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Sunshine Coast Regional District Regional Organics Diversion Strategy



Draft for Discussion

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1 Introduction

Diverting organic waste from landfill disposal is a significant solid waste management issue in BC. This is because organic waste, comprised primarily of yard and garden waste (green waste), food waste and food-soiled paper from businesses and households, not only represents the largest component of landfilled waste (35%-40%), but also generates methane, a potent greenhouse gas, during decomposition in a landfill.

Accordingly, the BC Ministry of Environment (MOE) has established new solid waste management goals as part of its Service Plan: to lower the provincial municipal solid waste (MSW) disposal rate to 350 kilograms per person annually and to have 75% of BC's population covered by organic waste disposal bans by 2020. To meet these goals the MOE is proposing that regional districts, as part of their solid waste management planning process, adopt as a guiding principle, "preventing organic waste including food waste from going into the garbage wherever practical."

The Sunshine Coast Regional District (SCRD) recognized this principle in 2011, when the Board approved and adopted the current Solid Waste Management Plan (SWMP). This plan includes a series of initiatives related to diverting yard and food wastes from disposal that, if implemented, would contribute to meeting the plan's target diversion rate of 65%-69% (315 to 279 kilograms per person) within five years.

Although there has been substantial diversion of green waste from landfill disposal, there has been limited progress with respect to the diversion of food waste (kitchen waste, food scraps and food-soiled paper). This was confirmed in the 2014 SCRД Waste Composition Study which identified food waste as representing 45% of the residential waste stream with green waste at only 2%. Accordingly, the current regional diversion rate sits at 56%, with a corresponding disposal rate of 434 kilograms per person in 2016.

In recognition of the need to increase the diversion of food wastes, the SCRД engaged Carey McIver & Associates Ltd., in collaboration with Maura Walker & Associates (the Project Team), to develop a Regional Organics Diversion Strategy. Building on the initiatives identified in the 2011 SWMP, the objective of this strategy is to provide a financially sustainable road map that will lead to a robust, Sunshine Coast-wide full organics diversion program.

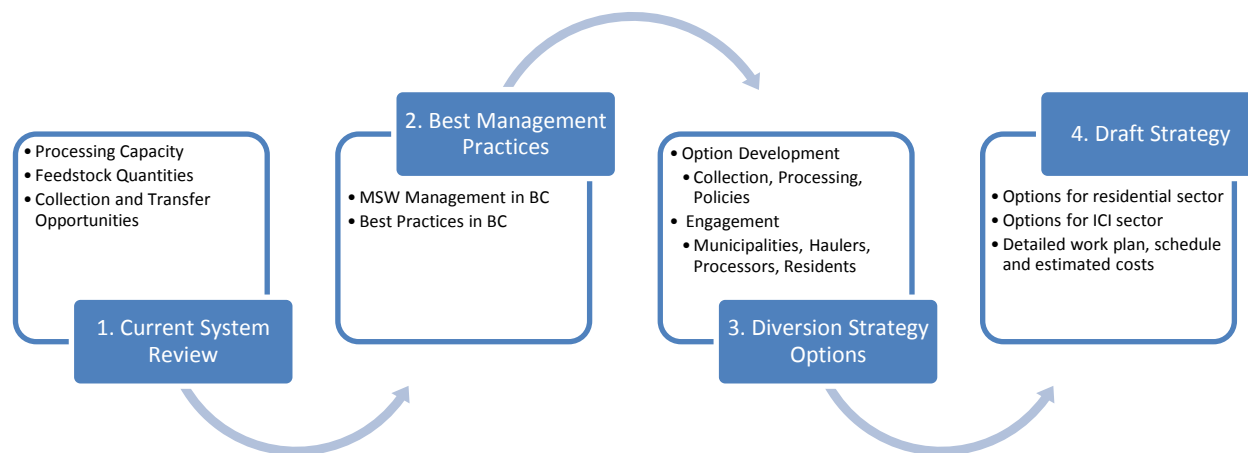
1.1 Objectives and Methodology

To develop a strategy that details the "who, what, where and when" for organics diversion in the SCRД the Project Team undertook two concurrent and intertwined processes: the technical process and the community engagement process.

As indicated in Figure 1-1, the technical process was organized into four key stages: a review of the current system for managing organic wastes in the SCRД; a scan of best practices and innovations in other BC jurisdictions; the development of realistic and practical diversion options for the SCRД and the development of a draft regional organics diversion strategy.



Figure 1-1: Project Methodology



The community engagement process was interwoven throughout the technical process, beginning with individual contacts with key stakeholders during the current system review, an SCRD coordinated meeting with municipal partners to provide a high-level overview of the strategy development and timelines as well as telephone interviews with hauling companies providing collection services throughout the region.

With respect to engagement with residents, the SCRD included a questionnaire on organics management as part of their series of Community Dialogues held in May 2017 and was made available online from May 8 to June 2, 2017. The feedback from this process has provided valuable insights into the development of the draft strategy contained in this report.

1.2 Overview and Structure of the Report

The report is structured as follows:

Section 2 outlines the organics diversion initiatives outlined in the 2011 SWMP as well as a description of the current organics management system including existing reduction and collection programs as well as drop-off, processing and disposal facilities.

Section 3 provides examples of best practices in organics management in BC which have informed the new Ministry of Environment (MOE) Service Plan targets for organic waste management. This section also updates the feedstock estimate provided in the 2011 SWMP based on actual data.

Section 4 describes the results of the community and stakeholder engagement process designed to inform the development of organic management options.



Section 5 outlines practical and realistic scenarios to increase organic waste diversion in the SCRД informed by best practices as well as the results of community and stakeholder engagement.

Section 6 outlines the draft regional organics diversion strategy including a workplan, schedule and estimated cost implications.

2 Current System Review - Organic Waste Management in the SCRД

This section summarizes the current system for managing organic wastes in the SCRД including the status of organics diversion initiatives included in the 2011 SWMP.

2.1 Organic Diversion Initiatives in the 2011 SWMP

In British Columbia, regional districts develop solid waste management plans (SWMP) as required under the provincial Environmental Management Act. These plans are long term visions of how each regional district would like to manage its solid wastes and are updated on a regular basis so that they reflect current needs, local priorities, market conditions, technologies and regulations.

The SCRД’s current SWMP was approved and adopted in 2011. The objective of the 2011 SWMP was to adopt zero waste as a guiding principle, to outline a roadmap of practical measures toward the goal, and to achieve the highest level of environmental and human health protection. The plan contains major reduction, reuse, recycle and diversion initiatives that, if fully implemented, would increase diversion from 50% in 2011 to between 65% and 69% in 2016.

Table 2-1 outlines the organic diversion initiatives for yard and food wastes that are included in the 2011 SWMP.

Table 2-1: 2011 SWMP Organics Diversion Initiatives

Initiatives
Reduction
➤ Incentive Based Tipping Fees
➤ Grass-Cycling and Backyard Composting Education
Recycling and Diversion
➤ Curbside Collection of Food Scraps
➤ Yard Waste Composting
➤ Processing Capacity for Food Scraps and Yard Waste

The following sections summarizes the implementation status of these initiatives.



2.2 Current Reduction Programs

Incentive Based Tipping Fees

Tipping fees are the charges that are applied to discarded materials deposited in landfills. The 2011 SWMP outlined how incentive based tipping fees are structured to provide financial incentives that discourage discarding waste into landfills, provided that there are more economical options to divert that material. As indicated in Table 2-2, the current tipping fee structure in the SCRD provides a significant financial incentive to divert yard and garden waste from landfill. The quantities of yard and garden green waste delivered by residents and business to SCRD drop off locations is discussed in Section 2.4.

Table 2-2: Current SCRD Incentive Based Tipping Fee Structure for Organics

Material for Disposal	Tipping Fee
Municipal Solid Waste	\$150 per tonne
Yard and Garden Green Waste	
-Residential self-haul loads less than 5 tonnes	NO CHARGE
-Residential self-haul loads more than 5 tonnes	\$45 per tonne
-Commercial loads	\$45 per tonne

Grass-Cycling and Backyard Composting

Grass-cycling and backyard composting are options that reduce the generation of organic waste. Grass-cycling and backyard composting are considered one of the most sustainable methods for managing organic waste. The 2011 SWMP proposes that the SCRD will promote backyard composting, offer compost training courses, operate a compost demonstration garden and encourage grass-cycling. The SCRD currently promotes its Guide to Backyard Composting and grass-cycling online and at community outreach events and has hosted a limited number of compost training courses. A compost demonstration garden and regular compost training sessions have yet to be implemented

2.3 Current Collection Programs

Although the 2011 SWMP recommended that municipal and SCRD operated curbside collection services be expanded to include food waste within five years, there has been limited progress to date. As indicated in Table 2-3, except for the pilot project in the Davis Bay community of Sechelt, there are currently no permanent curbside collection services in place for organics, either food waste or green waste on the Sunshine Coast.



Table 2-3: Curbside Collection Services in the Sunshine Coast

Area	2016 Census		Curbside Collection Services			
	Population	Households	Households	Garbage	Recycling	Organics
Municipal						
Sechelt District Municipality	10,216	4,855	4,305	Yes	Yes	No
Town of Gibsons	4,605	2,220	2,056	Yes	No	No
Sechelt Indian Government District	671	290	273	Yes	Yes	No
<i>Municipal Sub-Total</i>	<i>15,492</i>	<i>7,365</i>	<i>6,634</i>			
Electoral Areas						
SCRD Collection Service						
EA B - Halfmoon Bay	2,726	1,250		Yes	No	No
EA D - Roberts Creek	3,421	1,505		Yes	No	No
EA E - Elphinstone	3,664	1,550		Yes	No	No
EA F - West Howe Sound	2,043	945		Yes	No	No
<i>SCRD Service Sub-Total</i>	<i>11,854</i>	<i>5,250</i>	<i>5,675</i>			
EA A - Pender Harbour/Egmont	2,624	1,385	-	No	No	No
<i>Electoral Area Sub-Total</i>	<i>14,478</i>	<i>6,635</i>				
Regional Total	29,970	14,000	12,309			

Table 2-3 provides the population and household count according to the 2016 Census. The household count for curbside collection was provided by each individual service provider. Although the Census household count is not consistent with the service household count, overall the numbers indicate that the majority of households on the Sunshine Coast (roughly 90%) are currently receiving curbside garbage collection services.

While curbside collection programs on the Sunshine Coast are operated by local governments, collection service is provided by private sector contractors, except for the Sechelt Indian Government District. Table 2-4 outlines the contractors and expiry dates for current contracts within the Sunshine Coast.

Table 2-4: Curbside Collection Service Providers 2016

Service Provider	Households 2016	Contractors		
		Garbage	Recycling	Expiry Date
Sechelt	4,305	Direct Disposal	Direct Disposal	February 28, 2019
Gibsons	2,056	Grayco Ventures	NA	February 28, 2019
SIGD	273	In-House	In-House	
SCRD	5,675	Direct Disposal	NA	February 28, 2019

District of Sechelt Organics Collection Pilot Project

The District of Sechelt (DOS) has been operating a small food and green waste collection pilot project to around 500 single family homes in Davis Bay since May 23, 2014. According to the DOS web site, DOS staff will be developing a proposal for Council consideration on District-wide curbside organics collection based upon an analysis of the multi-year project. Under contract to DOS, Grayco Disposal collects the food waste and green waste from Davis Bay and delivers the material to the Salish Soils composting facility at a processing cost of \$80 per tonne.





2.4 Current Drop-Off Facilities

As discussed in Section 2.2, the SCRD provides three locations for residents to drop-off green waste and two locations for businesses to drop-off their green waste.

Residents can drop-off their green waste at the Pender Harbour Transfer Station, Salish Soils in Sechelt or on the South Coast at the drop-off located on the site of the Town of Gibsons Public Works Yard. The residential program is funded from taxation, so the residents are not charged at the time of drop-off. Commercial green waste can be dropped off at the Pender Harbour Transfer Station or the Sechelt Landfill at the current rate of \$45 per tonne. Alternatively, commercial green waste can be delivered to Salish Soils or other private facilities.

Salish Soils also accepts residential and commercial food waste at a cost of \$80 per tonne for larger quantities delivered by commercial hauling companies and \$85 per tonne for self-haul customers. However, clean food waste in 5 gallon buckets and under is free of charge to residential customers.

Figure 2-1 indicates the tonnes of green waste that has been accepted to these facilities over the last five years. In 2016, 4,343 tonnes of green waste was delivered these facilities.

Figure 2-1: Total Green Waste Diverted at SCRD Sites/Services 2012-2016

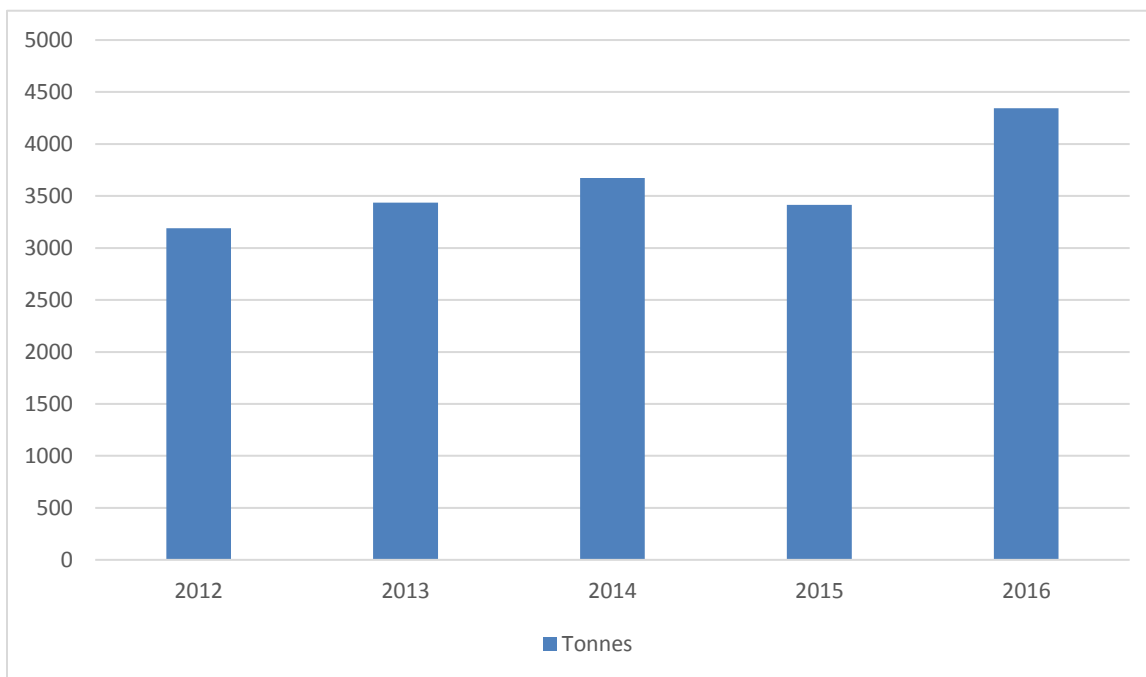
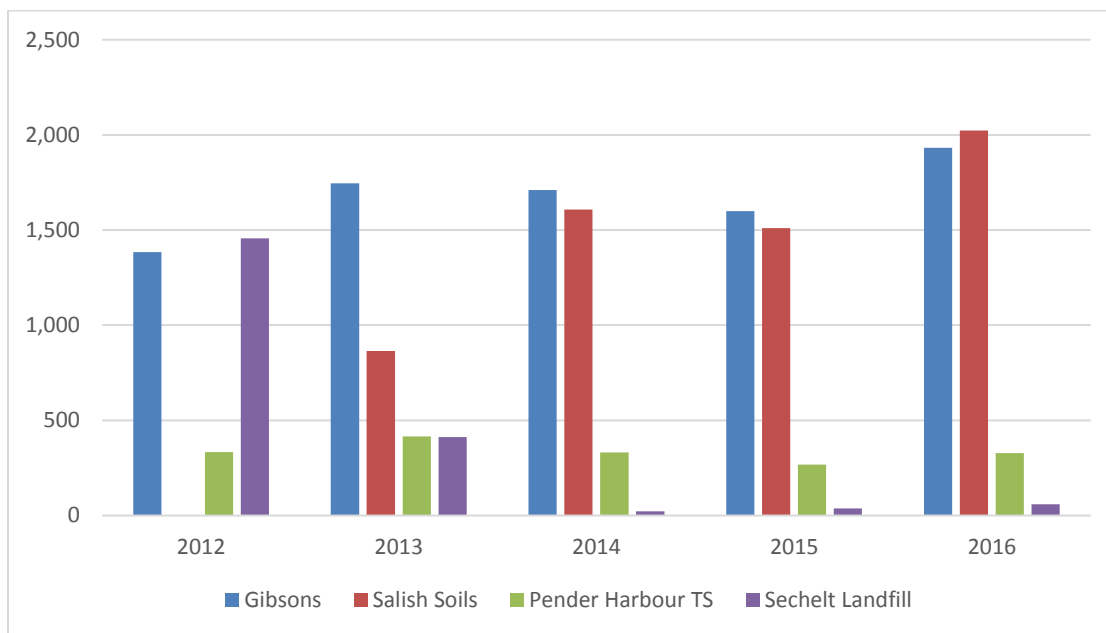


Figure 2-2 indicates the quantity accepted by individual facility. As illustrated in Figure 2-2, Salish Soils began accepting residential and commercial yard waste in 2012 and has since replaced the Sechelt Landfill as the main drop-off facility in the Sechelt area.



Figure 2-2: Total Green Waste Diverted by SCR D Drop-Off Facility – 2012-2016



Note: Does not include commercial green waste delivered to Salish Soils. Pender Harbour Transfer Station is a combination of residential and commercial green waste.

2.5 Current Processing Capacity

Prior to 2012, the SCR D chipped and hauled green waste to Howe Sound Pulp and Paper in Port Mellon, to be used as fuel. However, the 2011 SWMP recognized that establishing local processing capacity for composting green waste would provide the SCR D with the opportunity to also compost food scraps and soiled paper in the future. Consequently the 2011 SWMP recommended that the SCR D continue to support and enhance local composting operations through green waste collection and contracts with private sector operators.



In January 2011, Salish Soils Inc. submitted a notification under the provincial Organic Matter Recycling Regulation (OMRR) that they planned to construct and operate a composting facility on property owned by the Sechelt Indian Band at 5800 Black Bear Road in Sechelt. The OMMR governs the production, quality and land application of certain types of organic matter. Although the Salish Soils facility is not subject to OMRR, the company has met all the requirements of the regulation for a facility of its size.

Salish Soils operates a covered aerated static pile compost facility using the Gore Cover System to produce a Class A compost under the OMRR. The production design capacity of the Salish Soils composting facility is 12,000 tonnes per year of compost made from organic materials including fish waste and green waste. However, the facility is currently processing roughly 6,500 tonnes of compost made from green waste and fish waste, with limited quantities of food waste from the Davis Bay pilot, from residential food waste drop-off as well as from a pilot program in the Powell River Regional District.



2.6 Sechelt Landfill Capacity

The Sechelt Landfill is located approximately 6.5 kilometres northeast of the District of Sechelt, at 4904 Dusty Road. The site is located on Crown Land under a License of Occupation. According to the Notes to the Financial Statements attached to the SCR D’s 2016 Financial Audit Report (Appendix 1), the Sechelt Landfill is expected to reach its capacity in 2027. Given the difficulties and costs associated with siting and constructing a new landfill, conserving the capacity of this existing facility is imperative.

3 Best Practices Review

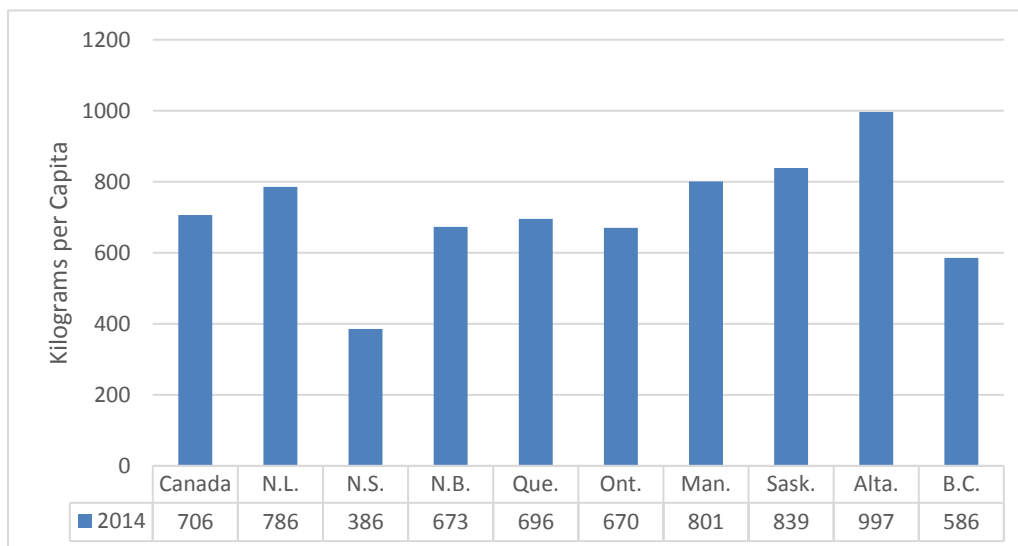
The SCR D does not need to look beyond BC to find examples of best practices in organic waste management. Municipal solid waste management (MSW) is an important environmental issue in BC. Over the last twenty-five years a dynamic system has evolved that provides efficient and effective MSW management services in the province. The following sections provide data on how the MSW management system in BC outperforms systems in similar jurisdictions as well as examples of best practices implemented by local governments in BC that could be applicable to the SCR D.

3.1 MSW Management System Performance in BC

This MSW management system in BC is guided by goals established by the Ministry of Environment (MOE) that aim to maximize waste reduction and diversion in the province. These ambitious goals, initially to reduce MSW disposal by 50% by the year 2000, and currently to reduce the provincial disposal rate to 350 kilograms per capita by 2020, have resulted in a MSW disposal rate that is significantly lower than systems in other provinces.

According to the Statistics Canada Waste Management Industry Survey for 2014, BC has the second lowest per capita MSW disposal rate in Canada. As indicated in Figure 3-1, the only province with a lower disposal rate was Nova Scotia, where organics have been banned from landfill disposal for the last decade.

Figure 3-1: Per Capita Disposal Rates for Canada and Selected Provinces 2014



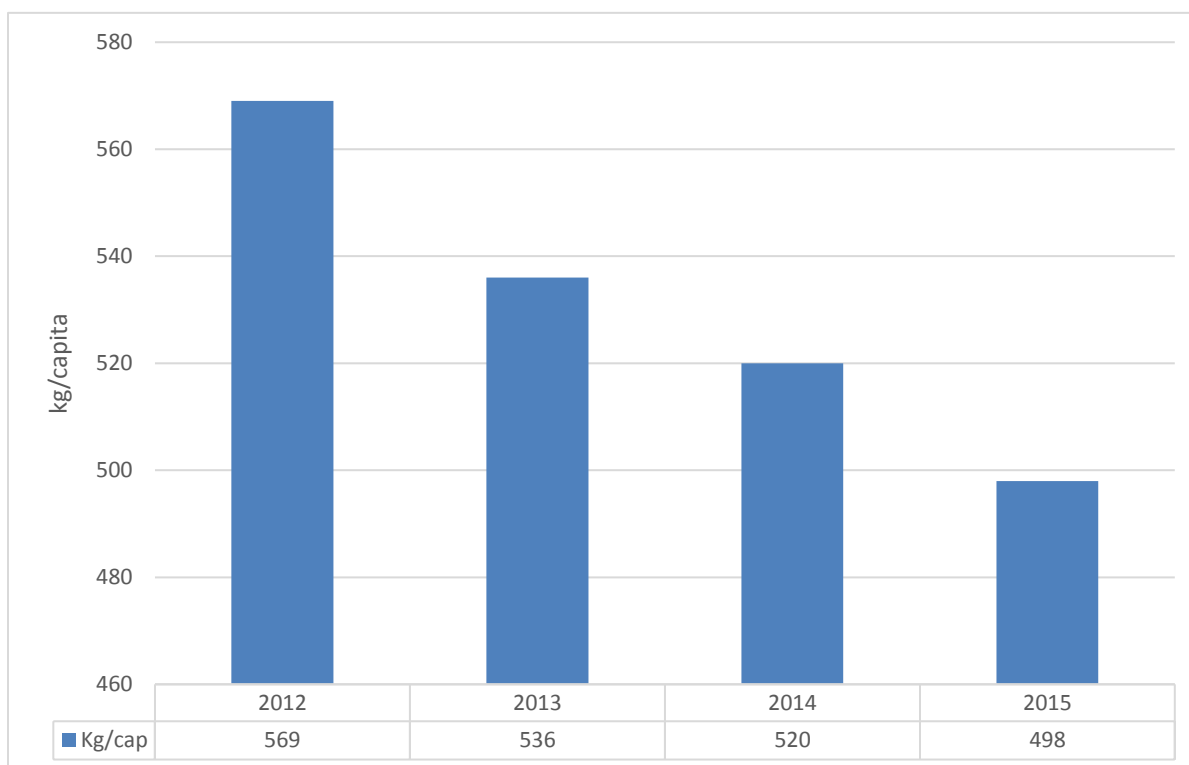
Source(s): Statistics Canada Disposal and Diversion of waste, by province and territory (Waste Disposal Per Capita) CANSIM tables 051-0001 and 153-0041(accessed May 2017)



Statistics Canada collects the BC disposal data from regional districts every two years and aggregates the results to the provincial level. Individual regional district data is not provided in the bi-annual reports. To provide more reliable and consistent annual data on MSW disposal by regional district, the MOE developed the BC Waste Disposal Calculator. The reporting methodology in the BC Calculator is identical to that used by Statistics Canada to ensure comparability between systems.

The BC Waste Disposal Calculator is an on-line reporting tool that has so far collected MSW disposal data for 2012, 2013, 2014 and 2015. The results of each year’s data call are posted on Environmental Reporting BC. Figure 3-2 illustrates the results reported to date.

Figure 3-2: Per Capita Disposal Rate for BC 2012-2015



Although there is little variation between the Statistics Canada and BC MOE disposal rates for 2012 (573 and 569 kilograms per capita respectively), there is significant variation between Statistics Canada and BC MOE disposal rates for 2014 (586 and 520 kilograms respectively). This is likely due to the quality control exercised by the BC MOE with respect to ensuring that regional districts are meeting the reporting requirements correctly and consistently.



Individual regional district data for 2015 is presented in Figure 3-3 and indicates that at a reported 421 kilograms per capita, the 2015 disposal rate in the SCRD was less than the provincial average of 498.

Figure 3-3: Regional District Disposal Rates for BC 2015

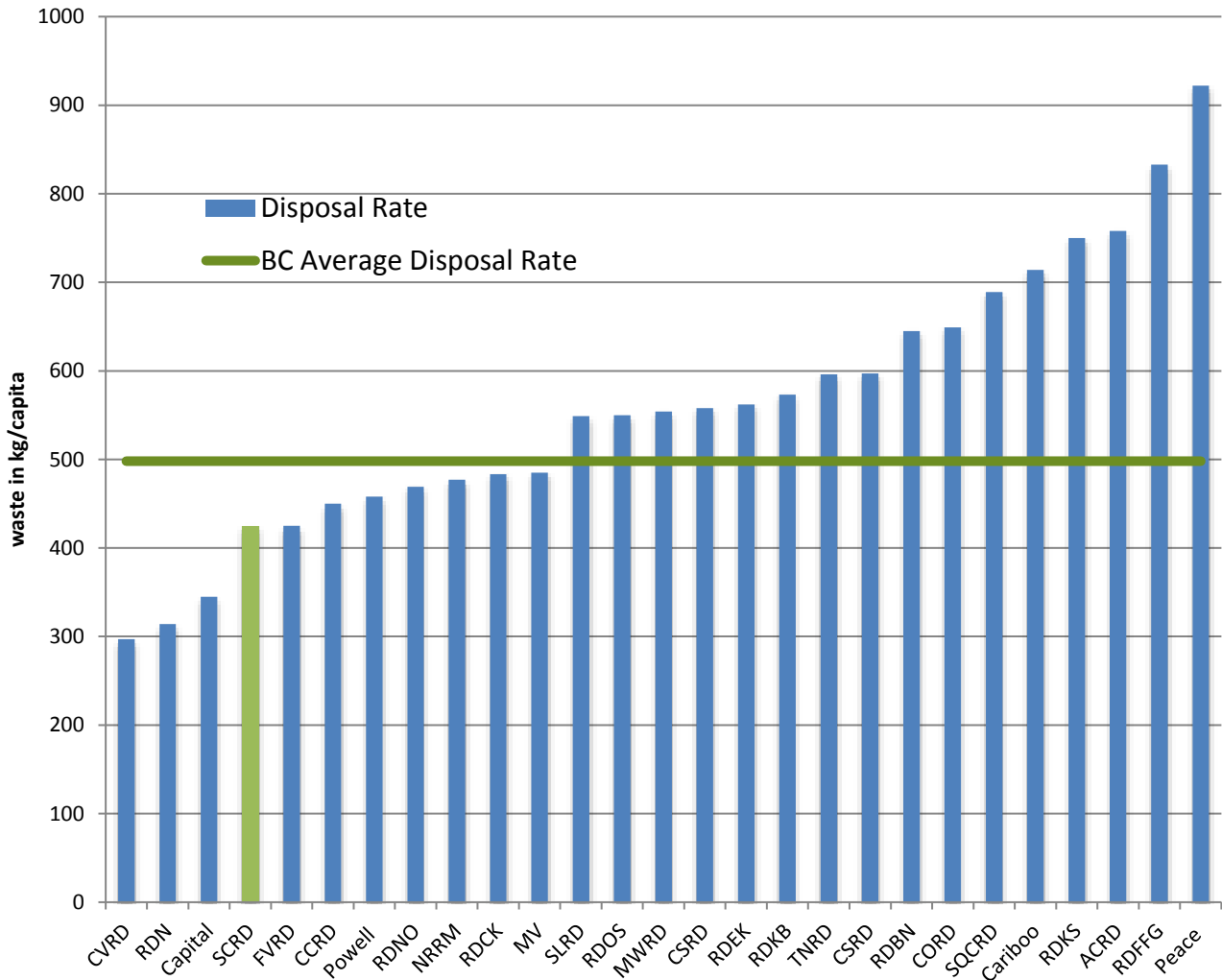
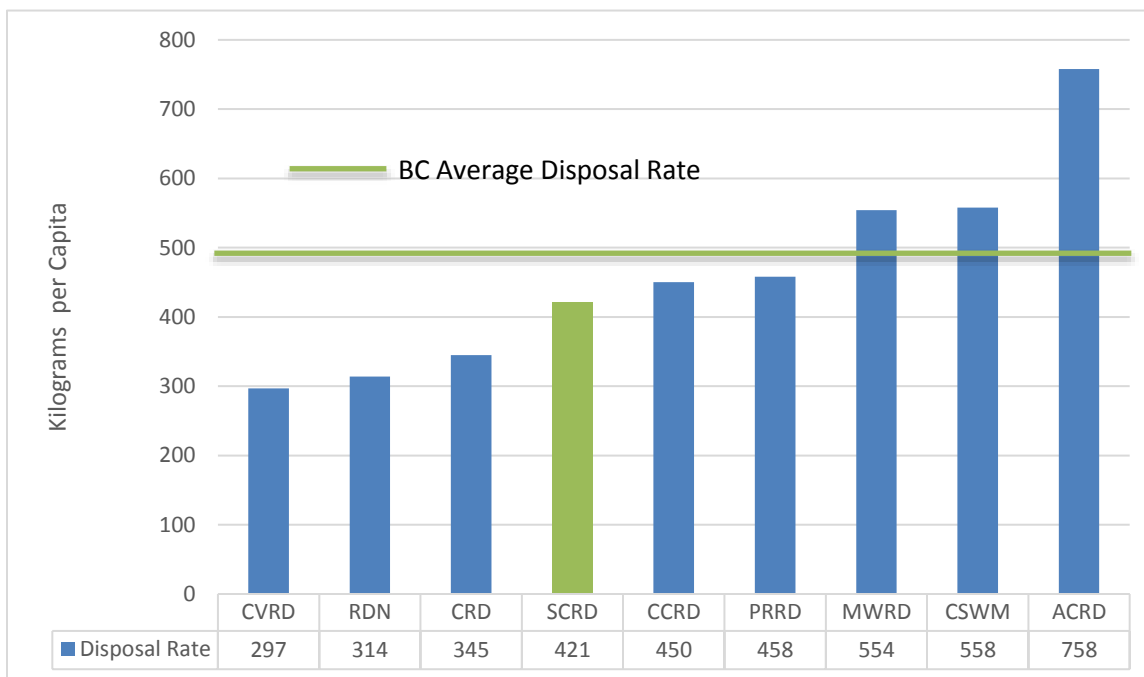




Figure 3-4 presents disposal rates for regional districts belonging to the Association of Vancouver Island Coastal Communities (AVICC) from lowest to highest. As indicated in Figure 3-4, the Cowichan Valley Regional District (CVRD), the Regional District of Nanaimo (RDN), and the Capital Regional District (CRD), all have significantly lower per capita disposal rates than the SCRD. The Central Coast Regional District (CCRD) and the Powell River Regional District (PRRD) have comparable rates while the Regional District of Mount Waddington (RDMW), the Comox Strathcona Waste Management (CSWM) service and the Alberni-Clayoquot Regional District (ACRD) all have disposal rates above the provincial average of 498 kilograms per capita.

Figure 3-4: Disposal Rates for AVICC Regional Districts 2015



The lower disposal rates in the CVRD, RDN and CRD can be attributed, in large part, to the implementation of organics diversion strategies in these three Vancouver Island regional districts. In 2006, both the CVRD and RDN introduced bans on the disposal of commercial organic wastes to reduce GHG emissions, preserve landfill capacity and reduce waste export disposal costs. Residential collection programs followed roughly 5-7 years later in both those regional districts. In 2015, the CRD introduced a ban on the disposal of both residential and commercial organics. More detailed information on programs and policies in comparable AVICC regional districts is provided in Appendix 2.

In 2015, Metro Vancouver also implemented a ban on the disposal of organics from both the commercial and residential sector. As a result, in 2015 roughly 66% of the population of BC was covered by an organic waste disposal ban. There are also numerous municipal curbside food waste collection programs in regional districts that have not implemented disposal bans (e.g. Grand Forks, Abbotsford, and Comox). Consequently, with respect to best practices in organic waste management, these BC local governments can provide practical and effective examples to other regional districts.



3.2 Best Management Practices and Innovations in BC

In 2014, on behalf of the MOE, Maura Walker & Associates (MWA), developed a set of case studies on innovative and effective best management practices by local governments in BC to reduce and recycle organic wastes. Applicable best practices with respect to reduction programs, disposal policies and collection programs are summarized below to provide input to the development of organic waste management options in the SCRD. Best management practices that have been introduced since the development of the MOE case studies are also included. More detailed information on each of the selected case studies is posted on the MOE website (<http://www2.gov.bc.ca/gov/content/environment/waste-management/recycling/organics/organics-case-studies>)

3.2.1 Reduction Programs

Metro Vancouver Love Food Hate Waste

Based on research in Europe and North America, Canadians may be wasting approximately 25 percent of all the food and drinks that they purchase. Metro Vancouver’s Love Food Hate Waste Program aims to change this behaviour by educating consumers about meal planning, and careful cooking and storage. This program is modelled on WRAP United Kingdom’s initiatives of the same name, which has seen a 21% reduction in avoidable food waste since its launch in 2007. Metro Vancouver has stated publicly that they are willing to share this program with other regional districts. The BC Ministry of Environment will also provide the US EPA’s “Food Too Good to Waste” toolkit to regional districts at no charge. The SCRD could implement either one of these programs at a relatively low cost.



North Shore Recycling Program Compost Coaching



The former North Shore Recycling Program (NSRP) focused on waste reduction, recycling and composting under contract for the three municipalities along the North Shore in Vancouver.

The Compost Coaching program was started in 2007 to reduce organics in the waste stream. A pilot program was conducted in 2008–2009 with full implementation in 2011–2013. The program was developed to address the Metro Vancouver goal of 70% diversion by 2015.

Compost Coaching is an outreach program that focuses on helping residents compost in their own backyards through at-home training which is a Community-Based Social Marketing (CBSM) approach. The program looked at

how much material was composted before and after the training, as well as how much waste was produced per household. In the first year, 156 residents received at-home coaching. This coaching resulted in an additional 36 kg/capita/year of organic material composted on site for households that were already composting and 190 kg/capita/year for households that had not composted before. Households that participated in the program improved their composting skills, produced higher quality compost in a shorter time and reduced hazards from bears and pests. This program invests in sustainable behaviour change instead of the provision of free or subsidized composters.



3.2.2 Disposal Policies

Regional District of Nanaimo Commercial Food Waste Ban

A waste composition study completed in 2004 for the Regional District of Nanaimo (RDN) confirmed that 35% of total waste sent to landfill was compostable organic material. Consequently, in June 2005, in accordance with the RDN’s Zero Waste Plan (2004) and the Organics Diversion Strategy (2005), the RDN introduced a landfill ban on the disposal of food waste from all commercial premises.



This ban was developed and implemented in collaboration with waste haulers, commercial food waste generators and composting companies. This collaborative approach ensured that all stakeholders had at least six months advanced notice.

In particular, waste haulers and their customers were encouraged to devise cost effective systems to comply with the ban that met their individual situation. The RDN’s role was to facilitate communication, innovation, competition and compliance, but not get involved in direct program delivery. Enforcement consists of load inspections and surcharges

at disposal facilities by RDN staff as well as on-site education and compliance checks by the RDN’s Zero Waste compliance officer.

Program results have been positive and economical. In 2006 (the first year of the disposal ban on commercial food waste), over 4,200 tonnes of commercial food waste was diverted from disposal representing a reduction of 30 kg per capita. As a regulator, the RDN does not pay for collection or processing costs, consequently, at an in-house cost of \$15 per tonne per year, the commercial organics ban has been an extremely cost-effective local government waste diversion initiative.

Diverting this waste from disposal also contributed to reducing the RDN disposal rate from 553 kg per capita in 2005 to 517 kg per capita in 2006. However, since then this amount has levelled off to an average of 3,400 tonnes annually, which represents a recovery rate of 33% and a reduction of 21 kg per capita per year. Nevertheless, the commercial food waste ban and the organics diversion strategy are recognized as one of the most significant contributors to the RDN’s per capita disposal rate of 350 kg in 2012.





Capital Regional District Kitchen Scraps Diversion Strategy



In 2012, the Capital Regional District (CRD) approved a Kitchen Scraps Diversion Strategy that applied to both residential and commercial sectors. The strategy was phased-in over two years. From 2013-2014 the CRD offered a \$20 per tonne incentive for haulers to deliver kitchen scraps to approved facilities. In January 2015, the strategy culminated with a full disposal ban on kitchen scraps delivered to the Hartland Landfill. For the ICI sector, private haulers are required to provide food scraps collection services while the residential sector is serviced by a mixture of municipal and private collection services.

Although the CRD had originally secured processing capacity at a private facility in the region, due to odour concerns this option was discontinued and instead food waste is currently transferred to several out-of-region processing facilities. In the meantime, the CRD is investigating options for processing food wastes at the Hartland Landfill. Due to the introduction of the CRD Kitchen Scraps Diversion Strategy, the disposal rate in the CRD declined from 394 kilograms per capita in 2012 to 345 kilograms per capita in 2015.

Metro Vancouver Organics Disposal Ban

Metro Vancouver (MV) also introduced a disposal ban on organics in 2015. From 2012 to 2013 MV staff undertook stakeholder engagement and readiness surveys to inform their detailed planning for an organics disposal ban. In 2014, they announced the Organics Ban Implementation Strategy and continued consultation initiatives prior to the ban effective date of January 2015.



One of the successful components of the Metro Vancouver organics ban was the phased implementation schedule. As indicated in Figure 3-6, for the first six months after the ban was effective, there were no surcharges or penalties applied to loads containing any amount of food waste.

However, following this six-month education period, for the next six months of 2015 any loads containing more than 25 percent food waste were subject to a surcharge of 50% of the MSW tipping fee. The threshold was then reduced to 10 percent in 2016 and 5 percent in 2017.

This declining threshold concept was fully supported by private sector haulers in Metro Vancouver because it allowed them to market their food waste collection services as a “carrot” with the declining threshold as a “stick” to ensure that their customers added separate food waste collection to existing garbage collection service.

Because of the Organics Disposal Ban the per capita disposal rate in Metro Vancouver declined from 520 kilograms per capita in 2014 to 485 kilograms per capita in 2015.



Figure 3-5: Metro Vancouver Organics Disposal Ban Phased Implementation Schedule



3.2.3 Collection Programs

Regional District of Nanaimo Green Bin Collection Program

The Regional District of Nanaimo (RDN) 2004 Zero Waste Plan identified organics diversion as the primary means to reach the goal of 75% diversion from landfill. Commercial and residential food waste diversion programs were essential to achieving this target.



The Green Bin Program, a partnership of the RDN and its member municipalities, was launched in 2010 and provides curbside collection service for food scraps and food soiled paper to over 55,000 single-family households throughout the region, including urban and rural residents.

This was the first large scale residential food waste collection program implemented in BC. Under this program, residents receive weekly collection of food waste and bi-weekly collection of garbage and recyclables on alternating weeks. For garbage, residents can set out one can every other week. For more than one can, residents must purchase tags to set out up to two additional cans every other week.

To save on collection costs as well as greenhouse gas emissions, garbage, food waste and recyclables are collected in split packer trucks, whereby food waste and garbage is collected in the same truck one week and food waste and recyclables are collected in the same truck the next week.

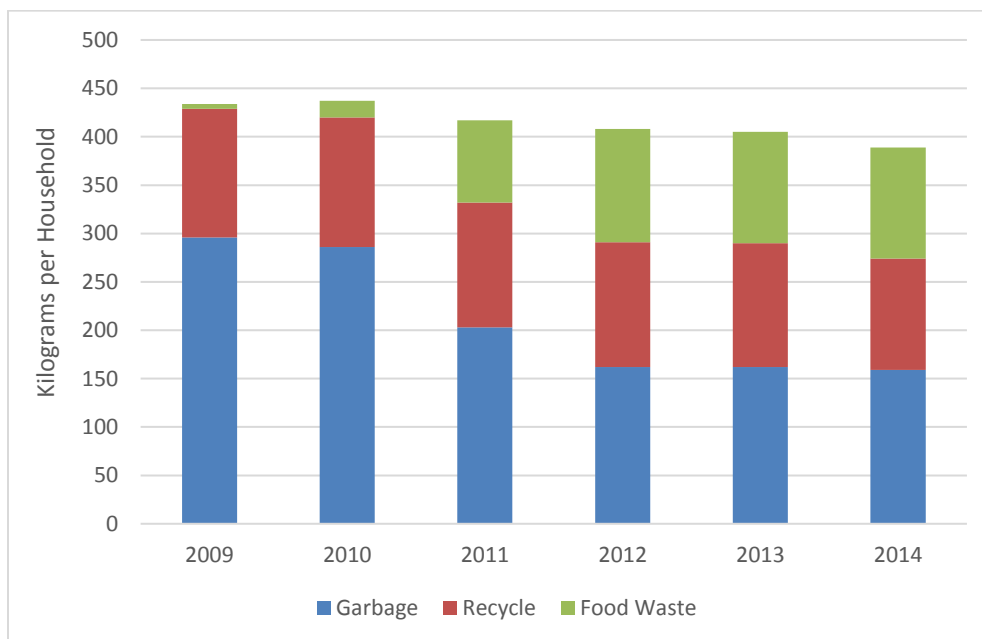
In 2012, the program collected 6,247 tonnes of kitchen scraps from 53,500 households. This represents 117 kg of food scraps per household or 43% reduction in waste sent to disposal. This material is processed at a privately owned and operated composting facility in Nanaimo under a long-term contract with the RDN.



With respect to total waste disposal, in 2012 the RDN Green Bin Program diverted 42 kg per capita from landfill, contributing to a region-wide disposal rate of 350 kg per capita.

Figure 3-6 illustrates the reduction in residential garbage disposal per household from 2009 before the program was introduced to 2014 as result of the Green Bin Program.

Figure 3-6: RDN Annual Curbside Tonnage Per Household 2009-2014



Grand Forks Food Scraps Collection Service

The City of Grand Forks and the Regional District of Kootenay Boundary (RDKB) were one of the first BC local governments outside of Lower Mainland/Vancouver Island to provide residents with a Green Bin Food Scraps curbside collection service. The weekly curbside collection service became available to 1,830 City of Grand Forks’ households in October 2012. The organic materials are processed in open windrows at the Grand Forks Landfill.

Prior to implementing the green bin program, Grand Forks collected an average of 264 kg of garbage per household per year. After implementation of the program, garbage collected at the curb decreased to 119 kg per household per year. This equates to a 55% reduction in waste sent to disposal. With the collection of 123 kg of food waste per household annually, the overall diversion rate increased from 18% with recycling collection only to 62% with recycling and food waste collection.



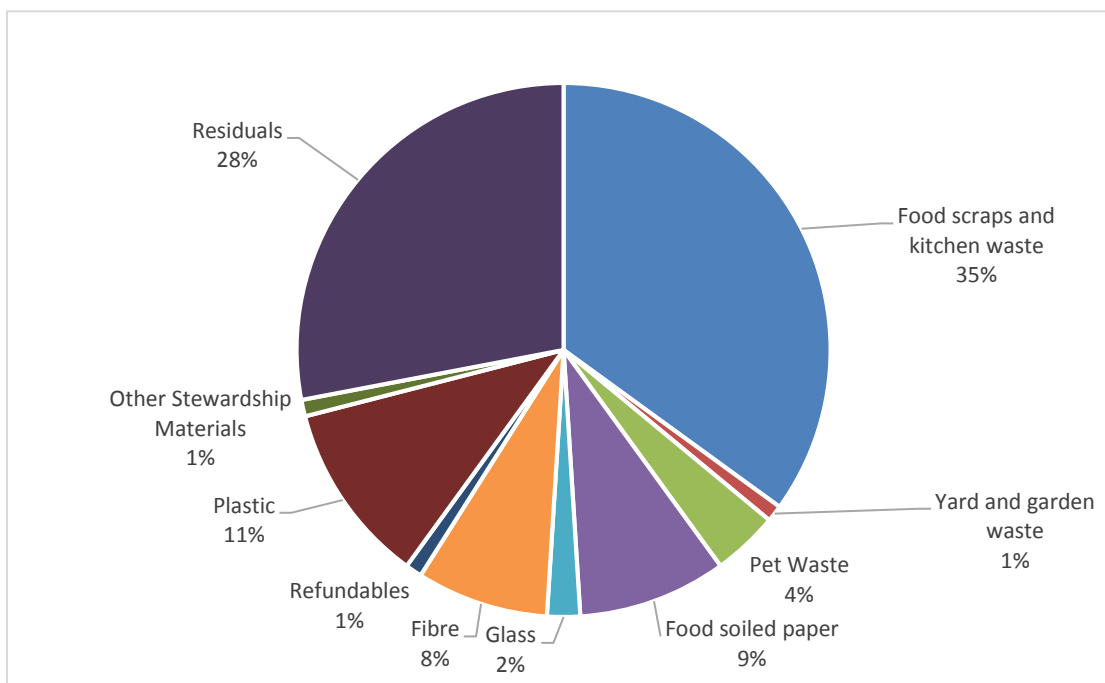


3.2.4 Food Waste Diversion Estimate and Impact to Sechelt Landfill

Prior to the implementation of the programs described in previous sections, program designers relied on waste composition data to estimate the quantity of organic waste that could be diverted from disposal. This method relies on two factors: the percentage of residential and ICI organics in the regional district waste stream and the potential recovery rate for both sectors.

While the SCRD has recent waste composition data for the residential waste stream, as illustrated in Figure 3.7, this 2014 study did not assess the composition of the ICI waste stream. This is important since ICI waste represents 50% of total waste disposal in the SCRD. Although ICI waste composition can be extrapolated from other similar regional district studies, actual diversion data from the programs and policies described in this section on best practices can provide a much more reliable estimate of diversion potential.

Figure 3-7: SCRD Residential Waste Composition All Areas 2014



Appendix 3 provides actual food waste data for residential curbside programs operating in the CVRD and RDN. As indicated in Figure 3-3, in 2015 these two regional districts on Vancouver Island had the lowest disposal rates in BC at 297 and 314 kilograms per capita respectively.

Both regional districts implemented disposal bans on commercial sector food waste in 2006, and all households in the RDN and most of the households in the CVRD have curbside food waste collection service. Based on this data it is reasonable to expect that curbside collection of residential organics in the SCRD would divert 52 kilograms per capita of food waste annually.



In lieu of curbside collection, a drop off depot for food waste can be provided. Using data from a pilot drop-off program in the Powell River Regional District, the recovery rate from a residential drop-off program is estimated to be 10 kilograms per capita per year.

With respect to food waste from the ICI sector, based on data from the RDN, it is reasonable to expect that implementation of a ban on disposal of food waste from this sector would divert an additional 30 kilograms per capita per year.

Table 3-1 applies the recovery rate of 52 kilograms per capita for curbside and 10 kilograms per capita for drop-off from the residential waste sector and 30 kilograms per capita from the ICI sector under three scenarios.

Scenario 1

Scenario 1 assumes that the municipalities will proceed with curbside collection service while all the SCRD Electoral Areas will use a drop-off facility. This equates to 877 tonnes of residential food waste and 899 tonnes of ICI food waste for total diversion of 1,776 tonnes per year.

Scenario 2

Scenario 2 assumes that the municipalities will proceed with curbside collection service while the SCRD Service will expand to include food waste collection in Electoral Areas B and D, while Electoral Areas A, E, and F will rely on a food waste drop-off site. In this scenario, residential food waste diversion increases to 1,152 tonnes per year which combined with ICI food waste represents a total diversion of 2,051 tonnes of food waste annually.

Scenario 3

Scenario 3 assumes that the municipalities will proceed with curbside collection service while SCRD Service will expand to include food waste collection in Electoral Areas B, D, E and F while Electoral Area A relies on a food waste drop-off site. In this scenario, residential food waste diversion increases to 1,400 tonnes per year, which combined with ICI food waste represents a total diversion of 2,300 tonnes per year.

Consequently, the total amount of food waste that could be diverted as feedstock to the Salish Soils composting facility could range from between 1,776 tonnes per year for Scenario 1, to 2,050 for Scenario 2, an up to 2,300 tonnes per year for Scenario 3.

Impact to Sechelt Landfill

The SCRD's landfill engineers, XCG Environmental Consultants (XCG) project that the diversion estimates under these three scenarios would provide eleven, thirteen and fifteen months respectively of additional site life at the Sechelt Landfill.



Table 3-1: Food Waste Diversion Scenarios and Impact to Sechelt Landfill

Sector	Households	Persons/ HH	Est. Pop	Scenario 1 (tonnes)	Scenario 2 (tonnes)	Scenario 3 (tonnes)
Residential						
<i>Municipal</i>						
Sechelt District Municipality	4,305	2	9,041	470	470	470
Town of Gibsons	2,056	2	4,318	225	225	225
Sechelt Indian Government District	273	2	628	33	33	33
<i>Municipal Sub-Total</i>				727	727	727
<i>Electoral Areas</i>						
EA B - Halfmoon Bay	1,351	2	2,973	30	155	155
EA D - Roberts Creek	1,627	2	3,579	36	186	186
EA E - Elphinstone	1,675	2	3,686	37	37	192
EA F - West Howe Sound	1,022	2	2,247	22	22	117
EA A - Pender Harbour/Egmont	1,385	2	2,493	25	25	25
<i>Electoral Area Sub-Total</i>				150	425	674
Residential Total				877	1,152	1,401
ICI (@30 kg per capita)						
ICI Total			29,970	899	899	899
TOTAL ALL SECTORS				1,776	2,051	2,301
				Scenario 1 (Months)	Scenario 2 (Months)	Scenario 3 (Months)
Additional Site Life at the Sechelt Landfill				11	13	15



4 Community and Stakeholder Engagement Process

A successful regional organics diversion strategy requires input from all stakeholders including processors, haulers, local governments, and waste generators in the area. This section summarizes the results of the stakeholder engagement process undertaken to date to inform the development of the strategy.

4.1 Processors

As discussed in Section 2.5, Salish Soils operates a composting facility in Sechelt. The Project Team has visited the site and has had several conversations with the Chief Executive Officer, Aaron Joe. Salish Soils is currently operating under capacity and would welcome the additional feedstock that would be available as result of the final SCRD Regional Organics Diversion Strategy.

Although Salish Soils has adequate processing capacity for food and green waste from residential and commercial sources, they would appreciate the added support provided by disposal bans and long-term contracts for feedstock supply. This is the case with most private sector operators. Without adequate feedstocks to operate at design capacity, cash flows are insufficient to provide the necessary funds for equipment maintenance and repair let alone any return on investment. Without long-term processing contracts private facilities have difficulty borrowing funds required for facilities upgrades and improvements, particularly with respect to odour control. These concerns are shared by Salish Soils.

4.2 Haulers

The Project Team contacted three garbage hauling companies operating in the Sunshine Coast, Grayco, Direct Disposal and Harbour Disposal. Both Grayco Disposal and Direct Disposal expressed support for increased organics diversion programs and are confident that their firms could provide food waste collection services for both the residential and ICI sectors. However, Harbour Disposal advised that if commercial food waste was banned from disposal region-wide they would need to purchase a new truck and would require a drop-off option at the Pender Harbour Transfer Station, given their unwillingness at this point to haul food waste to Sechelt.

Although Direct Disposal voiced support for a ban on commercial food waste, they are concerned that any additional feedstock to the Salish Soils composting facility will exacerbate odour issues at the facility. This is a legitimate concern and will need to be addressed in the development of the regional organics diversion strategy. See Section 5.3 for more details.

4.3 Local Governments

In May 2017, the SCRD coordinated a meeting with staff from the District of Sechelt, the Town of Gibsons and the Sechelt Indian Government District to discuss the development of the regional organics diversion strategy. At this meeting, the Project Team provided a high-level overview of the strategy development process and timelines while the member municipalities provided an update on their plans to implement curbside collection of food waste in their respective jurisdictions.

At the meeting Town of Gibsons staff mentioned that they were drafting a survey for residents to obtain input on curbside or depot collection of food waste.



Since the meeting the Town has issued a residential survey and a request for proposals (RFP) for a residential organic waste diversion program. The survey closed on June 30, 2017. The RFP, which closes July 14, 2017, is for a turnkey collection program whereby the successful proponent provides: a communication strategy, an education awareness program, collection methods, equipment required including kitchen and curbside containers, hauling methods and costs, and identifies the permitted processing facilities.

The Town of Gibsons anticipates awarding a contract by September 1, 2017 with service to commence the first week of October 2017. The expiration of the contract arising from this RFP is to coincide with expiration of the Town’s curbside garbage collection contract in February 28, 2018.

As discussed in Section 2.3, the District of Sechelt has been operating a food waste collection pilot in the Davis Bay area for several years. District staff present at the meeting advised that Davis Bay residents support the service but may not be willing to pay the extra costs associated with a full roll-out. Due to resource constraints, staff have not been able to proceed with developing a proposal for Council consideration on District-wide curbside organics collection. This should be addressed within the next year.

The Sechelt Indian Government District Council approved a Zero Waste plan last year and will be hiring an educator to support the initiative. The SIGD currently provides weekly garbage and weekly recycling services to their residents. However, SIGD staff are currently reviewing options for weekly collection of food waste and bi-weekly collection of garbage and recyclables.

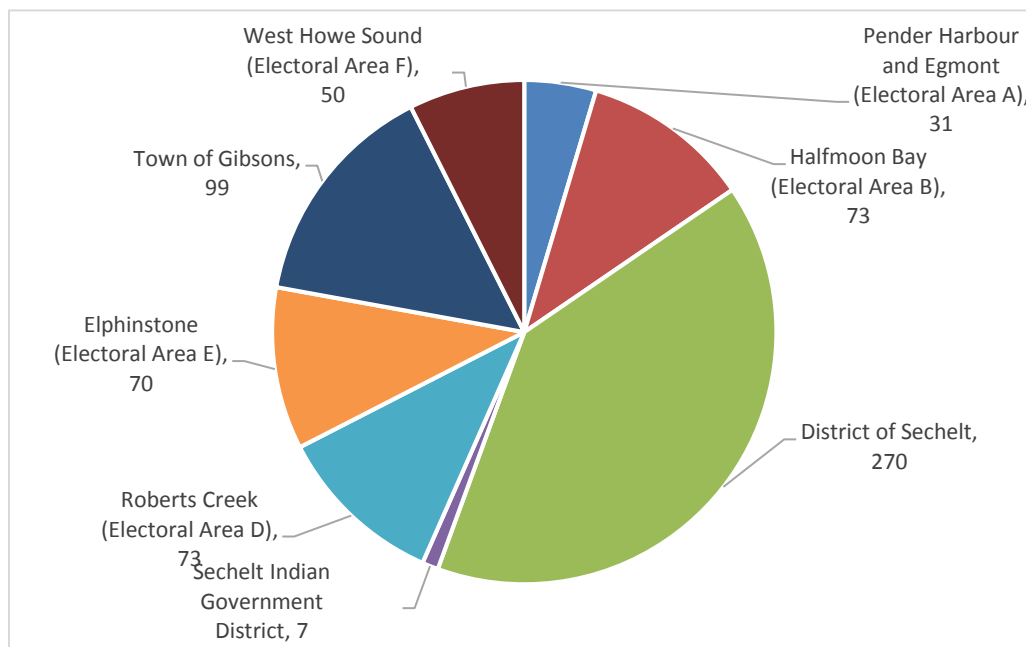
Based on this meeting, municipalities within the SCRД are considering the provision of curbside collection of food waste to their residents. However, with respect to green waste, municipal partners have not expressed an interest in collecting this material at the curb and are content to continue the current system of self-haul to SCRД drop-off depots.

4.4 Residents

From May 8, 2017 to June 2, 2017, the SCRД asked residents to respond to a questionnaire about their current organic waste management practices, their willingness to participate in depot and curbside organic waste collection services, and their concerns about these collection methods. A total of 673 people responded. The distribution of responses by area is illustrated in Figure 4.1



Figure 4-1: Distribution of Questionnaire Response by Area



The questionnaire results indicate a high level of current participation in green waste diversion, including backyard composting and drop-off depots. Detailed information on the questionnaire is outlined in the Public Engagement Report – Organics Diversion Questionnaire.

For food waste management, a wide variety of solutions are used –ranging from backyard composting to feeding animals to using drop-off depots. Table 4.1 shows the prevalence of backyard composting of acceptable food scraps (fruits, vegetables, coffee grounds etc.) and depot use (all food scraps), by area, based on the responses to the questionnaire. There is a significant difference in the prevalence of backyard composting between the Electoral Area respondents (over 50%) and the municipal respondents (36% or less). Depot participation ranged from 3% in Electoral Area A (Pender Harbour) to 14% in the SIGD.

Table 4-1: Backyard Composting and Depot Use by Area

	Backyard Compost Food Scraps (% of area respondents)	Take Food Scraps to Depot (% of area respondents)	Put Food Scraps in the Garbage (% of area respondents)
Area A	55%	3%	65%
Area B	52%	11%	82%
Area D	55%	7%	77%
Area E	57%	6%	86%
Area F	54%	6%	66%
SIGD	0%	14%	86%
Gibsons	36%	6%	91%
Sechelt	32%	7%	82%



The respondents’ willingness to participate in curbside organic waste collection services was high in all areas. Table 4.2 shows the percentage of respondents in each area that indicated that their participation would be “highly likely” or “maybe”. Except for respondents in Areas A and F, there was generally a higher level of support for curbside collection over depot-based collection.

Table 4-2: Questionnaire Respondents Willingness to Participate in Organic Waste Collection

	Depot Collection			Curbside Collection		
	Highly likely	Maybe	Total	Highly likely	Maybe	Total
	% of respondents, by area					
Area A	61	26	87	55	16	71
Area B	27	36	63	75	14	89
Area D	36	30	66	67	14	81
Area E	46	33	79	66	19	85
Area F	52	24	76	56	16	72
SIGD	57	14	71	86	0	86
Gibsons	49	30	79	83	7	90
Sechelt	29	36	65	82	9	89

The most common concern expressed by respondents was the creation of animal attractants, particularly for bears. Many respondents suggested a willingness to participate in curbside collection if an animal-proof bin could be provided. The other commonly expressed concerns were the cost of the service and the potential for odour, although these concerns were identified with much less frequency than concerns related to attracting animals.

5 Considerations for Strategy Development

To ensure that a sustainable and robust organics diversion program is implemented in the SCRD, environmental, economic and social issues must be given full consideration in the development and selection of a regional organics diversion strategy. The following section outlines the Project Team’s understanding of these issues in the SCRD as well as their implications on strategy development.

5.1 Sechelt Landfill Considerations

Landfill Capacity

According to the 2016 Annual Report prepared by XCG Consulting Limited, the Sechelt Landfill will reach capacity in 2027 based on current disposal rates, diversion initiatives, and population projections. If the SCRD fully implements all of the diversion initiatives outlined in the 2011 SWMP, landfill capacity could be extended another 5 years to early 2032. In either case, the SCRD will need to identify additional long-term disposal capacity and in the Project Team’s experience this will be a challenging process that will inevitably result in higher disposal costs.

A lack of or shortage of landfill capacity was one of the main drivers for the CVRD and the RDN to implement their organics diversion programs. The CVRD currently exports their residual wastes in response to an unsuccessful landfill siting process. Given the high cost associated with waste export, the



CVRD has pursued a full range of diversion initiatives to reduce their residual disposal costs. The RDN also faced a landfill capacity crisis and after a controversial and failed landfill siting process, chose to conserve existing capacity by promoting maximum waste diversion.

Greenhouse Gas Emissions

As discussed in the 2011 SWMP, the Sunshine Coast Regional District, Town of Gibsons, District of Sechelt and the Sechelt Government District are committed to reducing greenhouse gas (GHG) emissions for the region. An emissions inventory completed in 2009 shows that the Sechelt Landfill contributes roughly 7% of GHG emissions on the Sunshine Coast. Since food waste generates methane, a potent greenhouse gas, during decomposition in a landfill, diverting this waste to a composting facility provides not only a significant reduction in GHG emissions, but also provides residents a low-cost and easy option to address climate change by reducing their household GHG emissions. Consequently, from an environmental perspective, the region wide organics diversion strategy should aim to maximize the diversion of food waste as an effective and efficient means to reduce GHG emissions.

5.2 Supporting Policy Considerations – Disposal Bans

Organic waste disposal bans have proven to be an effective and low-cost policy tool to divert waste and reduce GHG emissions in Metro Vancouver, Capital, Cowichan Valley and Nanaimo regional districts. However, the application of disposal bans for the ICI and residential sectors has varied between regional districts for the reasons discussed below.

In 2005 the RDN and CVRD were the first regional districts in BC to implement disposal bans on food wastes. In both cases the bans applied to commercial food waste and not food waste from the residential sector. This was due to two factors: the availability of privately owned and operated composting facilities and the fact that commercial food waste generators and private haulers could move faster to implement collection programs than local government service providers in the residential sector.

In the RDN, the commercial organics ban achieved significant and early diversion success while providing staff the opportunity to study collection options for the residential sector. This included implementation of a successful curbside collection pilot project. As a result, curbside collection services operated by the City of Nanaimo and the RDN expanded to include food waste in 2010. However, the commercial disposal ban has not been expanded to apply to residential waste since collection services were implemented voluntarily.

In Metro Vancouver and the CRD, the organics disposal bans, effective in 2015, apply to both the commercial and residential sectors. However, because these regional districts do not provide residential curbside garbage collection programs, they allowed for a two-year consultation process with their municipal partners and commercial generators to ensure support for their initiatives. Once municipal support was confirmed, the effective date for the ban was established and implemented in a phased process. In effect, these bans applied to commercial and residential organics because member municipalities were supportive and were given sufficient time to design and implement their collection systems.



5.3 Odour Management at Salish Soils

As discussed in Section 2.5, the Salish Soils composting facility meets the requirements of the Organic Matter Recycling Regulation (OMRR), which falls under the Environmental Management Act. The OMRR governs the production, quality and land application of certain types of organic matter. OMRR sets requirements for compost facilities with respect to:

- Construction and operation;
- Leachate management;
- Odour management;
- Capacity, and,
- Process and quality criteria.

For facilities that process less than 20,000 tonnes per year, OMRR requirements are not too stringent. For facilities that process more than that amount, requirements become more rigorous. Nevertheless, because OMRR requirements were not site specific at the time, the RDN, CVRD, Metro Vancouver and the CRD have all applied their Waste Stream Management Licensing Bylaws or Composting Code of Practice Bylaw to set higher performance standards than OMRR for composting facilities in their regions. This was primarily due to concerns over odour management, which is crucial to successful organic diversion.

In 2016, with more composting facilities expected to come online, OMRR was amended to ensure effective protection of the environment and public health. The amended OMRR requires all compost facilities that process food waste or biosolids, and have a production design capacity to produce 5,000 tonnes of compost or more per year to also apply for a Permit. These new permit requirements include completion by the applicant of an Environmental Impact Study, an Operating Plan, an Odour Management Plan, a Leachate Management and a Public Notification Process.

Although the Salish Soils facility is not subject to OMRR, the company has met all the requirements of the regulation for a facility of its size. And even though its production design capacity is less than 5,000 tonnes of compost per year, Salish Soils has advised the Project Team that they would be willing to apply for a permit under OMRR. Although this would be in the best interests of the SCRD, the permit requirements are expensive and Salish Soils would need to see a corresponding increase in feedstock and associated revenue. Consequently, the regional organics diversion strategy must consider due diligence requirements with respect to environment and public health protection as well ensuring that Salish Soils has the financial ability to meet these requirements.

With respect to processing costs, it is likely that the current Salish Soils tipping fee of \$80 per tonne for large quantities will increase to meet permit requirements. The tipping fees at similar composting facilities in BC are closer to \$100 per tonne to cover higher operating and maintenance and equipment replacement costs, particularly with respect to odour control.



5.4 Geography and Demographics

Communities and settlements in the SCR D are primarily strung out along a long and linear corridor that runs along the southern coastline. This has an impact on waste management infrastructure with respect to the need for drop-off and transfer facilities for communities outside of a reasonable hauling distance to the Sechelt Landfill or, for organics, to the Salish Soils composting facility in Sechelt. There is also the need to consider access to drop-off facilities for island residents as well as tourists and other seasonal visitors. Geography also dictates the need to mitigate bear human conflict with respect to garbage collection and disposal.

5.5 Community Support

Community support is essential to a successful organics diversion program. As discussed in Section 4.4, based on the results of the community questionnaire there is a high-level support for curbside collection of food waste in the SCR D. Nevertheless, residents have expressed concern over cost and wildlife concerns. The regional organics diversion strategy should take these concerns into consideration to ensure that most residents and businesses support food waste diversion.



6 Draft Regional Organics Diversion Strategy

Based on the considerations discussed above, the Project Team recommends the following strategy to divert food waste from the Sechelt Landfill. This strategy contains initiatives related to, commercial sector diversion, reduction and residential sector diversion. The estimated costs and implementation schedule is provided in Table 6-1.

Commercial Food Waste Ban

1. Implement a commercial food waste ban.
2. Implement food waste drop-off at the Pender Harbour Transfer Station.
3. Continue feasibility work on developing a South Coast site that includes food waste drop-off.

Reduction Programs

4. Implement a Food Waste Reduction Campaign.
5. Implement an at-home Compost Coaching Program.
6. Investigate a Backyard Composter Subsidy Program.

Residential Food Waste Collection

7. Implement curbside collection of food waste for all SCRD residences receiving garbage collection for a March 1, 2019 start.

Table 6-1: Regional Organics Diversion Strategy Costs and Implementation Schedule

	Action	Cost Estimate	Schedule
1.	Implement a commercial food waste ban.	Staff	2018
2.	Implement food waste drop-off at the Pender Harbour Transfer Station.	\$10,000	2018/2019
3.	Continue feasibility work on developing a South Coast site that includes food waste drop-off.	TBD	2019
4.	Implement a Food Waste Reduction Campaign.	\$10,000	2019
5.	Implement at-home Compost Coaching Program.	\$10,000	2019
6.	Investigate a Backyard Composter Subsidy Program.	TBD	2019
7.	Implement curbside collection of food waste for all SCRD residences receiving curbside collection of garbage for a March 1, 2019 start.	TBD	2019



Appendix 1: Notes to the Financial Statements for the Years Ended December 31, 2016 and 2015.

Sunshine Coast Regional District

Notes To The Financial Statements
For the Years Ended December 31, 2016 and 2015

9. Provision for Landfill Future Closure and Post-Closure Care Costs:

The Regional District is responsible for the closure and post-closure care costs related to two landfill sites - one in Sechelt and the other in Pender Harbour. The Regional District's estimated liability for these costs is recognized as the landfill site's capacity is used. The recorded liability of \$5,245,705 (2015 - \$4,803,825) represents the portion of the estimated total future costs recognized as at December 31, 2016. The Regional District has set aside funding for future landfill closure and post-closure care costs. The balance of this funding as at December 31, 2016 is \$508,745 (2015 - \$208,109) resulting in a current funding shortfall of \$4,736,960 (2015 - \$4,595,716).

The Sechelt landfill site is expected to reach its capacity in 2027 and the Pender Harbour landfill site reached its capacity and was converted to a transfer station in 2015. The remaining liability to be recognized for the Sechelt landfill site is estimated to be \$1,534,086 (2015 - \$1,632,509) based on the remaining capacity of 212,428 cubic meters, which is 24.17% of the total capacity. As the Pender Harbour landfill site reached its capacity in 2015, there is no remaining liability to be recognized.

The reported liability is based on estimates and assumptions with respect to events extending over the remaining life of the landfill. The liability and annual expense is calculated based on the ratio of usage to total capacity and the discounted estimated future cash flows associated with closure and post-closure activities. In 2016, the Regional District updated the basis for estimating future cash flows to reflect long-term average inflation and discount rates applicable to the Regional District. The impact of this change was a decrease to the recorded liability in 2016 of \$225,382.

In 2016, the BC Ministry of Environment issued updated landfill criteria increasing the minimum post closure care period from 25 years to 30 years. As such, post closure care costs are now expected to continue for 30 years following the year of closure at both the Pender Harbour and Sechelt Landfill sites. The impact of this change was an increase to the recorded liability in 2016 of \$247,426.