

FINAL REPORT

Solid Waste Management Plan – 5-Year Plan Effectiveness Review

Presented to:

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EXECUTIVE SUMMARY

Morrison Hershfield now Stantec (MHnS), was commissioned to undertake a five-year effectiveness review of the Solid Waste Management Plan (“the Plan”) developed in 2018 by the Regional District of Nanaimo (RDN). The main objective of the review is to analyze the Plan’s implementation and effectiveness in accordance with the guidelines developed by the BC’s Ministry of Environment and Climate Change Strategy (MOECCS).

This report describes the implementation status of initiatives identified in the 2018 SWMP as of September 2024. Stantec staff shared preliminary report findings with the Plan Monitoring Advisory Committee (PMAC) on October 31, 2024, and committee members had the opportunity to provide feedback. Their input was considered when finalizing section 10 of this report, relating to strengths and challenges.

The RDN is progressing well on the implementation of the strategies and actions identified in the 2018 Plan but has still further work to undertake to achieve its ambitious goal of achieving a disposal target of 109 kg per person per year. In 2021, the RDN had the lowest per capita waste rate of any regional district in the province, at 395kg/person.

The 2018 SWMP includes the implementation of two new bylaws: “Mandatory Waste Source Separation” and “Waste Hauler Licensing”. Both bylaws have an emphasis on encouraging and increasing waste diversion from the institutional / commercial / industrial (ICI) sector (also known as the non-residential sector). The Mandatory Waste Source Separation bylaw will require all waste generators to utilize distinct, partitioned containers to separately manage garbage, recycling, and organics within 6 months of its implementation. The Waste Hauler Licensing bylaw will require businesses that haul waste for profit to obtain a license, which will grant licensees a discounted landfill tipping fee, while any load containing more than 20% of recyclable or compostable material may receive a surcharge for loads. The bylaws are expected to take effect in January 2025.

The RDN has been long committed to achieving Zero Waste, reducing garbage, conserving natural resources, reducing greenhouse gas emissions and creating a more sustainable region. This report highlights strengths and opportunities, as well as challenges that the RDN is currently facing. These challenges will need to be considered before and during the next Plan is developed, for submission to the Province on or before December 31, 2029.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	I
1. BACKGROUND AND SCOPE	1
2. POPULATION AND GROWTH ESTIMATES.....	1
2.1 Population and Growth Estimates	2
3. RDN'S SOLID WASTE MANAGEMENT SYSTEM	4
3.1 Solid Waste and Recycling Facilities.....	4
3.2 Collection Services	6
3.3 ReTHINK Waste	6
3.4 Zero Waste Recycling Funding Program.....	7
3.5 RDN's Disposal Performance.....	8
4. GREENHOUSE GAS EMISSIONS RELATING TO SOLID WASTE MANAGEMENT.....	13
5. SWMP IMPLEMENTATION STATUS.....	15
5.1 Initiatives Still Outstanding	23
6. LANDFILL REGULATORY CONFORMANCE AND COMPLIANCE	23
6.1 Summary of DOCP Updates	24
6.2 Summary of Compliance Issues.....	25
6.3 Active and Closed Disposal Locations	26
7. FIRST NATIONS PARTNERSHIPS.....	26
8. EXTERNAL FACTORS IMPACTING PLAN IMPLEMENTATION	27
9. SOLID WASTE SYSTEM FINANCIALS.....	27
9.1 Current Solid Waste System Funding	27
10. STRENGTHS AND CHALLENGES	31
10.1 Strengths and Opportunities	31
10.2 Challenges/Opportunities for Improvement	35
11. RECOMMENDED NEXT STEPS.....	36
12. CLOSURE	37

List of Figures

Figure 1: Map of the Regional District of Nanaimo	2
Figure 2: Solid Waste and Recycling Facilities in the RDN.....	5
Figure 3: Example of Topics on RDN's Website for ReTHINK Waste.....	6
Figure 4: RDN's Annual Waste Disposal Rate (Kg/Capita) 2018-2023	9
Figure 5: Recovery Rates (Kg/Serviced Capita) Reported by Recycle BC in the RDN 2015-2023	10
Figure 6: 2022 Composition of the Overall Garbage Stream	11
Figure 7: 2022 Composition of the Single-Family Garbage Stream	12
Figure 8: 2022 Composition of the Multi-Family Garbage Stream	12
Figure 9: 2022 Composition of the Industrial, Commercial, and Institutional Garbage Stream...	13
Figure 10: Per-capita disposal rates (kg/capita) by regional district in 2021	31
Figure 11: Landfill airspace decrease by material volume received at the Regional Landfill	34

List of Figures

Table 1: The RDN's Population in 2016 and 2021	3
Table 2: The RDN's Population Growth Estimates	4
Table 3 Current Status of RDN's On-going Programs (Implemented Prior to 2018)	16
Table 4 Current Status of RDN's New Programs (Planned for in the 2018 SWMP).....	19
Table 5: Comparison Between the Anticipated and the Actual 2022 Budget	28
Table 6: 2023-2032 Solid Waste Financial Plan	30

1. BACKGROUND AND SCOPE

The Regional District of Nanaimo (RDN) finalized its Solid Waste Management Plan (“the Plan”) in 2018. The SWMP was approved in 2020 by BC's Ministry of Environment and Climate Change Strategy (MOECCS). The 2018 SWMP includes a commitment to undertake a Five-Year Effectiveness Review. This type of review is described in the MOECCS's Guide to Solid Waste Management Planning published in 2016. The RDN commissioned Stantec to help undertake this review.

This Five-Year Effectiveness Review provides an overview of what the RDN has achieved to-date and key challenges that have emerged since the 2018 SWMP was adopted. The report will help to set the direction for the remaining Plan implementation period.

2. POPULATION AND GROWTH ESTIMATES

The RDN is a regional government that provides governance and services (corporate services, recreation and parks, regional and community utilities, planning and development, transportation, and emergency services) to area ratepayers. The RDN is made up of four municipalities that include the City of Nanaimo, the District of Lantzville, the City of Parksville, and the Town of Qualicum Beach, as well as seven unincorporated Electoral Areas:

- A: Cassidy, Cedar, Yellowpoint, South Wellington.
- B: Gabriola, Decourcey and Mudge Islands.
- C: Extension, Arrowsmith-Benson, East Wellington, Pleasant Valley.
- E: Nanoose Bay.
- F: Coombs, Hilliers, Errington.
- G: French Creek, Dashwood, Englishman River.
- H: Shaw Hill, Qualicum Bay, Deep Bay, Bowser.

Six First Nations Reserves neighbour the RDN:

- Snuneymuxw First Nation (Nanaimo Town 1 & Nanaimo River 2, 3 & 4).
- Snaw-Naw-As (Nanoose First Nation).
- Qualicum First Nation.

Figure 1 shows a map of the region including the municipalities, electoral areas and First Nation communities.

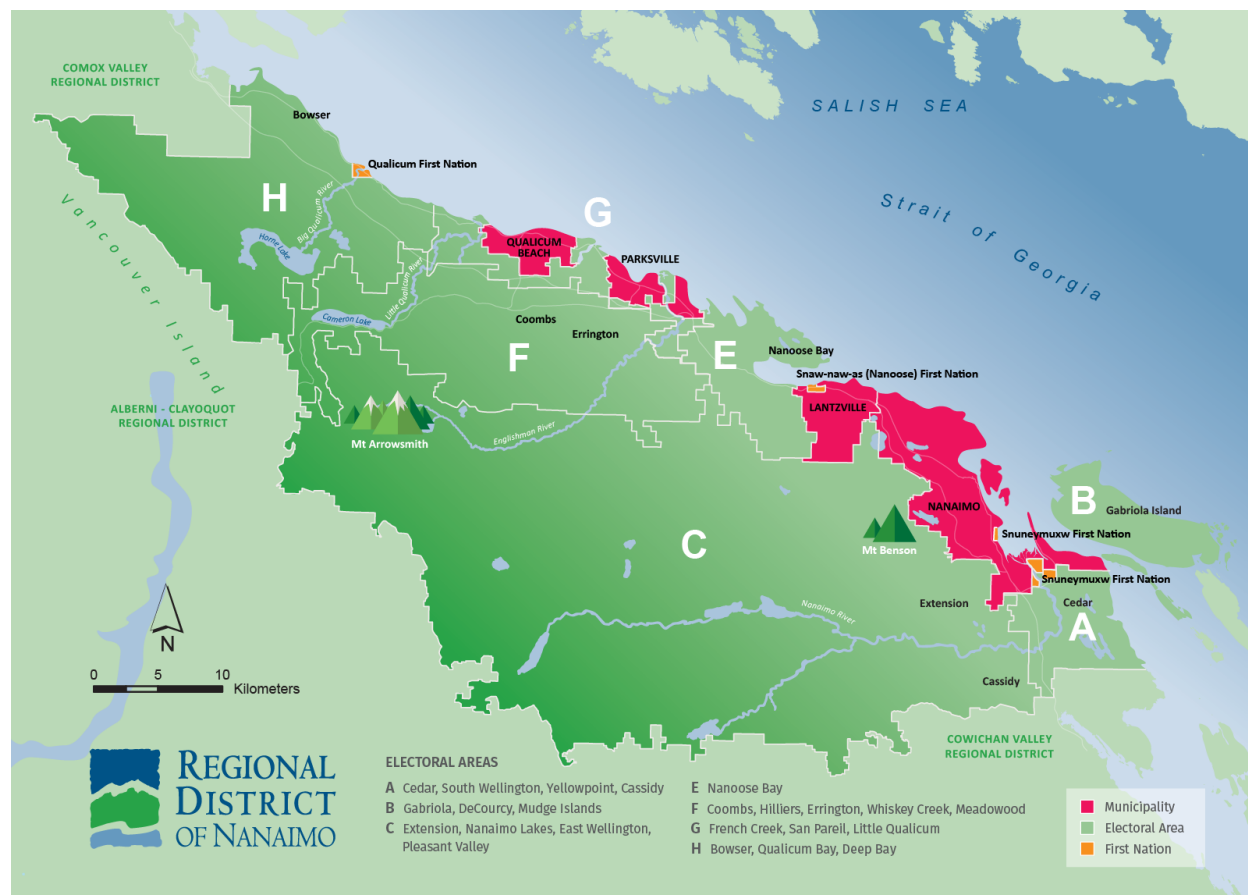


Figure 1: Map of the Regional District of Nanaimo

2.1 Population and Growth Estimates

The RDN is home to 170,367 (2021) people living in 2,035.93 square kilometres on the central east coast of Vancouver Island, bringing the population density per square kilometre to 83.7.¹

Table 1 shows the population breakdown within the RDN, separated into their respective areas. The regional population increased annually by 1.8% between 2016 and 2021. It is above the provincial annual population increase of 1.5% over the same period.

¹ Statistics Canada 2021 Census of population.

Table 1: The RDN's Population in 2016 and 2021

Area	2016 Population (Census)	2021 Population (Census)	Average Population Change Rate per Year (%)
Electoral Area A	7,058	7,481	+ 1.2
Electoral Area B	4,033	4,500	+ 2.2
Electoral Area C	2,808	3,344	+ 3.6
Electoral Area E	6,125	6,765	+ 2.0
Electoral Area F	7,724	8,216	+ 1.2
Electoral Area G	7,465	8,109	+ 1.7
Electoral Area H	3,884	4,291	+ 2.0
City of Nanaimo	90,504	99,863	+ 2.0
District of Lantzville	3,605	3,817	+ 1.1
City of Parksville	12,514	13,642	+ 1.7
Town of Qualicum Beach	8,943	9,303	+0.8
Nanaimo Town 1 Indian Reserve	360	386	+1.4
Nanaimo River Indian Reserve	371	323	- 2.7
Nanoose Indian Reserve	230	245	+ 1.3
Qualicum Indian Reserve	74	82	+ 2.1
Regional Total	155,698	170,367	+ 1.8

Population growth estimates for the region were last developed for the RDN's Regional Housing Needs Report in 2020.² These population projections considered current demographics and historic patterns of migration in and out of the region, resulting in two growth scenarios: a baseline and a high-growth scenario.

The baseline scenario is based on a consistent future population growth. In the high-growth scenario, the region's future net migration was assumed to match the provincial population growth rate. The table below shows the population projections for the RDN under the two scenarios.

² Regional Housing Needs Report, RDN, Vann Struth Consulting Group, June 2020.

Table 2: The RDN's Population Growth Estimates

Scenario	Population					Average Population Growth Rate per Year
	2021 (Census*)	2026	2031	2036	2041	
Baseline Scenario	172,453	185,819	196,752	206,715	216,008	1.1%
High-Growth Scenario	172,453	190,640	207,786	223,987	239,476	1.7%

* The 2021 population is based on adjusted 2021 Census data. The Vann Struth Consulting Group adjusted the data to account for the percentage of the population that is missed by the Census ("net Census undercoverage").³

The RDN's regional growth strategy indicates the following population-related observations and trends:⁴

- The region's slow and steady population growth is expected to continue.
- 74% of the RDN's population lives in urban areas.
- The Indigenous population is likely under reported in census data.
- The region's median age (53) is significantly higher than the province's median age (43).
- 25% of the RDN's population is 65 years of age or older. This share of the population is expected to increase to 33% in 5 years and to 35% by 2041.
- The number of apartment buildings is expected to increase at a rate of 2.0 to 2.5%/year, and single-detached dwelling units are expected to increase by 1.1%/year.
- The health sector is the largest employer in the RDN and is expected to have the greatest growth, followed closely by retail and education.
- The growing, urban and aging population, and the growing housing, health and retail sectors will continue to put pressure on waste management services.

3. RDN'S SOLID WASTE MANAGEMENT SYSTEM

3.1 Solid Waste and Recycling Facilities

The following solid waste and recycling facilities are key parts of the region's solid waste management system:⁵

- The Nanaimo Regional Landfill.
- Church Road Transfer Station (CRTS).

³ Ibid.

⁴ RDN's Shaping Our Future 2024: Regional Growth Strategy, April 15, 2024.

⁵ RDN's SWMP – Planning for the Future of Our Waste, 2018.

- Ten privately-run Waste Stream Management Licensed (WSML) facilities, shown in Figure 2, including one composting facility (DBL, Parksville) and three material recycling facilities (Waste Connections of Canada, Emterra Environmental, and Cascades Recovery).
- Two privately-run composting facilities, Convertus Nanaimo and Oceancycle Fish Compost, are exempt from WSML as they are regulated by the Province under the Organic Matter Recycling Regulation (OMRR).
- Various locations accepting recyclables covered under the Recycling Regulation as Extended Producer Responsibility (EPR⁶) programs.

The names and locations of these facilities are shown in Figure 2.

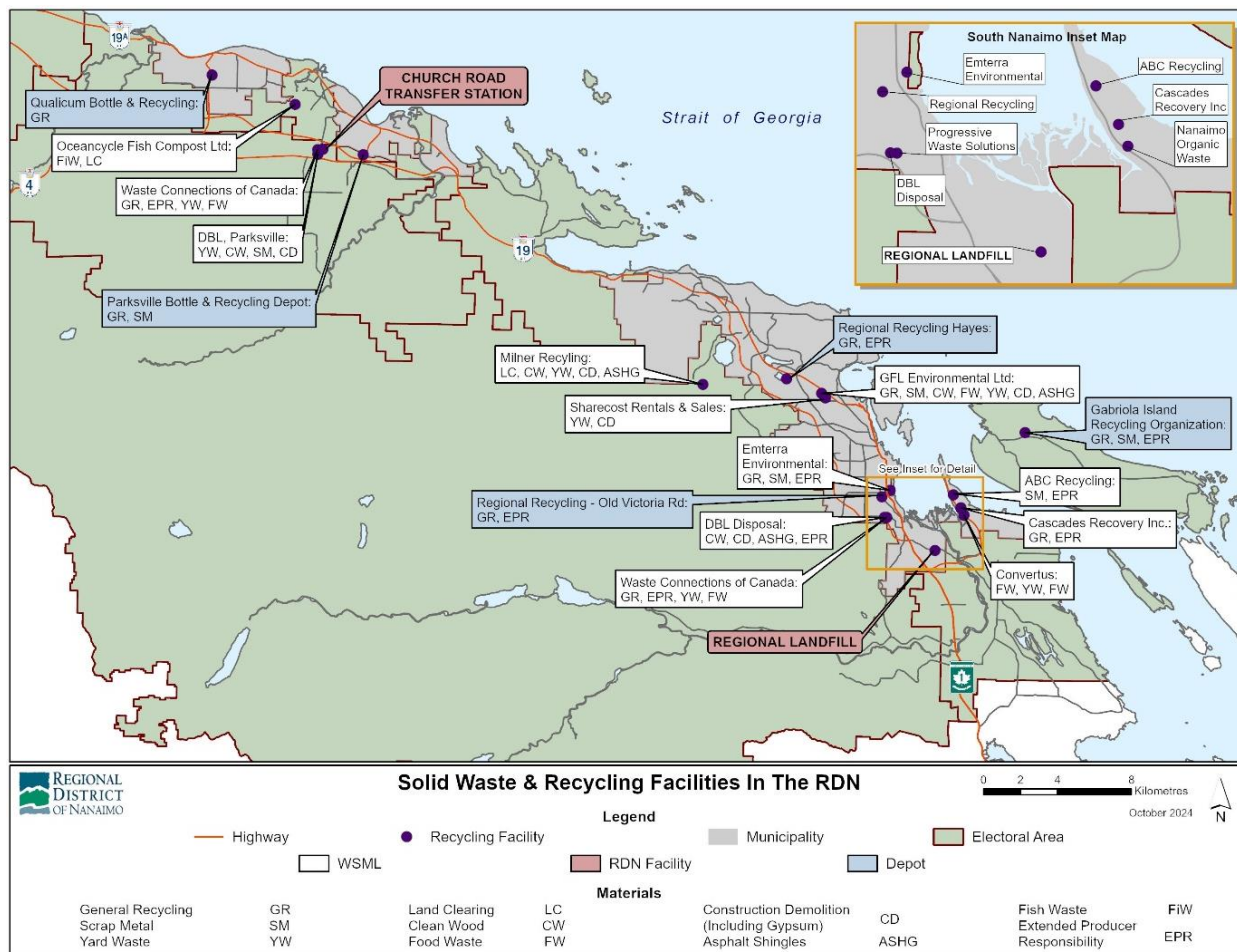


Figure 2: Solid Waste and Recycling Facilities in the RDN⁷

⁶ A management system based on industry and consumers taking life-cycle responsibility for the products they produce and use. Referred to as "product stewardship" under the B.C. Recycling Regulation. B.C. Reg 449/2004.

⁷ RDN's SWMP – Planning for the Future of Our Waste, 2018.

The Regional Landfill and CRTS accept a range of recyclable materials, including scrap metal, paper, cardboard, household plastic containers, metal food containers, vehicle batteries, oil filters, wood waste, yard waste, mattresses, gypsum, ODS appliances and controlled wastes.

The refuse (garbage) collected throughout the regional district via curbside services is taken to the CRTS or directly to the Regional Landfill, which is located approximately 5 kilometres south of downtown Nanaimo.

3.2 Collection Services

The RDN Solid Waste Services Department services approximately 31,000 residential single-family dwellings in the electoral areas, the District of Lantzville, Snaw-Naw-As First Nation, the City of Parksville and the Town of Qualicum Beach. Households are provided carts for recyclables, organics and garbage. Organics are collected on a weekly basis, and garbage and recycling are collected separately on an alternating basis every two weeks. The RDN expanded the organics program in March 2023 from collecting food scraps to also include leaves, grass and light yard trimmings. The City of Nanaimo provides residential single-family dwellings with a comparable three-stream collection service.⁸

Apartments, condos and the ICI sector are serviced by private waste haulers. They typically contract waste collection services to either a single or multiple service providers.⁹ The Mandatory Waste Source Separation bylaw will require all waste generators to utilize distinct, partitioned containers to separately manage garbage, recycling, and organics within 6 months of its implementation. The bylaw is expected to take effect in January 2025.

3.3 ReTHINK Waste

The RDN is encouraging residents to ReTHINK Waste through a dedicated webpage that provides tools and resources to help reduce waste and rethink the way residents think about "stuff" (Figure 3).



Figure 3: Example of Topics on RDN's Website for ReTHINK Waste

⁸ RDN's Solid Waste and Recycling website (<https://www.rdn.bc.ca/solid-waste-and-recycling>).

⁹ Personal communication with Yongjia Du, RDN, July 29, 2024.

3.4 Zero Waste Recycling Funding Program

Since 2019, the RDN has provided \$300,000 annually to the Zero Waste Recycling Funding program. The fund focuses on sustainable waste diversion to help contribute to a local circular economy and to help the RDN meet its 90% waste diversion goal. The funding is intended to stimulate innovation and to support the development of local markets for end-of-life materials without commercially viable recycling solutions. The fund was originally established for five years (2019-2024) and has recently been extended for an additional three years.

Non-profit organisations that operate within the RDN are eligible to apply for funding, however initiatives to recycle EPR items are not eligible as they have access to other funding sources. Some of the organisations and initiatives that have been supported by the funding are highlighted in Section 5.

In 2019 and 2020, the RDN provided funding to the Nanaimo Recycling Exchange (NRE) to support recycling of hard to recycle materials.¹⁰ In 2021, the funding went to the Gabriola Island Recycling Organization (GIRO), Loaves and Fishes Community Food Bank, Habitat for Humanity Mid Vancouver Island (H4H) and the NRE.¹¹ In 2022, it was distributed to the same four entities as well as the Island Futures Society.¹²

In 2023, the RDN funded five local non-profit organisations that focus on sustainable waste diversion. The following includes a brief description of their funded activities:¹³

- *Gabriola Island Recycling Organization (GIRO)* – funding was used to run a textile recovery program, including to complete a Makerspace building, to market ReLove products and expand the product range, to develop a textile apprenticeship program, etc.
- *Habitat for Humanity Mid Vancouver Island (H4H)* – funding was used to run the Book Recycling Program. The program recycles books into fire logs, diverting 4,400 books from the landfill.
- *Island Futures Society* – funding was used to divert used waste vegetable oil produced on Gabriola Island. It was used as fuel for a greenhouse heater and as a source of glycerin to produce soap.
- *Loaves and Fishes Food Bank* – funding was used to develop a new warehouse and expand existing warehouse capacity. The organisation diverts food from becoming waste and distributes it to those in need.
- *Ocean Ambassadors* – used funding to coach businesses and stratas in the RDN on diversion and waste reduction.

¹⁰ RDN's Annual Solid Waste Management Plan Progress Report, March 31, 2021.

¹¹ RDN's 2021 Annual Solid Waste Management Plan Progress Report, March 2022.

¹² RDN's 2022 Annual Solid Waste Management Plan Progress Report, March 2023.

¹³ RDN's 2023 Annual Solid Waste Management Plan Progress Report, March 2024.

The fund was also used in 2023 to contract Synergy Foundation to provide grant awardees with coaching on business planning, circular solutions, strategic development, and operational planning.¹⁴

In 2024, RDN distributed funding to GIRO, H4H, Light House (for construction, renovation, and demolition material exchange program), Ocean Wise (for their single-use and unnecessary plastics reduction program in the RDN), and Synergy Foundation (to onboard businesses to the BC Green Business project).¹⁵

3.5 RDN's Disposal Performance

3.5.1 Disposal Rate Trends

For the purpose of assessing the effectiveness of implemented waste prevention and diversion programs, the disposal rate is used instead of the diversion rate, as it is difficult to measure and account for all avoided and diverted materials. The regional disposal rates are published in the RDN's annual Regional Growth Strategy Reports.¹⁶

The average per-capita disposal rate in the RDN has increased between 2018 and 2023 from 397 kg in 2018 to 431 kg in 2023 (Figure 4). RDN staff believe that drivers of this change relate to a change in shopping patterns during the COVID-19 pandemic and an increase in waste generated from new construction, renovations and the demolition of older homes.¹⁷

Disposal data collated by the MOECCS indicates that the RDN has one of the lowest disposal rates in BC. The average British Columbian disposed of 479 kg of waste in 2022.¹⁸

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ RDN, Regional Growth Strategy Reports (<https://www.rdn.bc.ca/rgs-annual-reports>).

¹⁷ Personal communication with Yongjia Du, RDN, July 29, 2024.

¹⁸ Environmental Reporting BC. Municipal Solid Waste Disposal in B.C. (1990-2022). State of Environment Reporting, Ministry of Environment and Climate Change Strategy, British Columbia, Canada, November 2024.

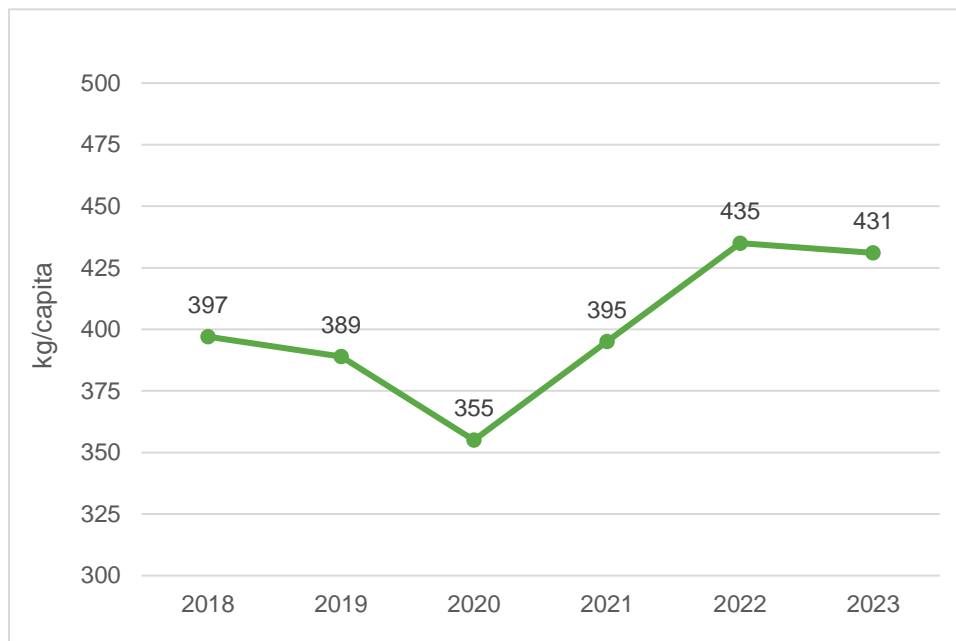


Figure 4: RDN's Annual Waste Disposal Rate (Kg/Capita) 2018-2023^{19,20}

3.5.2 Diversion Performance

The RDN estimated its 2022 diversion was 67% and for 2023 63%. These numbers are an estimation because the RDN is missing some data from WSML facilities.

Regional performance data also comes from Recycle BC, which is a not-for-profit organization responsible for residential packaging and paper product recycling throughout the province. The recycling program is funded by businesses that supply packaging and paper product (PPP) to residents. In 2023, Recycle BC serviced a population of 165,460²¹ in the RDN, up from 151,310²² in 2018.

Over the last five years, Recycle BC has supported the following PPP recycling services in the region:

- Two curbside services areas were maintained by the City of Nanaimo and RDN.
- Two additional multi-family services areas were added for a total of four (City of Nanaimo, City of Parksville, Town of Qualicum Beach, and Nanoose Bay).
- Three Recycle BC depot locations (GFL Environmental Depot, Hayes Road Regional, and Old Victoria Regional). The depots in Parksville and Qualicum Beach were closed in March 2020.

¹⁹ Environmental Reporting BC. Municipal Solid Waste Disposal in B.C. (1990-2021). State of Environment Reporting, Ministry of Environment and Climate Change Strategy, British Columbia, Canada, 2023.

²⁰ Personal communication with Sonam Bajwa, RDN, October 23, 2024.

²¹ Recycle BC 2023 Annual Report, 10 Years of Impact, 2024.

²² Recycle BC 2018 Annual Report, Celebrate, 2019.

Recycle BC reported a 2023 recovery rate in the RDN of 48.6 kg per serviced capita, which is above the province-wide recovery rate of 42.5 kg per serviced capita.²³

Although recycling recovery rates are relatively high in the RDN, these rates remained steady between 2015 and 2020, but have since decreased, as shown in Figure 5. As with the increasing disposal rate, this trend is also thought to be driven by a reduced number of Recycle BC depot locations and a change in consumer purchasing habits. RDN staff have noted a greater use of non-recyclable, single-use items.²⁴

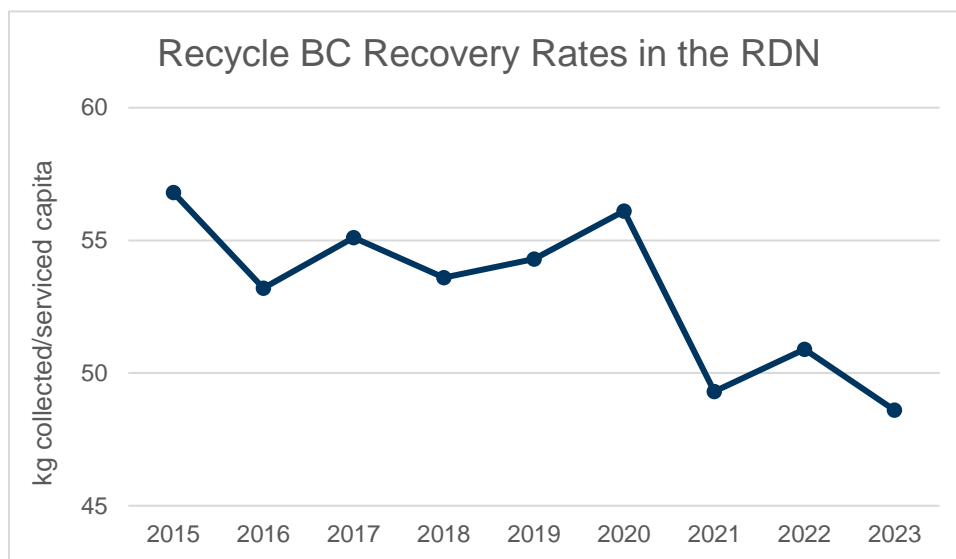


Figure 5: Recovery Rates (Kg/Serviced Capita) Reported by Recycle BC in the RDN 2015-2023²⁵

3.5.3 Waste Stream Characterization

The RDN has conducted three waste composition studies since establishing its SWMP in 1988. The initial study was conducted in 2004, followed by another study in 2012, and the most recent study was conducted in 2022.

The 2022 study results showed that across the residential and non-residential sectors the RDN's residual waste (garbage) destined for the landfill was primarily composed of organic waste (24.5%), paper and paper products (19.9%), plastics (16.2%), household hygiene (9.9%), and textiles (9.1%) (refer to Figure 6).²⁶

²³ Recycle BC 2023 Annual Report, 10 Years of Impact, 2024.

²⁴ Personal communications with Yongjia Du and Sonam Bajwa, RDN, August 16 and 19, 2024, respectively.

²⁵ Recycle BC Annual Reports, available at <https://recyclebc.ca/about/annual-reports/>.

²⁶ RDN, 2022 Waste Composition Study by Tetra Tech, January 30, 2023. Available at <https://www.rdn.bc.ca/solid-waste-management-plan>.

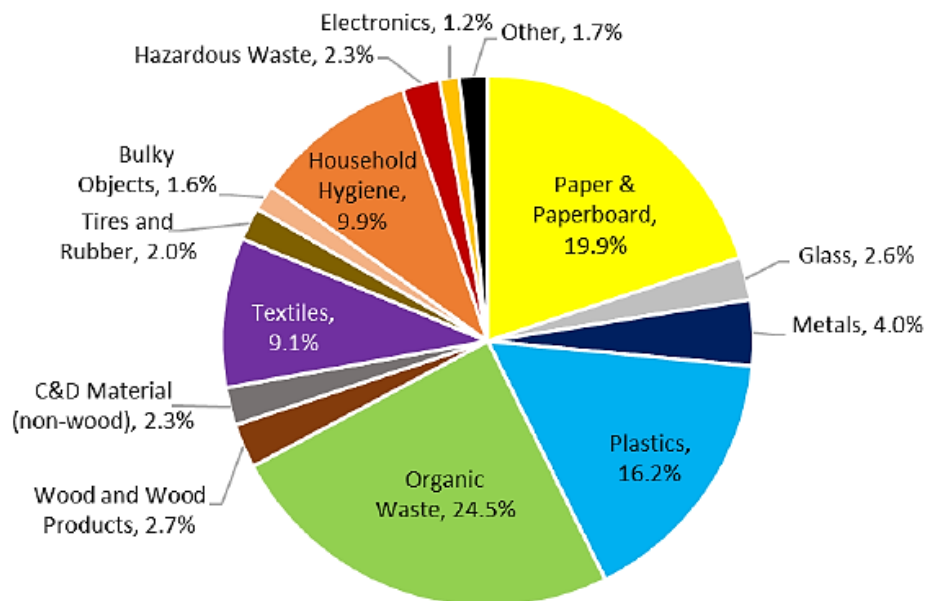


Figure 6: 2022 Composition of the Overall Garbage Stream²⁷

The 2022 study concluded that 70% of the waste could be diverted to composting or recycling programs. The study highlighted the following trends:

Overall Trend: a decrease in the portion of organic waste (36% in 2004, 31% in 2012, 25% in 2022), and increases in household hygiene products (2% in 2004, 8% in 2012, 10% in 2022) and in paper products (14% in 2004, 19% in 2012, 20% in 2022).

Single-Family (SF) and Multi-Family (MF): a decrease in organic waste due to increased source-separation by SF residents (58% in 2004, 29% in 2012, 21% in 2022) and by MF residents (51% in 2004, 49% in 2012, 31% in 2022).

Figure 7 and Figure 8 show that organic waste remains the largest portion of garbage from SF and MF residents in 2022.

²⁷ Ibid.

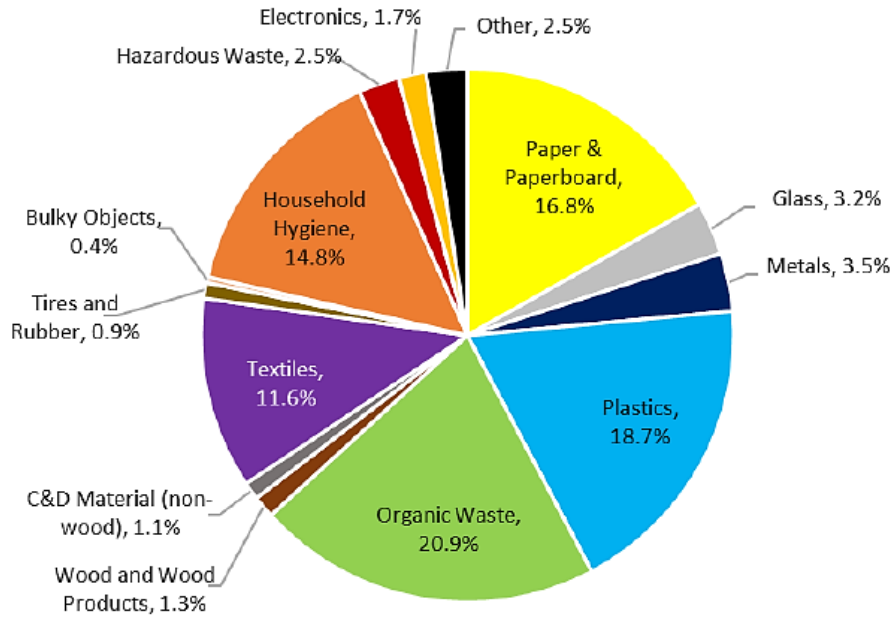


Figure 7: 2022 Composition of the Single-Family Garbage Stream²⁸

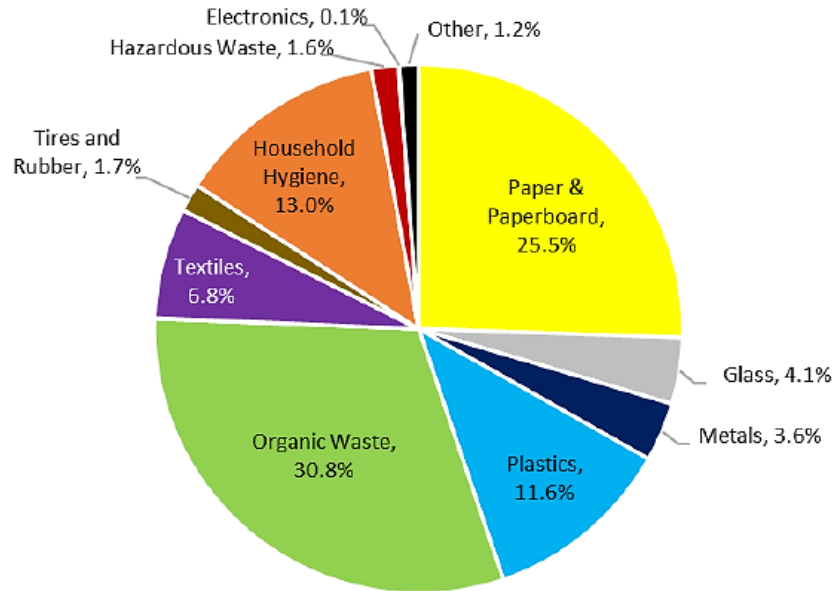


Figure 8: 2022 Composition of the Multi-Family Garbage Stream²⁹

²⁸ Ibid.
²⁹ Ibid.

Industrial, Commercial, and Institutional (ICI): a decrease in organic waste (36% in 2004 and 2012, 25% in 2022), and an increase in paper products (14% in 2004, 21% in 2012, 20% in 2022). Figure 9 shows that organic waste remains the portion of garbage from the ICI (non-residential) sector in 2022.

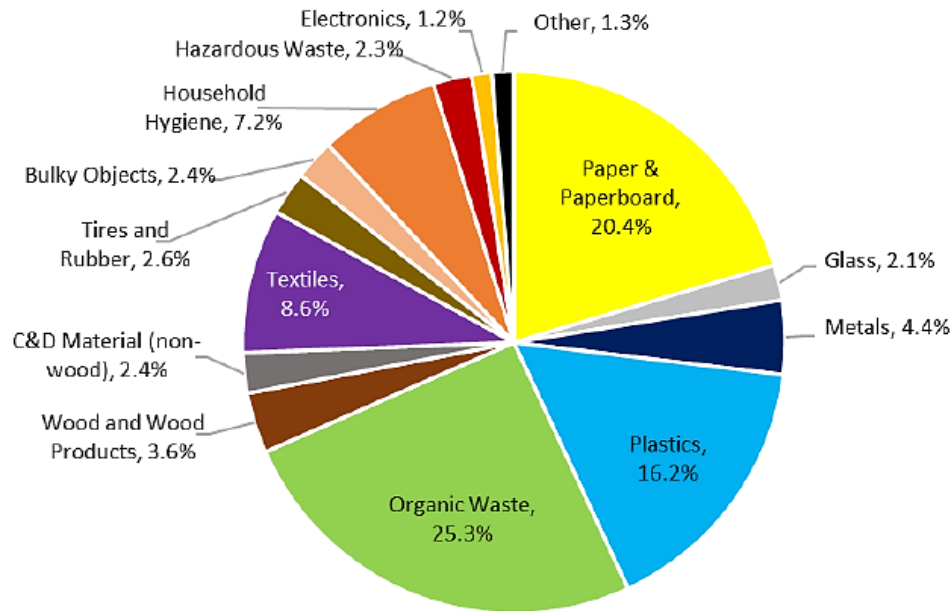


Figure 9: 2022 Composition of the Industrial, Commercial, and Institutional Garbage Stream³⁰

Public Drop Off at the Regional Landfill: no trends were noted. The composition varied significantly depending on the types of loads that were considered as part of the 2022 study.

Construction and Demolition (CD) materials: a decrease in wood and wood products (90% in 2004, 16% in 2024). This is likely due to differences in approaches to material characterisation and the RDN’s Bylaw no. 1531 introduced in 2007 banning wood waste from disposal.

4. GREENHOUSE GAS EMISSIONS RELATING TO SOLID WASTE MANAGEMENT

The RDN is committed to being a leader in climate adaptation and mitigation. The organization is striving for sustained corporate carbon neutrality by 2032 and to reduce community emissions to Net Zero by 2050.³¹ A dedicated website presents the RDN’s climate change related plans and data.³²

The RDN has been part of the Partners for Climate Protection network of Canadian municipal governments since 2002, and a signatory of the BC Community Climate Action Charter since

³⁰ Ibid.

³¹ RDN, Regional Growth Strategy – Shaping Our Future 2040, Bylaw no. 1874, April 15, 2024.

³² RDN’s website on Climate Change Plans and Data, <https://www.rdn.bc.ca/climate-change-plans-and-data>.

2012. The RDN completed a community emissions inventory in 2013 as part of its work through Partners for Climate Protection. This was updated in 2022 with a more comprehensive inventory covering additional emission sources.

The following are studies and plans relating to GHG and climate change:

- Community Energy and Emissions Plan, 2013 and updated in 2023.
- Climate Projections for the Regional District of Nanaimo, 2023, University of Victoria.
- 2021 Community Emissions Inventory for the RDN, 2023, Stantec Consulting.
- RDN's Climate Action Technical Advisory Committee's (CATAC) Final Report, 2020.
- CATAC's Implementation Report Card, 2023.
- Corporate Carbon Neutral 2032 Plan, 2021, Associated Engineering.

The RDN reported annually on corporate GHG emissions as part of the provincial Climate Action Revenue Incentive Program (CARIP) from 2014 to 2020. Results were posted publicly through the the CARIP Public Report as required by the Province of BC. The CARIP program and its reporting requirements ended in 2021.

As of 2022, the RDN reports through the Local Government Climate Action Program (LGCAP) on GHG emission reduction goals, corporate and community greenhouse gas emissions, and climate-related initiatives.

The RDN has achieved corporate carbon neutrality since 2012, primarily through GHG offsets from its organics program and from early adoption of landfill gas management.³³

The 2021 Community Emissions Inventory identified that the Solid Waste sector accounted for about 3.8% of the region's GHG emissions.

GHG mitigation at the Regional Landfill

The landfill gas (LFG) collection system at the Regional Landfill consists of 45 vertical gas collection wells and 26 horizontal gas collection trenches.³⁴ In 2023, the system collected and flared 2,937,592 m³ of LFG.

In the past, the LFG was utilized by the Cedar Road Bioenergy facility, but the facility was decommissioned in 2021. The RDN has since bought the facility and plans to establish a bioenergy facility for LFG processing. The timeline for this project is yet to be determined.³⁵ The RDN also plans to upgrade the LFG control plant and install twelve vertical LFG wells and six horizontal LFG extraction trenches in 2024.³⁶

³³ Personal communication with Yongjia Du, RDN, August 13, 2024, and the reports are available on the Regional District of Nanaimo's Climate Change Plans and Data website, <https://www.rdn.bc.ca/climate-change-plans-and-data>.

³⁴ RDN, 2023 Landfill Gas Annual Report, 2024.

³⁵ Personal communication with Yongjia Du, RDN, July 29, 2024.

³⁶ RDN, 2023 Landfill Gas Annual Report, 2024.

5. SWMP IMPLEMENTATION STATUS

The 2018 SWMP establishes a zero-waste vision and strives to achieve 90% diversion by 2027 and/or a per capita disposal of 109 kg/year.

In the 2018 SWMP, the regional district expresses its commitment to maintain and strengthen existing programs and to implement two new bylaws, Mandatory Waste Source Separation and Waste Hauler Licensing.

The RDN's programs focus on raising awareness, increasing waste diversion from various sectors (residential, ICI and construction and demolition), and supporting Zero Waste initiatives.

Tables 3 and 4 provide a snapshot of the implementation status of the various programs and bylaws as of September 2024. Table 3 presents the status of programs that were already in place in 2018 which the RDN planned to maintain and/or expand as part of the SWMP implementation. Table 4 presents the status of new programs.

Table 3 Current Status of RDN's On-going Programs (Implemented Prior to 2018)

Strategy Component	Status
<p>School Education Program Design and deliver a primary school program with a focus on the concept of zero waste.</p>	<p>Achieved</p> <p>In 2020, the school based Zero Waste Education pilot program was established.³⁷ In 2020/2021, nine schools participated allowing classrooms and teachers to participate on a voluntary basis and proved to be successful. In 2021/2022, the pilot program was expanded to nine additional schools.³⁸</p> <p>In 2022, a three-year contract was established between the RDN and School District 68 for a Zero Waste Education program in the RDN.³⁹</p> <p>In 2022/2023, the program was delivered in 15 schools. The program also allocated funding to participating school to support with various teaching and learning opportunities, such as School Gardening and Food Programs, Place-based Learning (ex. litter clean-ups, tree planting, etc.), and Climate Change and Sustainability initiatives (ex. upcycling fair, Climate Action Symposium).⁴⁰</p>
<p>Illegal Dumping Program Provide surveillance and enforcement activities, clean-up of illegal dumping sites, and free disposal for community clean-up events.</p>	<p>Achieved</p> <ul style="list-style-type: none"> ▪ The RDN continues to provide enforcement of illegal dumping bylaw provisions, to assist residents in reporting illegal dumping, to contract clean-up of sites, and to waive disposal fees at RDN solid waste facilities for community-lead clean-ups.⁴¹ ▪ The total tonnage of material brought to the landfill by community groups has increased (35 tonnes in 2016, 242 tonnes in 2023). The number of illegal dumping reports received by the RDN have reduced over time.⁴² ▪ The RDN encourages partnerships between private landowners and clean-up groups by facilitating contact and providing educational resources.⁴³
<p>Disposal Bans</p>	<p>Achieved</p> <p>The Regional Board approved the RDN Tipping Fee and Solid Waste Disposal Regulation Bylaw No. 1784.08 (board approval on Oct 22, 2024).</p>

³⁷ RDN's Annual Solid Waste Management Plan Progress Report, March 31, 2021.
³⁸ RDN's 2021 Annual Solid Waste Management Plan Progress Report, March 2022.
³⁹ RDN's 2022 Annual Solid Waste Management Plan Progress Report, March 2023.
⁴⁰ RDN's 2023 Annual Solid Waste Management Plan Progress Report, March 2024.
⁴¹ Ibid.
⁴² Ibid.
⁴³ Ibid.

Strategy Component	Status
Ban the disposal of specific wastes from the landfill when viable recycling alternatives are in place.	The bylaw clarified definitions and increased the application of surcharges – typically a 20% increase to the tipping fee when materials contain recyclable or compostable materials. The application of surcharges is planned to increase once additional regulatory tools are implemented (Waste Hauler Licensing and Mandatory Source Separation). ⁴⁴
Zero Waste Promotion <ul style="list-style-type: none"> ▪ Enhance current zero waste information initiatives. ▪ Support and promote the use of communication tools to assist residents in accessing locations to take recyclable or reusable goods. 	Achieved The RDN continues to: <ul style="list-style-type: none"> ▪ Promote online global waste awareness and reduction programs (ex. Earth Day, Waste Reduction Week, Plastic Free July, Love Food Hate Waste, Compost Week and Global Recycling Day).⁴⁵ ▪ Improve awareness of its “What Goes Where” material, available through the RDN Curbside app and the RDN’s website, resulting in a steady increase in the number of registered app users and material searches.⁴⁶
Recycling and Organics at RDN Facilities Provide the opportunity for self-haul customers to recycle and compost several different types of items.	Achieved RDN facilities accept the following recyclable items from residents: appliances, propane tanks, batteries, scrap metal, gypsum, cardboard, paper, metal and plastic food and beverage containers. ⁴⁷
Waste Stream Management Licensing (WSML) Support the maintenance of the bylaw (processing new applications, reviewing site specific operating plans, monitoring reporting, and inspecting existing licensed waste management facilities).	In Progress The bylaw no. 1803 allows the RDN to licence private facilities managing solid waste to minimize nuisance and establish reporting requirements. ⁴⁸ The bylaw was updated in 2020, following 2004 revisions, to clarify licensee responsibilities and expectations. ⁴⁹ It was approved by the MOECCS in February 2022 and the associated Solid Waste Fees Bylaw (no. 1807) was approved by the MOECCS in January 2023. The bylaws were adopted by the RDN’s regional board in February 2023. ⁵⁰

⁴⁴ RDN’s Annual Solid Waste Management Plan Progress Report, March 31, 2021.

⁴⁵ RDN’s 2023 Annual Solid Waste Management Plan Progress Report, March 2024.

⁴⁶ Ibid.

⁴⁷ RDN’s Annual Solid Waste Management Plan Progress Report Memorandum, March 31, 2021.

⁴⁸ RDN’s, 2023 Annual Solid Waste Management Plan Progress Report, March 2024.

⁴⁹ RDN’s Annual Solid Waste Management Plan Progress Report Memorandum, March 31, 2021.

⁵⁰ RDN’s 2023 Annual Solid Waste Management Plan Progress Report, March 2024.

Strategy Component	Status
	The RDN is in the process of reviewing all Licensee reapplications. ⁵¹ The majority have been reviewed.
Residential Curbside Garbage and Recycling Collection Provide the collection service.	Achieved The RDN's curbside collection services over 31,000 residents. ⁵² The service transitioned from manual to automated collection in October 2020 allowing households to select their cart sizes, improving worker health and safety and neighbourhood esthetics as well as reducing human-wildlife interactions. ⁵³
Food Waste and Yard Waste Collection at RDN Facilities Ensure opportunity to dispose of food waste and yard waste.	Achieved RDN facilities accept food waste, yard waste and wood waste. ⁵⁴ The RDN has a 20-year contract with Convertus for organic waste composting which serves both the direct needs of the RDN as well as the community requirements for processing food and yard and garden waste. As part of the agreement, the RDN receives 25 tonnes of compost to giveaway to residents on a yearly basis to demonstrate the circular system for organic waste into valuable compost materials. ⁵⁵
Advocacy Continue to advocate for greater waste diversion in the region by engaging with federal, provincial, and local government agencies as well as BC stewardship groups.	Achieved The RDN has continued to advocate for greater waste diversion in the region by engaging with government agencies at every level, BC product stewards and stewardship groups, and solid waste associations and organisations. ⁵⁶ Some of the activities and organisations that the RDN has engaged with include Clean BC, Recycle BC, British Columbia Product Stewardship Council (BCPSC), Solid Waste Association of North America (SWANA), Union of BC Municipalities (UBCM), National Zero Waste Council, and Coast Waste Management Association (CWMA). ⁵⁷

⁵¹ Ibid.

⁵² Personal communication with Sonam Bajwa, RDN, August 26, 2024.

⁵³ RDN's Annual Solid Waste Management Plan Progress Report Memorandum, March 31, 2021.

⁵⁴ Ibid.

⁵⁵ Ibid.

⁵⁶ RDN's 2023 Annual Solid Waste Management Plan Progress Report, March 2024.

⁵⁷ RDN's Annual Solid Waste Management Plan Progress Report Memorandum, March 31, 2021.

Strategy Component	Status
<p>Greener Purchasing Policy Develop an internal purchasing policy to ensure that the environmental impact of purchases and operations are minimized.</p>	<p>Achieved In 2021, the RDN received approval for funds to hire a consultant to develop green purchasing policies that would consider all intended and unintended economic, environmental, and social impacts of purchases.⁵⁸ The RDN engaged Reeve Consulting to develop a sustainable procurement program and to provide staff education training. On July 26, 2022, the Board approved the revised Purchasing Policy which included Sustainable Procurement considerations.⁵⁹</p>

Table 4 Current Status of RDN's New Programs (Planned for in the 2018 SWMP)

Strategy Component	Status
<p>Expanded Zero Waste Education Provide greater emphasis on educating school-aged students and adult audiences through traditional and social media, as well as being more active in a variety of public events.</p>	<p>Achieved The RDN continues to expand the school education program and to use a range of media to educate and increase awareness on waste diversion.⁶⁰</p>
<p>Expanded Industrial, Commercial, and Institutional (ICI) Waste Management</p> <ol style="list-style-type: none"> 1. Continue and increase education and awareness. 2. Increase enforcement of current disposal bans at the Regional Landfill and CRTS. 3. Incentivize the industry to achieve higher levels of diversion. 	<p>In Progress Implementing this program is largely dependant on the new regulatory provisions that the RDN is working to introduce in early 2025, which include Waste Hauler Licensing and Mandatory Waste Source Separation.⁶¹ In preparation, the RDN has launched a source separation campaign that includes waste separation guides for ICI. The SWMP's program schedule indicates that enforcement of the new bylaws will increase two years after their implementation.⁶²</p>

⁵⁸ RDN's 2021 Annual Solid Waste Management Plan Progress Report, March 2022.

⁵⁹ RDN Staff report to Board: Sustainable Procurement Update, February 2023.

⁶⁰ RDN's 2023 Annual Solid Waste Management Plan Progress Report, March 2024.

⁶¹ RDN's Annual Solid Waste Management Plan Progress Report Memorandum, March 31, 2021.

⁶² RDN's SWMP – Planning for the Future of Our Waste, 2018.

Strategy Component	Status
<p>Introduction of New Solid Waste Regulations</p> <ul style="list-style-type: none"> ▪ Staffing: introduce 1 FTE Zero Waste Coordinator and 2 FTE Zero Waste Compliance Officers ▪ Vehicles: add two vehicles to the department's fleet 	<p>In Progress</p> <p>Staffing: a compliance position posting closed September 30, and a second position will be added next year once implementing the new bylaws ramps up.</p> <p>Vehicles: two vehicles have been acquired.</p>
<p>Mandatory Waste Source Separation</p> <ol style="list-style-type: none"> 1. Request that the Province enact a regulation to grant the RDN region-wide authority to regulate waste source separation. 2. If the above is not possible, draft a template bylaw that could be adopted by member municipalities of the RDN to mandate waste source separation. 	<p>In Progress</p> <p>The bylaw would require that all businesses, multi-family dwellings, and institutions have separate bins for garbage, food waste, and recycling, or a contract for post-collection sorting.⁶³</p> <p>In May 2023, the RDN received an Order In Council from the Minister of Municipal Affairs granting the RDN "additional power to, by bylaw, require owners or occupiers of real property to have separate containers for different types of solid waste and recyclable material".⁶⁴</p> <p>The establishing bylaw was approved and adopted by the RDN's Board. The regulatory bylaw will go to the Board for adoption in October 2024. The bylaw comes into effect on January 1, 2025, and residents will have 6 months from that date to get their bins in place to meet bylaw requirements.⁶⁵</p>
<p>Waste Hauler Licensing</p> <p>Encourage the flow of waste through the waste industry and incentivize waste industry efforts to divert and recycle waste.</p>	<p>In Progress</p> <p>The bylaw will give licensed, commercial waste haulers a discounted tipping rate at the landfill for waste that contains little (<20%) recyclable or compostable materials.</p> <p>The bylaw also introduces a disposal levy for waste landfilled or incinerated in or out of region. The levy will not be applied to material that is recycled or composted. The purpose is to encourage industry to focus on waste reduction by making it more profitable to divert than dispose. EPR programs will be exempt from the levy.⁶⁶</p>

⁶³ RDN's 2023 Annual Solid Waste Management Plan Progress Report, March 2024.

⁶⁴ Ibid.

⁶⁵ Personal communication with Sonam Bajwa, RDN, August 26, 2024.

⁶⁶ RDN's 2023 Annual Solid Waste Management Plan Progress Report, March 2024.

Strategy Component	Status
	<p>The Licensed Waste Hauler Tipping Fee and the Disposal Levy result in a net savings of 15% for all licensed waste haulers, provided their loads contain <20% contamination, as identified in the Bylaws.⁶⁷</p> <p>The bylaw was approved by the MOECCS on April 29, 2024. The bylaw will be submitted to the RDN’s Board in October 2024 and, if approved, is planned to launch in January 2025.⁶⁸</p>
<p>Regulatory Development and Implementation Process</p> <ol style="list-style-type: none"> 1. Further develop the above two programs. 2. Consult and harmonize the programs with potentially affected stakeholders. 3. Determine their costs. 4. Implement programs. 5. Monitor and evaluate the outcomes of the programs and bylaws. 	<p>In Progress</p> <p>Steps 1 through 3 have been completed, and Step 4 is in progress.</p>
<p>Expanded Construction and Demolition (CD) Waste Management</p> <ul style="list-style-type: none"> ▪ Improve and reintroduce education and communications regarding CD waste. ▪ Increase enforcement of current disposal bans. ▪ Build in incentives. 	<p>In Progress</p> <ul style="list-style-type: none"> ▪ The new solid waste bylaws are anticipated to drive diversion in this sector.⁶⁹ ▪ In 2023, the RDN, in partnership with the Synergy Foundation, produced a Construction Waste Best Practices Guide on opportunities to reduce waste and improve environmental performance in the CD sector. It was launched at an event with the Home Builders Association.⁷⁰ ▪ The RDN participate in the Coast Waste Management Association’s construction and demolition waste working group.⁷¹ ▪ The RDN has supported Light House with a grant to create a construction, renovation, and demolition material exchange program.

⁶⁷ Ibid.

⁶⁸ RDN Staff Report to Solid Waste Management Committee: Waste Hauler Licensing – Next Steps, June 18, 2024.

⁶⁹ RDN’s 2023 Annual Solid Waste Management Plan Progress Report, March 2024.

⁷⁰ Ibid.

⁷¹ Ibid.

Strategy Component	Status
<p>Household Hazardous Waste Explore options for further expansion of collection of non-stewarded residential household hazardous waste (HHW).</p>	<p><i>In Progress</i></p> <p>The RDN ran a pilot collection program at the landfill and transfer station to help determine the most effective ways to provide the HHW service. The program was launched in 2023 and enables RDN's facilities to receive, sort and store HHW from the region's residents. The materials are then transported and disposed of by GFL Environmental.⁷² The program is currently offline due to staffing shortages and the RDN is only accepting priority items via scheduled appointments.</p>
<p>Zero Waste Recycling Promote Zero Waste by making funding available to target materials that are recyclable but end up in residual waste stream:</p> <ol style="list-style-type: none"> 1. Maximizing waste diversion. 2. Encouraging non-profit and private sector innovation to develop markets and processes. 3. Improving convenience for recycling materials. 	<p><i>Achieved</i></p> <p>The RDN has been allocating \$300,000 annually since 2019 to support zero waste recycling. Further information on this program is provided below.</p>

⁷² Ibid.

5.1 Initiatives Still Outstanding

The majority of the SWMP's initiatives were completed and continue to successfully contribute towards the RDN's zero waste goal. The initiatives that have not been initiated or are still in progress have encountered difficulties getting approved as the approval processes have been longer than expected.

The initiatives in progress and their status are as follows:

- Waste Stream Management Licensing Bylaw: the revised bylaw was adopted by the RDN's board in February 2023. The majority of Licensee reapplications have been reviewed.
- Waste Hauler Licensing Bylaw: the new bylaw was submitted to the MOECCS in February 2022 and was approved in April 2024. If adopted by the RDN's board in October 2024, it will be implemented in January 2025.
- Mandatory Waste Source Separation Bylaw: the new bylaw was submitted to the office of the Minister of Municipal Affairs in December 2021. After acquiring the necessary authority from the province, the establishing bylaw was approved and adopted by the RDN's Board. The regulator bylaw will go to the Board for adoption in October 2024. The bylaw comes into effect on January 1, 2025, and residents will have six months from that date to comply and get their bins in place for waste source separation.⁷³
- Household Hazardous Waste Collection: the pilot collection program launched in 2023 was put on hold due to staffing shortages.
- The initiatives to expand waste management in the ICI and CD sectors are dependent on the approval and implementation of the above two new bylaws (Waste Hauler Licensing and Mandatory Waste Source Separation Bylaw).

Although the bylaw approval processes have faced delays, the new bylaws will likely be implemented in January 2025. The RDN is already planning to increase staffing to support bylaw implementation. It will be beneficial to continue assessing resourcing needs to ensure that new regulations and initiatives (e.g., expansion of HHW collection) are adequately staffed.

6. LANDFILL REGULATORY CONFORMANCE AND COMPLIANCE

This section summarizes the regulatory conformance and compliance activities undertaken at the RDN's Regional Landfill since the SWMP was updated in 2018.

Currently, there are four documents published by the MOECCS that regulate landfill design, operations, closure, and monitoring:

⁷³ Personal communication with Sonam Bajwa, Regional District of Nanaimo, August 26, 2024.

- Landfill Criteria for Municipal Solid Waste (second edition, June 2016).
- Guidelines for Environmental Monitoring at Municipal Solid Waste Landfills (January 1996)
- Environmental Management Act (July 2004).
- Landfill Gas Management Regulation (December 2008).

The Landfill Criteria for Municipal Solid Waste (Criteria) was issued in 1993 and last updated in 2016. The Criteria outlines recommended design, operations, and closure practices for MSW landfills. Criteria requirements are not mandatory or legally binding but are intended to be taken into consideration when setting the commitments specified in SWMPs, permits and operational certificates.

The Landfill Criteria specify that the conformance status of existing landfills should be evaluated against the new 2016 Criteria, and a Landfill Conformance Review should be prepared by the authorized holder of the landfill permit or Operational Certificate (OC) for all existing landfill sites. Conformance with the 2016 Criteria should be reviewed only for those requirements applicable to a particular landfill site. If a need for upgrades is identified then the Conformance Review and Landfill Criteria Upgrading Plan, if needed, shall be submitted to the MOECCS during the next SWMP review or within 5 years of the date of issuance of these Criteria, whichever time period is shorter.

The Regional Landfill is a natural attenuation and engineered landfill and has an estimated remaining lifespan of approximately 22 years. It was developed in two cells, starting in 1946 with Cell One that operates as a natural attenuation landfill with a leachate interceptor system that was installed in 1991 and 1992. Cell Two was started in 1991 and is an engineered landfill with a liner and leachate collection and treatment system.⁷⁴

Its compliance status is as follows:

- **Conformance Review:** completed in June 2021 by Wood Environment & Infrastructure Solutions.
- **Design, Operations and Closure Plan (DOCP):** completed in April 2024 by WSP and submitted to the MOECCS.
- **OC:** MR-01714 dated October 6, 2023.

6.1 Summary of DOCP Updates

The DOCP was established based on the existing Design and Operations Plan (D&O Plan) by XCG Consultants Ltd in 2009 and focused on conforming to the updated OC 1714, the RDN's 2018 SWMP and the 2016 Landfill Criteria.

⁷⁴ Regional District of Nanaimo: Nanaimo Regional Landfill – Design, Operations, and Closure Plan Update by WSP, April 30, 2024.

Key updates provided by the RDN in 2024 on the landfill's management plan include:⁷⁵

- **Landfill Airspace:** A review of the final landfill contour lines was completed, increasing the remaining landfill airspace by ~400'000 m³, to a new total remaining landfill airspace of 1.65 million m³.
- **West Differential Settlement Area:** A portion of the west-end of the landfill, in Cell One, has been experiencing differential settlement. This issue had already been identified in the 2019 D&O Plan, and in historical Plans of the time. The DOCP addressed the issue with a plan to re-contour the area with additional waste filling. The new contours will improve rainwater drainage and maximizes the area's landfill airspace.
- **Updated Hydrogeological Review:** the review found that the groundwater quality index throughout the site was good to excellent.
- **Southeast Phase Development:** The MOECCS has included the final phase of development of the landfill in the southeast end of the existing landfill footprint in the updated 2023 Operational Certificate. Construction of the final phase is scheduled to begin in 2026.

Waste Shredding: Through the application of GPS and telemetry systems, paired with a waste shredder operation, the Regional Landfill has been able to increase the density of compacted waste. In doing so, staff estimate the life of the Regional Landfill could extend into the early 2050s. As higher diversion rates are achieved, the project lifespan of the Regional Landfill also increase proportionally. Refer to section 10.1.5 for more details.

6.2 Summary of Compliance Issues

Compliance issues at the Regional Landfill include groundwater and surface water quality exceedances that are consistent with historic exceedances. The RDN has worked to address these exceedances by, for example, working to improve the separation between contact water and surface water runoff,⁷⁶ and by collaborating with MOECCS to amend the OC regarding compliance with applicable BC Water Quality Guidelines (WQG) at the property boundary.⁷⁷ The OC (amended in 2023) no longer specifies quality standards, but requires that a Qualified Professional establishes the water quality criteria to be used to assess stormwater, surface water and groundwater data and specifies the steps to be taken if those criteria are not satisfied.⁷⁸

Landfill operations had become inconsistent with the 2009 Design & Operation Plan. However, the RDN addressed this by submitting a request to the MOECCS in February 2022 to make amendments to the plan. Approval was granted in March 2022. The 2009 Design & Operation Plan was then replaced in 2024 by a new DOCP.

⁷⁵ RDN Staff Report to Solid Waste Management Committee: Regional Landfill Design Operation & Closure Plan, June 18, 2024.

⁷⁶ RDN's 2021 Annual Operations & Monitoring Report, March 31, 2022.

⁷⁷ RDN's 2022 Annual Operations & Monitoring Report, March 31, 2023.

⁷⁸ Ministry of Environment and Climate Change Strategy, Operational Certificate 1714, issued November 5, 1973, amended October 6, 2023.

There have been no observed or reported non-compliance at the Nanaimo Regional Landfill in 2023.⁷⁹

6.3 Active and Closed Disposal Locations

The RDN does not manage any closed landfills, however there are two closed landfills in the region, the Parksville Landfill and the Qualicum Beach Landfill, which are the responsibility of their respective municipalities.⁸⁰

The RDN is not aware of any other disposal locations in its region.

7. FIRST NATIONS PARTNERSHIPS

The MOECCS encourages regional districts to collaborate and partner with local First Nations communities with respect to SWMP implementation.

The 2018 SWMP indicates the following:⁸¹

- First Nations may provide solid waste management services or may participate in the regional solid waste management system.
- There are no federally authorized waste management facilities on First Nations land in the region.
- The RDN's Waste Stream Management Licensing Bylaw does not apply to activities on First Nations' land.

The RDN is committed to supporting First Nations communities and providing curbside collection programs if desired.

The Snaw Naw As (Nanoose First Nation) and the RDN have signed a service agreement for provision curbside collection services by the RDN.⁸²

The Nanaimo First Nation and the RDN maintain regular communication and meet occasionally to discuss updates on the SWMP and the rollout of programs, allowing feedback and concerns to be expressed and addressed. The Nanaimo First Nation have chosen to partner with Recycle BC for collection services, use private contractors, when needed, and access the Regional Landfill for disposal of residual waste. All three local First Nations were invited to join the PMAC as non-voting Technical Advisors but chose not to participate in this capacity.⁸³

The RDN continues to ensure engagement with local First Nations communities takes place. The success of many regional waste diversion strategies relies on close collaboration for the effective application of waste bylaws, promotion, and public education on waste prevention and diversion initiatives.

⁷⁹ RDN's 2023 Annual Operations & Monitoring Report, May 31, 2024.

⁸⁰ RDN's SWMP – Planning for the Future of Our Waste, 2018.

⁸¹ Ibid.

⁸² Personal communication with Yongjia Du, RDN, August 6, 2024.

⁸³ Ibid.

When the SWMP is being renewed, it will be important to adequately involve First Nation communities to ensure that their waste management needs are met.

8. EXTERNAL FACTORS IMPACTING PLAN IMPLEMENTATION

The following external factors have impacted or are likely to impact SWMP implementation:

- The RDN has faced challenges getting new and revised bylaws approved and implemented. The process has taken longer than expected and is still ongoing. Implementation of new bylaws, once approved, will also be a challenge given the RDN's department staff shortage.
- The RDN is experiencing a significant population growth and projections show continued growth. The region will need to consider how its solid waste management system is able to handle increasing demand. Waste generation is closely tied to the economy and the region has seen an increase in disposal rates since 2018 as a result of new developments and of changes in consumer shopping patterns.
- Recent climate-impact related weather events in BC involving forest fire and flooding can also cause a surge in waste materials to manage.

The implications of the closure of the region's landfill in a couple decades also need to be considered, both in terms of measures that could extend the landfill's remaining lifespan and waste reduction measures. The RDN is currently working on both types of measures.

9. SOLID WASTE SYSTEM FINANCIALS

9.1 Current Solid Waste System Funding

RDN Solid Waste Services is funded through a combination of user-pay systems (tipping fees/utility fees) paired with a tax requisition. The 2018 Plan identifies the need for a comprehensive departmental asset management plan, which RDN Solid Waste Services developed and deployed in 2019. The Solid Waste Financial and Asset Management Plan, updated annually, projects and predicts population growth for the region, the impact of various diversion rates on tipping fee revenues, and provides direction on a variable tax rate, based on the needs of the department, to ensure accurate cost recovery.

The user-pay approach is intended to encourage waste generators, in both the ICI and Single-Family sectors, to adopt waste diversion strategies as a cost saving measure. The tax requisition, projected annually, is intended to offset the costs of the Plan, including the reduced tipping fee revenue, a consequence of increased material diversion.

The Solid Waste Financial and Asset Management Plan prescribes the tax requisition, which increases and decreases proportionally based on departmental need(s), and which was

approved by the Board in the Solid Waste Management Plan in 2018 and in the 2023 Solid Waste Financial and Asset Management Plan Review.

Recoveries received from the RDN/Recycle BC Curbside Agreement, help to offset the costs of the RDN curbside recyclables collection services. Recycle BC also applies a user-pay approach by having each regulated packaging and paper product (PPP) material associated with a fee rate, that are set to cover the costs associated with collection, transportation, and processing of each PPP material.⁸⁴

The 2018 SWMP acknowledges that the system’s reliance on taxation will likely increase over time due to limits on users’ willingness to pay increased tipping fees, the universal benefits of waste management, and the anticipated reduction in revenue generated from tipping fees as waste diversion increases.

The 2018 SWMP presented projected budgets for 2017-2022 and the Solid Waste Financial and Asset Management Plan for 2023-2047 included the actual 2022 budget. The table below compares the projected 2022 budget to the actual 2022 budget, presenting an opportunity to assess how budget management projections in 2018, were realized in 2022.

Table 5: Comparison Between the Anticipated and the Actual 2022 Budget

Financial Plan	2022 (2018 SWMP)	2022 (Actual Budget) ⁸⁵	% Change
Operating Revenues			
Property Taxes	\$2,869,640	\$1,379,123	-52%
Operations	\$1,261,887	\$1,301,906	+3%
Landfill Tipping Fees	\$7,752,760	\$9,900,000	+28%
Utility User Fees	\$3,815,981	\$5,127,322	+34%
Operating grants	-	\$3,000,000	+100%
Grants in lieu of taxes	\$6,800	\$6,800	0%
Interdepartmental recoveries	\$103,007	\$103,007	0%
Miscellaneous	\$548,793	\$1,052,478	+92%
Total Operating Revenue	\$16,358,868	\$21,870,636	+34%
Operating Expenditures			
Administration	\$986,486	\$1,495,328	+52%
Professional Fees	\$485,695	\$610,454	+26%
Building Ops	\$226,507	\$298,488	+32%
Veh & Equip Ops	\$648,447	\$709,708	+9%

⁸⁴ From <https://recyclebc.ca/producers/reporting-fees/>.

⁸⁵ Regional District of Nanaimo, Solid Waste Financial and Asset Management Plan 2023-2047.

Financial Plan	2022 (2018 SWMP)	2022 (Actual Budget) ⁸⁵	% Change
Operating Costs	\$7,443,167	\$9,660,221	+30%
Wages & Benefits	\$3,749,268	\$4,422,531	+18%
Contributions to Reserve Fund	\$1,167,300	\$4,201,474	+260%
New Zero Waste Plan Programs / Transfer to other gov/org	\$1,572,792	\$3,000,000	+91%
Total Operating Expenditures	\$16,279,662	\$24,398,204	+50%
Total Operating surplus/deficit	\$79,206	\$2,527,568	

The comparison of the solid waste operational budgets for 2022, as anticipated in 2018 and the actual 2022 budget, shows both greater operating revenue and greater operating expenditures than what was expected in the 2018 SWMP. This is due, in part, to the delay in realizing reduced tipping fee revenue, which is a consequence of not receiving prompt ministerial approval for WHL and MWSS. Operating revenue depended less on taxation and more on revenue from tipping fees, user fees, grants and miscellaneous revenues. Operating expenditures were greater than expected in every category due to increased material volumes, a consequence of a strong post-pandemic economy, and other factors.

The RDN's solid waste 10-year (2023-2032) financial plan, shown in Table 6, was developed with the acknowledgment that the SWMP's 90% diversion goal will reduce tipping fee revenues and revenue loss will be compensated through greater tax revenues and utility user fees. The 10-year financial plan assumes that the region will achieve 85% diversion of waste by 2027.⁸⁶

Every year the RDN contributes to specific reserve funds to fund major landfill-related capital projects, such as the North Slope Closure Project in 2022 and 2023,⁸⁷ and the development of southeast portion of the landfill planned to begin in 2026.⁸⁸ At the same time, annual reserve contributions are made to the Post-Closure Fund, which ensures the long-term management of the Regional Landfill after it closes, and to an Operating Fund, intended to help offset future costs of various programs.

⁸⁶ Ibid.

⁸⁷ RDN's 2022 Annual Operations & Monitoring Report, March 31, 2023.

⁸⁸ RDN Staff Report to Solid Waste Management Committee: Regional Landfill Design Operation & Closure Plan, 2024 Update, June 18, 2024.

Table 6: 2023-2032 Solid Waste Financial Plan⁸⁹

	2022 Budget	2023 Proposed Budget	2024	2025	2026	2027	Subtotal	2028	2029	2030	2031	2032	Total
Operating Revenues		10.0%	15.0%	20.0%	15.0%	20.0%		20.0%	20.0%	20.0%	5.0%	5.0%	
Property taxes	(1,379,123)	(1,517,035)	(1,744,591)	(2,093,540)	(2,407,571)	(2,889,085)	(10,651,822)	(3,466,902)	(4,160,283)	(4,992,339)	(5,241,956)	(5,504,054)	(34,017,356)
	(1,379,123)	(1,517,035)	(1,744,591)	(2,093,540)	(2,407,571)	(2,889,085)	(10,651,822)	(3,466,902)	(4,160,283)	(4,992,339)	(5,241,956)	(5,504,054)	(34,017,356)
Operations	(1,301,906)	(1,437,800)	(1,446,816)	(1,455,912)	(1,465,091)	(1,474,352)	(7,279,971)	(1,483,699)	(1,493,133)	(1,502,656)	(1,512,269)	(1,521,975)	(14,793,703)
Landfill tipping fees	(9,900,000)	(10,669,464)	(10,558,531)	(10,776,176)	(10,154,571)	(9,614,995)	(51,773,737)	(9,755,437)	(10,151,025)	(9,190,205)	(10,812,444)	(10,788,415)	(102,471,263)
Utility user fees	(5,127,322)	(5,476,779)	(5,729,850)	(6,050,343)	(6,386,860)	(6,740,203)	(30,384,035)	(7,111,213)	(7,500,774)	(7,909,812)	(8,339,303)	(8,790,268)	(70,035,405)
Operating grants	(3,000,000)		(350,000)	(350,000)			(700,000)						(700,000)
Grants in lieu of taxes	(6,800)	(6,800)	(6,800)	(6,800)	(6,800)	(6,800)	(34,000)	(6,800)	(6,800)	(6,800)	(6,800)	(6,800)	(68,000)
Interdepartmental recoveries	(103,007)	(103,007)	(103,007)	(103,007)	(103,007)	(103,007)	(513,035)	(103,007)	(103,007)	(103,007)	(103,007)	(103,007)	(1,030,070)
Miscellaneous	(1,052,478)	(1,252,478)	(1,999,529)	(1,406,249)	(2,322,844)	(2,582,883)	(9,564,383)	(2,251,940)	(1,589,724)	(1,735,353)	(1,279,800)	(1,444,463)	(17,865,663)
Total Operating Revenue	(21,870,636)	(20,463,363)	(21,939,524)	(22,242,027)	(22,846,744)	(23,411,325)	(110,902,983)	(24,178,998)	(25,004,746)	(25,440,172)	(27,295,579)	(28,158,982)	(240,981,460)
Operating Expenditures													
Administration	1,495,328	1,676,212	1,726,499	1,778,293	1,831,642	1,886,592	8,899,238	1,943,190	2,001,484	2,061,530	2,123,375	2,145,909	19,174,726
Professional fees	610,454	754,174	776,799	800,104	824,107	908,829	4,064,013	876,094	902,377	929,448	957,332	1,046,052	8,775,316
Building ops	298,488	356,971	417,680	380,210	391,617	403,365	1,949,843	415,466	427,931	440,769	453,992	467,611	4,155,612
Veh & Equip ops	709,708	942,326	920,595	948,214	976,661	1,005,959	4,793,755	1,036,138	1,067,222	1,099,239	1,132,216	1,166,183	10,294,753
Operating costs	9,660,221	10,708,001	11,172,347	11,671,488	12,087,260	12,441,158	58,080,254	12,813,911	13,197,848	13,593,304	14,000,622	14,420,159	126,106,098
Wages & benefits	4,422,531	4,851,569	5,043,328	5,169,410	5,298,649	5,431,114	25,794,070	5,566,891	5,706,063	5,848,715	5,994,932	6,144,807	55,055,478
Transfer to other gov/org	3,000,000												
Contributions to reserve funds	4,201,474	3,780,360	1,064,276	1,059,308	1,059,308	1,059,308	8,022,560	1,059,308	1,098,821	1,251,667	2,063,110	2,242,056	15,737,562
Total Operating Expenditures	24,398,204	23,069,613	21,121,524	21,807,027	22,469,244	23,136,325	111,603,733	23,710,998	24,401,746	25,224,672	26,725,579	27,632,817	239,299,545
Operating (surplus)/deficit	2,527,568	2,606,250	(818,000)	(435,000)	(377,500)	(275,000)	700,750	(468,000)	(603,000)	(215,500)	(570,000)	(526,165)	(1,681,915)
Capital Asset Expenditure													
Capital expenditures	6,508,076	4,786,621	1,968,000	1,935,000	4,677,500	1,715,000	15,082,121	1,518,000	2,903,000	1,375,500	1,470,000	8,346,165	30,694,786
Transfer from reserves	(4,255,711)	(1,854,000)	(1,150,000)	(1,500,000)	(4,300,000)	(1,440,000)	(10,244,000)	(1,050,000)	(2,300,000)	(1,160,000)	(900,000)	(1,880,000)	(17,534,000)
New borrowing												(6,000,000)	(6,000,000)
Net Capital funded from Operations	2,252,365	2,932,621	818,000	435,000	377,500	275,000	4,838,121	468,000	603,000	215,500	570,000	466,165	7,160,786
Capital Financing Charges													
New debt (principal & interest)												60,000	60,000
Total Capital Financing Charges												60,000	60,000
Net (surplus)/deficit for the year	4,779,933	5,538,871					5,538,871						5,538,871
Add: Transfer from appropriated surplus	(1,436,484)	(913,675)					(913,675)						(913,675)
Add: Prior year (surplus) / deficit	(3,343,449)	(4,625,196)					(4,625,196)						(4,625,196)
(Surplus) applied to future years													

⁸⁹ RDN's Solid Waste Financial and Asset Management Plan 2023-2047.

10. STRENGTHS AND CHALLENGES

This section highlights some of the strengths and challenges for meeting SWMP goals and targets. Firstly, strengths and emerging opportunities are identified followed by challenges and emerging issues that the RDN will need to consider for the last five years of plan implementation.

10.1 Strengths and Opportunities

10.1.1 Performance Comparison to Neighbouring Regions and BC-Wide

Although not required as part of an effectiveness review, Stantec compared the RDN's disposal rate to those of the neighbouring regional districts of Alberni-Clayoquot, Comox Valley, Cowichan Valley, Strathcona, and the Capital, as well as the provincial average (Figure 10). In 2021, the RDN's rate of 395 kg/capita was the lowest in BC and well below the BC-average of 506 kg/capita.

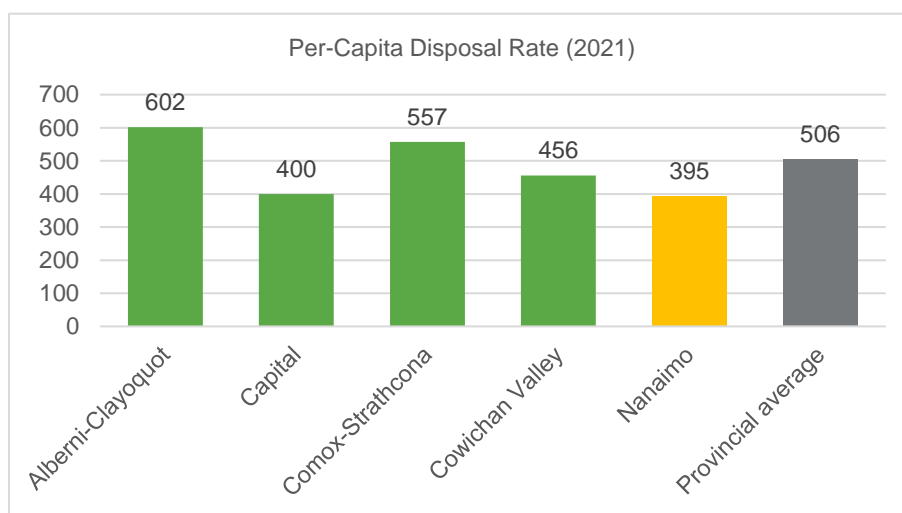


Figure 10: Per-capita disposal rates (kg/capita) by regional district in 2021⁹⁰

10.1.2 Proactive Policies to Encourage Waste Prevention and Diversion

The RDN's successes of its solid waste management system have been shaped by the following main policies:

- A user-pay approach,
- Provincial product stewardship programs,

⁹⁰ Environmental Reporting BC. Municipal Solid Waste Disposal in B.C. (1990-2021). State of Environment Reporting, Ministry of Environment and Climate Change Strategy, British Columbia, Canada, 2023.

- Variable tipping fees,
- Disposal and collection bans,
- Open burning restrictions,
- Mandatory waste source separation, and
- Waste haulers licensing to provide a level playing field for private industry.

With the user-pay approach, the RDN aims to make sure that waste generators pay for the waste that require management and that the user fees cover all management costs. The RDN is supportive of provincial EPR programs when industry and consumers take life-cycle responsibility for the products they produce and use. This is well-aligned with the user-pay principle.

Waste diversion is encouraged by use of variable tipping fees, when fees for recyclable and compostable materials are lower than disposal rates for waste landfilled or incinerated in or out of region. The RDN bans the disposal of specific wastes from the landfill when viable recycling alternatives are in place. Open burning restrictions also ensure that materials are properly managed. Mandatory waste source separation will be the new regulatory tool available to the RDN, which has potential to result in even higher waste diversion and lower disposal rates.

The RDN has several policies that aim to benefit private sector waste management. An important one is waste haulers licensing aimed to provide a level playing field for private industry. Licensed Haulers will be responsible for ensuring their commercial customers have systems in place for separating and collecting organics, recycling and garbage. Licensed haulers will be given a discounted tipping rate at the landfill for waste that does not contain any recyclable or compostable materials.

These policies combined policies have already resulted in increased waste diversion and more improvements are likely if the new bylaws are successfully implemented.

10.1.3 Additional Resourcing

The RDN's Solid Waste Services Department has 67 full time equivalent staff, but the department has been experiencing staff shortage since 2020.

The RDN has been addressing its shortage of resources, including hiring additional staff and acquiring vehicles ahead of the two new bylaws coming into effect in January 2025. The RDN should reassess the department's resource requirements on a regular basis to effectively implement and enforce its solid waste management bylaws and to increase diversion from the IC and CD sectors.

10.1.4 Sustainable Procurement

The RDN revised its purchasing policy in 2022 to include sustainable procurement considerations and mentions that RDN's zero waste priorities and circular economy principals will be prioritized.⁹¹

Stantec has not reviewed the effectiveness of the revisions, but the RDN may want to consider undertaking a review to see if the policy is working as intended.

10.1.5 Optimization of Remaining Landfill Airspace

The RDN has been working on optimizing landfill operations to make the most of the Regional Landfill's remaining airspace. These measures are not included in the 2018 SWMP but are part of the RDN's on-going waste management initiatives. They include:

- Maximizing available airspace when the 2009 D&O Plan was updated by the 2024 DOCP, the updated final landfill contours produced additional landfill airspace, extending the lifespan of the landfill.⁹²
- Addressing a settlement issue by reworking the area with additional waste filling.
- Repurposing excess soils and avoiding the use of virgin aggregate at the Regional Landfill. GRT Holdings Ltd. (GRT) has constructed a Resource Regeneration Facility at Duke Point, in Nanaimo. This plant takes in excess soils from construction sites, washes contamination from the soils and separates those soils into construction aggregates, specifically washed stones, pea gravels, sands, and clays, which meet the specifications for landfill construction. The washing process removes anthropogenic contamination on the surface of a soil particle but does not remove naturally occurring metals. Therefore, an application was made by the RDN to the MOECCS in 2021 to allow the Landfill to accept this material⁹³.

The RDN is now accepting this material for beneficial use at the Landfill with permission from the MOECCS⁹⁴.

- Increasing waste density through shredding after the RDN trialed four industrial waste shredders between 2022 and 2024.

In June of 2024, the RDN evaluated the air space consumption to ascertain the efficacy of a 9-month shredder trial. The calculated density of 1.29 tonnes/m³ with waste shredding was a significant improvement compared to the 5-year average of 0.93 t/m³ without waste shredding and indicates a 39% improvement in overall waste density at the Regional Landfill.⁹⁵

⁹¹ RDN's staff report, Sustainable Procurement Update – February 2023, Feb 14, 2023.

⁹² RDN Staff report to Solid Waste Management Committee, Regional Landfill Design Operation & Closure Plan, 2024 Update, June 18, 2024.

⁹³ RDN Letter to Environmental Protection Division, MOECCS, Request to use Reclaimed Aggregates for the Landfill Operation and Closure at the Regional District of Nanaimo Landfill, October 18, 2021.

⁹⁴ MOECCS approval letter dated November 10, 2021.

⁹⁵ RDN staff report, Waste Shredder Trial – Results and Recommendation. Solid Waste Management Committee, October 1, 2024.

RDN staff are recommending including the costs of a waste shredder lease in the 2025-2028 Financial Plan to enable a three-year waste shredder operation⁹⁶.

Based on the final contours set out in the 2024 DOCP, the Regional Landfill has an estimated remaining airspace of 1,600,013m³. This information, along with data from the shredder trials, were incorporated into the Solid Waste Financial and Asset Management Plan to allow for an updated projection of landfill lifespan.

Figure 11 shows that the Regional Landfill is estimated to operate for seven years longer than previously projected in 2023. This assumes that an average 70% waste diversion is achieved over the term, to occur in 2050.

RDN staff estimates that these additional seven years of capacity are equal to approximately \$145,000,000, assuming tipping fees are increased in accordance with the Solid Waste Financial and Asset Management Plan. Conversely, if an 80% diversion rate was achieved the Landfill is projected to close in 2058, or later, at a value of more than \$250,000,000 assuming the same factors are applied⁹⁷.

Efforts to optimize the remaining landfill airspace through on-going waste management initiatives and waste diversion efforts have significant financial benefits.

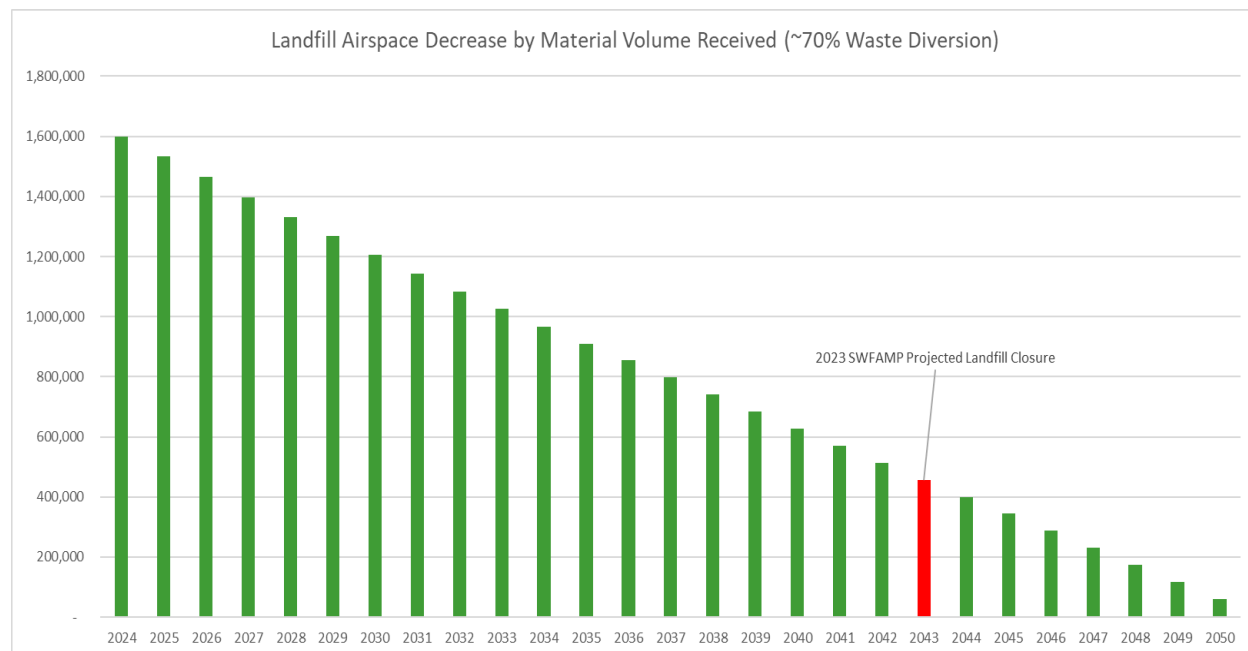


Figure 11: Landfill airspace decrease by material volume received at the Regional Landfill

⁹⁶ Ibid.

⁹⁷ Ibid.

10.2 Challenges/Opportunities for Improvement

10.2.1 Disposal Rates are Trending the Upwards

In the last few years, the RDN's disposal rates and recycling rates are trending away from the region's goal of Zero Waste, a possible side effect of behavioural changes that occurred during the pandemic. However, the two new bylaws that are planned to take effect in January 2025 should significantly improve these trends to improve recycling rates and waste diversion and reduce the region's disposal rates. Their impact should be closely monitored and their implementation and enforcement regularly assessed and optimised.

10.2.2 Lack of Recycling Options for some Materials

The Parksville bottle depot stopped accepting Recycle BC items since March 2020. The reason for the change was said to be lack of space. It has been difficult for this private facility to find another site that can accommodate Recycle BC items, partly due to zoning regulations.

Recycle BC has since provided pop-up depots twice a month between 10am and 3pm, which appear to be well attended. The amount of PPP materials seen in landfill waste has not increased as a result.

The RDN's Church Road Transfer Station does not accept Recycle BC materials and additional expenses would be required to do so. The RDN would need to upgrade the facility to accommodate additional recyclables.

The RDN and Recycle BC benefits from continued collaboration and can together determine how to best continue providing Recycle BC services in the medium and long-term. This could include maintaining the status quo, upgrading an existing facility, such as Church Road Transfer Station, and/or establishing a new facility.

There are currently limited options for household hazardous waste (HHW). The RDN should also continue to explore options to expand its existing HHW collection. This could include re-implementing its pilot collection program and investigating potential collaborations with stewardship agencies to offset some costs.

10.2.3 Climate Change-Related Waste

British Columbia has seen extreme weather events over recent years and natural disasters leading to emergencies, such as forest fires and flooding. The RDN recognizes the need to prepare areas for disaster debris management and will continue to consider and build solutions with respect to this challenge.

10.2.4 Long-Term Disposal Capacity

The Regional Landfill will reach capacity in 2046. Although the RDN is working hard to optimize landfill airspace and waste diversion, which can provide additional capacity, the RDN should start assessing its potential disposal options during the next full SWMP renewal. Long-term

disposal options can take years to fully assess, plan and implement. Options may include expanding the existing landfill, siting a new landfill or transferring its waste outside of the regional district.

10.2.5 Progress Tracking

The RDN should consider establishing new targets and performance metrics for its waste management programs during the next full SWMP renewal to facilitate monitoring and reporting on their progress. In the 2018 SWMP, some programs' goals are vague, making their progress and achievements less obvious. Some actions completed may address more than one action items / goals, for example, the education outreach programs targeted towards those who do not yet participate includes educating businesses and commercial properties.

The RDN may want to consider a suite of performance metrics for the next SWMP in which performance can be monitored by both quantitative and qualitative data. Disposal rates alone cannot provide sufficient indication on how the region is performing.

11. RECOMMENDED NEXT STEPS

The RDN has taken innovative approaches in its efforts to reduce disposal rates and to strive towards its zero-waste goal. In doing so, the region continues to be a leader in the solid waste management sector.

The proposed regulatory initiatives (the waste source separation bylaw and the waste haulers licensing bylaws) will be implemented at the beginning of 2025. Implementing these bylaws will be an important step to improving diversion and reducing disposal. The RDN will need to anticipate sufficient staffing to successfully implement and enforce the bylaws, as well as assess and improve the measures taken.

The MOECCS recommends that regional districts renew their solid waste management plans every 10 years. In this case, the RDN is required to submit a full SWMP renewal by December 31, 2029. The impacts of the new bylaws will need to be assessed and considered during the renewal, including anticipating measures to ensure the waste management system's financial sustainability.

Based on the effectiveness renew, there is no need to amend the existing Plan before 2029, unless significant changes are proposed.

Stantec understands that the RDN wants to remain flexible with respect to the need to amend, renew, or revise the existing SWMP, based on the efficacy, efficiency, and effectiveness of the existing Plan. The RDN also recognizes that when MOECCS approved WHL, they set a sunset clause date of December 31, 2029. This will mean that should the program efficacy be high, that the RDN will need to take action on requesting an extension to the sunset clause or beginning a new SWMP development by December 2027.

12. CLOSURE

Regional District of Nanaimo retained Morrison Hershfield now Stantec to conduct the work described in this report, and this report has been prepared solely for this purpose.

This document, the information it contains, the information and basis on which it relies, and factors associated with implementation of suggestions contained in this report are subject to changes that are beyond the control of the author. The information provided by others is believed to be accurate and may not have been verified.

Morrison Hershfield now Stantec does not accept responsibility for the use of this report for any purpose other than that stated above and does not accept responsibility to any third party for the use, in whole or in part, of the contents of this document. This report should be understood in its entirety, since sections taken out of context could lead to misinterpretation.

We trust the information presented in this report meets RDN's requirements. If you have any questions or need addition details, please do not hesitate to contact one of the undersigned.

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