

Regional District of Nanaimo: Solid Waste Management Plan

Planning for the Future of Our Waste



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ROAD TO
90%
WASTE DIVERSION



Final Version

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3 Glossary of Terms and Acronyms

Bylaw: A bylaw is a document that formalizes a regulation made by a local government council or board.¹

CD: Construction and demolition waste.

Circular economy: An alternative to a traditional linear economy (make ◊ use ◊ dispose). The circular economy keeps resources in use for as long as possible, extracts the maximum value from them while in use, then recovers and regenerates products and materials at the end of their service life.

Collection facility [Recycling Regulation, B.C. Reg. 449/2004]: A facility for collecting products and materials.

Composting [Organic Matter Recycling Regulation, B.C. Reg. 18/2002]: The controlled biological oxidation and decomposition of organic matter.

Composting facility [Organic Matter Recycling Regulation, B.C. Reg. 18/2002]: A facility that processes organic matter to produce compost.

Disposal [Hazardous Waste Regulation, B.C. Reg. 63/88]: The introduction of waste into the environment through any discharge, deposit, emission or release to any land, water or air by means of facilities designed, constructed and operated so as to minimize the effect on the environment.

Downstream environmental impacts: Impacts created by the use of a product after its useful life.

EMA: The Environmental Management Act, S.B.C. 2003, c 53.

Extended Producer Responsibility (EPR): 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.

Hauler [EMA]: A person who picks up, delivers, hauls or transports municipal solid waste or recyclable material on a commercial basis (note under EMA the term ‘Waste Hauler’ is defined in section 26 for the purpose of section 26 only).

Hauler licence [EMA]: A licence issued by a regional district to a hauler, under the authority of a bylaw made under EMA section 25(3) (h) (i).

ICI: Industrial, commercial and institutional waste.

¹ Union of BC Municipalities (UBCM), “Fact Sheet #6: Bylaws”, December 2014, http://www.ubcm.ca/assets/Services/Publications/06_BYLAWS.pdf

Interested parties: Organizations, agencies and individuals with an interest in the planning process. This includes governments (including First Nations), private sector interests, non-government and community organizations, and the public at large

Manage or management: Includes the collection, transportation, handling, processing, storage, treatment, utilization and disposal of any substance.

Minister: The B.C. Minister of Environment Ministry: The B.C. Ministry of Environment.

Municipal solid waste (MSW) or waste [EMA]: a) refuse that originates from residential, commercial, institutional, demolition, land clearing or construction sources, or b) refuse specified by a director to be included in a waste management plan. May be referred to as “waste” or “solid waste” throughout this document.

Municipality: A municipality incorporated as such under the Local Government Act

Operational certificate (OC) [EMA]: A certificate issued under section 28 [operational certificates] for the design, operation, maintenance, performance and closure of sites or facilities used for the storage, treatment or disposal of waste or recyclable material.

PMAC: Plan Monitoring Advisory Committee; A committee established to support the implementation and monitoring of the solid waste management plan.

Product stewardship: see Extended Producer Responsibility (EPR).

Recovery: The reclaiming of recyclable components and / or energy from the solid waste stream by various methods including but not limited to manual or mechanical sorting, incineration, distillation, gasification, or biological conversion other than composting.

Recyclable: In this Plan, refers to a product or substance, after it is no longer usable in its present form that can be diverted from the solid waste stream. (Note that "recyclable material" has a more specific definition in the EMA)

Recycler licence [EMA]: A licence issued by a regional district, under the authority of a bylaw made under EMA section 25(3) (h) (i), to the owner or operator of a site that accepts and manages recyclable material.

Recycling: The collection, transportation and processing of products that are no longer useful in their present form and the subsequent use, including composting, of their material content in the manufacture of new products for which there is a market.

Reduction or reduce: Decreasing the volume, weight or toxicity of municipal solid waste generated at source. Includes activities which result in more efficient reuse or recycling of primary products or materials, but does not include only compacting or otherwise densifying the waste.

Regional director: Regional Director, Environmental Protection Division of the Ministry of Environment, or someone designated to carry out authorization duties on behalf of the Regional Director.

Regional district [EMA section 25(1)]: a regional district as defined in the Local Government Act.

Residual management: The disposal in accordance with the EMA of what remains in the solid waste stream following reduction, reuse, recycling and recovery activities.

Reuse: At least one further use of a product in the same form (but not necessarily for the same purpose).

RSWAC: Regional Solid Waste Advisory Committee (RSWAC); a committee established to support the development of the solid waste management plan. May include a public advisory committee, technical advisory committee and a plan monitoring advisory committee.

Site [EMA]: Any site, including those identified specifically or by class, in an approved waste management plan for the management of municipal solid waste or recyclable material. (Note under EMA this term is defined in section 25 for the purpose of section 25 only)

Solid waste management system: The aggregate of all sites and facilities, services and programs for managing municipal solid waste within a region.

Solid waste stream: The aggregate of all municipal solid waste and recyclable materials, and the process through which they move from generation to utilization or disposal.

Triple Bottom Line: Economic, environmental and social cost considerations Upstream environmental impacts: Impacts from the creation and transportation of a product to where it is used.

Waste management facility (facility) [EMA]: A facility for the treatment, recycling, storage, disposal or destruction of a waste, or recovery of reusable resources including energy potential from waste.

Waste management plan [EMA]: A plan that contains provisions or requirements for the management of recyclable material or other waste or a class of waste within all or a part of one or more municipalities.

Waste stream management licence [EMA]: A licence issued by a regional district, under the authority of a bylaw made under EMA section 25(3) (h) (i), to the owner or operator of a site that accepts and manages municipal solid waste.

Zero Waste Hierarchy: Also called the Pollution Prevention Hierarchy or Waste Management Hierarchy, define in Section 1.2.

Zero Waste approach: as both a philosophy and a goal, aims to reduce and ultimately eliminate garbage; further defined in Section 4.2.

4 Introduction

Regional districts are mandated by the Provincial *Environmental Management Act* (EMA) to develop a Solid Waste Management Plan (Plan) that is a long term vision of how each regional district would like to manage their solid waste, including waste diversion and disposal activities. The Regional District of Nanaimo (RDN) prepared its first Plan in 1988 and made amendments to it in 1996 and 2004. This Plan update is projected for a 10-year planning horizon, from 2018 to 2027.

The process to update the Plan has occurred in three stages. The first stage involved a review of the current solid waste system and preparation of a report on the implementation status of the 2004 Plan. The second stage involved a review of options to address the region's future solid waste management needs and identify preferred management options. The third stage sets out the implementation schedule for the preferred options and forms the revised Plan.

This Plan provides a policy and regulatory framework for solid waste management and solid waste management related activities in the RDN. In conjunction with EMA, regulations and Operational Certificates (OC) that may apply, the Plan provides the framework for regulation of storage and disposal facilities that make up the region's solid waste management system.

4.1 Guiding Principles²

The principles guiding the development and implementation of the Plan are:

1. Promote the Zero Waste Hierarchy of highest and best uses and support a circular economy.
2. Maximize use of waste materials and manage residuals appropriately.
3. Support polluter and user-pay approaches and manage incentives to maximize behavior outcomes.
4. Prevent organics and recyclables from going in the garbage.
5. Collaborate with other regional districts wherever practical.

² BC Ministry of Environment, "A Guide to Solid Waste Management Planning," September, 2016, <https://www2.gov.bc.ca/assets/gov/environment/waste-management/garbage/swmp.pdf>.

6. Develop collaborative partnerships with interested parties to achieve regional targets set in plans.
7. Level playing field within regions for both private and public solid waste management facilities.

4.2 Zero Waste Hierarchy and Targets

The future solid waste system will build on the existing framework of services and programs while improving the delivery of those services, and reducing the amount of waste sent for disposal. The proposed programs, infrastructure and policies for the Plan are presented in accordance with the Zero Waste Hierarchy, as shown in Figure 1.



Figure 1 Zero Waste Hierarchy (Adopted from the Zero Waste International Alliance)

The implementation of these programs and policies over the Plan’s 10-year timeframe is expected to continually exceed the provincial disposal rate target of 350 kg per capita and result in achievement of the following regional targets:

1. The ultimate goal of Zero Waste, as defined by Zero Waste International Alliance and adopted by the RDN:

“Zero Waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use.

Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them.

Implementing Zero Waste will eliminate all discharges to land, water or air that are a threat to planetary, human, animal or plant health.”³

2. The introduction of programs and strategies to move the RDN towards 90% diversion by 2027 and/or a per capita disposal of 109 kg/year.

5 Background

The Province approved the RDN’s first Plan in 1988. The main elements of the Plan consisted of a transfer station, a resource recovery facility, and a sanitary landfill to manage the residuals from the facility (estimated to be 20% of the solid waste stream). However, the resource recovery facility never came to fruition due to the proponent’s inability to secure financing. Consequently, the RDN’s new landfill was receiving 100% of the solid waste stream, resulting in filling much faster than anticipated at the landfill’s inception. As a result, the RDN reviewed the Plan in 1992 to re-focus the Plan on the reduction of solid waste sent to the landfill.

Consequently strategies for user pay garbage collection, curbside recycling, a backyard composting program, and a disposal ban on cardboard were implemented.



³ Zero Waste International Alliance, “ZW Definition,” last modified 2009, <http://zwia.org/standards/zw-definition/>.

In 1994, a full Plan amendment was initiated, which was comprised of two main components. The first part was the development of the “3Rs Plan” that was approved in 1996. The 3Rs Plan contained programs and policy initiatives to reduce the RDN’s annual solid waste disposal needs by approximately 70%. The two major elements of the 3Rs Plan were the development of a privately built and operated composting facility for source-separated organics, and a privately built and operated construction and demolition (CD) waste recycling facility.

The second part was the development of a residual solid waste management plan to address the portion of the solid waste stream that would not be eliminated, or diverted through composting or recycling. The residual solid waste planning process assessed a wide array of processing and disposal options, and conducted detailed assessments of municipal solid waste (MSW), composting (as a means of further reducing the amount of solid waste requiring disposal) and solid waste export (as an alternative to siting a new landfill in the RDN).

In 2003, the RDN adopted “Zero” as the solid waste diversion target.

In 2004, the second full Plan amendment began. This Plan amendment consolidated the 3Rs Plan, (later called the “Zero Waste Plan” due to the RDN adopting “zero” as their new solid waste diversion target in 2003); the outcomes of the residual waste management planning process, and a bylaw to license private solid waste management facilities. The key components of the 2004 Plan were:

2003



ZERO
waste identified
as ultimate
community
GOAL

1990



550 KG
per person/yr
to landfill

 **50%**
waste
reduction

- **Banning commercial organic waste from disposal as garbage** – This initiative supported the newly opened, privately built and operated composting facility (an objective of the original 3Rs Plan).
- **Implementation of an organics collection program for single-family homes** – This service was fully implemented throughout the RDN, including all municipal areas, by 2011.
- **Implementation of the Waste Stream Management Licensing Regulatory Bylaw** – The bylaw was implemented in 2005.
- **The export of garbage received at Church Road Transfer Station (CRTS) to the Cache Creek Landfill** – The RDN exported garbage delivered to the CRTS through a contract with the Greater Vancouver Regional District (now called Metro Vancouver) from 1998 to 2005 as a means to preserve space at the Regional Landfill.
- **Expansion of the capacity of the Regional Landfill within the existing property boundary through the construction of a geogrid toe berm** – Construction of the first toe berm was completed in 2004. This expansion allowed for the cessation of waste export and for all RDN garbage to be disposed at the Regional Landfill.

5.1 Plan Area

The RDN covers an area of approximately 207,000 hectares on the southeast coast of Vancouver Island. The RDN includes four incorporated municipalities and seven unincorporated electoral areas. A map of the RDN is provided as Figure 2.

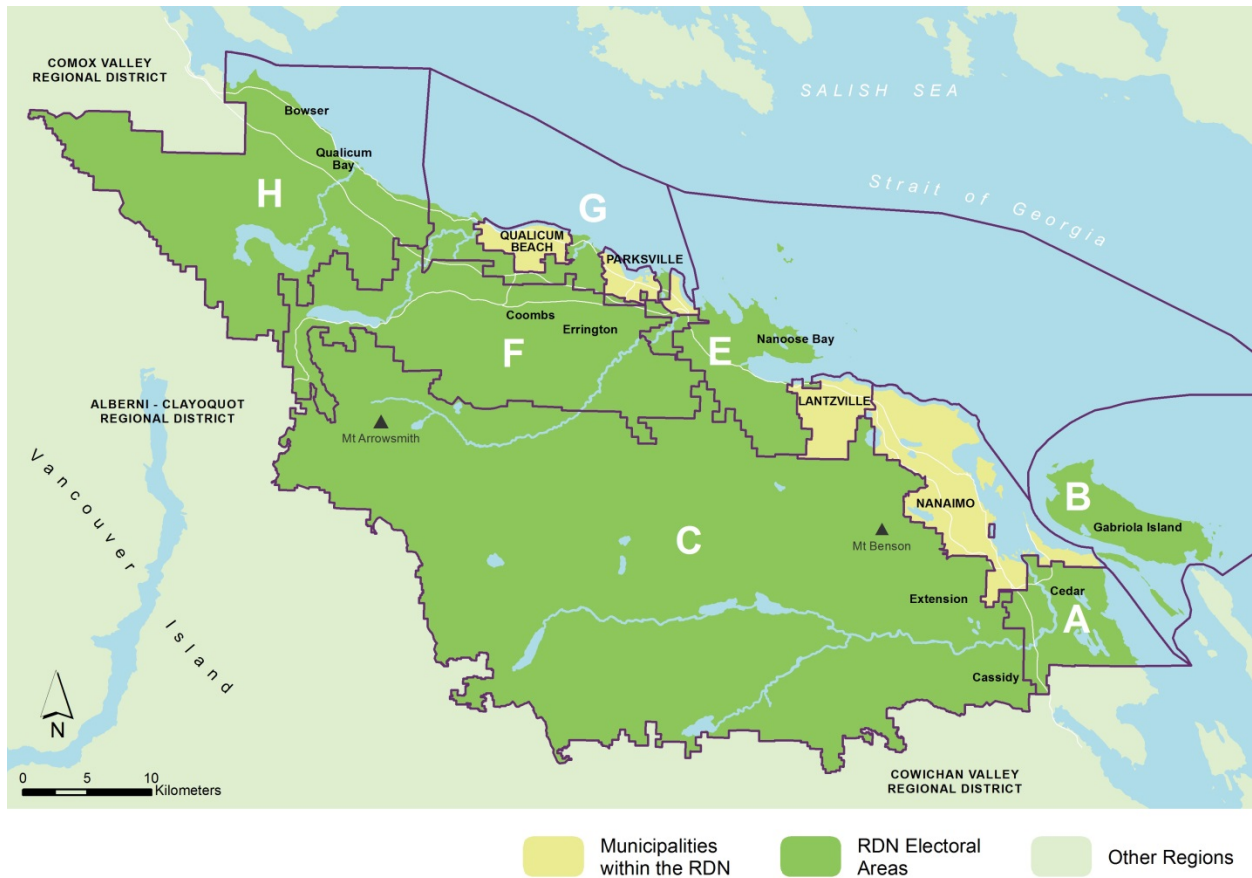


Figure 2 Electoral Areas in the RDN

Statistics Canada reports the 2016 population for the RDN as 155,698, including First Nations reserves, as shown in Table 1.⁴ Of this number, 25% (39,097) lived in electoral areas, 1% (1,035) lived on reserves, and the 74% (115,556) lived in municipalities. The four municipalities in the region are the City of Nanaimo, the District of Lantzville, the City of Parksville, and the Town of Qualicum Beach.

⁴ Statistics Canada, "Census Profile, 2016 Census: Nanaimo, Regional district," last modified March 20, 2018, <http://www12.statcan.gc.ca/census-recensement/2016/>.

The seven electoral areas in the region are:

- 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; and
- H: Shaw Hill, Qualicum Bay, Deep Bay, Bowser.

Six First Nations Reserves neighbour the RDN:

- Nanaimo Town 1 & Nanaimo River 2, 3 & 4 (Snuneymuxw First Nation);
- Nanoose (Nanoose First Nation); and
- Qualicum (Qualicum First Nation).

Table 1 Population by Area

Area	Population 2016
Electoral Area A	7,058
Electoral Area B	4,033
Electoral Area C	2,808
Electoral Area E	6,125
Electoral Area F	7,724
Electoral Area G	7,465
Electoral Area H	3,884
Sub-Total	39,097
City of Nanaimo	90,504
District of Lantzville	3,605
City of Parksville	12,514
Town of Qualicum Beach	8,943
Sub-Total	115,566
Nanaimo Town 1 Indian Reserve	360
Nanaimo River Indian Reserve	371
Nanoose Indian Reserve	230
Qualicum Indian Reserve	74

Sub-Total	1,035
Total Population (RDN)	155,698

5.1.1 Population Growth

The population of the region increased 73% from 84,819 in 1986 to 146,574 in 2011. As of 2016, Census data indicates the population of the region as 155,698, an 84% increase since the inception of the original Plan.⁵ Forecasts predict the population will increase to 181,201 (114%) by 2026, and 194,849 (130%) by 2036.⁶



5.2 Waste Generation and Management

Waste generation in the RDN is measured by the total tonnage of material landfilled. The base line figure for waste generation in the RDN is 1,084 kg/capita/year from 1980's disposal estimates. Over the past 36 years, the RDN waste disposal rate has been reduced by approximately 50% to 550 kg/capita/year in 1990 and, by 68% to 347 kg/capita/year in 2014. The target for the amended Plan is to further drive diversion to 90% and/or a per capita disposal rate of 109 kg/year by 2027. Table 2 provides some comparable waste disposal rates for reference regarding the RDN disposal target.



Table 2 Jurisdictional Scan on Per Capita Disposal Rates⁷

⁵ Statistics Canada, "Census Profile, 2016 Census: Nanaimo, Regional district."

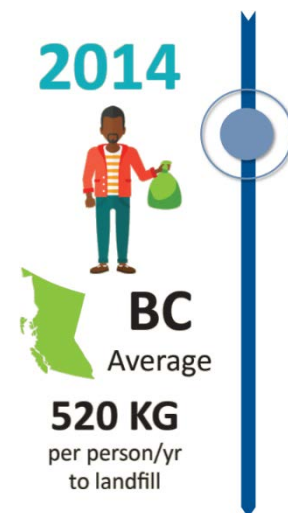
⁶ BC Stats, "Sub-Provincial Population Projections: P.E.O.P.L.E. 2017," last modified August 2017, <https://www.bcstats.gov.bc.ca/apps/PopulationProjections.aspx>.

⁷ Sharon Horsburgh (RDN Staff Report), "Jurisdictional Scan Regarding Waste Diversion Program," January 5, 2016.

Location	Reporting Year	Disposal kg /capita /year	Comment
RDN - projected	2027	109	Based on a 90% diversion target.
RDN - actual	2014	347	Based on 68% diversion achievement.
BC	2014	520	MSW Disposal in B.C. (1990-2014), Environmental Reporting BC.
California	2012	712	California's per capita disposal rates may not capture all waste and per capita disposal may be higher.
San Francisco	2012	482	Claim to have the highest waste diversion rate in the US.
Germany	2012	220	Highest reported diversion rate of European countries. Accounts for MSW only. The European Environmental Agency notes that municipal waste only accounts for around 10% of the waste stream.
Capannori, Italy	2012	146	Accounts for <u>household</u> waste only.

A jurisdictional scan of North American and Europe indicates there are two potential paths being taken by communities striving for high levels of diversion:

1. Lower priority on source separation with the emphasis on energy recovery of the waste. The City of Edmonton provides an example of this strategy, and they are targeting a 90% diversion rate.
2. Maximizing source separation by moving beyond voluntary waste diversion and introducing regulatory instruments (e.g. mandatory waste separation and fines) or monetary incentives (e.g. "pay as you throw"). San Francisco and Capannori, Italy provide examples of communities using these strategies.



The RDN favors the maximization of source separation approach, while recognizing it is necessary to move beyond the largely voluntary programs that currently exist in the RDN to achieve high levels of diversion.

5.3 Waste Characterization

In 2012, the RDN commissioned a study of the composition of waste being landfilled in the Region. As shown in Figure 3, the study found compostable organics (food waste and compostable paper) and CD waste as the largest components of waste by weight being landfilled. These materials were targeted for diversion from the landfill through the Green Bin Program, and disposal bans on Commercial Food Waste and Clean Wood Waste. The 2012 Waste Composition Study is a key tool in the current process to update and review the Plan. The study's findings have been used to assess the effectiveness of Zero Waste programs in diverting landfill waste and opportunities for improvement.

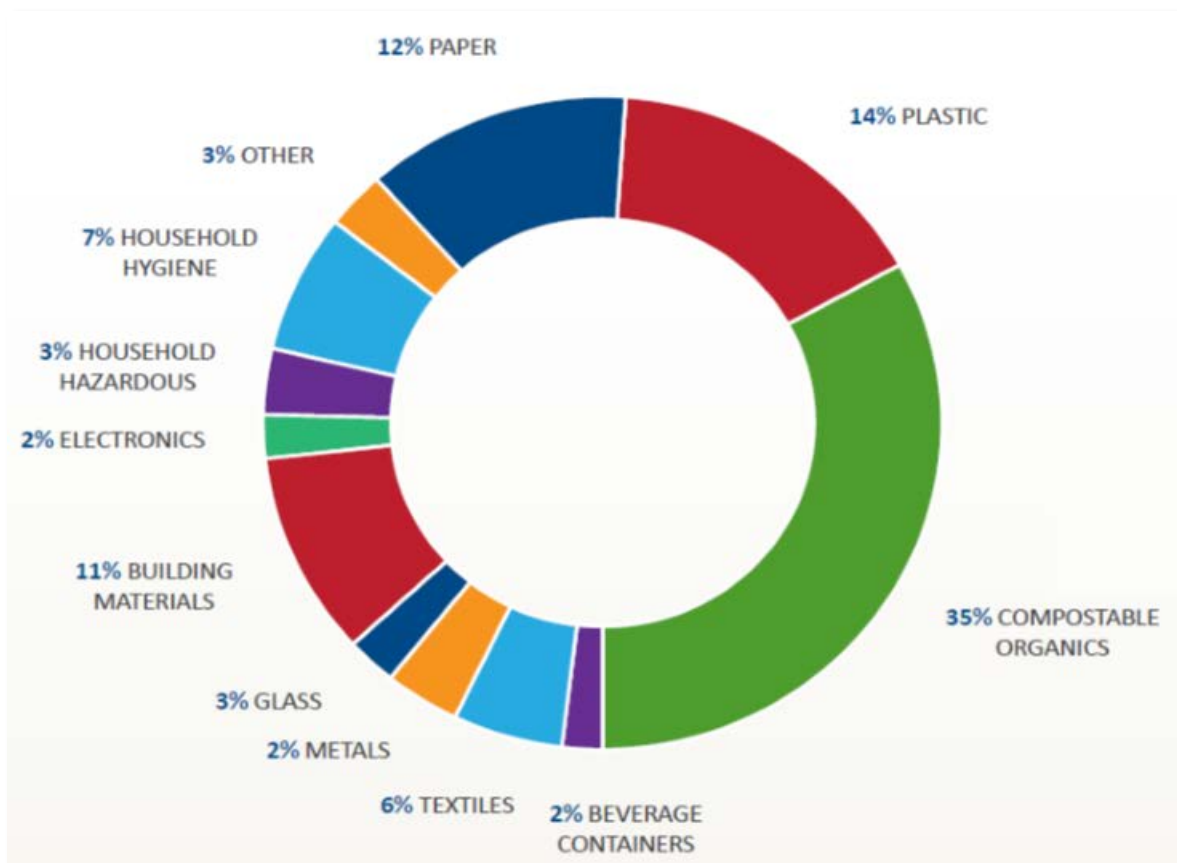


Figure 3 RDN Waste Disposal at Regional Landfill by Material, 2012

As shown in Figure 4, the study indicated institutional, commercial, industrial (ICI) including multi-family and CD accounts for the largest portion of waste disposal at 63%, followed by self-haul customers at 20%, and the remaining 17% of the volume is attributed to residential accounts.

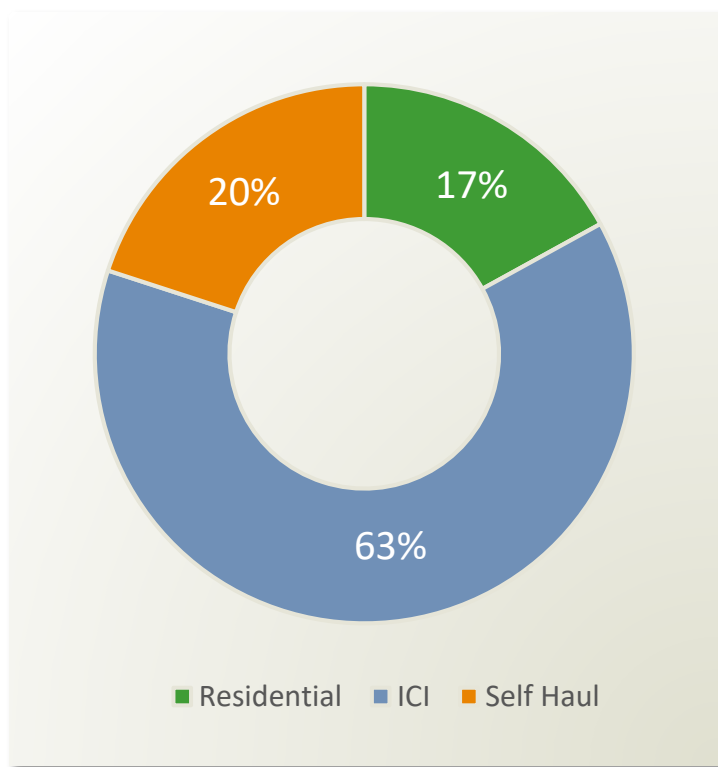


Figure 4 RDN Waste Disposal at Regional Landfill by Sector, 2012

It is estimated that approximately 3,300 tonnes of solid waste left the region in 2016, and can be attributed to the following three circumstances, which includes both CD and MSW:

1. It is believed a nominal amount of solid waste is transported in and out of region in areas near the regional boundaries as people look for the most convenient disposal location. For example, there are a few known incidences of Ladysmith residences hauling solid waste to the Regional Landfill in Cedar due to its close proximity. Similarly, anecdotal comments suggest RDN residents in the Qualicum area, on occasion, haul solid waste to the Comox Strathcona Regional District for disposal. The net amount is deemed negligible in the context of the overall Plan.
2. It is known there have been large demolition projects in recent years where solid waste has been hauled out of region for disposal. Two examples are:
 - a. 2015 City of Nanaimo Ferry Dock Demolition - 476 tonnes disposed of at a private landfill in the Capital Regional District; and
 - b. 2015 Wellington School Demolition - approximately 250 tonnes disposed of at a private landfill in Chilliwack. The contractor advised that disposal cost was less than half of the cost of RDN disposal, and they were not required to source separate recyclables.

It is impossible to predict to what extent similar circumstances will exist in the future. However, the examples demonstrate the propensity to seek out the lowest cost option, which is often contrary to Zero Waste.

3. Between 2013 and 2014, there was a drastic reduction of approximately 25%, estimated at 3,600 tonnes/year⁸ (excluding the large demolition projects noted above), of commercial solid waste exported for landfilling in the United States, which was previously destined for the Regional Landfill. This was likely a consequence of the lower Canadian dollar value as compared to the US dollar. It is without doubt future trends for export will continue to fluctuate and be influenced by the values of the Canadian and US dollars, transportation costs and business decisions.

5.4 Roles in Solid Waste Management

Table 3 outlines the organizations that contribute to solid waste management in the RDN.

Table 3 Organizations Contributing to Solid Waste Management

Who	Roles in Solid Waste Management
Federal Government	<ul style="list-style-type: none"> • Regulates solid waste management facilities under federal jurisdiction. • Regulates the safety, labelling and sale of consumer products.
Provincial Government	<ul style="list-style-type: none"> • Various ministries have regulatory authority related to solid waste management. • Regulates product stewardship responsibility in BC.
RDN	<ul style="list-style-type: none"> • Develops Plan to provide big picture oversight of solid waste management in the region. • Through plans and plan implementation (including bylaws), works to meet solid waste disposal goals and targets and ensures that community has access to solid waste management services that are environmentally sound and cost effective. • Ensures that legislative and policy requirements are followed, including monitoring and reporting. • Chairs committees and coordinates with municipalities in service delivery.

⁸ Carey McIver & Associates Ltd., “RDN Waste Export Analysis,” February 10, 2015.

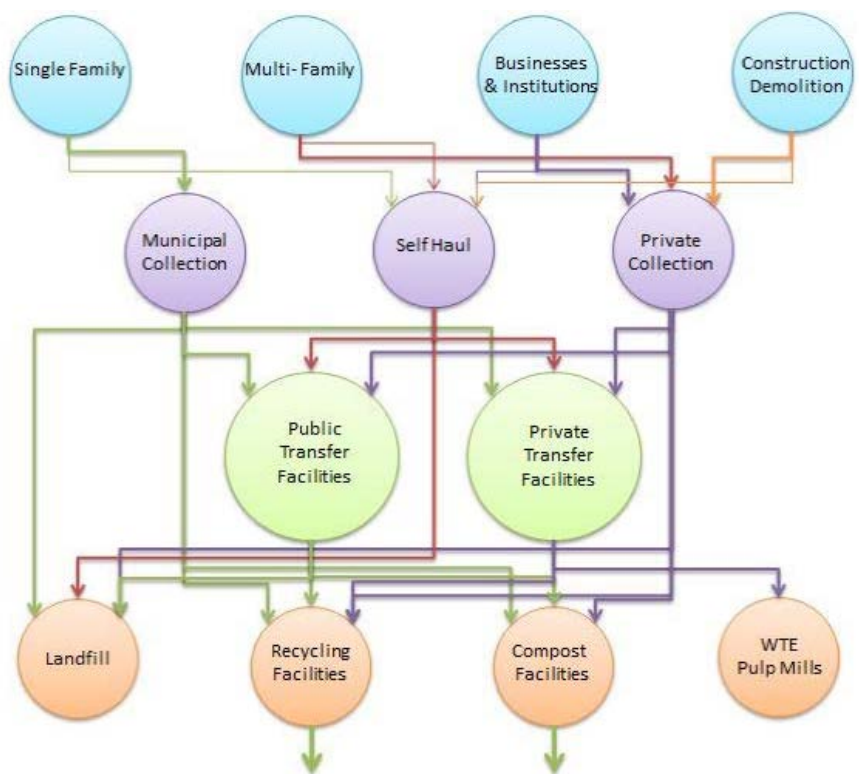
Who	Roles in Solid Waste Management
	<ul style="list-style-type: none"> • Operates the Regional Landfill and Church Road Transfer Station (CRTS). • Provides residential curbside collection of food waste, garbage and recycling in all Electoral Areas, District of Lantzville, City of Parksville and food waste and recycling in the Town of Qualicum Beach. • Supports Extended Producer Responsibility (EPR) programs in the jurisdiction. • Incorporates the Zero Waste Hierarchy within operations and those of member municipalities. • Serves as a model for the ICI sector incorporating the latest strategies and approaches for achieving Zero Waste (e.g. purchasing policy, print material requirements). • Develops policies which promote a level playing field within the solid waste management sector.
Municipalities (council and staff)	<ul style="list-style-type: none"> • May provide/coordinate solid waste management service, or own/operate facilities. • May make bylaws dealing with solid waste collection. • Municipal enforcement officers as part of enforcement team.
First Nations	<ul style="list-style-type: none"> • May provide solid waste management services or may participate in regional solid waste management system.
Product Stewards	<ul style="list-style-type: none"> • Collect and process stewarded products. • Coordinate local government delivery of service where applicable. • Provide and/or fund education and marketing. • Provide deposit refunds to consumers (where applicable). • Monitor and report on recovery rates.
Private sector involved in solid waste management (e.g. haulers, facility operators, collection facility operators)	<ul style="list-style-type: none"> • May provide recycling and solid waste management services and own/operate facilities. • May provide collection sites for residential, multi-family, and ICI recycling. • May provide collection sites for product stewardship items. • May provide zero waste recycling and marketing for hard to recycle products. • Generally, services multi-family residential buildings, ICI, CD and land clearing sectors. • May provide zero waste education services. • May be regulated by local government through Waste Stream Management Licensing Bylaw.
Nanaimo Recycling Exchange	<ul style="list-style-type: none"> • Recipient of RDN funding for a five year period for research and recycling of materials not commercially marketable.

Who	Roles in Solid Waste Management
Neighbouring jurisdictions	<ul style="list-style-type: none"> • May send solid waste to Regional Landfill or accept solid waste from the RDN. • Partner to look for synergies and/or consistencies in solid waste management with neighbouring jurisdictions.
Residents and businesses	<ul style="list-style-type: none"> • Responsible for carrying out proper solid waste reduction, recycling and disposal activities.

5.5 Solid Waste Flows

Figure 5 illustrates the breadth of activities/services, and stakeholders engaged with the current solid waste management system. There are a wide range of solid waste management activities underway that reflect both a relatively mature solid waste management system and significant economic activity based on secondary resources.

Figure 5 Components of the Waste Management System in the RDN



6 Existing Solid Waste Management System

The RDN has a broad range of solid waste management programs and infrastructure. This section provides an overview of the existing solid waste management system and describes the major infrastructure, services, programs and policies. A detailed description of the Existing Solid Waste Management System can be found in Appendix D.

The updated 2004 Plan introduced the Zero Waste Plan and expanded on policies and programs to increase diversion. This strategy effectively increased recyclable commodities and transferred the management of those items to the private sector. Examples of this span the solid waste stream spectrum and include wood waste, CD, yard waste, food waste and extended producer responsibility (EPR) products.

This transfer of solid waste management responsibility to the private sector has resulted in reduced cost of government, as well as growth in the solid waste management business sector, contributing to increased employment opportunities and tax contributions which are of significant benefit to the community. These policies have created a robust solid waste management industry in the region and have resulted in world class solid waste diversion levels.

This model of transferring the solid waste management activities to the private sector ensures “user pay” where the full cost of solid waste management is born by the generator. Conversely, many communities rely primarily on taxation in providing solid waste management services hiding the true cost of waste management.

In May 2013, the report *“Zero Waste Business Case, Draft for Expert Review”*, by Innes Hood Consulting Inc., was prepared for the Ministry of the Environment.⁹ The report concluded there is a positive business case for implementing a Zero Waste Strategy for BC. Depending on how aggressively it is implemented (i.e., 62% vs 81% diversion), by 2025 a Zero Waste Strategy will:

⁹ Innes Hood, “Zero Waste Business Case: Draft for Expert Review,” May, 2013, https://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/zero_waste_business_case_draft.pdf.

- Produce between \$56 million and \$126 million of annual net economic benefit;
- Add between \$27 million and \$89 million to the GDP; and
- Generate between \$755,000; and \$2.5 million in annual income tax revenue for BC.

The report also states the business case for Zero Waste is strengthened if supporting policies are developed to encourage the creation and retention of remanufacturing facilities within BC, and prevent leakage to other jurisdictions. The RDN’s current policies, which move waste to the private sector, are in harmony with the findings of this study. The preferred options for the amended Plan set out in Section 4 further strengthen this model. As a result, the RDN is expected to continue seeing an increased diversion, coupled with further economic growth in the waste management sector.

6.1 Education and Outreach

Both the RDN and the City of Nanaimo undertake promotion and education related to solid waste management within the region, as detailed below:



The RDN:

- Provides information related to the solid waste management planning, bylaws and Zero Waste programs on the Solid Waste and Recycling pages of the RDN’s website (<http://www.rdn.bc.ca/>) and the RDN Get Involved webpage (<http://getinvolved.rdn.ca/>);
- Distributes a Zero Waste program newsletter to all homes two to three times per year;
- Maintains a curbside app for users to find out where they can bring their reusable, recyclable and compostable items;
- Delivers a Zero Waste school education program which provides free classroom workshops to schools throughout the RDN;
- Delivers curbside outreach program; and,
- Monitors and maintains social media posts.

6.2 Reduction and Reuse Activities

The RDN and member municipalities encourage residents to “reduce and reuse”, in accordance with the Zero Waste Hierarchy.

Backyard composting is promoted via respective websites by providing advice on how to backyard compost and grasscycle. Each spring, the City of Nanaimo holds a weekend long reuse-focused, curbside swap event called “Reuse Rendezvous” whereby residents are encouraged to put out items they no longer want but may be useful to others.

In addition to the RDN’s and municipalities reduction and reuse activities, there are several other organizations involved in reuse in the RDN, including several private and non-profit retailers and many on-line classified services such as Craigslist and UsedNanaimo.com that are actively involved in the sale and purchase of used goods. The Repair Café Nanaimo holds repair workshops where residents can bring in their broken items and receive help from local repair experts.



6.3 Recycling

Curbside collection of recyclables is provided to single family homes to residents of all electoral areas, City of Nanaimo, City of Parksville, District of Lantzville and Town of Qualicum Beach.

Both regional facilities (Regional Landfill and the CRTS) accept limited recyclable material, 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.

There are three Material Recycling Facilities (MRF) owned and operated by private waste management companies in the RDN: Waste Connections of Canada, Emterra and Cascades, all located in Nanaimo.

Figure 6 shows the locations of both the private and not-for-profit recycling collection facilities throughout the region which accept EPR material and other recyclables from private businesses and residents.

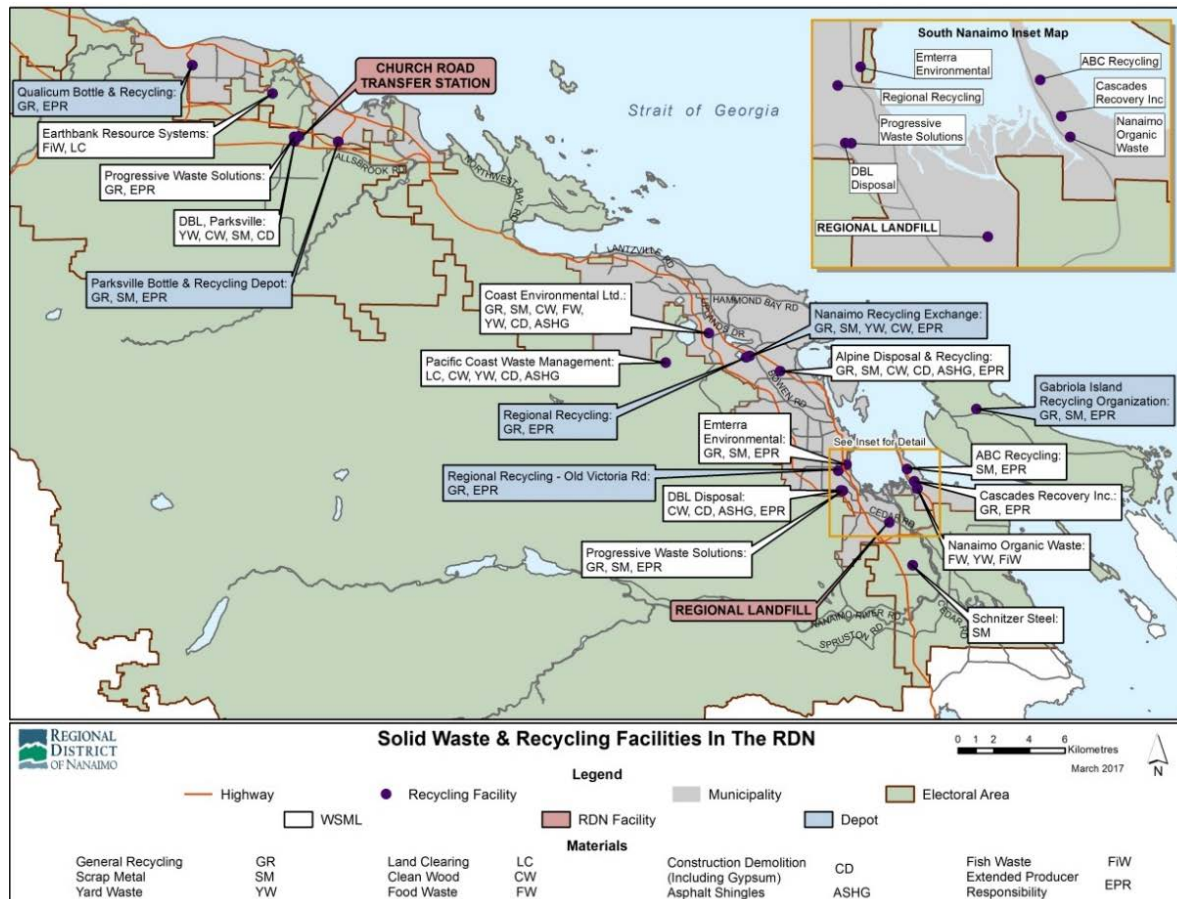
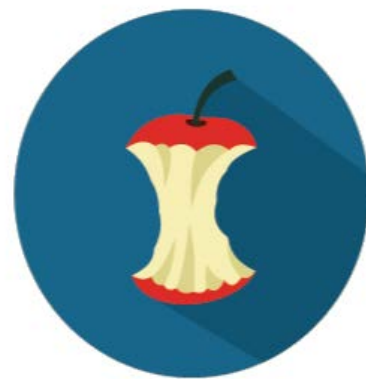


Figure 6 Solid Waste and Recycling Facilities in the RDN

In the RDN, there are reuse programs for leftover and excess food through food banks and other food redistribution services. Additionally, some food scraps are picked up by area farmers for use as animal feed. However, the majority of organics are sent to centralized composting facilities. There are two licensed composting facilities in the RDN: Nanaimo Organic Waste (formerly International Composting Corporation) and Earthbank Resource Systems. The types of materials each of these facilities manages are as follows:

- Nanaimo Organic Waste
 - Residential “green bin” kitchen scraps and soiled paper
 - Commercial food waste
 - Yard waste
 - Fish waste
 - Clean wood



- Earthbank
 - Farmed and wild fish waste
 - Farmed salmon mortalities
 - Ground up bark from the forestry industry
 - Ground up land clearing debris (exclusively local forest materials)

Nanaimo Organic Waste, a drum-style in-vessel composting facility, opened in Nanaimo in 2004 and is the only food waste processing facility in the RDN. The composted end product is sold as a bulk product for blending into soil mixes.

In 2005, the RDN introduced a commercial organics ban. Based on waste characterization studies carried out before and after the ban, the per capita tonnage of compostable organics in the waste stream dropped from 95.5 kg/capita to 91.2 kg/capita in 2004 and 2012, respectively. These findings indicate the current organics ban has achieved only modest success, and there remains significant opportunity for further diversion of organic waste.

In 2018, more than 56,000 single family homes in Nanaimo, Lantzville, Parksville, Qualicum Beach and the RDN Electoral Areas received weekly curbside food waste collection service.

6.4 Yard Waste

Yard waste, such as leaves and grass clippings, are not collected as part of the residential waste collection services offered by the RDN. Residents and businesses are encouraged to manage their yard waste in one of the following manners:

- Reduce the amount of yard waste through practices such as grasscycling and xeriscaping;
- Compost in backyard or on-site;
- Self-haul to one of several yard waste collection facilities in the RDN (“What Goes Where” tool);
- Hire a yard waste removal service; and/or
- Inclusion of yard waste removal clause in landscaping contracts.

Use of these yard waste management practices and services is encouraged by a variety of policies including:

- Enforcement of ban on yard waste disposed as garbage at the Regional Landfill site and CRTS;

- Enforcement of ban on the inclusion of yard waste in the City of Nanaimo’s¹⁰ and RDN’s residential garbage collection service;
- Exclusion of yard waste collection as part of the single-family residential curbside service; and
- Promotion the yard waste management alternatives.

This approach to yard waste management has been successful at minimizing the amount of yard waste being landfilled. The 2012 waste composition study indicated yard waste is roughly 2.5% of the residential waste sent to landfill, and 5% of overall waste landfilled.

From 2017 to 2018, the City of Nanaimo began introducing their “Sort, Toss, Roll” program of automated residential curbside collection trucks. As part of this program, yard and garden waste is being picked up in a co-mingled container with food waste.

6.5 Waste Collection

The RDN Residential curbside garbage, recycling and food waste collection program is a compulsory service set up under Local Service Establishment Bylaw No. 793. In accordance with the Bylaw, the RDN provides curbside garbage, recycling and food waste collection to single family homes in all Electoral Areas of the RDN, City of Parksville and District of Lantzville by a private collection provider, under a service contract with the RDN.



As per Bylaw No.1591, a single family dwelling unit means a single family detached dwelling and each Dwelling Unit of a duplex, triplex or quadruplex and a Manufactured Home not situated in a Manufactured Home park. Town of Qualicum Beach staff provide garbage collection to some ICI buildings and all single family homes, while recycling and food waste collection is provided by the RDN through a contracted waste hauler for single family homes.

¹⁰ As part of the City of Nanaimo’s “Sort, Toss, Roll” residential curbside automated collection program, yard waste is included as part of their curbside collection service; Phase 2 of the project is expect to be completed in July 2018.

City of Nanaimo staff provide garbage and food waste collection to single family homes while recycling has been provided by a contracted waste hauler. With introduction of the City of Nanaimo's "Sort, Toss, Roll" automated garbage collection, all three waste streams will be collected by City staff. This new program also provides for the collection of yard and garden waste co-mingled with food waste.

Throughout the RDN, there are a number of private waste haulers that service the multi-family and ICI sectors that require solid waste collection.

6.6 Transfer Stations

The CRTS is located on Church Road, in Electoral Area F, about four kilometres southwest of downtown Parksville. The facility opened in 1991, and is approximately two hectares in size. The CRTS receives garbage, yard waste, wood waste, CD, and limited recyclables from communities in the northern portion of the RDN: Parksville, Qualicum Beach, and Electoral Areas E, F, G, and H. In recent years, with the growth of Nanaimo, this facility has also started to receive waste generated in parts of the City of Nanaimo. In 2012, approximately 30% of the region's garbage was delivered to CRTS.

Garbage brought to the CRTS is transferred to the Regional Landfill in Nanaimo. The limited recyclables such as cardboard and metal are transferred to various recycling processors, and food waste, kitchen waste, and yard waste are transferred to the Nanaimo Organic Waste Facility in South Nanaimo.

In 2010, the site was re-designed to accommodate population growth to 2030, including a food waste transfer area, and to segregate large commercial-sized waste vehicles from small passenger-sized vehicles and trucks. The new transfer station was built in accordance with the RDN Green Building Policy, and has received LEED Gold® accreditation, the first transfer station in Canada.

6.7 Landfill and Other Disposal Facilities

The Regional Landfill is located approximately 5 kilometres south of downtown Nanaimo and is owned and operated by the RDN. The Regional Landfill operates on a 21 hectare section of a 38 hectare property, approximately 2.7 hectares of which have been permanently closed. In accordance with Ministry of Environment-approved Design and Operations Plan, a North Berm Lateral Expansion was completed and added approximately 10 years of capacity to the site. One final expansion in the south east area of the site is planned when the North Berm area is filled. The site has been receiving MSW from the RDN since 1971 and given the current tonnages of

wastes received, the operation life of the Regional Landfill is expected to continue until approximately 2040.

There are two closed landfills in the RDN: the Parksville Landfill and the Qualicum Beach Landfill. These sites are the responsibility of their respective municipalities.

Waste disposal facilities on reserves are regulated by the federal Indian Reserve Waste Disposal Regulations. Currently, 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.

6.8 Policies and Regulations

Six main policies influence the RDN solid waste management system:

1. The user-pay system;
2. Variable tipping fees;
3. Disposal and collection bans;
4. Private sector waste management;
5. Open burning restrictions; and
6. Provincial product stewardship programs.

The first four policies fall within the scope of the Plan. Burning restrictions are applied through a combination of provincial regulation (e.g. Open Burning Smoke Control Regulation) and augmented by RDN and municipal bylaws. Provincial product stewardship programs are regulated by the BC Ministry of Environment and significantly influence the management of specific waste materials generated in the RDN.

6.8.1 User Pay

Both the RDN and the City of Nanaimo have user pay curbside garbage collection programs. All households have a one can limit (maximum 50 lbs) every other week¹¹. Residents can utilize up to two "Extra Garbage Tags" per week to set out additional cans. The vast majority of homes

¹¹ Subject to change in the City of Nanaimo following the full implementation of automated curbside collection.

set out one can of waste or less every two weeks. The RDN curbside program is fully funded by user fees and is not augmented by taxation.

The RDN solid waste program, other than curbside waste collection discussed in the previous paragraph, is primarily funded by landfill tipping fees augmented by a small tax requisition. In 2016 the split was approximately 93% tipping fee revenue and 7% taxation. These revenues are applied to solid waste program costs including operation of the Regional Landfill and CRTS, organics waste management, illegal dumping mitigation, education, policy and regulatory work. Insignificant relative to the overall budget are other revenues such as grants, sale of asbestos bags, and licensing fees associated with the Waste Stream Licensing program.

6.8.2 Variable Tipping Fees

The RDN tipping fees vary depending upon the materials. The 2018 base tipping fee for MSW is \$125/tonne. Fees for other materials are varied on the basis of cost to handle the material and/or to motivate diversion. For example, the 2018 tip fee for asbestos waste is \$500/tonne and is based on the landfill airspace consumption and the direct handling costs for management of the material. In the case of CD material containing recyclables, the 2018 tipping fee is \$360/tonne and potential of imposition of a fine. The intention with this latter example is to provide an incentive to source separate and divert waste. Schedule E: Financial Information contains a full list of the accepted materials and associated tipping fees.

6.8.3 Material Disposal Bans

The first material ban was introduced by the RDN in 1991 to encourage the recycling of gypsum. Since that time, a number of other materials have been banned. A full list of banned material and the implementation date of the ban is provided in Section 6.10. Enforcement of the bans to date at the Regional Landfill and at the CRTS has been applied to the most egregious cases of contamination. It is not uncommon for waste loads to contain at least some amount of banned materials such as paper, food waste or recyclable plastic.

6.8.4 Private Sector Waste Management

As the RDN waste management system has matured, the trend has been away from government provided service to an increase in services provided by the private sector, which includes both for-profit and non-profit organizations. The three policies described above, aided by burning bans and the provincial initiative discussed in the following section, have created a positive business climate for this trend.

Many communities have developed government-run collection facilities that accept a wide range of recyclable items. For those residents located in close proximity, these facilities typically provide a high level of convenience as a “one-stop” drop off. Commonly, the cost of operating these facilities is augmented by taxation. As a result, there is typically a loss of private sector enterprise given the challenge to compete with a government subsidized facility.

In the case of the RDN, government services have been reduced where the private sector is providing the service. RDN facilities typically do not accept products covered under the EPR programs. Where materials are accepted, there is a drop off fee. In this way, consumers and generators are encouraged to use the private facilities. The net result has been robust private sector waste management in the region, with diversion reaching 68%, and reduced cost to government to directly provide these services.

6.8.5 Burning Bans

Most developed areas of the RDN have burning restrictions for land clearing waste, CD debris, and yard waste. In most developed areas, burning of these wastes is prohibited year-round, but in some areas yard waste can be burned only during a limited time frame annually (usually a small window of time is given in the spring and fall). In undeveloped areas, burning of land clearing waste and yard waste is generally allowed, provided any local fire restrictions and the BC Open Burning Smoke Control regulation are being met. With restrictions in place, generators of these materials must find alternative disposal options and are encouraged to select options such as composting, reuse (of CD materials) or recycling.

6.8.6 Provincial Product Stewardship

The Province has implemented several product stewardship programs over the past decade. Product stewardship is defined as a management system based on industry and consumers taking life-cycle responsibility for the products they produce and use. As a result, the materials covered under a product stewardship program are less likely to enter the RDN’s waste management system. There are province-wide product stewardship programs currently in place for:

- Batteries (household)
- Beverage Containers (deposit)
- Cell Phones
- Electronic Equipment and Devices
- Flammable Liquids
- Gasoline
- Lead-Acid Batteries
- Oil and Antifreeze Containers
- Oil Filters
- Outdoor Power Equipment
- Packaging and Printed Paper
- Pharmaceuticals
- Small Appliances, Tools, Sports and Hobby Equipment
- Smoke and Carbon Monoxide Alarms
- Thermostats
- Tires

- Lamp and Lighting Equipment
- Large Appliances
- Paint Aerosols
- Paints
- Pesticides (Domestic)
- Used Oil and Antifreeze

The RDN has actively encouraged the Province and product manufacturers to undertake new product stewardship initiatives and continues to promote the expansion of stewardship programs.

6.9 Regulatory Authorities

The RDN incorporated authority into the existing 2004 Plan for waste stream licensing. RDN Waste Stream Management Licencing Bylaw No. 1386 requires solid waste management facilities operating in the RDN to obtain and to maintain a Waste Stream Management License (WSML). The authority to license and regulate solid waste facilities is given to regional districts through BC’s Environmental Management Act. The RDN’s licensing bylaw was enacted in 2004 pursuant to the 2004 Plan.



The Bylaw No. 1386 was adopted to fulfill the following objectives:

1. Create a high standard of operation for waste management facilities located in the RDN;
2. Encourage legitimate waste management operations within the RDN;
3. Establish a reporting system for the flow of waste materials within the RDN to assist in tracking our waste reduction rate;
4. Protect and enhance the waste reduction rate achieved in the RDN; and
5. Provide a level playing field for industry.

All facilities that handle MSW in whole or part are included in the licensing system, with the exception of those facilities noted under “exclusions” below. This means transfer stations, recycling collection facilities, composting facilities, material recovery facilities and brokers are subject to the licensing system. Facilities excluded from obtaining a license are:

- Disposal facilities such as the Regional Landfill and incinerators (these facilities will remain under the regulatory jurisdiction of the Province);
- Soil manufacturing facilities (unless they are composting MSW-based materials on-site);
- Private on-site collection facilities (such as the centralized recycling areas used by office buildings and mall tenants);

- Stewardship program collection facilities;
- Reuse businesses;
- Concrete and asphalt recycling operations and auto wreckers since the material handled by these operations has not traditionally been handled as MSW; and
- Municipally owned facilities, including the CRTS.

This Plan expands the “exclusion” to also apply to facilities operating under a Ministry of Environment Permit or Operational Certificate. This additional “exclusion” is consistent with the intent of the previous SWMP to avoid duplication in regulation by both the Province and Regional District.

As of May 2018, there are 14 WSMLs in place in the RDN. As Nanaimo Organic Waste Ltd. has been issued an Operational Certificate from the Ministry of Environment to regulate their operations and ensure an adequate level of environmental protection, they will no longer be subject to a WSML under this approved Plan.

6.10 Disposal Bans

The practice of banning the disposal of specific wastes from the landfill, when viable recycling alternatives are in place, has been used by the RDN since 1991. Current Regional Landfill bans on recyclable and compostable materials include:



- Gypsum (implemented in 1991);
- Cardboard (1992);
- Paper, metal and tires (1998);
- Commercial food waste (2005);
- Wood waste and yard and garden waste (2007);
- EPR materials designated under BC’s recycling regulation (2007); and
- Household plastic, metal food and beverage containers (2009).

Disposal bans are considered to be a critical policy mechanism to drive diversion activities, particularly in the ICI and CD sectors.

6.11 Illegal Dumping

Illegal dumping on private and public lands has been a long-standing concern in the RDN. In 2017, over 35 tonnes of illegally dumped material were removed through clean-up initiatives and disposed of appropriately.



Although it represents less than 1% of the total solid waste generated in the region, illegally dumped material can have serious effects on the environment, wildlife habitats and the ability of others to use and enjoy outdoor recreational areas.

The RDN has implemented an Anti-Illegal Dumping program that includes:

- Prevention of illegal dumping through education;
- Funding the clean-up of illegal dump sites; and
- Illegal dumping surveillance and enforcement activities.

The RDN spends approximately \$60,000 annually combating illegal dumping. Pursuant to RDN Bylaw No. 1386, those who generate (own), deliver or abandon waste illegally can be subject to a fine of up to \$200,000. The RDN also provides funding for four non-profit charity organizations to assist in the cost of hauling and tipping fees for illegal dumping at their operations at a cost of approximately \$76,000 annually.

6.12 Construction and Demolition (CD) Waste

CD projects generate a wide range of materials most of which are reusable or recyclable. These include concrete, asphalt, wood, gypsum wallboard, metal, cardboard, asphalt roofing and plastic.

The RDN promotes diversion of these materials through disposal bans on cardboard, gypsum (drywall), metal and wood, and high tipping fees on loads of CD waste arriving at the Regional Landfill (loads of CD waste cannot be delivered to the CRTS). However, there are examples of where the high tipping fees have failed to result in diversion with the material hauled out of region for disposal. Examples of these are the 2015 City of Nanaimo Ferry Dock Demolition where 476 tonnes of wood waste was disposed of at a private landfill in the Capital Regional District, and the 2015 Wellington School Demolition where approximately 250 tonnes of demolition waste was disposed of at a private landfill in Chilliwack. In the latter example, the

contractor advised that disposal costs were less than half of the cost of RDN disposal at the Regional Landfill and they were not required to source separate recyclables.

There are several facilities in the RDN that accept source-separated discarded CD materials for recycling, as listed in Table 4.

Table 4 Construction & Demolition Waste Management Operations in the RDN

Material	Facility Name
Asphalt	<ul style="list-style-type: none"> • Haylock Bros. Paving • Hub City Paving • DBL Disposal
Asphalt Shingles	<ul style="list-style-type: none"> • Pacific Coast Waste Management • Alpine Disposal and Recycling • DBL Disposal
Concrete	<ul style="list-style-type: none"> • DBL Disposal • DBL Recycling • Hub City Paving • Haylock Bros. Paving • Alpine Disposal and Recycling • Pacific Coast Waste Management • Parksville Heavy Equipment
Metal	<ul style="list-style-type: none"> • ABC Recycling • Alpine Disposal & Recycling • Annex Auto • Carl’s Metal Salvage • DBL Disposal • DBL Recycling • Parksville Bottle and Recycling depot • Regional Recycling – Nanaimo • Regional Recycling - South • Schnitzer Steel
Wood (lumber)	<ul style="list-style-type: none"> • Alpine Disposal & Recycling • DBL Disposal • DBL Recycling • Gabriola Island Recycling Organization • Pacific Coast Waste Management

It is believed a significant portion of CD waste is recycled or used as a fuel substitute, including the following processes:

- Wood waste is chipped and used as hog fuel at pulp mills on Vancouver Island and Washington State;
- Drywall (gypsum) is recycled;
- Metal is recycled;

- Concrete and asphalt are recycled; and
- Asphalt shingles are recycled on a limited basis.

There is also significant reuse of building materials and fixtures through salvage operations and retail stores such as Demxx and Habitat for Humanity's ReStore.

6.13 Multi-Family Waste

There are approximately 13,430 multi-family residential units in the RDN, of which approximately 12,000 units are located in the City of Nanaimo.¹² Collection services to multi-family buildings are privately managed throughout the RDN, including the City of Nanaimo. Each building is responsible for hiring their own collection services for garbage and recycling.

In 2008, the RDN implemented a Multi-Family Diversion Strategy aimed at increasing the level of recycling activities available to multi-family residents living in townhouses, mobile homes, apartments and condominiums. At the time, RDN staff estimated 75% of multi-family buildings had recycling services on-site, primarily for cardboard and paper collection only. In 2012, the service levels were found to have significantly improved since 2008, with 94% of multi-family buildings reporting they had recycling services for cardboard, paper and plastic containers. The primary mechanism by which the RDN encourages recycling in multi-family buildings is through landfill bans that prohibit the landfilling of residential recyclables such as household plastic containers, recyclable paper, cardboard and metal.

Since garbage and recyclables generated at multi-family buildings are generally collected by trucks servicing businesses and institutions, no data is available on the specific quantities disposed or recycled by the multi-family sector. Research done in other jurisdictions indicates recycling rates in multi-family dwellings are typically much lower than those associated with single-family recycling programs. For example, Metro Vancouver reports that only 16% of waste from multi-family dwellings is recycled, and the City of Toronto reports an 18% recycling rate.¹³

¹² Sharon Horsburgh (RDN Staff Report), "Multi-Family Housing Diversion Strategy Progress Report," February 2, 2012.

¹³ Metro Vancouver, "Multi-Family Waste Summary," April 19, 2010, <http://www.metrovancouver.org/region/dialogues/Reports%20and%20Issue%20Summary%20Notes/Multi-FamilyWaste-NS-Summary20110419.pdf>.

¹⁴ Comparatively, single-family homes in the RDN recycle 30% of their discards through the curbside recycling program (not including kitchen scraps collection).

During the RDN's 2012 waste composition study, a load of garbage from multi-family buildings was sampled to provide a rough estimate of the composition of the waste being discarded by multi-family buildings. The composition data suggests that the majority of waste disposed as garbage in multi-family buildings is recyclable (26%) or compostable (44%).

Challenges to achieving a high degree of source separation in the multi-family sector include inconvenience, cost, available space for separation and often a lack of a site champion to promote diversion.

RDN multi-family residences are serviced by private haulers. The service is typically provided in conjunction with, and using the same equipment as used to serve the ICI sector.

6.14 Industrial, Commercial and Institutional (ICI) Waste

The RDN encourages recycling by the ICI sector through variable tipping fees and landfill bans which prohibit the landfilling of recyclables, food waste and yard waste. An assessment of the garbage disposed by the ICI sector was done as part of the RDN's 2012 waste composition study. The data estimates approximately 42% of the garbage disposed is compostable, including food scraps (28%), yard waste (8%) and compostable paper products (6%). An estimated 16% is considered recyclable and consists primarily of paper and cardboard (12%) with metal, pallet wrap and gypsum making up the remainder of the recyclable portion of the ICI garbage.

6.15 Household Hazardous Waste

Household Hazardous Waste (HHW) is managed, to a large extent, through BC product stewardship programs which have set up collection programs for the majority of household hazardous waste products, such as paint, pesticides, solvents, and used motor oil.

¹⁴ City of Toronto, "Excess Garbage, Recycling & Organics," last accessed April 6, 2018, <http://www.toronto.ca/garbage/pdf/2010-graph.pdf>.

The RDN will continue to promote the use of existing Provincial product stewardship programs for the disposal of household hazardous wastes. Additionally, the RDN will encourage new product stewardship programs for other hazardous components of the MSW stream.

6.16 Advocacy

The RDN continues to advocate for greater waste diversion in the region by engaging with federal, provincial and local government agencies, as well as BC product stewardship groups. The costs and responsibilities of waste management have historically been borne by local governments and taxpayers. This is currently shifting; British Columbia is a national leader in having industry arrange for the collection and recycling of designated products and packaging. The responsibility for the costs and risk to manage the life cycle of products should progressively transfer to the manufacturers of goods, and the consumers who use them, to provide the appropriate market mechanism to encourage more sustainable manufacturing and consumer choices.

The RDN's advocacy role may include:

- Petition the Provincial and Federal Governments to act on matters outside local jurisdiction in an effort to minimize waste.
 - Petition senior governments on an on-going basis, and in a variety of ways, including writing letters, arranging meetings at a senior staff and political level, and alerting the media.
 - Consider partnerships with other organizations for joint advocacy initiatives.
- Encourage, demonstrate and advocate for consumers and producers to move towards a closed loop (cradle to cradle) system.
 - Educate the public on the Zero Waste Hierarchy.
 - Support and promote local reuse and repair programs.
 - Demonstrate how to build a closed loop system.
 - Advocate for producers to ensure their products' and packaging life cycle is consistent with the Zero Waste Hierarchy.
- Petition the Provincial and Federal Governments for the expansion and/or addition of EPR programs.
 - Petition senior governments and other related influential organizations, including the Union of BC Municipalities, Federation of Canadian Municipalities and the Local Government Management Association, on an on-going basis, and in a variety of ways including writing letters, arranging meetings at a senior staff and political level, and alerting the media.

- Insist that new EPR programs must meet or exceed current recycling collection programs and offer consistency of services.
- Collaborate with the BC Product Stewardship Council, EPR Stewards, the Canadian Council of Ministers of the Environment and the Recycling Council of BC.
- Partner with neighbouring regional districts and other organizations to ensure a broader, more unified message is expressed when shared concerns are brought forward.

7 Zero Waste Strategy

In 2002, the RDN committed to Zero Waste as its long-term waste reduction and diversion target through the introduction of the Zero Waste Strategy. Zero Waste focuses on reducing the region’s environmental footprint by minimizing the amount of waste that must be landfilled through reduction, reuse, recycling, redesign, composting, and other actions. The RDN was the first jurisdiction on Vancouver Island and one of several forward looking local governments in Canada and around the world to move beyond recycling and adopt a Zero Waste approach to eliminating waste.

In support of the RDN’s Zero Waste goal, the RDN Regional Growth Strategy (adopted November 2011) states the RDN will:

- Pursue an approach to solid waste management that focuses on waste reduction, with the ultimate goal of eliminating the need for waste disposal (i.e. a “Zero Waste” approach); and
- Ensure all new high density developments are designed to support full recycling to include food waste collection and materials prohibited from entering the RDN landfill.

The RDN and its member municipalities, residents and businesses have led the way in innovative approaches to reducing the amount of garbage that must be landfilled. In 1991, the RDN introduced Canada’s first user pay residential garbage collection system. Since then, the RDN and its partners have expanded curbside recycling programs, banned paper, metal, commercial food waste, clean wood waste and other recyclable materials from the landfill, and successfully promoted composting throughout the region.

The Zero Waste Strategy (previously called the Zero Waste Plan) outlines how the RDN plans to continue reducing the quantity of waste disposed.

The Zero Waste Strategy was developed by undertaking the following steps:

1. Reviewing the existing Zero Waste Strategy to identify what elements should be retained and carried forward to become part of the updated Zero Waste Strategy;
2. Identify new waste reduction opportunities by:
 - a. Reviewing waste diversion initiatives undertaken in other North American jurisdictions considered “leading edge”;
 - b. Interviewing waste management coordinators in BC and across Canada; and
 - c. Brainstorming RDN-unique ideas.
3. Develop a menu of options for possible inclusion in the Zero Waste Strategy using initiatives identified in the first two steps;
4. Present the menu of possible options to the Regional Solid Waste Advisory Committee (RSWAC) to obtain their feedback; and
5. Develop a draft Plan based upon RSWAC’s and staff input.

The Zero Waste Strategy is organized into two sections:

- **Ongoing Programs** – programs that were part of the 2004 Zero Waste Plan, were implemented and continue to operate, including programs identified in the annual budget for 2017;
- **New Programs** – programs with new diversion potential will be implemented in 2018 to 2021 upon adoption of this Plan.

7.1 Ongoing Programs 2017

7.1.1 School Education Program

The School Education Program currently contracts out the design and delivery of a primary school program with a focus on the concept of zero waste.

7.1.2 Illegal Dumping Program

The Illegal Dumping Program includes surveillance and enforcement activities as well as on-going clean-up of illegal dumping sites and free disposal (tipping fees are waived) for community clean-up events.

The RDN currently waives landfill tipping fees for waste received from a few select charitable organizations operating in the RDN. Although there is definite support for this program, there could be a future redistribution of funding.

7.1.3 Disposal Bans

The practice of banning the disposal of specific wastes from the landfill, when viable recycling alternatives are in place, has been used by the RDN since 1991. Current landfill bans on recyclable and compostable materials include gypsum, cardboard, paper, metal and tires, commercial food waste, yard and garden waste, wood waste and EPR materials designated under BC's recycling regulation, household plastic containers and metal food and beverage containers. Disposal bans are considered to be a critical policy mechanism to drive diversion activities, particularly in the ICI and CD sectors.

7.1.4 Zero Waste Promotion

The Zero Waste Promotion and Education program contains the following elements:



- Enhances current zero waste information initiatives including the website, newsletters and participation in community events.
- Supports and promotes use of communication tools to assist residents in accessing locations to take recyclable or reusable goods. Examples include the RDN Curbside “What Goes Where” feature, Zero Waste Business Tool kit and the RDN and City of Nanaimo Organic Waste in Multi-Family Buildings Guide.

7.1.5 Recycling at RDN Facilities

As a convenience, the RDN provides the opportunity for self-haul customers to recycle several different type of items. As of the preparation of this Plan, these items include appliances, propane tanks, scrap metal, gypsum (at CRTS), cardboard, paper, glass, and metal and plastic food and beverage containers. Self-haul and commercial customers can also drop off food waste and yard waste.

7.1.6 Waste Stream Management Licensing (WSML)

To support the maintenance of the Waste Stream Management Licensing Bylaw the RDN processes new applications, reviews site specific operating plans, monitors reporting and inspects existing licensed waste management facilities.

7.1.7 Residential Curbside Garbage and Recycling Collection

The RDN provides single family residential curbside garbage, recycling and food waste collection. As per Bylaw No.1591, a single family dwelling unit means a single family detached dwelling and each Dwelling Unit of a duplex, triplex or quadruplex and a Manufactured Home not situated in a Manufactured Home park. Key elements of the program are:

- Provide service to approximately 28,445 single family dwellings in all Electoral Areas, City of Parksville, District of Lantzville and the Town of Qualicum Beach;
- Contracted collection of materials suitable for recycling as part of the Recycle BC program;
- Biweekly collection of garbage with strict can limits; and
- Weekly collection of food waste.

7.1.8 Food Waste and Yard Waste Collection at RDN Facilities

To ensure on going opportunity to dispose of food waste and yard waste, the RDN accepts source-separated yard waste, food waste at the CRTS and Regional Landfill (yard waste only). This material is transferred to a private composting facility for processing.

7.1.9 Advocacy

The RDN continues to advocate for greater waste diversion in the region by engaging with federal, provincial and local government agencies as well as BC stewardship groups. The costs and responsibilities of waste management have historically been borne by local governments and taxpayers. The responsibility for the costs and risk to manage end-of-life products should progressively transfer to the manufacturers of goods and the consumers that use them to provide the appropriate market mechanism to encourage more sustainable manufacturing and consumer choices.

Costs associated with the RDN's current activities regarding advocacy are difficult to determine given the broad range of activities carried out by political and staff representatives. These range from support for organizations such as the BC Product Stewardship Council, active participation in organizations such as the Coast Waste Management Association, to engaging with the Province on policy and regulation development. The continued role of advocacy is a priority and will remain variable depending on the level of participation and costs related to the engagement opportunities (e.g. association dues, travel expenses).

7.1.10 RDN Purchasing Policy

The development and implementation of an RDN Purchasing Policy was budgeted for in the 2004 Plan. However, it was not completed during the term of the Plan.

Using existing municipal models, the RDN intends to develop an internal purchasing policy to ensure that the environmental impact of purchases and operations are minimized. Environmental purchasing policies developed by other municipalities, such as the City of Richmond, will be used as a template.

An RDN Purchasing Policy will have a minimal waste diversion impact; however, it demonstrates leadership and is consistent with the RDN Board's strategic goals.

7.2 New Programs 2018-2021

The future solid waste system will build on the existing framework of services and programs while seeking to improve the delivery of those services and continue to reduce the quantity of waste sent to disposal. The new programs, described below, will be essential in helping the RDN reach the target of 90% waste diversion.

7.2.1 Expanded Zero Waste Education

The RDN and the City of Nanaimo produce most of the solid waste management promotion and education materials provided in the Regional District. The objectives of the Expanded Zero Waste Education Program are to:

- Increase waste diversion;
- Educate all generators about the solid waste management priorities of the Regional District;
- Promote participation in waste diversion programs;
- Promote the Zero Waste concept;
- Encourage proper participation in garbage and recycling collection programs; and
- Encourage compliance with Regional District material bans.



Education activities include: staffing at public events and speaking engagements, mall displays, articles in the RDN newsletter "Perspectives", the RDN "Zero Waste" newsletter, a Zero Waste school education program, garbage and recycling program brochure (for RDN contract areas), brochures for various waste diversion programs (backyard composting, grasscycling, disposal

bans, etc.), and a web site featuring a recycling database, the RDN Get Involved webpage, and the Zero Waste tool kit and program information.

A greater emphasis is proposed to be targeted at adult audiences through traditional and social media, as well as being more active in a variety of public events.

7.2.2 Expanded Industrial, Commercial and Institutional (ICI) Waste Management

The RDN encourages recycling by the ICI sector through variable tipping fees and landfill bans which prohibit the landfilling of recyclables, food waste and yard waste.



An assessment of the garbage disposed by the ICI sector was done as part of the RDN’s 2012 waste composition study. The data estimates approximately 42% of the garbage disposed is compostable, including food scraps (28%), yard waste (8%) and compostable paper products (6%). An estimated 16% is considered recyclable and consists primarily of paper and cardboard (12%) with metal, pallet wrap and gypsum making up the remainder of the recyclable portion of the ICI garbage.

To increase diversion from the ICI and multi-family sectors, there are three paths available to the RDN:

1. Continue with, and increase education and awareness;
2. Increase enforcement of current disposal bans at the Regional Landfill and CRTS; or,
3. Incentivize the industry to achieve higher levels of diversion.

Education alone is not expected to make any measurable change to current diversion practices in this sector. A combination of education and enforcement of current disposal bans is expected to result in a measurable increase in diversion but also contribute to export of waste where there is less rigour in enforcement and/or resulting in an increase in cost without increased diversion as “fines” are just absorbed as a cost of doing business. There is opportunity to build in incentives, as discussed in the following section (Introduction of New Solid Waste Regulation). A combination of education, enforcement of landfill bans and incentives through new regulation has the highest waste diversion potential.

7.2.3 Introduction of New Solid Waste Regulations

The requirement and authority for a Solid Waste Management Plan is set out in the *Environmental Management Act*. The approval of a Waste Management Plan, can authorize regional districts to use additional regulatory tools to manage municipal solid waste within their boundaries.

Following the approval of the Plan by the Minister of Environment, the RDN intends to undertake further review to determine the viability of implementing regulations relating to Mandatory Waste Source Separation and Waste Hauler Licensing, as detailed in subsections 7.2.3.1 and 7.2.3.2. The processes for regulatory development and implementation is discussed in subsection 7.2.3.3.

Once the Province approves the Plan, further review and consultation is necessary to develop the authorities more fully, determine costs and undertake consultations with potentially affected stakeholders in accordance with section 27(1) of the Act. One or more bylaws will be needed to implement these regulations and these will require approval of the Minister of Environment prior to adoption of the proposed programs.

7.2.3.1 Mandatory Waste Source Separation

Waste source separation regulation provides Regional Districts the ability to regulate waste generators such as the mandatory separation of the waste stream (e.g. refuse, recyclables, and organics).

Currently, three local governments are considering or have already implemented this type of regulation.

- The Comox Valley Regional District Solid Waste Management Plan proposes to require mandatory recycling of the ICI sector. For example, their plans require all ICI buildings to implement a recycling collection service by a defined date. Their Plan was approved by the Minister of Environment in 2013.
- The District of Squamish is considering requirements for waste source separation, maximum contamination levels in each waste stream, and the use of clear bags for garbage.
- The City of Vancouver's Green Demolition Bylaw requires 75% recycling of materials on demolition of pre-1940 homes, and 90% on pre-1940 character homes.

Regional districts do not have the authority to introduce a regulation similar to the City of Vancouver's Green Demolition Bylaw, nor can the Province grant approval through the current

Solid Waste Management Plan system. Therefore, the RDN proposes to proceed sequentially through the two following options:

1. Request that the Province enact a regulation to grant the RDN region-wide the authority by way of a regulation for waste source separation. Although this would be done outside of the Plan approval, the Plan would provide the basis for the RDN's request. Granting of such authority would put the RDN on similar footing to that of other local governments (e.g. City of Vancouver).
2. Failing the Province's approval of the above, the RDN proposes to draft a template Bylaw that could be adopted by member municipalities of the RDN as the powers of municipalities are somewhat more extensive. The downside of this approach is that not all member municipalities may choose to participate, and as a result, there would be different solid waste requirements throughout the RDN. Even if all the member municipalities choose to participate, such regulations would not apply to the Electoral Areas of the RDN. Therefore, Option 1 is the preferred approach.

Waste source separation regulation will help ensure recyclables and compostables do not end up being landfilled. This proposed regulation would require businesses, institutions, and multi-family residences to have provisions for separated refuse, recyclables and organic waste. The requirement would apply to generators choosing to contract a waste hauler to collect their waste or to those choosing to self-haul their waste for disposal and recycling. The concept is to require that generators have a provision for three stream waste separation or they hire a service provider for this service. The RDN does not contemplate enforcing the actual use of the three stream service. Instead, it is expected to operate much like the residential curbside collection service provided by the RDN and the City of Nanaimo where participants are encouraged to participate in source separation. There is a very high level of participation in the residential three stream curbside service, and the RDN believes this is due in part that if people are paying for the service regardless, they are more likely to use it.

Should the RDN be granted this authority, consideration will also be given to the option of a post-collection sorting service being included as an alternative to source separation. This Plan has been developed on the basis of promoting source separation as a means of achieving the highest value recyclables to encourage the highest and best use of the materials. However, technological advances and customer convenience are considerations that must be considered in advancing new programs. Consultation with the community and industry in developing mandatory source separation regulation will consider post-collection sorting. A Bylaw that allows post-collection sorting as an option to source separation would likely provide incentive for the development of an industry funded multi-material recovery facility.

7.2.3.2 Waste Hauler Licensing

The RDN wishes to consider implementation of a regulatory scheme for the licensing of waste haulers. The licensing would apply to any business



transporting another parties' waste for profit where the waste originates within the RDN. The intent is to promote the “business of diversion” and foster industry innovation to achieve the lowest system cost with the highest waste diversion.

The traditional waste management economic model favours waste industry behaviour to seek the lowest disposal cost. With cost being the primary consideration, typically, the decision to divert waste and recycle must be cost competitive with disposal. To make diversion more cost competitive, waste disposal costs can be increased. Typically, communities with high waste disposal costs also have high waste diversion. The upward threshold that can be applied to disposal costs to drive diversion essentially equals the cost of lower cost disposal options in other jurisdictions. Businesses can usually be expected to opt for the lowest cost option (i.e. the cheaper of diversion or disposal).

Licensing waste haulers provides the ability for the RDN to change the existing financial model to one where the waste industry is more profitable if they divert waste rather than dispose of it. The Waste Hauler Licensing regime is proposed to have the following elements:

1. Licensed haulers will be required to pay a disposal charge to the RDN in the form of a levy for any waste collected and disposed of by landfilling or incineration at any facility within or outside the RDN. The levy will not apply to any waste that is diverted or recycled. The basis for this levy is:
 - a. To provide a direct incentive for waste services aimed to encourage source separation by customers, or extracts recyclable material from the waste stream (e.g. materials recovery facility); and,
 - b. To dis-incentivize generators of waste who opt to dispose of their waste out of the RDN to avoid paying their portion of solid waste services costs that would otherwise be collected through tipping fees. Introduction of the levy ensures all waste generators in the region pay their fair share of the solid waste management costs.
2. Licensed Haulers will receive a discounted tipping fee at the Regional Landfill and CRTS. The combined disposal levy and discounted tipping fee will be less than the tipping fee applied to all non-licensed customers. This fee differential, which favours the Licensed

Haulers, will be set at a rate aimed to encourage the flow of waste to industry before it is brought to RDN disposal facilities.

3. Licensed Haulers will be required to track waste disposal and diversion quantities, as well as submit records and remit the disposal levy. Licensed Haulers will also be subject to auditing at the request of the RDN.
4. Licensed Haulers will be required to submit an annual licensing fee along with proof of a business license and insurance. The licensing fee will be set at an amount that is not a barrier to licensing but only encourages waste haulers in participating in the program.

The licensing is intended to encourage the flow of waste through the waste industry and incentivize waste industry efforts to divert and recycle waste. Even though industry disposal costs go down as result of the fee differential, industry is more profitable if they engage in diversion rather than seek out low cost disposal. The expected outcome of this model is growth in the waste industry around waste diversion. As the waste industry grows, more and better services are provided, which in turn, provides more convenience to the community. Furthermore, as there is more competition for waste materials, the costs of services fall.

In addition, licensing haulers will allow the RDN to set requirements on the services the haulers provide. For example, the RDN could require all Licensed Haulers provide a three stream waste service to their customers (i.e. garbage, organics and recycling). Licensed Haulers would help ensure every business or multi-family building has a recycling and organics program. This is very similar to the Mandatory Waste Source Separation regulation discussed previously with the exception that anyone not using a third party waste disposal service would not be subject to this requirement.

7.2.3.3 Regulatory Development and Implementation Process

The Mandatory Waste Source Separation and Waste Hauler Licensing programs will be further developed following the approval of the Plan. Further review and consultation is necessary to develop the authorities more fully, determine costs and harmonize the strategy with potentially affected stakeholders. The RDN is requesting the Province grant additional authorities through the adoption of this Plan. One or more bylaws will be needed to enact these authorities, and will require approval of the Minister of Environment.

Following the approval of the Plan, the Plan Monitoring Advisory Committee (PMAC) will further participate in developing the framework for the Mandatory Waste Source Separation and Waste Hauler Licensing programs. The two programs and correlated bylaws will likely be done simultaneously, as proposed in the Plan Implementation Schedule in Section 10.1. The

development of the programs is likely to occur in multiple stages, and will include necessary consultation with authorities (i.e. the Ministry of Environment) and stakeholders.

A dataset will be compiled of stakeholders who may be directly affected by the new regulations. The stakeholders will be contacted to partake in the consultation process. A comprehensive consultation process will be facilitated, and may include meetings, presentations, surveys or open houses. Stakeholder feedback will be recorded, assessed, and incorporated into the programs and bylaws, as is appropriate.

The breakdown for the overall projected program costs can be found in Section 7.3, and the plan financing options are described in Section 10.2 and 10.3.

Along with best-standards procedures, the bylaws will be written to “avoid uncertainty and any potential for arbitrary decision-making.”¹⁵ The concepts for these bylaws are further described in Section 9.3.

Program implementation will commence once the Mandatory Waste Source Separation and Waste Hauler Licensing programs have been comprehensively developed and the correlated bylaws have been approved. Once implemented, the PMAC will participate in the continued monitoring and evaluation of the new programs and bylaws. This monitoring and evaluating process is further discussed in Section 10.6.

7.2.3.4 Hypothetical Outcomes of New Solid Waste Regulations

While it is impossible to predict the exact outcomes of the new solid waste regulations, hypothetical outcomes are illustrated below:

- **Mandatory Waste Source Separation**
 - This program is not intended to result in RDN-provided collection service for ICI and multi-family buildings. The program should continue the current competitive system of private waste haulers providing service to ICI and multi-family buildings.
 - The program is envisioned for source separation with the familiar three-stream sorting system (i.e. landfill, recycling and organics). However, in developing the

¹⁵ UBCM, “Fact Sheet #6: Bylaws”, 2014

regulation, consideration will be given to allowing post-collection sorting as an alternative. Such provisions may provide incentive for a private sector developed MRF.

- Mandatory Waste Source Separation is synergistic with the Waste Hauler Licensing program to promote high levels of waste diversion.
- The onus of the regulation will be on the waste generator, not the hauler.
- The RDN does not contemplate enforcement of the actual use of three stream containers (e.g. garbage police) only the provisions of having multiple containers. The premise is that if generators have multi waste stream separation options, they will use it.
- The participation in the use of the multi stream separation will be promoted through education and communication programs.
- The program is intended to favour recycling and remove the low cost disposal option of a single waste container.
- **Waste Hauler Licensing Criteria**
 - Anyone that collects waste for profit within the RDN would need a license.
 - Conditions of license would likely be:
 - Having valid ICBC insurance;
 - Monthly reporting of waste sent for disposal;
 - RDN's right to compel auditing of records of waste sent for disposal; and
 - Reduced landfill tipping fee and remission of a disposal levy for waste sent for disposal to a facility within or outside of the RDN.
 - The Licensing is not intended to be exclusive; anyone that meets the conditions for licensing would be granted a license and there is no "decision" process.
 - An annual renewal process with remittance of a licensing fee; and
 - The annual fee would need to be set at a value that is not so high to discourage participants but also not so low as it is ineffective in encouraging the flow of waste to the industry to fully realize the waste diversion potential.
- **Disposal Levy and Reduced Tipping Fees**
 - The intent is to encourage efforts around diversion in place of seeking out low cost disposal.
 - The intent is to development an economic model that grows the waste industry and promotes innovation around diversion. The model anticipates better future options and convenience for those that generate waste.
 - Licensed Hauler would receive a preferred discounted tipping fee at RDN facilities.

- Licensed Haulers would be assessed a Disposal Levy on waste disposed/sent for landfilling in or out of region. The Disposal Levy would not apply to recycled materials.
- The Disposal Levy is intended to offset RDN fixed costs for solid waste services programs which is currently not received from waste generated in the RDN that is shipped outside of region for disposal. In consideration of the “user pay” principal, all waste generators in the region should share in these costs. The net disposal cost for Licensed Haulers disposing of waste in region (i.e. preferred discounted tipping fee + disposal levy) will be less than the base tipping fee applied to other parties delivering waste to RDN facilities.

7.2.4 Expanded Construction and Demolition (CD) Waste Management

CD generates a wide range of materials most of which are reusable or recyclable such as concrete, asphalt, wood, gypsum wallboard, metal, cardboard, asphalt roofing, and plastic.



The RDN promotes diversion of these materials through disposal bans on cardboard, gypsum, metal and wood, and high tipping fees on loads of CD waste arriving at the Regional Landfill (loads of CD waste cannot be delivered to the CRTS). However, there are examples of where the high tipping fees have failed to result in diversion with the material hauled out of region for disposal.

The RDN will improve and reintroduce education and communications regarding CD waste in the region and increase enforcement of current disposal bans.

There is also opportunity to build in incentives, as discussed in the previous section (Introduction of New Solid Waste Regulation). A combination of education, enforcement of landfill bans and incentives through new regulation has the highest waste diversion potential.

7.2.5 Household Hazardous Waste

Household hazardous waste is managed, to a large extent, through BC product stewardship programs which have set up



collection programs for the majority of household hazardous waste products such as paint, pesticides, solvents, and used motor oil. The RDN will explore options for further expansion of collection of non-stewarded residential household hazardous waste, which may include hosting drop-off events or contracting with a service provider to accept the materials.

7.2.6 Zero Waste Recycling

The 2012 waste composition study, indicated there are still a number of waste types that can be recycled; however, they are not part of a stewardship program or there are no established commercial markets, and these materials end up in the residual waste stream. The RDN proposes to promote Zero Waste by making funding available to target these materials with the objectives of:

1. Maximizing waste diversion;
2. Encouraging non-profit and private sector innovation to develop markets and processes; and
3. Improving convenience for recycling materials.

The RDN will target recycling of specific materials or processes that do not have local commercial markets. The RDN will provide funding to the Nanaimo Recycling Exchange (NRE) to act as a research and recycling hub for recycling items currently not commercially marketable. Research and recycling hub activities would include developing methods, markets and collaborations for items not easily recyclable, investigating barriers to recycling these items, and developing recycling programs that would ultimately benefit the RDN as a whole. Funding for the research and recycling hub activities is proposed to be set at \$300,000 annually over a 5 year period.



Making it Happen

7.3 Zero Waste Strategy Summary of Costs

Table 5 contains a breakdown of the current budget for 2017 ongoing Zero Waste programs and cost estimates for new Zero Waste programs based on the full implementation costs in 2020. All costs are presented in 2017 dollars and rounded to the nearest \$1,000.

Table 5 Summary of Costs Estimates for Zero Waste Strategy

Ongoing Zero Waste Programs	Budget
School Education Program	\$30,000
Illegal Dumping Program	\$25,000
Charitable Organizations Tipping and/or Hauling Fees	\$76,000
Disposal Bans	N/A
Zero Waste Promotion	\$77,000
Recycling at RDN Facilities	\$161,000
Waste Stream Management Licensing Technical Assistance	\$10,000
Residential Curbside Garbage, Recycling, and Green Bin Collection	\$4,623,000
Food Waste and Yard Waste Collection at RDN Facilities	\$1,165,000
NRE for hauling and tipping fees of source-separated yard waste	\$269,000
Advocacy	\$20,000
Administration	\$66,000
Professional Fees	\$90,000
Building Ops	\$27,000
Vehicle & Equipment Ops	\$23,000
Operating Costs	\$227,000
Wages & Benefits	\$466,000
Contribution to Reserve Fund	\$69,000
Total	\$7,424,000

New Zero Waste Programs	Budget
Expanded Zero Waste Education	\$40,000
Household Hazardous Waste	\$100,000
Expanded Industrial, Commercial and Institutional (ICI) Waste Management Diversion	
Increased education of existing landfill bans and a relaunch of Commercial Organics Diversion Strategy and Multi-Family Diversion Strategy	\$100,000
Increased enforcement of existing landfill bans targeted at the ICI sector	\$100,000
Expanded Construction and Demolition (CD) Waste Diversion	
Improve and reintroduce education and communication regarding CD waste in the region	\$20,000
Enhanced enforcement of landfill bans related to CD materials	\$20,000
Waste Haulers Licensing ¹⁶	\$469,000
Mandatory Waste Source Separation	\$373,000
Zero Waste Recycling	\$300,000
Total	\$1,538,000

¹⁶ Based on Full Implementation in 2020.

7.3.1 Diversion Potential

While many of the programs listed in the Zero Waste Strategy do not contribute directly to diversion, they are believed to be essential to supporting existing and planned Zero Waste initiatives and without them the diversion potential of the other programs could not be realized. Upon full implementation, the RDN could achieve an overall diversion rate of 90% as shown in Table 6.

Table 6 Zero Waste Strategy New Diversion Potential

New Programs	Diversion Potential (%)
Expanded Zero Waste Education	Not quantifiable
Household Hazardous Waste	<1%
Expanded ICI Waste Management Diversion	3%
Expanded CD Waste Diversion	3%
Waste Haulers Licensing	10%
Mandatory Waste Source Separation	
Zero Waste Recycling	1%
New Diversion (based on 2016 baseline)	17%
Total Cumulative Diversion (based on 2016 baseline of 68%)	90%



8 Residual Management

The Regional Landfill has capacity until 2040 based on current landfilling rates. Depending on the speed and success of further diversion initiatives, the life of the landfill could be extended for an additional 10 to 15 years. The long term goal of the RDN is Zero Waste. Nevertheless, the RDN recognizes that there will be some necessary landfilling capacity for the foreseeable

future. During the time frame of this Plan, technologies will be advanced and the economic viability of residual waste processing and disposal may change. The RDN will continue to review and consider alternative technologies that are consistent with the Zero Waste Hierarchy and goal.

Discussions with adjacent regional districts to identify potential cooperative strategies for waste management system improvements have been on-going for a number of years and will continue. The RDN is currently a partner in the Association of Vancouver Island Coastal Communities (AVICC) that is actively looking into cooperative strategies for managing solid waste across regional district boundaries. Future options for residual management could include collaboration with other local governments, siting a landfill and/or considering export on or off the island.

8.1 Disposal

The disposal system involves:

- Continued use of the CRTS to service the northern portion of the RDN;
- Transfer of waste received at CRTS to the Regional Landfill; and
- Continued use of the Regional Landfill to service the southern portion of the RDN.

This system includes all of the necessary elements to effectively manage the RDN's MSW for the next 10 years. Additional MSW facilities are not required.

8.2 Church Road Transfer Station

CRTS will continue to receive MSW generated in the northern municipalities of Parksville, Qualicum Beach and Lantzville, and Electoral Areas E, F, G and H. Special wastes such as contaminated soil and asbestos cannot be delivered to CRTS and must be delivered directly to the Regional Landfill.

All waste received at the CRTS, with the exception of recyclables and yard waste, will be transferred to the Regional Landfill. Recyclables and yard waste will be picked up and recycled or composted by contractors.

CRTS charges variable tipping fees based on a RDN tipping fee and enforces RDN disposal bans.

8.3 Regional Landfill

MSW generated in the City of Nanaimo and Electoral Areas A, B and C will be delivered directly to the Regional Landfill. The Regional Landfill will also receive recyclable materials, yard waste, CD waste and some types of “special” wastes that require specific handling procedures (e.g. contaminated soil, asbestos, animal carcasses, etc.). The operating details of the Regional Landfill are included in the Landfill Operational Certificate, which is issued to the RDN by the Provincial Ministry of Environment. A copy of the Landfill Operational Certificate can be found in Appendix C.

Recyclables and yard waste will be picked up and recycled or composted by contractors. CD waste will be ground and reused on site, or landfilled.

The Regional Landfill charges variable tipping fees based on RDN tipping fee rate and enforces RDN disposal bans.

8.3.1 Closure and Maintenance

The RDN is responsible for operating and maintaining the environmental control infrastructure at the Regional Landfill site for a minimum post-closure period of 200 years. A closure fund has been established to address the long-term operation and maintenance of the leachate and landfill gas collection systems and the on-going monitoring of groundwater, surface water, landfill gas, erosion, slope stability and settlement.

8.4 Long Term Residual Waste Management

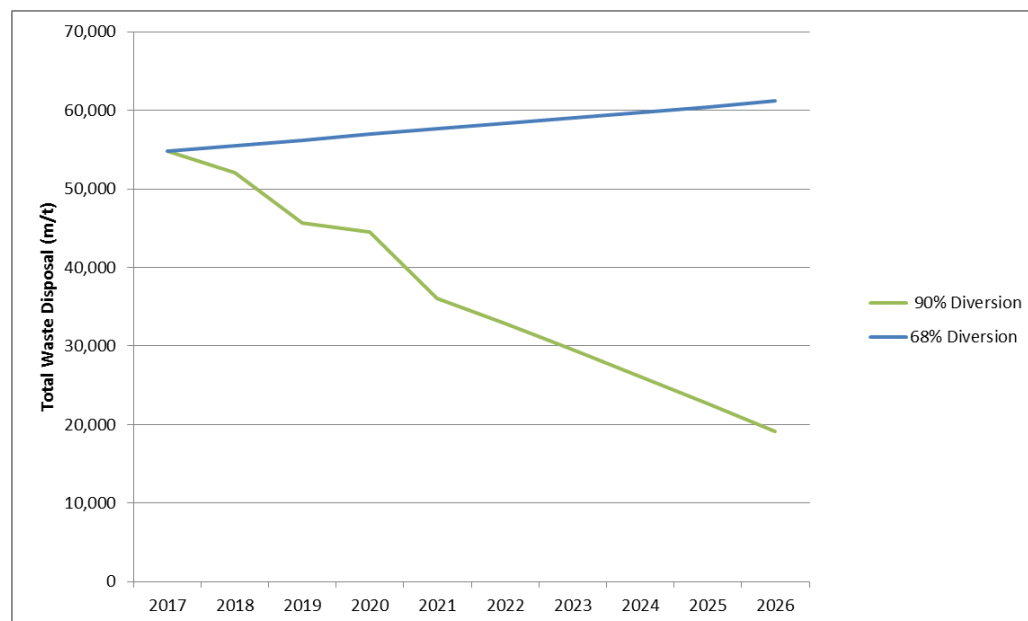
The Regional Landfill has capacity until 2040 based on current landfilling rates. Depending on the speed and success of further diversion initiatives, the life of the landfill could be extended for an additional 10 to 15 years. The long term goal of the RDN is Zero Waste. Nevertheless, the RDN recognizes that there will be some necessary landfilling capacity for the foreseeable future. During the time frame of this Plan, technologies will be advanced and the economic viability of residual waste processing and disposal may change. The RDN will continue to review and consider alternative technologies that are consistent with the Zero Waste Hierarchy and Goal.

Discussions with adjacent regional districts to identify potential cooperative strategies for waste management system improvements have been on-going for a number of years and will continue. The RDN is currently a partner in the AVICC that is actively looking into cooperative strategies for managing solid waste across regional district boundaries. Future options for

residual management could include collaboration with other local governments, siting a landfill, and/or considering export on or off the island.

8.5 Residual Waste Management Summary

The quantity of residual waste generated over the life of the Plan is primarily dependent on the growth of the population and the success of the Zero Waste Plan’s implementation. Figure 7 shows the projected difference of residual waste quantities if there is no additional waste



diversion (status quo), and if the Zero Waste Plan is fully implemented.

Figure 7 Projection of Residual Waste in the RDN

The future quantities of residual waste are also influenced by economic growth in the Region, new product stewardship programs, and the unanticipated development of private waste management facilities in the area. Therefore, the residual waste projections should be considered rough estimates.

9 Bylaws

For the purpose of implementing the approved Plan, the RDN intends to continue with the existing Waste Stream Management Licensing Bylaw, review solid waste curbside collection service options, as well as create two new additional bylaws, Mandatory Waste Source

Separation Bylaw and Waste Haulers Licensing Bylaw. These agreements and bylaws are discussed in the following sections.

9.1 Waste Stream Management Licensing

The RDN adopted Bylaw No. 1386, the Waste Stream Facilities Licencing Bylaw in 2004. The purpose of this Facilities Bylaw No. 1386 is to regulate facilities managing waste with the objective of:

- Setting a high standard of operation for the local waste management industry;
- Creating a level playing field for industry (to protect the good operators from low standard, “fly by night” operators);
- Minimizing risk and costs to the taxpayers for clean-up of poorly operated facilities, abandoned facilities and abandoned MSW and recyclable material (illegal dumping);
- Assisting in waste tracking and progress of the Plan and waste diversion;
- Protecting and enhancing the existing waste diversion rate; and
- Setting a consistent level of environmental and community protection throughout the RDN to reduce the incentive to move to less regulated areas of the RDN and outside the RDN.

This Bylaw involves licensing private MSW management and recycling facilities within the RDN, and sets out operating and reporting requirements as well as provisions for financial security. All facilities that handle MSW in whole or part are to be included in the licensing system with the exception of those below:

- Facilities regulated by the Ministry of Environment through a Permit;
- Soil manufacturing facilities (unless they are composting MSW-based materials on-site);
- Private on-site collection facilities (such as centralized recycling areas used by office buildings and mall tenants);
- Recycling collection facilities;
- Reuse businesses;
- Concrete and asphalt recycling operations and auto wreckers since the material handled by these operations has not traditionally been handled as MSW; and
- Municipally owned facilities, including the CRTS.

There are license application and annual administration fees associated with the licensing system. These fees are intended to cover most of the staff costs associated with maintaining

the licensing system. A copy of the existing RDN Bylaws is included in supplemental Plan Appendix J.

9.2 Curbside Collection Contract

In preparation for the expiration of the current Waste Connections curbside collection contract set to end in March 2020, the RDN has begun a review of solid waste service options.

Changes in service could result in significant capital expenditures by the RDN such as the borrowing for waste collection bins. The Environmental Management Act contemplates the implementation of such programs under the Plan through bylaw adoption without requiring the assent of electors which might otherwise be required by the Community Charter or Local Government Act.

Optimal financial benefit is realized where the length of the service contract is aligned with the useful life of equipment. The life of waste collection vehicles should be a significant consideration in moving forward with any future curbside collection service contract.

9.3 Development of New Bylaws

The Mandatory Waste Source Separation Bylaw and Waste Haulers Licensing Bylaw will be developed following the approval of this Plan. The programs associated with these bylaws, along with the processes in which the bylaws will be developed, are discussed in Section 7.2.3. As per the Implementation Schedule in Section 10.1, the RDN will conduct planning, bylaw development and public consultation prior to full implementation of these new bylaws.

In accordance with the Community Charter and/or Local Government Act, the bylaws will be written to “avoid uncertainty and any potential for arbitrary decision-making.”¹⁷

9.3.1 Mandatory Waste Source Separation Bylaw

As previously described, the Mandatory Waste Source Separation Bylaw will be developed following the approval of the Plan and granting of authority from the Province. Potential sections in the bylaw are illustrated below:

¹⁷ UBCM, “Fact Sheet #6: Bylaws”, 2014

- Definitions
- Interpretation
- Entities requiring source separation
- Exemptions
- Separation requirements
- Amendments
- Appeals
- Offenses and penalties

9.3.2 Waste Haulers Licensing

As previously described, the Waste Haulers Licensing Bylaw will be developed following the approval of the Plan and granting of authority from the Province. Potential sections in the bylaw are illustrated below:

- Definitions
- Interpretation
- Entities requiring license
- Exemptions
- Applications
- License Fees
- Discounted Tipping Fee
- Disposal Levy
- License requirements
- License renewal
- Auditing of Records
- Records and reporting
- Amendments
- Appeals
- Offenses and penalties

10 Plan Implementation

10.1 Implementation Schedule

The implementation of the Plan will begin in 2018, with all elements of the Plan anticipated to be in place by 2021. The implementation schedule is shown in Table 7.

Table 7 Implementation Schedule

2019	<ul style="list-style-type: none"> • On-going programs • Implementation of Expanded Zero Waste Education • Implementation of Household Hazardous Waste • Implementation of Expanded ICI Waste Management • Implementation of Expanded CD Waste Management • Consult on Mandatory Waste Source Separation Bylaw and Waste Hauler Licensing Bylaw <ul style="list-style-type: none"> ○ Introduction of 1 FTE at Zero Waste Coordinator level
2020	<ul style="list-style-type: none"> • On-going programs • Implementation of Zero Waste Recycling • Mandatory Waste Source Separation and Waste Hauler Licensing Bylaws <ul style="list-style-type: none"> ○ Bylaw Development and Legal Counsel ○ Develop Outreach Material
2021	<ul style="list-style-type: none"> • On-going programs • Increased enforcement of ICI Waste Management • Implementation of Waste Haulers Licensing Bylaw • Implementation of Waste Source Separation Bylaw <ul style="list-style-type: none"> ○ Introduction of 2 FTE at Zero Waste Compliance Officer level ○ 1 new vehicle
2022	<ul style="list-style-type: none"> • On-going programs • Waste Source Separation Bylaw <ul style="list-style-type: none"> ○ 1 new vehicle
2023	<ul style="list-style-type: none"> • On-going programs

10.2 Plan Financing

The principle funding mechanisms for delivery of programs under the Plan are:

1. Utility fees;
2. Recoveries;
3. Tipping fees; and
4. Taxation.

When available, opportunities for grants will be utilized to assist in the funding of programs.

Utility fees are currently applied to the residential curbside collection services. Recoveries received under contract from Recycle BC offset the costs of the curbside recyclables collection as part of their stewardship program. The cost of managing curbside organics and residual waste is fully funded by the utility fees. This practice is expected to continue in the future.

Other than the residential curbside utility fees, solid waste services programs are substantially funded through tipping fees. This is intended to encourage waste generators to seek alternatives to disposal of waste, and is consistent with the guiding principle of “polluter and user-pay approaches and manage incentives to maximize behavior outcomes.”

Although the Plan continues to advocate “user-pay”, there is recognition it will likely become necessary for a greater reliance on taxation, due to the following considerations:

1. There is an upward threshold in setting tipping fees where generators are more likely to seek alternative disposal locations, rather than the intended behavioral change to reduce/recycle waste;
2. For many programs listed in this Plan, the whole of the RDN benefits and there is no identifiable user – this includes programs such as the Illegal Dumping Program; and Programs with universal benefit, are more likely to be covered through tax requisition.
3. As waste diversion is more successful, there is less revenue generated through tipping fees to support programs under the Plan.

Table 8 shows a projected cost estimates for the entire solid waste services department for the next five years. For illustration only, operating revenues for new and expanded programs anticipated by this Plan have been incorporated into “Property Taxes”, with no rate change to “Landfill Tipping Fees”. This is only intended to project future budget amounts, and is not intended to forecast the actual apportionment of revenue sources.

Table 8 Solid Waste Services Projected Estimated Revenue Sources and Operating, Capital and Life Cycle costs 2017-2022

Operating Revenues	2017	2018	2019	2020	2021	2022
Property Taxes	\$722,610	\$1,289,632	\$1,941,508	\$2,682,643	\$2,831,185	\$2,869,640
Operations	\$1,224,129	\$1,231,581	\$1,239,081	\$1,246,632	\$1,254,233	\$1,261,887
Landfill Tipping Fees	\$7,600,000	\$7,600,000	\$7,676,000	\$7,676,000	\$7,752,760	\$7,752,760
Utility User Fees	\$3,422,696	\$3,491,149	\$3,560,972	\$3,632,192	\$3,704,836	\$3,815,981
Grants in lieu of taxes	\$6,800	\$6,800	\$6,800	\$6,800	\$6,800	\$6,800
Interdepartmental recoveries	\$103,007	\$103,007	\$103,007	\$103,007	\$103,007	\$103,007
Miscellaneous	\$498,944	\$508,523	\$518,293	\$528,259	\$538,424	\$548,793
Total Operating Revenue	\$13,578,186	\$14,230,692	\$15,045,661	\$15,875,533	\$16,191,245	\$16,358,868

Operating Expenditures	2017	2018	2019	2020	2021	2022
Administration	\$909,463	\$924,329	\$939,460	\$954,859	\$970,533	\$986,486
Professional Fees	\$440,510	\$449,195	\$458,053	\$467,087	\$476,300	\$485,695

Building Ops	\$205,283	\$209,362	\$213,523	\$217,765	\$222,093	\$226,507
Veh & Equip Ops	\$587,389	\$599,121	\$611,090	\$623,296	\$635,746	\$648,447
Operating Costs	\$6,790,266	\$6,876,072	\$7,024,969	\$7,154,092	\$7,299,676	\$7,443,167
Wages & Benefits	\$3,429,448	\$3,498,038	\$3,567,999	\$3,639,359	\$3,675,752	\$3,749,268
Contributions to Reserve Fund	\$692,300	\$717,300	\$1,017,300	\$1,317,300	\$1,067,300	\$1,167,300
Debt Interest	\$1,532	\$123	\$0	\$0	\$0	\$0
New Zero Waste Plan Programs	\$0	\$422,500	\$900,950	\$1,538,029	\$1,572,110	\$1,572,792
Total Operating Expenditures	\$13,056,191	\$13,696,040	\$14,733,344	\$15,911,787	\$15,919,510	\$16,279,662
% Increase in Operating Expenditures	0%	5%	7%	7%	0%	2%
Total Operating surplus/deficit	\$521,995	\$534,652	\$312,317	-\$36,254	\$271,736	\$79,206

Capital Asset Expenditures	2017	2018	2019	2020	2021	2022
Capital Expenditures	\$2,478,159	\$1,666,125	\$1,265,950	\$1,265,950	\$459,625	\$55,125
Transfer from Reserves	\$1,835,909	\$1,205,000	\$970,000	\$1,125,000	\$110,000	\$0
New Borrowing	\$0	\$0	\$0	\$0	\$0	\$0
Net Capital funded from Operations	\$642,250	\$461,125	\$295,950	\$140,950	\$349,625	\$55,125

Capital Financing Charges	2017	2018	2019	2020	2021	2022
Existing debt (principal)	\$125,967	\$43,070	\$0	\$0	\$0	\$0
New debt (principal & interest)	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Financing Charges	\$125,967	\$43,070	\$0	\$0	\$0	\$0

Total Proposed SWMP	\$13,824,408	\$14,200,235	\$15,029,294	\$16,052,737	\$16,269,135	\$16,334,787
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10.3 Cost Implications to RDN Residents

This section projects the cost impacts to RDN residents as a consequence of new programs presented in this Plan. Figure 8 represents the approximate cost of solid waste services in the region to an average size family, excluding the curbside waste collection utility. This is intended to present the estimated cost based on an average sized house generating an average amount of waste. The cost is an aggregate of both tipping fee and taxation.

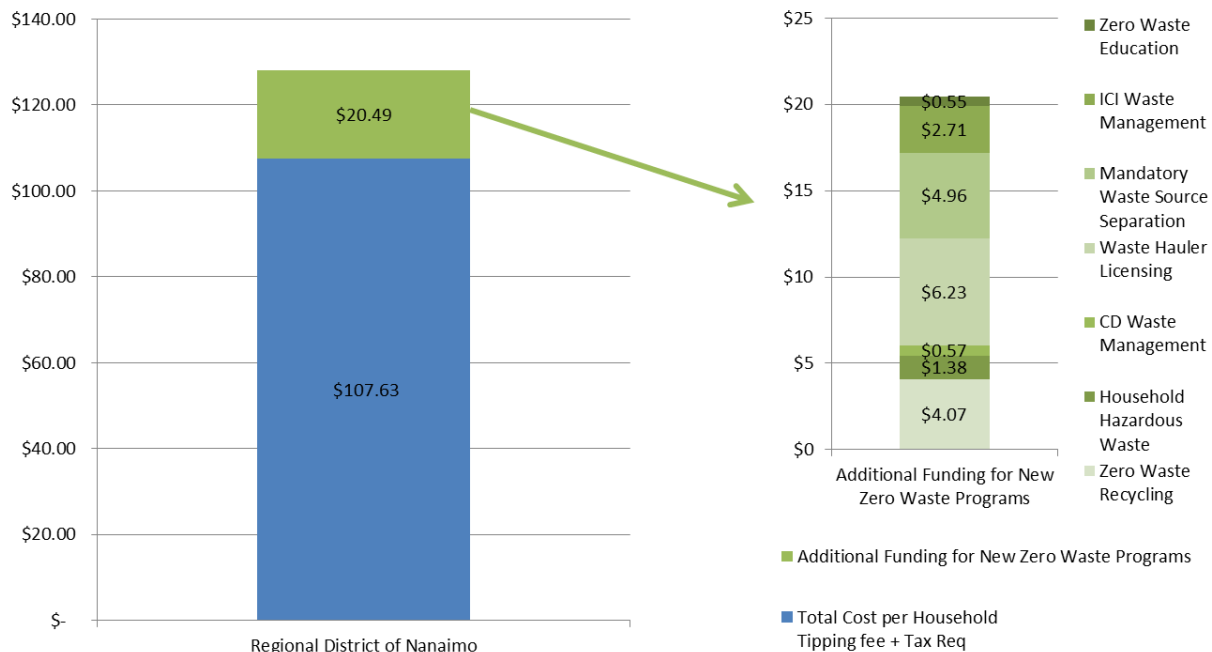


Figure 8 Cost of Solid Waste Management Services in the RDN based on \$500,000 property assessment value with 2.5 people and full implementation of the Zero Waste Plan by 2020.

Table 9 represents the approximate net annual per capita costs of solid waste services, including residential curbside waste collection based on a 10 year estimated budget for 2018-2027.

Table 9 Annual Net Per Capita Cost of Solid Waste Services in the RDN

Service	Annual Net Cost (\$ million)	Per Capita Cost (\$)
Current Zero Waste Strategy (68%)	\$3.3	\$53.66
Proposed Zero Waste Strategy (90%)	\$4.9	\$63.69
Difference	\$1.6	\$10.03
Current Residential Curbside	\$5.1	\$32.51
Proposed Residential Curbside	\$5.1	\$32.51
Difference	\$0.0	\$0.00
Current Disposal Operations	\$6.4	\$40.78
Future Disposal Operations	\$6.4	\$40.78
Difference	\$0.0	\$0.00
Total Current SWMP	\$14.7	\$94.44
Total Proposed SWMP	\$16.3	\$104.47
Difference	\$1.6	\$10.03

Based on a 10 year budget 2018-2027

10.4 Future Capital Financing and Service Contracts

The language in Part 6 of the Community Charter places restrictive conditions on both contract terms and limit on borrowing for expenditures, which may not be conducive to providing optimal financial terms, nor the ability to make timely, financial obligations in the interest of providing operational excellence.

The *Environmental Management Act* recognizes this limitation and acknowledges that a bylaw adopted for implementing a Waste Management Plan does not require a petition, the assent of the electors or the approval of the electors. However, such a bylaw does require written prior approval from the Minister of Environment.

The RDN anticipates relying on this provision during the 10 year solid waste management planning horizon for the services and programs identified in the plan. It is impossible to be entirely predictive of circumstances where these provisions may be advantageous. This included but is not limited to:

- Capital upgrades or contingency measures related to RDN solid waste facilities mitigating an environmental hazard.
- Provision of equipment ancillary to facilities operation such as landfill heavy equipment or curbside collection equipment.
- Advancement of alternative technologies that are consistent with the Zero Waste Hierarchy and Goal.

10.5 Asset Management

This Plan supports the Regional Board's Strategic Priority to "*fund infrastructure in support of our core services employing an asset management focus*". Benefits to the region's residents (the taxpayers) of employing an asset management focus include:

- Greater predictability in year-to-year taxes;
- Fairness between present and future taxpayers;
- Stronger ability to sustain service levels over the long term; and
- Reduced reliance on borrowing when major investments are required.

Within the scope of the SWMP and operations at the region's solid waste facilities, planned capital investments are capital expenditures identified in existing financial plans. These include capital projects, asset replacements, and contributions to reserve funds for future replacement

and post-closure commitments. Utilizing an asset management approach will assist decision makers in improving longer term financial plans, and by comparing planned capital expenditures against long term average annual replacement costs. Integrating asset management into the Solid Waste department's financial plans will allow the RDN to track trends, and make informed decisions about future borrowing and optimal timing for replacing assets.

At this time, the RDN Solid Waste Services financial projections only anticipate borrowing in 2025 (approx. \$1.7 million) for a significant landfill capital project. There are numerous other capital expenditures associated with RDN facilities that will take place during the life of the Plan, such as heavy equipment purchase (e.g. landfill contractor), landfill capping, and facility upgrades (e.g. fare station). Current forecasting is to finance these capital expenditures through establishing prior year reserves. However, there is the potential for capital expenditures that are necessary due to unforeseeable events. The timing and cost of replacement equipment or upgrades is not entirely predictable. Furthermore, there can be significant variability in tipping fee revenues that are received which impacts financial projections and the ability to establish reserves. Therefore, additional borrowing may be necessary to finance the initiatives set out in this Plan.

10.6 Plan Monitoring and Evaluation

10.6.1 Plan Monitoring

The PMAC will monitor the implementation of the plan and make recommendations to increase its effectiveness. A description of the PMAC task and make up can be found in Schedule D.

10.6.2 Annual Reporting

Reporting is important because it helps keep the Plan current, and focuses attention on whether the Plan is achieving its goals and targets.

The RDN will provide annual reporting to the MoE via the Ministry's MSW disposal calculator.

In addition, the RDN will prepare an annual report to the Board, and provide links on the RDN website to reports provided to the Board in relation to the plan. Topics that will be included in the report include:

- Programs delivered each year and how they support the Zero Waste Hierarchy;
- Economic development related to solid waste management in the RDN;
- Challenges or opportunities identified by the PMAC;

- Monitoring data for closed sites;
- Compliance activities;
- Landfill gas capture and reuses;
- Spills, leaks and leachate collected at facilities; and
- Wildlife interactions and control measures.

10.6.3 Five-year Effectiveness Review

The RDN will carry out a review and report on the Plan’s implementation and effectiveness in 2023. A link to the report will be provided on the RDN’s website. The review may be conducted in-house or by a third party, and will include the:

- Overview of all programs undertaken in the first five years to support the plan goals and objectives – status (started, progress, complete); actual budget for each;
- Description of all programs not yet started and reason (e.g. delayed start and why, initiation planned for next five years, circumstances or decisions affecting the need for or feasibility of undertaking the actions at all); budget allocated for each;
- Five-year trend information for waste disposal per person;
- Five-year summary of economic development related to plan implementation;
- Five-year trend of landfill gas capture and reuse;
- Summary of any compliance activities taken, spills, leaks and leachate collected at facilities, and wildlife incidences over the past five years;
- Any significant changes related to the regional growth strategy or changes to large industry and businesses operating in the area that might impact the solid waste management system over the next five years;
- Based on the plan data from the first five years, an analysis of what’s working well (strengths) and challenges to meeting plan goals and targets; and
- Based on the analysis, any recommended changes that the RDN would like to make to the plan and next steps regarding seeking those changes (consultation and Minister approval for changes).

10.6.4 Plan Amendments

This Plan represents the current understanding and approach to the solid waste management challenges being faced by the RDN. The Plan is a “living document” that may be amended to reflect new considerations, technologies and issues as they arise.

Due to changing circumstances and priorities that may evolve over time, and with the input of the PMAC and interested parties, all major actions identified in the plan will be reviewed for

appropriateness before implementation. This will generally occur on an annual basis. The Plan's implementation schedule will be flexible enough to reflect the availability of technologies that may arise over time, as well as the potential changes in regional issues and priorities. In addition, it will also take into account the financial priorities of the RDN, its member municipalities and other partners, the availability of funding to undertake Plan activities, and the availability of contractors and service providers.

The Plan amendment procedures apply to major changes to the solid waste management system which would include:

1. The opening (or changing the location) of a site or facility not already identified in the plan for the management or processing of MSW, such as:
 - New landfills, landfill expansion, landfill closure;
 - Any organics processing facility;
 - Mixed waste material recovery facilities;
 - Any new waste-to-energy facility located within the region;
 - Any new waste-to-energy facility located outside the region; and
 - Any other facility that could have an adverse impact to human health or the environment.
2. Waste import and export options which would significantly impact the RDN's or neighbouring solid waste systems, or not conform to provincial legislation, goals and/or targets;
3. Changing disposal targets or reductions in programs supporting the Zero Waste Hierarchy;
4. A change in the boundary of the Plan, which would significantly change the amount of solid waste to be managed under the Plan or significantly change the population of the Plan area;
5. The addition, deletion or revision of policies or strategies related to the conditions outlined in the Minister's approval letter; and
6. Major financial changes that warrant seeking elector assent.

When a Plan amendment becomes necessary, the RDN will undergo a public consultation process and submit a revised plan to the MoE for approval, along with a detailed consultation report.

The schedules to the Plan contain information that is not considered a major change listed above but could change during the 10-year lifespan of the plan. Each schedule includes a process for engaging the public, ranging from notification to a robust public consultation

process. Schedule updates may require approval from the Minister, but may not require submission of the entire plan for review and approval.

11 Approvals

This Plan has been subject to public consultation in advance of its approval by the Regional Board. Upon receiving Board approval, it will be submitted to the BC MoE for approval.

12 Schedules

Schedule A: Facilities

The following transfer station, regional landfill and licensed WSML facilities shown on are an integral part of the regional waste management system:

- Church Road Transfer Station, 860 Church Road, Parksville, BC
- Regional Landfill, 1105 Cedar Road, Nanaimo, BC
- Schnitzer Steel Pacific, 13271 Trans Canada Hwy, Cassidy, BC
- Parksville Bottle & Recycling Depot, 611A Alberni Hwy, Parksville, BC
- Nanaimo Organic Waste Ltd, 981 Maughan Rd, Nanaimo, BC
- Waste Connections Canada Nanaimo Recycling Facility, 333 Tenth St, Nanaimo, BC
- Emterra Environmental, 255 Eaton St, Nanaimo, BC
- Earthbank Resource Systems, 1424 Hodges Road, Parksville, BC
- Alpine Disposal & Recycling, 2250 McGarrigle Rd, Nanaimo, BC
- Pacific Coast Waste Management, Biggs Pit Road, Nanaimo, BC
- DBL Disposal Services Ltd, 4145 Jingle Pot Road, Nanaimo, BC
- DBL Disposal Services Ltd, 911 Church Road, Parksville, BC
- Waste Connections Canada Springhill, 1429 Springhill Road, Parksville, BC
- Cascades Recovery Inc., 800 Maughan Rd, Nanaimo, BC
- ABC Recycling Ltd., 750 Jackson Rd, Nanaimo, BC

EPR programs and facilities in the area are listed in the table below:

Stewardship Program	Collection Facilities
<p>Alarm Recycle</p> <p>Smoke alarms, Carbon monoxide (CO) alarms, combination smoke & CO alarms</p>	<p>Gabriola Island Recycling Organization (GIRO); Home Hardware – Parksville; London Drugs (North Town Centre); London Drugs (Port Place Nanaimo); Parksville Bottle & Recycling Depot; Qualicum Bottle & Recycling Depot; Regional Recycling – Nanaimo; Regional Recycling - South</p>

Schedule A: Facilities

<p>BC Used Oil Management Association</p> <p>Oil and antifreeze, oil filters, oil containers and antifreeze containers</p>	<p>Aerosmith Environmental; Arrowsmith Automotive; Canadian Tire – Nanaimo; Gabriola Island Recycling Organization (GIRO); Great Canadian Oil Change; Hetherington Industries; Highway 4 Auto Salvage; Parksville Safety & Auto Centre; Surfside Automotive; Terrapure Environmental; BC Used Oil Management Association; Harris Mazda; Mr. Lube; Parksville PetroCan; Top - Lite Car Services</p>
<p>Call2Recycle</p> <p>Consumer batteries (rechargeable and single-use) weighing less than 5 kilograms and cellphones.</p>	<p>Canadian Diabetes Association; Gabriola Island Recycling Organization (GIRO); Regional Recycling – Nanaimo; Regional Recycling – South; Staples - Nanaimo Island Highway; Staples - Nanaimo Parkway; ListenUP! Canada; Pharmasave; The Source; Island Cellular; Midland Tools; Tom Harris Cellular; Pharmasave – Parksville; Best Buy; Island Home and Garden; Parksville Bottle & Recycling Depot; Parkswest Business Products; Pharmasave - Qualicum Beach; Dollys Home Hardware; Windsor Plywood; Canadian Tire - Parksville</p>
<p>Canadian Batteries Association</p> <p>All consumer and industrial lead-acid batteries</p>	<p>Kal Tire – Edwards Tire Services; Kal Tire - Long Lake; Kal Tire – Island Hwy N; Kal Tire – Nanaimo (McCullough Rd); Kal Tire – Nanaimo (Norwell Dr.); Canadian Tire (Nanaimo), Canadian Tire (Parksville)</p> <p>Non-Stewarded Locations:</p> <p>Annex Auto Parts; Alpine Disposal & Recycling; Church Road Transfer Station; Cedar Landfill; Schnitzer Steel Recycling</p>
<p>Electro Recycle</p> <p>Small appliances and power tools, ranging in size from toasters and hand-held drills to countertop microwaves, vacuums and bench-top table saws.</p>	<p>Best Buy; Parksville Bottle & Recycling Depot; Regional Recycling – Nanaimo (Hayes); Regional Recycling – Nanaimo (Old Victoria); Staples – North Nanaimo; Staples – Central Nanaimo</p> <p>Non-Stewarded Locations:</p> <p>Gabriola Island Recycling Organization (GIRO);DBL Disposal; Alpine Disposal and Recycling; Schnitzer Steel</p>

Schedule A: Facilities

<p>Encorp Return-It Beverage</p> <p>Used beverage containers such as aluminum cans, plastic & glass bottles, other metal cans, drink boxes and cartons. Alcohol containers such as wines, spirits, liqueurs and non-refillable beer, cider and cooler bottles.</p>	<p>Parksville Bottle & Recycling Depot; Qualicum Bottle & Recycling Depot; Regional Recycling – Nanaimo (Hayes); Regional Recycling – Nanaimo (Old Victoria)</p>
<p>Encorp Return-It Electronics</p> <p>Desktop Computers + Accessories, Portable Computers + Accessories, Display Products + Accessories, Printing, Scanning + Multifunction Devices, Audio Products + Accessories, Video Products + Accessories, Video Gaming Systems + Accessories, Video Gaming Systems + Accessories, Cellular, Telephones + Answering Machines, E-Toys, Electronic Musical Instruments, IT + Telecom Devices, Medical Monitoring Control Devices</p>	<p>Parksville Bottle & Recycling Depot; Regional Recycling – Nanaimo (Hayes); Regional Recycling – Nanaimo (Old Victoria); Staples – Nanaimo North; Best Buy – Nanaimo; Staples – Central Nanaimo; Best Buy</p>
<p>Health Products Stewardship Association</p> <p>All prescription drugs, over-the-counter medications in oral dosage and natural health products in oral dosage.</p>	<p>Anchor Compounding Pharmacy – Nanaimo; Central Drug Store –Nanaimo; Central Drugs – Beban Plaza; Central Pharmacy – Nanaimo; Drugstore Pharmacy – Nanaimo; London Drugs; Medicine Shoppe; Memorial Compounding Medic Centre – Qualicum Beach; Nanaimo Home & Community Care; Outreach Pharmacy; Pharmasave; Rexall Drug Store; Save-On Foods Pharmacy; Qualicum Medicine Centre; Shoppers Drug Mart; Thrifty Foods and Pharmacy; Walmart Pharmacy; Costco Wholesale;</p>

Schedule A: Facilities

<p>LightRecycle</p> <p>All residential, commercial, institutional and industrial lighting products (lamps, fixtures and ballasts) ranging from light-bulbs to flashlights, table lamps and chandeliers.</p>	<p>Albertson's Home Centre; Canadian Tire; Gabriola Island Recycling Organization (GIRO); Habitat ReStore; Highway 4 Auto Salvage; Home Hardware – Parksville; Home Hardware – Qualicum; Junction Bottle Depot; London Drugs (North Town Centre); London Drugs (Port Place Nanaimo); Parksville Bottle & Recycling Depot; Regional Recycling – Nanaimo; Regional Recycling – South; Rona; Dollys Home Hardware; Parksville Central Builders' Supply</p>
<p>Major Appliance Recycling Roundtable</p> <p>Major Appliances that have been designated for residential use.</p>	<p>Carls Metal Salvage; Church Road Transfer Station; Gabriola Island Recycling Organization (GIRO); Parksville Bottle & Recycling Depot; Regional District of Nanaimo Landfill; Schnitzer Steel; Barrons Home Appliance Centre</p>
<p>Outdoor Power Equipment Institute of Canada</p> <p>Handheld, walk-behind and free-standing electrical outdoor power equipment and lawn tractors.</p>	<p>Alpine Disposal and Recycling; Highway 4 Auto Salvage; Regional Recycling – Nanaimo (Hayes); Regional Recycling – Nanaimo (Old Victoria); Schnitzer Steel</p>
<p>RecycleBC</p> <p>Packaging and printed paper supplied to BC residents, including printed paper and cardboard; non-deposit glass bottles and jars; paper, plastic, and metal containers; plastic bags and overwrap; plastic foam packaging.</p>	<p>Alpine Disposal and Recycling; Parksville Bottle & Recycling Depot; Regional Recycling – Hayes; Regional Recycling – Old Victoria; Qualicum Bottle Depot; London Drugs (North Town Centre); London Drugs (Port Place Nanaimo)</p>
<p>Recycle My Cell</p> <p>Cell phones and their batteries. All types of cell phones are accepted regardless of size, make model or age.</p>	<p>Regional Recycling – Nanaimo; Regional Recycling – South; Bell - Country Club; Bell – Woodgrove; The Source - Country Club; The Source – Parksville; The Source – Woodgrove; Virgin Mobile - Nanaimo North Town Centre</p>
<p>ReGeneration</p> <p>Household (architectural) paint and paint aerosols, flammable solvents, pesticides (domestic), gasoline. Paint exchange available at select collection sites in BC.</p>	<p>Gabriola Island Recycling Organization (GIRO); Regional Recycling – Nanaimo (Hayes), Regional Recycling – Nanaimo (Old Victoria); Parksville Bottle & Recycling Depot</p> <p>Non-stewarded Locations: Aerosmith Environmental; Habitat ReStore; Hetherington Industries; Rona; Terrapure Environmental</p>

Schedule A: Facilities

<p>Tire Stewardship BC</p> <p>Car tires (both on and off rim), bike tires and tubes.</p>	<p>Annex Auto Parts; BC Auto Wrecking; Canadian Tire – Nanaimo; Eco-Tire and Auto Parts; Highway 4 Auto Salvage; Kal Tire - 2294 McCullough Rd; Kal Tire - 2800 Norwell Dr; Kal Tire - 837 Old Victoria Rd; OK Tire; Applecross Automotive; Big O Tires; BMW / Mini – Nanaimo; Budget Brake & Muffler; Canadian Tire – Parksville; Chuck's Automotive; Coast Auto Service; Costco Wholesale; Dusenbury Automotive Services; Family Ford; Fountain Tire; French Creek Shell; Galaxy Motors – Nanaimo; Kerry's Car & Truck Centre Ltd.; Luctor Industries; Miles D Automotive; Parksville Chrysler; Parksville PetroCan; Sidney Tire Auto Service; Smithers Road Automotive; Stanford Auto Centre; Village Garage; West Coast Motor Sport; Wheaton Pontiac Buick GMC</p>
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Schedule B: Implementation Schedule

Schedule B: Implementation Schedule

Proposed implementation dates will be contingent upon the timing of the plan's approval by the Ministry of Environment and the amount of resources available for the implementation of the strategies. The implementation schedule will be reviewed in line with the RDN's annual budget cycle. The PMAC will provide input into any updates to this schedule.

YEAR	Program Implementation
2018	<ul style="list-style-type: none">• On-going programs• Expanded Zero Waste Education• Household Hazardous Waste• Expanded ICI Waste Management• Expanded CD Waste Management• Consult on Waste Haulers Licensing Bylaw<ul style="list-style-type: none">○ Introduction of 0.5 FTE at Zero Waste Coordinator level
2019	<ul style="list-style-type: none">• On-going programs• Waste Hauler Licensing<ul style="list-style-type: none">○ Bylaw Development and Legal Counsel○ Develop Outreach Material○ 1 FTE at Zero Waste Coordinator level
2020	<ul style="list-style-type: none">• On-going programs• Waste Hauler Licensing<ul style="list-style-type: none">○ 2 FTE at Zero Waste Compliance Officer level○ 1 new vehicle
2021	<ul style="list-style-type: none">• On-going programs• Waste Hauler Licensing<ul style="list-style-type: none">○ 1 new vehicle
2022	<ul style="list-style-type: none">• On-going programs

Schedule C: Plan Monitoring Advisory Committee Terms of Reference

REGIONAL DISTRICT OF NANAIMO SOLID WASTE MANAGEMENT PLAN MONITORING ADVISORY COMMITTEE

TERMS OF REFERENCE

1. PURPOSE AND SCOPE

The purpose of the Plan Monitoring Advisory Committee (PMAC) is to provide input, from a variety of perspectives, on the implementation of the Solid Waste Management Plan (Plan). In accordance with the Ministry of Environment's *Guide to the Preparation of Regional Solid Waste Management Plans* a single public and technical advisory committee will act as a "sounding board" of community interests and will provide advice to the Regional Board through the Solid Waste Management Select Committee. The Regional Board is the final authority on decisions. The PMAC will remain in existence for the duration of the current Plan.

2. ROLES AND RESPONSIBILITIES

The role of the PMAC is to advise the RDN Board and staff on the implementation of the plan:

- Monitor the Plan implementation in consideration with the Plan Objectives and Guiding Principles;
- Provide advice on the delivery of programs under the Plan;
- Review information related to implementation of the plan, including waste quantities, populations, and diversion rates for each plan component;
- Advise on each major plan review which will occur every five years;
- If requested by the Board, provide recommendations regarding disputes arising during implementation of the plan; and
- Advise on the adequacy of public consultation in matters affecting the public related to plan implementation.

Recommendations of the PMAC are directed to the Solid Waste Management Select Committee for consideration before being directed to the Board.

3. COMPOSITION AND CHAIR

Chair and Vice Chair to be appointed by the Chairperson of the Board.

Voting Members:

- One representative from the Select Committee (or alternate);

Schedule C: Plan Monitoring Advisory Committee Terms of Reference

- Up to 15 members representing a diversity of community interests such as from the following groups:
 - Private sector waste management industry service providers
 - Private sector solid waste facility representatives
 - Non-profit group with an interest in solid waste management (e.g. reuse organization)
 - Large institutional solid waste generator
 - Business representatives, including one focused on the 3Rs
 - Members at large for the community (community association, youth, senior)
 - Regional Landfill area representative
 - Urban/rural geographic mix

Non-Voting Technical Advisors:

- Up to 12 members representing agencies including:
 - Regional District Staff – 3 members
 - Municipal Staff – 4 members
 - First Nations – 3 members
 - Provincial Agencies – 1 member
 - Federal Agencies – 1 member

4. RULES OF PROCEDURE

The Committee will act in accordance with the RDN Board Procedure Bylaw.

5. ADMINISTRATION

Administrative matters related to the PMAC will be conducted by RDN staff acting through the Chair.

6. TERM

The term of appointment is two years or until new members are appointed. Interested members may apply for reselection at the end of their term.

Lack of attendance may result in members having their membership revoked at the discretion of the committee. If a member resigns from the committee, their position will be filled through the application process or by appointment, as appropriate.

7. MEETINGS

The PMAC will meet at least two times per year with a provision for workshops or other presentations at the PMAC's discretion. Meetings will generally be held in the evenings but may

Schedule C: Plan Monitoring Advisory Committee Terms of Reference

be adjusted at the discretion of the Chair. Meals will be provided when committee activities coincide with meal times.

There is no remuneration for participation on the committee but the RDN will reimburse mileage expenses according to Volunteer Mileage Reimbursement Policy A2.19.

8. DECISION MAKING

Committee decisions will be made by consensus whenever possible. The chair will have discretion as to when the consensus is reached. Consensus will be recorded in the minutes of the meeting.

Committee meetings are open to the public; however only committee members have speaking and voting privileges. Delegations that wish to address the committee must seek approval from the committee through a written request. If votes are taken, minority opinions may be recorded and submitted in addition to the majority opinion to the board.

Schedule D: Plan Dispute Resolution Procedures

The Regional Solid Waste Advisory Committee, Solid Waste Management Select Committee and Regional Board all considered dispute resolution options and passed the same motion on April 20th, May 30th and June 27th 2017 respectively with both committees passing the following motion:

Solid Waste Management Plan disputes be directed to the Board for decision; and that the Board consider mediation for non-regulatory or legislative decisions.

Procedure:

Disputes that might arise in regards to the Solid Waste Management Plan that are not suitably resolved by RDN staff, shall be directed to the RDN Regional Board for resolution. Disputes could include administrative decisions related to licensing, interpretation to a statement or provision in the plan, or any other matter not related to a proposed change to the actual wording of the plan or an operational certificate.

The initiating party shall address their dispute in writing to the Chair of the Regional Board and shall state the details of the dispute and the remedy requested. The Regional Board shall consider the dispute and may undertake one or a combination of the following:

1. Grant the remedy requested by the initiating party;
2. Deny the remedy being requested by the initiating party;
3. Confirm, reverse or vary an RDN policy or decision;
4. Direct staff or seek additional information or recommendation from staff;
5. Seek a recommendation from the Plan Monitoring Advisory Committee;
6. Seek additional information or recommendation from a consultant; or,
7. Direct mediation for not for non-regulatory or legislative decisions.

Parties aggrieved by a Regional Board directed or concluded dispute resolution may apply for judicial review by the Supreme Court of BC

Schedule E: Financial Information

The current tipping fees at Church Road and the Regional Landfill sites authorized under this plan are contained in Schedule A and Schedule D of RDN Bylaw No. 1531 Regulation of Solid Waste Management Facilities.

Any changes to the tipping fee rates will follow the requirement for a bylaw amendment approved by the RDN Board.

Schedule 'A'

Charges and Procedures for use of Solid Waste Management Facilities effective April 1, 2016.

1.	Solid Waste, excluding Controlled Waste	Flat Rate	51 kg or greater
a.	Municipal solid waste, construction/demolition waste, roofing waste (asphalt/tar/gravel), medical facility waste, or material recovery facility waste	\$6.00/0-50kg	\$125.00/tonne
b.	Municipal solid waste (containing recyclables) with offence	\$6.00/0-50kg	\$250.00/tonne
c.	Construction/Demolition waste (containing recyclables) with offence	\$6.00/0-50kg	\$360.00
d.	Weighing service	\$20.00 flat rate	
e.	Surcharge for improperly covered or secured loads	\$20.00 flat rate	
f.	Surcharge for mattresses and hide-a-beds	\$10.00 flat rate	

2.	Recyclables	Flat Rate	51 kg or greater
a.	Organic waste	\$6.00/0-50kg	\$110.00/tonne
b.	Organic waste (containing mixed solid waste or recyclables) with offence	\$6.00/0-50kg	\$250.00/tonne
c.	Garden waste	\$6.00/0-100kg	\$55.00/tonne
d.	Wood waste including wood roofing	\$6.00/0-50kg	\$250.00/tonne
e.	Gypsum (Church Road Transfer Station only)	\$6.00/0-50kg	\$250.00/tonne
f.	Metal recycling, metal appliances with ODS (ozone depleting substance)	\$6.00/0-500kg	\$55.00/tonne
g.	Corrugated cardboard	\$6.00/0-50kg	\$55.00/tonne
h.	Miscellaneous recyclables including: household plastics, metal food and beverage containers, vehicle batteries and oil filters	\$6.00 flat rate	
i.	Surcharge for ODS containing appliances	\$15.00 flat rate	

3.	Controlled Waste	Flat Rate	51 kg or greater
a.	Contaminated soil, grit and screenings and bio-solids	\$6.00/0-50 kg	\$125.00/tonne
b.	Controlled waste (misc.) including large dead animals	\$6.00/0-50 kg	\$250.00/tonne
c.	Food processing waste and treatment works		\$250.00/tonne

Schedule E: Financial Information

d.	Steel cable		\$500.00/tonne
e.	Asbestos waste	\$30.00/0-50 kg	\$500.00/tonne

4. Any load containing Prohibited Waste will be charged all costs associated with any special handling or removal of the Prohibited Waste in addition to the volume rates above.
5. Where the charge is based on weight, it shall be based on the difference in weight between loaded weight and the empty weight of the vehicle.
6. In the event that the scales provided are not operational, weight shall be estimated by the Scale Clerk employed by the Regional District of Nanaimo.
7. All charges payable under this bylaw shall be paid prior to leaving the site.
8. Surcharges are in addition to the per tonne rate posted for the material type.

Schedule 'B'

Charges and procedures for use of Regional Landfill for disposing of Controlled Waste and Municipal Solid Waste which originates from the Cowichan Valley Regional District, effective April 1, 2017, are:

1.	Controlled waste originating Cowichan Valley RD	Flat rate	51 kg or greater
a.	Waste asbestos	\$30.00/0-50 kg	\$600.00/tonne
b.	Large dead animals	\$20.00/0-50 kg	\$300.00/tonne
c.	Invasive plant species	\$20.00/0-50 kg	\$300.00/tonne

2.	Solid waste under the direct control of the Cowichan Valley Regional District *	Tonne Rate
a.	Municipal solid waste	Tonne rate includes a 20% premium over the current Schedule 'A' rates

*Solid waste acceptance is contingent upon:

- 1) Prior written notice from Cowichan Valley Regional District to the General Manager explaining the reasons for, and the anticipated duration, of contingency landfilling;
- 2) The General Manager's acknowledgement of acceptance; and,
- 3) Any conditions the General Manager may specify with respect to the duration, requirements regarding acceptance or reporting.

Schedule E: Financial Information

	City of Nanaimo	City of Parksville	Town of Qualicum Beach	District of Lantzville	Electoral Area A	Electoral Area B	Electoral Area C	Electoral Area E	Electoral Area F	Electoral Area G	Electoral Area H	Average RDN Tax Rate
Solid Waste Services Tax Rate per \$100K assessed value												
Zero Waste Education	\$0.12	\$0.11	\$0.11	\$0.11	\$0.13	\$0.10	\$0.09	\$0.10	\$0.13	\$0.11	\$0.10	\$0.11
Household Hazardous Waste	\$0.30	\$0.28	\$0.27	\$0.28	\$0.32	\$0.25	\$0.23	\$0.24	\$0.33	\$0.28	\$0.26	\$0.28
ICI Waste Management	\$0.59	\$0.55	\$0.52	\$0.55	\$0.64	\$0.50	\$0.45	\$0.47	\$0.64	\$0.55	\$0.51	\$0.54
CD Waste Management	\$0.12	\$0.12	\$0.11	\$0.13	\$0.13	\$0.10	\$0.09	\$0.10	\$0.13	\$0.11	\$0.11	\$0.11
Waste Source Regulation	\$1.08	\$1.01	\$0.96	\$1.00	\$1.16	\$0.91	\$0.82	\$0.86	\$1.17	\$1.00	\$0.93	\$0.99
Waste Haulers As Agents	\$1.36	\$1.27	\$1.20	\$1.26	\$1.46	\$1.14	\$1.04	\$1.09	\$1.47	\$1.26	\$1.17	\$1.25
Zero Waste Recycling	\$0.89	\$0.83	\$0.78	\$0.82	\$0.95	\$0.75	\$0.68	\$0.71	\$0.96	\$0.82	\$0.77	\$0.81
Total New Zero Waste Program	\$4.45	\$4.18	\$3.95	\$4.16	\$4.80	\$3.76	\$3.40	\$3.57	\$4.82	\$4.13	\$3.85	\$4.10
Total Ongoing SW Programs	\$3.31	\$3.11	\$2.93	\$3.08	\$3.56	\$2.79	\$2.53	\$2.65	\$3.59	\$3.07	\$2.86	\$3.04
Total SW Services Tax Rate	\$7.76	\$7.29	\$6.88	\$7.25	\$8.36	\$6.55	\$5.93	\$6.22	\$8.41	\$7.20	\$6.71	\$7.14
Cost per \$100,000	\$7.76	\$7.29	\$6.88	\$7.25	\$8.36	\$6.55	\$5.93	\$6.22	\$8.41	\$7.20	\$6.71	\$7.14
Cost per \$200,000	\$15.53	\$14.57	\$13.76	\$14.49	\$16.72	\$13.11	\$11.86	\$12.44	\$16.82	\$14.39	\$13.42	\$14.28
Cost per \$300,000	\$23.29	\$21.86	\$20.64	\$21.74	\$25.08	\$19.66	\$17.79	\$18.65	\$25.23	\$21.59	\$20.14	\$21.42
Cost per \$400,000	\$31.05	\$29.15	\$27.52	\$28.99	\$33.44	\$26.22	\$23.72	\$24.87	\$33.64	\$28.78	\$26.85	\$28.57
Cost per \$500,000	\$38.82	\$36.44	\$34.40	\$36.24	\$41.80	\$32.77	\$29.65	\$31.09	\$42.06	\$35.98	\$33.56	\$35.71

Based on Full Implementation of the Updated Zero Waste Plan by 2020



Schedule F: Emergency Debris Management

When natural events, like floods, earthquakes or anthropogenic (human-caused) events hit a community, solid waste management is usually the last thing on anyone's mind. Safe, proper and timely management of debris is an essential but often overlooked component of an emergency response or disaster incident. Debris management is also one of many competing priorities governments must manage during such events. It is important that disaster debris be properly managed so as to protect human health, comply with regulations, conserve disposal capacity, reduce injuries, and minimize or prevent environmental impacts. It involves advance thought, planning and coordination among individuals at various levels of government and the private sector with experience and expertise in waste management. A disaster debris management plan can help a community identify options for collecting, recycling and disposing of debris. Not only does a plan identify management options and sources for help, but it also can save valuable time and resources if it is needed.

Links to current disaster debris management plans will be updated in this schedule as required.