



SPERLING HANSEN ASSOCIATES

- Landfill Engineering
- Solid Waste Planning
- Environmental Monitoring
- Landfill Fire Control

March 13, 2024

PRJ21104

Daniel Fish, Chief Administrative Officer
North Coast Regional District
14-342 3rd Avenue West, Prince Rupert, B.C. V8J 1L5

Via Email: cao@ncrdbc.com

Re: Transmittal of Final Draft of NCRD 2023 Solid Waste Management Plan

We are pleased to submit the final draft of the NCRD 2023 Solid Waste Management Plan (SWMP) as approved by the Board of Directors on March 6, 2024, for submission to the Ministry of Environment and Climate Change Strategy (Ministry). The fully compiled document includes all of the appendices with the four technical memoranda and has been authenticated under the Limitations section.

You will find the SWMP in whole and in parts through the Sperling Hansen Associates' Drop Box with the link provided by email. I have also, as requested, provided documents in Word through the same link. My understanding is that you will complete the certification and submit the entirety to the Ministry but do call on me if you need any assistance.

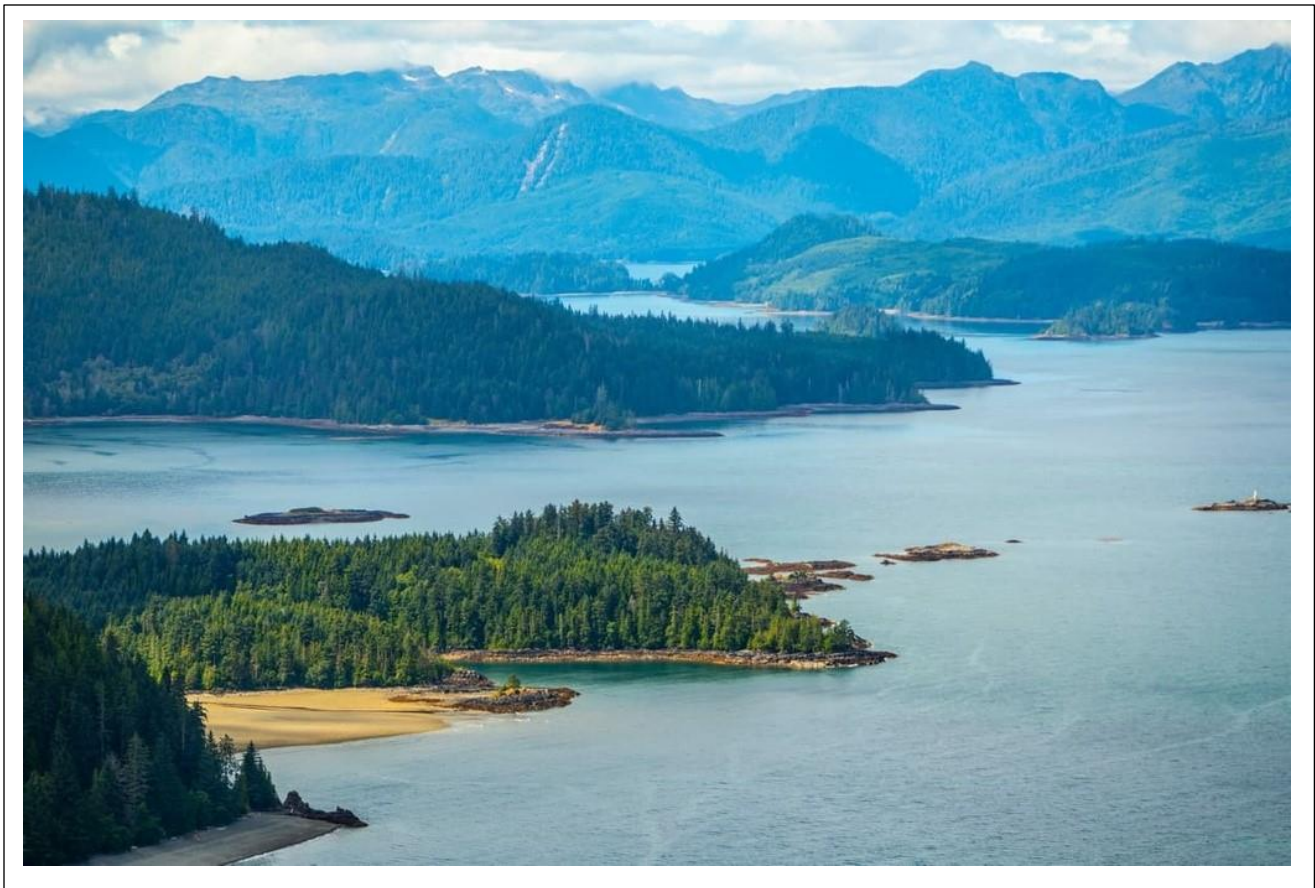
It has been a real pleasure working on this planning process with you and your staff, and I look forward to continuing with the remaining project tasks in a few weeks.

Regards,

SPERLING HANSEN ASSOCIATES

Nicole Kohnert, P.Eng., FEC
Project Manager

SOLID WASTE MANAGEMENT PLAN UPDATE



2023 Solid Waste Management Plan

March 13, 2024

Submitted by: Sperling Hansen Associates

Revisions:

Draft 1 – September 12, 2022

Draft 2 – June 15, 2023

Draft 3 – February 26, 2024

Final Draft – March 13, 2024:

Transmittal to NCRD for submission to Ministry of Environment & Climate Change Strategy

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EXECUTIVE SUMMARY

In British Columbia, regional districts develop solid waste management plans (SWMPs) under the provincial *Environmental Management Act*. This plan, an update of the 1996 original plan, provides a long-term vision of how the North Coast Regional District (NCRD) intends to manage its solid waste services. The Plan will guide the solid waste management activities and policy development for the next five to ten years.

For this Plan, the items addressed are:

1. Improve regular examination of each solid waste management service so that they can be refined and modified as necessary to improve efficiency.
2. Implement an advisory committee to assist with managing the Island Solid Waste Service.
3. Improve waste diversion by prohibiting materials from disposal that have an alternative use or can be recycled under a viable and sustainable program (e.g. EPR).
4. Update waste management bylaws.
5. Dedicate time and resources to waste reduction communication and education in the region.
6. Optimize residential and commercial diversion of recyclables and reuse items.
7. Manage use of single-use items such as plastic grocery bags, take-out containers.
8. Divert organics such as food, yard waste and clean wood that are an estimated 25% of the waste stream from the residential and commercial sectors.
9. Improve management of hazardous waste and problem waste.
10. Implement an illegal dumping management strategy.
11. Optimize programs and facilities to ensure financial sustainability.
12. Improve the economic viability, sustainability, and fee equity of solid waste management services.
13. Consider consolidating and centralizing services to build efficiencies, reduce costs, and simplify management.
14. Recommend changes to existing services that minimize stakeholder push-back and new costs.

This plan provides strategies, actions and a sustainable financial approach to address these objectives.

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ACRONYMS AND ABBREVIATIONS

BC	British Columbia
NCRD	North Coast Regional District (formerly Skeena-Queen Charlotte Regional District)
EA	Electoral Area
ENV	Ministry of Environment and Climate Change Strategy
EMA	Environmental Management Act (formerly Waste Management Act)
Guide	A Guide to Solid Waste Management Planning
HWR	Hazardous Waste Regulation
IL	Island Landfill
ISWAC	Island Solid Waste Advisory Committee
ISWM	Island Solid Waste Management
MARR	Major Appliance Recycling Roundtable
MSWAC	Mainland Solid Waste Advisory Committee [now RRAC]
MSW	Municipal Solid Waste
PRL	Prince Rupert Landfill
PTAC	Public and Technical Advisory Committee
RRAC	Regional Recycling Advisory Committee
SWWG	Solid Waste Working Group
SHA	Sperling Hansen Associates
SWM	Solid Waste Management
SWMP	Solid Waste Management Plan
TM	Technical Memo

1 INTRODUCTION

The North Coast Regional District (NCRD) is in the process of developing a new Solid Waste Management Plan (SWMP). The plan will guide the NCRD solid waste management services over the next five to ten years, providing direction on waste collection, waste disposal, recycling, waste reduction and service cost recovery. SWMPs are required for all regional districts in British Columbia under the Environmental Management Act (EMA). NCRD's first and only SWMP was adopted in 1996 under the former Skeena-Queen Charlotte Regional District and several intended initiatives have been implemented.

In 2016, the Ministry of Environment and Climate Change Strategy (ENV) published "A Guide to Solid Waste Management Planning" (the Guide) for local government to assist in completing SWMPs and updates that sets out the 5 R pollution prevention hierarchy, the solid waste management legislative requirements, provincial principles and targets, as well as considerations for smaller, rural regional districts. The Guide lays out a four-step process for the plan update including public consultation and provides templates for document development, the consultation report, advisory committee terms of reference and checklists. The NCRD completed the first step of the process by initiating the planning process and establishing a Public and Technical Advisory Committee (PTAC) who met twice prior to hiring a consulting firm to help the NCRD step through the rest of the process. The PTAC developed the consulting budget and compiled a list of topics to consider. Step 2 was completed by the consultant, NCRD staff and the PTAC through development and review of four technical memorandums by the PTAC in four more meetings and by the Board of Directors in two regular meetings. The memorandums attached as Appendices C, D, E and F were working documents that remain in their original approved state even as additional and more accurate information came to light. Any new information or clarifications are included in the SWMP.

1.1 The Plan Update Process

Sperling Hansen Associates (SHA) was hired in November 2021 to assist with the SWMP update to its final submission to the ENV in 2023. The following tasks as outlined in SHA’s proposal will be completed.

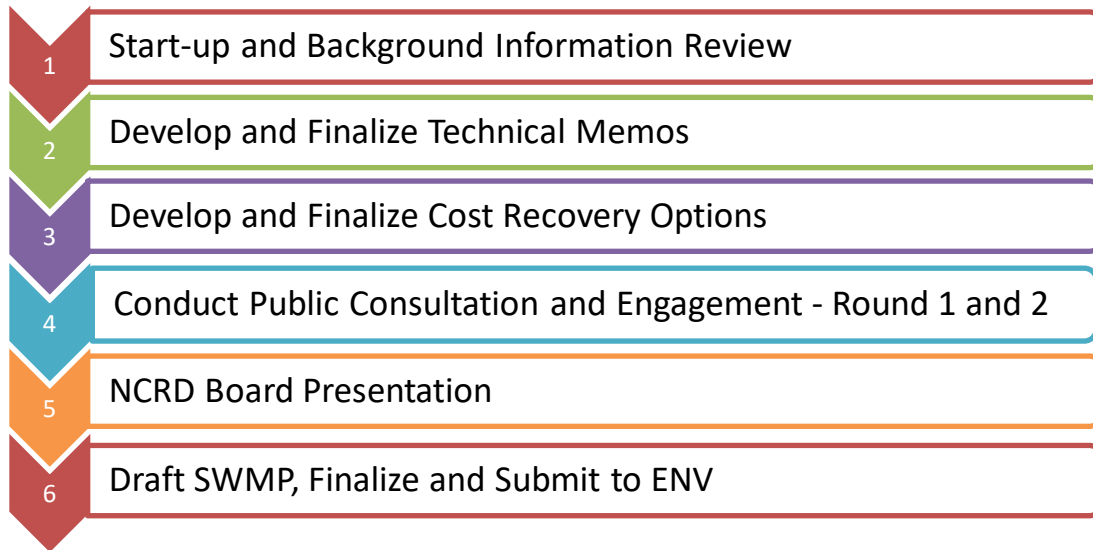


Figure 1-1: SHA's Project Tasks

Tasks greyed out above have been completed and tasks Round 2 of Task 4 to 6 are planned to be completed by November 2023.

Task 2 as listed above and shown illustrated below aligns with the Guide’s Step 2: Set the Plan Direction and Step 3: Evaluate Options as follows:

Step 2:

- (a) Identify principles, goals and targets
- (b) Prepare background information
- (c) Assess the current solid waste management system
- (d) Consider trends affecting solid waste management
- (e) Consult the public

Step 3:

- (a) Develop potential strategies
- (b) Assess the financial and administrative implications.

(c) Consult the public and interested parties on the options.



Figure 1-2: Step 2 and 3 Task Orientation

Technical Memos (TM) were drafted for review by the NCRD staff and then presented to PTAC in four separate meetings. The topics for each TM were as follows:

- Technical Memo 1: System Overview and Waste Diversion
- Technical Memo 2: Residuals Management
- Technical Memo 3: Cost Recovery
- Technical Memo 4: Service Review
- Public Consultation Report

Task 3 of SHA’s scope of work, Develop and Finalize Cost Recovery Options, has been reassessed by NCRD staff and will be completed internally by the NCRD when the Final SWMP is presented to the Board of Directors.

Still part of the Guide’s Step 3, and prior to moving into Step 4 of the SWMP development process, this second draft of the SWMP update will be presented to the NCRD Board of Directors before it is taken to the public for the second round of consultation as per the PTAC adopted Public Consultation Plan attached in Appendix A.

2 CONTEXT AND SCOPE

This Second Draft SWMP Report compiles the content of Technical Memos 1, 2, 3 and 4 for presentation to the public and stakeholders for input prior to finalization of plan strategies in the Final SWMP. Along with a comprehensive overview of the NCRD's current waste management system, this Second Draft SWMP Report provides the following:

- (a) A review of the NCRD's waste management principles, goals and targets
- (b) A detailed description of the Plan Area
- (c) Current diversion programs and the status of the 1996 SWMP including the initiatives that will not be carried through to the updated SWMP
- (d) The outcomes of Step 1 of the SWMP development process including formation of the Public and Technical Advisory Committee (PTAC) and the topics chosen to be reviewed related to waste diversion, residuals management and costs
- (e) Existing diversion strategies and tools
- (f) Diversion opportunities for the NCRD to consider by sector: Residential, Industrial Commercial and Institutional (ICI) and Construction, Renovation and Demolition (CRD) waste
- (g) Current refuse collection and disposal programs, facilities, capacity and associated quantities managed
- (h) Residuals management initiatives
- (i) Current solid waste management system costs
- (j) Solid waste management system cost controls and recovery.

At the outset of this project, it was a priority to gather as much information as possible from the last 25 years to establish a clear picture of the current solid waste management system including its successes, challenges, and opportunities. This was completed using available Internet sources, conversations with the NCRD staff and stakeholders and interested parties, and documents provided by the NCRD.

2.1 Principles, Goals and Targets

With amendments to the *Waste Management Act* (now *Environmental Management Act*) in 1989 the province required all Local Governments to develop a SWMP for approval by 1995 that would help British Columbia (BC) achieve a 50% reduction in municipal solid waste (MSW) disposal by the year 2000. As stated in the NCRD's approved 1996 SWMP, "Overall, the Stage One Report demonstrated that it would be very difficult for the Regional District to achieve the 50% reduction goal by 2000". Although an update or status review of the 1996 SWMP has not been undertaken to date, the NCRD has

completed or implemented 96 of their original 137 initiatives. The list of initiatives is presented in Appendix B with the following color coding:

Innitiative Complete and Carried Forward
Innitiative in Progress and Carried Forward
Innitiative not Complete and Carried Forward
Innitiative not Complete and Not Carried Forward

As outlined in the Guide, there have been many changes in the solid waste management sector over the last 25 years including the following:

- (a) BC’s population is growing, meaning that more waste will be generated and require disposal; however, new disposal sites are difficult to establish, partly due to citizens concerned about the potential and demonstrated impacts of various means of disposal, as well as the increased requirements for proper handling that may also restrict certain sites
- (b) British Columbians are increasingly conscious of the need to “reduce and reuse” and many communities have set the goal of reducing to zero waste through a variety of measures
- (c) A growing number of product stewardship programs exist in BC to take responsibility for end-of-life product management
- (d) Private sector innovation is playing a progressively significant role in the collection and management of waste
- (e) “Waste” is increasingly being viewed as a resource; products that were once sent to landfills are now carefully collected for reuse, recycling and / or recovery
- (f) New waste management and recycling technologies are creating opportunities, with associated job creation and economic benefits (ENV, 2016).

The 5R pollution prevention hierarchy is still front and center in the Guide which recognizes that although local governments have limited ability to influence product design and manufacturing and upstream environmental impacts, this type of planning can help to minimize downstream environmental impacts associated with the end of life of products.

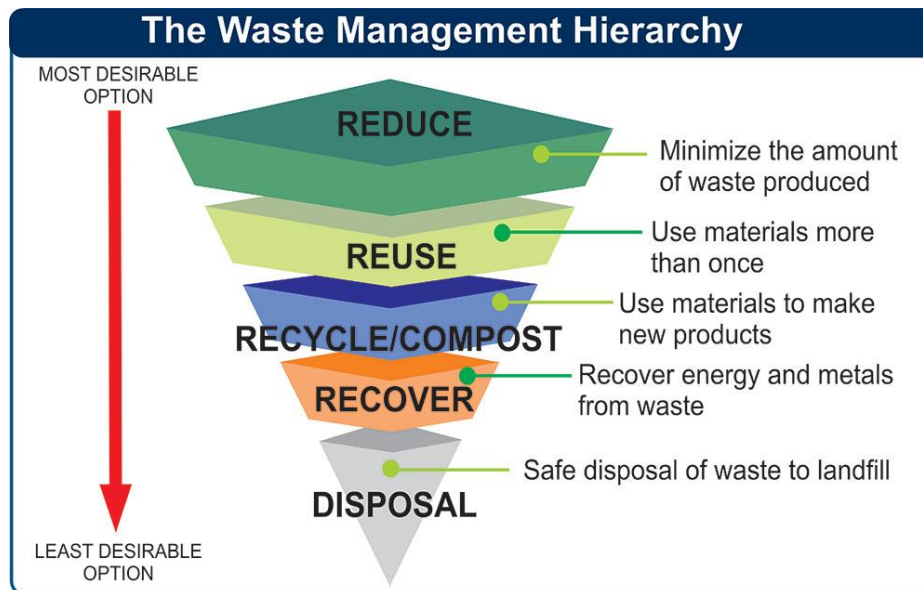


Figure 2-1: Waste Management Hierarchy Diagram

There has been a new emphasis on the circular economy with respect to waste management in both the province and the global environment. This approach can create jobs, promote innovation that provides a competitive advantage and help to protect people and the environment (ENV, 2016).

2.2 Guiding Principles

The Guide outlines eight guiding principles for regional districts to follow in developing and updating their SWMP and encourages regional districts to include additional locally relevant principles. The following is a list of the Province’s eight guiding principles including illustrative descriptions.

Promote zero waste approaches and support a circular economy

This concept shifts thinking of waste as a residual to be disposed to waste as a resource that can be utilized in a closed loop system. Zero waste approaches seek to minimize waste generation at the outset and enable the use and reuse of materials.

Promote the first 3 Rs (Reduce, Reuse, Recycle)

Develop policies that focus on waste prevention programming and consider provincial and regional targets and objectives (e.g., single use plastics ban).

Maximize beneficial use of waste materials and manage residuals appropriately

Look to use technology and best practices to recover energy and reusable materials from the waste stream and continue to develop infrastructure investment.

Support polluter and user-pay approaches and manage incentives to maximize behaviour outcomes

Use market-based incentives, disposal restrictions on industry-stewarded products, zoning to support collection facilities, and support for reuse and remanufacturing businesses to maximize behaviour change and educate consumers and businesses to help foster further waste reduction, reuse and recycling. For example, user and tipping fees can be designed to provide incentives to increase diversion.

Prevent organics and recyclables from going into the garbage wherever practical

Maintain a system to prevent organics and recyclables from going into the garbage at the source or at the disposal facility through curbside or drop off collection programs aimed at producing a clean feedstock for higher beneficial reuse and new product development such as a Class A compost and waste derived fuel (plastic). Reinforce behaviour to reduce, reuse and recycle through disposal site restrictions and education.

Collaborate with other regional districts wherever practical

Collaboration on solid waste management to share markets, campaigns and programs will support efficient and effective overall management of commonly generated waste materials.

Develop collaborative partnerships with interested parties to achieve regional targets set in plans

Seek to develop or strengthen partnerships with interested parties to achieve regional targets to optimize successful outcomes such as with large waste generators and stewardship agencies. Encourage private sector innovation and investment towards achievement of targets.

Level the playing field within regions for private and public solid waste management facilities

Encourage consistent requirements at solid waste management facilities within a given region to drive sustainable and robust economic outcomes. A consistent set of criteria should be used to evaluate the waste management solutions proposed by the private sector.

2.3 Provincial and Local Targets

The ENV has established provincial solid waste management targets that set a direction for regional districts to follow and allow for performance measurement at the provincial level. These targets can be found on the ENV website and are adjusted from time to time to reflect current realities and public expectations. Setting local targets that are achievable, time-bound and demonstrate continuous improvement over time are recommended.

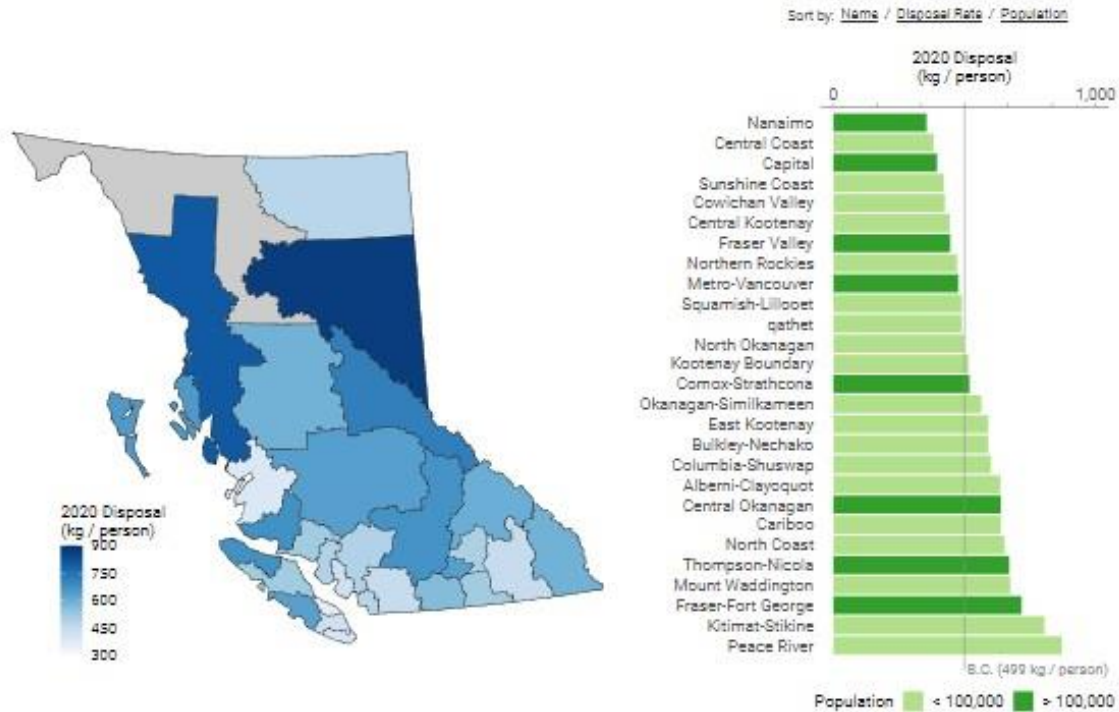
The ENV's current Service Plan outlines the following provincial targets for 2022 to 2025:

Table 1 - Provincial Service Plan Disposal Targets

Target	2022/2023	2023/2024	2024/2025
Per capita municipal solid waste disposal (kg per person)	460	460	440
Per cent of population covered by an organic waste disposal restriction (%)	80	80	80

ENV collects disposal data from regional districts in BC on an annual basis through their Disposal Calculator program (refer to Figure 4 below). This provincial indicator has shown a decrease in average disposal rate in the Province since 2012 of 64 kg per person per year. The Province has supported this reduction through a number of initiatives including CleanBC Plastics Action Plan, extended producer responsibility (EPR) programs, and funding for organics infrastructure and collection.

2020 Regional District Disposal Rates



Disposal Rates in British Columbia (1990-2020)

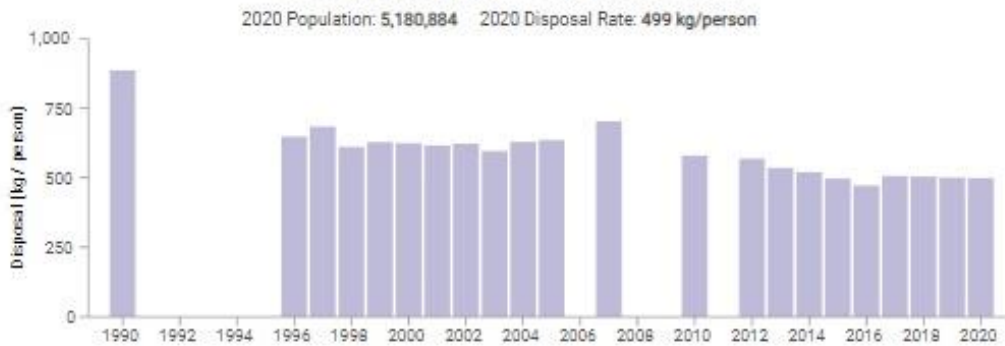


Figure 2-2: Disposal Rate

The NCRD reported their MSW disposal rate to the Province in 2020 to be 652 kg per person per year compared to the provincial average of 499 kg in 2020. The 2021 disposal quantity is reported to be 12,894 tonnes. With a 2021 population of 18,181 based on the 2021 Census the current NCRD disposal rate is estimated to be **710 kg per person per year**; a 9% increase.

2.4 NCRD Guiding Principles and Objectives

In starting the SWMP update process (Step 1), and subsequent to the first round of public consultation, the following principles and objectives were laid out:

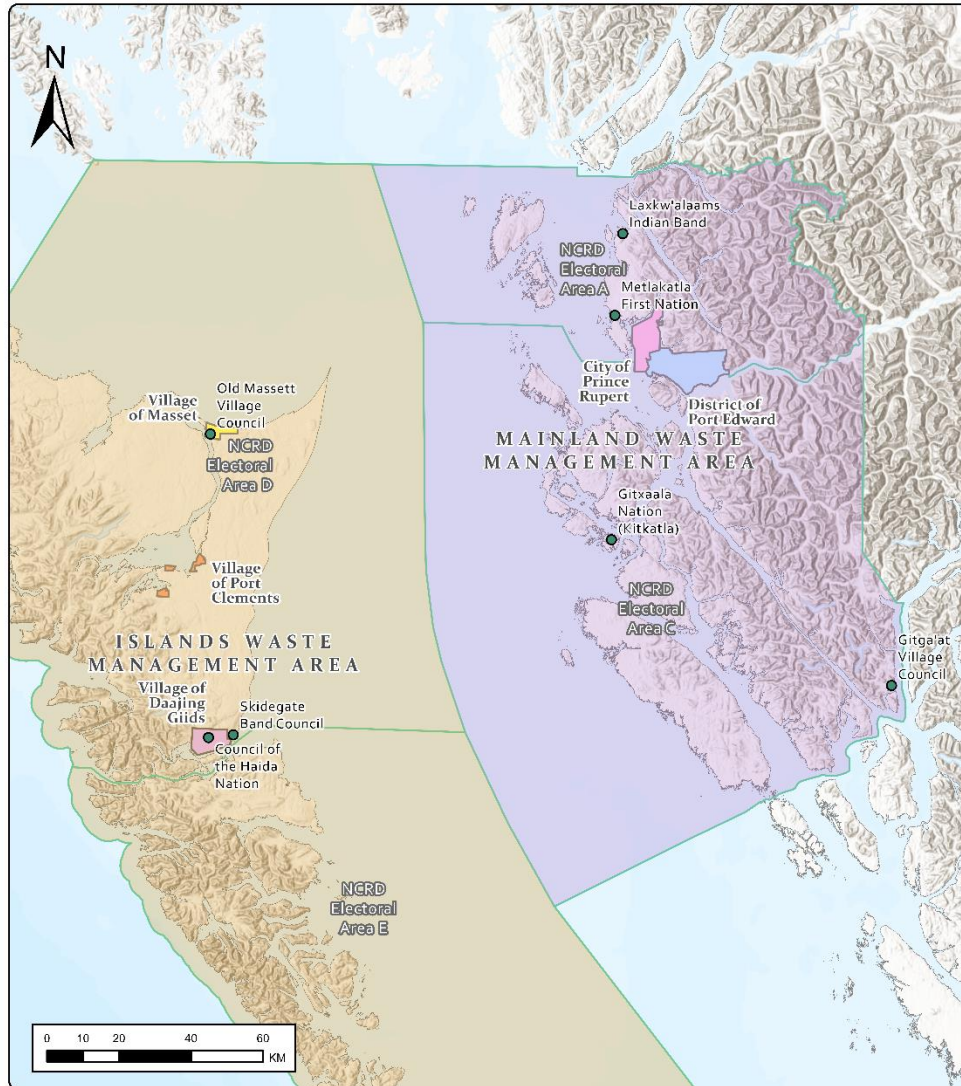
1. Implement this plan in a way that will minimize inconvenience to residents
2. Ensure that possible negative reactions to some plan policies are addressed during implementation
3. Ensure that the public and system users are participants in any modifications to this plan
4. Provide a framework to resolve disputes arising from implementation of the plan
5. Ensure that the entire system is funded to accomplish the goals of this plan
6. Focus the SWMP on:
 - a. Improving the operational and financial efficiency and sustainability of the NCRD waste management systems
 - b. Assisting users to improve their participation in waste segregation and diversion programs
 - c. Continuing to monitor solid waste management facilities and services
 - d. Maintaining and improving relationships with large waste generators
 - e. Maximizing compliance and efficiency with new and existing product stewardship programs
 - f. Improving service delivery to rural communities
 - g. Continuing to consider the importance of convenience for solid waste management programs, services and facilities
 - h. Developing a strategy to reduce single use items
 - i. Developing a food waste reduction strategy including better composting options
 - j. Developing options for compost collection and organics processing in both Service Areas
 - k. Improving recycling collection in the Mainland and Island Solid Waste Service Areas
 - l. Expanding the list of prohibited wastes at disposal sites
 - m. Collecting household hazardous waste
 - n. Outlining possible solutions for removing scrap metal and vehicle stockpiles from facilities, for example, charging a fee to bring a new vehicle onto Haida Gwaii and then return 50% to owner if they remove the vehicle from the Islands when it is no longer useable
 - o. Enhancing and enforcing solid waste source control for the Industrial, Commercial and Institutional (ICI) sector
 - p. Making recommendations respecting the acceptable cost of recycling ICI cardboard and printed paper and plastic
7. The following additional objectives were added subsequent to public engagement and consultation. Focus the SWMP on:
 - a. Improving capture of refundable beverage containers
 - b. Carefully considering timing of strategy implementation, e.g., consider financial burden

- c. Lowering the waste disposal target
- d. Considering the circular economy to create jobs and minimize shipping of recyclable material
- e. Training school age children so they can take best practices for waste reduction home to their parents and caregivers
- f. Implementing an education campaign with current NCRD staff or through the hiring of a Waste Reduction Coordinator that can develop and deliver regular promotion and education information through a variety of means such as Facebook, tours, updated and new website material, public meetings, etc.
- g. Repairing products as well as reducing, reusing and recycling them
- h. Monitoring illegal dumping when programs and services change, especially after user fees increase
- i. Considering waste generated by cruise ships and other tourists in the region, as well as by the marine industry
- j. Ensuring facility hours are well thought out and consider a variety of users, e.g., working parents
- k. Creating access to used products through implementation of 'free stores' at NCRD facilities.

The above list is not exhaustive and can be modified as necessary.

2.5 Plan Area

The NCRD is divided into two Solid Waste Service Areas, the Islands Service Area and the Mainland Service Area (see Figure 2-3).



 SPERLING HANSEN ASSOCIATES Landfill Services Group • Landfill Siting • Design & Operational Plans • Landfill Closure • Environmental Monitoring #6 - 1225 Keith Road North Vancouver, B.C. V7J 1J3 Phone: (604) 986-7723 Fax: (604) 986-7734	CLIENT:  NORTH COAST REGIONAL DISTRICT	PROJECT: North Coast Regional District SWMP Update	TITLE: North Coast Regional District Solid Waste Management Areas & Facilities
	LEGEND: ● First Nation Community Locations ■ City of Prince Rupert ■ District of Port Edward ■ Village of Daajing Giids ■ Village of Massett ■ Village of Port Clements	SCALE: 1:1,500,000	DATE: 2024/01/29 <small>yyyy/mm/dd</small>
	DESIGNED: NA	PROJECTION: NAD 1983 UTM Zone 9N	
	DRAWN: GB	DRAWING NO.:	
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Figure 2-3: NCRD Solid Waste System Overview

The Islands Service Area has a combined population of approximately 4,790, with over half of the residents being members of the Haida Nation and is operated under the Islands Solid Waste Management. There is a large seasonal population, with approximately 28% of dwellings being seasonally occupied. The 2021 Canada Census data has been compiled in the following tables.

Table 2: Population and Dwelling Counts for Administrative Areas *

Municipal Jurisdictions	2021 Census	Total Dwellings	Dwellings Occupied by Year Round Residents
NCRD**	18,181	9,082	7,661
Island	3,256	1,869	1,559
Village of Masset	838	518	399
Village of Port Clements	340	205	181
Village of Daajing Giids	964	574	488
Electoral Area D	580	327	254
Electoral Area E	325	251	161
Mainland	12,770	5,954	5,253
City of Prince Rupert	12,300	5,747	5,072
District of Port Edward	470	207	181
Electoral Area A	45	46	29
Electoral Area C	31	72	17
First Nations Jurisdiction (included in NCRD total above)	2021 Census	Total Dwellings	Dwellings Occupied by Year Round Residents
Lax Kw'alaams 1 *EA-A	627	316	216
S1/2 Tsimpsean 2 (2016) [Metlakatla] *EA-A	88	50	30
Kulkayu (Hartley Bay) 4 *EA-C	58	33	17
Kulkayu (Hartley Bay) 4A *EA-C	66	26	21
Dolphin Island 1 (Kitkatla) * EA-C	295	143	106
Masset 1 (Old Massett - Haida) *EA-D	838	241	195
Skidegate 1 *EA-D	697	331	296
Total	2,669	1,140	881

***2021 Census (Canada) – not yet updated completely**

** Data is direct from Census tables and is not additive in this table

The total population of the NCRD is estimated to be 18,181 in 2021 by Census Canada.

The main industries in the NCRD are retail trade, health care and social assistance, construction, public administration, accommodation and food services, educational services, transportation warehousing, commercial, and tourism.

With respect to future economic growth in the region, SHA's NCRD Regional Recycling Depot Asset Management Plan, submitted in 2015, provided low, medium and high growth potential scenarios to predict the capacity of the existing facility as well as the upgrades required. The following is an updated list of the major construction projects currently planned or underway that may have possible impacts on population and waste generation in the region.

Prince Rupert Port Authority, Gateway 2020 Vision

Container terminals:

A \$750 million project has begun to increase cargo-handling capability and create 200 new jobs at the Port of Prince Rupert. The project, by the Prince Rupert Port Authority, includes developing a 0.4 square kilometre site on Ridley Island for handling up to 400,000 twenty-foot equivalent containers for shipping agricultural, forestry, and plastic resin products.

In addition, the existing Ridley Island road and rail corridor is being upgraded to handle longer trains. The work, to be completed by late summer of 2026, includes the involvement of the province, the federal government, CN Rail and the freight-logistics company Ray-Mont Logistics, the port said in a news release.

This is just the latest expansion after development at the Fairview Container Terminal, Wolverine Terminals and Vopak Pacific Canada, all looking to take advantage of the fact that Prince Rupert is the closest North American port to Asian markets that also has rail connection to the rest of North American. October 20, 2023, Vancouver Sun

Fairview Container Terminal Expansion: *To maximize the opportunity for gateway growth, work is now underway on DP World Prince Rupert's Phase 2B Stage 1A (P2BS1A) project, with plans to deliver Phase 2B Stage 1B (P2BS1B) shortly thereafter. In combination, these two stages will yield an expanded sustainable practical capacity of 1.8M TEUs at Fairview Container Terminal by Q4 2023.*



Fairview-Ridley Connector Corridor (\$109 M): *This project currently under construction and expected to be completed in Q2 2022 will provide access improvements to the Ridley Island Terminal and is hoped to increase exports from the terminal, encourage future development in the industrial park, and encourage the construction of a Liquefied Natural Gas (LNG) facility.*

South Kaien Island Import Logistics Project (\$86.7 M): *Metlakatla Development Corporation (MDC) and the Prince Rupert Port Authority (PRPA) are developing a logistics park on fee simple lands in close proximity to DP World's Fairview Container Terminal. Two parcels totaling 56 acres are available for long-term ground lease. The lands are intended to accommodate uses that complement the rapid growth of the container business in Prince Rupert and capitalize on strong market interest for both import and export logistics services such as transloading and warehousing. The logistics park is a critical component of PRPA's broader plan to develop an integrated intermodal ecosystem to support 4M+ TEUs of capacity by 2030.*



Ridley Island Export Logistics Project (RIELP) (\$250 M): Located on the southern end of Ridley Island, the RIELP is designed to host integrated large-scale bulk transload facilities, integrated large-scale breakbulk facilities and an integrated off-dock container yard. Collectively, the platform is designed to support at least 400,000 twenty-foot equivalent units (TEUs) of export transload capacity annually, with the potential to increase capacity to 700,000 TEUs for bulk and breakbulk commodities in the future.

Prince Rupert Marine Fuels Project: *Currently under construction, the Wolverine Terminals marine fueling service project is a marine fuel delivery service for the Port of Prince Rupert that will enable cargo vessels anchored or berthed in the Port to fuel locally.*

Port Edward LNG Terminal

Port Edward LNG is a British Columbia company proposing to build and operate a small-scale Liquefied Natural Gas facility on 37 acres five km east of Port Edward, near Prince Rupert on the traditional territories of the Tsimshian communities. Port Edward LNG would be just over one-percent of the size of a large LNG project, liquefying as for export in small quantities via conventional container ship. In September 2021 they received their BC Oil and Gas Commission facilities permit to start preparing the site.

2.6 1996 SWMP

As mentioned above, the NCRD has completed many of the original initiatives from its first SWMP and many are underway. The following table provides the list of initiatives as shown in Appendix B that are both In Progress and Not Complete. The initiatives were assessed to carry forward to the Second Draft SWMP. The initiative number refers to Mainland (M) and Island (I) and the associated initiative from the list. The text has been modernized. The status after review by the NCRD staff and PTAC of these initiatives is shown in blue text.

Table 3: 1996 SWMP Carry Forward Initiatives

1996 SWMP Initiative & Number	Initiative Description and Status
M2.1.3 Use of Tag Fees	Encourage the City of Prince Rupert and the District of Port Edward to use curbside garbage collection extra bag tags that residents must pay extra for in ways that will encourage waste reduction, provide relief to special groups requiring assistance for their waste disposal and recycling, disposal or for clean-up campaigns. Not assessed for SWMP Review but will be kept as an initiative going forward combined with Initiatives R-2 and R-4. Note that the City of Prince Rupert has shifted away from bag tags and is now offering varied bin sizes for additional cost.
M2.1.6 Special Waste List Review	MSWAC shall review Special Waste List - Appendix 4 - annually and recommend changes to the Regional District Board and its member municipalities. Combined with Initiatives A-7 and R-7
M4.1.1 Backyard Composters	Backyard composting will be encouraged and subsidized from time to time with funds provided by the Provincial Government and from levy assessed from property taxes from the Mainland area. Combined with Initiative R-6

1996 SWMP Initiative & Number	Initiative Description and Status
M4.1.2 Cooperation with other Areas	To reduce shipping costs and increase the frequency of backyard composter distribution, other jurisdictions be invited to participate in sharing shipments of composters. These include all First Nations within the Mainland area, Haida Gwaii and, if necessary, communities within the Kitimat-Stikine Regional District. Combined with Initiative R-6
M6.4.1 Transfer Permit	Consider transfer of the waste management operation permit for the Prince Rupert landfill facility to the North Coast (Skeena-Queen Charlotte) Regional District. Added to Section 5.0 Goals and Strategies; Initiative RM-8
M8.2.2 Anti-Dumping Bylaws	Encourage the City of Prince Rupert and the District of Port Edward to harmonize their illegal dumping bylaws and make illegal dumping a ticket-able offense. If illegal dumping becomes a problem on Digby Island or any other Regional District administered area the Regional Board, consider adopting a similar bylaw. Combined with Initiative RM-4
M8.2.4 Funding Assistance	MSWAC will apply for funding to ENV or any other jurisdiction that will assist in the enforcement of their legislation. Combined with Initiative A-4
I1.1.3 Island Committee	A permanent Waste Management Islands Committee be established with representation from Electoral Area D, Electoral Area E, the Village of Daajing Giids, Village of Masset, Village of Port Clements, Old Massett, Skidegate and representatives from environmental organizations, to be responsible for administering the Island Solid Waste System. (Appendix I-I) Combined with Initiative A-4
I4.1.1 Transfer Station Sites	Provide facilities open to the general public during hours in Appendix 4 at the following locations (figure 8): 1) Masset Transfer Station 2) Port Clements Regional Landfill [Islands Landfill] 3) Skidegate Transfer Station 4) Sandspit Transfer Station Combined with Initiatives A-1 and A-3
I4.1.4 Maintenance	Maintenance of the transfer stations (as specified in Appendix I-5) is to be part of the contract awarded for local collection. Combined with Initiative RM-1

1996 SWMP Initiative & Number	Initiative Description and Status
14.1.6 Problem Waste Storage	Storage areas will be designated for the temporary storage of auto hulks, tires and white goods at all transfer station sites. Combined with Initiative RM-3 with auto hulks only stored at the Islands Landfill and the Sandspit Transfer Station
14.1.8 Wood Waste	Burning areas for clean wood waste and other combustible, non-putrescible wastes will be designated at all the transfer station sites. Controlled burning of such waste will occur when permitted by the Ministry of Forest and the Ministry of Environment. This is an ongoing practice already except for at the Masset Transfer Station where burning is prohibited due to the close proximity to the Masset Airport
14.2.1 Use of Fees	Fees collected shall be applied in accordance with Appendix I-3 Bylaws will be updated as part of the SWMP update project
15.1.2 Hours	A schedule of hauling hours will be established by the contractor and the landfill operator to minimize cover requirements at the landfill. This schedule is to be reviewed on an ongoing basis by the Island Coordinator. Combined with system efficiency initiative, A-1
15.2.1 Funding	The estimated annual cost of the haulage contract will be apportioned amongst the total number of collection units and applied to their quarterly bills. Combined with system efficiency initiative, A-1
16.1.7 Problem Waste List Review	ISWAC shall review Appendix I-3 annually and recommend changes to the Regional District Board. Combined with Problem Waste Initiative, RM-3
17.1.2 Funding	Apply to ENV for funds to assist in support in providing waste reduction education. Combined with funding initiative R-1
18.1 Backyard Composters	Backyard composting will be encouraged and subsidized from time to time with funds provided by the Provincial Government and from the Recycling Reserve. Combined with organics diversion initiative, R-6
18.2	ISWAC will encourage initiatives for commercial and backyard composting operations by providing information on composter design and operation.

1996 SWMP Initiative & Number	Initiative Description and Status
Other Composting	Combined with organics diversion initiative, R-6
19.1.1 Problem Waste Recycling	<p>When sufficient problem waste materials (Appendix I-3) have been accumulated (as determined by the Waste Coordinator funds may be withdrawn from the Recycling Fund to pay for the handling and shipping of recyclable materials.</p> <p>Set up reserve specific for problem waste removal, RM-3</p>
19.1.2 Problem Waste Coordinator	<p>The Island Coordinator will facilitate the proper disposal of problem wastes by:</p> <ul style="list-style-type: none"> a) being conversant with regulations governing the storage and haulage of special waste; and b) referring persons to the responsible agency. The Island Coordinator is to receive training in the storage and handling of problem waste. <p>Combined with Waste Reduction Coordinator initiative, R-1</p>
19.1.3 General Recycling Support	<p>ISWAC shall encourage Recycling by providing information on nearest available recycling facilities and by providing access to designated recycling facilities on Haida Gwaii.</p> <p>Combined with Waste Reduction Coordinator initiative, R-1</p>
19.1.6 Recycling at Landfill and/or Transfer Stations	<p>ISWAC will consider inviting interested parties to operate recycling facilities in specified areas at the Landfill and at transfer stations. Terms of operation will be determined by the Waste Coordinator in conjunction with the local collection contractor and EPR programs.</p> <p>Combined with Waste Reduction Coordinator initiative, R-1</p>
Strategies to 110.2.2 Prevent Illegal Dumping	<p>ISWAC will review incidents of illegal dumping and recommend the implementation of one or all of the following strategies:</p> <ul style="list-style-type: none"> 1) publish photos of incidents; 2) identify the owners of the illegally dumped refuse and bill them for the proper disposal; and 3) the adoption of an illegal dumping bylaw with a schedule of fines for various infractions. <p>Combined with RM-4, Illegal Dumping Management</p>

1996 SWMP Initiative & Number	Initiative Description and Status
110.3.2 ISWAC Meetings	ISWAC will meet regularly, not less than quarterly, to review the operations of the Waste Management System and to consider comments from the public. Quarterly meetings will be advertised and open to the public. Combined with ISWAC initiative A-6

Section 5 outlines the recommended initiatives to carry forward and the new strategies in detail.

2.7 Advisory Committees

The NCRD uses advisory committees to assist with governance of the solid waste management system and special projects as outlined below.

Regional Recycling Advisory Committee. The Mainland Solid Waste Advisory Committee (MSWAC) was established in response to a 1996 SWMP recommendation to form a waste management committee to administer the Mainland solid waste programs. The MSWAC became the Regional Recycling Advisory Committee (RRAC), established under Bylaw No. 588 in 2014. The committee membership is composed of participants appointed from the City of Prince Rupert, the District of Port Edward, and Electoral Areas A and C. Appointments to the committee include representation from the NCRD Board for Electoral Area A or C, local environmental or recycling groups, and First Nations communities or organizations within the Mainland service area.

The committee meets quarterly for regular meetings, with additional and special committee meetings held as necessary. All meetings are open to the public. The RRAC has paused meetings for the duration of the SWMP update and instead the Public and Technical Advisory Committee (PTAC) is assisting the NCRD with the new plan development. Quarterly meetings will resume following the completion of the new SWMP and the dissolution of the PTAC.

Island Solid Waste Advisory Committee. The Island Solid Waste Advisory Committee (ISWAC) was recommended in the 1996 SWMP in parallel to the recommendation for the MSWAC. This committee was established by Bylaw 432, 2002 and was operational for several years, however, Bylaw 576, 2014 repealed Bylaw 432, 2002 rendering the committee defunct. Solid waste on the Island is currently managed under the Islands Solid Waste Management (ISWM) service.

Public and Technical Advisory Committee. The NCRD initiated the process to form the PTAC in 2020. Letters of invitation were sent to Interested Parties, including all First Nations groups within the NCRD. Since formation of the PTAC, the NCRD has actively pursued representation from all municipal and First Nations stakeholders on an ongoing basis. The first meeting was held in July 2021, and the second in September 2021 to set the SWMP direction (Step 1 of the Guide). These meetings provided an introduction to the committee, and review of the RFP for the SWMP. Meetings are intended to be held electronically/virtually on a bi-monthly basis, or at the call of the Chair. Members of the PTAC are included in Table 4 that shows the 2023 changes in membership. A Chair and Vice-Chair were elected by PTAC at their third meeting. Where there is a vacancy on the PTAC, the NCRD has made every effort possible to fill those vacancies.

Table 4: NCRD PTAC Membership (2021 – 2023)

1) Patrika McEvoy, Councilor - CHAIR <i>Jade Collison, Alternate</i>	Old Massett Village Council <i>Old Massett Village Council</i>
2) Trent Moraes, Deputy Chief Councilor	Skidegate Band Council
3) Christina Jewell – VICE CHAIR	Dirt Nerd Soil Company
4) Tanya Ostrom, Operations Manager	City of Prince Rupert
5) Dan Franzen <i>Colleen McDonald, Alternate</i>	Distr. of Port Edward <i>Distr. of Port Edward</i>
6) Bret Johnston, Councilor	Village of Masset
7) Ayla Pearson	Village of Daajing Giids
8) Kazamir Falconbridge	Village of Port Clements
9) Leonard Cook, EPO	Ministry of E & CC
10) Mike Richardson, Owner	Big Red Enterprises
11) Megan Haley, Environmental Scientist (not active)	Sperling Hansen Associates
12) Ocean Rutherford, Director E.A. A	North Coast RD
13) Evan Putterill, Director E.A. E	North Coast RD
14) Edward Landrath	RRAC Member
15) Emily Peer-Groves	Dirt Nerd Soil Company
16) Stephen Grosse, Representative (2021/2022)	Council of the Haida Nation
17) Daniel Fish, CAO	North Coast RD
18) Tim Des Champ, Superintendent of Waste Management	North Coast RD
19) Rob Kidd, Manager, Island Solid Waste	North Coast RD

PRIOR YEARS

Lisa Pineault, Councilor (2021/2022)	Village of Daajing Giids
Tracy Hageman, Councilor (2021/2022)	Skidegate Band Council
Hans Seideman, Manager of Building Services (2021/2022)	City of Prince Rupert
Rina Gemeinhardt, Referral Coordinator (2021/2022)	Kitsumkalum Indian Band
Danielle Myles-Wilson, CAO (2021/2022)	District of Port Edward
Des Nobels, Director (2021/2022)	North Coast Regional District
Erin Mutrie, Environmental Assessment Manager (2021/2022)	Metlakatla First Nation
Connor Pritty, Dir. of Lands, Resources & Stewardship (2021/2022)	Lax Kw'alaams
Ellen Witherly	Community Representative

2.8 Roles and Responsibilities.

This section describes the entities that have a role in waste reduction and recycling in the NCRD. The NCRD consists of four Electoral Areas (A, C, D, and E), the City of Prince Rupert, District of Port Edward, Village of Masset, Village of Port Clements, Village of Daajing Giids, several unincorporated communities and First Nations communities including Metlakatla, Lax Kw'alaams, Gitga'at, Kitkatla, Kitselas and Kitsumkalum. These local governments and First Nations are interested parties that work with the NCRD within the regional SWM system. In addition, the general public, environmental interest groups, the Port Authority and other senior government agencies, businesses representing tourism, waste management and retail, and industries representing forestry, fishing, mining and manufacturing also have a role within the system besides just using the provided recycling and disposal facilities. For example, from the 2015 Haida Gwaii Marine Plan, several concerns regarding waste management were identified, including the disposal of sewage and wastewater along with the presence of garbage litter impacting marine ecosystems. Input and feedback on SWMP initiatives from a broad spectrum of interested parties is essential to the development of a robust, sustainable and efficient SWM system.

2.9 North Coast Regional District

As seen in the PTAC member list above, the NCRD has put together a representation of the interested parties in the region to assist with SWMP development. The NCRD's role in creating an acceptable SWMP is to ensure interested parties are provided sufficient opportunity to submit feedback and engage on any issues of concern they may have.

2.10 Interested Parties

With the intention of ensuring a comprehensive list of interested parties are made aware of the SWMP update process and potential initiatives that may impact them, SHA compiled the following list. This list is not exhaustive and is intended to be refined as consultation is undertaken on the SWMP so organizations and agencies are not missed in the process.

Table 5: Interested Parties in the NCRD

Interested Parties in the NCRD	
First Nations Gitga'at First Nation Gitxaala First Nation Kitselas First Nation Kitsumkalum First Nations Lax Kw'alaams Band Metlakatla First Nation Old Massett Village Council Skidegate Band Council Council of the Haida Nation Commercial Haulers Big Red Enterprises Clearbrook Trucking Jim's Mowing Skeena Waste and Recycle Rupert Disposal Tickers Hauling Bandstra Transportation Systems	Municipalities City of Prince Rupert District of Port Edward Village of Daajing Giids Village of Port Clements Village of Masset Industry and Government Agencies Port of Prince Rupert Prince Rupert Grain Ridley Terminals DP World Prince Rupert BC Ferries BC Government Ministries Interest Groups Prince Rupert Environmental Society Dirt Nerd Soil Company Institutions School District 50 and 52 Northern Health Facilities

A contact list has been managed throughout the SWMP update process.

3 SYSTEM OVERVIEW

Location plays an integral part in regional solid waste management, particularly in understanding the dominant solid waste disposal patterns of residents, businesses, and other contributing entities. For this Second Draft SWMP, the two distinct service areas and waste facilities within the NCRD are divided and presented as Mainland and Islands, both having an NCRD manager responsible for all activities, programs and facilities. The landfill sites in the NCRD consist of two options for residents; one located on the mainland and one on Graham Island of the archipelago of Haida Gwaii. The Mainland facility, Prince Rupert Landfill (PRL), primarily serves the residents of the City of Prince Rupert, the District of Port Edward, and constituents of Electoral Areas A (Dodge Cove, Skeena River north), and C (Porcher Island, Kaien Island, Skeena River south) as well as the First Nations communities within the service area including Gitga'at First Nation, Gitxaala First Nation, Lax Kw'alaams Band, and Metlakatla First Nation. The Island Landfill (IL) service the residents of the Villages of Masset, Daajing Giids, Port Clements, and Electoral Areas D (rural Graham Island), and E (Sandspit, Moresby Island) as well as the First Nations communities within the service area including Old Massett Village Council and Skidegate Band Council.

There are six transfer stations within the two service areas as summarized below:

- Mainland service area: Dolphin Island Transfer Station (Gitxaala Nation), Lax Kw'alaams Band Transfer Station and Metlakatla Transfer Station
- Islands service area: Masset Transfer Station, Skidegate Transfer Station and Sandspit Transfer Station.

The NCRD provides curbside collection of residential refuse in the Islands Service Area for Electoral Areas and the municipalities of Masset, Port Clements and Daajing Giids; First Nations provide residential and commercial curbside refuse collection in their jurisdictions. The City of Prince Rupert provides curbside residential refuse and recyclables collection; and the District of Port Edward provides curbside residential refuse collection.

Self-haul and residential and commercial subscription hauling services are also available in both service areas to a transfer or disposal facility on a user pay basis.

With respect to recycling services, the NCRD is the main processor and marketer of residential and commercial materials. The NCRD Regional Recycling Depot in the Mainland Service Area is located in Prince Rupert and provides drop off, materials consolidation and marketing services to the region as a whole. The facility currently processes a broad range of recyclable materials for stewardship agencies and others. The City of Prince Rupert has recently formed an agreement with the stewardship agency Recycle BC to collect packaging and printed paper curbside and deliver it to the NCRD.





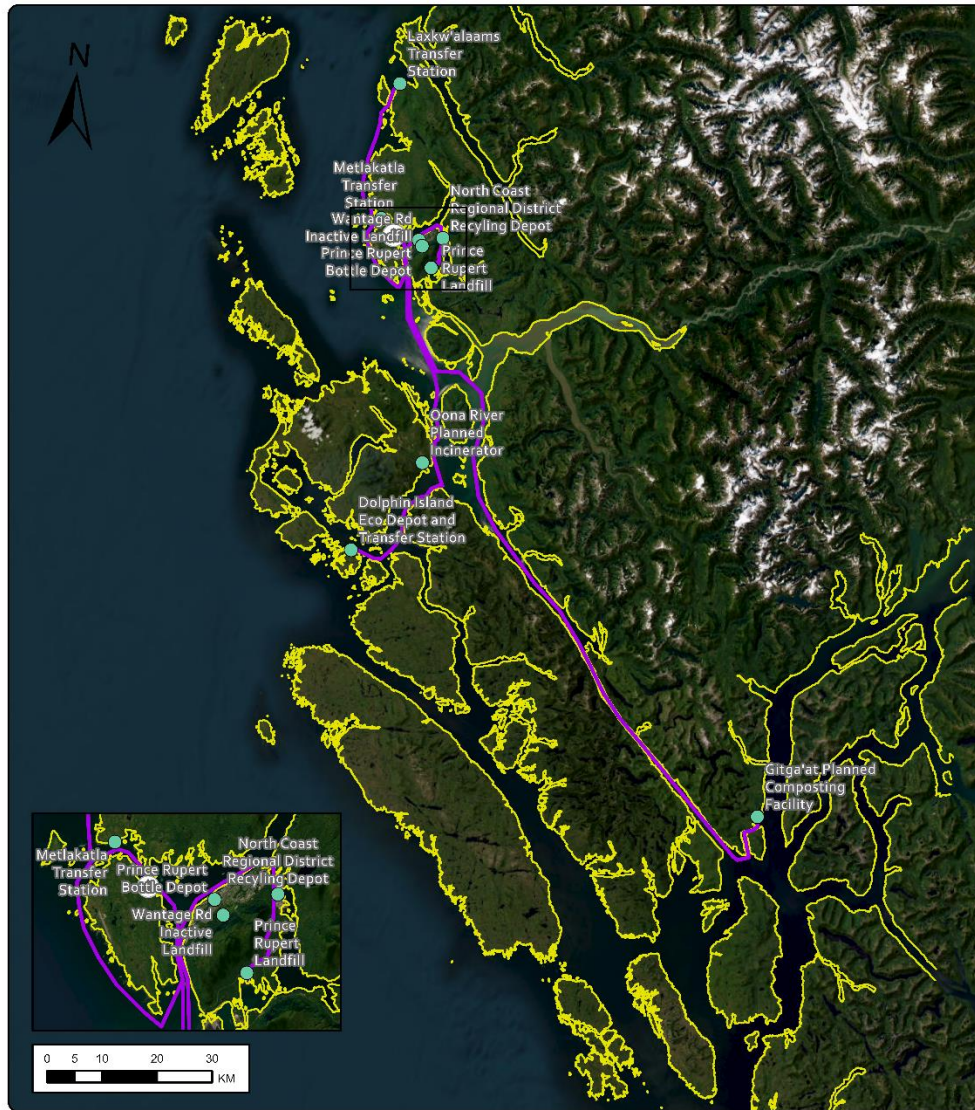
 <p>SPERLING HANSEN ASSOCIATES</p> <p>Landfill Services Group</p> <ul style="list-style-type: none"> Landfill Siting Design & Operational Plans Landfill Closure Environmental Monitoring <p>#8 - 1225 Keith Road North Vancouver, B.C. V7J 1J3</p> <p>Phone: (604) 986-7723 Fax: (604) 986-7734</p>	<p>CLIENT:</p>  <p>NORTH COAST REGIONAL DISTRICT</p>	<p>PROJECT:</p> <p>North Coast Regional District SWMP Update</p>	<p>TITLE:</p> <p>North Coast Regional District Solid Waste Management Areas & Facilities</p>													
	<p>LEGEND:</p> <ul style="list-style-type: none"> Coastlines Ferry Terminal 	<table border="1"> <tr> <td>SCALE:</td> <td>DATE:</td> <td>PROJECT NO:</td> </tr> <tr> <td>1:750,000</td> <td>2024/01/29 <small>yyyy/mm/dd</small></td> <td>PRJ 21104</td> </tr> <tr> <td>DESIGNED</td> <td>NA</td> <td>PROJECTION: WGS 1984 Web Mercator</td> </tr> <tr> <td>DRAWN</td> <td>GB</td> <td>DRAWING NO:</td> </tr> <tr> <td>CHECKED</td> <td>NK</td> <td></td> </tr> </table>	SCALE:	DATE:	PROJECT NO:	1:750,000	2024/01/29 <small>yyyy/mm/dd</small>	PRJ 21104	DESIGNED	NA	PROJECTION: WGS 1984 Web Mercator	DRAWN	GB	DRAWING NO:	CHECKED	NK
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Figure 3-1: NCRD Solid Waste Management Areas and Facilities - Island

The NCRD provides recycling drop off and pickup services in the Islands Service Area, including drop off at depots in Daajing Giids, Masset and at the Islands Landfill (primarily commercial and consolidation). NCRD also provides drop off at two community bins in Sandspit and Tlell, along with pickup of commercial cardboard throughout the Islands Service Area. All NCRD materials consolidated on Haida Gwaii are shipped to the NCRD Regional Recycling Depot in Prince Rupert for marketing.

These facilities are shown in Figures 3-1 and 3-2 and are described in further detail below.







 <p>SPERLING HANSEN ASSOCIATES</p> <p>Landfill Services Group</p> <ul style="list-style-type: none"> • Landfill Siting • Design & Operational Plans • Landfill Closure • Environmental Monitoring <p>#8 - 1225 Keith Road North Vancouver, B.C. V7J 1J3</p> <p>Phone: (604) 986-7723 Fax: (604) 986-7734</p>	<p>CLIENT:</p>  <p>NORTH COAST REGIONAL DISTRICT</p>	<p>PROJECT:</p> <p>North Coast Regional District SWMP Update</p>	<p>TITLE:</p> <p>North Coast Regional District Solid Waste Management Areas & Facilities</p>													
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Figure 3-2: NCRD Solid Waste Management Areas & Facilities - Mainland

3.1 Waste Diversion and Recycling

Brief descriptions of the waste management facilities and programs currently in use in the NCRD are provided in this section.

3.1.1 Mainland Service Area

Mainland Disposal Facilities

There is only one facility that serves the Mainland Service Area for the disposal of MSW. The Prince Rupert Landfill (PRL or Landfill), owned and operated by the City of Prince Rupert, is located on Kaien Island and was established in 1991 under the ENV Operational Certificate (OC) MR-7988. The PRL is open six days per week and receives refuse and recyclable material from the City of Prince Rupert, District of Port Edward, Electoral Areas A and C, and Mainland First Nations communities, serving a population of approximately 13,500. As included in the original and existing NCRD SWMP, the City of Prince Rupert is still interested in investigating the transfer of ownership and operation of this facility to the NCRD.

Recyclable material accepted at this facility and diverted from disposal include:

- (a) Household recyclables (cardboard and other packaging)
- (b) Asphalt (blended with soil and used for daily/intermediate cover)
- (c) Concrete (crushed and used for construction)
- (d) Metal (recycled off site)
- (e) Rock (used for construction)
- (f) Clean Wood (unfinished/no plywood – burned)
- (g) Yard Waste (burned)
- (h) Soil (used for cover).

Mainland Recycling Facilities

NCRD Regional Recycling Depot. This regional depot is located within the City of Prince Rupert, was established in 1996, and serves the Mainland Service Area. Material is received through curbside programs, public and commercial drop-off, and transfer from the Islands Service Area. The facility accepts and consolidates the materials listed in Table 6 below and ships the materials to markets in cooperation primarily with stewardship agencies under agreement with the NCRD.

Table 6: Materials and Product Stewards at the NCRD Recycling Depot

Product Steward and Materials Accepted at the NCRD Recycling Depot	
Product Care <ul style="list-style-type: none"> • Paint • Household Hazardous Waste • Residential Lights • Commercial Lights • Residential Fixtures • Non-PCB Ballasts • Smoke Detectors and CO Alarms 	Recycle BC <ul style="list-style-type: none"> • Cardboard Boxes • Cartons and Paper Cups • Foam Packages • Glass Bottles and Jars • Metal Containers • Other Flexible Plastic Packaging • Paper Packaging • Plastic Bags and Overwrap • Plastic Containers • Printed Paper
ElectroRecycle <ul style="list-style-type: none"> • Small Appliances and Power Tools • Oversized Items (i.e., treadmills, elliptical machines, demolition power tools) 	MARR <ul style="list-style-type: none"> • Large Household Appliances Air • Conditioners, Dehumidifiers, Stoves, Ovens • Refrigerators, Dishwashers
Tire Stewardship BC <ul style="list-style-type: none"> • Car, Light Truck & Motorcycle Tires 	Call2Recycle <ul style="list-style-type: none"> • Rechargeable Batteries • Alkaline and Single-Use Batteries
OPEI Canada <ul style="list-style-type: none"> • Handheld, Walk Behind and Free-Standing • Electric Outdoor Power Equipment • Tractors 	
Return-It <ul style="list-style-type: none"> • Small Appliances • Electronics 	

Tonnage reports indicate an overall decline in material over the past three years. The recyclable material streams that showed decline from 2019 to 2021 were plastics, electronics and cardboard. Increases are shown for white goods and small appliances. It should be noted that material decline throughout the 2020-2021 period may be a result of the COVID-19 pandemic and additional monitoring into this year is underway.

Recycling data (in kgs) for this facility for years 2017 to 2021 is shown in Table 7 (data for 2022 was not available at the time of writing). Tires are recorded by units and have not been included in this table (refer to Section 4 for the latest Tire Stewardship BC quantities).

Dolphin Island Ecodepot and Transfer Station. This facility in Kitkatla is owned and operated by the Gitxaala Nation who have forged their own solid waste management approach with the Gitxaala Solid Waste Working Group (SWWG). After several years of planning and local education initiatives, Gitxaala joined the Recycle BC program in 2014. As part of this agreement, the community sends cardboard, containers, and Styrofoam to the NCRD Regional Recycling Depot by barge. Garbage collection in the area was reduced from twice per week to once per week. Additionally, in 2016 Gitxaala staff were trained to strip pollutants from waste items such as fridges, freezers, and vehicles. This allows these items to be stored safely and sent to the mainland for recycling. Certain Gitxaala staff have also undergone education for zero waste training, to further the community's efforts in waste reduction. These facilities were reported by the Indigenous Zero Waste Technical Advisory Group to be upgraded in 2019 to include bins for sorting and storing large metal items, construction debris, clean wood, and oversized items for transport off-island.

Prince Rupert Bottle Depot. This privately-owned facility located at 900 2nd Ave West, is open six days per week and accepts only Beverage Containers under the Encorp stewardship program.

Lax Kw'alaams Transfer Station. Material is collected by the Band at its owned and operated facility and shipped to the NCRD Regional Recycling Depot under agreement with the NCRD.

Metlakatla Recycling Program. Initiated in 2013, the Metlakatla Operations and Maintenance Department collects recyclables and ships them to the NCRD Regional Recycling Depot under agreement with the NCRD.

Gitga'at Composting Facility. A very recent initiative from the Province of BC has funded an in-vessel composting facility for several First Nations communities, including at Hartley Bay (Gitga'at). It is unknown at this time when the equipment will be operational and how much will be diverted from the waste stream.

Table 7: Recycling Quantities at the Regional Recycling Depot

Material	2021	2020	2019	2018	2017
Cardboard	469,687	508,785	528,635	533,380	546,785
Newsprint	0	0	0	0	0
Packaging & Printed Paper	516,807	510,748	645,155	622,668	569,950
Office Paper	26,068	21,212	42,351	53,205	102,721
Plastic	21,600	15,109	25,325	24,347	23,936
Tin Cans	358	0	0	4,860	4,847
Electronics	54,308	54,136	56,731	66,053	75,372
Small Appliances	23,062	23,957	22,643	20,689	21,321
Tires	21,960	27,025	24,123	40,086	18,610
Batteries - Lead Acid	8,885	6,904	12,816	14,520	8,275
Batteries - Dry Cell	2,075	2,475	2,375	2,050	1,800
Paint	20,220	17,729	18,786	17,942	20,533
White Goods	172,228	109,497	108,205	104,525	108,046
Non-Ferrous Metal	0	0	1,200	3,000	0
Glass Jars/Bottles	0	0	0	0	3,000
Beverage - Aluminum	88,701	92,131	87,202	84,785	81,881
Beverage - Plastic	166,703	148,804	159,871	133,876	140,677
Beverage - Glass	559,734	557,324	621,769	639,699	652,765
Beverage - Other	15,686	15,166	19,861	18,584	19,363
Total Kgs	2,168,080	2,111,000	2,377,046	2,384,267	2,399,879
Total Tonnes	2,171	2,112	2,378	2,392	2,401

3.1.2 Islands Service Area

Islands Landfill (IL) and Recycling Depot

Formerly the Port Clements Landfill and opened in 1993, this waste management facility is located at 71454 Highway 16, 9 km north of Port Clements, and is open six days a week. The NCRD took over management of the operation in January 1995 and at the same time developed a waste management plan with specific initiatives for the Islands Service Area. The 2019 lifespan estimate predicts a final closure in 2041. This facility also includes the Islands Waste Management Recycling Depot staffed by two NCRD employees. Materials are received at this depot and the Landfill itself (e.g., tires) from the other Haida Gwaii NCRD depots, collection programs (i.e., commercial cardboard and community bins), and from commercial drop off. Staff sort and consolidate the materials for transport to the Daajing Giids Recycling Depot storage facility prior to shipment to the

NCRD Regional Recycling Depot on the mainland, or stewardship agencies pickup the consolidated material and transport it to their markets (e.g., Tire Stewardship BC and BC Used Oil Management Association). The material managed through this recycling facility include the following collected from all sectors:

- (a) Packaging and printed paper (e.g., boxboard, rigid plastic, and film plastic)
- (b) Cardboard
- (c) Tin and aluminum cans
- (d) Paint and empty paint containers
- (e) Engine oil, oil containers, filters and antifreeze
- (f) Batteries (household and auto)
- (g) Refundable beverage containers
- (h) Electronics
- (i) Smoke and carbon monoxide alarms
- (j) Tires (passenger and light truck, medium truck)
- (k) Outdoor power equipment.



Where possible, ICI and Residential quantities of packaging and printed paper are kept separate for shipping since stewardship agencies are responsible for only residentially generated material.

The Masset, Skidegate and Sandspit Transfer Stations transport MSW and recyclable material to the Islands Landfill and Recycling Depot for disposal or consolidation. Materials diverted from disposal at the Landfill and Transfer Stations include the following:

- (a) Appliances with and without refrigerant
- (b) Small appliances
- (c) Empty 171 liter drums (45 gallon)
- (d) Empty tanks over 171 liters (>45 gal.)
- (e) Propane tanks 25 lbs or less
- (f) Propane tanks over 25 lbs to 100lbs
- (g) Tires under 16 inches without rims
- (h) Tires over 16 inches to 24.5"
- (i) Any tire with a rim not over 24.5"
- (j) Oversize tires (over 24.5")

- (k) Vehicle hulks stripped (no oils/battery/tires) - Not accepted at Transfer Stations
- (l) Vehicle hulks with fluids - Not accepted at Transfer Stations
- (m) Lead acid batteries
- (n) Sorted Metals
- (o) Wood – burned periodically.

Other Recycling Depots operated by the NCRD

Daajing Giids Recycling Depot. The Daajing Giids Recycling Depot (DGRD) is a rented facility located at 1205 Oceanview Drive in Daajing Giids.. The DGRD serves residents and businesses in the Village of Daajing Giids, communities of Skidegate and Sandspit, Electoral Area E, and southern residents in Electoral Area D. It is open three days per week: Sunday, Monday and Tuesday 10:00 am to 4:00 pm (18 hours/week).

The population served by the DGRD is estimated to be 2,266 based on the 2021 Census, and the number of private dwellings is estimated to be 1,048 – 1,231 (the lower figure occupied by year-round residents). The NCRD rents the depot portion of the building from the owner.



The DGRD, pictured to the left, is operated by one NCRD employee and is primarily funded by the Recycle BC stewardship program effective January 31, 2023. Paint, used oil and oil containers, electronics, small appliances, smoke alarms, light bulbs, mercury thermostats and batteries are also accepted at the depot and these items are supported financially by stewardship agencies under agreement with the NCRD. The packaging and printed paper is baled and stockpiled to await shipping by transport trailer to Prince Rupert via BC Ferries.

Stewardship agencies are responsible for collecting and shipping materials and often will wait until enough material is stored before transport is economical to locations off Haida Gwaii.

The photo to the right shows stockpiled materials generated primarily by the stewardship programs and received for shipping from the Islands Landfill Recycling Depot. Although this is a convenient location to stockpile materials to await a full transport load (48 skids) to the NCRD Regional Recycling Depot in Prince Rupert the stewards do not contribute to the rent for the space. Securing enough storage for these materials can result in higher rental fees.



The quantity of material is not tracked by facility in the Islands Service Area, nor do the Stewards report their quantities by depot.

Masset Recycling Depot. The NCRD opened the Masset Recycling Depot (MRD) in August 2021 to service the north Islands area. The rented facility is located at 1730 Hodges Road in the Greater Massett Development Corporation building, and is open Thursday, Friday and Saturday from 9:00 a.m. to 3:30 p.m. The materials accepted at this depot are the same as those accepted at the other two NCRD depots on Haida Gwaii. They are transported from the MRD to the Islands Landfill Recycling Depot for baling and then to the DGRD for stockpiling prior to shipment off Island. The depot is operated by NCRD staff, including transport of material to the other two depots.

Community collection bins. These bins, open 24/7 and located at Tlell Firehall and Sandspit Super Value, are used primarily by the ICI sector to keep their cardboard, paper, plastics and tin cans out of the Residential waste and recycling stream. The bins are emptied normally once per week by the NCRD and the materials are hauled to the Islands Landfill Recycling Depot where it is processed as ICI.

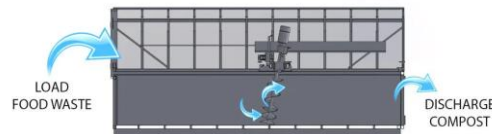
Composting Facilities

Old Massett Village Composting Facility. The Old Massett Village Council received funding in 2023 for an in-vessel small scale containerized composter under the Province’s Organic Infrastructure and Collection Program. The Program funded seven such units for First Nations communities designed, developed and manufactured by Green Mountain Technologies in Bainbridge Island, Washington, USA. The Earth Flow is designed to receive 1 tonne/day of food waste mixed with wood chips. This facility is expected to be operational by spring 2024.

It is expected that food scraps will be collected curbside once per week using lidded pails. The participation in the program is unknown at this time, therefore the quantity of organics to be diverted from the Islands Landfill will not be known until at least the end of 2024.

EARTH FLOW™

The award-winning Earth Flow™ automated mixing system shreds and aerates compost while gradually moving the material toward the discharge end of the vessel, requiring little labor beyond loading and unloading. The Earth Flow™ is guaranteed not to cause odor problems when operated according to specifications. The Earth Flow™ is America’s top-selling in-vessel composting system because it has been proven for over 20 years to be effective, long-lasting and easy to operate.



3.2 Curbside Waste Collection

The majority of NCRD communities are provided with residential curbside collection services for refuse. Optional curbside collection is extended to commercial and industrial premises in some areas. A summary of the existing residential curbside collection programs is provided in the following tables.

Table 8: Residential Curbside Collection

Municipalities and Electoral Areas	Households*	Regular Curbside Collection Service		
		Garbage	Recycling	Yard Waste
City of Prince Rupert	5,747	Yes	Yes	No
District of Port Edward	207	Yes	No	No
Electoral Area A	46	No	No	No
Electoral Area C	72	No	No	No
Village of Daajing Giids	574	Yes	No	No
Village of Port Clements	205	Yes	No	No

Municipalities and Electoral Areas	Households*	Regular Curbside Collection Service		
		Garbage	Recycling	Yard Waste
Village of Masset	518	Yes	No	No
Electoral Area D	327	Yes	No	No
Electoral Area E	251	Yes	No	No

Table 9: Residential Curbside Collection – First Nations

First Nations	Households*	Regular Curbside Collection Service		
		Garbage	Recycling	Yard Waste
Old Massett	241	Yes	No	No
Skidegate	331	Yes	No	No
Lax Kw'alaams	316	Yes	Yes	No
Metlakatla	50	No	No	No
Gitga'at	59	No	No	No
Gitxaala	143	No	No	No

*Total Households from Census Canada 2021

3.2.1 Mainland Curbside Collection

District of Port Edward has a weekly manual collection service, for refuse only, which is delivered to the PRL. The service is operated in-house and is regulated under Bylaw No. 666. The service allows for two 100L containers each week for residential dwellings, and 4 containers per week for commercial premises. The bylaw includes provisions for service to commercial and multi-home residential buildings with a container provided by the municipality; and for industrial premises to join the service under a contract.

City of Prince Rupert has an automated weekly service for curbside collection of refuse and recycling. The service is operated in-house and is regulated under Bylaw No. 3480, which came into force on January 1, 2022, with the onboarding of the new recycling collection program. Recycling materials are transported to the NCRD recycling facility for processing and marketing. Refuse is collected in a 120L bin and residents have the option to request a larger 240L bin for a

small change out fee. Refuse materials are transported to the PRL. The bylaw includes provisions for commercial collection of two containers twice per week.

Electoral Areas A and C do not receive curbside collection service. Approximately 34% of the dwellings in these electoral areas are occupied full-time and most are located on remote islands. Self-haul to the PRL or garbage disposal bins in Prince Rupert is the main method of refuse management for residents and small businesses outside of Prince Rupert and Port Edward.

Industrial, commercial and institutional (ICI) waste is collected by private haulers under a subscription service or self-hauled.

First Nations, including Lax Kw'alaams, Metlakatla, Gitxaala and Gitga'at collect refuse from their communities and transfer it to the PRL by barge or truck.

3.2.2 Islands Curbside Collection

Residential

Member Municipalities and Electoral Areas. The NCRD provides residential collection services to all residential dwellings accessible by road under a manual collection contract currently with Big Red Enterprises. This contract includes service to the Villages of Masset, Port Clements and Daajing Giids, as well as Electoral Areas D and E, with costs recovered through user fees collected by the local governments utilizing the service. The contract specifically requires the following routes be serviced:

- (a) Moresby Island
- (b) Daajing Giids Village and Skidegate Landing
- (c) Chinukundl Creek to Tiell, Port Clements to Nadu Road
- (d) Village of Masset and Graham Island North/Towhill Road/South of Masset to Pure Lake.

Bagged refuse is collected in Regulation Garbage Receptacles as specified by bylaw with a maximum capacity of 71L and weighing no more than 30kg. A maximum of two containers or bags may be set out each week and additional garbage requires a Bag Tag available through Big Red Enterprises.

Old Massett. Old Massett Village Council provides weekly curbside collection service to their residents and hauls the waste directly to the Islands Landfill.

Skidegate. Skidegate Band Council provides weekly curbside collection service to their residents and businesses and hauls the material to the Skidegate Transfer Station. They currently have a key to access the Transfer Station which makes records management difficult for the NCRD. The NCRD is contemplating requiring that this commercial truck haul direct to the Islands Landfill so that loads can be inspected and recorded accurately. This may reduce the frequency of transfer trips the NCRD has to do for the roll-off bins, thus reducing operating costs.

ICI

Big Red Enterprises currently provides subscription collection services for businesses on Graham Island. They have an estimated 100 customers serviced by three trucks that tip small dumpsters. The trucks haul the waste directly to the Islands Landfill where they receive a discount on their tipping fees. They bill their customers directly for this service.

On Moresby Island, Haida Gwaii Tires services businesses and delivers the waste to the Sandspit Transfer Station. They bill their customers directly for this service. The quantity of refuse is not recorded at the Transfer Station; however the owner of this company is also the Transfer Station operator two days per week so there may be an opportunity to review these quantities. The NCRD is contemplating disallowing this commercial collection service to tip at the Transfer Station to reduce the number of roll-off truck trips the NCRD must make across the ferry to the Islands Landfill, thus reducing operating costs. Each roll-off bin transfer trip takes approximately 2.5 hours one way.

3.3 Collection and Facility Use Agreements

The following table provides information on the agreements between the NCRD and other jurisdictions using NCRD services.

Table 10: Service Agreements

Entity	Service Area	Services
Old Massett Village Council	Island	Use of Masset Transfer Station and the Island Landfill for residential MSW drop-off and disposal
Skidegate Band Council	Island	Use of Skidegate Transfer Station and the Island Landfill for residential MSW drop-off and disposal and septage disposal
Big Red Enterprises NCRD Refuse Collection Service	Island	Collection of MSW from residential dwellings, apartments and customers in the Island Waste Management Area including: Moresby Island Daajing Giids City and Skidegate Landing Chinukundl Creek to Tlell Port Clements to Nadu Road

Entity	Service Area	Services
		Village of Masset and Graham Island North/Towhill Road, South of Masset to Pure Lake
Village of Masset	Island	Solid Waste Services including waste collection and recycling services Collection of user fees by the Village of Masset on behalf of the NCRD
Village of Port Clements	Island	Solid Waste Services including waste collection and recycling services Collection of user fees by the Village of Port Clements on behalf of the NCRD
Village of Daajing Giids	Island	Solid Waste Services including waste collection and recycling services Collection of user fees by the Village of Daajing Giids on behalf of the NCRD

The NCRD also has agreements with stewardship agencies responsible for collecting and marketing or disposing of materials listed in the BC Recycling Regulation. These agreements take on various forms and are regularly reviewed and amended to ensure efficiency. Refer to section 4.4 for a list of the stewardship agencies operating in the NCRD.

3.4 Residuals Management Facilities

Brief descriptions of the waste disposal facilities currently in use in the NCRD are provided in this section.

3.4.1 Mainland and Haida Gwaii Transfer Stations

The NCRD owns and operates three transfer stations in the Islands Service Area and none in the Mainland Service Area. Additionally there are two formal facilities owned and operated by First Nations which are all described below. Available Licenses of Occupation and Operational Certificates for the facilities are attached in Appendix B.

Dolphin Island Ecodepot and Transfer Station

This facility is operated by the Gitxaala Nation. Refuse collection in the area was reduced from twice per week to once per week and is collected by Gitxaala Nation. Waste is picked up from the transfer station every three months by Wainwright Marine and is then offloaded at the Wainwright

Marine yard by Rupert Disposal. Delivery is to the PRL by Rupert Disposal. Gitxaala Nation estimates a generation rate of approximately 5 tonnes/3 months.

In 2016, Gitxaala staff were trained to strip pollutants from waste items such as fridges, freezers, and vehicles. This allows these items to be stored safely at the site and then sent to the mainland. These facilities were reported by the Indigenous Zero Waste Technical Advisory Group to be upgraded in 2019 to include bins for sorting and storing large metal items, construction debris, clean wood, and oversized items for transport off-island.

The current facility includes three bays with approximately 26 bins, a recycling shed, and a septic tank pumpage lagoon. Areas exist for scrap metal, whitegoods, tires, and auto hulks.

Lax Kw'alaams Transfer Station

SHA was unable to find information regarding this facility at the time of writing this third Draft SWMP.

Metlakatla Transfer Station

SHA was unable to find information regarding this facility at the time of writing this third Draft SWMP.

Masset Transfer Station

The Masset Transfer Station (MTS) is located on Tow Hill Road in the Industrial Park about 2 km east of Masset across from the Airport entrance. The facility serves residents of the greater Masset area and is open two days per week: Wednesday 1:00 pm to 5:00 pm and Saturday 11:00 am to 3:00 pm (8 hours/week). The Transfer Station serves residents of Old Massett (pop. 475), the Village of Masset (pop. 838), along with residents and businesses at the north end of Electoral Area D (pop. ~300). As reported for the 2021



Census, the number of dwellings served is approximately 241 in Old Massett, 518 in Village of Masset, and 195 in Electoral Area D, north.

As seen in the photo, there are two bays for 30 cubic yard roll off containers with lids at the site and safety railings to reduce risk for users. There are also two other bins on site as open stockpiling is not allowed due to the proximity of the MTS to the airport. The site

is attended by an NCRD employee for four hours on Wednesday and four hours on Saturday. For this site, the operator, who also hauls the bins to the Islands Landfill, works on average 14 hours per week. The operator uses their vehicle for protection from the weather as there is no gate house.

Waste deposited in the roll-off containers is transferred as-needed to the Islands Landfill north of Port Clements, about 32 km, or 25 minutes one way. This amounts to 15 to 20 m³ per week, or approximately 900 m³ per year. At an uncompacted density of 0.5 tonnes per m³, this equates to approximately 450 tonnes/year.

MSW is also self-hauled by residents and commercial waste haulers from the greater Masset area to the Islands Landfill. Contract haulers no longer use this Transfer Station. The Old Massett Village Council provides a curbside collection service for garbage in their community and the NCRD provides a curbside collection service for garbage in the Village of Masset and Area D (Graham Island North/Towhill Road and south of Masset to Pure Lake) and haul this material direct to the Islands Landfill.

Metal and wood are collected at the MTS in roll off bins and hauled to the Islands Landfill about once per month. The quantity is unknown. Tires and major appliances are added to these bins and sorted at the Islands Landfill. The older bins are coming to the end of their life, and according to NCRD staff, replacement is approximately \$25,000 per bin including delivery to Haida Gwaii.

Skidegate Transfer Station

The Skidegate Transfer Station (STS), built on a closed landfill, is located on Hwy 16 about 10 km north of the community of Skidegate, one of the two cultural centers of the Haida Nation on the Islands. The STS serves residents of southern Graham Island (Skidegate Band, Skidegate Landing, Miller Creek, Lawn Hill, and Daajing Giids) in Electoral Area D, and is open two days per week: Wednesday 1:00 pm to 5:00 pm and Saturday 11:00 am to 3:00 pm (8 hours/week). The Skidegate Band has an agreement with the NCRD to use the STS for residential tipping.

The service population as of the 2021 census is estimated to be 1,941 not including Sandspit and area. The total number of private dwellings is approximately 980, with approximately 887 occupied by year-round residents. The area is governed by the NCRD Board of Directors (Electoral Area D), Daajing Giids Village Council and Skidegate Band Council.



As seen in the photo to the left, there are two bays for 30 cubic yard roll off containers with lids at the site. There are also stockpiles for tires, scrap metal, and clean wood, which is burned periodically by a contractor, as well as a septage receiving pit. A small shipping container is used for the collection of used oil and filters. Refrigeration units are decommissioned with refrigerant removed and then stockpiled with scrap metal. The site is attended by an NCRD casual

employee who averages about five hours/day. There is a gate house for protection from the weather. An employee removes CFCs from refrigeration units, and during the burning event, the contractor stacks and sorts metal and tires and maintains roads with equipment (e.g., excavator) the NCRD does not have.

Waste deposited in the roll-off containers is transferred to the Islands Landfill north of Port Clements, about 60 km, or 46 minutes one way. The quantity of waste transported to the Islands Landfill in 2021 was reported to be 2,442 m³, or approximately 488 tonnes per year. NCRD staff estimate bins are hauled about two to three times per week to the Islands Landfill. Tires are collected and recycled by Tire Stewardship BC and the MARR stewardship agency provides funding for the major appliances program. The NCRD provides a curbside collection service to the residences in the Electoral Area and the Village of Daajing Giids once per week for garbage and the contractor hauls this material direct to the Islands Landfill. Skidegate Band Council operates a residential collection service, and materials are dropped off at the STS. The Skidegate Band Council also operates a commercial waste collection program in their community and this material is tipped at the STS without an agreement in place during non-open hours (they have a key for the gate).

Sandspit Transfer Station

The Sandspit Transfer Station (SaTS), located off Copper Bay Road on Moresby Island about 10 km from the unincorporated community of Sandspit, serves residents of Moresby Island, in Electoral Area E, and is open two days per week: Tuesday 11:00 am to 1:00 pm and Saturday 11:00 am to 1:00 pm (4 hours/week). As the only community on Moresby Island, Sandspit has accommodations, a campground, supermarket and an 85-berth harbour and Transport Canada-owned airport to serve residents and visitors. The BC Ferries terminals at Alliford Bay and Skidegate Landing operate 12, 20 minute (one way) trips every day of the week and two Dangerous Goods sailings on Thursday to connect residents, businesses and visitors to Graham Island and the Islands Landfill.

Electoral Area E had a population of 325 as of the 2021 census with the vast majority living in Sandspit. The total number of private dwellings is listed at 251, with 161 occupied by usual residents. The Electoral Area is governed by the NCRD Board of Directors.



As seen in the photo to the left, there are two bays for 30 cubic yard roll off containers with lids at the site. There are also stockpiles for tires, scrap metal, scrap vehicles and clean wood, which is burned periodically, as well as a septage receiving pit. Refrigeration units are decommissioned (refrigerant removed) and then stockpiled with scrap metal. The site is attended by an NCRD contractor for four hours per week. They use their vehicle for protection from the weather as there is no gate house. The contractor removes CFCs from refrigeration units, stacks and sorts metal and tires and maintains roads.

Residential self-haul and commercial waste deposited in the roll-off container is transferred to the Islands Landfill north of Port Clements, about 112 km, or 2.5 hours one way, including the ferry travel. Construction, renovation and demolition (CRD) waste is stockpiled on site and burned regularly by the contractor. The quantity of waste transported to the Islands Landfill in 2021 was estimated to be 533 m³, or approximately 107 tonnes per year. NCRD staff estimate bin hauling occurs four to five times per month. Tires are collected and recycled by Tire Stewardship BC and the MARR stewardship agency provides funding for the major appliances program. The NCRD provides a curbside collection service to the residences once per week for garbage and hauls this material direct to the Islands Landfill.

3.4.2 Mainland and Haida Gwaii Landfills

Two landfill sites are in operation in the region including the NCRD owned Island Landfill (IL) and the City of Prince Rupert owned Prince Rupert Landfill (PRL) as described below.

Islands Landfill

Formerly the Port Clements Landfill and opened in 1993, this waste management facility is located at 71454 Highway 16, 9 km north of Port Clements, and is operated under Operational Certificate MR-7150. The IL is situated on Lot 401 of the Queen Charlotte District of Crown Subdivision Plan 24TR1-Queen_Charlotte PIN 2045921. Local and regional topography slopes gently at a grade of approximately 5.6 % to the southwest and in the direction of Kumdis Slough.



Bedrock geology under the site is documented as Upper Oligocene to Lower Pliocene aged sedimentary rock consisting of sandstone, conglomerate, siltstone, mudstone, shale, coal covered largely by Pleistocene glacial sediments. The nearest groundwater wells are located approximately 4 km to the south and 8 km to the north. Well logs indicate private domestic well use with stratigraphy ranging from sands, silts and clays to gravels ranging 22 mbgs to 40 mbgs. The site sits on an unmapped aquifer.

A surface water tributary exists approximately 125 m south of the site with drainage to the west marine area of the Kumdis Slough.

The NCRD took over management of the operation in January 1995 and at the same time developed a waste management plan with specific initiatives for the Islands area. The 2019 lifespan estimate predicts a final closure in 2041 (20 years as of 2021). This facility also includes the Islands Waste Management Recycling Depot staffed by two NCRD employees. Refuse and recyclable materials are received at this facility from the other NCRD depots, transfer stations and collection programs on Haida Gwaii.

The Masset, Skidegate and Sandspit Transfer Stations, First Nations communities, residents and businesses deliver MSW to the Islands Landfill under facility use agreements, hauling contracts or self-haul where fees are collected and recorded by volume of load. Fees are charged for each load in accordance with the NCRD Bylaws.

The facility is open Monday to Friday (8:30 am – 3:30 pm), Saturday (8:00 am – 3:00 pm) and closed Sunday and Statutory Holidays.

Village of Masset Landclearing Waste Landfill



The Village of Masset owns and operates a landfill site where brush and landclearing waste is managed under ENV Authorization No. 14834. It is located on District Lot 348 off Towhill Road about 750 m south and higher in elevation from the NCRD's Masset Transfer Station. Material is pushed over the slope on the north perimeter of the site and covered as needed. Burning is not authorized at the site and approximately 500 m³ of material is landfilled annually. The site is not open to the public.

Prince Rupert Landfill

The City of Prince Rupert Landfill (PRL) is located on Kaien Island with the entrance at 500 Ridley Island Road 2 km off Hwy 16 and 12 km south of the Prince Rupert community on a small peninsula on the northern side of Wainwright Basin., The PRL was established in 1991 under the ENV Operational

Certificate (OC) MR-7988. The landfilling operations occupy two parcels described as District Lot 2220, Range 5, Coast District and District Lot 8034, Range 5, Coast District. The landfill property occupies 16.1 ha of rolling land with low relief and forested terrain.

The 2021 Design, Operating and Closure Plan for the Landfill estimated a lifespan of 54 years (2076). Currently, the OC does not place a limit on waste tonnage discharged annually, however the annual gate tonnage recorded is currently about 10,000 tonnes.

With respect to the terrain and geology, the facility is built on a veneer of colluvial and mass wasting deposits and includes muskeg. Local topography slopes to the south marine water, Wainwright Basin, located approximately 100 m downgradient of the site. The site slopes from 32 m in elevation



at the gate down to sea level at the coastline. This proximity to the coastline puts the site within a tsunami flood risk area (Zone A, North Coast and Haida Gwaii).

There are no residences within 500 m of the Landfill and the closest industry/business are resource extraction. Surface water receptors on the landfill property include Upper and Lower West Creek to the west and Upper and Lower East Creek to the east of the footprint both paralleling the current footprint of the landfill site.

The nearest climate station, Prince Rupert Airport Station, is located approximately 10.56 km from the site. Based on climate normals from 1981 to 2010, the average annual precipitation is approximately 2,619 mm with approximately 2,530 mm of rainfall and 92.4 cm of snowfall. The annual daily average temperature is 7.5°C. Maximum daily average temperatures are seen in August at 13.8°C whereas minimum daily average temperatures are seen in January at 2.4°C. The maximum average snowfall of 25.6 cm occurs in January.



The landfill accepts municipal solid waste at an onsite Residential Drop Off designed with the intent to consolidate and provide easier access for residents. Prohibited waste for PRL is clearly identified on the landfill brochure with alternative local recycling options provided. Prohibited waste includes items that are deemed recyclable and include vehicle & household batteries, fluorescent compact bulb and tube lights, solvents, household and marine paint, pesticides, gasoline and containers, home electronics, small home appliances, white goods, tires, used outdoor power equipment, used oil, filters and containers, used antifreeze and containers,

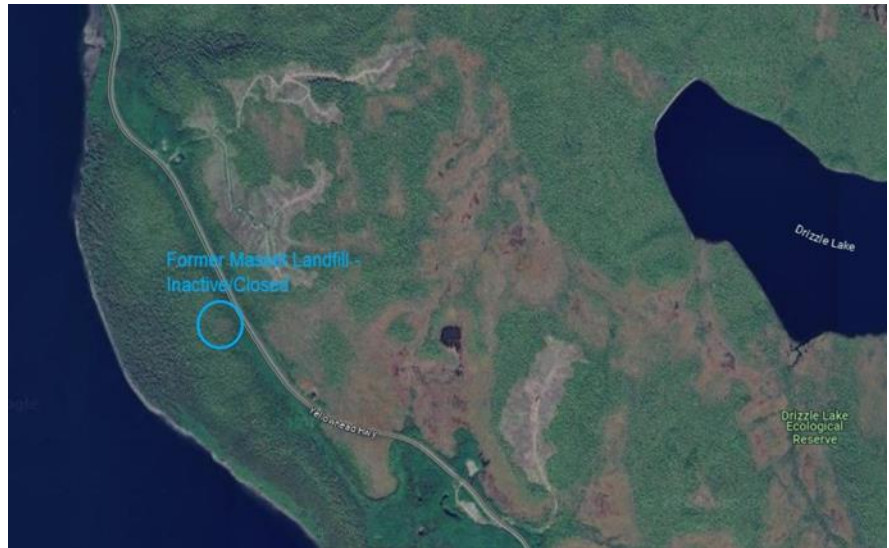
propane cylinders, creosote treated wood and railway ties.

Leachate is conveyed to primary and secondary lagoons where treatment occurs prior to discharge into Wainwright Basin. Treatment includes aeration, aerated lava rock trickle filters, biomedias mats, an anoxic chamber, and discharge piping to Wainwright Basin outfall. A new septage disposal facility is being constructed that will be tied to the leachate treatment system. Extensive environmental monitoring is conducted prior to discharge to ensure Operational Certificate limits are being met. On-site groundwater monitoring wells and surface waters are monitored to confirm compliance.

Closed Landfills

The Sandspit (Authorization No. 2608 – Active) and Skidegate (Authorization No. 16840 – Active) Transfer Stations were built on old, closed landfills. These sites have received final closure that was approved by the ENV. Currently there is no environmental monitoring at these sites, however should requirements change, consideration will be given to implementing the required monitoring programs.

Prior to opening the Islands Landfill, the Village of Masset operated an MSW landfill under Permit No. 3873 near Drizzle Lake along Highway 16, approximately 5 km south of Masset. Approximately 832 tonnes per year of MSW was landfilled at this site between 1975 and 1993. The Permit was cancelled by ENV in 2012. It is unknown what type of final closure system was constructed over the landfill footprint.



The former City of Prince Rupert landfill was located about 1,300 m from the junction of Wantage Rd and Highway 16 in Prince Rupert. Permitted by the ENV to accept municipal type waste discharges under PR-4454, the site was filled from about 1975 to 1991 before the new Prince Rupert Landfill was opened on Ridley Island Road. Currently the City uses the site to store muskeg prior to final closure. In 2020 the ENV issued an amendment to PR-4454 specifying a '0' discharge but keeping the authorization active to ensure continued environmental monitoring, reporting and final closure in accordance with a Landfill Closure Plan that was to be submitted by February 2021.



3.5 Waste Incineration

The NCRD is investigating the possible use of a Growing Communities Funding (GCF) grant received in Marcy 2023 to fund a small MSW incinerator on Porcher Island at Oona River. The types of incinerators being considered for the small population are controlled-air, sealed units with spark arresters that meet local codes for air emissions and can be operated by locally trained personnel. The community incinerator cost is estimated between \$90,000 and \$405,000 and a waste-to-energy incinerator between \$300,000 and \$1M. A decision on the type of incinerator to purchase and the timing for installation will be made once all the research has been completed.

3.6 Materials Managed at Disposal Facilities

The following tables list the materials managed at the disposal facilities in the NCRD.

Table 11: Accepted Solid Waste at Public Landfills

Accepted Waste at Landfills within the NCRD	
Islands Landfill	Prince Rupert Landfill
Bagged, compacted or loose: <ul style="list-style-type: none"> - Residential (household) waste - Industrial, Commercial, Institutional (ICI) waste - Construction, Renovation and Demolition (CRD) waste - Controlled waste (see Table 12) - Recyclable material: <ul style="list-style-type: none"> o Clean wood & yard waste o Major appliances o Small appliances o Empty drums o Empty tanks o Propane tanks o Tires o Vehicle hulks o Lead acid batteries o Paint products o Sorted clean metals o Waste oil & related products 	Bagged, compacted or loose: <ul style="list-style-type: none"> • Residential (household) waste • Industrial, Commercial, Institutional (ICI) waste • Construction, Renovation and Demolition (CRD) waste • Controlled waste (see Table 12) • Recyclable material: <ul style="list-style-type: none"> o Muskeg, berm material & overburden o Coment products o Metal products o Approved sorted building debris such as clean wood (no drywall/gypsum) o Clean wood (no treated wood) o Steel frames from mobile homes o Tin, steel and aluminum

The following table lists the materials that require special treatment and handling at the two landfills.

Table 11: Controlled Waste Types Accepted at Landfills

Controlled Waste at Landfills within the NCRD	
Islands Landfill	Prince Rupert Landfill
<ul style="list-style-type: none"> - Condemned foods - Creosoted/Treated wood - Screenings and sludge from municipal sewage treatment plants, pump stations and septic systems - Waste asbestos - Food processing waste - Dead animals - Bulky waste - Large tires - Contaminated soils* 	<ul style="list-style-type: none"> • Asbestos • Liquid Wastes and sludges including sewage • Dead animals and animal parts (including bones, feathers, skin, hair, nails and teeth) • Contaminated soils acceptable to the Director of Operations* • Non-contaminated water waste acceptable to the Director of Operations • Soot • Mobile Homes • Automobile bodies, automobile parts, or boat hulls • Tanks, barrels, drums, pails and other large liquid containers, that re empty • Gypsum • Lumber, timber, logs etc., longer than 3.6 metres • Cruise ship international garbage (low and high risk) • Grain • Sandblast sand • Non-processed fish waste (salmon, crab, sea urchins etc.

**The Prince Rupert Landfill and Island Landfill Operational Certificates authorize the disposal of contaminated soil with concentrations of contaminants that are less than hazardous waste as per the Hazardous Waste Regulation.

Waste prohibited from disposal at one or more of the landfills and transfer stations in the NCRD include and are not limited to the following:

- hazardous waste as defined in the BC Hazardous Waste Regulation including pathogenic and non-sterilized biomedical waste, and explosive, reactive, radioactive, flammable and ignitable waste
- chemicals or other materials that may create hazardous working conditions
- waste oil, petroleum by-products, used oil filters or equipment lubricant filters
- liquid waste or slurry
- all forms of excrement excluding minor amounts of domestic pet waste
- tanks, barrels, drums, pails, and other large liquid containers that are not empty

- any other material deemed by operations or the Medical Health Officer as hazardous, unacceptable, or unsuitable for disposal at the site.

Some recyclable materials, for which there is a local recycling program in place, are considered 'prohibited' for disposal in the NCRD and Prince Rupert bylaws, including some types of tires and batteries and commercial quantities of cardboard. Refer to Table 16 below for a more comprehensive list of prohibited materials.

3.7 Disposal Quantities

Tonnage records were made available by the City of Prince Rupert for waste received at their landfill dating back to 1995. They track quantities buried and stockpiled on site from the residential garbage collection programs in Prince Rupert and Port Edward as well as commercial, school district 52, the City Public Works department and self-haul residential and commercial. They also track and record the cash received and the amounts charged. It was not possible to ascertain the quantities from residential, ICI and CRD sources individually.

Staff at the Islands Landfill track MSW from the NCRD curbside garbage collection program, the transfer stations, Band Council collection programs, and self-haul. Mixed waste and controlled waste are also recorded. It was not possible to ascertain the quantities contributing to the Landfill individually from residential, ICI and CRD sources. The quantities are recorded on a volume basis. For the purposes of this SWMP the volumes were converted to tonnes to determine the disposal rate and compare with other communities.

Table 13 provides disposal quantity information based on information and reports provided by the facility owners. The disposal rate for the NCRD was calculated to be in the order of 710 kg/capita with substantially less on Haida Gwaii compared to the Mainland.

As described in Section 3.1 several materials are segregated at the disposal facilities for reuse and recycling. Wood and Yard Waste is burned periodically to reduce the volume. Problem waste such as scrap metal and crushable material are stockpiled for a number of years before programs for reducing the quantity are developed and/or economical.

Table 12: Waste Quantities

Location	Material Type	Source	Refined Source (SHA)	Refined Type (SHA)	Tonnes	Cubic Meters	Annual Waste Statistics
Prince Rupert Landfill							
	MSW	Rupert Disposal		Res/ICI/CRD	3,013		
	MSW	City		Res/ICI/CRD	57		
	Residential MSW	City Residents		Res	1,669		
	Commercial MSW	City Commercial		ICI	72		
	City MSW	City Public Works		ICI/CRD	47		
	MSW	Dist. Of Port Edward		Res	147		
	MSW	School District #52		ICI	64		
	MSW	Other commercial		ICI	1,142		
	MSW	Cash Customers		Res/ICI/CRD	5,123		
Total Mainland Refuse					11,334		
						2021 Tonnes	11,334
						Mainland 2021 Census Population	13,510
						2021 tonnes/per capita/year	0.84
Islands Landfill							
	Residential MSW	Big Red	Moresby Island	Res	404	2,021	
	Residential MSW	Old Massett Band (CC)	EA D	Res	124	620	
	Residential MSW	Masset TS (CC, Self Haul)	EA D/VoM	Res/ICI/CRD	297	1,485	
	Residential MSW	Skidegate TS (CC, Self Haul)	EA D/VoQC	Res/ICI/CRD	488	2,442	
		Skidegate Band (CC)	EA D	Res	-		
	Residential MSW	Landfill Self Haul	Haida Gwaii - as a whole	Res/ICI/CRD	101	505	
	Residential MSW	Sandspit TS	EA E	Res/ICI/CRD	107	533	
	MSW/ Mixed Load	Contractor	Haida Gwaii - as a whole	Res/ICI/CRD	34	172	
	Controlled Waste	Various	Haida Gwaii - as a whole	Res/ICI/CRD	4	21	
Total Islands Refuse - not including C&D that was used to build berm					1,560	7,799	
						2021 Tonnes	1,560
						Islands 2021 Census Population	4,582
						2021 tonnes/per capita/year	0.34
Total for NCRD							
						2021 Tonnes	12,894
						2021 Census Population	18,181
						2021 tonnes/per capita/year	0.71

4 WASTE DIVERSION TOOLS

4.1 Waste Composition Studies

Waste composition, or waste characterization, studies are invaluable tools for SWM planning. Understanding the constituents of the waste stream and their quantities is key for initiating or improving recycling activities and organics facilities, curbside collection programs, improving diversion awareness, and overall SWM effectiveness. Waste composition study data can improve the quality of a SWMP and further refine its goals and objectives. Waste composition studies can also identify prohibited waste streams which can increase risk to facility users, staff and the receiving environment.

There are three ways to undertake a waste composition study, with either quantitative, qualitative, or hybrid methodologies. Quantitative methods use raw data in the form of waste sorting, which produces waste categories, tonnages, and counts. Qualitative studies consist of field observations and interviews, which provides more holistic data outside of a designated sorting period. As described by Lamm (2019), a hybrid approach combining both quantitative and qualitative data can often yield a more reliable representation of waste composition than either methodology by itself.

Two waste composition studies have been completed for the Islands Service Area but not the Mainland Service Area to date. The first, by Laurie Gallant, was completed in 2007 and the second in 2019 by SHA's Nicholas Lamm. These studies were conducted to assess the waste stream of the Islands Service Area specifically, including Graham and Moresby Island, and surrounding island communities.

Gallant's study takes a hybrid approach, using quantitative data from volumetric reports, closure reports, recycling volumes, stewardship program annual reports, and Census data, as well as qualitative data from ISWAC, contractors, municipalities, staff feedback, and interviews with product stewards. Lamm's (2019) study consists of a review of other composition studies in different regional districts of BC, and ultimately extrapolated data from Gallant's (2007) study with Lamm's qualitative information. Both studies incorporate a hybrid approach to examining waste composition.

Gallant's study concludes that the largest constituent of the Islands Service Area waste in 2007 was paper materials at 935 tonnes (25% of total) and organics at 748 tonnes (20% of total). Following these two categories are plastics (374 tonnes, 10%), composites (8%), CRD waste (262 tonnes, 7%), and textiles (262 tonnes, 7%). Remaining categories include but are not limited to glass, metal, wood and wood products, and rubber.

In comparison, Lamm found the largest constituent of Island solid waste was compostable organics (25%), followed by plastics (14%), paper and cardboard (13%), and CRD (10%). Remaining categories include but are not limited to non-compostable organics, textiles, bulky waste, metals, household hygiene, and electronics.



Typical MSW load tipped at the IL (Lamm Photo)

Table 14 below shows the waste composition for the Island waste area in 2018, according to Lamm's report.

Table 13: Lamm (2019) Waste Characterization for Islands Service Area

Regional District or Region	RDOS (2008)	TNRD (2011)	RDNO (2012)	CSRD (2013)	SCRD (2015)	Metro Vanc. (2016)	RDKS (2017)	RDEK (2018)	Haida Gwaii (Gallant, 2007)	Haida Gwaii (Lamm, 2019)
Category										
Paper and Paperboard	10%	15%	15%	16%	9%	19%	20%	13%	25%	13%
Plastics	12%	11%	14%	18%	17%	19%	15%	14%	10%	14%
Glass	1%	2%	3%	2%	2%	3%	3%	3%	6%	3%
Metals	7%	4%	7%	6%	2%	3%	3%	5%	4%	4%
Compostable Organics	40%	44%	28%	34%	18%	27%	20%	30%	20%	25%
Non-compostable Organics	0%	1%	10%	4%	0%	11%	12%	8%	6%	8%
Construction - Demolition	10%	12%	7%	3%	25%	9%	4%	11%	7%	10%
Textiles	4%	4%	0%	0%	9%		0%	5%	7%	5%
Household Hygiene	0%		7%	4%	2%	6%	14%	5%		5%
Household Hazardous Waste	1%	2%	4%	6%	0%	1%	5%	2%	1%	2%
Electronics	1%	2%	3%	5%	6%	2%	1%	2%		2%
Bulky Waste	4%		0%	1%	8%	0%	2%	2%		6%
Fines / Other	10%	5%	2%	1%	4%	1%	2%	2%	14%	3%

When considering a waste study and reviewing composition results, it is important to keep in mind the variables at work and how they translate to the observed composition. Factors that affect the composition of the waste stream include:

- (a) Available curbside collection programs

- (b) Access to EPR programs
- (c) Cultural habits and values (backyard composting and waste burning)
- (d) Geography (island and remote communities)
- (e) Transportation limitations (ferries)
- (f) Seasonal variation (tourism and spring clean-ups)
- (g) Convenience of disposal versus diversion (curbside vs drop-off)
- (h) Diversion programs at disposal sites: yard waste, wood, scrap metal, etc.
- (i) Bag/can limits
- (j) Economic incentives (user pay vs taxation and variable tipping fees)
- (k) Disposal bans and enforcement of such
- (l) Education and communication programs.

It is recommended by SHA that the NCRD consider conducting a quantitative or hybrid waste composition study at all disposal sites in the region. The studies should be based on the standard practices developed by the province and stewardship agencies and performed regularly by other regional districts in cooperation with the stewardship agencies of BC (BC Recycles). BC Recycles will work cooperatively with local governments to assess the amount of their products still being disposed in various regions in BC.

The quantities of specific waste types still in the NCRD waste stream can be further shown as follows in Table 14 based on the Islands study. As stated above, this should be further refined with a new quantitative study at the Prince Rupert Landfill.

Table 14: Waste Composition Quantities Based on Lamm Study

Category	Percent	Tonnes
Paper & Paperboard	13%	1,676.25
Plastics	14%	1,805.19
Glass	3%	386.83
Metals	4%	515.77
Compostable Organics	25%	3,223.55
Non-Compostable Organics	8%	1,031.54
Construction & Demolition	10%	1,289.42
Textiles	5%	644.71
Household Hygiene	5%	644.71
HHW	2%	257.88
Electronics	2%	257.88
Bulky Waste	6%	773.65

Category	Percent	Tonnes
Fines/Other	3%	386.83
	100%	12,894.20

The above quantities represent the available materials for diversion in the waste stream. The quantities that can actually and practically be collected and diverted are quite different. Assessments are made on the practical percentage able to be diverted through drop off, curbside collection and reuse/reduction programs for planning purposes. Section 4 describes some of the opportunities to get at more of the above listed materials.

4.2 Waste Diversion Incentives

Controlling disposal of waste at the 'end of the pipe' or disposal site is a common way to divert materials from disposal. The NCRD and the City of Prince Rupert restrict disposal of many products and materials at their facilities resulting in significant diversion from disposal.

The City of Prince Rupert stipulates materials that are not accepted for disposal at their Landfill, including the following:

- (a) Batteries (Vehicle and Household)
- (b) Fluorescent Compact Bulb and Tube Lights
- (c) Solvents, Household & Marine Paint, Pesticides, Gasoline & Containers
- (d) Home Electronics Including: Computers, Monitors, TV's, Printers
- (e) Small Home Appliances Including: Microwaves, Vacuums, Water Coolers, Dehumidifiers, Oil Heaters
- (f) White Goods (Major Home Appliances) Including: Fridges, Freezers, Ovens, Ranges, Washing Machines, Dryers, Dishwashers, Air Conditioners, Furnaces, Hot Water Tanks
- (g) Tires
- (h) Used Outdoor Power Equipment Including: Lawnmowers, Snow Blowers, Power Saws, Weed Trimmers, Pressure Washers
- (i) Creosote Treated Wood & Railway Ties
- (j) Cans of paint and spray paint.

Items listed as Recyclable in the Island Solid Waste Management Regulation; Fees & Charges Bylaw include the following:

- (a) Appliances
- (b) Small Appliances

- (c) Empty 171-liter drums
- (d) Empty tanks over 171 liters
- (e) Propane tanks
- (f) Tires
- (g) Vehicle hulks (not accepted at Transfer Stations)
- (h) Lead acid batteries
- (i) Paint products
- (j) Waste oil/filters/containers
- (k) Sorted Metals.

There are no variable tipping fees or stipulation of fines or surcharges for unsorted loads or loads containing the above materials. It is common to add additional items to the restrictions or prohibited list when viable diversion options become available such as organics, including yard waste, wood waste and food scraps; concrete and other crushable waste; textiles; mattresses/box-springs; glass [could be considered with crushable waste]; asphalt shingles; drywall/gypsum wallboard; and items for reuse such as small appliances, toys and furniture.

The NCRD and Prince Rupert regularly examine and adjust the fees associated with bringing waste materials to their facilities to both collect adequate revenue and control what is disposed to meet environmental regulations and conserve landfill capacity. Fees are set that provide incentive to sort loads prior to entering a facility, take the materials elsewhere for recycling or proper disposal, or put materials in the proper place at the site. For example, the General Refuse fee at the PRL is \$175/tonne and the fee for asphalt, concrete, metal, rock, clean wood and yard waste is much less at \$17.10/tonne. Another disincentive at the PRL is their fee for white goods and excess cardboard: \$660 per load. These items are accepted at the NCRD's Regional Recycling Depot in Prince Rupert at no cost, so the fee encourages diversion to this facility where materials are managed under a Stewardship Program.

Besides informing their customers of the materials the NCRD's Regional Recycling Depot accepts, Prince Rupert's landfill brochure also provides alternative locations for diverting other prohibited materials such as the following:

- (a) Used outdoor power equipment - Seasport Marina in Prince Rupert
- (b) Used oil and antifreeze - to a local auto repair shop
- (c) Propane cylinders - Coastal Propane on George Hills Way.

Both Landfills include a list of prohibited wastes within their respective waste management bylaws. These lists are summarized in Table 16.

Table 15: Prohibited Wastes at Landfills within the NCRD

Island Landfill	Prince Rupert Landfill
<ul style="list-style-type: none"> - Liquids - Slurry (except as permitted) - Empty steel and plastic drums, unless they are crushed, shredded or similarly reduced in volume to the maximum practical extent - Ignitable waste - Radioactive waste - Special waste (except as permitted) - Refuse that is on fire or smouldering - Explosives - Industrial chemical waste - Lead acid batteries (except as permitted) - Small tires or large tires mounted on rims - Ozone depleting substances except as permitted herein. 	<ul style="list-style-type: none"> • Hazardous (including pathogenic and radioactive wastes) • “Hazardous Wastes” as defined by the Environmental Management Act (BC) • Any substance prescribed as “waste” by regulation under the Environmental Management Act • Non-sterilized biomedical waste • Explosive substances • Chemicals or other materials which may create hazardous working conditions • Inflammable materials • Ashes or other materials hot enough to start combustion • Waste oil, petroleum by-products, used oil filters or equipment lubricant filters. • Contaminated water waste • All forms of excrement excluding minor amounts of domestic pet waste. • Tanks, barrels, drums, pails, and other large liquid containers that are not empty, unless authorized by the Director of Operations. • Creosote painted/pressure treated materials • Contaminated soils unacceptable to the Director of Operations • Tires • Commercial loads of dry cell batteries • Corrugated cardboard from commercial sources • White goods • Any other material deemed by the Director of Operations of the Medical Health Officer as

Island Landfill	Prince Rupert Landfill
	hazardous, unacceptable, or unsuitable for disposal at the Landfill Site. <ul style="list-style-type: none"> • Some prohibited materials may be accepted in small quantities for recycling • Wire rope

As shown above, waste diversion can be managed through controlling when, what and how waste materials are brought to the disposal facilities. Amendments to regulatory bylaws as more local programs are implemented for recyclable materials should be carefully considered with respect to the sustainability of new programs and length of the implementation period.

4.3 Bylaws

The NCRD and member municipalities have adopted bylaws for the management of solid waste in the region, including for service establishment, reserves establishment, rates and site and program regulations and rules. A summary of these bylaws is included in the following table.

Table 16: Solid Waste Related Bylaws within the NCRD and Incorporated Areas

Administration	Bylaw No.	Amending Bylaws	Bylaw Name	Service Area	Adoption Year
NCRD	263		Regional Solid Waste Management Plan	NCRD	1996
NCRD	270	270.1	Collection Service Establishment Bylaw	Mainland	1994
NCRD	271	271.1	Collection Service Establishment Bylaw	Islands	1994
NCRD	276	296, 308, 317, 333, 345, 351, 402, 415, 435, 466, 468, 513, 514, 520, 525, 536, 573, 584, 669, 680, 685	Islands Solid Waste Regulations, Fees, and Charges	Islands	1995

Administration	Bylaw No.	Amending Bylaws	Bylaw Name	Service Area	Adoption Year
NCRD	568		Skeena-Queen Charlotte Regional District Regional Recycling Reserve Fund Establishment Bylaw	NCRD	2013
NCRD	569		Skeena-Queen Charlotte Regional District Islands Solid Waste Reserve Fund Establishment Bylaw	Islands	2013
NCRD	570		Skeena-Queen Charlotte Regional District Landfill Closure Reserve Fund Establishment Bylaw	NCRD	2013
NCRD	587	587.1, 587.2	Skeena-Queen Charlotte Regional District Regional Recycling Fees and Charges Bylaw	NCRD	2014
NCRD	588		Regional Recycling Advisory Committee Bylaw	Mainland	2014
NCRD	643		North Coast Regional District Island Solid Waste Capital and Planning Reserve Fund Establishment Bylaw	Islands	2019
NCRD	644		North Coast Regional District Regional Recycling Capital and Planning Reserve Fund Establishment Bylaw	NCRD	2019

Administration	Bylaw No.	Amending Bylaws	Bylaw Name	Service Area	Adoption Year
NCRD	660		North Coast Regional District Regional Solid Waste Management Reserve Fund Establishment Bylaw	NCRD	2019
NCRD	672		North Coast Regional District Five-Year Financial Plan Years 2021-2025 Bylaw	NCRD	2021
District of Port Edward	666		Refuse Rates & Regulations Bylaw	District of Port Edward	2015
City of Prince Rupert	3480		Solid Waste Management Bylaw	City of Prince Rupert	2021

Bylaws that set restrictions and prohibitions on acceptance of waste materials at disposal facilities when there are economically beneficial reuse or recycling options available are being used to help divert materials from disposal. Variable tipping fees at disposal facilities that encourage prior separating and sorting of materials to save in disposal fees when arriving on site is also a significant diversion tool when it comes to affecting public behaviour and the decisions to avoid disposal.

4.4 Waste Diversion Programs – Successes, Opportunities and Barriers

Besides the tools described above, the most noticeable **successes in waste diversion** in the NCRD have involved the BC Recycling Regulation and its Extended Producer Responsibility (EPR) program requirements. These have resulted in a significant change in the method and quantity of materials diverted in the NCRD since the mid-1990s. The following is a list of the programs currently active in the region with an indication of the quantities of materials collected and reported in recent years.

1. Extended Producer Responsibility - product producers are responsible for end of product life:
 - a) BC Used Oil Management Association (BCUOMA - Islands only) – used lubricating oil, oil filters, oil containers, used antifreeze and antifreeze containers. [2020 Annual Report: 223,385 L Oil, 36,320 Filters, 13,815 kg Containers, 6,571 L Antifreeze]

- b) Major Appliance Recycling Roundtable (MARR) – stoves, fridges, freezers, washers, driers, etc [6 collection sites – no quantities shipped in 2019/2020]
- c) Recycle BC (Mainland and Q2 2022 for NCRD depots on Haida Gwaii) – packaging and printed paper [2020 Annual Report: 3 facilities, 488 tonnes]
- d) Call2Recycle (Islands & Mainland) – household batteries [2020 Annual Report: no reporting by Regional District]
- e) ElectroRecycle (Canadian Electrical Stewardship Association, CESA) – small appliances and power tools [No 2020 Annual Report on quantities by Regional District]
- f) Encorp Pacific – beverage containers [2020 Annual Report: Aluminum, Plastic, Glass, Polycoat & Other beverage containers total was 343 tonnes; 2 Return-It Depots, 1 Processing Plant]
- g) Product Care Recycle – paint, household hazardous waste, lights and smoke alarms [2020 Annual Report: 12.2 tonnes Paint, 1.7 tonnes Aerosols, 0.54 tonnes Solvent, 0.07 tonnes Alarms, 2.9 tonnes lights/bulbs, 23.3 tonnes CESA (small appliances & power tools)]
- h) Tire Stewardship BC – collects tires in both Islands and Mainland service areas [2020 Annual Report: PLT/MT/AG/LS 137.55 tonnes]
- i) RecycleMyCell – collects used cell phones at The Source and Freedom Mobile in Prince Rupert [2019 Annual Report: No quantities provided by Regional District]
- j) Outdoor Power Equipment Institute (OPEI) – lawnmowers, leaf blowers, etc [2020 Annual Report: 4 collection sites; 314 tonnes]

Additional to the EPR programs listed above, the following summarizes the waste diversion programs available in the NCRD, including an indication of the quantity of material recently reported or lacking reporting.

1. Convenient community drop off depots and bins for recyclable material operated by the NCRD for the residential and commercial sector – five on Haida Gwaii [2021: 2,147 m3 collected and shipped, including above listed quantities] and one on the Mainland [2021: 1,315 tonnes processed and marketed, including above listed quantities]
2. NCRD provided commercial cardboard curbside collection service to approximately 34 institutional and commercial customers on Haida Gwaii that use bags provided by the NCRD. The program was originally implemented to help keep the community bins from overflowing and currently the \$20/pickup – unlimited amount user fee is not sufficient to cover the costs. [quantities not reported]
3. NCRD provided commercial office paper curbside collection service provided to approximately 50 institutional and commercial customers in the Prince Rupert and Port Edward area. The user fee of \$15, \$20, or \$30 per pickup, depending on number of bags, is not sufficient to cover the costs. [2021: 42 tonnes transported to the NCRD Regional Recycling Depot for processing and marketing – not included in Recycle BC quantities]
4. City of Prince Rupert curbside recycling collection program – started in January 2022 under agreement with Recycle BC [quantities not yet reported; however the estimate is approximately 30 tonnes per month, or about 25 kg per capita]

5. Old Massett Village Composting Facility – funding and construction started in 2023 with plans to start collecting and composting food waste and wood chips in a small in-vessel containerized composter in spring 2024 [quantities not yet reported; however the estimate is approximately one tonne per week]
6. Waste separation opportunities at disposal facilities for the following materials:
 - a) EPR items: major appliances, tires, batteries [included in quantities listed above in item 1.]
 - b) Organic materials (clean wood, logs and branches for burning) [not tracked]
 - c) Empty drums/tanks [not tracked]
 - d) Propane tanks [not tracked]
 - e) Vehicle hulks stripped (no oils/battery/tires) - Not accepted at Transfer Stations [not tracked]
 - f) Vehicle hulks with fluids - Not accepted at Transfer Stations [not tracked]
 - g) Sorted Metals [no recent data available].

The following are other **potential opportunities** that, because of their similarity to programs already in place in the region, may be given consideration for future assessment, design and implementation:

1. Curbside recyclable material collection in Port Edward under agreement with Recycle BC
2. Curbside recyclable material collection on the same routes as garbage collection on Haida Gwaii under agreement with Recycle BC
3. Curbside recyclable material collection in Old Massett and Skidegate under agreement with Recycle BC
4. Increased disposal prohibitions and/or associated fees that provide disincentive to mix any amount in a load brought to the Islands Landfill and Transfer Stations, and at the Prince Rupert Landfill including all materials currently under a stewardship program agreement with the NCRD and/or City of Prince Rupert.
5. Improved communication with residents and businesses through media such as the NCRD and member municipality's websites, Facebook pages, newsletters, notices through radio and newspapers. For businesses specifically, increase communication through organizations such as the Chamber of Commerce.

In order to take advantage of the above opportunities it is important to work with organizations such as school boards Northern Health including hospital and clinics and industry groups to assist with developing waste reduction programs by providing tools and training programs (i.e., an aspect of a Waste Reduction Coordinator's position).

Barriers to waste diversion observed by SHA during development of the SWMP include the following:

1. Economies of scale that many smaller and lower populated regions experience when attempting to fund programs, especially if there is hesitation to increase taxation or user fees to cover costs
2. Distance and shipping costs to get collected materials to markets and reuse/recycle and disposal opportunities, and few opportunities for backhaul
3. Staffing and financial resources to manage and implement new programs and initiatives.

4.5 Waste Prevention Initiatives

Initiatives to specifically address reduction of waste generation (the first R) have not been an area of focus for the NCRD. In 2014 some educational outreach by a waste reduction coordinator was conducted on the Mainland using grant funds and has not been continued. SHA has included the provision of a Waste Reduction Coordinator in this Second Draft SWMP that is intended to be instrumental in moving many of the strategies, initiatives and day to day improving of system efficiencies ahead, including quantity recording and reporting.

4.6 Waste Reuse Initiatives

The NCRD Regional Recycling Depot participates in the Paint Share program through Product Care, where the public can pick-up left-over paint that has been dropped off for recycling. The program is free and sets no limits to how much paint can be taken.

Additionally, several thrift and used goods stores as well as social media marketplaces exist in the NCRD and provide opportunities for reuse of goods prior to end of life.

5 GOALS AND STRATEGIES

To meet a reduced disposal target, for example: from the existing rate of 710 kg/capita to the provincial average of 500 kg/capita, SHA recommends the policies and programs outlined herein be implemented over the next five to ten years. The initiatives are divided into Waste Diversion and Residuals Management with a further breakdown into administrative, residential, ICI, and CRD. The options are summarized in Table 18 at the end of the section that includes the diversion potential. Note that for municipal and First Nations recycling and waste collection programs, they are responsible for providing planning and education/behaviour change support for their own programs.

5.1 Waste Diversion

Administrative

A-1: Improve the operational efficiency of the NCRD waste management system.

Issue: Improve regular examination of each solid waste management service so that they can be refined and modified as necessary to improve efficiency.

1. Develop a set of parameters that can be assessed quarterly or annually by the service area managers, and subsequently reviewed by the advisory committees, including but not limited to:
 - a. quantity of each type of material handled by source (jurisdiction) and type (Residential, ICI, CRD) in tonnes
 - b. costs (wages, utilities, maintenance, trucking, other)
 - c. revenues and number of operating hours
2. Prepare an annual report on SWMP status and present to the Board of Directors
 - a. Table of contents: Summary, 2022 SWMP Initiatives Status, Diversion Targets, Plan Monitoring Committee, Waste Diversion Contingency Plan, Plan Financing and Landfill Closure Reserve, Performance Monitoring, Disposal Rate, Refuse Disposed by Source and Type, Diversion of Materials at Disposal Sites, Other Diversion, RCBC & Recyclepedia Inquiry Data, Solid Waste Management Trends
3. Prepare asset management plans and update as necessary to ensure equipment and other capital replacements are on schedule and funded

A-2: Continue monitoring solid waste management facilities and services.

Issue: Continue monitoring facilities and services to be proactive with respect to repairs and maintenance and funding large capital improvements.

1. This initiative can be accomplished through the collection of service specific data – refer to A-1

A-3: Improve service delivery to rural and underserved communities in the Islands and Mainland service areas.

Issue: Some areas of the region remain underserved with respect to waste diversion opportunities even though delivery of waste collection, processing and disposal services in the NCRD rural communities has undergone fairly recent improvements. Improvements have been initiated directly by the NCRD and by other jurisdictions including increased access to facilities through management agreements and extended operating hours.

1. Continue to remain open to requests for assistance with provision of services in underserved areas
2. Review and consider amending facility operating hours and days when requested, or when necessary, to increase user convenience and operational efficiencies, ensuring negative impact on illegal dumping is avoided

A-4: Improve transportation of materials between service areas.

Issue: Costs of transporting recyclable material and refuse between the Island facilities and between the Island and the Mainland can be very difficult to control.

1. To assess whether or not shipments are efficient or need to be reconfigured, including outsourcing versus in-house provision of the transportation, compaction of materials versus hauling loose, and scheduling shipments it is essential to record costs and schedules systematically (see A-1) using a consistent set of parameters on a regular basis
2. Review site access for contractors to improve hauling times
3. Examine availability of switch bins

A-5: Develop cost recovery models.

Issue: Improvement is needed with respect to understanding service costs and revenues.

1. Implement A-1
2. Discuss cost recovery options through public and interested parties' consultation including with the finance managers of the member municipalities

A-6: Establish a permanent Island Solid Waste Advisory Committee.

Issue: There is no longer an advisory committee to advise on managing the Islands Solid Waste Service.

1. Reestablish the Island Solid Waste Advisory Committee

2. Establish terms of reference and meeting schedule for the committee
3. Advertise for and solicit interested members

A-7: Expand the list of prohibited waste.

Issue: Improve waste diversion by prohibiting materials from disposal that have an alternative use or can be recycled under a viable and sustainable program (e.g., EPR). These items would not be banned from disposal until there is a viable alternative.

1. Examine current options for expanding EPR programs in the region such as:
 - a. Household Batteries at transfer stations
 - b. Cell Phones/Wireless Equipment at transfer stations and landfills
 - c. Refundables at Island recycling depots
 - d. Lead-Acid Batteries at Island recycling depots
 - e. Outdoor Power Equipment at NCRD Recycling Depot
 - f. Packaging & Paper Products at drop bins
 - g. Styrofoam at Island recycling depots and landfill
 - h. Used Oil/Antifreeze at NCRD Recycling Depot and Island recycling depots
 - i. Paint Plus at all Island facilities
2. Examine options for diverting hazardous waste to environmentally secure disposal (refer to R-7)

A-8: Update Bylaws.

Issue: The NCRD waste management bylaws require periodic review to ensure they remain current and comply with current stewardship programs.

1. Update Bylaw 276
2. Update Bylaw 587

A-9: Upgrade the Septage Receiving Facility at the Skidegate Transfer Station.

Issue: Upgrades to the Septage Receiving Facility at the Skidegate Transfer Station are needed. The NCRD has asked SHA to develop a plan that identifies the required upgrades, the service area, the operational requirements, and the costs to protect the environment, provide a sustainable well operated facility to Island stakeholders, and to comply with the Operational Certificate.

1. Develop the Skidegate Septage Treatment Lagoon Management Plan
2. Update bylaws and agreements for the facility use

Residential

R-1: Fund a Waste Reduction Coordinator.

Issue: As a carry forward item from the 1996 SWMP that wasn't implemented, it has been difficult to dedicate time and resources to waste reduction communication and education in the region.

1. Develop terms of reference for a specialty skilled waste reduction and education coordinator shared between the Island and Mainland Services
2. Hire a full-time waste reduction and education coordinator

R-2: Assist users and improve their participation in waste segregation and diversion programs.

Issue: Improve user knowledge and participation in waste diversion.

1. Determine if participation and knowledge is low and why it is low through a public survey
2. Examine the use of tools such as RecycleCoach, a mobile phone App
3. Utilize a waste reduction and education coordinator to make improvements
4. Develop a quarterly online newsletter
5. Improve website and brochure information
6. Consider encouraging all garbage collection providers to shift towards a more user pay service by reducing the number of bags/cans allowed at the curb on a given collection day and make 'bag tags' available for extra bags

R-3: Maximize compliance with new and existing stewardship programs.

Issue: As more agreements with product stewards are made available and secured it will be important to monitor compliance with the terms and conditions to ensure maximum revenues are received and fines or non-compliance notices are not received.

1. Ensure non-refundable glass and tin containers are part of the RecycleBC program to be implemented in the Islands Service Area (these items stopped being collected by the NCRD in 2015 due to storage and shipping issues but they are part of the Packaging and Paper Products stewardship program in the Province managed by RecycleBC and should become part of the agreement)
2. Ensure good records are kept and communication is consistent
3. Ensure the service agreement terms and conditions are laid out clearly and in writing with acceptable service change notices and possible compensation for withdrawal

4. Examine space constraints at facilities
5. Encourage the ENV to include the ICI sector packaging and paper in the Recycling Regulation and ensure producers become responsible for this material resulting in, among other things, reduced administrative costs for the NCRD (e.g., manufacturing packaging)

R-4: Optimize recycling efficiencies by increasing diversion rates for residential materials or commercial generators that are below average.

Issue: Diversion rates for residential and commercial recyclable material may be low and need to be optimized to ensure processing efficiency.

1. Monitor sources of recyclable materials that show a decline in quantities generated on a monthly or quarterly basis to be proactive and ready for possible revenue decreases
2. Monitor market declines on a regular basis
3. Regularly research alternate generators that could help balance or mitigate declines in quantity received and processed
4. Conduct participation surveys including 'ride alongs' with residential collection trucks
5. Conduct face-to-face meetings with ICI generators
6. Consider space constraints at Island facilities

R-5: Develop a strategy to reduce single-use items.

Issue: Use of single-use items such as plastic grocery bags, take-out containers and straws has become a major waste disposal and littering problem throughout the world, especially in the marine environment. The NCRD has not implemented any single-use items bans in the region to date.

1. Investigate a potential single-use plastic ban for the region, or at least an education program that promotes the Federal Government's policies
2. Examine policies already implemented by other jurisdictions
3. Coordinate efforts with member municipalities

R-6: Develop a food waste reduction strategy.

Issue: Food waste is one of the largest components of refuse going to landfill (25% estimated in the NCRD), it negatively impacts GHG production, it can be used beneficially for soil improvement, and diverting this 'low hanging fruit' will make the largest impact on diversion in most communities.

1. Encourage food waste reduction through educating the public about how to buy food in a way that does not result in waste (e.g., Love Food Hate Waste federal campaign)
2. Consider developing an organics management strategy for the region either in house or utilizing a consultant (\$40,000 added to 5-Year Financial Plan in 2025)
3. Utilize a waste reduction and education coordinator to develop and implement a food waste diversion strategy via brochures, social media, school visits, etc. and utilize print materials already available from senior government and other regional districts
4. Implement a backyard composting program that includes subsidizing the cost of composters
5. Consider banning organics from the landfills with sufficient notice to help establish processing capacity in the region starting with commercially generated food waste
6. Consider implementing a residential food waste collection program once processing capacity is established
7. Establish processing capacity leveraging senior government grant programs
8. Consider production of energy through the anaerobic digestion of organics, if materials become substantially more plentiful, to reduce dependency on diesel for electricity production on Haida Gwaii
9. Investigate the Loop Resource (collecting and transferring food waste to farmers) program and help communities implement the program
10. Work with member municipalities and First Nations in a coordinated effort to set policy (e.g., OCPs, bylaws) especially with respect to GHG reduction

R-7: Collect household hazardous waste (HHW).

Issue: To prevent harming human health and the environment, it's essential that hazardous waste is handled, stored, transported, treated and disposed of properly in the region, especially at NCRD facilities.

1. Collaborate with communities, public organizations, industry leaders and private agencies to ensure that current technology and best practices guide the handling and disposal of hazardous waste in the region
2. Continue to work with and improve programs with stewardship agencies that have taken on the responsibility of end of life for HHW including Product Care and BCUOMA who currently manage a select number of products in the NCRD
3. For recycling depots that do not have the full-service programs, it would be beneficial for protection of the environment to pursue agreement amendments or new agreements with stewards
4. Consider space constraints and staff safety for this initiative

5. Establish a paint share program for the Island (currently only in Prince Rupert)

R-8: Encourage reuse such as at thrift stores.

Issue: Improve reuse of materials and products in the region.

1. Support already established not-for-profit and for-profit businesses that make reuse a priority
2. Add reuse messaging to the NCRD website
3. Consider a 'free store' at the transfer stations that the attendant manages under a specific policy and develop the policy
4. Organize a used clothing drop off bin at NCRD facilities (e.g., Diabetes Canada)

R-9: Work with local bicycle retailers for inclusion in the Tire Stewardship BC bicycle tire program.

Issue: Tire Stewardship BC recycling of bicycle tires and tubes is underutilized in the region.

1. Help Tire Stewardship BC set up a drop off location for bicycle tires and tubes on both the Island and Mainland

R-10: Change the way Recyclable Material is collected on Haida Gwaii to lower costs and enhance waste diversion.

Issue: The costs to operate the Daajing Giids and Masset Recycling Depots far outweigh the revenue received from taxation, user fees and stewardship agency funding. As the costs and revenues for the Islands Solid Waste Management service are for the most part amalgamated, existing fees and charges for other services cover the costs. It has been suggested that the funding for this facility may be better spent upgrading the central recycling depot at the Islands Landfill if there is sufficient space available for additional infrastructure, and also spent on covering shipping costs to the NCRD Recycling Depot in Prince Rupert. Also, currently the Skidegate Band and Old Massett Village councils do not pay into this recycling service.

1. Review implementation of a curbside collection recycling program on Haida Gwaii to replace the Daajing Giids and Masset Recycling Depots on the same route as the current garbage collection service
2. Centralize and enhance recyclable material collection, processing and storage at the Islands Landfill Recycling Depot
3. Consider changing recycling depot hours to facilitate more users and ensure the hours can meet the needs of working users

4. Implement multi-material roundups with the support of stewardship agencies to collect a wide assortment of products and materials, and consider holding the events in conjunction with other community activities such as farmers markets and repair cafes
5. Consider adding more community bins in areas that may need the convenience of local drop off options
6. Develop cost sharing agreements with First Nations for use of existing and new recycling services
7. Consider the costs to close facilities and terminate agreements where necessary and provide at least six months notice to residents and businesses of any changes to the services

Institutional, Commercial and Industrial

I-1: Encourage initiatives for commercial organics diversion.

Issue: Organic waste diversion from the commercial sector has not yet been encouraged in the NCRD. Encouraging diversion of organics generated in the ICI sector would need to start with education and showing how a generator can save money on tipping fees by reducing the amount of food waste produced.

1. Examine policy changes to drive diversion of organics such as providing a disincentive through raising tipping fees or banning organics at a disposal facility
2. Start with educating sectors that would be impacted by an organics policy change (may require additional staff as described in R-1)
3. Ensure there is an alternative in place and a lengthy implementation period if an organics ban is implemented

I-2: Enhance and enforce ICI solid waste source control.

Issue: Minimizing solid waste generation in the ICI sector has not been a focus of the NCRD to date but could result in substantial diversion quantities if a sector specific program is implemented.

1. Start with education as described above for other initiatives, especially with respect to drop off opportunities that may not charge fees
2. Design and perform waste generation audits for businesses that are interested in doing their part for the environment and setting an example
3. Consider policies that balance the 'carrot and stick' approach (e.g. increase tipping fees for mixed loads that contain recyclable material, offering awards for businesses that have waste reduction policies)

I-3: Recover costs of ICI PPP collection and processing.

Issue: Revenue collected for the commercial paper and cardboard recycling pickup programs operated by the NCRD in the Islands and Mainland Service Areas are not sufficient to cover costs. User fees would need to be raised by at least 60% for the Islands service and over 100% for the Mainland service.

1. Consider increasing pickup fees gradually
2. Ask commercial customers to drop off material instead of having it picked up
3. Promote a private service
4. Use an alternative mechanism for recovering costs (e.g., taxation)

Construction, Renovation and Demolition

CRD-1: Clean wood waste diversion and re-use.

Issue: Clean wood that could be used for other purposes (e.g., chipped and composted for landfill cover) is not being diverted but instead is mixed with other wood products and burned at Island disposal facilities except at the Masset Transfer Station.

1. Implement a clean wood segregation program
2. Consider making 'cut-ends' and other materials useful for construction available to the public
3. Vary the tipping fees for clean versus dirty wood to provide incentive to separate
4. Consider chipping clean wood, including branches and broken logs and stumps, for mixing with soil and using for landfill cover and landscaping, or for composting into a useable and/or saleable product
5. Consider wood-waste diversion and re-use in accordance with FireSmart BC principles

CRD-2: Improve Salvage of Usable Demolition and Deconstruction Materials.

Issue: A lot of usable materials end up in scrap metal piles. Safe and organized salvage could be one way of encouraging more segregation and deconstruction of structures instead of landfilling demolition waste.

1. Implement a salvage program for useful materials in stockpiles at the Landfills
2. Encourage deconstruction instead of demolition so that windows, doors, cabinets, etc. could feasibly be reused through the permitting process, and consider differential tipping fees for mixed loads where possible

3. Consider wood-waste diversion and re-use in accordance with FireSmart BC principles

5.2 Residuals Management

RM-1: Maintenance of Transfer Stations.

Issue: This item is also from the original SWMP (I4.1.4) and recommends that maintenance of the transfer stations be included in the garbage collection contract to ensure that the three Islands transfer stations are regularly maintained or at least a report is provided to the NCRD on the condition of the site on a monthly basis so that any repairs and issues can be resolved on a pro-active basis.

1. Develop terms of reference to include in future transfer station operation contracts
2. Implement a transfer station maintenance reporting structure

RM-2: Islands collection costs review.

Issue: From the original SWMP item I5.2.1 recommends that the estimated annual cost of the Islands garbage collection contract be apportioned amongst the total number of collection units and applied to the bills.

1. Review total collection contract costs and ensure fees collected support all incurred costs including administration
2. Review actual dwelling counts on a regular basis (e.g. bi-annually)
3. Review agreements with jurisdictions collecting fees on the NCRD's behalf to ensure costs are commensurate with the effort used

RM-3: Problem waste stockpiled at facilities.

Issue: According to NCRD staff, some recyclable materials such as scrap metal and crushable items tend to accumulate at NCRD facilities where the stockpiles become problematic. Auto hulks are not stockpiled at local government facilities, however there is substantial inventory at private facilities that is becoming problematic. Item I9.1.1 in the original SWMP identified this issue and it appears that it is still an ongoing problem.

1. Develop a problem waste materials program that includes the following:
 - a. Collection of sufficient tipping fees to cover disposal/recycling costs
 - b. Establish a problem waste management reserve that would be used on a regular basis (e.g., every five years) to manage problem waste stockpiles

- c. Regularly inquire (bi-annually at least) about costs to crush, transport, and market material
 - d. Look for backhaul windows of opportunity for shipping materials
2. Consider innovative ways to track vehicles that come onto the Islands including requiring a deposit that is returned when the vehicle is taken off Haida Gwaii.

RM-4: Illegal dumping management.

Issue: As in the original SWMP (I10.2.2), and still pertinent to today, the NCRD requires an illegal dumping management strategy.

1. Develop and adopt an illegal dumping bylaw with a schedule of fines for various infractions that corresponds to the Provincial rules so that Conservation Officers may enforce
2. Coordinate with member municipalities and First Nations to ensure messaging is consistent
3. Develop an illegal dumping management strategy consisting of at least the following:
 - a. Report all illegal dumping to the Solid Waste Manager
 - b. Use social media to request witnesses where possible
 - c. GPS each dump site to monitor trends/patterns
 - d. Erect signs at each common dump site stating that the areas are under surveillance and illegal dumping is strictly enforced
 - e. Assist community groups/clubs with cleanup by allowing free tipping with prior written approval
 - f. Attempt to find evidence of who dumped the garbage when possible so that letters could be written to the illegal dumper with the threat of fines
 - g. Work with local Conservation Officers to issue fines where possible

RM-5: Consider closure of underutilized facilities if illegal dumping can be avoided and managed.

Issue: For example, the cost to operate the Masset Transfer Station is in the order of \$148/tonne with the annual revenue from tipping fees being about 18% of the annual expenses. Now that all commercial loads are going direct to the Islands Landfill, there is an existing weekly curbside garbage collection service in place, there are commercial

subscription services available, and the Landfill is a 25-minute drive from the Transfer Station, closure of this facility is considered to be the practical and economical choice. Also, the facility needs new roll-off bins at a price of about \$25,000 each and a perimeter fence for security and safety at an estimated cost of \$75,000.

1. Consider enhancing the curbside garbage collection service to include one or two bulky item pick-up services per year and 'free tipping' days at the Islands Landfill
2. Regularly review facility hours to optimize use and ensure efficiency
3. Ensure businesses and residents have an opportunity to provide input on modified service
4. Consider using sites for composting food and yard waste and produce a product for local gardeners and farmers (ensure costs are considered as well as odours and leachate management)
5. Consider closure costs and agreement terminations associated with Transfer Station
6. Provide sufficient notice to area residents and businesses prior to closure; minimum six months
7. Reallocate staff to other programs

RM-6: Increase Sandspit Transfer Station Operational Efficiencies.

Issue: Currently the subscription commercial garbage hauler, Haida Gwaii Ties, tips their loads at the Sandspit Transfer Station and the NCRD's curbside garbage collection contractor hauls their loads directly to the Islands Landfill. Disallowing commercial haulers to tip at the Transfer Station would reduce the number of transfer trips from Sandspit to the Islands Landfill, thus saving the service substantial operating costs. The revenue received from tipping fees at the Transfer Station is at least 50% less than operating costs. Quantities received at the Transfer Station are not recorded.

1. Consider disallowing the tipping of commercial loads of garbage at the Transfer Station bins
2. Amend bylaws to reflect changes to facility use requirements
3. Consider enhancing collection by offering a bulky item pickup service once or twice per year and additional 'free days' at the Islands Landfill
4. Provide sufficient notice for any program changes

RM-7: Increase Skidegate Transfer Station Operational Efficiencies.

Issue: The Skidegate Transfer Station receives loads of refuse from commercial collection vehicles operated by the Skidegate Band Council on Reserve lands, and the NCRD residential curbside collection contractor hauls direct to the Islands Landfill 46 minutes' drive north, then west of the Skidegate community. Disallowing commercial haulers to tip at the Transfer Station would reduce the number of transfer trips from Skidegate to the Islands Landfill, thus saving the service substantial operating costs. The revenue received from tipping fees at the Transfer Station is at least 73% less than operating costs. Quantities received at the Transfer Station are not recorded.

1. Consider disallowing the tipping of commercial loads of garbage at the Transfer Station bins
2. Amend bylaws to reflect changes to facility use requirements
3. Consider enhancing collection by offering a bulky item pickup service once or twice per year and additional 'free days' at the Islands Landfill
4. Provide sufficient notice for any program changes

RM-8: Prince Rupert Landfill Transfer to the NCRD.

Issue: The 1996 SWMP contained an initiative to transfer the Prince Rupert Landfill permit to the Regional District (M6.4.1). Throughout engagement and consultation on the 2022 draft SWMP, this possibility was raised again. It is not uncommon in BC for regional districts with the regulatory authority to manage solid waste in their region through an approved SWMP to take over and/or assume ownership of local government MSW disposal facilities in their region, with the goal of administering as many of the active disposal facilities as possible to harmonize waste management goals, objectives and bylaws in the region.

1. Review the pros and cons associated with the transfer of ownership initiative
2. Participate and share in the costs associated with information sharing workshops
3. Record all comments related to this initiative in the SWMP Public Consultation Report

5.3 Waste Diversion Potential

Table 18 provides a summary of the above listed initiatives along with the estimated diversion potential for each. The total potential diversion quantity of 3,036 tonnes represents a change in disposal per capita of 167 kg per capita, bringing the NCRD disposal rate down to 543 kg per capita from the current 710 kg per capita.

Table 17: Diversion Potential Summary

Initiative	Planned Strategy	Diversion Potential (Tonnes)
A-1	Improve the operational efficiency of the NCRD waste management system	
A-2	Continue monitoring solid waste management facilities and services	
A-3	Improve service delivery to rural and underserved communities in the Island and Mainland service areas	
A-4	Improve transportation of materials between service areas	
A-5	Develop cost recovery models	
A-6	Establish a permanent Islands Solid Waste Advisory Committee	
A-7	Expand the list of prohibited wastes	400
A-8	Update Bylaws and Website (Island & Mainland)	
A-9	Upgrade the Septage Receiving Facility at the Skidegate Transfer Station	
R-1	Fund a Waste Reduction Coordinator	483
R-2	Assist users and improve their participation in waste segregation and diversion programs	
R-3	Maximize compliance with new and existing stewardship programs	500
R-4	Optimize recycling efficiencies by increasing diversion rates for residential & commercial materials	100
R-5	Develop a strategy to reduce single-use items	10
R-6	Develop a food waste reduction strategy	910
R-7	Collect household hazardous waste (HHW)	5
R-8	Encourage reuse such as thrift stores	30
R-9	Work with local bicycle retailers for inclusion in the Tire Stewardship BC bicycle tire program	1.8
R-10	Change the way Recyclable Material is collected on Haida Gwaii to lower costs and enhance waste diversion	106
I-1	Encourage initiatives for commercial organics diversion	225
I-2	Enhance and enforce ICI solid waste source control	375
I-3	Recover costs of ICI PPP processing	
CRD-1	Clean wood waste diversion and re-use	
CRD-2	Improve Salvage of Usable Demolition and Deconstruction Materials	5
Total waste diversion potential		3,146
RM-1	Maintenance of Transfer Stations	
RM-2	Islands Collection Costs Review	
RM-3	Problem Waste Stockpiled - Auto Hulks at Private Sites (2029)	
RM-4	Illegal Dumping Management	
RM-5	Consider Closure of Underutilized Facilities if Illegal Dumping can be Avoided and Managed	
RM-6	Increase Sandspit Transfer Station Operational Efficiencies	
RM-7	Increase Skidegate Transfer Station Operational Efficiencies	
RM-8	Prince Rupert Landfill Transfer to the NCRD	

6 PLAN MONITORING AND MEASUREMENT

6.1 Solid Waste Management Plan Monitoring Committee

It is recommended that a committee be formed to monitor the implementation of the SWMP and to make recommendations to increase the effectiveness of the initiatives and strategies. A Draft Terms of Reference for a SWMP Monitoring Task Force is attached in Appendix G and should be reviewed in consultation with the PTAC before this advisory committee is dissolved.

6.2 Annual Reporting

The NCRD will compile data from NCRD facilities on all residual disposal activities in the regional district and provide annual information to the ENV online disposal calculator.

6.3 Five-Year Effectiveness Review

Five years into the implementation of the SWMP, the NCRD will carry out a review of the plan's implementation and effectiveness, as prescribed by the ENV. This review should result in a report that is made publicly available and does not need to be submitted to the ENV for approval. This review may include:

1. Overview of all programs or actions undertaken in the first five years to support the plan goals and targets, including status and implementation cost for each
2. Description and forecasted budget for programs or actions not yet started and status, including explanations for delays or cancellations of plan components
3. Five-year trend information for waste disposal per person
4. Five-year trend of greenhouse gases emitted and avoided, if available
5. Any significant changes that might impact the solid waste management system over the next five years.

The cost is expected to be in the order of \$25,000 for the report and should be cost shared between the service areas.

6.4 Waste Composition Studies

In advance of the five-year review noted above, a multi-season waste composition study on the residual waste management stream at the Island and Prince Rupert Landfills is recommended for year 1 and year 5, if appropriate, in advance of the next SWMP Update to assess the success of current waste diversion programs and policies and to identify

opportunities for additional diversion. These studies cost in the order of \$100,000 each and should be cost shared between the Islands and Mainland service areas.

6.5 Plan Flexibility and Risk

The SWMP lays out the high-level goals, costs, and timelines for solid waste program implementation in the NCRD. Several factors may affect the cost and timeline to implement each strategy including external changes to priorities, partner programs, and regulations, hauler collection and processing capacity, market fluctuations, and internal variations in priorities and availability of budget and staff time to implement programs. The SWMP is intended to be flexible in the implementation of plan components, either directly or in cooperation with municipalities or through private firms and/or non-profit organizations. While the SWMP provides flexibility in implementation depending on internal and external factors, the following risks should be considered:

1. Achieving the identified disposal target is dependent on successful implementation of all strategies identified in the SWMP.
2. Costs provided are conceptual level estimates and may differ from the actual costs to implement programs depending on the details of program, infrastructure design and timing of implementation. As a result, more involved programs and infrastructure expected to result in significant impact to stakeholders are likely to undergo further assessment prior to implementation.
3. The success of most items is dependent on allocation of staff to adequately design, implement and assess programs.
4. Several items are dependent on partnerships with local, regional, or provincial organizations which may experience changes in priority throughout the SWMP timeframe.
5. The success of reduce, reuse and recycle strategies will be affected by education, user participation convenience and behaviour change programs.
6. The Recycling Regulation is not easy to amend and additional EPR products may not be added in a timely manner.
7. The ENV may require changes to the operation of regional disposal facilities through orders and updates to Permits and Operational Certificates which would impact the timelines and priorities for investment at disposal facilities along with potentially reducing available funding to support diversion initiatives.

Should there be any disputes with respect to the SWMP, internal corporate and governance procedures will take effect.

7 FINANCE AND ADMINISTRATION

A number of principles and objectives for solid waste management with respect to financial sustainability, equitability, efficiency, and incentive to divert materials from disposal were outlined at the onset of the SWMP update project and were confirmed as public consultation and engagement was undertaken. It is common to include new waste management strategies and programs in SWMP updates, and these always come at a cost both to operate and build (e.g., new facilities, studies and curbside collection). With the financial principles and objectives in mind, estimates of the cost of the new strategies and programs have been included in this section to provide an order of magnitude picture of what can be expected with respect to budgeting by the NCRD over the next five years. Regardless of the costs shown, the NCRD Board of Directors will have the final say in what is implemented, when and for what cost.

As outlined in Technical Memo No. 3 attached as Appendix E and Technical Memo No. 4 attached as Appendix F, a five-year financial plan for the Solid Waste Management services has been provided to will help the NCRD plan for future expenditures and revenue needs until the next SWMP review is carried out. The following tables for each service area outline the 2023 budget and provide the strategy items shaded in green and equipment replacement and capital (including studies) items shaded in yellow in their prospective implementation year, including their resultant net costs for 2024 – 2028. An inflation factor of 4% was used for successive years for all line items that would inflate with the economic situation except for fuel. A 6% inflation rate was used for fuel costs.

Tables 18 and 19 attached show a net cost for years 2024 to 2028 with revenues not adjusted to cover the expenditures. The negative annual net costs for each of the five years therefore show the estimated amount of funding to be secured that will allow the SWMP strategies and programs to be implemented in a specified year. Funding opportunities for local government are limited to a few options including the following:

- (a) use of annual surplus
- (b) service and/or user fee increases
- (c) taxation increases
- (d) grants
- (e) tipping fee increases.

When deciding on which option to use, a number of factors must be considered by the NCRD, including but not limited to:

- regional and local economic health and stability
- social acceptability
- political acceptability

- implementation schedule; immediate or gradual
- historical implementation
- required authority
- bylaw changes and approvals
- need for elector assent.

The five-year financial plan presented here will provide the roadmap needed to help the NCRD make the necessary decisions to support their SWMP goals and targets.

8 PLAN SCHEDULE

Table 20 provides a draft implementation schedule for the Solid Waste Management Plan from 2024 to 2028. The draft schedule is meant to be a guide to assist the NCRD with preparing for and planning implementation of the SWMP. Depending on a number of factors, including available funding, the timeline may change.

Table 18: Implementation Schedule

Initiative	Planned Strategy	IMPLEMENTATION YEAR				
		2024	2025	2026	2027	2028
A-1	Improve the operational efficiency of the NCRD waste management system					
A-2	Continue monitoring solid waste management facilities and services					
A-3	Improve service delivery to rural and underserved communities in the Island and Mainland service areas					
A-4	Improve transportation of materials between service areas					
A-5	Develop cost recovery models					
A-6	Establish a permanent Islands Solid Waste Advisory Committee					
A-7	Expand the list of prohibited wastes					
A-8	Update Bylaws and Website (Island & Mainland)					
A-9	Upgrade the Septage Receiving Facility at the Skidegate Transfer Station					
R-1	Fund a Waste Reduction Coordinator					
R-2	Assist users and improve their participation in waste segregation and diversion programs					
R-3	Maximize compliance with new and existing stewardship programs					
R-4	Optimize recycling efficiencies by increasing diversion rates for residential & commercial materials					
R-5	Develop a strategy to reduce single-use items					
R-6	Develop a food waste reduction strategy					
R-7	Collect household hazardous waste (HHW)					
R-8	Encourage reuse such as thrift stores					
R-9	Work with local bicycle retailers for inclusion in the Tire Stewardship BC bicycle tire program					
R-10	Change the way Recyclable Material is collected on Haida Gwaii to lower costs and enhance waste diversion					
I-1	Encourage initiatives for commercial organics diversion					
I-2	Enhance and enforce ICI solid waste source control					
I-3	Recover costs of ICI PPP processing					
CRD-1	Clean wood waste diversion and re-use					
CRD-2	Improve Salvage of Usable Demolition and Deconstruction Materials					
RM-1	Maintenance of Transfer Stations					
RM-2	Islands Collection Costs Review					
RM-3	Problem Waste Stockpiled - Auto Hulks at Private Sites (2029)					
RM-4	Illegal Dumping Management					
RM-5	Consider Closure of Underutilized Facilities if Illegal Dumping can be Avoided and Managed					
RM-6	Increase Sandspit Transfer Station Operational Efficiencies					
RM-7	Increase Skidegate Transfer Station Operational Efficiencies					
RM-8	Prince Rupert Landfill Transfer to the NCRD					

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10 DEFINITIONS

Advisory committee: A committee established to support the development of the solid waste management plan or the implementation of the plan. May include a public advisory committee, technical advisory committee and a plan monitoring advisory committee

Approved plan: A solid waste management plan approved under section 24 (5) of the Environmental Management Act

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

Collection facility [Recycling Regulation, B.C. Reg. 449/2004]: A facility for collecting products and materials. May also be described as a “depot” in a plan.

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

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

CRD: Construction, renovation, and demolition waste. This definition includes land clearing waste. Also sometimes referred to in literature as DLC (Demolition, Land Clearing and Construction) or C&D

Director: A person employed by the government and designated in writing by the minister as a director of waste management or as an acting, deputy or assistant director of waste management

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

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

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

Extended Producer Responsibility (EPR): A management system based on industry and consumers taking life-cycle responsibility for the products they produce and use. Referred to as “product stewardship” under the B.C. Recycling Regulation

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

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

ICI: Industrial, commercial and institutional waste

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

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

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

Municipal solid waste (MSW) [EMA]: a) refuse that originates from residential, commercial, institutional, demolition, land clearing or construction sources, or b) refuse specified by a director to be included in a waste management plan

Municipality: This Guide uses the generally accepted definition of “municipality” as an incorporated area that is democratically elected, autonomous, responsible and accountable. Municipalities are members of the regional district in which they are located. (Note that section 1 of EMA defines “municipality” as including regional districts)

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

Pollution Prevention Hierarchy: The 5 R provincial pollution hierarchy more fully described in Part A.1.1 of this Guide

Processing: Any activity necessary for preparing a component of the solid waste stream for reuse, recycling, recovery or residual management

Product stewardship: see Extended Producer Responsibility (EPR)

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

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

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

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

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

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

Regional district [EMA section 25(1)]: (a) a regional district as defined in the Local Government Act, (a.1) except in section 26, the Northern Rockies Regional Municipality, or (b) the Greater Vancouver Sewerage and Drainage District constituted under the Greater Vancouver Sewerage and Drainage District Act

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

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

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

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

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

Triple Bottom Line: Economic, environmental and social cost considerations

Upstream environmental impacts: Impacts from the creation and transportation of a product to where it is

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

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

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

Zero Waste approach: as both a philosophy and a goal, aims to reduce and ultimately eliminate garbage

11 LIMITATIONS

This report has been prepared by Sperling Hansen Associates (SHA) on behalf of the North Coast Regional District in accordance with generally accepted engineering practices to a level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions in British Columbia, subject to the time limits and financial and physical constraints applicable to the services.

The report, which specifically includes all tables and figures, is based on engineering analysis by SHA staff of data compiled during the course of the project. Except where specifically stated to the contrary, the information on which this study is based has been obtained from external sources. This external information has not been independently verified or otherwise examined by SHA to determine its accuracy and completeness. SHA has relied in good faith on this information and does not accept responsibility of any deficiency, misstatements or inaccuracies contained in the reports as a result of omissions, misinterpretation and/or fraudulent acts of the persons interviewed or contacted, or errors or omissions in the reviewed documentation.

The report is intended solely for the use of the North Coast Regional District. Any use which a third party makes of this report, or any reliance on, or decisions to be made based on it, are the responsibilities of such third parties. SHA does not accept any responsibility for other uses of the material contained herein nor for damages, if any, suffered by any third party because of decisions made or actions based on this report. Copying of this intellectual property for other purposes is not permitted.

The findings and conclusions of this report are valid only as of the date of this report. The interpretations presented in this report and the conclusions and recommendations that are drawn are based on information that was made available to SHA during the course of this project. Should additional new data become available in the future, Sperling Hansen Associates should be requested to re-evaluate the findings of this report and modify the conclusions and recommendations drawn, as required.

We appreciate the opportunity to work with the North Coast Regional District on this project. Please do not hesitate to contact the undersigned if you have any questions.

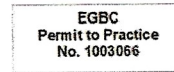
Sincerely,

SPERLING HANSEN ASSOCIATES

Report prepared by:



March 13, 2024



Nicole Kohnert, P.Eng.
Senior Environmental Engineer



Rahim Gaidhar, GIT
Project Coordinator



Chloe Hetherington
Engineering Assistant

Report reviewed by:



Roger Tooms, PMP
Senior Project Advisor