

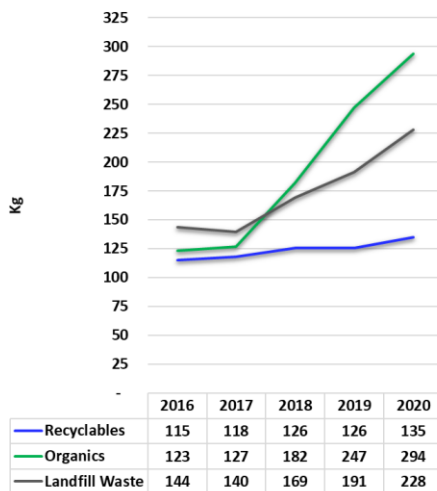
Residential Waste Collection Route Optimization

November 9, 2020

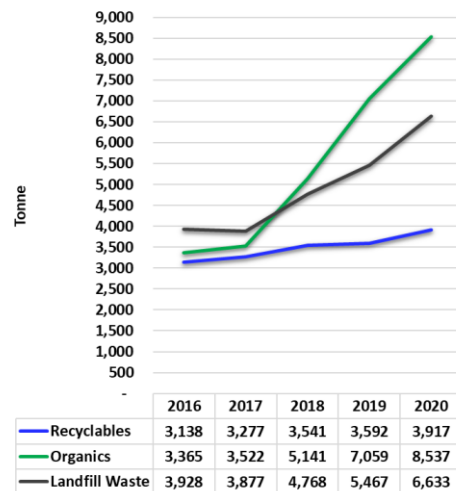


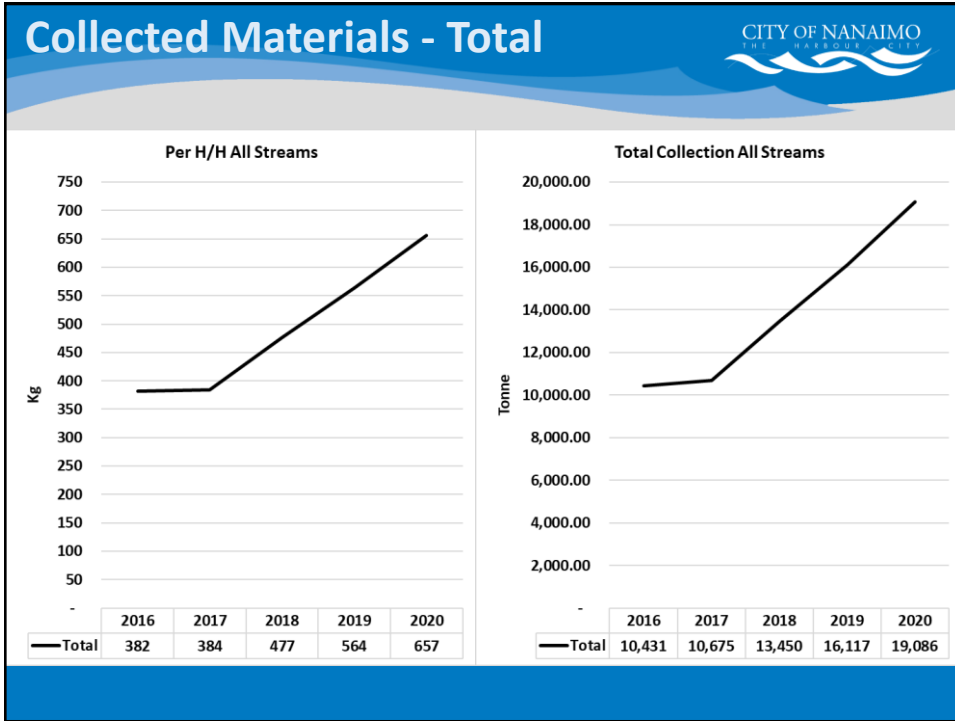
Collected Materials - By Stream

Per H/H Collection by Stream



Total Collection by Stream





Materials Collected: **Recyclables**



Increase Recyclable Volume



Pandemic Impact



North America & Europe:

Commercial waste has decreased.

Waste has decreased in cities with high commercial and tourist activities.

With more people at home, residential waste has increased across most cities. Some city's reported 45% increase, has overwhelmed collectors and increased contamination of recyclables.

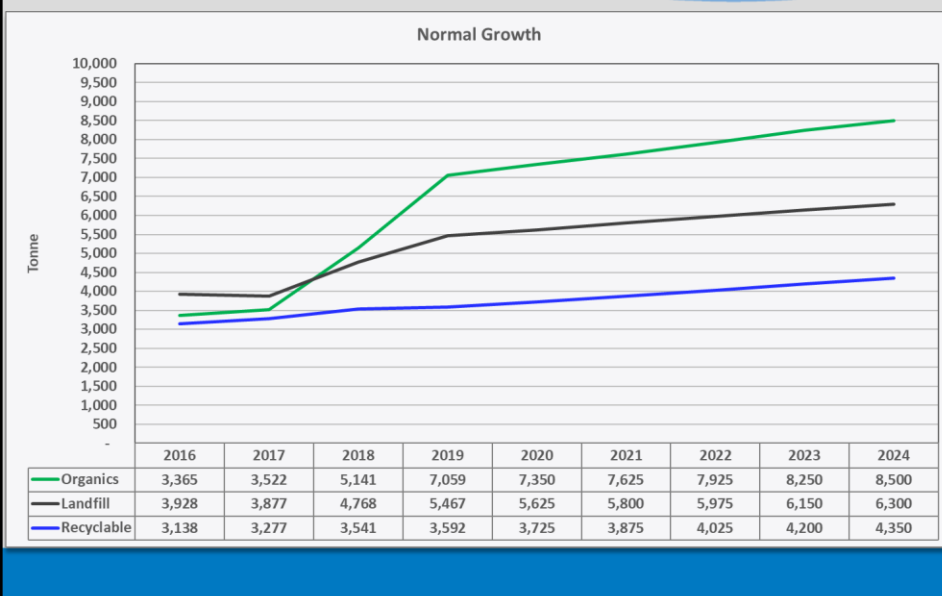
BC:

Other municipalities have experienced residential waste increases and commercial waste decrease.

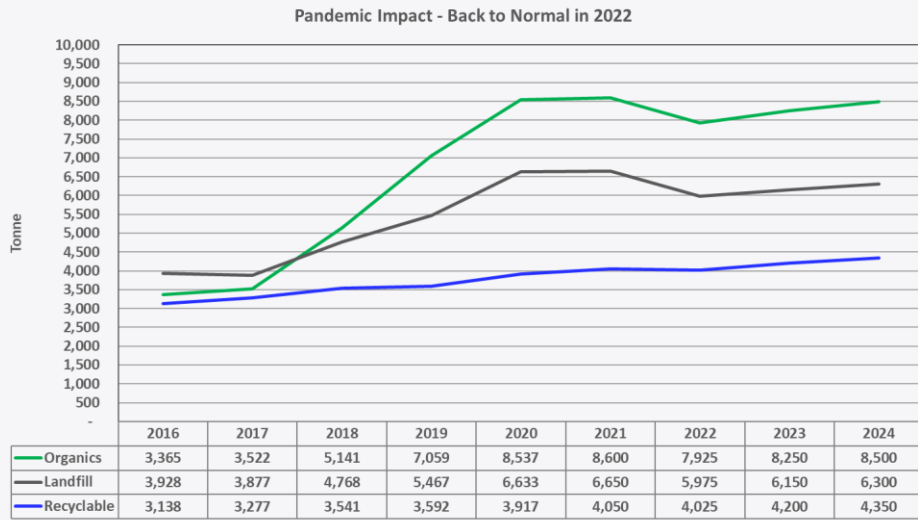
RDN:

Commercial waste dropped, Residential and Self-haul increased

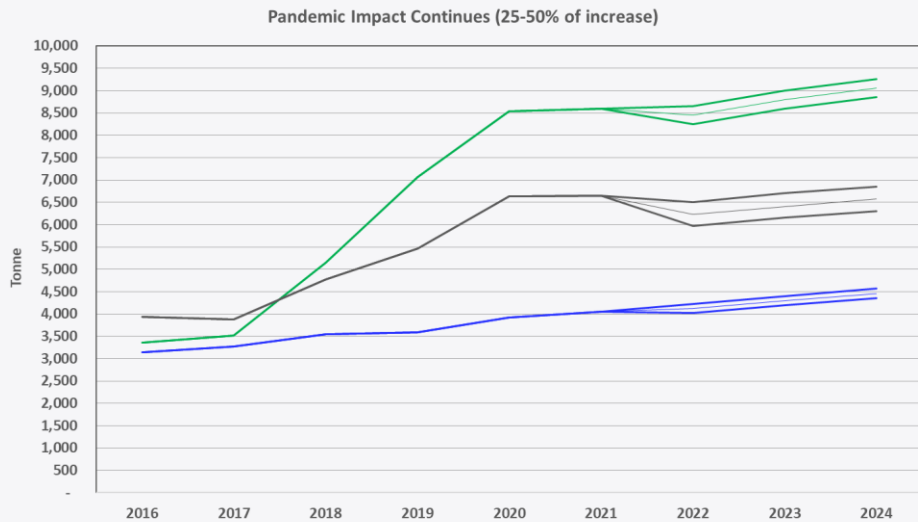
Normal Growth – No Pandemic



Pandemic Impact on Growth - Scenario 1: Back to Normal in 2022



Pandemic Impact on Growth - Scenario 2: 25-50% of the pandemic increase continues



Current Operations

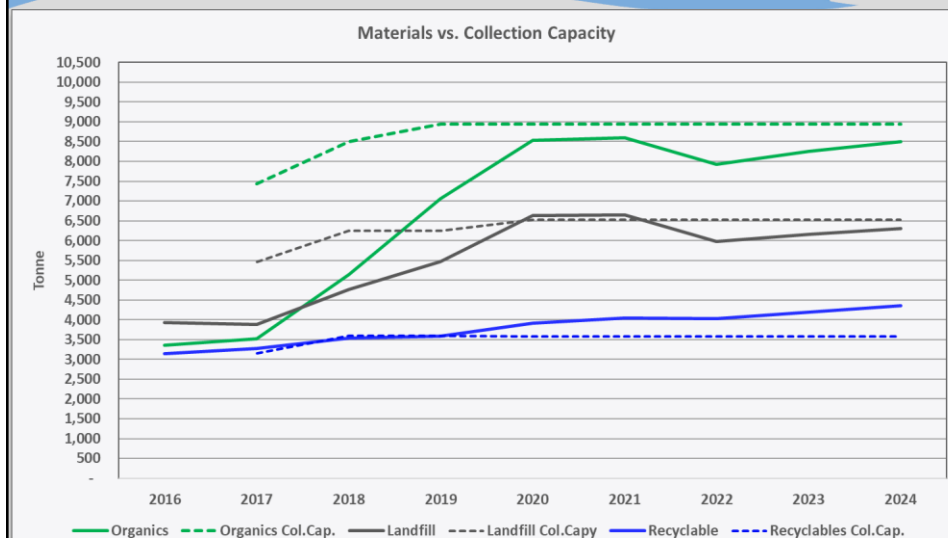


Zones:	5
Routes:	45 (same routes for both streams)
Tandem Axle Trucks	8
Single Axle Truck	1
Operators	9

Annual Collection Capacity:

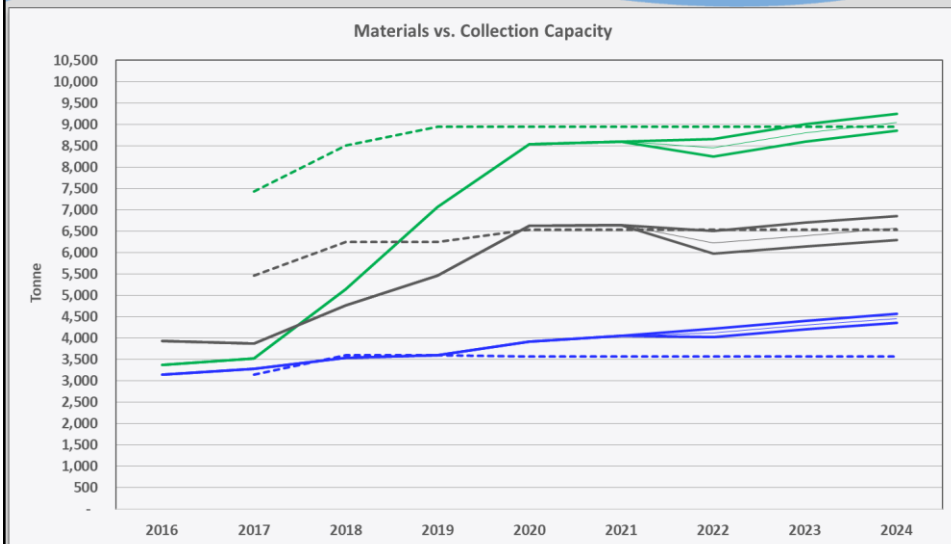
Comingled Organics	8,900 tonnes
Landfill Waste	6,500 tonnes
Recyclable Materials	3,600 tonnes
<hr/>	
Total	19,000 tonnes

Current Capacity - Scenario 1 Back to Normal in 2022



Current Capacity-Scenario 2

25-50% of pandemic increase continues



Optimization



Common solution to increase capacity is to add equal number of route(s) in each zone.

This will result in increased capacity for all streams.

Proposed plan separates the recyclables collection from landfill collection, and divides each zone into two independent collection routes.

This will result in increasing capacity where it is needed.

Each zone:

- ☐ ***5 landfill waste collection routes***
- ☐ ***6 recyclable collection routes***

Optimized Operations

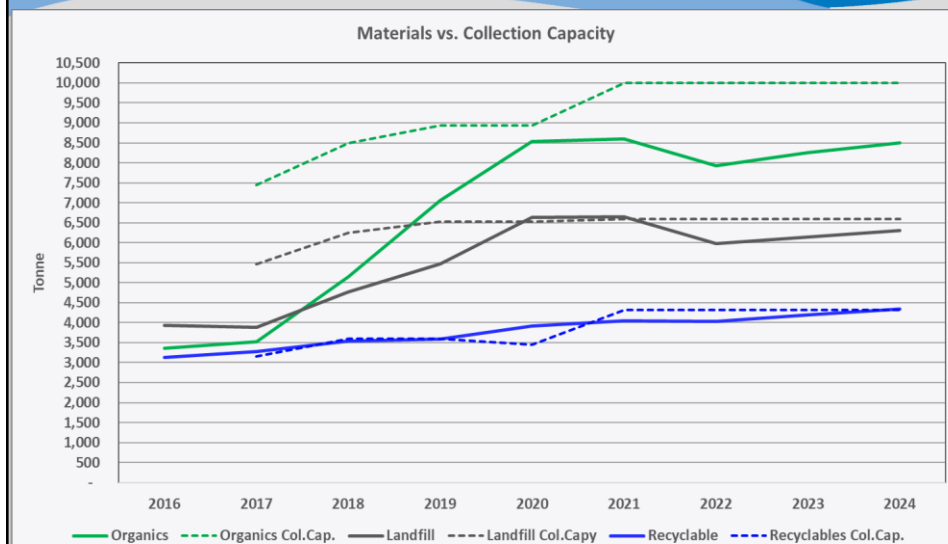


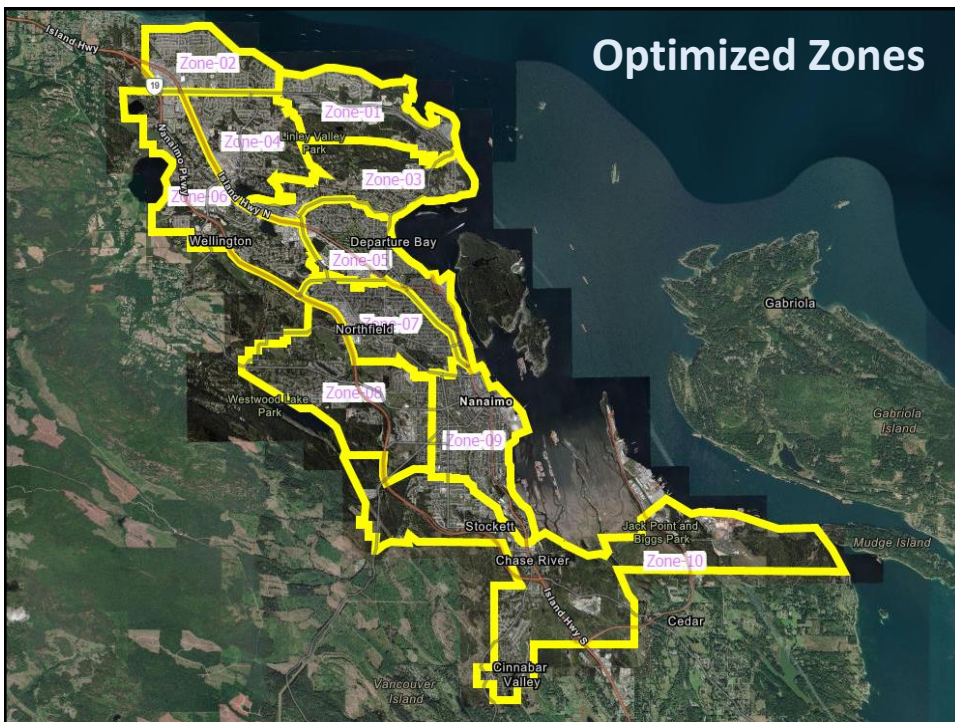
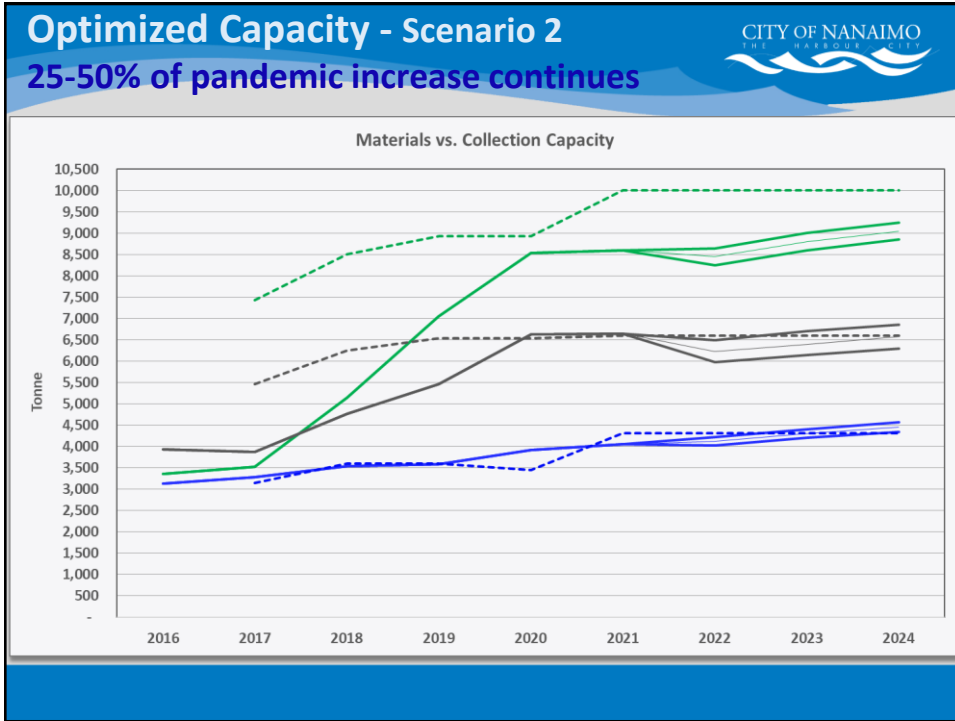
Zones:	10
Routes:	110 (50 landfill and 60 recyclables)
Tandem Axle Trucks	9
Single Axle Truck	1
Operators	10

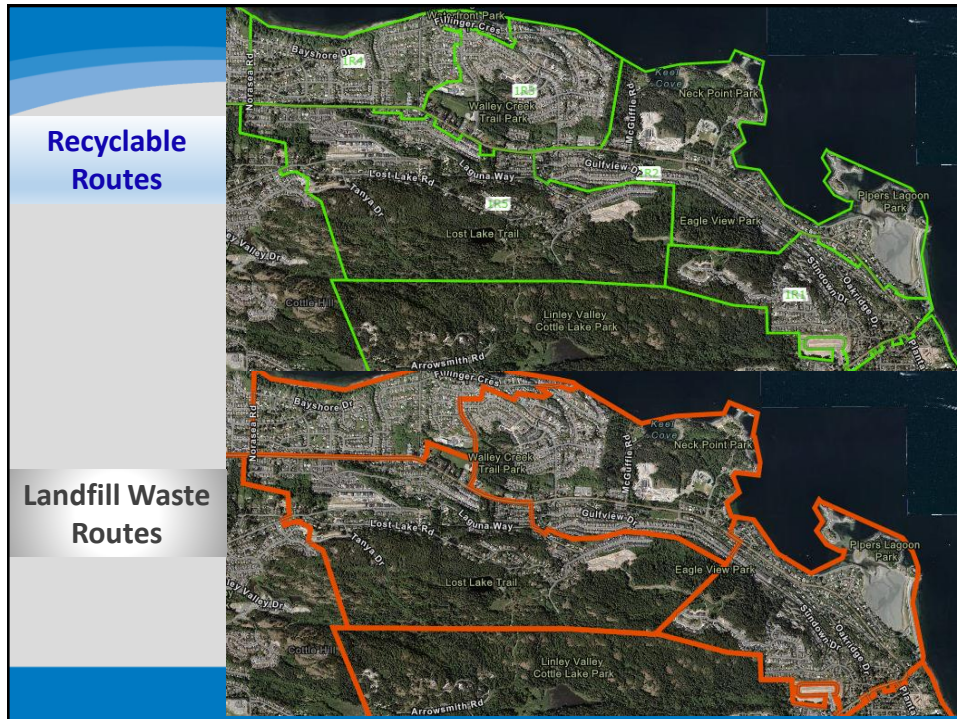
Annual Collection Capacity:

Comingled Organics	10,000 tonnes
Landfill Waste	6,600 tonnes
Recyclable Materials	4,300 tonnes
<hr/>	
Total	20,900 tonnes

Optimized Capacity - Scenario 1 Back to Normal in 2022







Advantage of Optimization



- ☐ Increases recyclables capacity 20% and organics capacity 10%.
- ☐ Maintains existing service level of curbside collection.
- ☐ Allows scheduling of adequate resources for each stream
- ☐ Balances the workload while demand for landfill waste collection to recyclable materials is imbalanced.
- ☐ Reduces time spent in line-up at disposal facilities.
- ☐ Reduces overtime.
- ☐ Provides future capacity for diversion rate increase.
- ☐ Allows future acquisition of specialized and more efficient equipment for each stream.

Service User Experience - January						CITY OF NANAIMO THE HARBOUR CITY
January						
S	M	T	W	T	F	S
					1	2
					New Year's Day	
3	4	5	6	7	8	9
	Route 4	Route 5	Route 1	Route 2	Route 3	
10	11	12	13	14	15	16
	Route 4	Route 5	Route 1	Route 2	Route 3	3R4,5R4 4
17	18	19	20	21	22	23
Zone 1	Zone 3	Zone 5	Zone 7	Zone 9	Zone 6	Zone 3
6R4	Zone 4	Zone 2	Zone 8	Zone 10	Zone 4	Zone 10
24	25	26	27	28	29	30
Zone 2	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	
Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	
31						

Service User Experience - 2021						CITY OF NANAIMO THE HARBOUR CITY
March						
S	M	T	W	T	F	S
	1	2	3	4	5	6
	5	6	Staff Training Day	7	8	
	10	1		2	3	
7	8	9	10	11	12	13
	9	10	1	2	3	
	4	5	6	7	8	
14	15	16	17	18	19	20
	4	5	6	7	8	
	9	10	1	2	3	
21	22	23	24	25	26	27
	9	10	1	2	3	
	4	5	6	7	8	
28	29	30	31			
	4	5	6			
	9	10	1			

Summary



- ☐ Ten collection zones, each zone - six recycling and five garbage routes.
- ☐ Uses existing spare vehicle, until the new vehicle arrives in July 2022
- ☐ Accelerate hiring refuse collector to for January 2021, from July 2022
- ☐ Transition: January 16/17 and January 23/24, 2021
- ☐ No decrease in the level of service.
- ☐ \$6 increase per user in 2021.



Thank you!

Questions?