

DATE: November 23, 2018

FILE: 5360-01

TO: Chair and Directors
Comox Valley Regional District
(Comox Strathcona Waste Management) Board

Supported by Russell Dyson
Chief Administrative Officer

FROM: Russell Dyson
Chief Administrative Officer

R. Dyson

RE: Comox Strathcona Waste Management – History & Overview

Purpose

To provide directors with the history, evolution and an overview of Solid Waste Management Plan (SWMP), landfill (design) criteria, landfill closure costs, diversion programs and costs associated with the Comox Strathcona Waste Management (CSWM) service. This is a complex service given the vast geographic area spanning two regional districts.

Recommendation from the Chief Administrative Officer:

This report is presented for information only.

Executive Summary

The CSWM SWMP is mandated by the Province of BC (Province) and it is the strategic plan for the waste service that provides the long term vision and policy for waste management activities. The plan offers guidance towards levels of service and programs provided by the service. The history and intent of SWMPing is as follows:

- The first SWMP was completed in 1995;
- The SWMP is built on extensive public and First Nations input which provides the social license for the programs and initiatives included. An approved plan provides elector approval for debt costs required to implement projects;
- Along with the mandatory effectiveness reviews, the SWMP confirms that the service is in compliance with provincial policy objectives, regulations and standards;
- SWMP updates occurred in 2005 and then again in 2012;
- Landfill environmental design criteria has advanced significantly over the past 20 years, increasing costs dramatically;
- The CSWM service took over responsibility for seven landfills in Cumberland, Campbell River, Tahsis, Zeballos, Gold River, Sayward, Cortes Island, meanwhile closing costs have increased related to improved environmental controls;
- The CSWM service has evolved from simply operating multiple dumps, to providing full service solid waste management to the region, with a focus on recycling and diversion and on meeting the current standards for waste management in the Province;
- The current 2012 SWMP, reviewed and reconfirmed by the Board in April 2018 as part of a five-year effectiveness review includes the following commitments:
 - closure of CSWM landfills in compliance with Ministry of Environment and Climate Change Strategy (MoE) requirements
 - increased diversion of organic waste
 - continued optimization and development of recycling programs to achieve 70 per cent (350 kg per capita annually) diversion or greater

- investigation of increased environmental controls
- further monitoring of Waste to Energy (WtE) technologies;
- Formalization of SWMPing in BC combined with more stringent environmental design criteria for landfills has significantly impacted service costs over the past 20 years;
- The total revenue requirement for the CSWM service has increased from \$2.6 million in 1998 up to \$13.2 million in 2018 in order to meet all the regulatory and operational needs for the service. Revenue from taxation has increased significantly in the past few years;
- In February 2008 the Province separated the Comox Strathcona Regional District into the Comox Valley Regional District (CVRD) and the Strathcona Regional District (SRD). The province directed that the Regional Solid Waste Management service continue under the administration of the CVRD. This is a unique circumstance in BC.

Currently, the CSWM service is responsible for:

- Operation, maintenance and annual compliance reporting of five historical landfills;
- Construction, operation and maintenance of one new regional landfill, with leachate treatment;
- Closure costs and environmental liability of all historical landfills;
- Various diversion programs, including drywall, wood waste, Recycle BC depots, and Hazardous Household Waste (HHW);
- Unified transportation for all communities with transfer stations.

Understanding how the CSWM service compares to neighboring regional districts will help the Board understand the rationale for tax requisition requirements and other costs. But there are key differences as follows:

- Neighboring regional districts do not have annual host community agreements and large contribution to roads upgrades;
- They do not operate remote community landfills and transfer stations;
- They do not have a requirement to close seven historical landfills;
- For example, the Regional District of Nanaimo (RDN) operates only one landfill and one transfer station and residential curbside throughout the district;
- The RDN did not assume responsibility for historical municipal landfills;
- The RDN has a strong commercial waste services market due to population density;
- The Alberni-Clayoquot Regional District (ACRD) provides essentially three separate services for waste and each service/area pays their own way.

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Background/Current Situation

In 1989 the *Waste Management Act* was amended to mandate that all regional districts develop SWMP's by the end of 1995. A SWMP is a comprehensive strategy that provides the long term vision for solid waste management including waste diversion and disposal activities within a regional district. The plan is to be implemented over an extended period and formally updated each 10 years.

Since the introduction of solid waste management planning in British Columbia, the CSWM services has completed three formal solid waste management planning processes. The original plan was completed in 1995 following a three year consultative planning process. The original plan was updated in 2005 and then again in 2012.

Both the 1995 SWMP and the 2005 update formalized waste management practices for the CSWM service and focused waste management efforts on the following objectives:

- reduction and reuse
- education and promotion
- recycling
- processing
- market development
- composting
- household hazardous waste
- demolition, land clearing and construction waste
- waste collection, transfer and landfills

In parallel with the introduction of SWMPing, in 1993 the MoE introduced the first set of landfill criteria from municipal solid waste (1993). This new criteria applied to the construction of new landfills and to the lateral expansion of existing landfills. The new requirements included generic performance criteria for:

- ground and surface water quality;
- landfill gas management and odour;
- public health and safety.

The 1993 landfill criteria was intended to move municipal landfills towards engineered liner systems, leachate treatment and landfill gas management, however the criteria was “performance based” and these environmental improvements were not normally implemented as part of the design. The performance based criteria allowed landfill owners and local governments to continue the use of unlined attenuating landfills with no leachate treatment or gas collection. In addition, the MoE did not update the landfill criteria for an extended period and as a result British Columbia fell out of step (behind) with the rest of North America in terms of landfill design standards and solid waste environmental management.

The Landfill Gas Management Regulation, under the *Greenhouse Gas Reduction (Emissions Standards) Statutes Amendment Act*, became effective as of January 1, 2009, and established province-wide criteria for landfill gas capture from municipal solid waste landfills. The regulation requires that municipal solid waste landfills with 100,000 or more tonnes of waste in place or a waste disposal rate exceeding 10,000 tonnes per year undergo a landfill gas generation assessment. This standard does not provide a mechanism to defer the landfill gas management requirements and is purely based on the volumes landfilled at the site.

In 2011 the MoE introduced an updated (draft) second edition landfill criteria which was then later implemented in 2016. In this revised criteria the Ministry shifted away from performance based criteria towards prescribed minimum standards for municipal solid waste landfills. The updated includes minimum standards for the following key elements:

- site setting – siting a new or expanded landfill became subject to significant minimum buffer requirements and minimum proximity require to neighbours;
- design – landfill design requirements took a large step forward in terms of leachate collection and treatment as well as landfill gas collection and treatment;
- performance monitoring – shifted from once per five years to an annual requirement to complete a non-conformance evaluation;

- closure – closure requirements implemented to prevent any rainwater from contacting the waste and continuing to generate leachate;
- post closure management – increased requirements to care for a monitor the landfill for a minimum of 30 years after final closure.

In May 2013, the MoE approved a 2012 update to the CSWM SWMP. Similar to previous versions the 2012 SWMP was guided by extensive public input including 14 separate open houses, 700 feedback forms, 600 telephone survey responses and presentations to all municipal councils and the electoral area sub-committees of the CVRD and SRD. In addition a separate consultation process was undertaken with First Nation communities in the CSWM area. The 2012 SWMP focuses on the following key objectives:

- Increased diversion (reduce, reuse and recycle) to 70 per cent (350 kilograms per capita per year);
- Implementation of organics diversion to support 350 kg/c/yr;
- Improvements to industrial, commercial and institutional waste management;
- Improved illegal dumping prevention;
- Residual waste management improvements.

In April 2018, the CSWM Board approved a five-year effectiveness review of the 2012 plan by unanimously supporting the following recommendation:

THAT the Comox Strathcona Waste Management board continue to implement the Comox Strathcona Waste Management 2012 Solid Waste Management plan with a particular focus in the following areas:

- *Closure of CSWM landfills in compliance with Ministry of Environment (MoE) requirements;*
- *Increased diversion of organic waste;*
- *Continued optimization and development of recycling programs to achieve 70 per cent diversion or greater;*
- *Investigation of increased environmental controls;*
- *Further monitoring of Waste to Energy technologies as per the April 12, 2018 Waste to Energy business case assessment staff report.*

The CSWM service area covers approximately 22,000 square kilometers and includes multiple municipalities and remote communities, a map of the watershed is attached as Appendix B.

The service area consists of two larger landfill facilities; in the Village of Cumberland (Cumberland) and the City of Campbell River (Campbell River). The landfill in Campbell River has constructed a transfer station and will close with the installation of a geomembrane liner, then begin transferring waste on a full time basis in approximately 2024. The new engineered regional landfill in Cumberland has land capacity for airspace to last 40 to 62 years depending on the success of diversion programs. This is also dependant on MoE approval, which is required to construct beyond cell 3 at the Cumberland site.

Both facilities operate numerous product stewardship programs, Recycle BC depots as well as two weekday HHW collections and one Saturday a month, at both facilities. The CSWM service area includes three smaller remote landfills that are scheduled to close in approximately six to eight years. These remote landfills are located in the Villages of Tahsis, Zeballos and Gold River and the Villages

all include Recycle BC depots and numerous product stewardship programs to further diversion and reduce transportation and tipping fees.

In addition, the service area includes several transfer stations including Cortes, Hornby and Denman Islands, as well as a product stewardship depot in the Village of Sayward. Most facilities are registered with BC Product Stewardship programs for waste diversion, these programs include: motor oil and antifreeze, tires, batteries, small and large appliances, light recycle, paint plus and switch the stat. Diversion that is directed in to the BC Product Stewardship programs saves the service transportation costs and ensures that we are extending the life of our landfills.

Below is a summary table of the facilities and the services they offer. A location map of the current Recycle BC, CSWM recycling depots and landfills is included as Appendix A.

Facility	Type	Operational contract	Recycle Depot Type	Unified Transportation	Hazardous household waste Program
Comox Valley waste management centre	Regional Landfill	No – CVRD operated	Recycle BC and two CSWM depots	Not applicable	Yes
Campbell River waste management centre	Transfer Station	Yes – Berry & Vale	Recycle BC and three CSWM depots	Not applicable	Yes
Denman Island	Depot	Yes – Local association (DIRRA)	Recycle BC	Yes from Depot	Cumberland
Hornby Island	Transfer Station (closed landfill)	Yes - Local association (HIRRA)	Recycle BC	Yes from depot	Cumberland
Quadra Island	Depot	Yes – Contractor	CSWM Depot	Not applicable	Campbell River
Cortes Island	Transfer Station (closed landfill)	Yes – Contractor	Recycle BC Depot	Yes from depot	Campbell River
Sayward	Depot (closed landfill)	Yes – Village of Sayward	Recycle BC	Transferred to Campbell River	Campbell River
Gold River	Inert landfill, Transfer Station and depot	Yes – Village of GR	Recycle BC	Yes from transfer station	Campbell River
Tahsis	Landfill	Yes – Village of Tahsis	Recycle BC	No – material is landfilled	Static
Zeballos	Landfill	Yes – Village of Zeballos	Recycle BC	No – material is landfilled	Static

Other regional district cost and service

Understanding how the CSWM service compares to neighboring regional districts will help the Board understand the rationale for tax requisition requirements and other costs. When comparing, it's important to understand the level of service provided to allow a fair comparison.

Alberni-Clayoquot Regional District

The ACRD has two waste management services, one for the Alberni Valley (including Bamfield) and another for the West Coast that services the communities of Tofino and Ucluelet.

- Each service pays their own way;
- Alberni Valley Landfill operated through contract (Berry & Vale);
- The landfill currently does not require landfill gas collection;
- The leachate is treated through an arrangement with the City of Port Alberni;
- Alberni Valley Landfill has a BC Product Stewardship programs depot located on site;
- Bamfield has a transfer station and Recycle BC depot – through tax requisition of Bamfield tax payers;
- Recycle BC curbside collection for the City of Port Alberni and Electoral Area E, which is covered fully by incentives;
- Recycling depot – in City of Port Alberni – funding in part from BC Product Stewardship programs;
- West Coast landfill has some BC Product Stewardship programs;
- Estimated that the life of the Alberni Valley Landfill is 72 years and the West Coast Landfill is 56 years;
- ACRD landfill closure and post-closure fund is considered appropriately funded at this time.

Regional District of Nanaimo

The RDN operates two unionized solid waste management facilities – the Regional Landfill in Cedar and the Church Road transfer station in the City of Parksville.

- The RDN residential curbside garbage, recycling and food waste collection program is a compulsory service, set up through bylaw;
- All the municipal solid waste is direct hauled to the facilities and there is no unified transportation model for any community that does not have a landfill;
- The RDN operates two Recycle BC depots, with BC Product Stewardship programs at each site;
- The operational life of the RDN landfill is expected to continue until approximately 2040;
- There are two closed landfills within the RDN – one in the City of Parksville and one in the Town of Qualicum Beach, and they are the responsibility of the respective municipality, not the service.

The RDN landfill closure and post-closure fund is currently underfunded at this time.

Providing information on how the CSWM service compares to neighboring regional districts will help the Board understand the complicated process of a regional service that includes two regional districts. The CSWM service provides a high level of service regardless of where residents are within the service area and regardless of the population of their individual community.

Residual Waste Management

Considering the more stringent environmental requirements included in the updated 2016 landfill criteria, the CSWM service found itself in a situation where its five operating landfills were no longer compliant with the latest MoE requirements. In addition, the Comox Valley landfill was expected to reach final capacity by 2016 and the Campbell River landfill by 2012. The following long-range vision for residual waste management is included in the 2012 SWMP:

- Regional landfill – the CSWM service will construct a new landfill at the Comox Valley Waste Management Centre in accordance with MoE criteria for new landfills including bottom liner, leachate systems, landfill gas systems, surface water control systems and groundwater monitoring (this project is now complete and implemented). The Campbell River landfill may be expanded after the Comox Valley site has reached final capacity.
- Waste To Energy – WtE technologies and costs will continue to be explored as an alternative to landfills within the 70 per cent diversion criteria established by the MoE.
- The CSWM service will close all five (Campbell River, Comox Valley, Gold River, Tahsis and Zeballos) non-compliant landfills.

Based on the above, the CSWM service has moved away from a focus on final disposal (landfills) towards a focus of diversion, recycling and education all while meeting much more stringent environmental requirements. This has resulted in significant financial impacts which are discussed further below in the section Financial Factors.

Policy Analysis

The CSWM 2012 SWMP sets the overall strategic direction and vision as well as policy direction for the solid waste service. Considering that the plan is built on extensive public and First Nations consultation, the SWMP also serves as elector accent for debt requirements associated with plan implementation.

The CSWM service area covers the Comox Valley and SRD's geographical areas; and is operated by the CVRD under letters patent. The service was established under Bylaw No. 1822 being the "Regional Solid Waste Plan Local Service Area Establishment Bylaw No. 1822, 1996" to establish and operate a local service for the collection, removal and disposal of municipal solid waste.

Options

This report is presented for information only.

Financial Factors

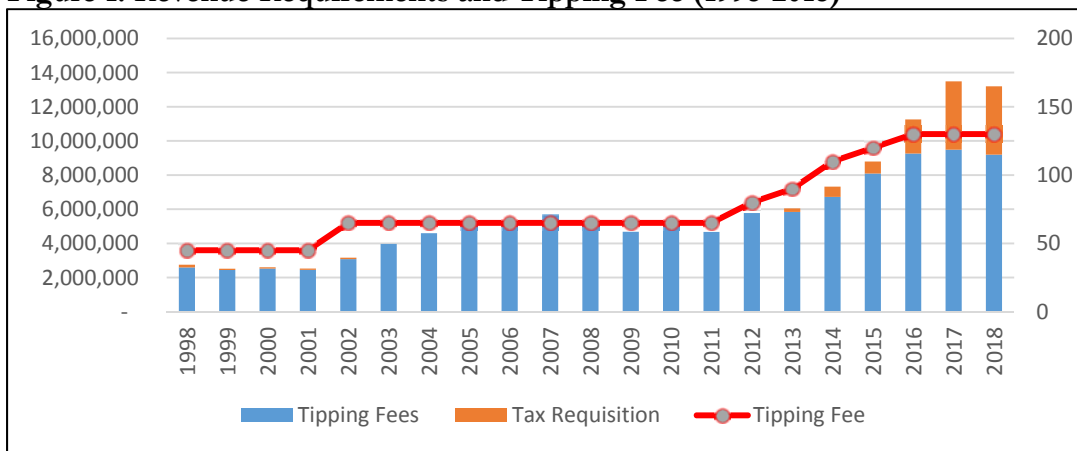
With the completion of its first SWMP in 1995, and subsequent update in 2005, the service shifted towards the implementation of new or enhanced programs required to meet the objectives of the plan. In addition to operating multiple landfills, the service introduced and expanded recycling programs, public education, back-yard composting and household hazardous waste programs. The service evolved from a focus on residuals management (landfilling) to a focus of diversion, recycling and education. As a result revenue requirements grew significantly and increased from \$2.6 million in 2001 to \$5.7 million in 2007, where costs generally plateaued until 2012 (see Figure 1 below).

The introduction of the updated second edition landfill criteria in 2011 combined with the third update of the SWMP in 2012 and the fact that the service had exhausted existing landfill capacity, drove significant change. Recycling and diversion programs continued to expand and a unified transportation agreement aimed at leveling transportation costs across the service was implemented. In addition, the 2012 plan identified that all five landfills would need to close due to a combination of capacity and compliance and as well as new regional engineered landfill and leachate treatment system would be required. These requirements pushed costs higher and from 2013 to 2017 revenue requirements increased significantly from \$5.8 million to \$13.2 million per year (see Figure 1 below). The following table 1 provides the estimated cost of closure for all landfills in the CSWM Service. The information is from December 31, 2017 and provides the most up to date information related to closure at the time of the report. The information will be updated in early 2019.

Table 1: Cost of Closure - Landfills

Historical landfill	Years to Closure	Capacity % as of Dec 31, 2017	Dec 31, 2017 Closure and Post Closure Care Liability
Campbell River Landfill	7	91 %	\$13,512,564
Comox Valley Historical Landfill	2	99 %	\$6,698,602
CVWMC Engineered Landfill Cell 1	6	1 %	\$32,758
Gold River Landfill	10	93 %	\$1,842,155
Tahsis Landfill	8	84 %	\$1,089,671
Zeballos Landfill	8	60 %	\$699,730
Cortes Landfill	1	100 %	\$90,678
	Total		\$23,966,159

Figure 1: Revenue Requirements and Tipping Fee (1998-2018)



The CSWM service provides financial and administrative assistance to the smaller, remote facilities. The unified transportation model provides all of the funding required for transporting material from the closest transfer station to the Campbell River facility. There is currently no tipping fee for waste disposed of at the Village of Tahsis and the Village of Zeballos landfills. The Village of Gold River, Hornby Island and Cortes Island residents pay for waste disposal at those facilities before it is transferred to a regional landfill.

Table 2: Tax requisition rates for neighboring regional districts are as follows:

Service Area	Tax requisition	Tax rate / \$1,000
ACRD - Alberni Valley Waste management service	\$19,868	\$0.0040
ACRD - Bamfield transfer station	\$60,000	\$0.2770
ACRD - West Coast Waste Management service	\$114,955	\$0.0540
Regional District of Nanaimo	\$831,132	\$0.0300
Comox Strathcona Solid Waste Service (2018)	\$4,000,000	\$0.1575
Comox Strathcona Solid Waste Service (2019)	\$6,000,000	\$0.2362

*The RDN updated the their solid waste management plan with the intention to increase the tax rate to \$0.0714/\$1000 in 2020

Legal Factors

The regional solid waste service area covers the CVRD and SRD geographical areas and is operated by the CVRD under letters patent and branded as CSWM. The following bylaws apply:

Bylaw No. 1822 being the “Regional Solid Waste Plan Local Service Area Establishment Bylaw No. 1822, 1996” establishes the service to provide for the collection, removal and disposal of waste and noxious, offensive or unwholesome substances.

Bylaw No. 170 being the “Solid Waste Fees and Charges Bylaw No. 170, 2011” provides for the imposition of fees and other charges so that annual costs may be recovered

Bylaw No. 351 being the “Comox Strathcona Waste Management Service (Capital Projects) Loan Authorization Bylaw No. 351, 2014” authorizes the borrowing of \$45,295,000 for capital projects in the CSWM service (final borrowing is expected to be \$36,675,000)

Intergovernmental Factors

The regional solid waste service area covers the CVRD and SRD geographical areas and is operated by the CVRD under letters patent and branded as CSWM.

Interdepartmental Involvement

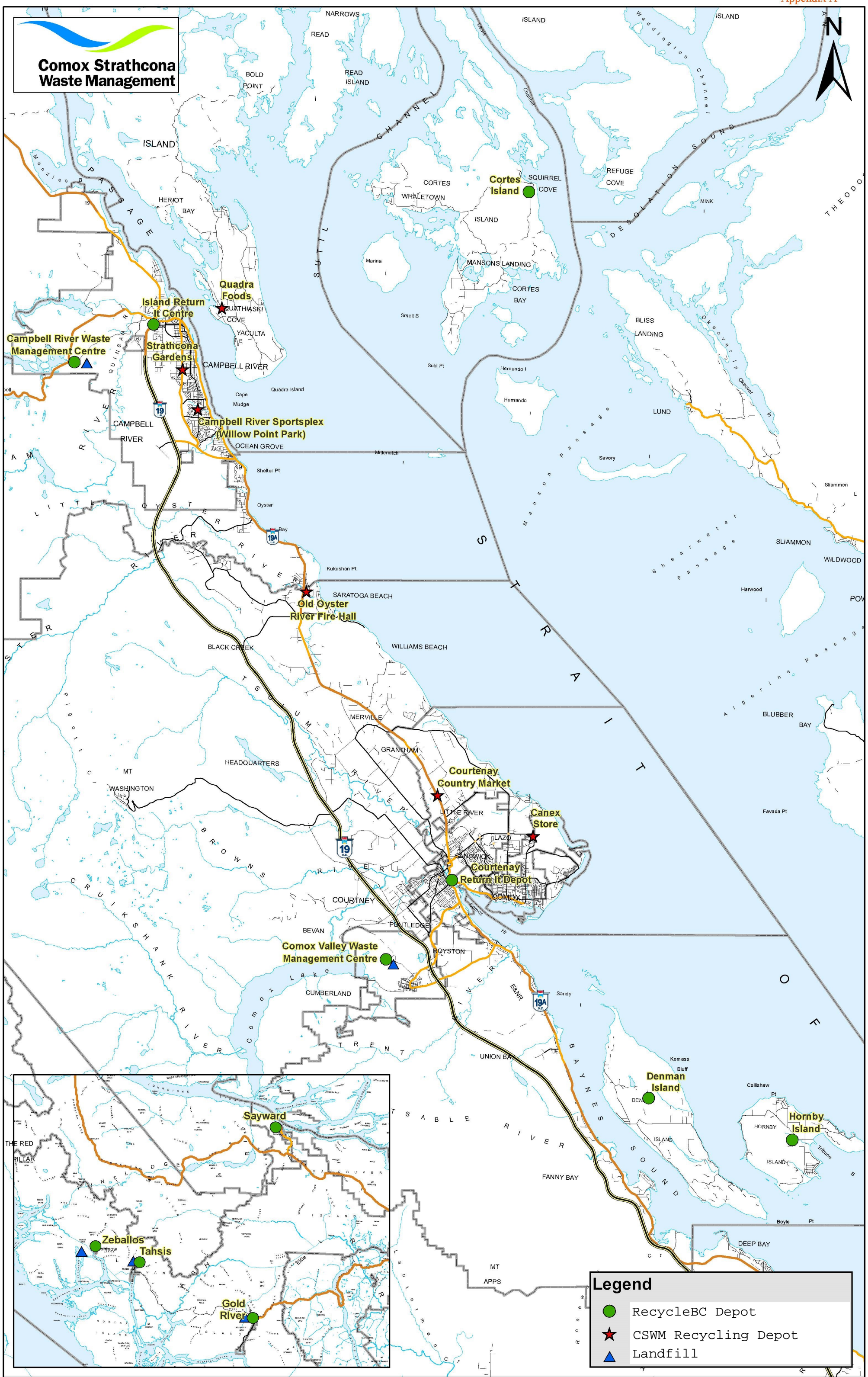
The preparation of this report has been led by Engineering Services.

Citizen/Public Relations

Stage three of the solid waste management planning process involved extensive community and public consultation processes that included open houses, feedback forms, a telephone survey and presentations to councils and sub-committees of the Comox Valley and SRDs. Additional public consultation was undertaken with the First Nations within the CSWM service area. There was strong public support for expanding both the Campbell River and Cumberland facilities and for continuing to assess the feasibility of WtE.

The CSWM service is committed to furthering diversion and Product Stewardship initiatives in the service area and will continue to educate and inform members of the public with regards to new and changing programs. In conjunction with CVRD Communications, the CSWM service regularly engages the public with up-to-date recycling and diversion information through the CSWM website, social media pages, news/radio advertisements and direct mail outs.

Attachments: Appendix A – “CSWM Facilities Map”
 Appendix B – “CSWM Wasteshed”



Legend

- RecycleBC Depot
- ★ CSWM Recycling Depot
- ▲ Landfill

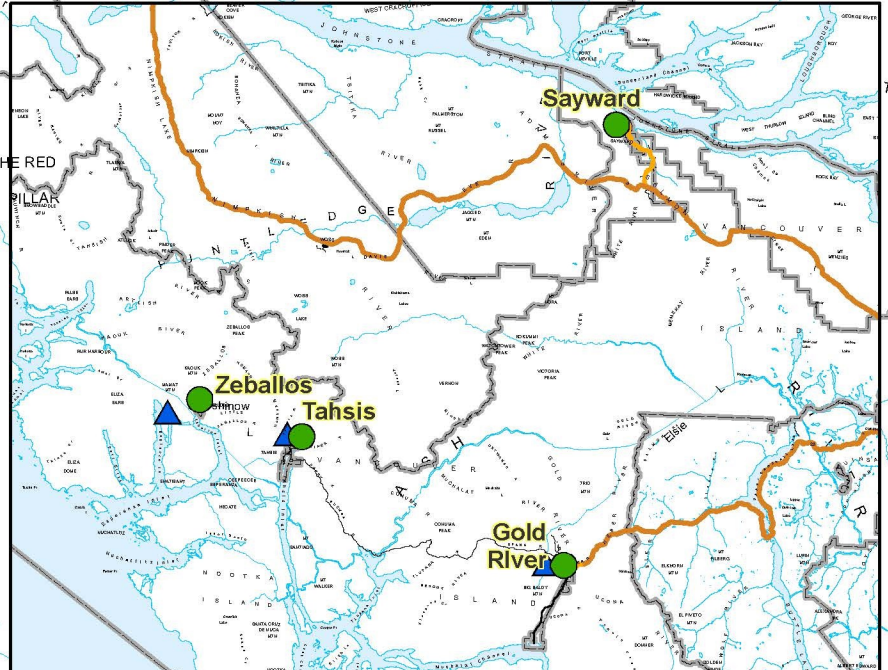


Figure 2-1. CSWM Wasteshed Area

