



ALBERNI-CLAYOQUOT
REGIONAL DISTRICT

West Coast Landfill

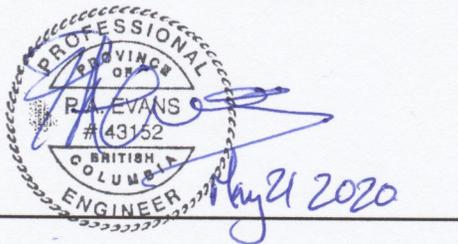
2019 ANNUAL REPORT

Submitted to British Columbia Ministry of Environment

Prepared by the ACRD

Environmental Services Department

Reviewed by: Paul Evans, P. Eng.



May 2020

Report Summary

Reporting Year 2019		Unit
Waste Tonnage Disposed at WCL	6,278	t
Landfill Airspace Consumed	4,279	m ³
Landfill Airspace Remaining	723,284	m ³
Anticipated Closure Date at Current Fill Rate/Density	2062	
Waste in Place at Landfill	150,278	t
Leachate Generated & Treated	Not measured	m ³
Landfill Gas Management	Trial Monitoring Completed	
Closure Works Undertaken	none	
Inspection Works	Review undertaken	
Changes from Approved Plans	None	
Ministry Non-Compliances	None	
Progress on Non-Compliances	N/A	
Projects Completed in 2019	Future Projects Proposed	
Landfill Review Waste Characterization Study WCL Leachate and Treatment Assessment Report Onsite Landfill Gas Monitoring Field Monitoring Program Audit Waste Generation Rate Update Waste Reduction Education Program New Scale Software Increased Diversion Efforts Organics Pilot Curbside Contract Access Road Gate Installation	WCL Economic Analysis Organics Composting Facility Organics Curbside Collection Waste Reduction Education Monitoring Program Improvements Northeastern Leachate Impact Assessment Installation of Flow Monitoring Waste Resource Centers in Ucluelet and Tofino Additional Diversion Opportunities Clear Bag Program Investigation Expansion of Curbside to Tla-o-qui-aht First nation and Yuułu?iŋ?ath Government Design Operation and Closure Plan Update	
	Target	Actual
1 - Waste Generation Rate	< 400 kg/capita	589 kg/capita
2- Diversion of Waste	>50%	13%
3 - Airspace Consumption Ratio	>750 kg/m ³	540 kg/m ³
4 – Capital Contributions	>\$70,000/year	\$120,000/year
5 – Water Quality	Meet FWAL	Not met
6 – Landfill Gas Generation	<1000 tonnes CH ₄ /year	Est. 324 tonnes CH ₄ /year

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Background

The Alberni-Clayoquot Regional District (ACRD) operates the West Coast Landfill (WCL) under the British Columbia Waste Management Act Operational Certificate Number OC-5634, issued April 12, 2005. The “waste shed” for municipal solid waste destined for the WCL includes the District of Tofino, District of Ucluelet, Parks Canada, ACRD Electoral District C - Long Beach, Millstream and Port Albion and the First Nations communities of the Toquaht, Yuułuʔiłʔatḥ, Ahousaht, Tla-o-qui-aht, and Hesquiaht. The WCL is located approximately 9 km northwest of the Tofino-Ucluelet junction, on the east side of the highway. The WCL has been open since 1980. This report has been prepared to meet the annual reporting requirements for the WCL, as required by the Operational Certificate and the 2016 *Landfill Criteria for Municipal Solid Waste* published by BC Ministry of Environment (MoE).

The site is shown in the attached orthophoto taken at the start of 2020.

Mission Statement

“To protect human health and the environment and maximize value of service by effectively managing the region’s solid waste in an environmentally, socially and economically responsible manner.”

Waste Quantification

Landfilled

In 2019, the WCL accepted 6,278 tonnes of municipal solid waste (MSW) and construction and demolition (C&D) waste as shown in Table 1. The cumulative waste placed at the WCL as of the end of 2019 is 150,278 tonnes.

Table 1 - Waste disposed in 2019

Waste Breakdown	Tonnes	Percentage
Residential Garbage	1,003.1	16%
Commercial Garbage	3,462.8	55%
Other Garbage	136.3	2%
Construction and Demolition	1,675.6	27%
TOTAL	6,277.8	100%

Most of the waste on the west coast is produced by the commercial sector including resorts, restaurants and businesses making up 55% of all waste landfilled. The residential sector produces 16% of the waste which is generated from the curbside garbage collection program and materials self-hauled by residents to the landfill. Construction and demolition waste make up a relatively large portion of the waste stream at 27% (in comparison to 18% at the Alberni Valley Landfill) which includes roofing, drywall and wood materials.

The permanent population served by the landfill based on 2016 census information is estimated to be 5,534 in 2019. However, the West Coast has a significantly higher equivalent population due to the tourism sector. Equivalent population estimates put the total population at almost double; 10,647 in 2019. This results in a generation rate of 589 kg/capita per year. This is well above the target of 400 kg/capita.

Chart 1 - Waste Generation 2019

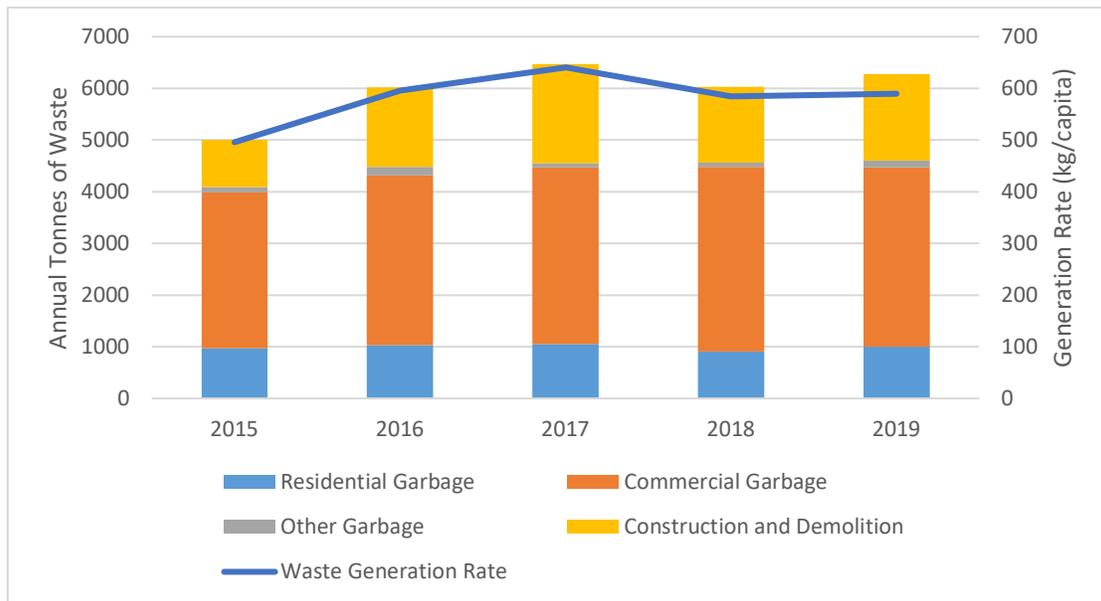
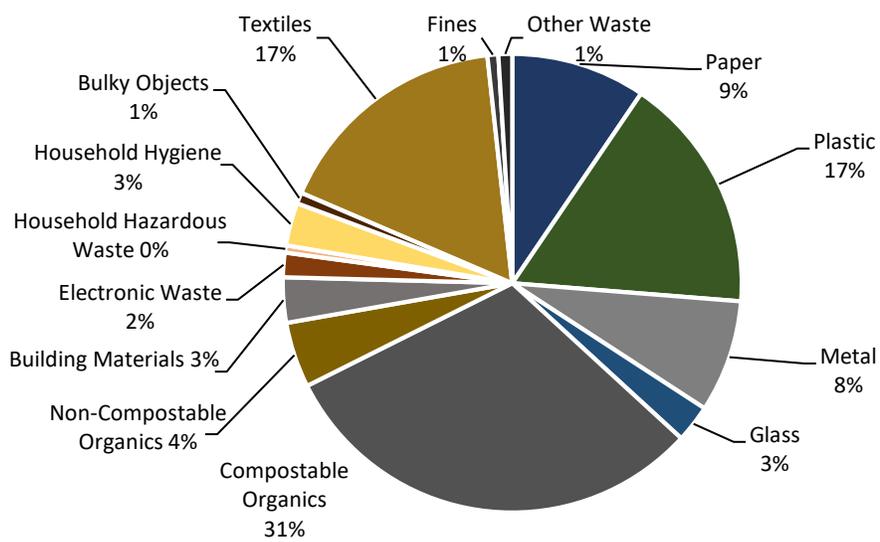


Chart 1 shows that the volume of waste generated from the residential stream has remained relatively static, with a noticeable increase in C&D waste since 2016.

Target 1 - Reduce waste disposal to less than 400 kg/capita

In the spring of 2019, the ACRD conducted a Waste Composition Study at the West Coast Landfill to gain a better understanding of the quantity of organics, recyclables and Extended Producer Responsibility (EPR) materials in the garbage streams for curbside residential, self-haul and commercial waste.

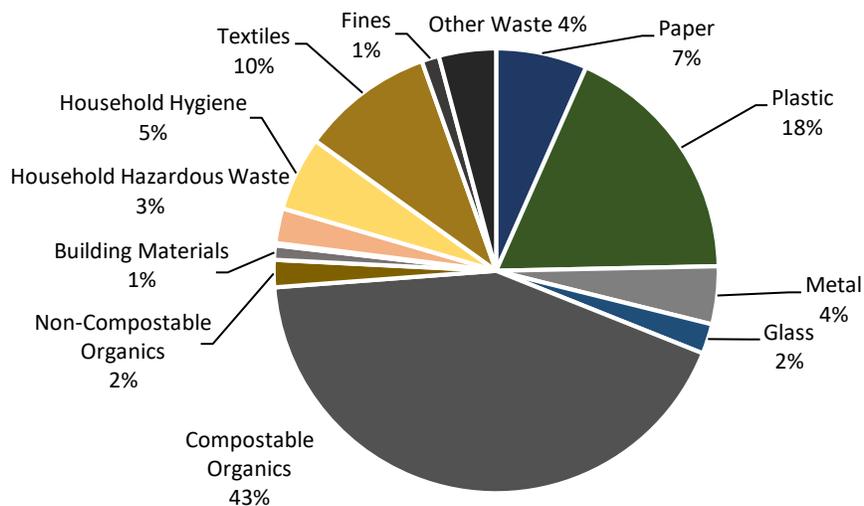
Chart 2 - WCL Commercial Waste Composition 2019



As shown in Chart 2, the commercial waste stream was found to have an average composition of 31% compostable materials and 29% recyclable materials that made up the majority of the following categories; plastic (17%), paper (9%), metal (8%), glass (3%), electronic waste (2%) which were further divided into whether the material could have been recycled or not. The large portion of textiles in the commercial waste stream (17%) was largely rope and netting that was being landfilled at the time of the study. During the study, it was also noted that 2 of 7 commercial loads audited contained bags of separated recyclables within the garbage bags. This suggests that resort staff are separating recyclables responsibly, but the material is still entering the stream for disposal.

The residential curbside waste stream shown in the Chart 3 below consisted of approximately 43% compostable and 21% recyclable material. Garbage that was self-hauled by residents had a much lower percentage of organic material, however very few people self-haul their waste to the West Coast Landfill.

Chart 3 - WCL Residential Curbside Waste Composition 2019



Using the data from the waste composition study, there was an estimated 2,719 tonnes of material landfilled in 2019 that could be diverted from the residential and commercial waste streams through recycling and composting as shown in Table 2.

Table 2 - WCL Divertible Portion of Waste Landfilled in 2019

	Landfilled	Recyclable Portion	Compostable Portion	Total Potential Divertible
<i>Residential Garbage</i>	1,003	210	431	641
<i>Commercial Garbage</i>	3,462	1,004	1,073	2,077
<i>Other Garbage</i>	136			
<i>Construction and Demolition</i>	1,675			
Total	6,277	1,214	1,504	2,719

Diverted

The quantity of materials diverted from landfilling in 2019 was 952 tonnes of which 407 tonnes was collected directly at the landfill. The diversion rate is influenced by both the amount of materials collected through recycling programs and the amount of waste going to landfill. The ACRD does not currently have a waste licensing bylaw and therefore does not receive reports from private resource recovery and recycling companies. It is expected that the total quantity of materials diverted is higher than that received through ACRD and registered stewardship programs.

Chart 4 - Reported Annual Waste Diversion Rates

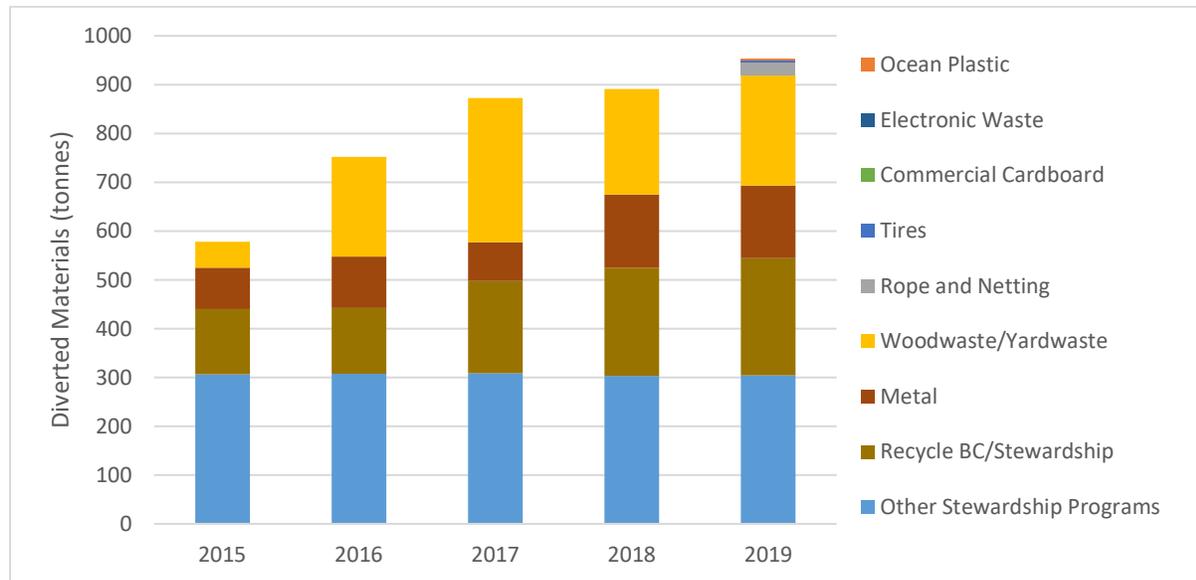


Chart 4 displays diversion tonnage and rates over the last five years, collected through the following key collection systems:

- Curbside Recycling Collection – ACRD
- WCL Diversion Programs – ACRD
- Ucluelet Recycling Depot – privately operated
- Ucluelet Return-It Depot – privately operated
- Tofino Recycling Depot - privately operated
- Tofino Express & Go Station – privately operated

There are two Recycling Depots on the west coast operated by Sonbird Refuse and Recycling with one in each Tofino and Ucluelet. The depots accept various stewardship products including corrugated cardboard, glass, mixed containers, mixed paper products, rigid plastics, soft plastics and film, and styrofoam. In 2019, the District of Tofino worked with Return-It to install an unmanned Express & Go Recycling Station for dropping off beverage containers. The Return-it center in Ucluelet takes end of life electronics, small appliances, beverage and beer containers. The ACRD expanded diversion at the landfill to include rope and netting, commercial cardboard and e-waste. This was in addition to the existing metal, tires, car batteries, major appliances and yard waste diversion programs already in place. Ocean plastics have been collected through the efforts of the Surfrider Foundation for several years with 2019 being the first year that the material was weighed and recorded.

These additional diversion efforts have resulted in a diversion rate of approximately 13.2%, up from 12.9% in 2018 and 11.9% in 2017. This diversion rate is still low in comparison of the target set in the solid waste management plan of 50%.

Target 2 - Increase Diversion of Waste to 50%

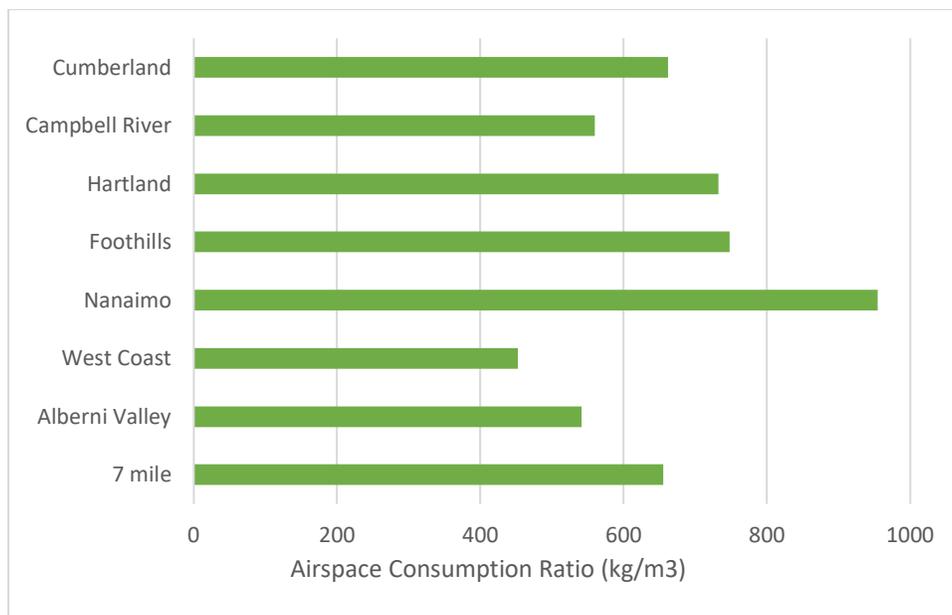
The two largest potential diversion opportunities are organics and improved commercial recycling. Other opportunities for diversion streams on the west coast could include mattresses, drywall, and other construction waste materials. These initiatives can be enhanced with tools such as education and clear bag programs.

Landfill Capacity

Airspace Utilization

In 2019 the WCL consumed 13,870 m³ of airspace based on the annual topographical survey completed at year end. With a total tonnage of 6,278, that results in a waste density consumption ratio of 453 kg/m³. This is consistent with the five-year average of 470 kg/m³. This is a relatively low ratio in comparison to neighboring landfills which average 750 kg/m³. The chart below (Chart 5) compares the landfill airspace consumption ratios from comparable landfills in the region. Smaller landfills will typically have lower airspace consumption ratios.

Chart 5 Airspace Consumption Ratios at Comparable Landfills



The volume of cover material used in 2019 was estimated at 9,600 m³, which is a very large volume of cover material. The ACRD will be working with our operations contractor to improve the tracking of cover material used at the site and reduce the amount of cover material incorporated into the landfill.

Target 3 – Minimum Airspace Consumption Ratio of 600 kg/m³

Remaining Life

Based on the airspace consumed in 2019, there is an estimated 723,284 m³ remaining of airspace at the WCL at the beginning of 2020. Based on the current population growth rate of 0.9%, waste generation of 589 kg/capita and airspace consumption ratio of 470 kg/m³, the landfill will reach capacity in 2062. However, if the targets for reducing waste generation to 400 kg/person and minimum airspace consumption ratios are met, the landfill lifespan has the potential to extend to approximately 2095.

Operations

Variations from DOCP Plan

The last Design, Operations and Closure Plan (DOCP) was completed in 2012 by McGill and Associates Engineering and requires an update. Variations from the 2012 plan are related to overflow events in the leachate system. The current system was designed to capture all leachate on site to be applied to an irrigation field. In 2019 there were 17 overtopping events as detailed in the Environmental Monitoring section of this report.

Conformance to SWMP

The most recently adopted Solid Waste Management Plan (SWMP) from 2008, listed several initiatives to meet the first two targets in the report; reduce per capita waste generation to 400 kg/person; and increase diversion to 50%. The majority of these initiatives were implemented; however the one major outstanding action item is the implementation of an organics diversion program.

The plan also indicated that the future of waste disposal at the WCL was going to be reviewed. It raised the prospect that the WCL might be closed and converted to a transfer station, with landfilling of waste at the Alberni Valley Landfill instead. A review of the leachate system was completed in 2019 and an assessment to compare the economic and environmental costs of transferring versus operating will be undertaken in 2020.

Compliance Resolutions

The WCL has not had a compliance issue from the Ministry of Environment since 2018 which identified late annual reporting as a compliance issue. That has been resolved with annual reports being submitted by June 1st of each year. Another compliance issue was that an ACRD updated 2017 Landfill Gas Generation Supplementary Assessment Report was not submitted by May 1, 2018. This Report was subsequently submitted to the Ministry of Environment in September 2018. The last Ministry inspection was in 2009

Complaints

The ACRD did not receive any documented community complaints regarding the operation of the landfill in 2019. It is beneficial that the landfill is located a significant distance from any residential communities. Typical complaints from other landfills are mainly due to odor, and noise but these are not an issue at the WCL. A formal complaint tracking system is needed to ensure that all complaints are documented and followed up on appropriately.

Inspections

The WCL did not have a regular inspection program in place in 2019. Regular site inspections and reporting requirements will be incorporated in the updated operations contract in 2021 when the

current contract expires. The ACRD staff should be regularly visiting and performing oversight inspections to ensure compliance with the contract, operations certificate and ministry requirements.

Overview of work for upcoming year

There are a number of projects planned for 2020. These include completing an economic analysis of the landfill, design of an organics composting facility and landfill upgrades, continued waste reduction education efforts and improvements to the monitoring program as detailed in the Projects Upcoming section.

Finances

Operating Expenses

In 2019, the operating expenses for the WCL were:

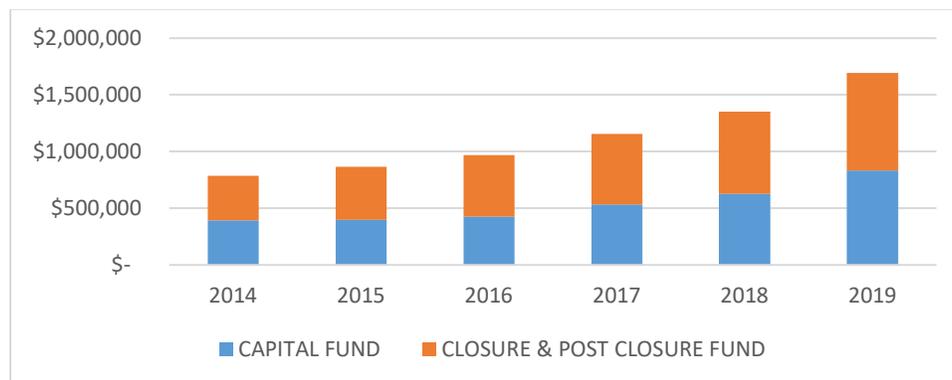
Table 3 - Operating Expenses

	2019
LANDFILL OPERATING COSTS	\$ 755,251
ADMIN & EDUCATION COSTS	\$ 78,673
RECYCLING	\$ 115,349
TOTAL COSTS	\$ 949,272
RECOVERIES	\$ 231,015
NET COST	\$ 718,257
RESERVE FUNDS ALLOCATION	\$ 410,215

Capital and Closure Funding

The most recent West Coast Landfill Design, Operations and Closure Report identified the need for \$5,600,000 for the closure and post-closure activities. There was \$859,858 in the closure and post closure reserve fund at the end of 2019. With the recommended contribution of \$70,000 being exceeded in each of the past two years.

Chart 6 - Capital Reserve Funds



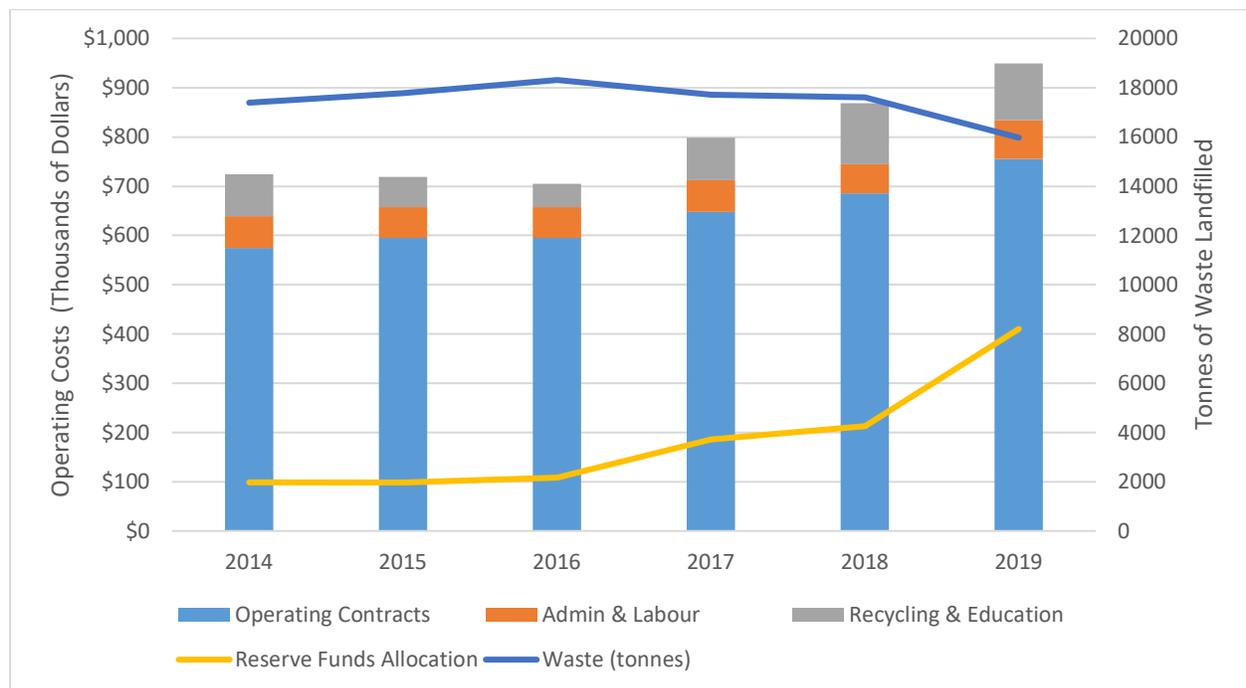
Target 4 – Annual Capital Contributions meet Funding Requirements

With an estimated lifespan of 40 years and the potential to extend to 80 years with improved diversion and operation, the annual contribution should be between \$65,000 to \$115,000 per year. When the DOCP is updated, it will include a review of capital requirements and closure costs to provide an updated estimate of reserve fund requirements.

Operational Efficiency

Chart 7 below shows the total operating costs including contracts, administration and support to manage solid waste on the west coast. It covers operation of the WCL, the curbside collection program and education programs. The costs are influenced by inflation and directly influenced by the volume of material landfilled and diverted.

Chart 7 - Annual Costs and Tonnages



Inflation from operating contracts, increased education efforts and improving landfill operations to meet regulatory criteria have all contributed to increasing costs but have also resulted in increased diversion of materials from the waste stream.

Environmental Monitoring

Leachate Monitoring

The leachate collection system consists of two perimeter ditches that collect leachate from the edges of the landfill and drain it into a lagoon located on the southwest side of the property. The ground under the landfill consists of a marine clay that is of extremely low permeability. It does not allow leachate to enter the groundwater. The contents from the lagoon are pumped to the north of the landfill to a “spray” irrigation field designed to allow the leachate contaminants to naturally attenuate in the swampy forest prior to the eventual receiving waters of Sandhill Creek.

The ACRD monitors multiple sites in the leachate collection and irrigation field as well as background water quality and the receiving waters of Sandhill Creek. Samples are collected bimonthly and are analyzed by an independent laboratory for metals, VOCs, inorganic compounds, pH levels, conductivity and other water quality parameters from the FWAL (Fresh-Water Aquatic Life) protection criteria. All monitoring data is directly reported to our environmental consultants, Piteau Associates Consulting, for their review and reporting to the Ministry of Environment.

Higher concentrations in the leachate leaving the landfill are being observed in the past five years which is correlated with lower precipitation that has occurred in the region in recent years. These concentrations are much reduced in the samples from the irrigation field and lower still in the samples in the receiving waters of Sandhill Creek.

Target 5 – Confirm all water leaving the site meets the FWAL criteria

Water Quality of Surrounding Environment

The natural flow of water on the site is to the southwest toward Sandhill Creek. Baseline water quality from background sample locations show naturally high levels of iron and aluminum that often exceed the FWAL guidelines. However, there is still a noticeable increase in TDS, chloride, iron, and nitrate in Sandhill Creek downstream of the landfill.

The northeastern portion of the landfill property, which was indicated to be separated from the landfill area by a surface water divide, has been experiencing higher concentrations of nutrients in recent years, particularly in 2019. In light of these results, it is possible that the northeastern portion of the property is also receiving some landfill effect although the mechanism is not known.

Recent monitoring results also indicate that there is shallow seepage under leachate ditch #2, allowing some leachate to bypass the lagoon and irrigation field which has a more significant impact on Sandhill Creek.

Leachate Pond Overflow Monitoring

The WCL is located in an area that receives some of the largest recorded rainfall in Canada. Much of this occurs during winter storms. The leachate pond is subject to overflowing during, and immediately following, intense winter storm events. When this occurs, the lagoon decants to the north through pipes installed for that purpose, bypassing the irrigation field. Information from dataloggers that are downloaded twice per year show that there were 17 overflow events in 2019 with an average duration of 13 hours. The duration of overflow events are significantly lower than the average of 132 and 92 hours in 2018 and 2017 due to pumping system repairs and improved maintenance and operation.

Overflow water is significantly more dilute than the typical pond contents as it is heavily diluted by the additional surface water and rainwater. Water quality samples of the overflow were not obtained during overtopping events in 2019. However, the data obtained in 2018 events showed FWAL exceedances in aluminum, chromium and iron. was not sampled in 2019 but previous years sampling shows the overflow water to exceed the FWAL criteria for aluminum, chromium and iron.

In order to address the overflow events in the winter, implementation of stormwater diversion with the temporary or permanent capping of some parts of the active landfill and collection in a stormwater detention pond are required which will be detailed in the updated DOCP planned for 2021.

Landfill Gas Monitoring

Target 6 - Landfill Gas Generation Less than 1,000 tonnes/year of methane

The engineering firm McGill and Associates completed a Landfill Gas Assessment Report in 2018, which estimated that the WCL would be producing 324 tonnes of methane in 2019. In the absence of the actual landfill composition data, this report used the average rural waste characterization data in the Landfill Gas Assessment Tool to calculate these volumes. A waste characterization study completed in the spring of 2019 showed that the WCL waste composition has a lower organic content than was assumed in the previous gas calculations. This predicted reduction will be updated and confirmed in the next Landfill Gas Supplementary Report which will be required in 2023 as per Section 15 of the Landfill Gas Management Regulation.

Other Greenhouse Gas Emissions

Landfilling operations require the use motorized equipment including small machinery such as power washers, small utility vehicles (ATVs), and pickup trucks, as well as heavy duty machinery such as compactors, graders and excavators. The fuel used for this equipment is primarily gasoline or diesel. In 2019, the contractor burned approximately 15,240 liters of diesel in the operation of the landfill which is the equivalent of 40.2 metric tonnes of CO₂ or 1.9 tonnes of methane and therefore a very small volume in comparison to the landfill gas generation.

Illegal Dumping

The west coast has experienced illegal dumping with many different types of wastes including yard waste such as leaves and branches as well as household waste. These items are often found on logging roads surrounding the communities. Installation of a gate on the landfill access road is anticipated to reduce illegal dumping. The Central Westcoast Forest Society coordinates clean-up events in the area and was successful in collecting over 22 tonnes of illegally dumped material in 2019. The program will be expanded in 2020 with financial support from the ACRD and other community sponsors.

Projects Completed 2019

Landfill Review - The ACRD hired an independent solid waste engineer to perform a landfill review of the WCL and determine how well the landfill was operating in respect to both good practice and the BC Landfill Criteria (2016). The result was a long list of improvement opportunities which drove much of the efforts undertaken in 2019 to improve landfill operations including updating the DOCP, onsite landfill gas monitoring, operations contract improvements, interception well operation improvement, and utilizing UAV for airspace surveying.

Waste Characterization Study - Dillon Consulting Limited was retained by the Alberni-Clayoquot Regional District to complete a baseline garbage composition study at the West Coast Landfill. The study showed that the commercial waste stream had an average composition of 31% compostable materials and 29% recyclable materials while the residential waste stream was 43% compostable and 21% recyclable material, resulting in an estimated 2,719 tonnes of material landfilled in 2019 that could be diverted from the landfill.

WCL Leachate and Treatment Assessment Report – This provided a detailed summary of the history and operation of the leachate system. It concluded that the leachate system has not performed as was

anticipated noting the frequent overflow events and concerns from the regulator. The high amount of rainfall received is a large contributing factor which can be mitigated using temporary final covers, run-off diversion and stormwater management systems. The report noted leachate treatment options available including an aerated lagoon, membrane bioreactor or off-site treatment as well as early closure as an alternative. A detailed economic assessment is required to direct decisions on the future of the landfill.

Onsite Landfill Gas Monitoring - In 2019, the ACRD began monitoring landfill gas emissions using a handheld monitor from April to August. The landfill was monitored for methane and hydrogen sulfide (H₂S) across the entire site. Over the five months of testing, the handheld method of gas detection was not able to detect any level of gas production at the site and monitoring was discontinued.

Field Monitoring Program Audit - The ACRD's contracted environmental engineering consultants (Piteau Associates Consulting) were on site to review the environmental monitoring program. Their objectives were to assess the sampling procedures, tour monitoring equipment, verify sampling locations and check the condition of sampling sites. This review was done to ensure that the data collected from the field work was representative of the reporting of the monitoring program. There were a few items that were found that needed improvement such as using a different method of calibration of the pH probe but overall the procedure met expectations.

Waste Generation Rate Update – the West Coast has a unique wasteshed due to the strong tourism-based economy. The permanent population estimates of 5,000 are only half of the total number of people producing waste in the area, resulting in waste generation rates twice that of other areas. Staff received approval from the province to use the same metric as communities like Whistler which consider the tourism population with an equivalent population number. This significantly reduced the per capita waste generation rate; however, it is still above the provincial average and reduction targets.

Waste Reduction Education Program - The development of a waste reduction education program was completed in 2019 that outlined a detailed plan to improve diversion rates in the Regional District. The program laid out the key messaging and objectives and recommended an implementation strategy including school education, website updates, community group engagement, door-to-door surveys, booths at community events, news and web articles and advertising. The ACRD enlisted Surfrider Pacific Chapter to begin program implementation in late Fall.

New Scale Software – A new Paradigm landfill software system came online in July 2019. The previous software was an MS-DOS based platform that was limited in its capacity and created network integration challenges. Paradigm has allowed for more detailed data tracking of all waste and resource recovery streams at the facility that enable improved planning and reporting of solid waste in the region. Paradigm also provides improved billing capacity and real-time data access from the central office.

Increased Diversion Efforts – in 2019, the WCL added a shed for electronic waste collection, and a bike share shed. Working with Surfrider and Ocean Legacy, the ACRD has also begun diverting Rope and Netting for a pilot recycling program. The landfill also added 6-yard container for commercial cardboard at the site.

Organics Pilot - Tofino Urban Farms began an organics diversion pilot at the WCL. The purpose is to verify volumes of compost generated from businesses, to provide more accurate numbers for sizing a facility. It will also compare the aerated and static composting technologies, to determine which will be most effective for managing the relatively small volumes on the west coast, and determine the likely costs and logistical constraints of those technologies at the landfill site.

Curbside Contract - The curbside recycling and waste collection contract was put out for RFP in order to replace the existing contract that expired in January 2020. The updated RFP requested pricing to include expansion of organics collection as well as improved language on customer service, efficiency, as well as environmental and social considerations. The contract was awarded to the Ozzard Environmental, a component of the Ucluelet Rent-it Center Ltd. which complied with all requirements and provided the lowest submitted bid for the work.

Access Road Gate Installation – The access road to the WCL was one of the few roads that provided easy access to non-park property in the area and as such was highly utilized for illegal camping adjacent to the landfill property. This posed significant liability and security risks as well as creating a tremendous mess for staff to clean each day when up to 20 vehicles would set up camp. Since the installation of the access gate, which is locked outside of landfill hours, illegal camping at the site has stopped.

Projects Upcoming

WCL Economic Analysis – Will assess the costs for continued operation of the West Coast Landfill to meet the new landfill criteria and compare this to the costs for early closure of the landfill and transferring the residual waste to the Alberni Valley Landfill. This cost comparison will include total costs for capital, operating, maintenance, monitoring, closure and post-closure costs, as well as contingency for possible future requirements. This assessment will also consider social and environmental factors.

Organics Composting Facility – The ACRD will be issuing an RFP for engineering and detailed design of a public drop-off area/transfer station upgrades to accept organics; as well as a new commercial organics processing facility capable of processing peak quantities of collected food waste and area biosolids. The surface water quality monitoring plan has been modified to take account of this important addition.

Organics Curbside Collection – staff will complete public engagement to educate and prepare residents for 3 stream curbside collection. This will also require the purchasing and delivery of bins to all residents and post implementation auditing and education to ensure successful implementation of the program.

Waste Reduction Education Program – Surfrider will be providing waste reduction education through social media campaigns, hand-outs for residents and businesses, community events and school education. The program will also include conducting commercial waste audits at resorts and other commercial businesses to assist in increasing the diversion of recyclable materials.

Monitoring Program Improvements – The field review recommended several improvements including; using dedicated bailers, increased calibration, immediate sample collection after purging and retention of field notes. The annual report also recommended using an updated procedure for dissolved copper requiring an increase in sampling.

Northeastern leachate impact assessment - SW-7 sampling results indicate a possible landfill effect from the upper reaches of the catchment. Field reconnaissance is recommended to assess the grade and

infrastructure in the northeast corner of the landfill, including the irrigation receiving area and the northeastern extent of Leachate Ditch #2.

Installation of Flow Monitoring - A cumulative flow meter will be installed on the leachate irrigation system to measure flows from the leachate lagoon during normal operation. Readings will be recorded monthly. A data logger for pond level will also be reinstalled in the leachate pond. The data will be used to provide notice for decant event sampling of a representative number of events.

Waste Resource Centers in Ucluelet and Tofino – Staff will be investigating the potential of establishing resource recovery centers in Tofino and Ucluelet. The objective would be to provide long-term security for recycling drop-off in locations more convenient than the WCL, as well as expansion of diversion streams available to residents. These centers could provide enhanced resource recovery opportunities such as, re-use stores, repair centers, and other circular economy initiatives.

Additional Diversion Opportunities – Staff will be investigating additional diversion opportunities for the WCL including mattresses, drywall, shingles and other construction waste.

Clear Bag Program Investigation - This will detail the requirements to implement a ban on the use of non-see through garbage bags. Clear bag programs have been found to be effective in other Canadian municipalities as it encourages use of existing recycling and composting programs. This program could be implemented in conjunction with 3-stream curbside collection and enhance diversion rates.

Expansion of Curbside to Tla-o-qui-aht First nation and Yuułu?it?ath Government - Staff worked with Recycle BC to change the existing curbside collection agreements to allow for the expansion to these two communities. The program may be extended as soon as the communities formally confirm their interest in joining the West Coast curbside program, which would also require collaboration to provide education and resources to residents prior to implementation of these programs.

Design Operation and Closure Plan Update – The current DOCP was created in 2012 and requires updating to address the leachate system operation, cover usage concerns and generally provide enhanced direction for the development of the landfill. The Province has created new landfill criteria and there are several areas identified that need to be improved to meet the new criteria. After an RFP process the Alberni-Clayoquot Regional District Board of Directors awarded the DOCP Updates for the West Coast Landfill to Sperling Hansen. An important part of the new DOCP will look at runoff diversion with the completion of each stage of final cover, the Water Balance Report estimates that the impact of precipitation on leachate generation will be significantly reduced.

Waste Hauler and Processor Licencing Bylaw – The bylaw will require the reporting of all materials collected within the region to gain improved data on the amount of waste that is being recovered, recycled or diverted from the landfill. It will allow education and support programs to better assist areas that need it and enable to regional district to target incentives for waste reduction programs.

Appendix 1

2019 WCL Orthophotograph

