

**REGIONAL DISTRICT OF NANAIMO
SOLID WASTE MANAGEMENT SELECT COMMITTEE MEETING**

**TUESDAY, MAY 30, 2017, 1:30 PM – 3:30 PM
RDN Committee Room**

A G E N D A

RDN meetings may be recorded

PAGES

- 1. CALL TO ORDER**
- 2. ADOPTION OF THE AGENDA**
- 3. ADOPTION OF MINUTES**
 - 3-4 3.1 That the minutes of the Solid Waste Management Select Committee meeting held April 13, 2017 be adopted.
- 4. PRESENTATIONS**
 - 4.1 SWMP Update.
Staff will provide presentation.
 - 4.2 SWMP Dispute Resolution
Staff will provide presentation.
 - 4.3 SWMP Financial Projections.
Staff will provide presentation.
- 5. DELEGATION**
- 6. COMMUNICATIONS/CORRESPONDENCE**
- 7. UNFINISHED BUSINESS**
- 8. COMMITTEE MINUTES AND RECOMMENDATIONS**
 - 8.1 Regional Solid Waste Advisory Committee**
 - 5-6 **8.1.1 Minutes of the RSWAC, April 20, 2017**

That the minutes of the Regional Solid Waste Management Advisory Committee meeting held April 20, 2017, be received for information.
 - 8.1.2 Solid Waste Management Plan Dispute Resolution**

That the Solid Waste Management Plan disputes be directed to the Board for decision; and that the Board consider mediation for non-regulatory or legislative decisions.
 - 7-8 **8.1.3 Minutes of the RSWAC, May 25, 2017**

That the minutes of the Regional Solid Waste Management Advisory Committee meeting held May 25, 2017, be received for information.

8.1.4 Subsidizing of Social Enterprise under the SWMP

That the discussion in regards to Subsidizing Social Enterprise under the Solid Waste Management Plan be deferred to the next Regional Solid Waste Management Advisory Committee meeting.

9-11

8.1.5 2017 SWMP Stage 2 Report Adoption

That the Regional Board adopt the Stage 2 Solid Waste Management Plan report.

12-26

8.1.6 Stage 2 Consultation Summary

That the Regional Solid Waste Advisory Committee receives the Stage 2 Solid Waste Management Plan Consultation and Communications Summary for information.

9. STAFF REPORTS

10. BUSINESS ARISING FROM DELEGATIONS

11. NEW BUSINESS

12. ADJOURNMENT

REGIONAL DISTRICT OF NANAIMO

**MINUTES OF THE SOLID WASTE MANAGEMENT SELECT COMMITTEE
MEETING HELD ON WEDNESDAY, APRIL 13, 2017 AT 1:30 PM
RDN BOARD ROOM**

Present:

Director A. McPherson	Chairperson
Director M. Young	Electoral Area C
Director H. Houle	Electoral Area B
Director M. Lefebvre	City of Parksville
Director B. McKay	City of Nanaimo
Director T. Westbroek	Town of Qualicum Beach

Also in Attendance:

P. Carlyle	CAO, RDN
R. Alexander	GM, RCU, RDN
L. Gardner	Manager, Solid Waste Services, RDN
M. Larson	Solid Waste Planner, RDN
R. Graves	Recording Secretary, RDN

Regrets:

Director J. Stanhope	Electoral Area G
Director J. Kipp	City of Nanaimo
Director J. Hong	City of Nanaimo

CALL TO ORDER

The Chairperson called the meeting to order at 1:32 PM and respectfully acknowledged the Coast Salish First Nations on whose traditional territory the meeting took place.

ADOPTION OF MINUTES

Solid Waste Select Committee Meeting – March 15, 2017.

It was moved and seconded that the minutes from the Solid Waste Select Committee meeting held March 15, 2017 be adopted.

CARRIED UNANIMOUSLY

PRESENTATION

SWMP Update.

M. Larson gave a presentation on the SWMP which included a communication and consultation background and Stage 2 consultation update information.

It was moved and seconded that the SWMP Update presentation be received for information.

CARRIED UNANIMOUSLY

REPORTS

Statutory ROW Hydro Take Over.

It was moved and seconded that staff proceed with the *Notice of Disposition* for:

- a) Granting an easement to Lehigh Hanson Materials (Lehigh) for their sanitary sewer line that crosses the landfill property;
- b) Transfer of the ownership of the newly installed powerlines that service the landfill maintenance shop to BC Hydro and Power Authority (BC Hydro);
- c) Granting a statutory right of way to BC Hydro and Telus Communication Company (Telus) for accommodation of the newly installed powerlines and future communication lines on Regional District of Nanaimo (RDN) property; and,
- d) Assigning a statutory right of way to BC Hydro and Telus, initially granted by Lehigh to the RDN, for accommodation of the power and communication lines on Lehigh's property;

And, that staff action the disposals following publication of the Notice.

CARRIED UNANIMOUSLY

CVRD Contingency Waste Disposal.

It was moved and seconded:

- a) That the Regional Board endorse receiving municipal waste controlled by the Cowichan Valley Regional District in the event services at their current disposal facility are temporarily unavailable and that the tip fee be set at a 20% premium over Regional District of Nanaimo rates;
- b) That "Regional District of Nanaimo Solid Waste Management Regulation Amendment Bylaw No. 1531.07, 2017" be introduced and read three times; and,
- c) That "Regional District of Nanaimo Solid Waste Management Regulation Amendment Bylaw No. 1531.07, 2017" be adopted.

Opposed (1): Director Young

CARRIED

Cedar Lift Station Cost Share Agreement.

It was moved and seconded to approve a cost sharing agreement with the City of Nanaimo for the Cedar Road lift station in an amount of \$45,000 per year with the cost share to be renegotiated every five years.

CARRIED UNANIMOUSLY

ADJOURNMENT

It was moved and seconded that the meeting be adjourned.

Time: 3:48pm

CHAIRPERSON

**REGIONAL DISTRICT OF NANAIMO
REGIONAL SOLID WASTE ADVISORY COMMITTEE MEETING
HELD ON THURSDAY, APRIL 20, 2017
BOARD CHAMBERS**

Present:

Alec McPherson	Chair, RDN Director
Bill McKay	Deputy Chair, RDN Director
Jan Hastings	Non Profit Representative
Dean Jones	Waste Management Industry
Jim McTaggart-Cowan	Member at Large
Craig Evans	Member at Large
John Finnie	Member at Large
Gerald Johnson	Member at Large
Ellen Ross	Member at Large
Ben Geselbracht	Member at Large
Amanda Ticknor	Member at Large
Stewart Young Jr.	Business Representative
Charlotte Davis	City of Nanaimo
Derek Haarsma	Business Representative
Matthew Louie	Member at Large

Also in Attendance:

Phyllis Carlyle	CAO, RDN
Randy Alexander	General Manager, RCU, RDN
Larry Gardner	Manager of Solid Waste, RDN
Meghan Larson	Solid Waste Planner, RDN
Rebecca Graves	Recording Secretary, RDN

Regrets:

Wally Wells	Business Representative
Michael Tripp	Business Representative
Cam Purdon	Town of Qualicum Beach
Chief & Council	Nanoose First Nation
Chief & Council	Snuneymuxw First Nation
Michael Recalma	Qualicum First Nation
Glenn Gibson	Island Heath
Al Leuschen	Ministry of Environment
Karen Muttersbach	Environment Canada
Fred Spears	District of Lantzville
Michele Green	Member at Large

CALL TO ORDER

The Chairperson called the meeting to order at 5:13 PM and respectfully acknowledged the Coast Salish First Nations on whose traditional territory the meeting took place.

APPROVAL OF AGENDA

It was moved and seconded that the agenda be approved as circulated.

CARRIED UNANIMOUSLY

ADOPTION OF MINUTES

It was moved and seconded that the minutes from the Regional Solid Waste Advisory Committee meeting held December 1, 2016, be adopted.

CARRIED UNANIMOUSLY

PRESENTATION

SWMP Consultation Update.

M. Larson updated the Committee on the Stage 2 SWMP consultation completed to date. The overall feedback was positive for programs presented in the draft report and further revisions are not warranted.

Discussion ensued on the potential for development of a Material Recovery Facility. The report had previously been revised to reflect that such a facility is envisioned through private sector investment. A public sector facility would only be considered after fully implementing source reduction efforts and if a private sector facility does not materialize.

Solid Waste Management Plan Dispute Resolution.

L. Gardner presented on SWMP Dispute Resolution. The Ministry of Environment recommends every regional district should establish and consult on a dispute resolution procedure for dealing with disputes arising during implementation of a plan. Examples of disputes include administrative decisions related to a license, interpretation of a provision in the Plan and any other matter not related to a proposed change to the actual wording of the plan.

It was moved and seconded that:

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

Opposed (3): S. Young, D. Jones, D. Haarsma

CARRIED

The Committee recommended that once Metro Vancouver has completed their review they would revisit the procedure.

Stage 2 SWMP Financial Projections.

L. Gardner gave a presentation on the Stage 2 SWMP financial projections on the SWMP preferred options.

It was moved and seconded to include a line item in the SWMP for subsidizing social enterprise.

It was moved and seconded that the recommendation be referred back to staff for inclusion in next agenda of this body.

Opposed (1): J. McTaggart-Cowan.

CARRIED

ADJOURNMENT

It was moved and seconded that this meeting be adjourned.

CARRIED UNANIMOUSLY

Time: 7:47 pm.

CHAIRPERSON

**REGIONAL DISTRICT OF NANAIMO
REGIONAL SOLID WASTE ADVISORY COMMITTEE MEETING
HELD ON THURSDAY, MAY 25, 2017
BOARD CHAMBERS**

Present:

Alec McPherson	Chair, RDN Director
Bill McKay	Deputy Chair, RDN Director
Jan Hastings	Non Profit Representative
Jim McTaggart-Cowan	Member at Large
Craig Evans	Member at Large
John Finnie	Member at Large
Gerald Johnson	Member at Large
Ellen Ross	Member at Large
Amanda Ticknor	Member at Large
Charlotte Davis	City of Nanaimo
Wally Wells	Business Representative
Ben Geselbracht	Member at Large
Dean Jones	Waste Management Industry

Also in Attendance:

Phyllis Carlyle	CAO, RDN
Randy Alexander	General Manager, RCU, RDN
Larry Gardner	Manager of Solid Waste, RDN
Meghan Larson	Solid Waste Planner, RDN
Rebecca Graves	Recording Secretary, RDN

Regrets:

Matthew Louie	Member at Large
Stewart Young Jr.	Business Representative
Michele Green	Member at Large
Derek Haarsma	Business Representative
Michael Tripp	Business Representative
Cam Purdon	Town of Qualicum Beach
Chief & Council	Nanoose First Nation
Chief & Council	Snuneymuxw First Nation
Michael Recalma	Qualicum First Nation
Glenn Gibson	Island Heath
Al Leuschen	Ministry of Environment
Karen Muttersbach	Environment Canada
Fred Spears	District of Lantzville

CALL TO ORDER

The Chairperson called the meeting to order at 5:15 PM and respectfully acknowledged the Coast Salish First Nations on whose traditional territory the meeting took place.

APPROVAL OF AGENDA

It was moved and seconded that the agenda be approved as circulated.

CARRIED UNANIMOUSLY

ADOPTION OF MINUTES

It was moved and seconded that the minutes from the Regional Solid Waste Advisory Committee meeting held April 20, 2017, be adopted.

CARRIED UNANIMOUSLY

PRESENTATION

SWMP Update.

L. Gardner and M. Larson gave an outline on the SWMP Update which included an update on the timeline, Stage 2 Consultation Report, Stage 2 SWMP Report Adoption, Stage 3 SWMP Next Steps, Stage 3 Consultation and Financial Projections Update.

A discussion occurred in regards to any edits or additions that should be included in the Stage 2 SWMP report.

CORRESPONDENCE

Jan Hastings, NRE, re Funding for Social Enterprise.

UNFINISHED BUSINESS

Subsidizing of Social Enterprise under the Solid Waste Management Plan.

J. Hastings introduced and discussed the Income Summary for Zero Waste Recycling items that the NRE accepts.

It was moved and seconded that the discussion in regards to Subsidizing of Social Enterprise under the Solid Waste Management Plan be deferred to the next Regional Solid Waste Advisory Committee meeting.

Opposed J. McTaggart-Cowan. (1)

CARRIED

REPORTS

Stage 2 Consultation Summary

It was moved and seconded that the Regional Solid Waste Advisory Committee receives the Stage 2 Solid Waste Management Plan Consultation and Communications Summary for information.

CARRIED UNANIMOUSLY

2017 SWMP Stage 2 Report Adoption

It was moved and seconded that the Regional Board adopt the Stage 2 Solid Waste Management Plan report.

CARRIED UNANIMOUSLY

ADJOURNMENT

It was moved and seconded that this meeting be adjourned.

CARRIED UNANIMOUSLY

Time: 7:38pm.

CHAIRPERSON

TO: Regional Solid Waste Advisory Committee
MEETING: May 25, 2017

FROM: Meghan Larson
Solid Waste Planner
FILE: 5365-42

SUBJECT: 2017 SWMP Stage 2 Report Adoption

RECOMMENDATION

That the Regional Solid Waste Advisory Committee recommend that the Regional Board adopt the Stage 2 Solid Waste Management Plan Report.

SUMMARY

The Stage 2 Solid Waste Management Plan (SWMP) report outlines the preferred future solid waste management strategies recommended by the Regional Solid Waste Advisory Committee (RSWAC). The strategies outlined in the Stage 2 report will be costed in Stage 3, and this information will be presented as part of the next round of consultation in the Fall of 2017. The community input will be used in further refining or modifying these strategies. Subsequently, the Solid Waste Management Plan will be updated based on input from the Stage 3 process and presented to the Regional Board of Directors for adoption and the BC Minister of Environment for approval. It is anticipated that the plan will be finalized by the end of 2017 or early 2018.

This document serves to present the strategies that are proposed to be adopted in the updated Plan to promote increased waste diversion and to manage the residual waste stream. The proposed 90% diversion target reflects the strong waste diversion commitment being advocated by the RSWAC. Furthermore, the Committee also strongly supported strengthening the RDN's long term vision of Zero Waste.

BACKGROUND

The Regional District of Nanaimo (RDN) is updating the Solid Waste Management Plan (referred here after as the "Plan") which sets out strategies for managing municipal solid waste within the Region. This will be the third update since the original Plan was developed in 1988.

The original Plan, and its subsequent updates, has been highly successful in guiding the RDN to achieve some of the highest waste diversion and lowest per capita disposal rates in the world.

The purpose of this report is to document revisions to the Draft Stage 2 Report as a result of the community consultation and solicit adoption of the final Stage 2 Report.

Strategies outlined in the Stage 2 report include:

1. Zero Waste
2. Multi-Family Diversion
3. Industrial, Commercial, Institutional Waste
4. Regulatory Authorities
5. Construction/Demolition Waste
6. Household Hazardous Waste
7. New and Emerging Technologies

Revisions were made to the Draft Stage 2 Report based on feedback from the RSWAC and key stakeholder consultation and are listed in Attachment 1.

ALTERNATIVES

1. Recommend that the Regional Board adopt the Stage 2 Solid Waste Management Plan Report.
2. Recommend that the Regional Board adopt the Stage 2 Solid Waste Management Plan Report with additional revisions.

FINANCIAL IMPLICATIONS

Financial implications of the SWMP and the implementation schedule are the primary objectives of Stage 3 of the SWMP review process.

STRATEGIC PLAN IMPLICATIONS

Considering the environmental impacts of solid waste aligns with the RDN Strategic Priority of protecting and enhancing our environment in all decisions under “Focus on the Environment”. The SWMP also aligns with investing in regional services that look at both costs and benefits as part of “Service and Organizational Excellence”.

Meghan Larson
mlarson@rdn.bc.ca
May 5, 2017

Reviewed by:

- L. Gardner, Manager, Solid Waste Services
- R. Alexander, General Manager, RCU
- P. Carlyle, Chief Administrative Officer

Attachments:

1. Feedback and Edits to Draft Stage 2 SWMP Report
2. Stage 2 SWMP Report

Attachment 1: Feedback and Edits to Draft Stage 2 SWMP

Page Number	Changes Summary
i	Reordered the Strategies outlined in the report.
1	Updated Guiding Principles to BC Ministry of Environment Guiding Principles
2	Replaced BC Ministry Hierarchy with ZWIA Hierarchy
3	Inserted “First Nations” when referencing Four First Nations Indian Reserves in region
3	Updated Table 1 Population By Area to include 2016 Stats Canada data
5	Replaced “of” with “to” in Table 2 San Francisco row
7	Added to Regional District (Board and Staff) roles in Solid Waste Management <ul style="list-style-type: none"> Develops policies which promotes a level playing field within the waste management sector
19	Reordered the Section 4.1 General Strategies
21	Expanded Advocacy Role
23	Section 4.3 addition of: Additionally, Section 4.5.2 discusses the introduction of Waste Source Regulation as an additional authority under the SWMP which would drive the requirement for all multi-family buildings to have full diversion programs in place for recyclables and organics.
24	Changed the order of the Regulatory Authorities with Waste Source Regulation before Waste Haulers as Agents
26-27	<p>Rewording of New and Emerging Waste Management Technologies</p> <p>In assessing future waste management options the RDN has considered new and emerging waste management technologies including mixed waste processing, refuse derived fuel, anaerobic digestion, and gasification. All of these technologies are directed at residuals management in contrast to targeting source separation. It is the RDN’s intention to continue to drive reduction and recycling through continued emphasis on source separation.</p> <p>With the exception of mixed waste processing, the technologies listed focus on energy recovery. Again, it is the RDN’s intention to exhaust reduction and recycling efforts, and a mixed waste processing facility is consistent with this goal. Of the new and emerging technologies reviewed, mixed waste processing is the technology that holds the most promise for future consideration. It is envisioned that such a facility would be developed through private sector investment. A public sector facility may be considered after fully implementing source reduction efforts if a private sector facility does not materialize.</p>
27	Addition of Section 4.9 Solid Waste Emergency/Disaster Response Plan
27	Addition of Section 4.10 Collaboration with Social Enterprise
28	Removed Yearly Operation Costing of MRF from Table 5
29	Removed Table 7 Potential New and Emerging Technology Costs



Regional District of Nanaimo Solid Waste Management Plan

Stage 2 Report

Evaluation of Options Report

Revised April 2017

Executive Summary

The Regional District of Nanaimo (RDN) is updating the Solid Waste Management Plan (referred here after as the “Plan”) which sets out strategies for managing municipal solid waste within the Region. This will be the third update since the original Plan was developed in 1988.

The original Plan, and its subsequent updates, has been highly successful in guiding the RDN to achieve some of the highest waste diversion and lowest per capita disposal rates in the world. The RDN’s 2014 per capita disposal rate was 347 kg/person/year. Comparatively, the BC average for the same period was 520 kg/person/ year and the 2012 California average was 712 kg/person/year. The proposed target for the next plan amendment is 90% waste diversion with an unprecedented per capita disposal rate of 109kg/person/year.

The purpose of this report is to explain proposed future solid waste management strategies and seek community input. The community input will be used in further refining or modifying these strategies. Subsequently, the Solid Waste Management Plan will be updated to include the new strategies and presented to the Regional Board of Directors for adoption and the BC Minister of Environment for approval.

This document serves to present the strategies that are proposed to be adopted in the updated Plan to promote increased waste diversion and to manage the residual waste stream. A Regional Solid Waste Advisory Committee (RSWAC) was established to guide the identification and selection of preferred options presented in this report. The RSWAC was made of a cross section of community representatives from agencies, businesses and the public. Area First Nation representatives were encouraged to participate in the process. The proposed 90% diversion target reflects the strong waste diversion commitment being advocated by the RSWAC. Furthermore, the Committee also strongly supported strengthening the RDN’s long term vision of Zero Waste.

Strategies outlined in this report include:

1. Zero Waste
2. Multi-Family Diversion
3. Industrial, Commercial, Institutional Waste
4. Regulatory Authorities
5. Construction/Demolition Waste
6. Household Hazardous Waste
7. New and Emerging Technologies

Any comments or questions regarding the Plan or the contents of this report should be directed by email to zerowaste@rdn.bc.ca or phone (250) 390-6560.

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1. Introduction

In British Columbia, regional districts are mandated by the Provincial *Environmental Management Act* to develop a 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 RDN prepared their first Plan in 1988 and amended that plan in 1996 and 2004. The Plan is again being updated with a 10-year planning horizon.

The process to update the Plan is being conducted in three stages. The first stage involved a review of the current 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 the selection of preferred management options. This document is the conclusion of the Stage 2 process and presents the recommended options for solid waste management. The third stage will set out the implementation schedule for the preferred options and will form the revised Plan.

This document serves to present the preferred options for public review and input. Following consultation, the preferred options will be modified or adopted and, Stage 3, the amended Plan will be prepared for adoption by the Regional Board and approval by the Minister of the Environment.

Once the Plan is approved by the Province (along with any approval conditions), it becomes a regulatory document for solid waste management and serves to guide solid waste management related activities and policy development in the RDN. In conjunction with regulations and operational certificates that may apply, the Plan regulates the operation of storage and disposal facilities that make up the region's waste management system (see Section 2.2).

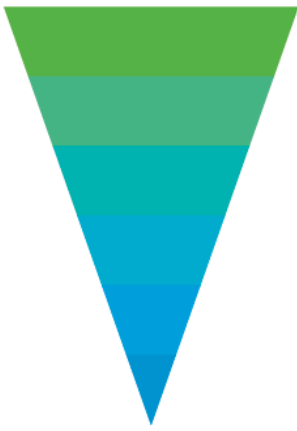
1.1 Guiding Principles

In line with BC Ministry of Environment's provincial standards, 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.
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.

1.2 Pollution Prevention Hierarchy

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 proposed programs, infrastructure and policies for the updated Plan are outlined in Sections 4 through 5 of this report and are presented in accordance with waste management hierarchy as shown in Figure 1.



ZW Hierarchy of Highest & Best Uses

- Reduce, Refuse & Return
- End Subsidies for Wasting
- Product & Packaging Redesign
- Clean Production & Takebacks
- Reuse, Repair & Remanufacture
- Recycle, Compost & Digest
- Regulate (Bans, Biological energy recovery, landfills with pre-processing)
- Not OK: Incineration, Bioreactor Landfills

Figure 1 Waste Management Hierarchy adopted from the Zero Waste International Alliance

1.3 Targets and Key Programs

There are two targets proposed for the updated plan:

1. The ultimate goal of Zero Waste. Zero Waste as defined by Zero Waste International Alliance defined as:

“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.”¹

2. Introduce programs/strategies to move the Region towards 90% diversion by 2027 and a per capita disposal of 109 kg/year.

2. Background

2.1 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 eight unincorporated electoral areas. A map of the RDN is provided as Figure 2.

¹ Adopted from the Zero Waste International Alliance



Figure 2 Electoral Areas in the RDN

BC Stats reports the 2011 population for the RDN as 146,574. Of this number, 26% (37,550) lived in electoral areas and the remaining 74% (108,075) 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. The eight electoral areas in the region are:

- A: Cassidy, Cedar, Yellowpoint, South Wellington;
- B: Gabriola, Decourcy 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.

Four First Nations Indian Reserves are also located within the region:

- Nanaimo Town 1 & Nanaimo River (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	4,045
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	39,109
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)	155,710

Population Growth

The population of the region increased from 84,819 in 1986 to 146,574 in 2011. As of 2016 Census data the population of the region was 155,710. Forecasts predict the population will increase to 207,646 by 2026 and 231,184 by 2036.²

2.2 Waste generation and management

The base line figure for waste generation in the RDN is 1,084 kg/capita per year from 1980's disposal estimates. Over the past 36 years, the RDN waste disposal rate has been reduced by approximately 50% to 550kg/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 a per capita disposal rate of 109 kg/year by 2027. Appendix A has more information regarding projected waste generation in the region based on the Solid Waste Generation in British Columbia: 2010-2025 Forecast report. Table 2 provides some comparable waste disposal rates for reference regarding the RDN disposal target.

² Regional District of Nanaimo, Regional Growth Strategy, November 22, 2011

Table 2 Jurisdictional Scan on Per Capita Disposal Rates³

Location	Reporting Year	Per Capita Disposal kg/year	Comment
RDN	2027	109	Based on a 90% diversion target
RDN	2014	347	Based on 68% diversion achievement
BC Average	2014	520	Municipal Solid Waste Disposal in B.C. (1990-2014), Environmental Reporting BC
California Average	2012	712	California's per capita disposal rates may not capture all waste and per capita disposal may be higher.
San Francisco	2012	482	Claimed to have the highest waste diversion rate in the US
Germany	2012	220	Highest reported diversion rate of European countries. Accounts for <u>municipal waste</u> 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.

The jurisdictional scan of North American and Europe carried out by RDN staff has shown that 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 second strategy, maximizing source separation. It is recognized that to achieve high levels of diversion it is necessary to move beyond the largely voluntary programs that currently exist in the RDN. For the RDN to introduce further economic or regulatory provisions to promote source separation, additional authorities are required from the province. Strategies involving additional authorities are discussed further in Section 4.7.

³ RDN Staff Report: *Jurisdictional Scan Regarding Waste Diversion Program*, Sharon Horsburgh January 5, 2016

2.3 Waste Characterization

The most recent waste characterization study completed for the region in 2012 showed 17% of the volume is attributed to residential, 63% of the volume is attributed to the institutional, commercial, construction, renovation and demolition (including multi-family) and 20% of the volume attributed to self-haul customers

RDN Waste Disposal by Sector 2012

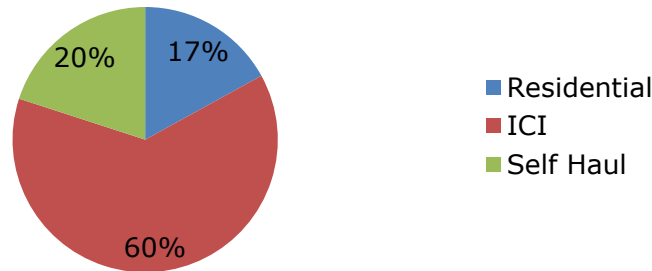


Figure 3 RDN Waste Disposal at Regional Landfill By Sector, 2012

It is estimated that approximately 8% or 4,300 tonnes of waste was moved out of the region in 2014 and can be attributed to the following three circumstances which includes both demolition and municipal solid waste.

1. It is believed a nominal amount of 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 occasions where Ladysmith residences have brought waste to the Regional Landfill in Cedar because of the close proximity. Similarly, anecdotal comments suggest that RDN residents in the Qualicum area on occasion hauled waste to the Comox Strathcona Regional District for disposal. Again, the amount of waste is considered minor.
2. It is known that there have been large demolition projects in recent years where waste has been hauled out of region for disposal. Two examples are: 1) 2015 City of Nanaimo Ferry Dock Demolition - 476 tonnes disposed of at a private landfill in the Capital Regional District; and, 2) 2015 Wellington School Demolition - approximately 250 tonnes disposed of at a private landfill in Chilliwack. The contractor advised that disposal cost waste 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 do demonstrate the propensity to seek out the lowest cost option which is often contrary to waste diversion.
3. In 2013, there was a sudden reduction of approximately 25% of the commercial waste that had previously been shipped to the RDN landfill with the waste being shipped to the USA for disposal. The average reduction for 2013 and 2014, excluding the large demolition projects noted above, is estimated at 3,600 tonnes each year⁴. In 2015, there was a reduction in the amount of waste being exported for USA disposal. This was likely a consequence for the lower

⁴ RDN Waste Export Analysis, Prepared by Carey McIver & Associates Ltd., February 10, 2015

value of the Canadian dollar as compared to the USA dollar. No doubt future trends for export will fluctuate and will be influenced by the value of the Canadian/US dollar, transportation costs and business decisions.

2.4 Roles in Waste Management

In the RDN, the following organizations contribute to municipal solid waste management.

Who	Roles in Solid Waste Management
Federal Government	<ul style="list-style-type: none"> • Regulates 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 waste management • Regulates product stewardship/extended producer responsibility in BC
Regional District (Board and Staff)	<ul style="list-style-type: none"> • Develops plan to provide big picture oversight of waste management in the region • Through plans and plan implementation (including bylaws), works to meet waste disposal goals and targets and ensures that community has access to waste management services that are environmentally sound and cost effective • Ensures that legislative and policy requirements are followed, including monitoring and reporting • Chairs committees/ coordinates with municipalities in service delivery • 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 jurisdiction • Incorporates the Zero Waste Hierarchy within operations and those of member municipalities • Develops policies which promotes a level playing field within the waste management sector
Municipalities (council and staff)	<ul style="list-style-type: none"> • May provide/ coordinate waste management service, or own/operate facilities • May make bylaws dealing with waste collection • Municipal enforcement officers part of enforcement team
First Nations	<ul style="list-style-type: none"> • May provide waste management services or may participate in regional waste management system

Product Stewards	<ul style="list-style-type: none"> • Collect/ 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/ report on recovery rates
Private sector involved in waste management (e.g. haulers, facility operators)	<ul style="list-style-type: none"> • May provide recycling and waste management services and own/operate facilities • Generally, services multi-family residential buildings, commercial and institutional sources, and construction, demolition and land clearing sectors • Regulated by local government through Waste Stream Licensing Bylaw
Neighbouring jurisdictions	<ul style="list-style-type: none"> • May send waste to Regional Landfill or accept waste from RDN • Synergies, consistencies in waste management with neighbouring jurisdictions
Residents and businesses	<ul style="list-style-type: none"> • Responsible for carrying out proper waste reduction, recycling and disposal activities

3. Existing Solid Waste Management System and Waste Characterization

This section provides an overview of the solid waste management system. A detailed description of the Existing Solid Waste Management System can be found in Stage 1: Existing System Report in Appendix B.

3.1 Waste Flows

There are many participants within the system providing a wide array of services. Figure 4 is a schematic diagram showing the breadth of activities and participants engaged with the current solid waste management system. There are a wide range of waste management activities underway that reflect both a relatively mature waste management system and significant economic activity based on secondary resources.

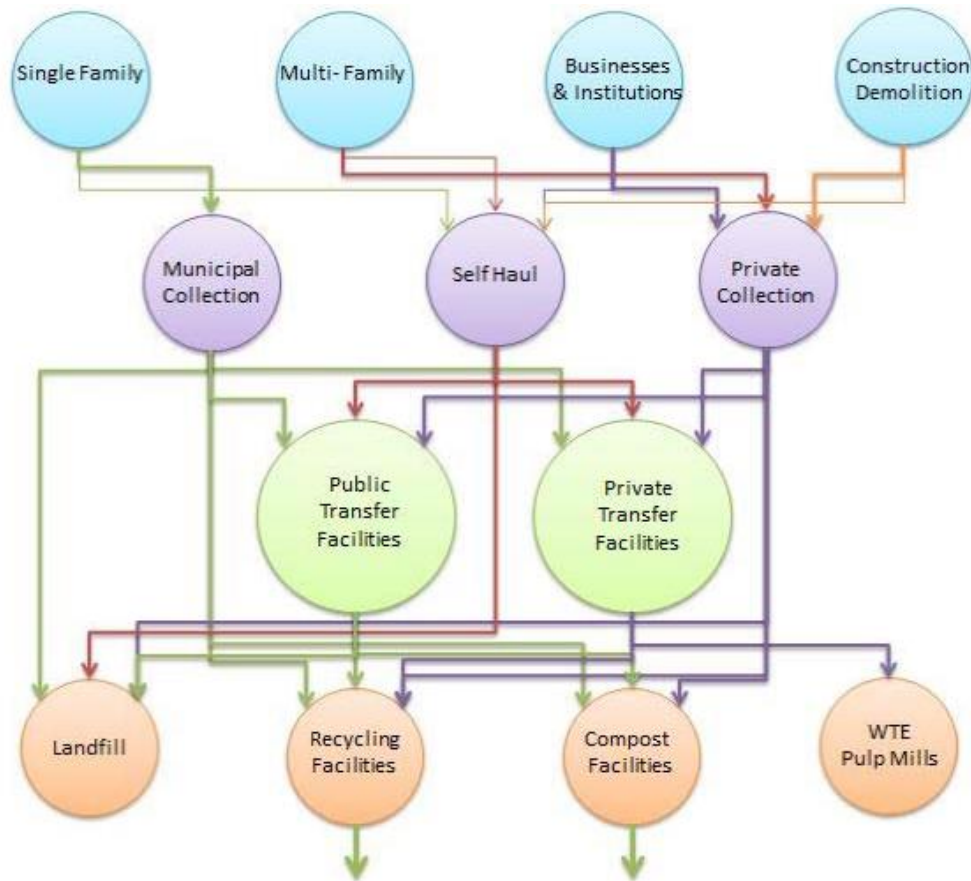


Figure 4 Components of the Waste Management System in the RDN

3.2 Overview of the Solid Waste Management System

The RDN has a broad range of solid waste management programs and infrastructure. This section describes the major infrastructure, services, programs and policies.

The 2004 Plan introduced the Zero Waste strategy and expanded on policies and programs to increase diversion. This strategy has effectively increased recyclable commodities and transferred the management of those items to the private sector. Examples of this cross the waste stream spectrum and include wood waste, commercial/demolition waste, yard waste, food waste and EPR products.

This movement of waste to the private sector has resulted in reduced cost of government and growth in the waste management business sector. With the growth in business, the whole community benefits from this sector's increased employment opportunities and their contribution of taxes. These policies have created a robust waste management industry in the region and has resulted in world class waste diversion levels.

This model of transferring the waste management activities to the private sector ensures "user pay" where the full cost of waste management is born by the generator. Conversely, many other communities rely much more on taxation in providing waste management services and the true cost of waste management is hidden.

In May 2013, the report “Zero Waste Business Case, Draft for Expert Review”, Innes Hood Consulting Inc., was prepared for the Ministry of the Environment.⁵ The report concluded that 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 produce between \$56 million and \$126 million of annual net economic benefit; will create between \$27 million and \$89 million in new annual GDP and generate between \$755,000 and \$2.5 million in new annual income tax revenue for BC. The report also states that the business case for Zero Waste is strengthened if supporting policies are developed that 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 to see increased diversion coupled with further economic growth in the waste management sector.

3.2.1 Education and Outreach

Both the RDN and the City of Nanaimo undertake promotion and education related to solid waste management.

The RDN:

- Has 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/>)
- Distributes a “Zero Waste” Newsletter to all homes two to three times per year.
- Has a searchable on-line recycling directory for users to find out where they can bring their reusable, recyclable and compostable items.
- Has a Zero Waste school education program which provides free classroom workshops to schools throughout the RDN.

The City of Nanaimo:

- Distributes their “Waste Lines” newsletter to all City addresses in the spring and fall of each year.
- Has a dedicated web pages on the City’s website (www.nanaimo.ca) that includes information related to the City’s residential collection services, a link to the RDN recycling directory, and a list of reuse and recycling organizations operating in the City.

In the RDN, the current collection infrastructure for existing EPR programs consists of return-to-retail and take-back depots. The RDN’s Recycling Directory can be used by residents to find the most convenient take back location for EPR products. The Recycling Council of BC (which the RDN is a member of) operates a similar service through their toll-free Recycling Hotline (1-800-667-4321) and their on-line searchable database and app “Recyclopedia”. BC Stewards also recently rebranded their website which provides an online look up feature at www.bcrecycles.ca.

⁵ http://www2.gov.bc.ca/assets/gov/environment/waste-management/zero-waste/zero-waste/zero_waste_business_case_draft.pdf

3.2.2 Reduction and Reuse Activities

Both the RDN and the City of Nanaimo encourage residents to “reduce and reuse”.

Both organizations promote backyard composting through providing information on their websites on how to backyard compost and grasscycle. The City of Nanaimo holds a reuse-focused event each spring called “Reuse Rendezvous”. This event promotes reuse through a weekend long curbside swap meet for residents to put out items that they no longer want and that may be useful to others.

In addition to the RDN’s and City’s 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.

3.2.3 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 CRTS) accept limited recyclable material including scrap metal, paper, cardboard, household plastic containers, metal food and beverage containers, vehicle batteries, oil filters, wood waste, and gypsum.

There are 3 material recycling facilities (referred to as MRFs) that are owned and operated by private waste management companies in the RDN: Progressive Waste, Emterra and Cascades. All 3 MRFs are located in Nanaimo.

Figure 5 shows the locations of both the private and not-for-profit recycling depots throughout the region which accept EPR material and other recyclables from private businesses and residents.

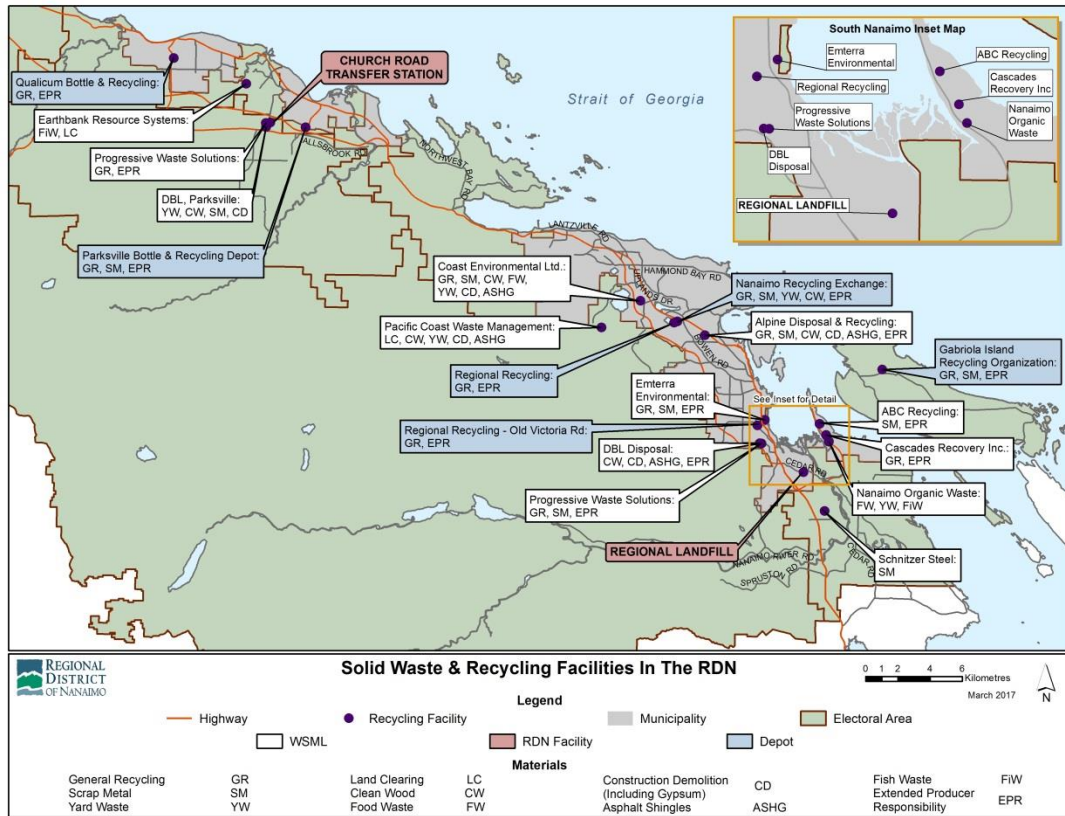


Figure 5 Solid Waste & Recycling Facilities in the RDN

3.2.4 Organics Management

In the RDN there is reuse of 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 following table lists the types of materials each of these facilities manages:

Nanaimo Organic Waste	<ul style="list-style-type: none"> Residential “green bin” kitchen scraps and soiled paper Commercial food waste Yard waste Fish waste Clean wood
Earthbank	<ul style="list-style-type: none"> Farmed and wild fish offal Farmed salmon mortalities Ground up bark from the forestry industry Ground up land clearing debris (exclusively local forest materials)

Nanaimo Organic Waste is the only facility processing food waste in the RDN. This facility opened in Nanaimo in 2004 with a drum-style in-vessel composting system. The compost 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 in before and after the ban, 2004 and 2012 respectively, the per capita tonnage of compostable organics in the waste stream only dropped from 95.5kg/capita to 91.2 kg/capita. These findings indicate that the current organics ban has only had modest success and there is significant opportunity for further diversion with organic waste.

In 2011, more than 52,000 single family homes in Nanaimo, Lantzville, Parksville, Qualicum Beach and the RDN Electoral Areas received weekly curbside food waste collection service.

3.2.5 Yard Waste Collection

Yard waste such as leaves and grass clippings are not collected as part of residential waste collection services in 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.
- Backyard or on-site composting.
- Self-hauling to one of several yard waste depots in the RDN. Currently, depots are located at:
 - Church Road Transfer Station
 - DBL Disposal
 - Nanaimo Recycling Exchange
 - Pacific Coast Waste Management
 - Regional Landfill
- Hiring a yard waste removal service.
- Include yard waste removal in landscaping contracts.

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

- A ban on yard waste disposed as garbage at the landfill site and transfer station.
- A ban on the inclusion of yard waste in the City of Nanaimo's⁶ and RDN's residential garbage collection service.
- Not providing yard waste collection as part of the single-family residential curbside service.
- Promoting the yard waste management alternatives.

⁶ The City of Nanaimo is currently changing over their residential curbside collection program to an automated system and may include yard waste as part of their curbside collection service.

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

3.2.6 Waste Collection

Residential curbside garbage, recycling and food waste collection service is provided to single family homes in all Electoral Areas of the RDN, City of Parksville and District of Lantzville by a private collection contractor. 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. City of Nanaimo staff provide garbage and food waste collection to single family homes while recycling is provided by a contracted waste hauler.

Throughout the RDN, for those in the multi-family and ICI sectors that desire a waste collection, there are a number of private waste haulers that provide this service.

3.2.7 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. CRTS receives garbage, yard waste, wood waste, construction/demolition waste, and limited recyclables from communities in 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 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, include 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 in Canada for a transfer station.

3.2.8 Landfills 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 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 currently underway and will add 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 municipal solid waste from the RDN since 1971 and given the current tonnages of wastes received, the operation life of the landfill is expected to continue until 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 municipality.

Waste disposal facilities on First Nations' land are regulated by the federal Indian Reserve Waste Disposal Regulations. Currently, there are no federally authorized waste management facilities on First Nations land within the RDN. The RDN's Waste Stream Management Licensing Bylaw does not apply to activities on First Nations' land.

3.2.9 Policies and Regulations

Five main policies influence the RDN solid waste management system: the user-pay system; variable tipping fees; disposal and collection bans; private sector waste management and open burning restrictions. The first four policies fall within the scope of the Plan while 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 that significantly influence the management of specific waste materials generated in the RDN. Each of these local and provincial policies is discussed below:

User Pay

Both the RDN and the City of Nanaimo have user pay curbside garbage collection programs. All households have a one can per week limit on waste volume. Separate tags that presently cost \$3.00 each are required to set out additional cans. The vast majority of homes set out one can of waste or less per week. 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 landfill and transfer station, organics waste management, illegal dumping mitigation, education, policy and regulatory work. Other revenues such as grants, sale of asbestos bags and licensing fees associated with the Waste Stream Licensing program are insignificant relative to the overall budget.

Variable Tipping Fees

The RDN tipping fees vary depending upon the materials. The 2016 base tipping fee for municipal solid waste is \$125 per tonne. Fees for other materials are varied on the basis of cost to handle the material and/or to motivate diversion. For example, the 2016 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 construction and demolition material containing recyclables, the 2016 tip 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.

Material Disposal Bans

The first material ban was introduced by the RDN in 1991 to encourage the recycling of drywall. 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 3.2.10. Enforcement of the bans to date at the Regional Landfill and at the CRTS has been applied to the most egregious cases of contamination. Minor amounts of banned materials such as paper, food waste or recyclable plastic is not uncommon.

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. The three policies described above, aided by burning bans and provincial initiatives discussed in the following section, have created a positive business climate for this trend.

Many communities have developed government run eco-depots 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 provincial stewardship programs. Where materials are accepted, there is a drop off fee. In this way, consumers/generators are encouraged to use the private facilities. The net result has been robust private sector waste management in the region, high waste diversion and reduced cost of government to directly provide services.

Burning Bans

Most developed areas of the RDN have burning restrictions for landclearing waste, construction/demolition 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 landclearing 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, re-use (of construction/demolition materials) or recycling.

Provincial Initiatives

BC 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 stewardship program are less likely to enter the RDN’s waste management system. There are province-wide stewardship programs currently in place for:

- Lead-acid batteries
- Used motor oil
- Paint
- Pesticides
- Solvents
- Tires
- Medications
- Fuel
- Cell Phones
- Outdoor Power Equipment
- Lighting Products
- Household Batteries
- Gasoline
- Antifreeze
- Thermostats
- Small Appliances
- Electronic Toys
- Beverage Containers
- Printed Paper and Packaging
- Electronics
- Large Appliances
- Smoke alarms
- Carbon monoxide alarms
- Beer Containers
- Power Tools

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

3.2.10 Waste Stream Management Licensing Bylaw

RDN Bylaw No. 1386 requires most solid waste management facilities operating in the RDN 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 and the RDN's licensing bylaw was enacted under the 2004 Plan.

The RDN's licensing bylaw (Bylaw No. 1386) was established to fulfill the following objectives:

1. Create a high standard of operation for waste management facilities located in the RDN.
2. Encourage and protect 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 both regional districts.
5. To provide a level playing field in the two regional districts.

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

- Disposal facilities such as 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 depots (such as the centralized recycling areas used by office buildings and mall tenants).
- Stewardship program depots.
- Reuse businesses.
- Concrete and asphalt recycling operations and auto wreckers since the material handled by these operations has not traditionally been handled as MSW.
- Municipally owned facilities including the CRTS.

The updated plan should reconsider the wording of these exemptions to provide further clarity. For instance, the intent of not regulating disposal facilities under the regulatory jurisdiction of the Province is intended to avoid duplication of regulation. Consideration should be given to clarifying this exemption to apply to facilities operating under a Ministry of Environment Permit or Operational Certificate.

Currently there are 13 waste stream management licenses in place in the RDN and 2 applications under review. A list of currently licensed facilities and facilities currently undergoing application review is provided in Table 3.

Table 3 RDN Waste Stream Management License Holders

Waste Stream Management License Holders (as of September 2016)
1. Schnitzer Steel Pacific
2. Parksville Bottle & Recycling Depot
3. International Composting Corporation
4. BFI Nanaimo Recycling Facility
5. Emterra Environmental
6. Earthbank Resource Systems
7. Alpine Disposal & Recycling
8. Pacific Coast Waste Management
9. DBL Disposal Service Ltd. – Church Road
10. DBL Disposal Service Ltd.
11. BFI Canada, Springhill
12. Cascades Recovery Inc.
13. Coast Environmental Ltd.
Waste Stream Management Applications Under Review (as of September 2016)
13. Nanaimo Recycling Exchange
14. ABC Recycling

3.2.11 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/compostable materials include drywall (implemented in 1991), cardboard (1992), paper, metal and tires (1998), commercial food waste (2005), yard and garden waste (2007) wood waste (2007) and EPR materials designated under BC’s recycling regulation (2007), household plastic containers (2009) and 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 construction/demolition sectors.

3.2.12 Illegal Dumping

Illegal dumping on private and public lands has been a long-standing concern in the RDN. In 2016, approximately 35 tonnes of illegally dumped material was 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.

4. Future Solid Waste Management System

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 proposed programs, infrastructure and policies for the updated Solid Waste Management Plan are outlined in Sections 4.1 through 4.7.

4.1 General Strategies

As part of the Stage 2 process of the Solid Waste Management Plan review, the Regional Solid Waste Management Advisory Committee (RSWAC) short listed a number of options for inclusion in the updated plan. The full list of short listed options reviewed can be found in Appendix C. Through this process six key focus areas emerged:

1. Zero Waste
2. Multi-Family Diversion
3. ICI Waste
4. Regulatory Authorities
5. Construction/Demolition Waste
6. Household Hazardous Waste
7. New and Emerging Technologies

4.2 Zero Waste

In 2002, the RDN committed to “Zero Waste” as its long-term waste reduction and diversion target.

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.

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.

As part of the RDN's commitment to Zero Waste as an integral part of the region's Plan, the Zero Waste International Alliance (ZWIA) definition of Zero Waste has been adopted. See Section [1.3 Targets and Key Programs](#).

4.2.1 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 RDN 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 Regional newsletter "Regional Perspectives"; the region-wide "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, 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.

In addition to existing solid waste education programs, enhancing public education regarding solid waste management in the region will cost in the range of \$20,000-\$40,000 in administrative and delivery costs.

4.2.2 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 such as Multi-Material British Columbia. 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 Recycling Council BC, 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 will remain variable depending on level of participation and costs related to the engagement opportunities (e.g. association dues, travel expenses).

Advocacy role may include:

- Petition Provincial/Federal Government 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.
 - Demonstrate how to build a closed loop system.
 - Advocate for producers to ensure their products and their products packaging end of life is consistent with the Zero Waste Hierarchy.
- Petition Provincial/Federal Government for the expansion/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.

4.2.3 RDN Purchasing Policy

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

The development and implementation of an RDN Purchasing Policy will require staff time to write and present the new policy to the Regional Board. The 2004 Plan budgeted \$4,000 for this task however; it was not completed during the term of the plan.

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

4.3 Multi-Family Diversion

There are approximately 13,430 multi-family residential units in the RDN, with approximately 12,000 of these units located in the City of Nanaimo.⁷ 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.

Since 2008, the RDN has had 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. In 2008, RDN staff estimated that 75% of multi-family buildings had recycling services on-site, but that those services were primarily for cardboard and paper collection. In 2012, the service levels were found to have significantly improved since 2008, with 94% of multi-family buildings reporting that they had recycling services for cardboard, paper and plastic and 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.

Because 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 building sector. Research done in other jurisdictions indicates that recycling rates in multi-family buildings 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 homes is recycled and the City of Toronto reports an 18% recycling rate.⁸ 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 industrial, commercial and

⁷ Multi-Family Housing Diversion Strategy Progress Report; RDN staff memorandum by S. Horsburgh to C. McIver; February 2, 2012.

⁸ <http://www.metrovancouver.org/region/dialogues/Reports%20and%20Issue%20Summary%20Notes/Multi-FamilyWaste-NS-Summary20110419.pdf> and <http://www.toronto.ca/garbage/pdf/2010-graph.pdf>

institutional sector (ICI). As a result future diversion strategies for multi-family are the same as the ICI sector and are discussed in Section 4.4. Additionally, Section 4.5.2 discusses the introduction of Waste Source Regulation as an additional authority under the SWMP which would drive the requirement for all multi-family buildings to have full diversion programs in place for recyclables and organics.

4.4 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 that 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 drywall making up the remainder of the recyclable portion of the ICI garbage.

To increase diversion from the ICI and Multi-family sectors there are essentially two distinct paths available to the RDN. The first is to continue with, and increase education and awareness and/or increased enforcement of current disposal bans at the landfill and transfer station. Increased enforcement and education of existing disposal bans and a relaunch of Commercial Organics Diversion Strategy and Multi-Family Diversion Strategy are predicted to achieve up to 3.1% diversion.

The second path is to target maximizing source separation and introduce further economic or regulatory provisions to promote the desired behavior. To do this, additional authorities are required from the province and may be gained through Ministerial approval of the Solid Waste Management Plan. The diversion potential of invoking such authorities is predicted to be up to 11%. The RDN proposes to include such strategies in the Solid Waste Management Plan which are discussed in Section 4.7.

If the RDN continues to work within the current regulatory authorities under the existing Plan to improve ICI organics and recycling diversion which may include increased education and awareness and/or increased enforcement of current landfill bans at the landfill and transfer station would require 1 new FTE or equivalent at \$80,000/year including benefits to oversee the new ICI diversion strategy plus \$20,000/year in administrative costs to run the program and \$100,000/year for increased enforcement.

4.5 Regulatory Authorities

The requirement and authority for a Plan is set out in the Provincial statute, *Environmental Management Act*. On Ministerial approval of a Plan, regional districts are given additional tools that they do not otherwise have to assist with the management of solid waste within their boundaries. The *Environmental Management Act* also provides a number of optional authorities for regional districts to manage solid waste that may be granted through plan approval.

The RDN proposes to request that the province grant additional authorities, as discussed in the following section, for managing solid waste. Should the Province grant such an authority at the concept level, further review and consultation is necessary to develop the program, determine costs and harmonize

the strategy with potentially affected stakeholders. Furthermore, it is recognized that any associated Bylaw would require approval of the Minister of the Environment before adoption.

4.5.1 Waste Stream Management Licensing

The RDN currently has authority under the existing 2004 Plan for waste stream licensing. Private facilities that manage municipal solid waste in the region are required to hold a license issued by the RDN. Further details of this program are presented in Section 3.2.10

4.5.2 Waste Source Regulation

Waste Source Regulation provides the ability to impose requirements on waste generators. Two examples of this concept are:

1. the City of Vancouver's Green Demolition bylaw which requires 75% recycling of materials on demolition of pre-1940 homes and 90% on pre-1940 character homes.
2. Comox Strathcona Waste Management proposes to require mandatory recycling of the ICI sector such as by requiring all ICI buildings to implement a recycling collection service by a defined date. They also propose the development of a model bylaw for space allocation for the placement for waste and recycling containers. These intentions are set out in Comox Strathcona's Solid Waste Management Plan approved by the Minister of Environment in 2013.

Depending on the level of enforcement, waste source regulation has the potential to result in high waste diversion. Substantial program cost increases are commensurate with increased enforcement.

Should the Province grant such an authority at the concept level, further work is necessary to develop the program, determine costs and harmonize the strategy with potentially affected stakeholders.

4.5.3 Waste Haulers as Agents

The RDN proposes to request authority to establish a licensing process for waste haulers to act as waste collection agents of the RDN. The intention is to promote industry innovation to achieve the lowest cost with highest diversion. Under an agents model it would be possible to require waste haulers to collect and remit a fee to the RDN where a customer's waste is not separated or where a recycling or organics collection service is not provided. Such a system provides an economic driver to encourage waste diversion efforts and removes the enticement of low cost disposal.

Under an agents model, other economic strategies could be pursued to further promote diversion such as a "waste collection fee" applied to licensed haulers (agents) coupled with a reduced tipping rate for licensed haulers (agents) at the landfill. This would provide incentive for waste to flow through the private sector, and increase the diversion of waste through reduction, recycling or recovery through private sector enterprise.

RDN administration costs of such a strategy are expected to be moderate with and a minor enforcement burden. Waste haulers would have some increased administration through the collection and remittance of fees as well as reporting. There would be a minor level of enforcement to ensure haulers are complying but very little enforcement activity at the waste source.

Should the Province grant such an authority at the concept level, further work is necessary to develop the program, determine costs and harmonize the strategy with potentially affected stakeholders.

4.6 Construction and Demolition (CD) Waste Management

Construction and demolition and renovation projects (CD) 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 this 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 was less than half of the cost of RDN disposal at the Regional Landfill and they were not required to source separate recyclables. The introduction of further economic or regulatory provisions (see Section 4.7) has the potential to minimize this type of occurrences in the future.

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
Asphalt Shingles	<ul style="list-style-type: none"> • Pacific Coast Waste Management
Concrete	<ul style="list-style-type: none"> • DBL Disposal • Hub City Paving • Haylock Bros. Paving • Mayco Mix • Pacific Coast Waste Management • Parksville Heavy Equipment
Metal	<ul style="list-style-type: none"> • Alpine Disposal & Recycling • Annex Auto • Bull Dog Auto Parts • Carl's Metal Salvage • DBL Disposal • Nanaimo Recycling Exchange • Regional Recycling • Schnitzer Steel

Wood (lumber)	<ul style="list-style-type: none"> • Alpine Disposal & Recycling • DBL • Gabriola Island Recycling Organization 	<ul style="list-style-type: none"> • Nanaimo Recycling Exchange • Pacific Coast Waste Management
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It is believed that a significant portion of CD waste is recycled or used as a fuel substitute, including:

- 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.

If the RDN improves and reintroduces education and communication regarding CD waste in the region it is estimated to cost \$20,000/year. If enhanced regulation within the existing authorities were to be carried out in conjunction with increased education it is estimated to cost an additional \$20,000/year.

4.7 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. The RDN will explore options for further expanding collection of non-stewarded residential household hazardous waste.

The RDN will continue to promote the use of existing Provincial and private stewardship programs for the disposal of household hazardous wastes. Additionally, the RDN will encourage new stewardship programs for other hazardous components of the municipal solid waste stream, such as electronic goods, dry cell batteries and rechargeable batteries.

For the RDN to sponsor and/or run residential non-stewarded HHW drop off events it is estimated to cost in the range of \$80,000-\$100,000 per year.

4.8 New and Emerging Waste Management Technologies

In assessing future waste management options the RDN has considered new and emerging waste management technologies including mixed waste processing, refuse derived fuel, anaerobic digestion, and gasification. All of these technologies are directed at residuals management in contrast to targeting source separation. It is the RDN’s intention to continue to drive reduction and recycling through continued emphasis on source separation.

With the exception of mixed waste processing, the technologies listed focus on energy recovery. Again, it is the RDN's intention to exhaust reduction and recycling efforts, and a mixed waste processing facility is consistent with this goal. Of the new and emerging technologies reviewed, mixed waste processing is the technology that holds the most promise for future consideration. It is envisioned that such a facility would be developed through private sector investment. A public sector facility may be considered after fully implementing source reduction efforts if a private sector facility does not materialize.

4.9 Solid Waste Emergency/Disaster Response Plan

The RDN proposes to develop a Solid Waste Emergency Disaster Response Plan to facilitate solid waste management during and following a large scale emergency or disaster. The purpose is to aid response, minimize damage and costs, maintain high environmental protection standards and support waste diversion.

4.10 Collaboration with Social Enterprise

The RDN will seek opportunities to collaborate with social enterprise to maximize social benefit and advancement of Zero Waste in areas that are not viable or supported by the business sector.

5. Long Term 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 Zero Waste commitment.

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 are actively looking into cooperative strategies for managing solid waste across regional district boundaries. Future options for residual management could include such as collaboration with other local governments, siting a landfill and/or considering export on or off the island.

6. Plan Implementation

6.1 Implementation schedule

Once the updated Plan has been presented and approved as part of the Public Consultation process in Stage 3 an implementation schedule will be developed and presented as part of the final Plan submitted to the Minister of Environment for approval.

It is anticipated that the Plan will be submitted to the Minister of Environment in the spring of 2017.

6.2 Bylaws

Any new bylaws or amendments required as a result of the implementation of the updated Plan the RDN will work with community stakeholders and seek ministry approval if required.

6.3 Projected Cost of Future Strategies

Table 5 below presents the approved 2016 RDN Solid Waste Services Consolidated Budget. Projected costs for future strategies outlined in Section 4 are presented in Table 6 and Table 7.

Table 5 RDN 2016 Approved Solid Waste Budget Consolidated

Program		Revenue*	Expense*	
Solid Waste	Landfill Tip Fee	7,200,000		
	Tax Requisition	578,000		
	Prior Year Surplus	1,122,000		
	Other	691,000		
	Administration, Wages, Benefits		1,253,000	
Sub Total		9,591,000	1,953,000	
Zero Waste/3Rs	Wages, Benefits		114,000	
	Programs		161,000	
	Other		10,000	
Sub Total			285,000	
Scale and Transfer	Recycling		1,445,000	
	Hauling		431,000	
	Not for Profit		73,000	
	Vehicles		62,000	
	Wages, Benefits		1,574,000	
	Other		294,000	
Sub Total			3,879,000	
Disposal Operations	Loan Proceeds	2,000,000		
	Reserve	4,765,000		
	Contract Services		207,000	
	Monitoring		110,000	
	Closure		95,000	
	Repairs, Maintenance		90,000	
	Professional Fees		139,000	
	Leachate/LFG		160,000	
	Vehicles		649,000	
	Wages, Benefits		994,000	
	Debt		127,000	
	Capital		6,841,000	
	Other		123,000	
Sub Total			9,535,000	
Curbside Collection	User Fee	3,551,000		
	MMBC	1,046,000		
	Garbage Tags	40,000		
	Prior Year Surplus	318,000		
	Other	20,000		
	Discounts		314,000	
	Administration, Wages, Benefits		631,000	
	Contracted Services		2,714,000	
	Publications		70,000	
	Landfill Tipping Fees		843,000	
	Other		152,000	
	Sub Total		4,975,000	4,894,000
	Total**		\$21,331,000	\$20,546,000

*Rounded to nearest \$10,000 **Variance in revenue and expense due to rounding

Table 6 Projected Cost of Future Strategies

Service Area	Brief Description	Annual Proposed Budget
Zero Waste Education	Enhanced public education regarding solid waste management in the region in addition to existing education programs	\$40,000
Household Hazardous Waste	RDN to fund collection of non-stewarded residential household hazardous waste.	\$100,000
Multi-Family Diversion	See ICI Waste Management	
ICI Waste Management	Increased enforcement and education of existing landfill bans and a relaunch of Commercial Organics Diversion and Multi-Family Diversion Strategy	Increased Education \$100,000
		Increased Enforcement \$100,000
CD Waste Management	Enhanced education and communication	\$20,000
	Enhanced regulation within existing authorities	\$20,000
	Additional Regulatory Authority	See Regulatory Authority
Regulatory Authorities	Waste Source Regulation	TBD
	Waste Haulers as Agents	TBD

7. Conclusion

This Plan Stage 2 Report collates the evaluation of options and sets out the preferred options for municipal solid waste management within the RDN over the next ten year period. This document serves to present the preferred options for public review and input.

The key strategies of the updated Solid Waste Management Plan in addition to existing programs are:

- Zero Waste
- Multi-Family Diversion
- ICI Waste
- Additional Regulatory Authorities
- Construction/Demolition Waste
- Household Hazardous Waste

The preferred options include the intention to request the province grant the RDN additional authorities, namely assigning waste haulers as agents or the licencing of waste haulers as well as the authority to regulate source separation of waste and recyclables. Should such authorities be granted from the Province, it is understood that further consultation with affected parties would be necessary prior to any implementation. Further, it is understood that any associated Bylaws would also require approval by the Minister of the Environment.

It is proposed that the updated Plan set an ambitious target of 90% waste diversion by 2027 and a per capita disposal of 109 kg/year.

Following public consultation of this Stage 2 report, the preferred options will be modified or adopted and, Stage 3, the amended Plan will be prepared for adoption by the Regional Board and approval by the Minister of the Environment.

Appendices

- Appendix A: RDN Waste Generation Projections, RDN Staff Memorandum by M. Larson to L. Gardner, March 3, 2015.

- Appendix B: Stage 1: Existing System Report, Prepared for RDN by Maura Walker & Associates, December, 2013.
- Appendix C: Level of Service Matrix

TO: Larry Gardner
Manager, Solid Waste Services

DATE: March 3, 2015

FROM: Meghan Larson
Special Projects Assistant

FILE: 5365-00

SUBJECT: REGIONAL DISTRICT OF NANAIMO WASTE GENERATION PROJECTIONS

Issue: Forecasting future waste quantities is fundamental for planning waste management programs and services.

Background:

The Regional District of Nanaimo (RDN) is currently reviewing and updating the Solid Waste Management Plan. Ministry of Environment guidelines, for developing Solid Waste Management Plans, suggest a minimum of a 10 year planning horizon; therefore, forecasting waste generation until at least 2025 is fundamental in developing the Plan.

This *Technical Memorandum* first reviews forecasting of waste generation carried out by the province for the period between 2010 and 2015 and documented in the BC Stats report *Solid Waste Generation in British Columbia, 2010-2025 Forecast, June 2012*. Secondly, the memorandum considers where the RDN currently fits in with the provincial model. And lastly, the memorandum discusses where the RDN might vary with respect to future forecasting.

Discussion:

1. Provincial Forecasting of Waste Generation

The BC Stats report defined key sectors for waste generation and recycling/diversion as follows:

Residential - Residential waste is solid waste produced by all residences and includes waste that is picked up by the municipality (either using its own staff or through contracting firms), and waste from residential sources that is self-hauled to depots, transfer stations and disposal facilities.

Industrial, Commercial and Institutional - IC&I wastes include: industrial materials, which are generated by manufacturing, and primary and secondary industries, and are managed off-site from the manufacturing operation; commercial materials, which are generated by commercial operations, such as shopping centres, restaurants, offices and others; and institutional materials that are generated by institutional facilities, such as schools, hospitals, government facilities, seniors homes, universities, and others.

Construction, Renovation & Demolition - CR&D wastes refer to wastes generated by construction, renovation and demolition activities. It generally includes materials such as wood, drywall, certain metals, cardboard, doors, windows, wiring and others. It excludes materials from land clearing on areas not previously developed as well as materials that include asphalt, concrete, bricks and clean sand or gravel.

Local Government Recycling/Diversion - Local government recycling/diversion programs include material recycling, organics composting and other waste diversion programs offered by local governments. Recycling is the process whereby a material (for example, glass, metal, plastic, paper) is diverted from the waste stream and potentially remanufactured into a new product or used as a raw material substitute. Local government recycling/diversion figures do not include industry product stewardship, which is measured separately. For instance, it does not include materials picked up under stewardship programs such as materials picked up by local government under contract to Multi-Material BC (MMBC).

Industry Product Stewardship Recycling/Diversion - Industry product stewardship is another form of diversion of waste from landfills. It refers specifically to the collection of materials for reuse or recycling that may offer some sort of incentive for the consumer. Many manufacturers now provide programs to their consumers to recycle or safely dispose of their products. In some cases, consumers pay environmental fees to recover the costs of these programs, and deposits as incentives to participate in the return programs. This term most frequently refers to the return of materials such as beverage containers, tires, paints, batteries, pesticides and motor oil.

The report highlights three projection scenarios with varying degrees of measures taken to divert waste from disposal:

Scenario 1 - 2010 diversion and recycling programs continue as planned; plans for new industry product stewardship programs proceed as expected (e.g. Printed Paper and Packaging); and, enhanced construction, renovation and demolition (CR&D) waste programs do not materialize as quickly as expected.

Scenario 2 – Diversion and recycling programs increase collection rates; construction and demolition waste programs are implemented; and, organic material diversion programs expand significantly.

Scenario 3 – Diversion and recycling programs significantly increase collection rates; high performing construction demolition waste programs are implemented; and, organic material diversion programs expand dramatically.

Under all Scenarios overall waste generation in BC will continue to rise (+17.7%). Refer to the BC Stats report for full details on how their projections were calculated.

Scenario 1 findings:

“Current and planned diversion and recycling programs continue as planned, but enhanced construction and demolition waste programs do not materialize as quickly as expected”

- Assumes maintenance of current programs plus the addition of new programs already identified for implementation (i.e. Packaging and Printed Paper).
- More waste will be generated and, although diversion will remain at 43%, the total amount of waste requiring disposal will increase by 17.5% over 15 years.
- Materials recycled by local government will decline by 16.4% as responsibility is transferred to industry stewards. (i.e. Packaging and Printed Paper; although that material is largely collected by local government through curbside programs, the responsibility rests with the industry steward).

Scenario 2 findings:

“Current and planned diversion and recycling programs increase collection rates, construction and demolition waste programs are implemented and organic material diversion programs expand significantly”

- Assumes a stewardship program for construction, renovation and demolition (CRD) waste and moderately stronger growth in collection from newer programs.
- Assumes greater diversion of organics by local government.
- Assumes a provincial diversion rate of 62% by 2025.
- Results in a projected decline in waste disposal by 21.8% between 2010 and 2025.
- States: *“Given the trend toward increased recycling, stewardship and other practices, a scenario whereby waste diversion efforts experience moderate expansion appears to be a fairly realistic one.”*

Scenario 3 findings:

“Current and planned diversion and recycling programs increase collection rates, construction and demolition waste programs are implemented and organic material diversion programs expand significantly”

- Assumes significant advancement of all diversion strategies.
- Assumes the main driver for increased diversion over Scenario 2 is further advancement of organics programs by local government.
- Assumes a provincial diversion rate of 81% by 2025.
- Results in a projected decline in waste disposal by 61.6% between 2010 and 2025.
- *“While this may seem a somewhat unlikely scenario, it is nonetheless worth examining as something for BC to strive for.”*

2. Waste Generation Trends

Over the 20 year period from 1990 to 2010 the total waste generation for the province increased by 40%. What this means is that while great strides were made in increasing waste diversion, per capita waste disposal was not decreasing. The BC Stats report shows a linear projection for waste generation trends over the next 10 years i.e. waste generation increases at the same rate as population. This indicates the province is projecting that per capita waste generation will remain relatively static over the next 10 years.

3. RDN Waste Generation in Relation to the Provincial Model

Applying the provincial model to local waste management practices, the RDN is considered to currently fall within the scope of Scenario 2. Scenario 2 is based on stewardship programs for CRD waste, organics diversion programs by local government and that a stewardship program for packaging and printed paper is in place. The following describes how RDN waste management practices are consistent with Scenario 2:

- *Construction, Renovation and Demolition (CRD) Waste Diversion by Local Government:*

A 2004 waste composition study determined that after organics, CRD waste was the largest component of solid waste disposed of in the Regional Landfill. The RDN's Zero Waste Plan identified the need to divert the clean wood waste from construction demolition sites from the landfill.

In February 2007, the Regional Board approved a Construction/Demolition Waste Strategy. Key initiatives in the strategy included:

- Increasing the tipping fee for clean wood waste at RDN Solid Waste Facilities to create incentives to divert this material to licensed recycling facilities;
- A ban on disposal of clean wood waste in the Regional Landfill and roll-off containers of wood waste at RDN Solid Waste Facilities; and
- Arranging contracts with third party wood waste recycling facilities to manage wood waste received at the landfill and transfer station from small self-haulers.

Effective January 1, 2008, the RDN banned clean wood waste from disposal in the Regional Landfill and roll-off containers of wood waste at RDN Solid Waste Facilities. The initiatives of the RDN are believed to largely meet the diversion goals of what a provincially mandated CRD strategy might look like.

- *Organics Diversion by Local Government:*

The RDN currently has a two-step approach to organics diversion; Commercial Food Waste Diversion and Green Bin Residential Food Waste Collection.

In June 2005, the RDN banned disposal of food and other organic waste from commercial and institutional sources at the region's solid waste facilities, putting the first phase of its organics diversion strategy into action.

The ban on commercial food waste in the Regional Landfill followed the opening of International Composting Corporation in Nanaimo, the first composting facility licensed under the RDN Waste Stream

Management Licensing Bylaw. The International Composting Corporation is currently under the ownership of Nanaimo Organic Waste.

Extensive consultation preceded the commercial food waste and organics disposal ban in 2005 with follow-up site visits to over 200 businesses and organizations. Landfill disposal of compostable organic waste from a commercial or institutional facility is not permitted under Bylaw 1531.

The expectation is for all commercial and institutional facilities such as restaurants, grocery stores, and school and hospital cafeterias to have food waste diversion systems in place. Commercial food waste includes raw and cooked food and other compostable organic material from commercial and institutional premises.

The RDN has encouraged participation in the commercial food waste ban with little regulatory enforcement to date. The strategy has allowed affected businesses and organizations to comply using the most cost-effective and efficient methods for their operations. The second step, providing region-wide Green Bin residential food waste collection, was accomplished in October 2011. Again, the driver was the 2004 waste composition analysis which showed that food waste and compostable paper made up approximately 50 per cent of household garbage. The residential Green Bin Program enables households to help divert all food waste in the region from the landfill for processing into compost and potentially renewable fuels.

The green bin goes beyond what can be composted at home. Not just fruit and vegetable scraps but cooked food, meat, fish, bones, food soiled paper and paper packaging such as waxed fast food cups and milk cartons will be accepted in your green bin. Currently, the green bin program diverts an estimated 106kg per household of food waste from the Regional Landfill each year from the residential curbside collection program.

- *Packaging and Printed Paper Provincial Stewardship Program*

The curbside collection programs operated by the RDN and the City of Nanaimo (City) are funded through user fees sent out on their utility bills, not through taxes. By partnering with MMBC in May 2014, the City and the RDN became Packaging and Printed Paper collectors on MMBC's behalf and receive appropriate financial incentives from MMBC. As a result, the recycling portion of annual user fees charged to single family residential households has been reduced. Prior to partnering with MMBC, the RDN and the City provided residential recycling collection to all single family residential homes in the region. So far, there has been no measurable difference in the amount of recyclable material collected through the curbside collection program before and after the partnership with MMBC.

Since 1991, the RDN has progressively banned materials from landfill disposal as local recycling and processing facilities became available.

In 2010, household plastic containers were added to recyclable paper, cardboard, and metal already banned from the landfill.

Thanks to the cooperation of waste haulers and the owners and management of multi-family dwellings, 86% of complexes in the region are now meeting the requirements of the ban on landfill disposal of

household recyclable materials. All multi-family complexes should have a system in place to collect and recycle all household recyclables subject to the landfill disposal bans.

Currently, the RDN is at a diversion rate of 68% which is above the provincial diversion rate of 49% by 2014 for Scenario 2. However, the BC Stats projections are based on a provincial average which includes many districts that have less mature and developed programs such as exist in the RDN. In other words, Scenario 2 is a composite of regions having both lower and higher diversion rates yielding a provincial average of 49%. However, in considering the description of programs of Scenario 2, they mirror almost exactly what exists in the RDN.

4. Future Waste Generation

The following section discusses future waste generation in the RDN relative to provincial Scenarios 2 and 3. The RDN is considered to currently fall within Scenario 2, so this is really a “status quo” future option. Scenario 3 anticipates significant advancements in diversion strategies particularly in regards to organics management. Such advancements do apply to the RDN.

Scenario 2

Under Scenario 2, it is projected that the RDN would see an increase (+8%) in the amount of waste disposed to landfill with yearly tonnages increasing from 52,635 metric tonnes in 2014 to 56,629 metric tonnes in 2025. This increase is largely due to an increase in population in the region and the assumption that waste diversion rates nominally increase.

Scenario 2 Projections												
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Population	151,687	153,551	155,540	157,629	159,730	161,831	163,922	165,996	168,049	170,087	172,094	174,077
Per capita waste disposal (kg)	347	336	325	325	325	325	325	325	325	325	325	325
Waste Disposal (m/t)	52,635	51,617	50,599	51,279	51,962	52,646	53,326	54,001	54,668	55,331	55,984	56,629
Total Recycled (m/t)	111,850	114,890	118,065	119,650	121,245	122,840	124,427	126,001	127,560	129,107	130,630	132,135
Total Generated (m/t)	164,486	166,507	168,664	170,929	173,207	175,485	177,753	180,002	182,228	184,438	186,614	188,765
Diversion Rate	68%	69%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%

Note: Baseline waste generation for 2014 had not been calculated at the time of this report. A per capita waste disposal rate of 347kg was assumed for the purposes of future projections.

Scenario 3

Under Scenario 3 it is projected that the RDN would see a decline (-32%) in the amount of waste disposal to landfill with yearly tonnages decreasing from 52,635 metric tonnes in 2014 to 35,865 metric tonnes in 2025. This Scenario assumes provincially recycling/diversion rates increase dramatically including both government recycling/diversion as well as industry product stewardship recycling/diversion causing the volume of waste disposed of in landfills to shrink drastically. For the RDN specifically, reductions would be realized through improvements to the organics diversion programs with only a modest increase from provincial stewardship programs. This is because current RDN policies are believed to largely achieve the same results of a provincial CRD stewardship program.

Scenario 3 Projections												
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Population	151,687	153,551	155,540	157,629	159,730	161,831	163,922	165,996	168,049	170,087	172,094	174,077
Per capita Waste disposal (kg)	347	336	325	304	293	282	271	260	249	239	228	206
Waste Disposal (m/t)	52,635	51,617	50,599	47,860	46,766	45,626	44,438	43,200	41,912	40,576	39,189	35,865
Total Recycled (m/t)	111,850	114,890	118,065	123,069	126,441	129,859	133,315	136,801	140,316	143,862	147,425	152,899
Total Generated (m/t)	164,486	166,507	168,664	170,929	173,207	175,485	177,753	180,002	182,228	184,438	186,614	188,765
Diversion Rate	68%	69%	70%	72%	73%	74%	75%	76%	77%	78%	79%	81%

Note: Baseline waste generation for 2014 had not been calculated at the time of this report. A per capita waste disposal rate of 347kg was assumed for the purposes of future projections.

Data Limitations

It is important to keep in mind that these are projections only and there are a number of factors that can change these projected outcomes as well as influence the type of service that might be provided:

- Regional Growth – aging population, increased densification in some areas
- Industry Product Stewardship programs – rate of successful diversion
- Waste Export – where is the waste in our region being disposed of
- Consumerism – Are individual buying habits staying the same or are individuals buying more or less

All of these factors will play a role in how much waste is actually produced in the future.

Conclusion:

Applying the Provincial model for waste generation suggests the following:

- Under a status quo scenario of 70% diversion over the next 10 years forecasts a per capita waste disposal of 325kg with a total amount of residuals of 56,629 metric tonnes annually by 2025
- Under the Province's most optimistic forecast of 81% diversion over the next 10 years forecasts a per capita waste disposal of 206kg with a total amount of residuals of 35,865 metric tonnes annually by 2025

The Province states in reference to an 81% diversion that *"While this may seem a somewhat unlikely scenario, it is nonetheless worth examining as something for BC to strive for"*. It is important to note that this level of diversion is based on a Provincial average with different areas having high and lower diversion. Although the report is not explicit that all areas of the province would have to have high levels of diversion to reach this target, it definitely implies such.

Nevertheless, given that the RDN has a mature waste management system and currently has all of the elements to promote further levels of diversion, 81% diversion appears to be achievable in the context of the provincial forecast.



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Solid Waste Management Plan Review and Update

Stage 1: Existing System Report

Prepared for

Regional District of Nanaimo

12 December 2013

Executive Summary

The Regional District of Nanaimo (RDN) has begun a review and update of the 2004 Solid Waste Management Plan (SWMP) which will be conducted in three stages. The first stage, the subject of this report, is an assessment of the current system and the implementation status of the 2004 Plan.

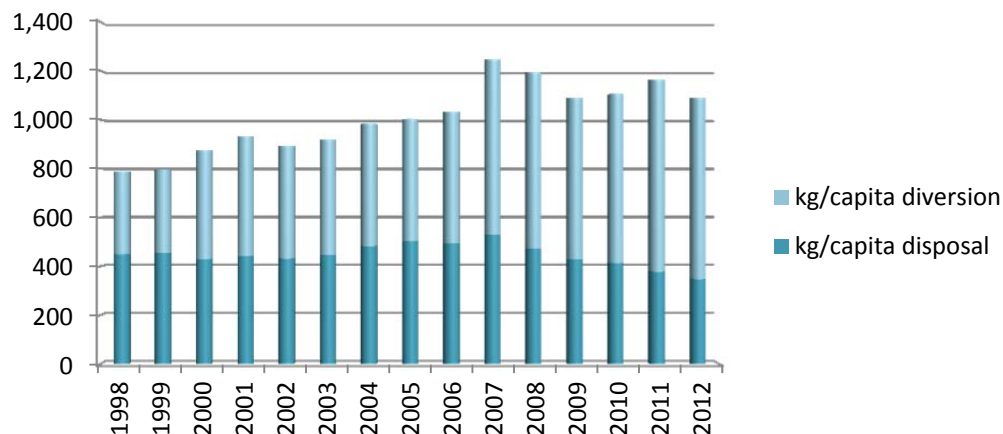
The RDN has fully implemented the key components of the 2004 SWMP, including:

- Banning commercial organic waste from disposal as garbage
- Implementation of an organics collection program for single-family homes
- Implementation of the Waste Stream Management Licensing Regulatory Bylaw
- Expansion of the capacity of the Regional Landfill within the existing property boundary through the construction of a geogrid toe berm.

The successful implementation of the SWMP has resulted in the RDN diverting a significant portion of solid waste away from landfilling to recycling and composting. In 2012, the RDN disposed 52,516 tonnes of garbage and diverted 112,853 tonnes to recycling, composting and extended producer responsibility programs, thereby achieving a diversion rate of 68%.

The per capita disposal (landfilled) rate for the RDN in 2012 was 347 kg per year, one of the lowest rates in British Columbia and across Canada.

Despite the RDN's success in increasing the amount of diversion, the overall quantity of solid waste generated (the amount landfilled + recycled + composted) continues to increase. The figure below shows per capita waste generation data from 1998 to 2012.



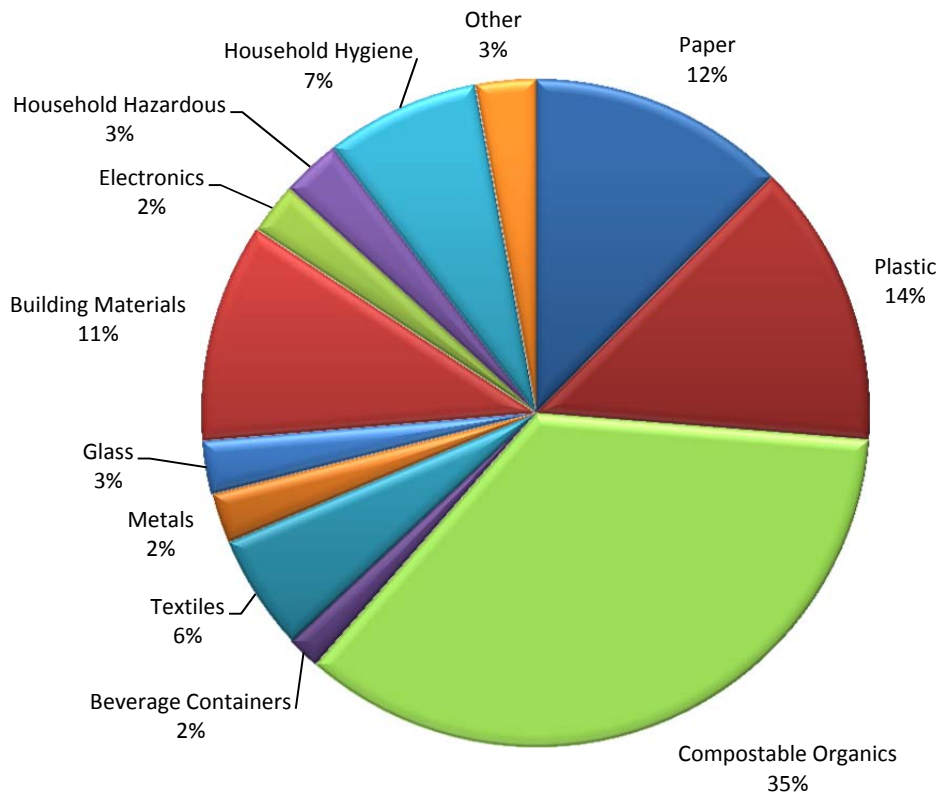
Solid Waste Management Plan Review and Update: Stage One Report

The existing solid waste management system in the RDN is diverse and reflects a mature waste management system. The key components of the existing system are:

- The adoption of “zero waste” as the waste diversion target – meaning that the RDN will continuously strive to reduce the amount of waste requiring disposal;
- A Regional Landfill that is designed and operated to maximize environmental protection;
- Curbside collection of recycling, kitchen scraps and recyclables for all single-family homes;
- User pay waste management fees for both the landfill and the curbside collection services;
- A policy of banning materials from disposal as garbage once a stable alternative use is identified
- An organics diversion strategy that enabled diversion of both residential and commercial food and yard waste;
- A Construction/Demolition Waste Strategy that banned the disposal of clean wood waste to drive the development of a recycling industry for waste from construction and demolition activities; and
- A waste stream facility licensing system that ensures that private waste management facilities operate at a high standard.

In the fall of 2012, with the zero waste target in mind, and as a first step in updating the RDN’s solid waste management plan, the RDN conducted a composition study of the waste sent to the Regional Landfill to determine what types of waste continue to be landfilled and by whom. This pie chart shows the proportion of the various waste materials being landfilled, based on weight. The data from the study indicates that roughly 35% of the waste currently landfilled could be composted and 20% could be recycled.

Solid Waste Management Plan Review and Update: Stage One Report



A review of scale house records indicates the sources of the waste received at the landfill, which are summarized in the table below. This table shows that 57% of the garbage is commercial waste generated by local businesses and institutions, and 22% is generated by homes.

Waste Source Type	Tonnes (2012)	% of waste disposed
Curbside residential waste	8,928	17%
Multi-family residential waste (estimated)	2,626	5%
Commercial waste	29,934	57%
Self-hauled waste ¹	11,028	21%
Totals	52,897	100%

The RDN's 2012 expenditure for operating the regional disposal system and undertaking a variety of zero-waste initiatives was \$17.3 million. Additionally, the 2012 combined expenditure for curbside collection services provided by the RDN, City of Nanaimo and Town of Qualicum Beach was \$7.7 million.

¹ Self-hauled waste refers to garbage brought to RDN solid waste facilities by private vehicles (passenger vehicles, pick-up trucks and vans) that manually remove waste from their vehicles. These vehicles are typically driven by residents and small contractors. For safety and efficiency purposes, unloading of self-haul vehicles is segregated from the large, commercial-scale waste collection vehicles that mechanically unload waste.

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1 Introduction

In British Columbia, each Regional District is mandated by the Provincial *Environmental Management Act* to develop a Solid Waste Management Plan that provides a long term vision for solid waste management, including waste diversion and disposal activities. Plans are to be updated on a regular basis to ensure that the plan reflects the current needs of the regional district, as well as current market conditions, technologies and regulations.

The Regional District of Nanaimo (RDN) has begun a review and update of the 2004 Solid Waste Management Plan (SWMP) which will be conducted in three stages. The first stage is an assessment of the current system and the implementation status of the 2004 Plan. The second stage is the identification of options to address the region's future solid waste management needs, the selection of preferred options, and the development of a draft Plan. The third and final stage will be a community consultation process to obtain input into the draft plan and subsequent finalization of the updated Plan. Throughout the process, a combined public and technical advisory committee (the "Regional Solid Waste Advisory Committee") will be involved in the assessment and recommendation of options for consideration by the RDN's Board of Directors.

This report is part of the Stage 1 process and is an overview of the current (2012-2013) system to manage solid waste in the RDN. This report provides data on waste diversion and disposal and provides a description of the solid waste management policies, programs and activities happening within the RDN.

1.1 History of Solid Waste Planning in the RDN

The Province approved the RDN's first Solid Waste Management Plan (SWMP) in 1988. The main elements of this plan were a transfer station, a resource recovery facility and a sanitary landfill to manage the residuals from the facility (estimated to be 20% of the waste stream). The resource recovery plant was never built due to the inability of the facility's proponent to secure financing. Consequently, the RDN's new landfill was receiving 100% of the waste stream and was filling up much faster than anticipated at its inception. As a result, the RDN did a review of their solid waste management plan in 1992 to re-focus the plan on the reduction of waste sent to the landfill. As a result of this review, user pay garbage collection, curbside recycling and a backyard composting program and a disposal ban on cardboard were implemented.

In 1994, a full plan amendment began. This plan amendment was done in two parts. The first was the development of a "3Rs Plan" that was approved in 1996. This 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 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 waste recycling facility.

The second part was the development of a residual waste management plan to address the portion of the waste stream that would not be eliminated or diverted through composting or recycling. The residual waste planning process assessed a wide array of processing and disposal options and conducted detailed

assessments of MSW composting (as a means of further reducing the amount of waste requiring disposal) and waste export (as an alternative to siting a new landfill in the RDN).

A new plan was approved in 2004 that brought together:

- the 3Rs Plan (now called the “Zero Waste Plan” due to the RDN adopting “zero” as their new waste diversion target in 2002);
- the outcomes of the residual waste management planning process; and
- a bylaw to license private solid waste management facilities.

1.2 Implementation Status of 2004 Solid Waste Management Plan

The key components of the 2004 solid waste management plan were:

- **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 the Church Road Transfer Station to the Cache Creek Landfill:** The RDN exported garbage delivered to the Church Road Transfer Station 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.

Table 1-1 provides a list of the components of the zero waste plan and the residual waste plan, along with their implementation status at the time of preparing this report. All of the key components of the SWMP have been implemented. The Plan estimated that upon implementation, a diversion rate of 75% could be achieved; however the RDN achieved a 68% as of 2012 indicating that the 75% diversion estimate in the 2004 plan was optimistic. See Section 3.1 for more detail on the RDN’s diversion rate.

Solid Waste Management Plan Review and Update: Stage One Report

Table 1-1 Implementation Status of the 2004 Solid Waste Management Plan

2004 SWMP Zero Waste Components	Implementation Status
• Maintain compost education program	Done
• Maintain school education program	Done
• Maintain zero waste promotion and education	Done
• Maintain illegal dumping program	Done
• Continue to expand disposal bans as new diversion opportunities are established	Done. Disposal bans expanded to include commercial organic waste, yard waste, clean wood waste and products managed through EPR programs
• Conduct a waste composition study	Done. Completed in 2004 and 2012
• Provide technical assistance to waste stream management licensees	Done
• Conduct a curbside food and yard waste collection study	Done
• Maintain yard waste collection at RDN disposal facilities	Done
• Maintain recycling services at RDN disposal facilities	Done
• Maintain residential curbside garbage and recycling collection	Done
• Design and conduct a pilot organics collection program	Done
• Conduct a study on the market capacity for construction and demolition waste	Done
• Conduct a review of enhancing user pay for RDN curbside waste collection services	Done. Full user pay not implemented, but current can limit (plus tags) is close to full user pay
• Develop a RDN Zero Waste Policy to help guide RDN purchasing and operations	Not implemented.
• Implement a single family organics collection program (depending on outcome of pilot project)	Done
2004 SWMP Residual Waste Components	Implementation Status
• Export waste received at the Church Rd. Transfer Station to Cache Creek landfill until end of 2007	Done
• Export waste out of RDN for disposal once the Regional Landfill is full	Regional Landfill is not yet full
• Increase the capacity of the Regional Landfill through the construction of a geogrid toe berm (Phase 1)	Done
• Continue to develop a post-closure plan for the Regional Landfill	Done
• Acquire land for a new transfer station that will support full waste export	Done
• If needed, undertake Phase 2 of the geogrid toe berm at the Regional Landfill	Done
• Undertake a review of New and Emerging technologies that can reduce disposal needs or provide an alternative to landfilling all of the RDN's residual waste	Done

<ul style="list-style-type: none"> Continue to promote existing take-back programs operated by product stewardship organizations and encourage the establishment of new stewardship programs 	Done
<ul style="list-style-type: none"> Maintain the temporary permit for the landclearing waste burn facility on Doumont Road (subsequently renamed Weigles Rd.) until a preferable alternative is in place 	Done. Burn permit cancelled in 2006.
<ul style="list-style-type: none"> Work collaboratively with other Vancouver Island regional districts to identify cooperative strategies for waste management system improvements 	Done
2004 SWMP Other Components	Implementation Status
<ul style="list-style-type: none"> Implement Waste Stream Management Licensing Regulatory bylaw 	Done (Bylaw No. 1386, 2004)

1.3 2010 Solid Waste Management Plan Amendment

In 2009, the RDN updated the Regional Landfill Design & Operations Plan to address issues with Cell one – an area of the landfill that had been closed and capped. The remediation of cell one required that additional garbage be placed on top of the closed cell prior to conducting re-capping the cell. As the Design & Operations Plan was part of the 2004 Solid Waste Management Plan, this change to the landfill’s design required a Solid Waste Management Plan amendment. This amendment was approved by the Minister of Environment in August 2010.

2 Plan Area

2.1 Description of the RDN

The Regional District of Nanaimo is located on the central east coast of Vancouver Island. Communities within the regional district include the municipalities of Nanaimo, Lantzville, Parksville, and Qualicum Beach, as well as seven unincorporated Electoral Areas. A map showing the locations of each of these municipalities and areas is provided as Figure 2-1.

The Regional District delivers a variety of regional services that are common to both the electoral areas and municipalities, such as sewage treatment, district recreation, regional parks, solid waste disposal, and transit. The Regional District also provides local services to electoral areas, such as community planning, watershed protection, community recreation, community parks, and utilities. Member municipalities provide similar services within their own jurisdictions.

The RDN is governed by a 17-member Regional Board, comprised of ten directors from locally-elected municipal councils, and seven directors elected by Electoral Area residents.

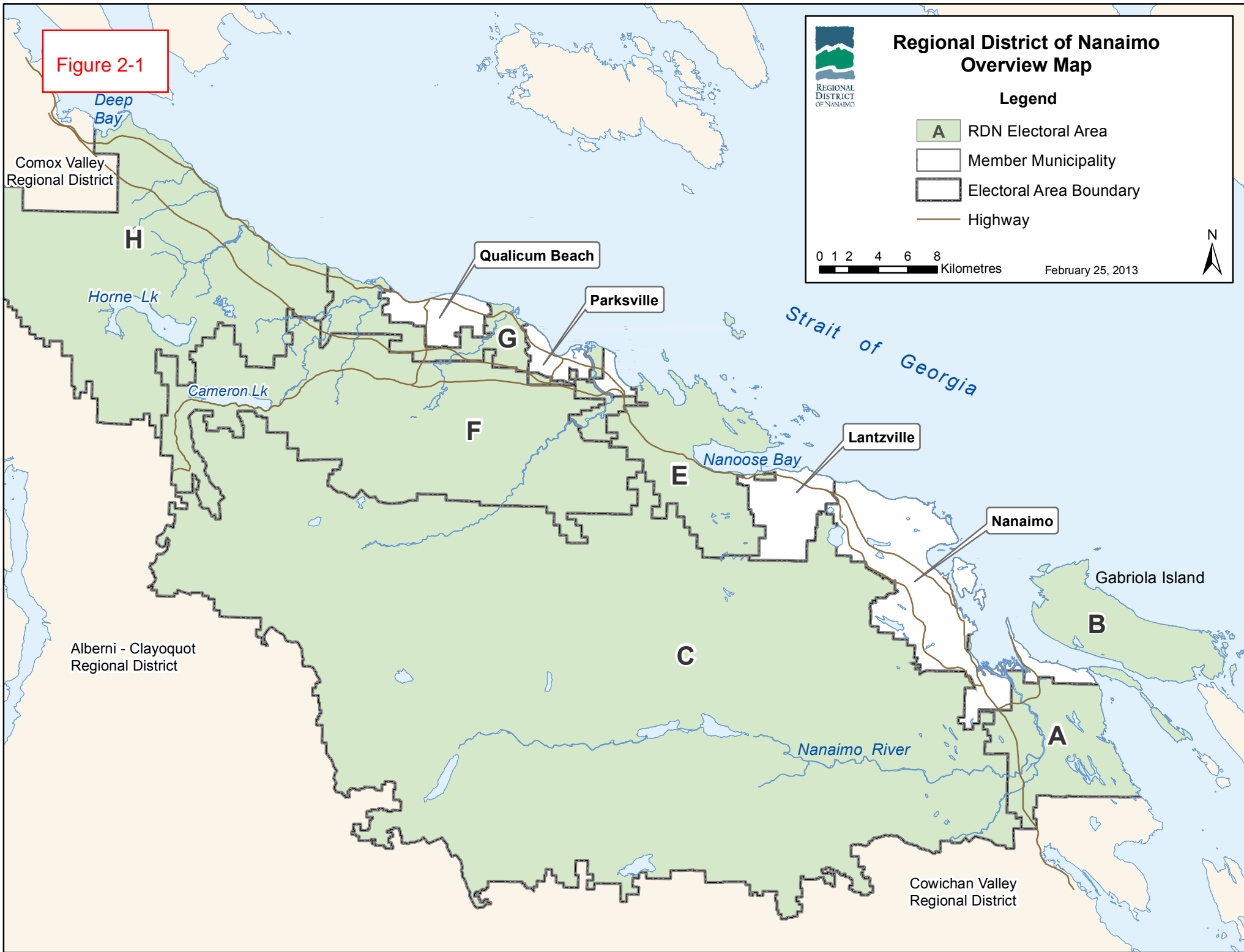
2.2 Demographic Data

BC Stats reports the 2011 population for the Regional District of Nanaimo as 146,574. Of this number, 26% (37,550) lived in electoral areas and the remaining 74% (108,075) lived in municipalities.

Name	2011 Population ²
Lantzville	3,601
Nanaimo	83,810
Parksville	11,977
Qualicum Beach	8,687
Electoral Area A	6,908
Electoral Area B	4,045
Electoral Area C	2,834
Electoral Area E	5,674
Electoral Area F	7,422
Electoral Area G	7,158
Electoral Area H	3,509
First Nation Reserves	949
Total for RDN	146,574

² At time of writing, BC Stats reports varying numbers for RDN population, likely due to revisions happening as 2011 Census data is refined. The source of the data is: <http://www.bcstats.gov.bc.ca/StatisticsBySubject/Census/2011Census>.

Figure 2-1



The population of the region increased from 77,624 residents in 1981 to 146,574 residents in 2011. This means an increase of 89% during that time and at an average annual growth rate of approximately 3%.

A population and housing study conducted by the RDN in 2007 estimated a 2006 population of 144,317 residents and used this as the basis to calculate future population growth. The study forecasts a population increase of 60 percent from 144,317 residents in 2006 to 231,184 residents by 2036 (BC Statistics, www.bcstats.gov.bc.ca, Urban Futures, 2007).

The study forecasts that the region will "grow at a slowing annual rate from roughly two percent today (2007) to just under one percent by 2036" compared to the three to five percent growth rates in previous decades. Since this study was done, the Regional District of Nanaimo has experienced lower growth than anticipated with 138,631 residents in the 2006 Census and 146,574 residents in 2011 compared to the predicted population of 158,767. Based on the forecast study and the 2011 Census results, it is anticipated that the Region's population will increase at a slower rate over the next two decades while at the same time growing older.

The Region's population has aged significantly since 1986 with the majority of the population now over the age of 45. Between 2006 and 2011 the median age of the Region's population increased from 46.6 to 49.3. It is predicted that the population will continue to grow older with significant implications for land use, housing, services and employment.

2.3 Housing

According to Statistics Canada's 2006 Census data, there were 59,875 homes (occupied dwellings) in the Regional District of Nanaimo in 2006.³ Table 2-1 provides shows the percentage of each type of housing.

Table 2-1 Housing in the Regional District of Nanaimo

Housing Type	% of homes in the RDN
Single-detached houses	68%
Semi-detached houses	4%
Row houses	4%
Apartments, duplex	5%
Apartments in buildings with fewer than five storeys	13%
Apartments in buildings with five or more storeys	2%
Other dwellings	4%

Source: Statistics Canada. 2006 Community Profiles.

³ Statistics Canada. 2006 Community Profile for Regional District of Nanaimo

3 Characterization of the RDN’s Solid Waste Stream

This section provides information on the quantity and characteristics of discarded materials that are collected for recycling, composting and landfilling. The disposal data is further assessed to provide an understanding of the types of materials (paper, metal, organics, etc.) that currently compose the waste being landfilled and which sectors are contributing to the waste.

3.1 Waste Generation Data

The per capita disposal (landfilled) rate for the RDN in 2012 was 347 kg per year. Figure 3-1 shows the variation in the RDN per capita disposal rate from 1992 to 2012, showing a reduction trend in the amount of waste disposed, with the exception of 2004-2008 (during the housing boom).

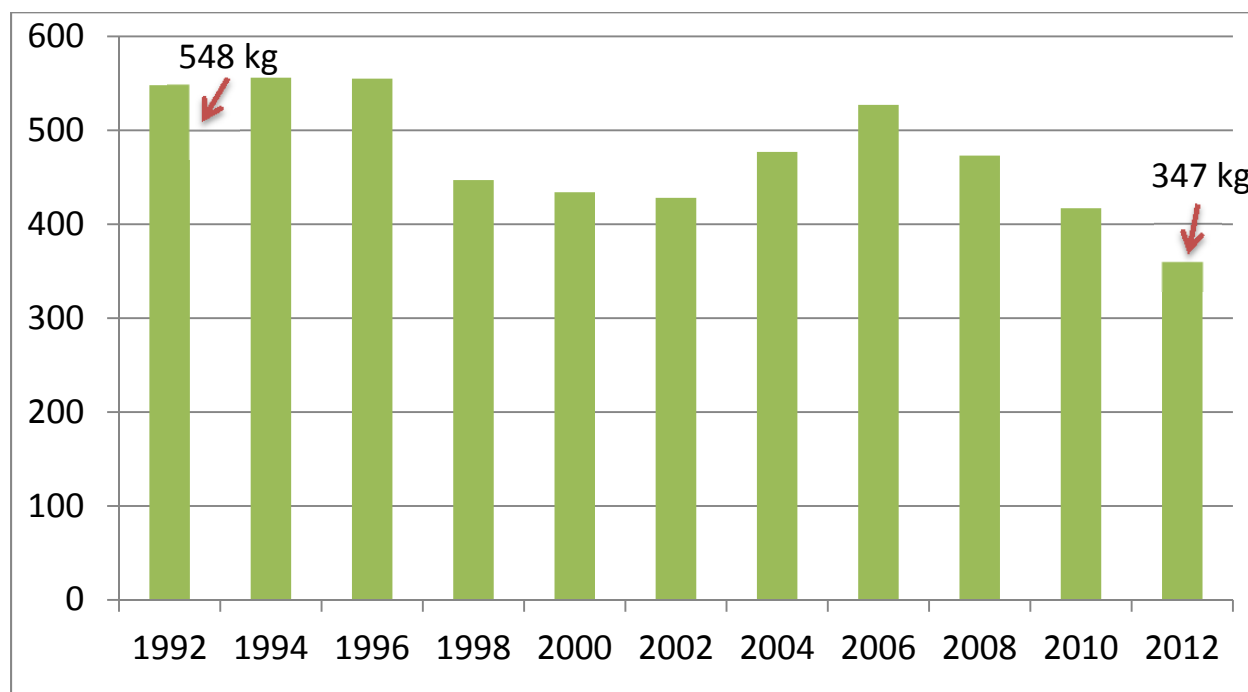


Figure 3-1 1992 – 2012 RDN Disposal Rate (kg/capita)

Disposal data collated by the BC Ministry of Environment for 2010⁴ indicates that the RDN has one of the lowest disposal rates in BC (the RDN’s disposal rate in 2010 was 410 kg/capita). Figure 3-2 shows how the RDN compared to other BC regional districts in 2010.

⁴ At the time of writing this report (May 2013), this data is draft.

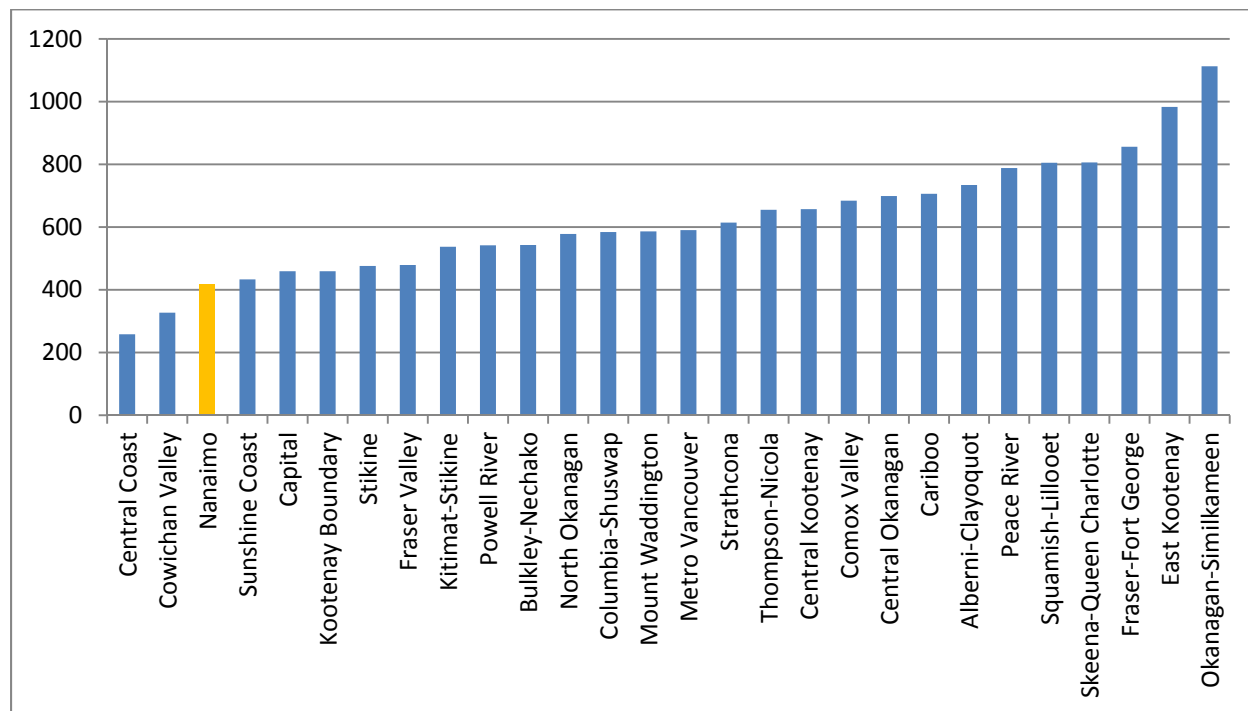


Figure 3-2 Disposal Rates (kg/capita/year) for BC Regional Districts (2010)

“Waste generation” refers to the total amount of solid waste discarded in the RDN, which is the sum of waste recycled, composted and landfilled. Table 3-1 also shows the “diversion rate”, which is the amount of waste *diverted* to recycling or composting relative to the amount of waste *generated*. Table 3-1 provides disposal, diversion and waste generation data from 1998 to 2012. In 2012, the RDN disposed 52,516 tonnes of garbage and diverted 112,853 tonnes to recycling, composting and extended producer responsibility programs, thereby achieving a diversion rate of 68%.

Table 3-1 Disposal and Diversion (1998 – 2012)

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Disposal															
Municipal solid waste	51,041	50,382	48,995	52,154	51,778	57,165	62,484	68,824	66,444	71,930	67,959	61,834	60,890	54,815	52,460
Construction/demo ¹	6,815	8,237	6,552	5,258	4,853	4,257	5,307	7,692	6,515	6,624	2,110	1,284	519	129	56
Total Disposal	57,856	58,619	55,547	57,412	56,631	61,422	67,791	76,516	72,959	78,554	70,069	63,118	61,409	54,944	52,516
Diversion²															
Cardboard & Boxboard	detailed data unavailable										20,011	20,416	17,536	17,718	15,106
Commingled loads														15,733	16,951
Mixed Paper											842	1,367	2,604	916	2,429
Newspaper											13,930	13,400	5,932	4,703	1,822
Glass											1,545	2,453	732	750	1,014
Plastic											2,097	2,200	2,395	1,327	1,485
Scrap Metal ⁵											9,467	8,432	8,893	8,601	7,871
Asphalt Shingles											4,130	2,924	2,063	2,611	1,465
CD/Wood Waste ⁴											23,500	20,189	16,348	16,137	14,898
Wood Waste (Landfill cover)											1,000	1,000	1,000	550	1,105
Food Waste											3,472	3,408	4,117	7,761	9,763
Yard Waste											12,478	12,757	11,098	12,089	11,382
Landclearing											5,629	2,993	17,295	11,434	10,222
Gypsum											3,400	2,924	3,272	2,190	2,268
Textiles														1,681	1,520
Stewardship programs ⁶											450	638	7,800	7,000	9,552
Subtotal of Recycling	38,362	36,526	49,995	55,265	51,972	58,318	62,762	64,448	71,801	99,078	101,951	95,101	101,085	111,201	108,853
Backyard composting	5,400	7,700	7,400	3,700	4,500	4,900	4,700	4,500	4,000	3,500	3,200	3,200	3,200	4,000	4,000
Total Diversion	43,738	44,244	57,385	63,394	60,681	63,218	67,462	68,948	75,801	102,578	105,151	98,301	104,285	115,201	112,853
Total Generated (Disposed + Recycled)	101,594	102,863	112,932	120,806	117,312	124,640	135,253	145,464	148,760	181,132	175,220	161,419	165,694	170,145	165,369
Diversion Rate	43%	43%	51%	52%	52%	51%	50%	47%	51%	57%	60%	61%	63%	68%	68%
Population	128,912	129,062	129,069	129,828	131,322	133,502	135,099	138,248	141,246	143,020	145,870	148,042	149,665	150,635	151,508
kg/capita disposal	449	454	430	442	431	460	502	553	517	549	480	426	410	365	347
kg/capita diversion	339	343	445	488	462	474	499	499	537	717	721	664	697	765	745
kg/capita generation	788	797	875	931	893	934	1001	1052	1053	1266	1201	1090	1107	1130	1091

Note: Data reported by RDN staff. Population data does not match with data provided in Section 2.2.

3.1 Trends in Waste Generation

Figure 3-3 shows waste generation data from 1992 to 2012 and Figure 3-4 shows the change in per capita waste disposal from 1998 to 2012. Both show a trend towards increased waste diversion as a percentage of overall waste generated.

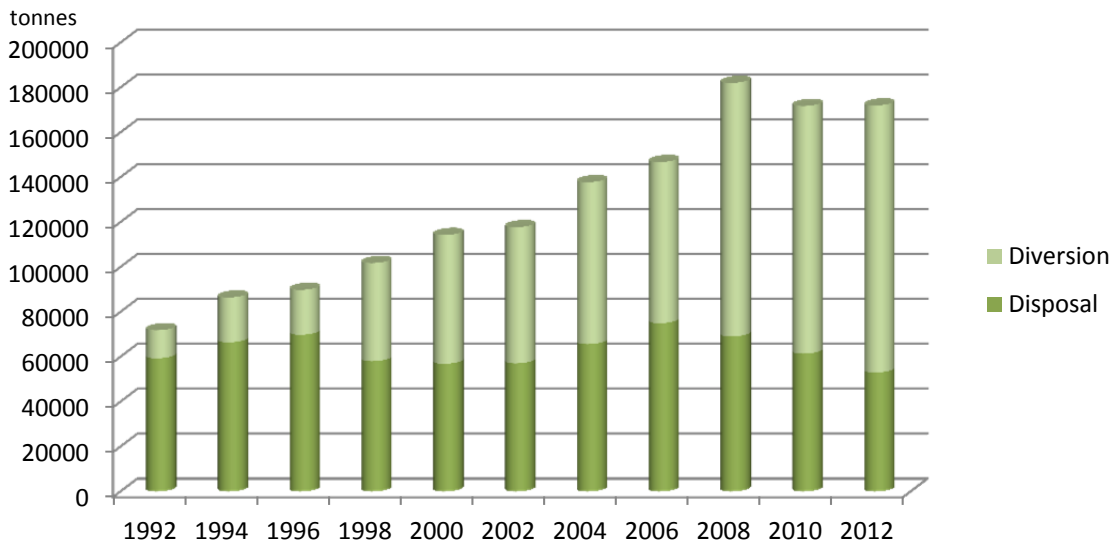


Figure 3-3 Total Waste Generation (1992 – 2012)

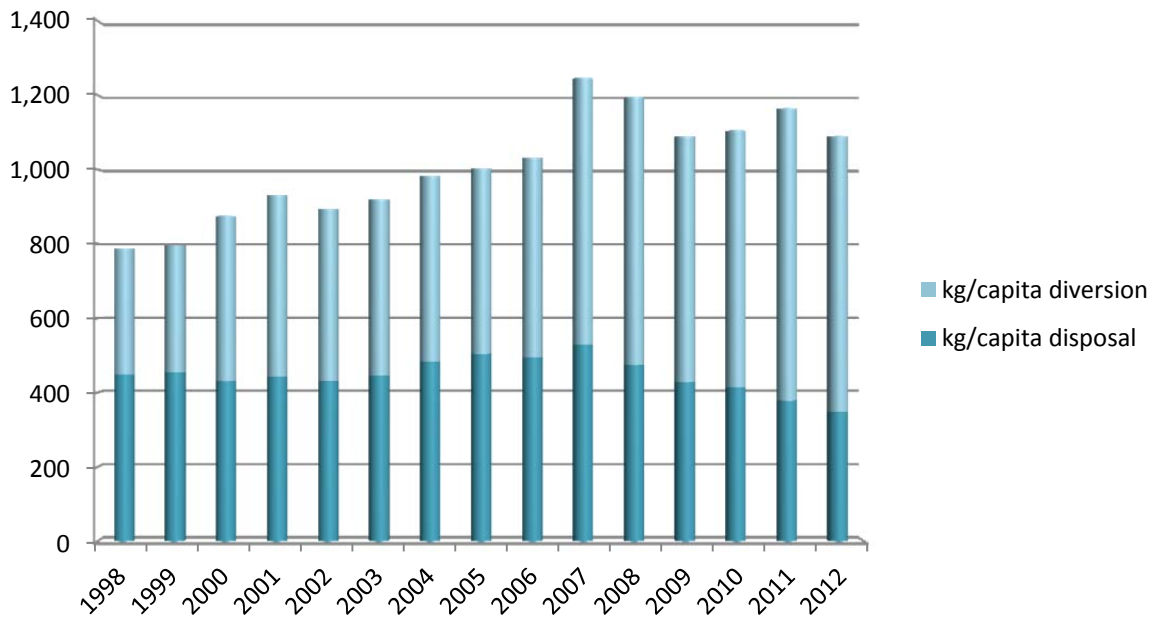


Figure 3-4 Per Capita Waste Generation (1998-2012)

3.2 Sources of Disposed Waste

Based upon scale house data collected at the RDN's disposal facilities (the Church Road Transfer Station and the Regional Landfill), an estimate of the sources of the waste sent to disposal was developed and is provided in Table 3-2.

Table 3-2 Sources of Waste Disposed in the RDN

Waste Source Type	Tonnes (2012)	% of waste disposed
Curbside residential waste	8,928	17%
Multi-family residential waste (estimated)	2,626	5%
Commercial waste	29,934	57%
Self-hauled waste	11,028	21%
Totals	52,897	100%

The quantity of waste (garbage) allocated to “curbside residential waste collection” is based on the garbage collected by municipal and RDN curbside garbage collection programs. The “commercial waste collection” refers to garbage delivered by private waste collection companies and includes garbage generated by businesses and institutions (schools, hospitals, care facilities). Multi-family residential waste refers to garbage generated by apartments and condominiums, which are not included in the curbside garbage collection programs. “Self-hauled waste” refers to garbage that was delivered to the RDN's disposal facilities in vehicles other than commercial waste collection trucks, including cars, vans and pickup trucks operated by residents and small businesses.

3.3 Composition of Disposed Waste

In 2012, the RDN conducted a waste composition study to determine what types of waste materials are being landfilled and in what proportion. The results of this study are shown in Figure 3-5, which provides the estimated composition of the solid waste landfilled in the Regional District of Nanaimo. The study data indicates that the largest components of the waste landfilled in the RDN are: compostable organics (35%), plastic (14%), paper products (13%), building materials (11%), and household hygiene (7%). A more detailed breakdown of the waste composition data can be found in Appendix A.

The composition of the waste disposed can also be viewed in terms of what materials have alternative methods of management available, including recycling, composting or EPR programs. Figure 3-6 shows that roughly 63% of the waste landfilled has an alternative waste management method available.

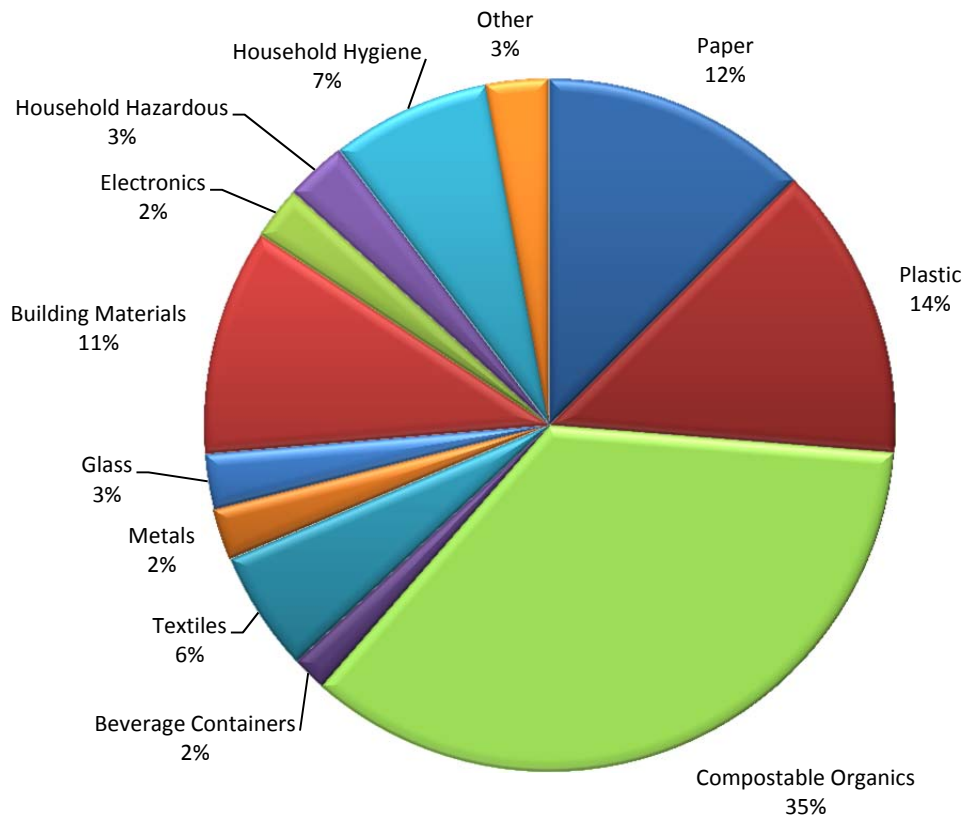


Figure 3-5 Composition of Waste Disposed, by Material (2012 data)

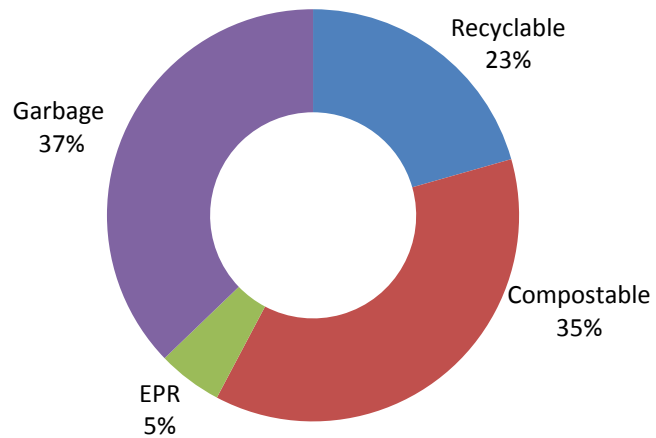


Figure 3-6 Composition of Waste Disposed, by Waste Management Alternative (2012 data)

3.3.1 Comparison of 2004 and 2012 Waste Composition

Figure 3-7 presents a comparison between the findings from the 2004 and the 2012 waste composition studies. The data is presented using kilograms per capita to provide an indication of which waste materials appear to be increasing in the waste stream, and which appears to be decreasing. The most notable change is in compostable organics, which decreased 31% from approximately 178 kg/capita in 2004 to 122 kg/capita in 2012. Metals disposed decreased 71% from 29 kg/capita to 8.5 kg/capita in 2012. Disposal of building materials also decreased from 47 kg/capita to 38 kg/capita. In contrast, household hygiene (primarily diapers) is estimated to have increased from approximately 10 kg/capita in 2004 to 26 kg/capita in 2012. Electronics disposed increased from roughly 3 kg/capita to almost 9 kg/capita in 2012.

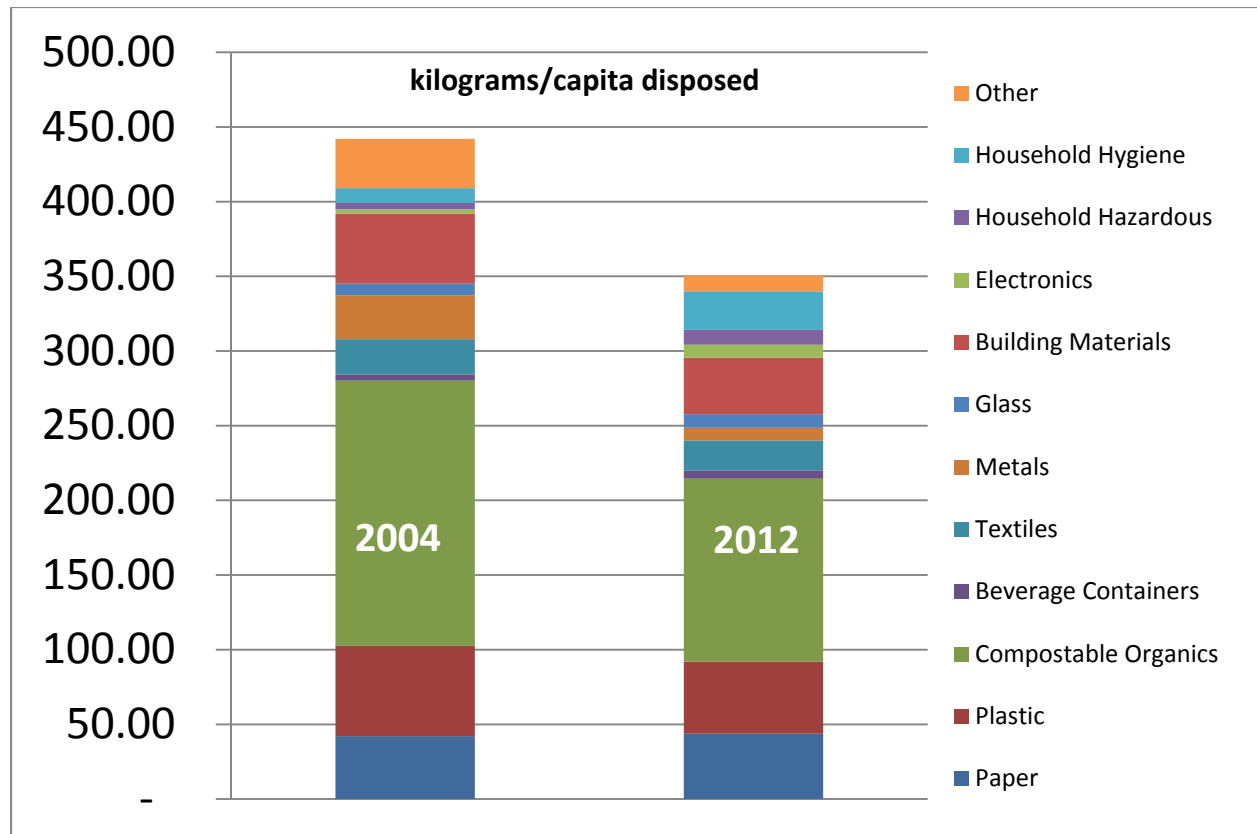


Figure 3-7 Comparison of 2004 to 2012 Waste Composition

4 Overview of Existing Waste Management System

This section provides a high-level overview of the system to manage solid waste in the RDN. There are many actors within the system providing a wide array of services. Figure 4-1 is a schematic diagram showing the breadth of activities and actors engaged with the current solid waste management system. There are a wide range of waste management activities underway that reflect both a relatively mature waste management system and significant economic activity based on secondary resources.

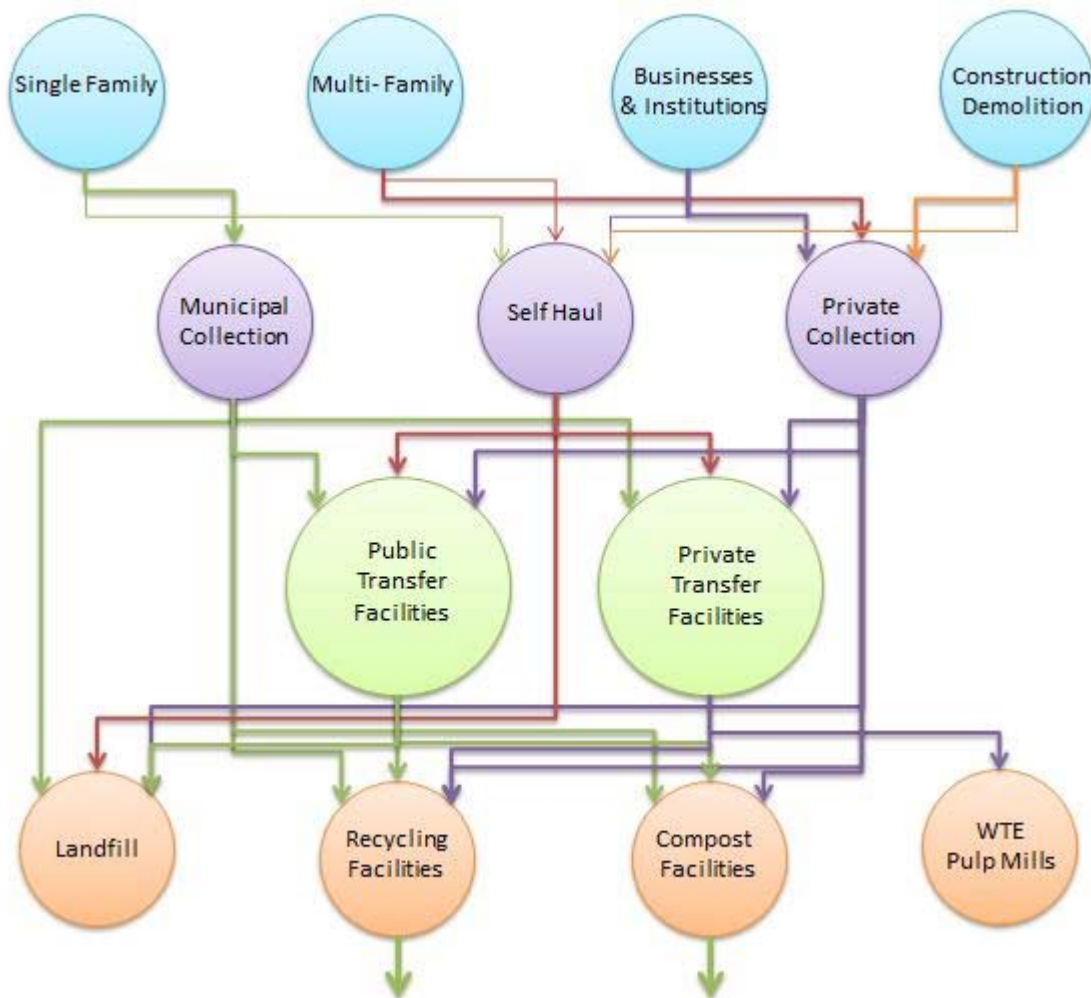


Figure 4-1 Components of the Waste Management System in the RDN

4.1 Key Facilities

The waste management system is reliant on a range of activities that deliver discarded materials to waste management facilities. These facilities include:

- The RDN's Church Road Transfer Station;
- Licensed private transfer stations;
- Licensed private and non-profit recycling and composting facilities; and
- The RDN's Regional Landfill site.

These facilities are mapped on Figure 4-2 and described in sections 12 through 17. There are many other smaller facilities that contribute to the solid waste management system, including bottle depots and other businesses and non-profits involved in providing EPR (extended producer responsibility) services. A list of all solid waste facilities and the materials managed at each facility is provided as Appendix B.

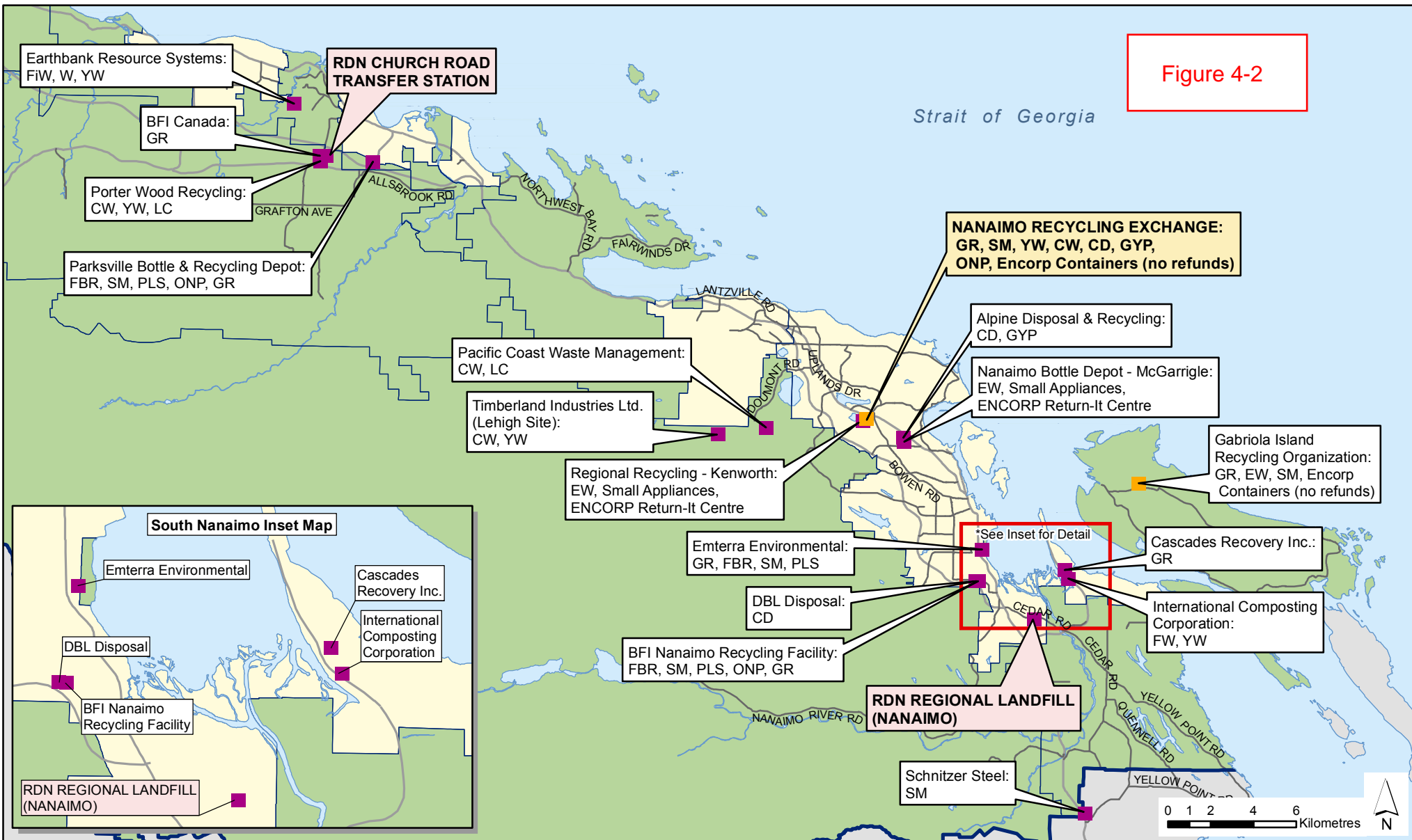
4.2 Policy Framework

The RDN's waste management system is being driven by a number of foundational policies:

- The adoption of "zero waste" as the waste diversion target – meaning that the RDN will continuously strive to reduce the amount of waste requiring disposal;
- Ensuring that the Regional Landfill is designed and operated to maximize environmental protection and that the cost of this facility be reflected in the tipping fees charged. (The relatively high tipping fees in the RDN encourage the establishment of recycling and composting businesses);
- The RDN's policy of banning materials from disposal as garbage once a stable, alternative use is identified;
- An organics diversion strategy that set the right conditions for the private sector to invest in food waste composting and collection services (see Section 4.3);
- A construction/demolition waste strategy to drive the development of a recycling industry for waste from construction and demolition activities; and
- A waste stream facility licensing system that ensures that private waste management facilities operate at a high standard.

A description of the Regional Landfill design and operation are provided in Section 16.2. The other three foundational policies are described below, in sections 4.1, 4.2 and 4.3. Other solid waste policies, activities and infrastructure are described in Sections 5 through 18.

Figure 4-2



RDN Solid Waste & Recycling Facilities

Legend

- Licenced
- Application in Process
- Highway
- Electoral Area
- Municipality
- RDN Boundary

Materials

General Recycling (Blue Box Materials, Re-used Items)	GR	Scrap Metal	SM	Construction Demolition	CW	Gypsum	GYP
News Print	ONP	Fibre	FBR	Food Waste	FW	Biosolids	BS
Plastics	PLS	Land Clearing	LC	Yard Waste	YW	E Waste	EW
		Clean Wood	CW	Asphalt Shingles	ASHG	Fish Waste	FW

4.3 Organics Diversion Strategy

A cornerstone of the RDN's 2004 solid waste management plan was the diversion of organic waste from landfilling. In 2004, organic waste represented 50 % of the RDN's residential waste stream by weight and 40% of the ICI waste stream; therefore a focus on the diversion of organics was determined to be the single most effective means of increasing diversion of waste from landfilling.



The 2004 waste composition study indicated that the diversion of yard waste through drop-off depots was effective, so the organics diversion strategy focused on the diversion of food waste. The strategy targeted ICI food waste and residential food waste separately.

The Organics Diversion Strategy targeted both commercial and residential food waste diversion. The diversion of ICI-generated food waste was the first priority because of the large volumes generated at a relatively small number of locations (compared to residential organics). The RDN committed to banning ICI food waste from disposal in the landfill as long as a local alternative was available. With the development of a private in-vessel composting facility that could manage ICI food waste in the region, the RDN banned commercial food waste in 2005.

The next priority, residential food waste diversion, required a multi-stepped approach:

1. An initial assessment of residential organics diversion programs in other jurisdictions (completed in 2005);
2. Based on the successes experienced in other jurisdictions, a residential food waste collection pilot project ran from October 2007 to October 2008; and
3. Based on the success of the pilot project, both in terms of diversion and community acceptance, a full-scale residential food waste collection program was implemented in 2011.

4.4 Construction/Demolition Waste Strategy

In February 2007 the Regional Board approved a Construction/Demolition (CD) Waste Strategy. Key initiatives in the strategy include:

- Increasing the tipping fee for clean wood waste at RDN Solid Waste Facilities to create incentives to divert this material to licensed recycling facilities;

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- A ban on disposal of clean wood waste in the Regional Landfill and roll-off containers of wood waste at RDN Solid Waste Facilities; and
- Arranging contracts with third party wood waste recycling facilities to manage wood waste received at the landfill and transfer station from small self-haulers.
- Effective January 1, 2008, the RDN banned clean wood waste from disposal in the Regional Landfill and roll-off containers of wood waste at RDN Solid Waste Facilities.

As a result of the strategy there are currently several CD waste management facilities in RDN and clean wood waste is no longer buried as garbage in the regional landfill. Additional information on CD waste management and a list of CD waste recycling facilities can be found in Section 15.

4.5 Waste Stream Management Licensing Bylaw

RDN Bylaw 1386 requires most solid waste management facilities operating in the RDN to maintain a Waste Stream Management License (WSML)⁵. A similar bylaw is in place in the Cowichan Valley Regional District. The authority to license and regulate solid waste facilities is given to regional districts through BC's Environmental Management Act and the RDN's licensing bylaw was enacted under the 2004 Solid Waste Management Plan.

The RDN's licensing bylaw (Bylaw # 1386) was established to fulfill the following objectives:

1. Create a high standard of operation for waste management facilities located in the RDN.
2. Encourage and protect 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 both regional districts.
5. To provide a level playing field in the two regional districts.

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

- disposal facilities such as landfill and incinerators (because these facilities are regulated by the Province);
- soil facilities;
- stewardship program depots;
- concrete and asphalt recycling operations and auto wreckers; and
- municipally owned facilities.

Currently there are 12 waste stream management licenses in place in the RDN and 2 applications under review. A list of currently licensed facilities and facilities currently undergoing application review is provided in the Table 4-1.

⁵ The WSML bylaw can be found at <http://www.rdn.bc.ca/cms/wpattachments/wplD224atID652.pdf>.

Table 4-1 RDN Waste Stream Management License Holders

Waste Stream Management License Holders (as of April 2013)	
1.	Schnitzer Steel Pacific
2.	Parksville Bottle & Recycling Depot
3.	International Composting Corporation
4.	BFI Nanaimo Recycling Facility
5.	Emterra Environmental
6.	Earthbank Resource Systems
7.	Alpine Disposal & Recycling (ADR)
8.	Pacific Coast Waste Management (PCWM)
9.	Porter Wood Recycling Ltd.
10.	DBL Disposal Service Ltd.
11.	BFI Canada, Springhill
12.	Cascades Recovery Inc.
Waste Stream Management Applications Under Review (as of April 2013)	
13.	Gabriola Island Recycling Organization
14.	Nanaimo Recycling Exchange

4.6 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/compostable materials include drywall (implemented in 1991), cardboard (1992), paper, metal and tires (1998), commercial food waste (2005), yard and garden waste (2007) wood waste (2007) and EPR materials designated under BC's recycling regulation (2007), household plastic containers (2009) and 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 construction/demolition sectors.

Table 4-2 provides a detailed list of materials currently banned from disposal at the Regional Landfill and the Church Road Transfer Station.

Table 4-2 “Prohibited Waste” at RDN Solid Waste Disposal Facilities

At the Regional Landfill	At Church Road Transfer Station
<ul style="list-style-type: none"> • Biomedical Waste • Commercial Organic Waste • Concrete or asphalt pieces, or rocks greater than 0.03m³ or 70 kg • Corrugated Cardboard • Drums • Garden Waste • Gypsum • Hazardous Waste • Ignitable Wastes • Land Clearing Waste • Liquids • Metal • Motor vehicle bodies and farm implements • Municipal Solid Waste that is on fire or smouldering • Radioactive Waste • Reactive Wastes • Recyclable Paper • Stewardship Materials • Special waste, as defined in the Special Waste Regulation (British Columbia) except asbestos • Tires • Wood Waste 	<ul style="list-style-type: none"> • Same items as the Regional Landfill plus: <ul style="list-style-type: none"> ○ Controlled Waste

5 Reduction and Reuse Activities



Both the RDN and the City of Nanaimo encourage residents to “reduce and reuse.”

Both organizations promote backyard composting through providing information on their websites on how to backyard compost and grasscycle. Since the mid-1990s, the RDN has sold roughly 16,000 low-cost backyard composters to residents. In recent years, the RDN has stopped distributing composters and instead encourages residents to build their own or purchase one from a local retailer. Backyard composting is believed to have a significant impact on reducing the waste that requires collection and subsequent management. A typical backyard composter is estimated to divert 250 kg per year. Assuming that only the RDN-distributed composters are being used, an estimated 4,000 tonnes of organic waste materials is being diverted each year.

The City of Nanaimo holds a reuse-focused event each spring called “Reuse Rendezvous.” This event promotes reuse through a weekend long curbside swap meet for residents to put out items that they no longer want and that may be useful to others.

REUSE RENDEZVOUS 2013: *Give Unwanted Household Items a Second Chance*



In addition to the Regional District's and City's 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.

6 Single Family Collection



All single-family homes in the RDN (approximately 53,500 homes) receive curbside collection of garbage, recyclables and kitchen scraps (food waste and compostable paper). Within the City of Nanaimo, the City's in-house staff collect garbage and kitchen scraps and a contractor collects the recyclables. In the RDN service area, all collection services are provided through a contractor, with the exception of garbage collection in the Town of Qualicum Beach, where garbage is collected by the Town.

Curbside garbage and recycling for all single-family homes has been in place since the early 1990s; the collection of kitchen scraps was fully implemented by 2011. Figure 6-1 and Table 6-1 show the proportion of household discards that are being collected as garbage, recycling and kitchen scraps. In 2012, each household set out an average of 400 kg of discards, of which roughly 60% were diverted to recycling or composting. Figure 6-1 also shows that the total amount of single-family discards collected decreased by roughly 10% from 2006 to 2012.

Figure 6-1 Total Single-Family Discards 2006-2012

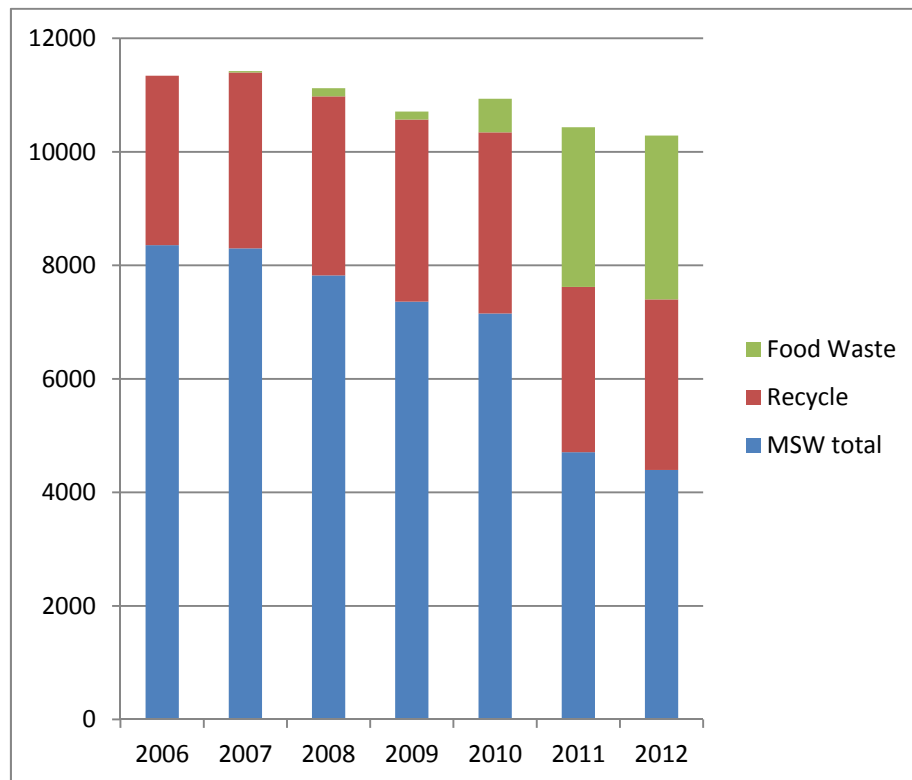


Table 6-1 2012 Single Family Discards: City of Nanaimo and RDN

	City of Nanaimo Curbside Collection	Regional District of Nanaimo Curbside Collection	Total Single Family Residential (tonnes)
Garbage (kg/home/year)	156	163	8,416
Recycling (kg/home/year)	132	111	6,749
Kitchen Scraps (kg/home/year)	132	107	6,247
Total (kg/home/year)	420	381	21,412
Diversion of Single-Family Discards to Recycling and Composting	60%	57%	61%

Figure 6-2 shows total discards on a per household basis. This diagram shows that the average amount that each household sets out at the curb (garbage + recycling + kitchen scraps) has been on the decline. This reduction is very positive from a zero waste goal perspective. This trend could be attributed to a slowing of economic activity in recent years, but may also be influenced by waste reduction initiatives happening locally, provincially and nationally.

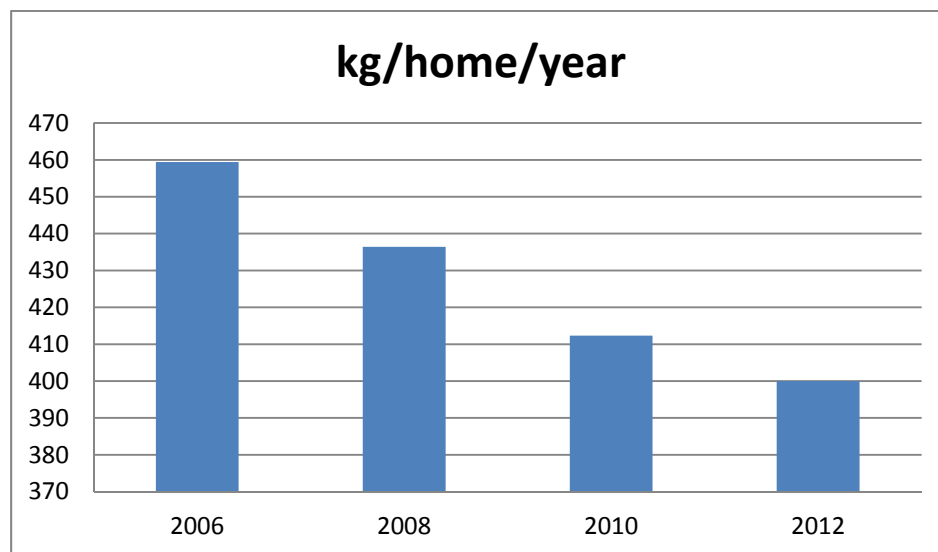


Figure 6-2 Single Family Waste Generation (Garbage + Blue Box +Green Bin)

The diversion rates achieved by the single-family curbside collection services are supported by:

- Limits on the amount of garbage that can be set out: The basic service each household receives provides for one container of garbage collected once every two weeks.⁶ Tags for extra containers of garbage may be purchased by residents for \$2 each. A maximum of two additional containers can be put out on the garbage collection day.
- Promotion and education: Each household receives a collection schedule calendar and a regular newsletter keeping them informed about the program, in addition to having information available online.
- Collection bans: The City of Nanaimo has banned recyclables and kitchen scraps from collection as garbage. Periodic inspections ensure compliance – garbage found to contain banned materials are not collected and an information notice is left with the garbage container.

Single-family residential waste disposal in 2012 was approximately 9,000 tonnes, about 17% of all of the waste landfilled. Figure 6-3 illustrates the estimated composition of the single-family residential sent to landfill. The composition data indicates that the five primary components of residential garbage are: compostable organics (36% of garbage), household hygiene (20%), plastic (14%), paper (7%) and textiles (6%). The compostable component was made up of food scraps (26%), compostable paper⁷(8%) and yard waste (2%). Household hygiene consisted of diapers (15%) and pet waste (5%) and represents approximately 1,800 tonnes of disposed waste. The plastics category consisted of film packaging (5%) such as plastic bags, granola bar wrappers and plastic wrap, rigid containers such as shampoo bottles and yogurt tubs (3%), and durable plastics such as toys and plastic lawn chairs (2%).

Based on the waste composition of the garbage collected from single family homes, approximately 47% of residential waste sent to landfill could have been included in the recycling or kitchen scrap collection streams. An additional 3% could be diverted to existing EPR programs. This diversion potential is shown as a subset of Figure 6-3.

⁶ In the RDN service area, 1 can = 100L. In the City of Nanaimo service area, 1 can = 70 L.

⁷ Compostable paper refers to non-recyclable paper such as tissue, paper towels, and food-contaminated paper.

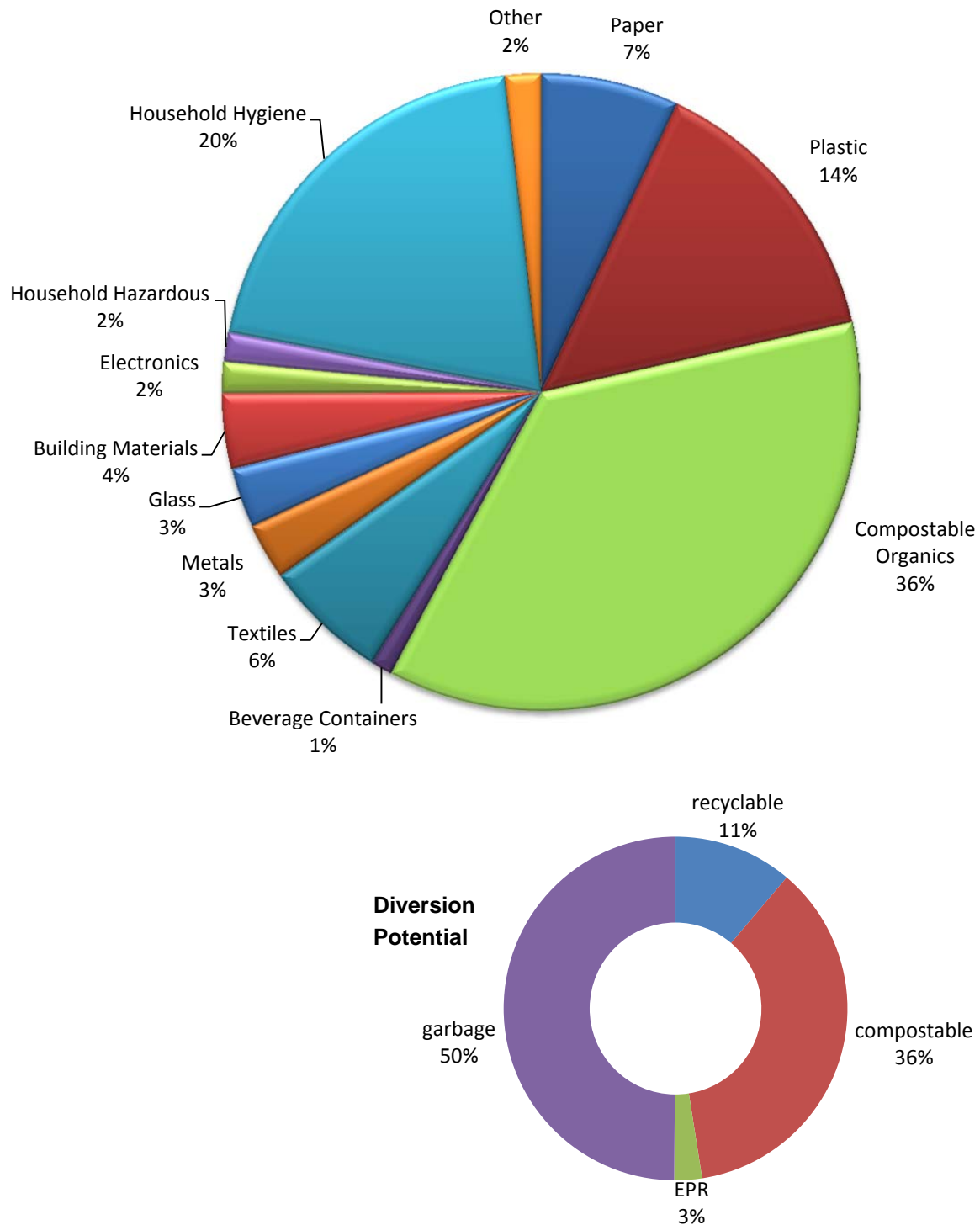


Figure 6-3 Estimated Composition Single-Family Garbage (2012)

7 Multi-Family Collection

There are 13,430 multi-family residential units in the RDN, with approximately 12,000 of these units located in the City of Nanaimo⁸. Collection services to multi-family buildings are privately managed in the RDN. Each building is responsible for hiring their collection services for garbage and recycling.

Since 2008, the RDN has had 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. In 2008, RDN staff estimated that 75% of multi-family buildings had recycling services on-site, but that those services were primarily for cardboard and paper collection. In 2012, the service levels were found to have significantly improved since 2008, with 94% of multi-family buildings reporting that they had recycling services for cardboard, paper and plastic and containers. The primary mechanism by which the RDN encourages recycling in multi-family buildings is their landfill bans that prohibit the landfilling of residential recyclables such as household plastic containers, recyclable paper, cardboard, and metal.

Because 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 building sector. Research done in other jurisdictions has been used as the basis to estimate waste generation by the multi-family sector in the RDN, as shown in Table 7-1. The research indicates that recycling rates in multi-family buildings 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 homes is recycled and the City of Toronto reports an 18% recycling rate.⁹ Comparatively, single-family homes in the RDN recycle 30% of their discards through the curbside recycling program (not including kitchen scraps collection).

Table 7-1 Estimate of Waste Generation by the Multi-family Sector in the RDN

	Estimated tonnes for all Multi-Family Buildings (2012)	Estimated Kg Per Unit/Year (2012)
garbage	2,836	211
recycling	709	53
generation	3,545	264

The lower recycling rate in multi-family buildings is often attributed to:

- There is no restriction on how much garbage each residential unit can dispose of;

⁸Multi-Family Housing Diversion Strategy Progress Report; RDN staff memorandum by S. Horsburgh to C.McIver; February 2, 2012.

⁹<http://www.metrovancouver.org/region/dialogues/Reports%20and%20Issue%20Summary%20Notes/Multi-FamilyWaste-NS-Summary20110419.pdf> and <http://www.toronto.ca/garbage/pdf/2010-graph.pdf>

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- There is no direct financial signals to each residential unit regarding how they manage their household waste; and
- There is limited or no opportunity to identify and communicate with residents that place recyclables in the garbage.

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 data from this sampling exercise is provided in Figure 7-1. This composition data suggests that the majority of waste disposed as garbage in multi-family buildings is recyclable (26%) or compostable (44%).

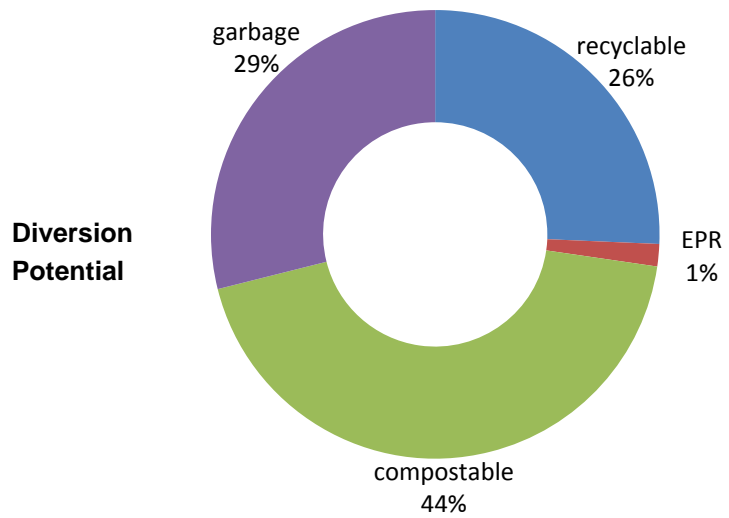
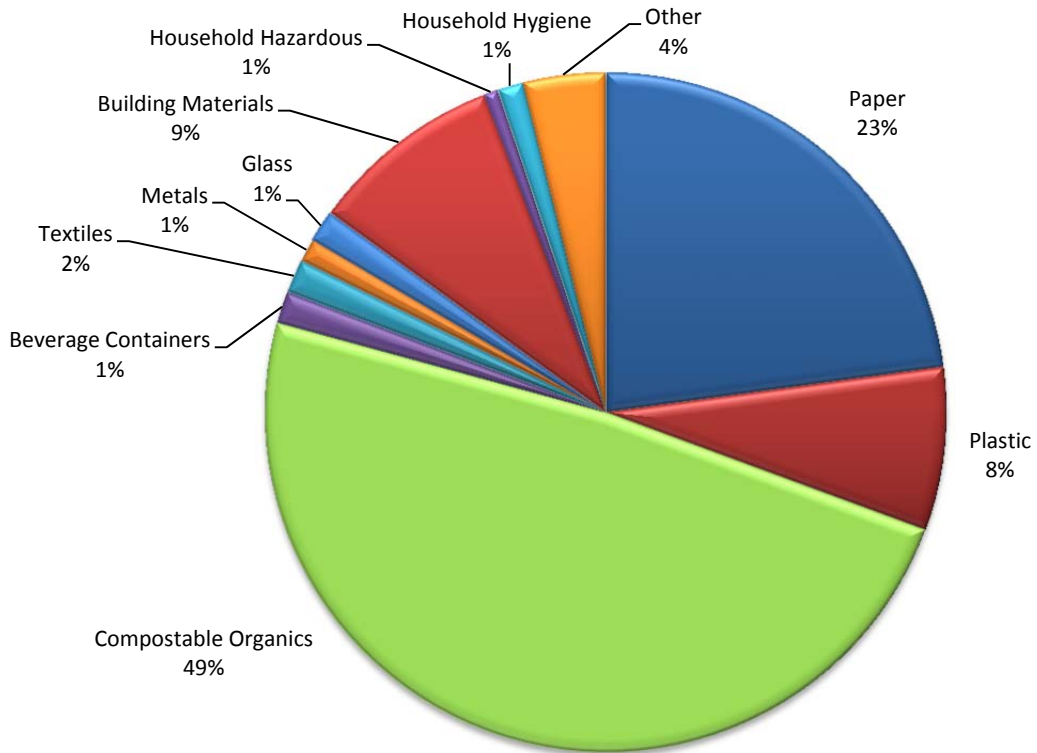


Figure 7-1 Estimated Composition of Multi-Family Garbage (2012)

8 Industrial, Commercial and Institutional Collection

Similar to multi-family residential buildings, collection services to industrial, commercial and institutional (ICI) properties are privately managed. Each business and institution is responsible for hiring their own collection services for garbage and recycling. The RDN encourages recycling by the ICI sector through their landfill bans which prohibit the landfilling of recyclables, food waste and yard waste.

Table 8-1 Estimated ICI Disposal and Diversion (2012)

ICI Disposal and Diversion	Estimated tonnes (2012)
Disposal	29,960
Diversion	84,974
Generation (disposal + diversion)	114,934
% Diversion	74%

In 2012, roughly 30,000 tonnes of ICI garbage was landfilled, approximately 57% of all of the waste landfilled. During the same period the ICI sector is estimated to have diverted roughly 85,000 tonnes of discarded materials to recycling and composting, giving the ICI sector an impressive diversion rate of 74%, as calculated in Table 8-1.

An assessment of the garbage disposed by the ICI sector was done as part of the RDN's 2012 waste composition study (Figure 8-1). The data estimates that 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 drywall making up the remainder of the recyclable portion of the ICI garbage.

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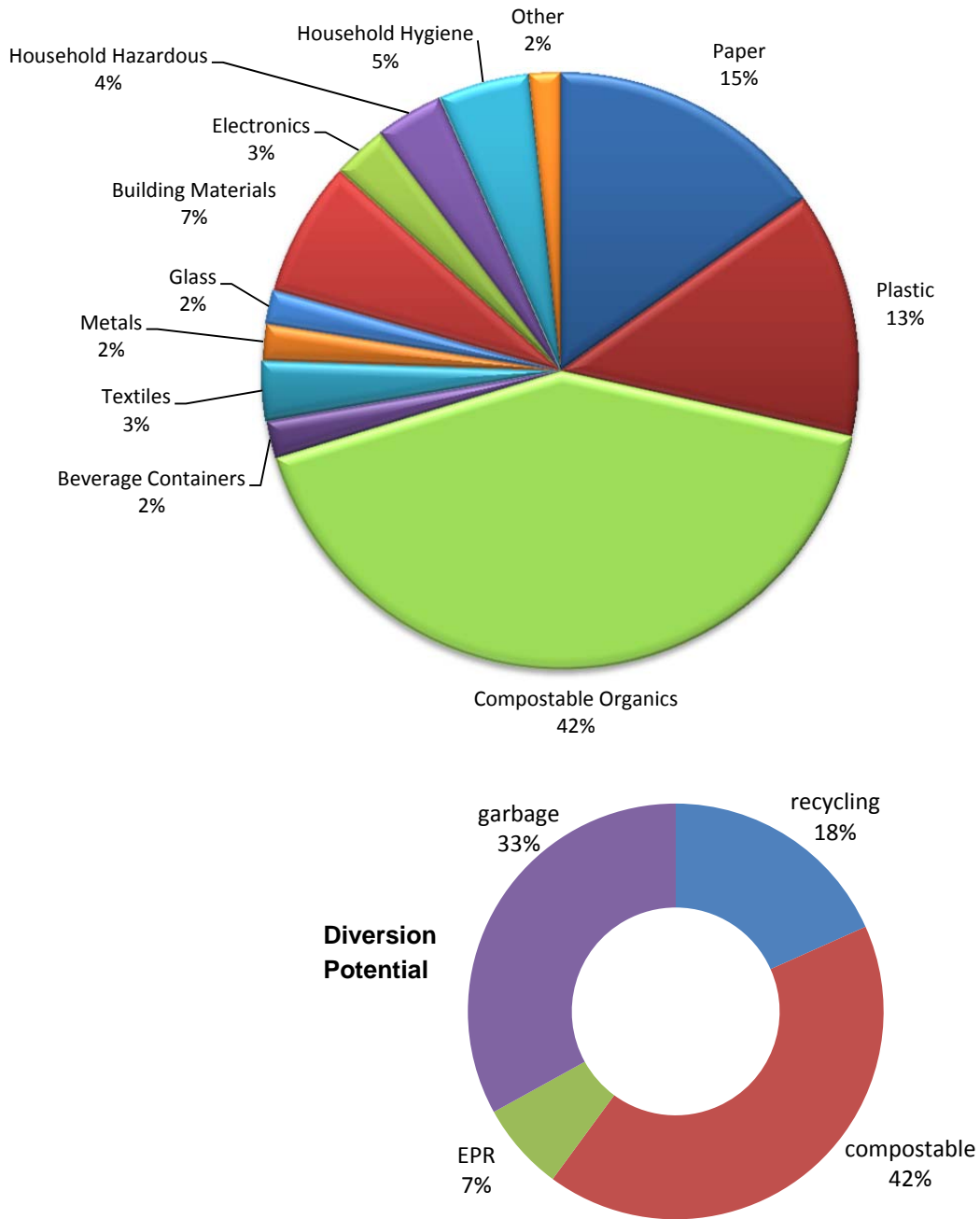


Figure 8-1 *Estimated Composition of the ICI Sector Garbage (2012)*

9 Yard Waste Collection

Yard waste such as leaves and grass clippings are not collected as part of residential waste collection services. 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 xeriscaping¹⁰
- Backyard or on-site composting
- Self-hauling to one of several yard waste depots in the RDN. Currently, depots are located at:
 - Church Road Transfer Station
 - DBL
 - Nanaimo Recycling Exchange
 - Pacific Coast Waste Management
 - Porter Wood Recycling
 - Regional Landfill
- Hiring a yard waste removal service
- Include yard waste removal in landscaping contracts.



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

- A ban on yard waste disposed as garbage at the landfill site and transfer station
- A ban on the inclusion of yard waste in the City of Nanaimo’s and RDN’s residential garbage collection service
- Not providing yard waste collection as part of the single-family residential curbside service
- Promoting 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 that yard waste is roughly 2.5% of the residential waste sent to landfill and 5% of overall waste landfilled. The estimated disposal and diversion for yard waste is presented in Table 9-1 below.

Table 9-1 Estimated Yard Waste Disposal and Diversion (2012)

Yard Waste	Tonnes
Disposal	2,700
Diversion	11,300
Total Generation	14,000
Diversion rate	81%

¹⁰ Xeriscaping is a form of landscaping using plant species that require minimal water and consequently generate less yard waste.

10 Collection Depots

Throughout the RDN there are public, private and non-profit depots used by residents and small businesses that accept recyclable materials, ranging from residential recyclables like paper to scrap metal to drywall. Use of these facilities is supported through:

- Disposal bans on recyclable materials
- High tipping fees for garbage
- Promotion through the RDN's on-line Recycling Directory.

The following are the main collection depots in the RDN. In addition to this list there are several businesses that accept one or more recyclable materials pertinent to their business, such as cell phone retailers that take back used cell phones and cell phone batteries.

- Nanaimo Recycling Exchange
- Gabriola Island Recycling Organization
- Schnitzer Steel Pacific
- Parksville Bottle & Recycling Depot
- RDN's Regional Landfill
- Progressive Waste Solutions (formerly BFI)
- Emterra Environmental
- DBL Disposal Service Ltd.
- RDN's Church Road Transfer Station
- Regional Recycling (2 locations)

11 Extended Producer Responsibility

In British Columbia, EPR (formerly referred to as Industry Product Stewardship) is an environmental policy approach in which the producer's responsibility for reducing environmental impact and managing the product is extended across the whole life cycle of the product, from selection of materials and design to its end-of-life¹¹. In terms of solid waste management, EPR puts the onus of end-of-life product management on the producer and consumers of a product rather than the general taxpayer or local government.

EPR programs play an integral and increasingly significant role in the management of municipal solid waste in BC. Most existing EPR programs have been established by producers and brand owners of products in accordance with requirements set out in the BC Recycling Regulation. Other programs have been set up voluntarily by individual companies and industries (e.g. for milk containers). Table 11-1 lists the current regulated and voluntary EPR programs in BC. The term “stewardship organization” used in the table refers to the agency responsible for operating the EPR program on behalf of producers and brand owners.

Table 11-1 BC's EPR Programs¹²

Mandated EPR Programs			
Product Category	Product Details	Stewardship Organization	Program Status
Antifreeze and Oil	Antifreeze, used lubricating oil, filters and containers	BC Used Oil Management Association (BCUOMA)	Ongoing since 1992 (oil) and 2011 (antifreeze)
Batteries	Dry cell batteries under 5kg (rechargeable and non-rechargeable) and cell/mobile phones	Rechargeable Battery Recycling Corporation (RBRC)	Ongoing since 2010
Batteries - Lead Acid	All lead-acid batteries	Canadian Battery Association (CBA)	Ongoing (industry-led) since 2011
Beverage Containers	<i>Non-Alcohol</i> - soft drinks, juice, water and sports drinks <i>Alcohol</i> - wine, spirits, import beers/ coolers sold in non-refillable containers	Encorp Pacific (Canada)	Ongoing (industry-led) since 1994
Beverage Containers	Beer cans, standard brown beer bottles and certain clear refillable beer bottles	Brewers Distributor Ltd. (BDL)	Ongoing since 1997

¹¹ As defined by BC Ministry of Environment

¹² The information in this table was adapted from the B.C. *Product Stewardship Programs Summary* web page found on the Recycling Council of BC website. (<http://rcbc.bc.ca/education/product-stewardship/table>)

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Mandated EPR Programs			
Product Category	Product Details	Stewardship Organization	Program Status
Cell Phones	Cell phones, smart phones, wireless PDAs, external aircards, pagers and accessories (chargers etc.)	Canadian Wireless Telecommunications Association (CWTA)	Ongoing since 2009
Electronics	Portable and non-portable electronics - see here for a full list of products accepted	Electronic Products Recycling Association (EPRA)	Ongoing since 2007 (Phase 1), 2010 (Phase 2) and 2012 (Phase 5)
Lamps and Fixtures	All residential-use lamps and fixtures - see here for a full list of products accepted	Product Care Association	Ongoing since 2010 (CFL, fluorescent tubes) and July 2012 (all lamps). ICI sources and ballasts will be added October 2012
Large Appliances	Major appliances designed for use in <i>homes</i> including refrigeration, laundry and cooking appliances	Major Appliance Recycling Roundtable (MARR)	Ongoing since August 2012
Outdoor Power Equipment (OPE)	Lawn tractor, and hand-held, walk behind and free-standing OPE	Outdoor Power Equipment Institute of Canada (OPEIC)	Ongoing since July 2012
Packaging and Printed Paper	Residential packaging and printed paper with text or graphics (news papers, flyers etc. with the exception of bound books)	Multi-Materials BC (MMBC)	Added to the Recycling Regulation in May 2011. Program to be operational in May 2014
Paint, Flammable Liquids, Solvents, Pesticides, Gasoline	Paint, fuels, solvents, pesticides	Product Care Association	Ongoing since 1994 (paint), 1997 (flammables) and 1998 (aerosols)
Pharmaceuticals	Prescription drugs, non-prescription medicine, mineral and vitamin supplements, throat lozenges	Post Consumer Pharmaceutical Stewardship Association (PCPSA)	Ongoing since 1997
Small Appliances and Electrical Power Tools	Portable electrical appliances and power tools designed for use in homes	Canadian Electrical Stewardship Association (CESA)	Ongoing since 2011 (small appliances) and July 2012 (electrical tools)
Smoke Alarms	Commercial and residential smoke and carbon monoxide alarms	Canadian Hardware and Housewares Manufacturers Association (CHHMA)	Ongoing since 2011
Smoke Alarms	Commercial and residential smoke and carbon monoxide alarms	First Alert Canada	Ongoing since 2011
Thermostats	Electromechanical (mercury containing) and electronic thermostats	Summerhill Impact	Ongoing since 2010
Tires - Automobile	Most passenger, commercial and agricultural equipment tires	Tire Stewardship BC (TSBC)	Ongoing (industry-led) since 2007
Toys	Electronic or electrical toys	Canadian Brandowner	Ongoing since August

Mandated EPR Programs			
Product Category	Product Details	Stewardship Organization	Program Status
		Residual Stewardship Corporation (CBRSC)	2012

Voluntary EPR Programs			
Product Category	Product Details	Administration	Program Status
Beverage Containers - Milk	Empty milk, cream, and milk substitute (soy, rice, almond, hemp) beverage containers.	Encorp Pacific (Canada)	Ongoing since 2007
Tires - Bicycle	All types of bike tires and tubes, with the exception of tubular tires	Tire Stewardship BC (TSBC)	Ongoing since 2011

In the RDN, the current collection infrastructure for existing EPR programs consists of return-to-retail and take-back depots. The RDN's Recycling Directory can be used by residents to find the most convenient take back location for EPR products. The Recycling Council of BC operates a similar service through their toll-free Recycling Hotline (1-800-667-4321) and their on-line searchable database "Recyclopedia".

In accordance with the BC Recycling Regulation, the costs of collection and management of EPR programs are to be borne by producers and consumers, not by local governments or their tax payers. Many stewardship programs charge separate fees at the point of purchase to cover the costs of managing the discarded product, and the fee is shown on the sales receipt as an "eco-fee". These fees are applied by producers / brand owners as part of the price of the product; they are not government-applied taxes. The stewardship agencies are responsible for educating consumers regarding their programs and for providing information about collection options, fees, and handling practices.

The latest addition to list of materials regulated under the Recycling Regulation is residential packaging and printed paper (PPP). This EPR program is scheduled to begin in May 2014. This particular EPR program is unique in that most homes in BC already have access to residential recycling services through curbside programs or depots. The impacts of this program on homes in the RDN are anticipated to be:

- A reduction in the cost of curbside collection services since the program will provide funding to the RDN and City of Nanaimo to off-set the cost of collecting PPP
- An increase in the types of packaging that can be recycled in the curbside collection program
- An increase in the types of packaging that can be recycled through recycling depots provided by the RDN, private companies and non-profit recycling organizations.

12 Processing of Recyclables



“Processing” refers to the receipt of recyclables from generators and then sorting and preparing those materials for the end-market use or subsequent processing. The RDN has 3 material recycling facilities (referred to as MRFs) that are owned and operated by private waste management companies: Progressive Waste, Emterra and Cascades. All 3 MRFs are located in the City of Nanaimo.

13 Organics Management

In the RDN there is reuse of 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: International Composting Corporation (ICC) and Earthbank Resource Systems. The following table lists the types of materials each of these facilities manages:

International Composting Corporation	<ul style="list-style-type: none"> • Residential “green bin” kitchen scraps and soiled paper • Commercial food waste • Yard waste • Fish waste • Clean wood
Earthbank	<ul style="list-style-type: none"> • Farmed and wild fish offal • Farmed salmon mortalities • Ground up bark from the forestry industry • Ground up land clearing debris (exclusively local forest materials)

ICC is the only facility processing food waste in the RDN. This facility opened in Nanaimo in 2004 with a drum-style in-vessel composting system. The compost product is sold as a bulk product for blending into soil mixes. Recently, ICC modified the plant to convert organic waste into synthetic biofuel (biodiesel & jet fuel).



International Composting Corporation (ICC)



ICC Finished Compost Product

Earthbank operates an aerated static pile composting system near Parksville. They sell their finished compost product in bulk and in bags.

14 Education and Outreach

Both the RDN and the City of Nanaimo undertake promotion and education related to solid waste management.

The RDN:

- Has 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 (www.rdn.bc.ca).
- Distributes a "Zero Waste Beyond Composting" Newsletter three times per year to all homes receiving RDN curbside collection.
- Has a searchable on-line recycling directory for users to find out where they can bring their reusable, recyclable and compostable items.
- Has a zero waste school education program which provides free classroom workshops to schools throughout the RDN. This service has been contracted out to Nanaimo Recycling Exchange.

The City of Nanaimo:

- Distributes their "Waste Lines" newsletter to all City addresses in the spring and fall of each year.
- Has a dedicated web page on the City's website (www.nanaimo.ca) that includes information related to the City's residential collection services, a link to the RDN recycling directory, and a list of reuse and recycling organizations operating in the City.

15 Construction/Demolition Waste Management

Construction and demolition and renovation projects (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 Church Road Transfer Station).

There are several facilities in the RDN that accept source-separated discarded CD materials for recycling, as listed in Table 15-1.

Table 15-1 Construction/Demolition Waste Management Operations in the RDN

Material	Facility Name
Asphalt	Haylock Bros. Hub City Paving
Asphalt Shingles	Pacific Coast Waste Management
Concrete	DBL Hub City Paving Haylock Bros. Mayco Mix Pacific Coast Waste Management Parksville Heavy Equipment
Metal	Alpine Annex Auto Bull Dog Auto Parts Carl's Metal Salvage DBL Nanaimo Recycling Exchange Porter Wood Regional Recycling Schnitzer Steel
Wood (lumber)	Alpine DBL Gabriola Island Recycling Organization Nanaimo Recycling Exchange Pacific Coast Waste Management Porter Wood

The majority of CD waste is recycled or used as a fuel substitute, including:

- 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

- 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.

16 Residual Waste Management

Residual waste refers to discarded materials that are not diverted to reuse, recycling, composting or energy recovery and therefore require landfilling. In 2012, there was roughly 53,000 tonnes of residual waste landfilled in the RDN. The residual waste management infrastructure in the RDN includes the Church Road Transfer Station and the Regional Landfill.

16.1 Church Road Transfer Station

The Church Road Transfer Station (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. CRTS receives garbage, yard waste, wood waste, construction/demolition waste, and recyclables from communities in northern portion of the Regional District of Nanaimo: 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 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. Recyclables are transferred to various recycling processors, and food waste, kitchen waste, and yard waste are transferred to the International Composting Corporation Composting Facility in South Nanaimo.

In 2010, the site was re-designed to accommodate population growth to 2030, include 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 in Canada for a transfer station.



16.2 Regional Landfill

The Regional Landfill is located about 5 kilometres south of downtown Nanaimo and is owned and operated by the Regional District of Nanaimo. The landfill site opened in the 1940s and is approximately 37 hectares in size. The original unlined “dump” is on an 8.8-hectare portion of the site and was closed and capped with clay in 1996. Next to this site a new landfill with an engineered liner system was constructed. The landfill operates on 13.7-hectares and has been receiving municipal solid waste from the Regional District of Nanaimo since 1991. The photograph below shows the whole property, including the closed and capped unlined portion.



Figure 16-1 Regional Landfill

The Regional Landfill is regulated by the Province of BC and operates under an operational certificate issued by the BC Ministry of Environment. Through the landfill’s environment protection measures, landfill gas and leachate are collected from both the lined and unlined areas of the landfill site. Leachate is directed into the sanitary sewer system for treatment at the Greater Nanaimo Pollution Control Centre. The landfill gas (LFG) is collected and managed through a public-private partnership. The LFG is used to produce green power which is sold to BC Hydro. The RDN receives a royalty from these sales. Excess

gas is flared to reduce its greenhouse gas impacts. These environmental protection measures, how the site is designed and operated, and the tipping fees charged to use the site are described in more detail below.

16.2.1 Environmental Protection

The Regional Landfill's environmental protection measures reflect a comprehensive approach to monitoring, evaluating and mitigating the impacts of the landfill's operations on the environment.

Leachate Monitoring Program

When solid waste decomposes it produces leachate, which is accelerated by the percolation of water through the waste in the landfill. Landfill leachate is a complex mixture of organic and inorganic compounds produced from refuse materials by a combination of physical, chemical and biochemical processes.

The Regional Landfill has an extensive leachate containment system, consisting of a high-density plastic liner and perforated pipes to collect leachate for treatment at the regional sewage treatment plant (Greater Nanaimo Pollution Control Centre).

Leachate monitoring is conducted regularly and includes inspection of landfill slopes for leachate breakouts, sampling of leachate for chemical analysis, and measuring leachate elevations in the refuse mass. These tests are important for determining impacts to surface and groundwater, mitigating odours and monitoring for leachate mounding. The chemical analysis is also a requirement by the Ministry of Environment and the RDN Wastewater Department.

Water Quality Monitoring

Migration of leachate from the landfill can affect ground and surface quality. The Regional Landfill's groundwater, surface water, and residential groundwater well monitoring program is designed to ensure landfill operations do not adversely affect water quality.

The water quality monitoring program consists of the collection and analysis of groundwater and surface water samples. Groundwater monitoring wells are located along the perimeter of the site for the purpose of monitoring groundwater quality at the property boundary. Surface water monitoring sites are also located around the perimeter of the site at streams and ditches.

Water samples are analysed for various physical parameters, geo-chemical indicators, dissolved metals and dissolved inorganics. This program allows for early detection and mitigation should leachate be found migrating off the site.

Landfill Gas

Landfill gas is generated as a result of the biological decomposition of organic waste material. In general it is composed of 50% methane and 50% carbon dioxide by volume. Landfill gas, if not captured and

managed can migrate through the landfill cover or adjacent soil and enter the atmosphere. Potential impacts from landfill gas include:

- Greenhouse gas issues (Methane is 20 times more potent of a greenhouse gas than carbon dioxide¹³);
- Health and toxic effects;
- Nuisance odour;
- Explosive hazard; and
- Vegetative stress.

The landfill gas collection system is designed to extract the majority of landfill gas produced. Initially, all of the collected gas was flared to reduce the above noted impacts. However, starting in 2006, Cedar Road Bioenergy, a private company, entered into an agreement with the RDN to build and operate a modular landfill gas utilization plant which is currently producing energy from the landfill gas by converting the gas into 1.2MW of electricity, which is sold into the BC Hydro grid. A photograph of the plant is shown in Figure 16-2.



Figure 16-2 Cedar Road Bioenergy Landfill Gas Utilization Plant at the Regional Landfill

16.2.2 Design and Operations Plan

The Regional Landfill has a Design and Operations Plan (D&O Plan) that details how the landfill development will progress on the site and how it will be operated on a day-to-day basis. One of the D&O Plan's goals is to optimize the use of the space so that the landfill can be a regional asset for as long as possible. The plan incorporates surface water, leachate, and landfill gas management controls into the

¹³ From the US EPA Climate Change webpage (<http://epa.gov/climatechange/ghgemissions/gases/ch4.html>) : The comparative impact of CH₄ on climate change is over 20 times greater than CO₂ over a 100-year period.

long-term landfill development plan and also includes a progressive closure strategy to mitigate potential landfill impacts.

D&O Plans are updated regularly through the life of a landfill. The current plan is a landfill development plan as well as a remedial action plan to address leachate management issues recently identified in a hydrogeological study of the site. The key objectives of the current D&O Plan are to:

- Provide an updated fill plan which addresses the need to reduce leachate generation and optimize surface water controls;
- Address leachate management issues;
- Enhance the collection efficiency of the landfill gas collection system and reduction of fugitive greenhouse gas emissions;
- Update and revise the environmental monitoring program;
- Undertake progressive closure of the site in support of the post-closure nature park concept.

16.2.3 Post Closure Plan

The RDN has prepared a detailed plan for closure and post closure of the Regional Landfill, which has been approved by the BC Ministry of Environment and the Regional Board. Funds are being set aside for closure and monitoring costs and post-closure plans to rehabilitate the site as a community resource. After closure of the landfill, the RDN must operate and maintain pollution mitigation programs and infrastructure for at least 25 years.

In 2004, the RDN completed a study of post-closure options for the Regional Landfill. After consulting with the community in the vicinity of the landfill and City of Nanaimo municipal staff, creation of a nature park was identified as the preferred post-closure use. The vision is to have a park with open areas for recreation opportunities, plantings that enhance wildlife habitat and provide a nature experience for users, hiking trails that integrate into the surrounding area's trail network, and picnic areas and scenic viewpoints.



Figure 16-3 Post Closure Plan for the Regional Landfill: Nature Park

As the landfill will continue to operate for a number of years, the park is to be developed in phases, with the first phase installed on the closed and capped 9-hectare area of the old landfill. A detailed design of the first phase of the nature park is under development by by Nanaimo-based Archadia Landscape Architecture Ltd. and will be the first of its kind on a working landfill in BC.

16.2.4 Estimated Lifespan

When the current D&O plan was prepared in 2011, the remaining available airspace was estimated to be 2.4 million cubic metres. Based upon population growth projections and fill rate assumptions, it is estimated that the site will reach design capacity in 2030.

16.3 Disposal Charges

The RDN charges tipping fees based on the weight of materials brought to the landfill or transfer station. The tipping fees are intended to cover the capital and operating costs of the facilities and the services provided at the sites. Table 16-1 lists the 2013 rates, the most notable being that garbage (referred to in the table as municipal solid waste) is charged at \$120 per tonne.

Table 16-1 Accepted Materials and Rates, Effective January 1, 2013

Municipal Solid Waste, excluding Controlled Waste	
Municipal solid waste, construction/demolition waste, roofing waste (asphalt/tar/gravel) 0 - 50 kg 51 kg or greater	\$6.00 flat rate \$120.00/tonne
Municipal solid waste containing recyclables 0 - 50 kg 51 kg or greater	\$6.00 flat rate \$230.00/tonne
Construction/demolition waste containing recyclables 0 - 50 kg 51 kg or greater	\$6.00 flat rate \$360.00/tonne
Weighing service Improperly covered or secured load	\$20.00 each \$20.00 each
Recyclables	
Garden Waste 0 - 100 kg 101 kg or greater (roll-off bin loads not accepted)	\$6.00 flat rate \$55.00/tonne
Wood Waste (includes wood roofing) 0 - 50 kg 51 kg or greater(roll-off bin loads not accepted)	\$6.00 flat rate \$240.00/tonne
Gypsum (Accepted only at Church Road Transfer Station) 0 - 50 kg 51 kg or greater	\$6.00 flat rate \$240.00/tonne
Organic Waste (Accepted only at Church Road Transfer Station) 0 - 50 kg 51 kg or greater	\$6.00 flat rate \$105.00/tonne
Organic Waste (Containing mixed solid waste or recyclables) 0 - 50 kg 51 kg or greater	\$6.00 flat rate \$210.00/tonne
Metal Recycling , metal appliances 0 - 500 kg 501 kg or greater	\$6.00 flat rate \$55.00/tonne
Miscellaneous Recyclables (includes non-deposit glass, paper, household plastic containers, metal food and beverage containers, vehicle batteries and oil filters)	\$6.00 flat rate
Corrugated cardboard 0 - 50 kg 51 kg or greater	\$6.00 flat rate \$55.00/tonne
Controlled Waste (Accepted at Regional Landfill only)	
Contaminated soil (Accepted only at Regional Landfill)	\$120.00/tonne
Large dead animals and asbestos waste (Accepted only at Regional Landfill)	\$240.00/tonne
Steel cable	\$500.00/tonne

16.4 Resource Recovery

Recovery is defined as the reclamation of energy or recyclable materials from the residual waste prior to landfilling.

16.4.1 Waste to Energy

Over the past decade, the RDN has continued to assess the role of waste-to-energy (WTE) as a means of further reducing the amount of residual waste requiring landfilling and generating local energy. A number of studies have reviewed the state of the various WTE technologies and their anticipated capital and operating costs. Those studies include:

- 2004 – *New and Emerging Residual Waste Management Technologies Update* by Gartner Lee Ltd. This study was done for the RDN and Cowichan Valley Regional District (CVRD) and was a preliminary review of new and emerging residual waste management technologies to determine if any of these technologies might have some applicability to the regional districts in the foreseeable future. The review indicated that there may be some promise for residual waste processing in the future depending on available waste quantities, the change in composition of waste, availability of proven technology, and energy markets. The study recommended that the regional districts continue to monitor the development of the technologies that have proven to be technically viable, including refuse derived fuel, anaerobic digestion, waste-to-energy, gasification and pyrolysis. The study also suggested that for the time being traditional diversion activities may be preferable since it was plausible that a conventional but aggressive waste reduction strategy to divert up to 70% of the solid waste stream.
- 2006 – *Assessment of New Treatment Technologies* by Gartner Lee Ltd. This study was also a collaboration between RDN and CVRD to determine if and when additional waste treatment in the form of thermal processing would be feasible for recovering energy from the residual waste stream. Conventional and advanced thermal technologies were reviewed, as well as refuse derived fuel (RDF). This study reported that the cost of thermal processing of residual waste is about 40% above that of landfilling (\$100 per tonne at the time) and therefore not financially attractive, but might become competitive in the near future if energy costs rise, funding assistance becomes available, and low cost financing can be found.
- 2008 – *Assessment of New Treatment Technologies* by Gartner Lee Ltd. This report was an update of the 2006 study and included an expansion of the initial thermal technology review, and an update on some of the environmental issues and costs.
- 2012 – *Tri-Regional Waste to Energy Study* by AECOM. This study was a collaborative effort of the RDN, CVRD and Capital Regional District. The study reviewed the applicability of available technologies in light of the increase tonnage of waste available through the inclusion of the Capital Regional District's residual waste. This study considered the use of mass-burn, gasification and plasma gasification technologies. Mass-burn was confirmed as the most proven, reliable and lowest

cost WTE technology. The study concluded that a single WTE facility would have adequate economies of scale to employ mass-burn; however it would not be at an optimum size from a pricing perspective, which would need to be roughly 3 times larger.

16.5 Closed Landfills

There are two permanently closed municipal solid waste landfills in the RDN. Both the City of Parksville and the Town of Qualicum Beach closed and capped their landfills but continue to monitor the closed sites and provide annual reporting to the BC Ministry of Environment. The permits for these sites have been “abandoned” at the request of the municipalities, meaning that the permits have been rescinded by the Ministry.

There are two private disposal facilities that have also abandoned their permits. These permits were held by J. Milner Trucking and Lussier and Son Contracting for the landfilling of inert wastes and wood waste. Both disposal facilities were located in Nanaimo and permits for both of these sites have been cancelled.

17 Landclearing Waste Management

Land clearing waste refers to trees and stumps removed when land is cleared for development. Because of the large and bulky nature of this material, it is difficult to manage at municipal solid waste landfills and composting facilities. All of the municipalities and the community of French Creek have banned open burning of land clearing waste. In these areas, land clearing debris is generally ground on site using a mobile grinder and left on the property, or the land clearing waste is transported to a facility for storage and subsequent grinding for use as hog fuel. There are two private operations in the RDN that receive and process land clearing waste: Pacific Coast Waste Management and Porter Wood Recycling.

In areas of the RDN where land clearing waste can be disposed of through on-site burning, all fires must be managed in accordance with the BC Open Burning Smoke Control Regulation and a reference number must be obtained from the Ministry of Forests. In Extension and East Wellington, a permit to burn landclearing waste must be obtained from the local fire department.

18 Illegal Dumping Prevention Strategy

Illegal dumping on private and public lands has been a long-standing concern in the Regional District of Nanaimo. In 2010, 41 tonnes of illegally dumped material was removed through clean-up initiatives and disposed of appropriately.

Although it represents only .0002% of the total solid waste generated in the region, illegally dumped material can have serious effects on the environment, wildlife habitat and the ability of others to use and enjoy outdoor recreational areas.

The RDN has implemented an Illegal Dumping Prevention Strategy 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's Waste Stream Management Licensing (WSML) Bylaw includes a section to enforce the proper disposal of waste. The WSML bylaw requires those who generate waste be responsible for its proper disposal. If a generator's waste is found to be abandoned, the generator can be subject to a fine of up to \$200,000. This component of the WSML bylaw is the backbone to the RDN's Illegal Dumping Prevention Strategy.

The RDN has a Zero Waste Compliance Officer staff position to carry out illegal dumping prevention and Waste Stream Management License bylaw enforcement and education duties. This position undertakes complaint response, records management, inter-agency/media contacts, establishes the posting of signage in areas subject to illegal dumping activities and conducts historic site monitoring.



In instances where the officer is able to identify the generator, a written warning is issued with a request to clean up the abandoned waste. In most cases this action is sufficient to achieve compliance. In instances where a generator fails to take responsibility, the officer can charge the clean-up costs to the generator and levy a fine. In some cases the RDN will work with the RCMP and/or the Ministry of Environment.

The RDN also works with several organizations that are frequent users of backroads and trails including Vancouver Island University (VIU) woodlot staff, VIU's Resource Management Officer Technology Program, Island Timberlands security, Emcon Services staff and various recreational groups/users. These organizations have volunteered to observe and report illegal dumping activities and sites to assist the RDN in monitoring activities and enhancing enforcement. The RDN also maintains a website page where any member of the public can "Observe, Record and Report" illegal dumping that they come across. All complaints, regardless of the source, result in the opening of a file and an investigation.

In 2012, the RDN responded to 115 incident complaints with 43 tonnes of waste cleaned up by RDN contractors or community groups. A total of 18 files resulted in names being located and individuals directed to clean up or warned about their actions. Two individuals were uncooperative and were scheduled for court appearances and were subsequently fined in 2013. Five additional illegal dumping signs were erected in historical illegal dumping areas as well as a problematic RDN park sites (for a total of 60 signs throughout the RDN). All signs are GPS mapped. Community groups were supported in clean-ups with 15 disposal waivers issued. The illegal dumping program is promoted through Shaw Cable, radio, newspaper and Facebook.



19 Financing of RDN Solid Waste Services

Table 19-1 lists the costs for the various solid waste management related services provided by the RDN, City of Nanaimo and Town of Qualicum Beach. Together, the government costs for solid waste management in 2012 were \$17.3 million.

Table 19-1 RDN and Municipal 2012 Solid Waste Expenditures

Service Area	Budget
Residential Collection	
RDN Curbside Collection	\$3,775,651
CON Curbside Collection	\$3,769,634
TQB Garbage Collection	\$173,859
Sub-Total	\$7,719,144
Region-Wide Disposal	
Overhead & Administration	\$1,162,920
Zero Waste Programs	\$514,394
Scale & Transfer Services – Cedar	\$1,507,215
Scale & Transfer Services - CRTS	\$2,008,190
Disposal Operations	\$4,387,105
Sub-Total	\$9,579,824
Total	\$17,298,968

Table 19-2 lists how the Regional District of Nanaimo pays for the solid waste services it provides. As shown, almost all of the RDN's costs (97%) are covered by user fees including tipping fees charged at the landfill and transfer station, and utility fees charged for residential curbside collection services.

Table 19-2 RDN 2012 Solid Waste Revenue Sources

Revenue Source	Amount	Percentage
Tax Requisition	\$342,035	2%
Tipping Fees	\$9,237,789	53%
Utility Fee	\$7,719,144	47%
Total	\$17,298,968	100%

20 Provincial Policies and Legislation

In general, the responsibility for solid waste management belongs to the Province and local governments. Municipalities and regional districts provide solid waste collection, diversion and disposal operations; regional districts are responsible for preparing long-range plans on a regional level; and the Province is responsible for approvals and monitoring of operations such as landfills and waste-to-energy facilities, as well as providing regulations, guidelines and policies to protect the environment and encourage waste minimization. The federal government plays a minor role in solid waste management; occasionally conducting Canada-wide studies on solid waste practices.

The following is a list of BC legislation that influences how solid waste (residual waste, recyclables and compostable waste) is managed by the public, private and non-profit sectors in BC.

- Environmental Management Act
- Contaminated Sites Regulation
- Hazardous Waste Regulation
- Landfill Gas Management Regulation
- Organic Matter Recycling Regulation
- Ozone Depleting Substances and Other Halocarbons Regulation
- Recycling Regulation
- Storage of Recyclable Material Regulation

21 Linkages to Regional Plans

The Regional Growth Strategy and the RDN Board's Strategic Plan are coordinating documents that link land use planning and servicing plans. The RDN Board's Strategic Plan is a three year plan that establishes broad strategic goals for the region and identifies actions and programs for implementation.

The purpose of these two plans is to ensure that regional and local service delivery remains consistent with regional objectives, manages the impacts of growth, and creates livable communities.

This section provides the solid waste-related actions from each of these documents. As these are guiding documents for RDN servicing, this information provides guidance for updating the Solid Waste Management Plan.

21.1 RDN Board's Strategic Plan (2013-2015)

Strategic goals and Actions for 2013-2015 for Solid Waste from the Board's Strategic Plan are:

1. Review and update the 2004 Solid Waste Management Plan (SWMP).
 - a. Undertake a new waste composition study to determine changes in the regional solid waste stream resulting from the implementation of the Zero Waste Plan.
 - b. Identify further opportunities to reduce waste and establish a new diversion target beyond the 70% currently achieved.
 - c. Undertake a comprehensive public consultation process on the SWMP review and update to ensure that the public is engaged and supportive of new policies and programs.
 - d. Explore new treatment technologies for residual wastes that save landfill capacity and investigate the need for additional future landfill capacity.
2. Continue to implement the Zero Waste Program on the basis of regulation, collaboration, education, and enforcement.
 - a. Ensure private and non-profit waste management and recycling facilities licensed under the Waste Stream Management Licensing Regulation are operating in accordance with approved operating plans.
 - b. Expand the commercial food waste ban to include front-of-operations food waste collection systems at fast food restaurants and cafeterias.
 - c. Extend the green bin food waste program into multi-family residential developments.
 - d. Support provincial product stewardship programs for electronics, small appliances, printed paper and packaging, ensuring a smooth transition to extended producer responsibility.
 - e. Explore opportunities for satellite recycling stations or one-stop eco-depots that handle the full range of products regulated by provincial stewardship programs.
3. Implement education and outreach programs to influence behavior and reduce waste.
 - a. Participate on the proposed National Zero Waste Marketing Council to develop and implement national strategies designed to reduce the solid waste stream in Canada.
 - b. Collaborate with other local governments on Zero Waste campaigns using free advertising copy and graphic designs.
 - c. Enhance communications and public education on the importance of waste management, composting, and recycling.
 - d. Collaborate with Vancouver Island regional districts and the Lower Mainland in their waste management efforts.

4. Implement the Design & Operations Plan at the Regional Landfill.
 - a. Complete a Nature Park on the closed portion of the Regional Landfill.
 - b. Examine the feasibility of new capital projects, and implement necessary projects incrementally to optimize costs while meeting the needs of a growing population.
 - c. Continue with landfill gas collection and energy distribution initiatives.
 - d. Explore opportunities to encourage industry, municipalities, and stakeholders to develop a regional eco-industrial network pilot project to reduce waste and increase economic performance by turning waste into resources.

21.2 Regional Growth Strategy

The Regional Growth Strategy lists the following actions for solid waste management (sections 10.9 to 10.13 of the strategy):

- 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).
- Ensure that all new high density developments are designed to support full recycling that includes food waste collection and materials prohibited from entering the RDN landfill.
- Recognize the benefit of integrating solid waste and wastewater disposal streams with private sector initiatives for the recovery of resources, where appropriate. The Solid Waste Management Plan may co-locate solid waste facilities with compatible industries to promote partnerships that recover resources from solid waste disposal.
- Recognize the impact solid waste disposal and processing may have on adjacent land uses and locate future recycling, composting and residual waste disposal sites in locations that minimize the impact on residential communities and the natural environment.
- Consider the potential for aggregate mining sites to be reclaimed for future solid waste disposal sites, if necessary.

Appendix A

Detailed Waste Composition Data (2012)

RDN Waste Composition Study Data (2012)

Material Category	Residential		Commercial		Self-Haul		Totals	
	Waste Stream Percentage	Estimated Tonnes Disposed	Waste Stream Percentage	Estimated Tonnes Disposed	Waste Stream Percentage	Estimated Tonnes Disposed	Waste Stream Percentage	Estimated Tonnes Disposed
Paper	1.2%	637	9.5%	5,049	1.8%	969	12.5%	6,655
Newsprint	0.1%	76	1.3%	690	0.3%	134	1.7%	900
Cardboard (recyclable)	0.2%	105	2.4%	1,271	0.3%	143	2.8%	1,519
Cardboard (waxed)	0.0%	0	0.0%	1	0.0%	0	0.0%	1
Cardboard (non-recyclable)	0.0%	0	0.2%	108	0.0%	0	0.2%	108
Boxboard / Cores	0.4%	191	1.3%	709	0.2%	128	1.9%	1,028
Office Paper	0.4%	198	2.5%	1,324	0.7%	368	3.5%	1,889
Magazines and Catalogues	0.0%	1	0.2%	106	0.1%	59	0.3%	166
Molded Paper Containers	0.0%	20	0.4%	237	0.0%	25	0.5%	282
Hardcover Books	0.0%	7	0.2%	91	0.2%	87	0.3%	186
Takeout Cups	0.1%	30	0.7%	360	0.0%	23	0.8%	413
Composite Can	0.0%	8	0.0%	21	0.0%	2	0.1%	31
Other Paper	0.0%	1	0.2%	130	0.0%	0	0.2%	131
Plastic	2.5%	1,313	8.3%	4,421	3.0%	1,599	13.8%	7,334
Bags - Retail (carry-out and grocery)	0.2%	124	0.2%	115	0.1%	44	0.5%	284
Bags - Packaging (film and overwrap)	0.9%	468	2.2%	1,173	0.2%	127	3.3%	1,768
Bags - Non Packaging (ziploc)	0.2%	113	0.7%	379	0.1%	46	1.0%	538
Other Plastic Film (pallet wrap)	0.1%	27	0.9%	473	0.0%	0	0.9%	500
PETE #1	0.1%	71	0.2%	99	0.1%	33	0.4%	202
HDPE #2	0.1%	65	0.4%	235	0.1%	58	0.7%	357
PVC #3	0.0%	0	0.0%	7	0.0%	1	0.0%	8
LDPE #4	0.0%	0	0.0%	6	0.0%	0	0.0%	6
PP #5	0.1%	37	0.2%	131	0.1%	29	0.4%	198
PS #6	0.2%	98	0.8%	450	0.1%	45	1.1%	593
Mixed Resin #7	0.0%	25	0.4%	210	0.0%	25	0.5%	260
Other uncoded plastics	0.2%	104	0.7%	391	0.5%	291	1.5%	786
Durable plastic (non-packaging)	0.3%	180	1.4%	753	1.7%	901	3.4%	1,833
Compostable Organics	6.2%	3,301	26.0%	13,879	2.7%	1,453	34.9%	18,632
Food Waste	4.5%	2,381	17.6%	9,386	2.4%	1,297	24.5%	13,065
Yard and Garden	0.4%	223	4.7%	2,490	0.0%	12	5.1%	2,725
Compostable Paper	1.3%	696	3.7%	1,987	0.3%	141	5.3%	2,824
Tree Based Wood	0.0%	0	0.0%	16	0.0%	3	0.0%	19
Beverage Containers	0.2%	98	1.3%	681	0.2%	86	1.6%	865
Aseptic Containers (deposit)	0.0%	8	0.0%	19	0.0%	1	0.1%	29
Aseptic Containers (non-deposit)	0.0%	4	0.0%	9	0.0%	0	0.0%	14
Beverage Pouches (deposit)	0.0%	0	0.0%	11	0.0%	0	0.0%	11
Gable Top Containers (deposit)	0.0%	0	0.0%	8	0.0%	1	0.0%	9
Gable Top Containers (non-deposit)	0.0%	22	0.1%	59	0.0%	15	0.2%	96
Plastic Beverage Containers (deposit)	0.0%	6	0.2%	110	0.0%	18	0.3%	133
Plastic Beverage Containers (non-deposit)	0.0%	25	0.0%	25	0.0%	17	0.1%	67
Plastic Beverage (takeout cups)	0.0%	8	0.1%	72	0.0%	2	0.2%	82
Metal Beverage (deposit)	0.0%	9	0.1%	65	0.0%	4	0.1%	78
Metal Beverage (non-deposit)	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Glass Containers (deposit)	0.0%	16	0.6%	303	0.1%	28	0.7%	347
Glass Containers (non-deposit)	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Textiles	1.1%	576	2.0%	1,080	2.6%	1,380	5.7%	3,037
Clothing	0.1%	45	0.0%	16	0.1%	64	0.2%	126
Composite Textiles	0.1%	74	0.1%	37	0.3%	167	0.5%	278
Leather	0.0%	5	0.0%	12	0.1%	49	0.1%	66
Natural Fibre Textiles	0.7%	380	1.4%	727	1.3%	690	3.4%	1,798
Synthetic Textiles	0.1%	72	0.5%	288	0.8%	410	1.4%	770
Metals	0.5%	260	1.2%	656	0.7%	375	2.4%	1,291
Metal Packaging (food)	0.2%	120	0.4%	213	0.0%	25	0.7%	358
Aluminum Foil and Trays (packaging)	0.0%	10	0.0%	4	0.0%	0	0.0%	14
Aluminum Foil and Trays (non-packaging)	0.1%	79	0.2%	89	0.0%	12	0.3%	180

RDN Waste Composition Study Data (2012)

Material Category	Residential		Commercial		Self-Haul		Totals	
	Waste Stream Percentage	Estimated Tonnes Disposed	Waste Stream Percentage	Estimated Tonnes Disposed	Waste Stream Percentage	Estimated Tonnes Disposed	Waste Stream Percentage	Estimated Tonnes Disposed
Non-consumables mixed metals (<0.5kg)	0.1%	51	0.3%	169	0.0%	25	0.5%	245
Non-consumables mixed metals (>0.5kg)	0.0%	0	0.3%	181	0.6%	313	0.9%	494
Glass	0.5%	275	1.1%	611	0.9%	500	2.6%	1,386
Glass Packaging (food)	0.4%	188	0.6%	299	0.3%	182	1.3%	669
Other Glass and Ceramics	0.2%	86	0.6%	313	0.6%	318	1.3%	717
Building Materials	0.7%	347	4.6%	2,438	5.6%	2,963	10.8%	5,748
Clean Wood	0.3%	145	1.0%	509	0.8%	403	2.0%	1,057
Treated or Painted Wood	0.2%	88	1.4%	759	0.0%	6	1.6%	853
Gypsum/drywall/plaster	0.0%	0	0.3%	186	1.2%	652	1.6%	838
Masonry/bricks	0.0%	0	0.2%	91	0.5%	241	0.6%	332
Asphalt products	0.0%	0	0.1%	52	0.0%	0	0.1%	52
Carpet & Underlay	0.0%	0	0.8%	437	1.9%	1,004	2.7%	1,441
Flooring (non-wood)	0.0%	0	0.0%	0	0.1%	54	0.1%	54
Other (fiberglass insulation)	0.2%	114	0.8%	404	1.1%	604	2.1%	1,122
Electronics	0.3%	144	1.9%	997	0.3%	182	2.5%	1,323
Computers and Peripherals	0.0%	0	0.5%	274	0.0%	2	0.5%	276
Televisions and Audio Visual Equipment	0.1%	36	0.5%	257	0.1%	40	0.6%	333
Telephones and Telecommunications Equipment	0.0%	0	0.3%	137	0.0%	9	0.3%	146
Small Kitchen Appliances and Floor Care	0.1%	36	0.5%	243	0.2%	123	0.8%	402
Electronic Toys	0.0%	3	0.0%	3	0.0%	0	0.0%	6
Smoke and CO Detectors	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Other Electronics	0.1%	69	0.2%	83	0.0%	7	0.3%	160
Household Hazardous	0.3%	135	2.3%	1,220	0.3%	162	2.8%	1,516
Batteries	0.0%	13	0.1%	31	0.0%	1	0.1%	46
Medical/Biological	0.1%	42	0.7%	383	0.0%	0	0.8%	425
Stains/Preservatives	0.0%	0	0.0%	0	0.0%	10	0.0%	10
Latex Paint	0.0%	12	0.3%	163	0.2%	103	0.5%	278
Oil Based Paint	0.0%	0	0.1%	31	0.0%	0	0.1%	31
Aerosols	0.0%	24	0.1%	38	0.1%	35	0.2%	97
Solvents	0.0%	0	0.1%	34	0.0%	0	0.1%	34
Pesticides/Herbicides/Fungicides	0.0%	0	0.0%	3	0.0%	0	0.0%	3
Motor Oil	0.0%	3	0.0%	17	0.0%	0	0.0%	20
Oil Filters	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Anti-Freeze	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Pharmaceuticals	0.0%	1	0.0%	10	0.0%	13	0.0%	23
Other Petroleum Based Products	0.0%	0	0.0%	16	0.0%	0	0.0%	16
Mercury Containing Items	0.0%	0	0.0%	5	0.0%	0	0.0%	5
Other HHW	0.1%	39	0.9%	488	0.0%	0	1.0%	527
Household Hygiene	3.4%	1,829	3.1%	1,633	0.9%	470	7.4%	3,932
Diapers / Personal Hygiene	2.6%	1,394	2.2%	1,187	0.4%	205	5.2%	2,786
Pet Waste	0.8%	435	0.8%	446	0.5%	266	2.1%	1,146
Other	0.3%	169	1.1%	572	1.6%	859	3.0%	1,599
Cosmetics / Soaps	0.1%	61	0.1%	75	0.0%	26	0.3%	162
Fines	0.2%	102	0.5%	261	0.0%	7	0.7%	370
Furniture	0.0%	0	0.4%	196	1.5%	825	1.9%	1,021
Rubber/Tires	0.0%	6	0.1%	40	0.0%	0	0.1%	46
White Goods	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Totals	17%	9,083	62%	33,239	21%	10,998	100%	53,319

Appendix B

Solid Waste Management Facilities in the RDN

Program	Material	NRE	Curbside	Return-to-Retail	District 68	Alpine	BFI-10th	Cascades	DBL	Enterra	GIRO	International Composting	Nanaimo Bottle	PCWM	Reg. Landfill	Regional Recycling	Schnitzer Steel	District 69	Church Rd. Transfer Stn	Parkville Bottle Depot	Porter Wood	Qualicum Beach Bottle Depot	
Packaging and Paper Products	Beverage cont.	X	X			X		X				X			X			X	X		X		
	Cardboard	X	X			X	X	X	X	X		X	X	X				X	X		X		
	Glass	X							X	X	X		X					X	X				
	Milk jugs	X	X			X		X	X	X		X	X	X				X	X		X		
	Mixed paper	X	X			X	X	X	X	X			X					X					
	Newsprint	X	X			X	X	X	X	X			X					X					
	Plastic 1-7	X	X			X	X		X	X			X					X					
	Plastic bags	X					X		X			X			X				X		X		
	Waxed cartons	X	X			X		X	X	X		X	X	X					X		X		
	Styrofoam	X																	X				
	Extended Producer Responsibility	Small appliance	X								X		X			X	X			X			
Electronics		X								X		X			X	X			X				
Paint/Solvent		X													X				X				
Gasoline		X													X				X				
Pesticide		X													X				X				
Antifreeze		X								X					X								
Used Oil		X								X													
Batteries		X								X		X			X								
Car battery		X								X			X		X		X	X	X				
Cellphone		X										X			X								
Fluores. Tubes		X								X													
Lg Appliances		X						X		X			X	X	X				X	X	X		
Medications				X																			
Smoke alarm		X																					
Tires		X																					
Construction/Demo	CD				X			X					X										
	Wood Waste	X			X			X		X	X	X	X					X		X			
	Yard Waste	X			X			X			X	X	X					X		X			
	Land Clearing				X			X				X									X		
	Gypsum				X			X											X				
	Asphalt Shingles				X			X					X	X					X				
Misc	Textiles*	X	X			X																	
	Scrap Metal	X			X	X		X				X			X			X	X	X			

* Textiles are collected in the RDN program.

SWMP Level of Service Considerations from RSWAC

Topic Area	Service	Scope	RSWAC interest in pursuing concept	Implications			
				Operations	Convenience	Diversion Estimate	Financial
				Type of service discussed	Describe potential implementation process	High, Medium or Low	Briefly describe operations
Residential Curbside	Consider collecting non-deposit glass container as part of residential curbside service	Collection trucks required for dedicated glass collection only service. Staff scoped service for triannual collection (three collections per year) to all RDN-served homes (not City of Nanaimo).	Medium	Likely to impact existing depot collection network (reduced revenue stream for them). Would require MMBC approval to change current collector contract(s). May require change to current curbside collection contract(s) to deploy dedicated glass collection vehicles.	For those who will hold glass for 4 months between pickups = High. For the rest = Insignificant to Low.	0.5%	Capital: nil Operating: \$190,000/year to add triannual service to current RDN contract. Approx. extra \$7 added to residential annual utility bill.
Residential Curbside	Explore options to collect residential yard & garden waste at the curb	Collection trucks required for dedicated yard waste collection service. Previous contract RFPs (RDN program not City of Nanaimo) provide level of background costing information based on bi-weekly nine month service. City considering implications as they phase in automated collection over next three years.	Medium	Dedicated collection vehicles required, along with the ability for a processing facility to receive and process the material. Currently Y&G handled through range of facilities - curbside collection will impact them. May be possible to co-mingle food and yard. Possibly better suited to automated collection with standard sized totes.	Varies but likely medium to high. Past surveys have shown 40-60% support for a Y&G waste collection however this drops when cost to collect is known.	0.3 % based on amount of Y&G currently in the curbside stream. Approx. 12,000 tonnes of Y&G is currently handled outside of the RDN system - if collection was set up a portion of this will be captured at curb thereby boosting waste generation and diversion numbers.	Capital: nil Operating: Additional \$50/year added to utility bills for home (RDN customers) based on past studies
Residential Curbside	Compliance and Enforcement to Improve Diversion (Curbside Collection Programs)	Continue employing outreach and education as primary tool to encourage effective use of curbside program; consider applying and actively enforcing bans on materials at the curb (i.e., enforce use of food waste collection).	Medium	Minimal additional staffing required to continue previous education efforts. Introducing disposal bans at the curb and enforcing them requires additional resources.	Low (potential for High inconvenience)	1 - 3 % range for additional outreach and for enforcing use of food waste collection.	Capital: nil. Curbside Enforcement Staffing: \$27,000, Education & outreach efforts: \$36,000, Administration: \$12,000. This excludes cost for City of Nanaimo. implement residential disposal bans for curbside materials.

SWMP Level of Service Considerations from RSWAC

Topic Area	Service	Scope	RSWAC interest in pursuing concept	Implications			
				Operations	Convenience	Diversion Estimate	Financial
				Type of service discussed	Describe potential implementation process	High, Medium or Low	Briefly describe operations
Regional Facilities	Provision of Share Sheds at Regional Facilities	Construct and operate "share sheds" which give customers the opportunity to donate items in good condition for re-use by others instead of landfilling.	Low	Siting of a building to accommodate this service; considerations for traffic flow and safety; staffing to ensure materials left to be shared do meet a minimum standards (and the shed does not become a cheaper disposal alternative for end-of-life items).	Low to Medium. Customers have expressed a level of interest to have share shed or donation opportunities co-located where they take their landfill items. There are numerous not-for-profit and for profit examples locally where re-usable items can be donated.	0.3 % - 0.5 %	Capital: \$13,000 to \$56,000 (for a shed at each facility - cost depends on type and size of shed) Operations: \$190,000/yr. for staffing at both locations
Regional Facilities	EPR Stewardship depots established at Regional Facilities	Become a "take back" location of stewardship items. There are currently 17 Stewardship Agencies in BC for items such as paint and paint products, household lighting and fixtures, thermostats, cell phones, small appliances, batteries, tires, and smoke alarms tanks. The RDN currently does not provide services for EPR type materials as the 2004 Zero Waste Plan identified this is best provided by the private sector.	Low	The Stewards determine the site requirements, which may include secure storage, protection from weather, supervised collection, and paved surfaces for easy pickup of large bins. The Stewards work with the facility to set up and train staff to identify which items are accepted or not accepted. RDN may not be picked up by some EPR programs if they determine that coverage for their items is sufficient in this region.	High. Facilities are compensated by some of the EPR programs for the recycling they collect; therefore, a drop-off fee can not be charged. EPR drop-off areas must be separate from garbage and other non-EPR recycling areas to appropriately track disposal. This may limit the convenience for traffic through the facilities, given the current site layouts.	0.25% - 0.5 %	Capital: \$248,000 (dependent on number of stewardship programs signing RDN as a location; and on their site requirements). Operations: \$384,000/yr. staffing costs
Regional Facilities	Complimentary Drop Off Days	Allowance for a "no-charge" drop off day at regional facilities where the cost is covered through taxation	Low	Reintroduction of "Complimentary Disposal" service at RDN Solid Waste Facilities.	High	Decrease in waste diversion. High customer traffic means less time for screening for attendants.	Approximately \$42,500 per day in lost revenue and additional staffing requirements.
Regional Facilities	Household Hazardous Waste	The Regional District to fund drop off events for non-stewarded residential HHW.	Further discussion required	RDN to run annual drop off events for non-stewarded HHW.	High	<1%	Operations: \$80,000-\$100,000 to run annual Non-stewarded HHW drop off events.

SWMP Level of Service Considerations from RSWAC

Topic Area	Service	Scope	RSWAC interest in pursuing concept	Implications			
				Operations	Convenience	Diversion Estimate	Financial
				Type of service discussed	Describe potential implementation process	High, Medium or Low	Briefly describe operations
ICI	Industrial, Commercial, Institutional (ICI) & Multi-Family Diversion	Increased enforcement and education of existing landfill bans and a relaunch of Commercial Organics Diversion Strategy and Multi-Family Diversion Strategy	High	The RDN continues to work within the current regulatory authorities under the existing SWMP to improve ICI organics and recycling diversion which may include increased education and awareness and/or increased enforcement of current landfill bans at the landfill and transfer station.	Low (potential for High inconvenience)	3.1%	1 new FTE or equivalent at \$80,000/year including benefits to oversee the new ICI diversion strategy. \$20,000/year in administrative costs to run the program. \$100,000/year for increased enforcement.
		Introduction of economic and regulatory tools that encourage diversion. Through the SWMP the RDN requests additional authorities to further drive diversion of recycling and organics within the ICI and Multi-Family sectors which could include Mandatory Waste Collection, Waste Hauler Franchising, Waste Haulers as Agents, or Waste Source Control.	Low support for Franchising	Varies depending on the type of regulatory tools implemented.	Low (potential for High inconvenience)	7.9%-11% Includes 3.1% from education & enforcement	No Financial estimate available at this time as cost projections are dependent on the type of additional regulatory authority granted.
ICI	Construction, Demolition Waste	Enhanced education and communication	High	Improve and reintroduce education and communication regarding C&D waste in the region.	Low	1%	\$20,000 Education
		Enhanced regulation within existing authorities	High	Enhanced regulation would be carried out in conjunction with increased education.	Moderate	2%	\$20,000 for Education \$20,000 Regulation
		Additional Regulatory Authority	High	Varies depending on the types of regulatory tools implemented.	Moderate	4%	Unknown at this time

SWMP Level of Service Considerations from RSWAC

Topic Area	Service	Scope	RSWAC interest in pursuing concept	Implications			
				Operations	Convenience	Diversion Estimate	Financial
				Type of service discussed	Describe potential implementation process	High, Medium or Low	Briefly describe operations
Zero Waste	RDN Zero Waste Plan	Education	High	Enhanced public education regarding solid waste management in the region in addition to existing education programs.	High	Not quantifiable	\$20,000-\$40,000 in administrative costs
		Advocacy	High	The RDN continues to advocate for greater waste diversion in region by engaging with federal, provincial and local government agencies as well as BC stewardship groups such as MMBC.	N/A	Not quantifiable	Variable
		RDN Purchasing Policy	High	RDN to establish a sustainable purchasing policy for internal operations which would include best management practices for source separation.	Nominal	Minimal	Minimal
		Zero Waste Definition	High	Adopt Zero Waste International Alliance zero waste definition	N/A	Not quantifiable	N/A

SWMP Level of Service Considerations from RSWAC

Topic Area	Service	Scope	RSWAC interest in pursuing concept	Implications			
				Operations	Convenience	Diversion Estimate	Financial
				Type of service discussed	Describe potential implementation process	High, Medium or Low	Briefly describe operations
Residual Management	Residual Management	Landfill	Medium	Continue to operate a regional landfill for residual disposal.	N/A	N/A	Variable
		Waste Export	Medium	Consider waste export when the life span of the current landfill is complete.	N/A	N/A	Variable
	New and Emerging Technologies	Anaerobic Digestion (AD)	Low	Anaerobic Digestion (AD)	N/A	N/A (Estimated 82% Diversion achievable overall)	\$24 M - Capital costs. O&M Cost per year: \$3.6 M net revenue Net Cost per tonne: \$90
		Conventional combustion (Mass Burn)	Low	Conventional combustion (Mass Burn)	N/A	N/A (Estimated 93% Diversion achievable overall)	\$74 M - Capital Costs O&M Cost per year: \$4.5 M net revenue Net Cost per tonne: \$85
		Gasification/Pyrolysis	Low	Gasification/Pyrolysis	N/A	N/A (Estimated 97% Diversion achievable overall)	\$90 M - Capital Costs. O&M Cost per year: \$6.4 M net revenue Net Cost per tonne: \$120
		RDF	Low	RDF	N/A	N/A (Estimated 97% Diversion achievable overall)	\$14 M -Capital Costs. O&M Cost per year: \$1.3 M net revenue , Net Cost per tonne: \$25
		Material Recovery Facility (MRF)	Medium	Material Recovery Facility (MRF)	N/A	N/A (Estimated 85% Diversion achievable overall)	\$16 M - Capital Costs. O&M Cost per year: \$2.1 M net revenue , Net Cost per tonne: \$40

TO: Regional Solid Waste Advisory Committee **MEETING:** May 25, 2017

FROM: Sonam Bajwa
Special Projects Assistant **FILE:** [Click here to enter text.](#)

SUBJECT: Stage 2 Solid Waste Management Plan Consultation and Communications Summary 2017

RECOMMENDATION

1. That the Regional Solid Waste Advisory Committee receives this report for information.

SUMMARY

The Regional District of Nanaimo (RDN) is undertaking a review of its Solid Waste Management Plan (SWMP). The current plan review is intended to chart the course for solid waste management for the next ten years. A review is carried out in a three stage process as follows:

- Stage 1: Review of the Current System
- Stage 2: Consideration and Selection of the Preferred Future Options
- Stage 3: Adoption of the Preferred Options and Development of the Implementation Schedule

Public consultation is a mandatory element of the SWMP development. On November 25, 2015, the report *RDN Solid Waste Management Plan Community Consultation Summary* was released which summarized consultation activities from initiation of the planning review in the fall of 2013 to the fall of 2015. This report is a continuation of the November 2015 report and updates consultation activities up to the end of Stage 2.

On December 1, 2016, the Regional Solid Waste Advisory Committee (RSWAC) endorsed the Draft Stage 2 SWMP to be released for public consultation. Subsequently, the Draft Stage 2 SWMP report was sent to a wide range of stakeholders in the region. The package included an offer for RDN staff to present or discuss the report along with a request for feedback and/or comment by the end of February.

A total of 77 different groups were contacted, including municipal councils, First Nations, business, industry, hospitality, institutions, regional districts, and community organizations. A list of those contacted for Stage 2 consultation is presented in Attachment 1 and questions and comments received during the consultation period are presented in Attachment 2. The overall response can be characterized as follows:

- Support for effort to increase commercial and multifamily diversion and increased education and enforcement.
- Support for 90% diversion goal.
- Do not support the RDN investing in a material recovery facility.
- Open to seeking additional regulatory tools, pending further detail and discussion.

BACKGROUND

The SWMP has been amended three times since provincial approval of the original Plan in 1988. The RDN fully implemented their last SWMP, which was prepared in 2004. The status of the current SWMP review is as follows:

- Stage 1 (completed) – Review and analysis of current solid waste management system, status of the 2004 Plan, and identification of issues and opportunities for improvement;
- Stage 2 (nearing completion) – Identify and review options to address the region’s future waste management requirements, select preferred options and prepared report presenting the findings;
- Stage 3 (summer/fall 2017) - Prepare a draft updated SWMP with an implementation timeline and costing, carry out a public review of the draft plan, incorporate changes from the public review and finalize the plan.

Consultation is a mandatory component of the solid waste management planning process and is critical to the creation of a plan that is supported by the public. The Ministry of the Environment (MoE) outlines the expected components of a community consultation process in their document *Guide to the Preparation of Regional Solid Waste Management Plans by Regional Districts*. In addition, the RDN has a public consultation/communication framework to ensure a consistent, comprehensive and cost-effective approach to public consultation and communication initiatives.

This framework, along with the Ministry’s guide, was used to prepare the Consultation & Communications Plan, which was presented and supported by the RSWAC and the Solid Waste Management Select Committee. An external consultant with expertise in solid waste management planning also reviewed the plan and confirmed that it is consistent with provincial requirements. A copy of the plan was also sent to the Ministry of Environment.

The Consultation & Communications Plan is intended to achieve the following objectives: ensure that the process to develop the SWMP is collaborative and reflects a broad range of perspectives; provide opportunities to educate the public about the SWMP and future options for managing waste, provide opportunities for public input on a range of options and estimated costs, increase support for the resulting solid waste management planning and programs and meet the consultation expectations of the Ministry of the Environment.

Regional Solid Waste Advisory Committee

The Regional Solid Waste Advisory Committee (RSWAC) plays a significant role in representing the community’s interests with the expectation that their perspectives will largely reflect those of the broader community. The RSWAC is made up of a cross section of representatives from the community and as intended to address social, business, technical and political interests.

RSWAC provides advice to the RDN Board via the Solid Waste Management Select Committee, which is made up of a subset of the Board.

The RSWAC is chaired by a non-voting RDN Board member to provide a direct link between the advisory committee and the Select Committee and Board. In 2016 the RSWAC met 9 times to discuss the SWMP update. Current membership of the RSWAC is provided in Attachment 3.

Consultation & Communications

A list of 77 groups contacted for Stage 2 consultation is presented in Attachment 1 and comments received during the consultation period are presented in Attachment 2.

Public Communications:

A number of communication tools have been employed during the SWMP update process to keep the community informed and hear their opinions, including:

- Residential Newsletters:
 - A brief introduction to the Stage 2 SWMP Highlights was included on the front page of the spring 2017 Zero Waste Newsletter mailed out to all residential homes in the RDN.
- RDN Website
 - The RDN website has a dedicated SWMP webpage that is updated regularly with information about the SWMP process. Information posted includes:
 - RSWAC agendas and minutes
 - Technical memoranda/discussion papers
- Community Events
 - Staffed information displays on the SWMP were in place at several community events:
 - Communities Protecting Our Coast - *Plastic Ocean* Film community viewing. - January 6, 2017 & January 22, 2017.
 - Water Day – March 12, 2017
 - Earth Day – April 23, 2017

Local and Regional Government Consultation:

- Municipal councils are a key stakeholder in the planning process and the Communications and Consultation Plan aims to keep the Councils informed of the Plan’s development. The Draft Stage 2 Solid Waste Management Plan highlights were presented as follows:

City of Nanaimo Council Meeting	January 23, 2017 – 7:00pm
District of Lantzville Council Meeting	January 23, 2017 – 7:00pm
RDN Special Board Meeting	January 24, 2017 – 4:30pm
City of Parksville Council Meeting	February 6, 2017 - 6:00pm
Town of Qualicum Beach Special Council Meeting	February 22, 2017 – 10:00am

The RDN received many questions from city councils, some regarding the licensing of waste haulers as agents and other options considered that are not going forward. Feedback was amenable to exploring waste haulers as agents. There was also support for mandatory source separation increased education and enforcement.

- The RDN met with Cowichan Valley Regional District (CVRD) to discuss the options presented in Stage 2 draft of the SWMP and reached out the Comox Valley Regional District and Alberni Clayoquot Regional District as well. The CVRD was receptive to the SWMP and indicated general support.

Stakeholder Consultation:

- Local business associations:
 - The RDN sent consultation invites to local business associations in the region including downtown improvement, construction, strata owners and hotel associations.
 - The RDN presented the SWMP to the Nanaimo Chamber of Commerce on Feb 22, 2017. Comments and questions received support efforts to increase commercial and multifamily diversion.
- Vancouver Island Strata Owners Association:
 - The RDN met with the Vancouver Island Strata Owners Association on April 2, 2017.
 - Comments and questions received concerned the timeline for source separation regulation and how that might affect stratas. There was support for the SWMP overall, specifically support for an increase in education.
- Waste Industry:
 - On February 28, 2017 the RDN hosted a consultation with solid waste industry representatives. Approximately 30 people were in attendance.
 - There was a wide range of opinions from industry. Some were receptive to the fee differential provided the RDN would give more details on what it would look like. Others were firmly against the RDN investing in a Material Recovery Facility (MRF). Many were uncertain of what the SWMP would mean for the future of their business.
 - The RDN received a letter from Vancouver Island Recycling and Waste Industry Coalition highlight areas of the SWMP they support and areas they do not, included in attachment 4. Two key policy messages are:
 - 1) Local governments should not be in competition with the private sector. The role of local governments should be to adopt a target setting, education and enforcement role.
 - 2) Open and fair competition in the sector will create value for residents while keeping costs low. Industry investment in infrastructure can only happen when government sends a clear signal that it will not build competing infrastructure or restrict free trade.
- Other Stakeholders
 - The RDN reached out to a number of other stakeholders such as hotels and inns, community groups, BC Ferries, Vancouver Island University, Vancouver Island Health Authority (VIHA) and School District 68 and 69.
 - The RDN presented to 11 VIHA Environmental Officers on January 25th, 2017. Overall comments and questions received support efforts to increase diversion from the commercial sector.
 - February 15th, 2017 North Cedar Improvement District – Receptive to the plan but suggest that there needs to be a focus on making recycling more convenient for all demographics.

First Nations Engagement:

Local First Nations have been included in the consultation process. To date they receive meeting invites to RSWAC as well as the agendas, meeting minutes and technical information.

RDN Staff hand delivered consultation invitations to Snaw-Naw-As First Nation, Qualicum First Nations and Snuneymuxw First Nation in hopes of discussing any possible implications the Draft Stage 2 SWMP report may have. No replies were received.

FINANCIAL IMPLICATIONS

There are no Regional District of Nanaimo budget implications associated with adopting this report.

STRATEGIC PLAN IMPLICATIONS

Considering the environmental impacts of solid waste aligns with the RDN Strategic Priority of protecting and enhancing our environment in all decisions under “Focus on the Environment”. The SWMP also aligns with investing in regional services that look at both costs and benefits as part of “Service and Organizational Excellence”. The consultation process presented in this report is consistent with the Ministry of Environment’s requirements for community consultation.

Sonam Bajwa
Sbajwa@rdn.bc.ca
March 16, 2017

Reviewed by:

- L. Gardner, Manager
- R. Alexander, General Manager
- P. Carlyle, Chief Administrative Officer

Attachments

1. List of Stakeholders Contacted for Stage 2 Consultations.
2. Feedback from Stage 2 Consultation
3. Current RSWAC Membership
4. Letter from VIRWC

Attachment 1 – List of Stakeholders Contacted for Stage 2 Consultations.

Stakeholder Type	Organization Name
Business Association	Downtown Nanaimo Business Improvement Association
	Better Business Bureau
	Qualicum Beach Downtown Business Association
	Downtown Parksville Business Association
	Parksville Chamber of Commerce
	Greater Nanaimo Chamber of Commerce
	Qualicum Chamber of Commerce
Environmental Organization	Zero Waste Nanaimo
First Nations	Snaw-Naw-As First Nation
	Snuneymuxw First Nation
	Qualicum First Nation
Government Association	Association of Vancouver Island and Coastal Communities
Hospitality Industry	BC Ferries
	Beach Acres Resort
	Best Western Dorchester Hotel
	Coast Bastion Inn
	Days Inn Nanaimo Harborview
	Howard Johnson Harbour side Hotel
	Inn on Long Lake
	Ocean Trails Resort
	Qualicum Bay Resort
	Qualicum Beach Inn
	Quality Resort Bayside
	Sand Pebbles Inn
	Seaview Beach Resort
	Shady Shores Beach Resort/Log House
	Tigh-Na-Mara Seaside Spa Resort & Conference Centre
Wheatsheaf Inn	
Industry Association	Vancouver Island Strata Owners Association
	Canadian Home Builders Association - Central Vancouver Island
	Vancouver Island Construction Association
	British Columbia Restaurant and Food Service Association
	BC Hotel Association
Municipal Partner	City of Parksville
	District of Lantzville
	City of Nanaimo
	Town of Qualicum Beach
	North Cedar Improvement District
Neighbouring Regional District	Cowichan Valley Regional District
	Alberni-Clayoquot Regional District
	Comox Valley Regional District
School/Institution	Vancouver Island University
	Vancouver Island Health Authority
	NRGH Home Dialysis Program & Nanaimo Kidney Care Clinic
	School District 68
	School District 69

Service Organization	Nanaimo North Rotary
	Rotary Club of Nanaimo Daybreak
	Rotary Club of Lantzville
Waste Industry	Got Junk
	Haarsma
	DBL disposal Services
	Milner group
	Alpine disposal
	Progressive Waste Inc.
	Island Removal
	Emterra
	The Most Affordable Junk Removal
	Contain A Way Services
	Sun Coast Waste Services
	Nanaimo Exteriors
	Regional Recycling
	Carl's Metal Salvage
	Gabriola Island Recycling Organization
	Parksville Bottle Depot
	Nanaimo Organic Waste
	Earthbank Resources Systems
	Cascades Recovery Inc.
	Coast Environmental Services
	Nanaimo Recycling Exchange
Waste Management	
Super Save Group	
DJC Services	
Waste Management Association	Air and Waste Management Association, Vancouver island Chapter
	Waste Management Association of BC
	Vancouver Island Recycling and Waste Industry Coalition
	Coast Waste Management Association

Attachment 2 – Questions and comments received during Stage 2 Consultation.

Advocacy	Ontario has a requirement to reduce plastic packaging every year. Could we implement such a requirement here?	Town of Qualicum Beach Special Council Meeting February 22, 2017
Advocacy	Programs are needed to get manufacturers to take back and recycle their products (particularly appliances and electronics). Can RDN work with stakeholders to improve programs?	Town of Qualicum Beach Special Council Meeting February 22, 2017
Advocacy	Cost of recycling old drywall with asbestos is on the homeowner rather than the manufacturer.	Town of Qualicum Beach Special Council Meeting February 22, 2017
Advocacy	Confusion over the variety of packaging on the market. Will there come a point when all packaging can be recycled?	VISOA April 2, 2017
C&D	Recycling of Construction and Demolition waste is inconsistent, some do a good job, and some send materials to landfill. What can we do?	City of Nanaimo Council Meeting January 23, 2017
C&D	Presentation pie chart showed 2% demolition waste, believe this is higher. How can we reduce demolition waste disposal? What have other RDs done to reduce Demolition waste? Example of Richmond bylaw?	Town of Qualicum Beach Special Council Meeting February 22, 2017
Commercial	Comment regarding “fancy” RD facilities vs “cheap” private facilities.	Town of Qualicum Beach Special Council Meeting February 22, 2017
Commercial	There is some confusion about whether or not recycling is provided for businesses by the RDN.	Town of Qualicum Beach Special Council Meeting February 22, 2017
Curbside Services	Would the RDN endorse/support a yard waste collection program?	District of Lantzville Council Meeting January 23, 2017
Curbside Services	Interest in options to collect glass curbside, support for some service.	North Cedar Improvement District February 15, 2017
Curbside Services	Regulations are ineffective without enforcement. Enforcement needs to be fair.	North Cedar Improvement District February 15, 2017
Curbside Services	A participant thinks there is strong resident support for yard and garden pickup.	RDN Special Board Meeting January 24, 2017
Curbside Services	Glass recycling is less convenient than plastic recycling, which incentivizes plastic use. Would like to see consideration of glass recycling at curbside.	Town of Qualicum Beach Special Council Meeting February 22, 2017

Curbside Services	Can RDN undertake curbside textiles pickup?	Town of Qualicum Beach Special Council Meeting February 22, 2017
Curbside Services	What actually happens to the plastic that gets picked up at curbside? Is it reused/recycled?	Town of Qualicum Beach Special Council Meeting February 22, 2017
Depots	NRE is a great service, but it is unsightly. It needs to be cleaned up.	District of Lantzville Council Meeting January 23, 2017
Depots	Concern that the RDN's plan to increase diversion will lead the RDN to compete with the Depot model.	Email from Depot January 26, 2017
Depots	Noted that NRE receives an RDN subsidy	District of Lantzville Council Meeting January 23, 2017
Depots	There is a gap in accessibility to recycling facilities for people who do not have a vehicle, seniors, and people with disabilities. This results in recyclable materials ending up in the waste.	North Cedar Improvement District February 15, 2017
Depots	Having to take things to recycling facilities is not convenient and results in materials ending up in the waste.	North Cedar Improvement District February 15, 2017
Education	Education is a missing gap in multi-family buildings – they do not receive the same type of information that single family homes do.	VISOA April 2, 2017
Enforcement	Support spot checks as a starting point in “fairly applying monitoring efforts” across all users.	Town of Qualicum Beach Special Council Meeting February 22, 2017
Funding	When residents pay their taxes, does the landfill have a line? Do residents know that their taxes are coming to the landfill?	Waste Haulers Meeting February 28, 2017
Funding	What happens when you lose the revenue from waste because of high diversion rates? Who covers the costs of the RDN programs and the landfill?	Waste Haulers Meeting February 28, 2017
Illegal Dumping	Biggest problem is illegal dumping of large items.	RDN Special Board Meeting January 24, 2017
MRF	Requested that the MMRF option be costed and compared to the model proposed in Stage 2 draft report, and that information be publically available.	Town of Qualicum Beach Special Council Meeting February 22, 2017
MRF	These options give no assurance for industry and downloads burden and costs. RDN should let industry have a free market and have a greater role with more responsibility. You talk about how is government going to shrink, this doesn't	Waste Haulers Meeting February 28, 2017

	seem like it. How do we know these options won't lead to industry insulating government? The RDN should be driving communication and education. A MRF should be an industry investment not government.	
Organics Diversion	Question about burning bans (backyard burning?)	District of Lantzville Council Meeting January 23, 2017
Other Jurisdictions	What is the status of the MetroVan waste to energy proposal?	City of Parksville Council Meeting February 6, 2017
Proposed options	Original intent of "no charge" days was to soften the blow of starting to charge. They were a big headache; do not support reintroducing "free days".	RDN Special Board Meeting January 24, 2017
RDN programs	Will taxpayers see a reduction in cost as a result of these proposals?	District of Lantzville Council Meeting January 23, 2017
RDN programs	RDN should be congratulated for recycling program.	District of Lantzville Council Meeting January 23, 2017
Source Separation	Will you implement a multi-family focus?	District of Lantzville Council Meeting January 23, 2017
Source Separation	How will we achieve 90% goal without source separation?	City of Nanaimo Council Meeting January 23, 2017
Source Separation	How would new regulatory authority help us achieve source separation (commercial and multifamily)?	City of Nanaimo Council Meeting January 23, 2017
Source Separation	Multifamily programs will continue to increase in importance with an aging population.	North Cedar Improvement District February 15, 2017
Source Separation	Some commercial users do not source separate, how can we encourage or require participation?	Town of Qualicum Beach Special Council Meeting February 22, 2017
Source Separation	Can the RDN implement any incentives to encourage source separations by local governments (and commercial business)?	Town of Qualicum Beach Special Council Meeting February 22, 2017
Source Separation	What happens to hospital waste? Would like to see more separation and recycling at hospitals.	Town of Qualicum Beach Special Council Meeting February 22, 2017
Source Separation	What is in the material at the landfill that can still be diverted?	Waste Haulers Meeting February 28, 2017

Source Separation	Is there material that is coming to landfill that can actual be recycled? Is there an end market for this material?	Waste Haulers Meeting February 28, 2017
Source Separation	If organics is such a big issue, the RDN should be educating residents.	Waste Haulers Meeting February 28, 2017
Source Separation	Aggressive policing leads to contamination in the restaurant industry, which makes it difficult to deal with materials.	Waste Haulers Meeting February 28, 2017
Source Separation	Education and enforcement will be an important part of making source separation work in the RDN.	VIHA Presentation January 25, 2017
Source Separation	When would this regulation be implemented, how much notice would multi-family buildings be given of the changes?	VISOA April 2, 2017
Source Separation	Would there be incentives available for stratas to invest in backyard/onsite composting.	VISOA April 2, 2017
Targets	Support for goal of increasing diversion to 90%	City of Parksville Council Meeting February 6, 2017
Targets	Consider other appropriate metrics besides % diversion (cost to taxpayer?)	RDN Special Board Meeting January 24, 2017
Targets	Questions about slide with breakdown of increasing diversion from 68% to 90%. How does 6% + 6% + 10 % work	RDN Special Board Meeting January 24, 2017
Targets	The 90% goal creates a higher cost burden on end users, resulting in illegal dumping.	Town of Qualicum Beach Special Council Meeting February 22, 2017
Targets	How does the RDN plan to monitor progress towards the 90% goal?	Town of Qualicum Beach Special Council Meeting February 22, 2017
Targets	90% is a very high target, it will be expensive and complex, and source separation puts the burden of effort on residents. Some cities collect everything, and then separate at central facilities. This reduces the burden on the individual, and may save money. Has RDN considered this approach?	Town of Qualicum Beach Special Council Meeting February 22, 2017
Targets	Applaud 90% diversion goal, and education component.	Town of Qualicum Beach Special Council Meeting February 22, 2017
Waste Haulers	Agree that private sector can be more innovative.	City of Nanaimo Council Meeting January 23, 2017

Waste Haulers	What does waste haulers as licensees mean?	City of Nanaimo Council Meeting January 23, 2017
Waste Haulers	Can waste disposal firms (haulers) dispose of waste anywhere they want to?	City of Parksville Council Meeting February 6, 2017
Waste Haulers	What does “enlisting waste haulers as licensees” mean?	City of Parksville Council Meeting February 6, 2017
Waste Haulers	What do haulers think of “licensed haulers”?	RDN Special Board Meeting January 24, 2017
Waste Haulers	How many haulers are there? Don’t like passing on costs to small business, mandating separation adds cost to small business.	RDN Special Board Meeting January 24, 2017
Waste Haulers	Based on the individual’s personal experience/observation in Ontario, caution must be used to ensure contracts with private haulers require source separation and recycling.	Town of Qualicum Beach Special Council Meeting February 22, 2017
Waste Haulers	The waste industry is changing as the rest of the world has caught up to North America. We can’t afford to sort recycling. We want to do everything that we can and now you are asking for money from our recycling.	Waste Haulers Meeting February 28, 2017
Waste Haulers	Residents need to pay the bill. Customers are paying for separate streams, but it doesn’t reduce our costs.	Waste Haulers Meeting February 28, 2017
Waste Haulers	Having customers separate their material leads to more greenhouse gasses as more trucks are on the road.	Waste Haulers Meeting February 28, 2017
Waste Haulers	Low hanging fruit, easily divertible material is in commercial and multifamily loads.	Waste Haulers Meeting February 28, 2017
Waste Haulers	As an industry we need a better understanding of what the haulers as agents and fee differential will look like down the line. Document needs to be more specific relating to haulers as agents and flow control.	Waste Haulers Meeting February 28, 2017
Waste Haulers	Hard to commit to investing in the area when there are so many open ended questions in the plan.	Waste Haulers Meeting February 28, 2017
Waste Haulers	Is there any other example where this has been done? (fee differential)	Waste Haulers Meeting February 28, 2017

Waste Haulers	A participant thinks the fee differential is a good idea, and it might lead to tip fee reduction in the long run.	Waste Haulers Meeting February 28, 2017
Waste Haulers	The fee differential is good for depots and haulers. Haulers will pay less overall, and it will be even cheaper if they have no recyclables. If it's expensive for self-haul customers to take material to the landfill they come to depots and other waste facilities in the region.	Waste Haulers Meeting February 28, 2017
Waste Haulers	Will there be annual licensing fee?	Waste Haulers Meeting February 28, 2017
Waste Haulers	What is the difference between licensing agents and flow control?	Waste Haulers Meeting February 28, 2017
Waste Haulers	Overall this is not a bad plan but the fee differential sounds like flow control. It's a great concept, but we need more details before we can support it. Need to know our investments are safe.	Waste Haulers Meeting February 28, 2017
Waste Haulers	Diversion leads to less money coming to the landfill in the long term. These options guarantee fees coming to the landfill, is that why you are doing this?	Waste Haulers Meeting February 28, 2017
Waste Haulers	How long will landfill last? A customer should be able to take material elsewhere? Your customer service is not good.	Waste Haulers Meeting February 28, 2017
Waste Haulers	How will the RDN get the \$30 a tonne for waste accumulation at site if it goes to a different landfill?	Waste Haulers Meeting February 28, 2017
Waste Haulers	As industry, it seems that you think we are not doing a good job at composting and recycling when we are. Why are you going in this direction with changing the fees?	Waste Haulers Meeting February 28, 2017
Waste Haulers	You should have low tip fees and strongly enforced bans, and then you focus on education. That's what has worked in the past and that is what you should keep doing.	Waste Haulers Meeting February 28, 2017
Waste Haulers	Bans and tip fees will only work if you have everyone coming to your landfill.	Waste Haulers Meeting February 28, 2017
Waste Haulers	Do residents pay the same as businesses for user fees?	Waste Haulers Meeting February 28, 2017
Waste Haulers	When the Metro Van bylaw was defeated, they instead gave haulers cheaper tip fees, isn't that easier and the same?	Waste Haulers Meeting February 28, 2017

Waste Haulers	There needs to be a lower tip fee and more bans at the landfill. This will drive the desired behavior without additional regulation.	Waste Haulers Meeting February 28, 2017
Waste Haulers	Some plastics and drywall have no recycling streams available. They must go to landfill.	Waste Haulers Meeting February 28, 2017
Waste Haulers	How will we apply the rules evenly across the Regional District, so everyone contributes fairly?	Town of Qualicum Beach Special Council Meeting February 22, 2017
Waste Haulers	Can the RDN provide a list of preferred haulers in the region?	VISOA April 2, 2017
Waste Haulers	Would haulers have the ability to enforce/fine strata buildings for non-compliance	VISOA April 2, 2017
WSML	Is the audit provision why you are changing the WSML reporting to monthly not annually?	Waste Haulers Meeting February 28, 2017
WSML	As a depot, we don't have tonnage details from the stewardship groups on a monthly basis.	Waste Haulers Meeting February 28, 2017
Zero Waste	We have become a "throwaway society" products are no longer refurbished.	North Cedar Improvement District February 15, 2017
Zero Waste	What does the reference to "subsidies" in the Zero Waste Hierarchy mean?	City of Parksville Council Meeting February 6, 2017
Zero Waste	There are more than 3 R's we need to pay attention to them as well.	RDN Special Board Meeting January 24, 2017
Zero Waste	What affect would a plastic Bag Ban have on waste volumes?	Town of Qualicum Beach Special Council Meeting February 22, 2017
Zero Waste	Will reducing plastics use create other problems, such as increase in glass disposal at landfills?	Town of Qualicum Beach Special Council Meeting February 22, 2017
Zero Waste	Laminated packaging (foil/plastic/other) is becoming more prevalent and is difficult to recycle. What is being done about this?	Town of Qualicum Beach Special Council Meeting February 22, 2017
Zero Waste	Many plastics have no market so it costs money to get rid of it. No matter what the cost of landfilling is, there are some things that are not recyclable.	Waste Haulers Meeting February 28, 2017
Zero Waste	Support the targets and preferred options layed out in the plan	VIHA Presentation January 25, 2017

Attachment 3: Current RSWAC Membership

Board Representative - Chair	Alec McPherson
Board Representative – Vice Chair	Bill McKay
Community Representatives	Matthew Louie
	Wally Wells
	Dr. Jim McTaggart – Cowan
	John Finnie
	Craig Evans
	Ellen Ross
	Gerald Johnson
	Michele Green
	Amanda Ticknor
Industry Representatives	Michael Tripp
	Dean Jones
	Stewart Young Jr.
	Derek Haarsma
Not - for - profit Representatives	Jan Hastings
	Ben Geselbracht
Non-Voting Technical Advisors	
First Nation Representatives	Michael Recalma – Qualicum First Nation
	Nanoose First Nation
	Snuneymuxw First Nation
City of Nanaimo	Geoff Goodall
City of Parksville	Al Metcalf
Town of Qualicum Beach	John Marsh
District of Lantzville	Fred Spears
Ministry of Environment	Al Leaschen
Environment Canada	Karen Muttersbach
Island Health	Glenn Gibson