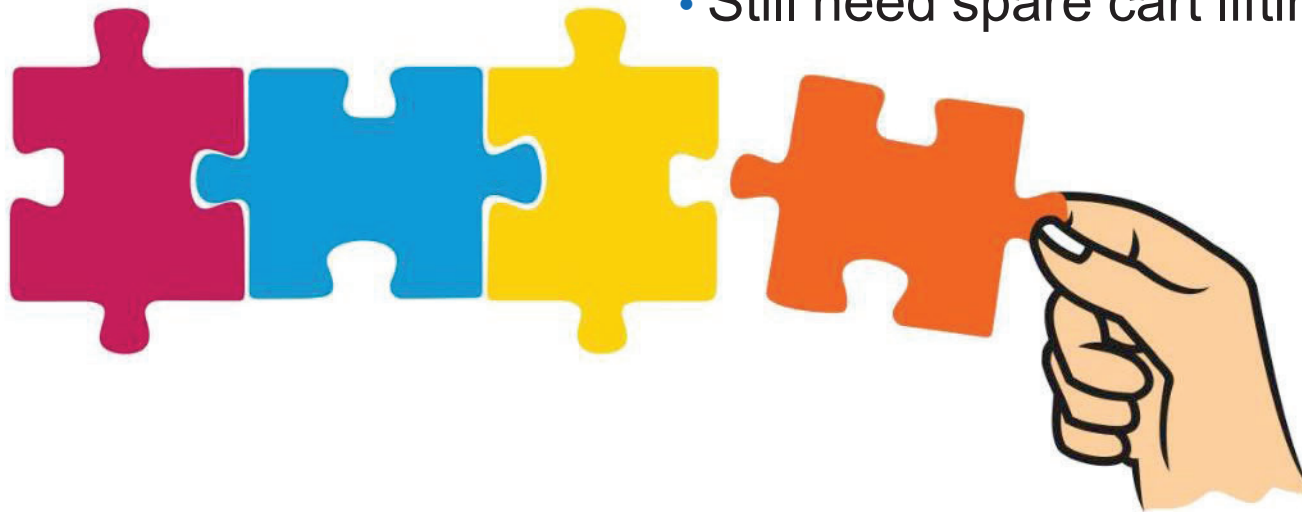
---

Curbside Collection Review

February 9, 2021

# Phasing in Changes?

- Larger programs have done this, but its not common
- Can apply lessons learned in Phase 1 to subsequent phases
- Staggers capital investment
- Can cause confusion for residents
- Double up of effort for communications and education
- Running a split fleet of vehicles
- Still need spare cart lifting truck



# Bring Recycling In-House?

- Current model pays for itself
- Is there labour and fleet capacity to bring it in-house?
- Focus attention to reducing contamination rate for now?
- Invest in standard containers for manual program?
- If switch to automated collection, recycling carts required
- Consider handing off to Recycle BC for direct service?

Recycling Collection (2020 Budget)	
Revenue	
Recycle BC collection incentive	<u>\$382,770</u>
Expenditure	
Contracted collector	\$270,000
Staff wages and overhead	\$61,280
Advertising	\$1,080
Total expenditure	<u>\$337,378</u>
Surplus	\$45,392

# Contract Out All Collection?

- Transfer OHS risks and costs to a contractor
- Market place will determine collection type (likely cart-based)
- Competitive procurement process for best price – likely to be higher than current user fee
- Can require contractor to supply and maintain carts
- Redeploy staff to other union positions





# RECOMMENDATIONS

---

Curbside Collection Review

February 9, 2021

# Retaining Manual ?

- Simpler = residents know it
- Less disruptive = no change required
- Cheaper = no carts to purchase
- Meeting diversion targets

But:

- It is hard on the workers
- New fleet required so there is an opportunity for change
- Cart sizes can be selected to maintain diversion
- Automated becoming more common due to OHS concerns



# Garbage and Kitchen Organics Collection

## Pursue cart-based collection

### Considerations:

#### 1. New Trucks

- Refine the collection fleet needs and seek more detailed price estimates, taking into account the different split compartment capacities of automated trucks.
- The current capital reserves will cover approximately 75% of full fleet replacement (either manual or automated trucks).
- Plan to make the transition to automated in a single concentrated effort, rather than phasing it in.
- A route balancing exercise will benefit the current program even if a switch to automated is not implemented in the near term.

# Garbage and Kitchen Organics Collection

## Pursue cart-based collection

Considerations:

### 2. Current Trucks

- Retrofit the two younger trucks in the current fleet with cart tippers to be the “back up” spare trucks.

### 3. Finances

- Finetune the expenditure requirements (along with financing and cost recovery mechanisms) for new trucks and collection carts.

### 4. Communications

- Develop and implement a community consultation plan to educate and engage.
- Prepare a comprehensive communications program leading up to and during the service change.



# Cost Estimates for Cart-based

- Retain Manual Collection
  - Fleet Replacement \$1,280,000
- Cart-based Collection
  - Program Implementation \$2,000,000+

## Cart-based Collection

Fleet replacement	\$1,320,000 - \$1,665,000
-------------------	---------------------------

Retrofit two existing trucks	\$30,000
------------------------------	----------

Carts for garbage and kitchen organics	\$600,000
--	-----------

Program Communications	\$50,000
------------------------	----------

<b>Total Estimate</b>	<b>\$2 million - \$2.345 million</b>
-----------------------	--------------------------------------

# Recycling Collection

## Retain current contracted out manual program

### Considerations:

#### 1. Reduce Recycling Contamination

- Improve the quality of materials collected.
- Increase the education provided to residents.
- Redesign the Oops sticker.
- Undertake consistent curbside compliance measures.

#### 2. Recycling Container

- Provide standard container(s) to residents.



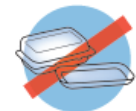
Some of your material was not collected today because



GLASS



SOFT PLASTICS



STYROFOAM™

OTHER \_\_\_\_\_

To learn where you can return these items and much more:

- Download the RDH Curbside App for android or Apple™ devices
- Recycling Directory [www.rdn.bc.ca](http://www.rdn.bc.ca)
- or Contact 1-866-999-8227



Carey McIver & Associates  
ENVIRONMENTAL CONSULTANTS

# Recycling Collection

## Retain current contracted out manual program

Considerations:

### 3. Collection Routes

- Work with contractor to rebalance the routes to improve efficiencies. (Will benefit garbage and kitchen organics too.)

### 4. Timing

- Plan for any changes to be introduced at end of current contract.
- Focus on improving current program for now.



# Cost Estimates for Recycling

- Recycling Collection
  - \$125,000 - \$145,000

## Recycling Collection

### Education & Compliance Program

- Curbside Ambassadors
- New Oops stickers \$45,000
- Newsletters
- Contractor liaison & support

### Standard curbside containers

- Retain yellow bags for paper packaging \$80,000 - \$100,000
- New blue box for container packaging

**Total Estimate \$125,000 - \$145,000**

THANK YOU

---

