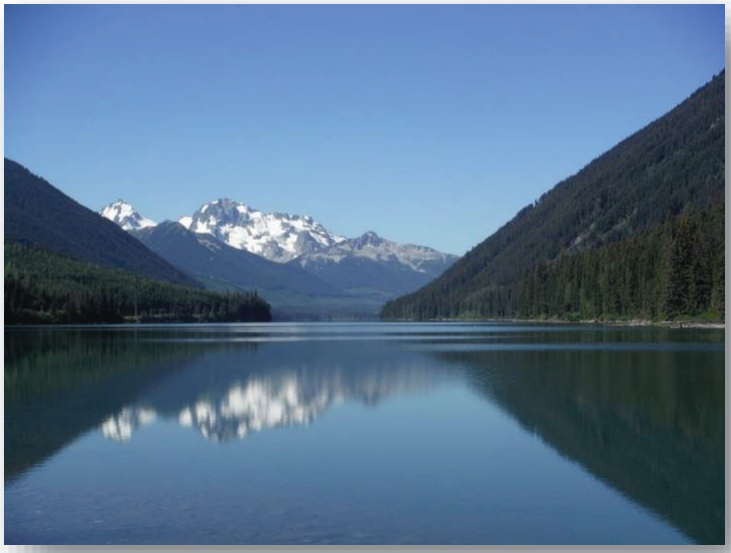
Appendix A

MORRISON HERSHFIELD

SLRD SOLID WASTE AND RESOURCE MANAGEMENT PLAN

SQUAMISH - LILLOOET REGIONAL DISTRICT



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GLOSSARY

C&D waste	Waste materials generated at construction, renovation and demolition projects
Disposal	Landfilling
Diversion	Activities that divert waste materials away from disposal as garbage to alternatives such as recycling or composting. Does not include combustion of garbage to product energy.
DOL	District of Lillooet
DOS	District of Squamish
Generation	The sum of all materials discarded that require management as solid waste, including garbage, recycling, and organic waste. Does not include organic waste composted at home.
ICI	Industrial, commercial and institutional (does not include heavy industry)
MOE	BC Ministry of Environment
organic waste/organics	kitchen scraps, food waste, yard and garden waste
RMOW	Resort Municipality of Whistler
SLRD	Squamish-Lillooet Regional District
SWRMP	Solid Waste and Resource Management Plan
Plan	Solid Waste and Resource Management Plan
SWRMP AC	Solid Waste and Resource Management Plan Advisory Committee
VOP	Village of Pemberton

EXECUTIVE SUMMARY

Over the past three years, Squamish-Lillooet Regional District (SLRD) has engaged in a process to update the 2007 Solid Waste and Resource Management Plan (SWRMP or the Plan) to reflect current and future waste management needs. The process to update the Plan was conducted in three stages. The first stage involved reviewing of the current solid waste management system. The second stage involved the assessment and selection of options to address the region's future solid waste management needs. The third and final stage involved community consultation to obtain input on the selected options. This document, the updated SWRMP, reflects the results of that consultation process.

As part of the planning process, a long term vision for solid waste management in the SLRD was established that encompasses the following:

1. The ultimate goal is zero waste – all of our discards are regarded as resources.
2. To the greatest extent possible, these resources are used locally, thereby moving the SLRD towards a closed-loop economy.
3. The system to manage discards is financially self-sustaining. Embedded in this goal is to have the cost to purchase a product include the cost of re-resourcing it at the end of its useful life.
4. Citizens are actively engaged in behaviours that reflect the waste management hierarchy (i.e. reduce before reuse before recycle…).
5. Until we have achieved zero waste, the infrastructure to manage residual waste meets or exceeds provincial guidelines and regulatory requirements.

Waste composition studies indicate that there is still a significant quantity of disposed waste that can be recycled or managed through composting or similar methods. It is estimated that up to 43% of the disposed waste stream is compostable organics, while plastic and paper make up an additional 25% of the landfilled waste stream. The initiatives described in this report target the recyclable and compostable components of the waste stream. Upon full implementation, these initiatives have the potential to reduce the amount of waste sent to landfill from the current estimate of 525 kg per person to 347 kg per person, a reduction of 34%.

The key diversion initiatives in this Plan are:

- a residential food scraps reduction campaign;
- ICI / multi-family communications strategy;
- tourist accommodation communication strategy;
- Re-Build It facilities in Pemberton and Lillooet; and
- curbside collection services in Pemberton and surrounding area.

The other key component of this planning process has been establishing long term residual waste disposal capacity. There is a lack of long term disposal capacity in the region. Whistler currently sends its waste to a privately-owned landfill in Washington State. The District of Squamish landfill is nearing capacity and expansion options are currently under consideration. In the short-term, the District intends to expand the landfill vertically to gain an additional 13-14 years of capacity. A long-term option is to expand the site horizontally; although this option has a number of technical hurdles to overcome. If the horizontal expansion becomes possible, the Squamish Landfill could be designated as a regional landfill and would be able to receive waste from all of the southern corridor communities. A working group of municipal, SLRD and First Nation representatives will be established to collectively consider long term residual waste management options.

The implementation schedule for this Plan is 2016 to 2020. The estimated additional annual operating costs to the SLRD range from $20,000 to $55,000, as shown in the table below. Capital expenditures are anticipated for the

establishment of two Re-Build It centres and the provision of new curbside collection services. The capital cost to expand the Squamish Landfill will be the responsibility of the District of Squamish.

Implementation of New Initiatives	2015	2016	2017	2018	2019	2020
Estimated new operating costs	**$ 55,000**	**$ 35,500**	**$ 50,000**	**$ 41,000**	**$ 37,000**	**$ 20,000**

The implementation of the new Plan will be overseen by the Plan Monitoring Advisory Committee. They will report to the SLRD Board on an annual basis on the Plan's progress and effectiveness.

1. INTRODUCTION

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

Over the past two years, Squamish-Lillooet Regional District (SLRD) has engaged in a process to update the 2007 Plan to reflect current and future waste management needs. The process to update the Plan was conducted in three stages. The first stage involved reviewing of the current solid waste management system. The Stage 1 Report can be found on SLRD's website.[1]

The second stage involved reviewing options to address the region's future solid waste management needs and the selection of preferred management options. The preferred options were presented in a draft version of the Solid Waste and Resource Management Plan (SWRMP or Plan). The third and final stage involved community consultation to obtain input on the options presented in the draft SWRMP.

Two advisory committees, established for both the South (Furry Creek to Pemberton) and the North (Gold Bridge to Lillooet) areas of the region, provided input throughout the planning process. Both advisory committees have public, local government and technical representation and are collectively referred to as the Solid Waste and Resource Management Plan Advisory Committee (SWRMP AC).

As result of the effort provided by the members of the Solid Waste Management Plan Advisory Committee as well as the input received from the community on the draft Plan, this updated SWRMP was finalized. This document provides an update of the 2007 Plan and provides a path forward for the SLRD and member municipalities for managing solid waste.

The planning process and the development of this report have been undertaken in accordance with the BC Ministry of Environment (MoE) document entitled "Guide to the Preparation of Regional Solid Waste Management Plans by Regional District" (BC MoE, 1994) with consideration of the MOE's Solid Waste Management Planning Guideline Intentions Paper (September 2015).

1.1 LONG TERM VISION

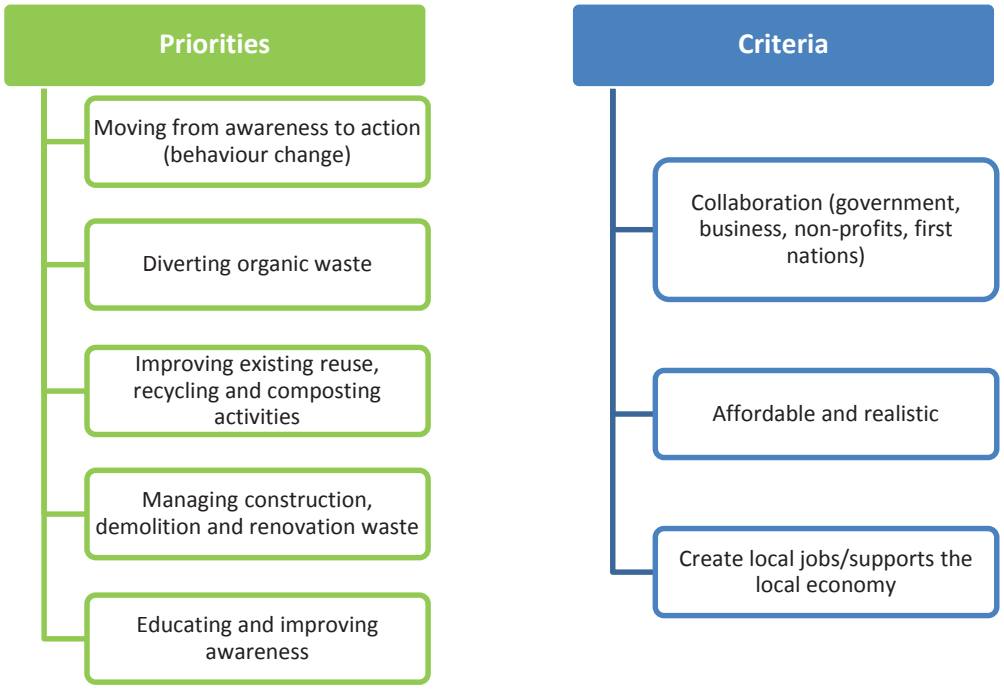
A long-term vision for the SWRMP was developed by the SWRMP AC during Stage 1 of the planning process. The initiatives described in this document are intended to move the SLRD towards this vision:

1. The ultimate goal is zero waste – all of our discards are regarded a resources.
2. To the greatest extent possible, these resources are used locally, thereby moving the SLRD towards a closed-loop economy.
3. The system to manage discards is financially self-sustaining. Embedded in this goal is to have the cost to purchase a product include the cost of managing it at the end of its useful life.
4. Citizens are actively engaged in behaviours that reflect the waste management hierarchy (i.e. reduce before reuse before recycle…).
5. Until we have achieved zero waste, the infrastructure to manage residual waste meets or exceeds provincial guidelines and regulatory requirements.

[1] http://www.slrd.bc.ca/inside-slrd/current-projects-initiatives/solid-waste-and-resource-management-plan

1.2 OBJECTIVES

At the initial meeting of the SWRMP AC, an exercise was conducted to help define the priorities (key issues) for the planning process. During this exercise, the committee also identified criteria that they felt are important to include in the consideration of options for managing solid waste. The priorities and criteria are:



2. PLAN AREA AND DEMOGRAPHICS

The plan area shown in Figure 2-1 includes four incorporated municipalities and four unincorporated electoral areas, including:

- District of Squamish (DOS);
- Resort Municipality of Whistler (RMOW);
- Village of Pemberton (VOP);
- District of Lillooet (DOL);
- Electoral Area A (Gold Bridge, Bralorne and area);
- Electoral Area B (Yalakom, Bridge River, Seton/ Tsal'álh, Texas Creek, Fountain Valley, Pavilion);
- Electoral Area C (Pemberton Meadows, Mt. Currie - D'Arcy corridor, Whistler-Pemberton Corridor (excluding municipalities);
- Electoral Area D (Furry Creek, Britannia, Upper Squamish, Upper Cheakamus, Ring Creek, Pinecrest/Black Tusk).

First Nations within in the SLRD include the Xwisten (Bridge River), Tsal'álh (Seton Lake), Sekw'elw'as (Cayoose Creek), T'itq'et (Lillooet), Ts'kw'aylaxw (Pavilion), Xaxli'p (Fountain), N'Quatqua, Lytton, Lil'wat (Mt. Currie), and Squamish peoples. Thirty-six reserves are located in the region, with a total on-reserve population of 3,275 persons in 2011[2]. Lil'wat Reserve 6 has the largest population, with over 1,300 people. Seven other reserves have populations of 100-300 persons. All other reserves have populations of under 100 persons, with the smallest having five or fewer residents.

[2] Statistics Canada, 2011 Census.

Figure 2-1: Plan Area

2.1 POPULATION

Table 2-1 provides a breakdown of the permanent population of the SLRD for 2011 (based on the 2011 Census) and estimated for 2012 to 2014.

Table 2-1: Population Data for the Service Areas within the SLRD

JURISDICTION	2011 POPULATION DATA	2012 POPULATION DATA	2013 POPULATION DATA	2014 POPULATION DATA
Lillooet	2,324	2,337	2,335	2,344
Pemberton	2,485	2,513	2,579	2,601
Squamish	17,727	18,377	18,789	19,294
Whistler	10,333	10,409	10,194	10,447
Unincorporated Areas	6,644	6,982	6,970	6,810
Squamish-Lillooet TOTAL	**39,513**	**40,618**	**40,867**	**41,496**

Source: British Columbia Regional District and Municipal Population Estimates
Prepared by: BC Stats, Ministry of Labour, Citizens' Services and Open Government
http://www.bcstats.gov.bc.ca/StatisticsBySubject/Demography/PopulationEstimates.aspx

Whistler receives over two million visitors every year with large seasonal variation in the resident population. Therefore the RMOW calculates an equivalent adjusted population figure to account for the impact of the visiting population on amenities and services. In 2011, the adjusted population number for Whistler was 26,132[3], which would increase the overall SLRD population to 55,312 for 2011 (an increase of 40%).

[3] Combination of BC Stats and Tourism Whistler equivalent population estimates.

3. CHARACTERIZATION OF THE CURRENT WASTE STREAM

This section provides estimates of the current composition of the SLRD's waste and the quantity of waste disposed and recycled. Additional information is presented in the Stage 1 report. The data presented in this section is from 2012 and represents the most recent data available when the Stage 1 report was prepared.

3.1 WASTE GENERATION, DIVERSION AND DISPOSAL ESTIMATES

The SLRD has tracked its waste disposal rate for many years. Figure 3-1 shows the per capita quantity of waste disposed in the SLRD from 2001 to 2012. The amount of waste disposed is typically driven by two factors: the range of diversion opportunities, such as recycling and composting, available to the population and the level of regional economic activity. In 2012, the disposal rate was 541 kg per capita.

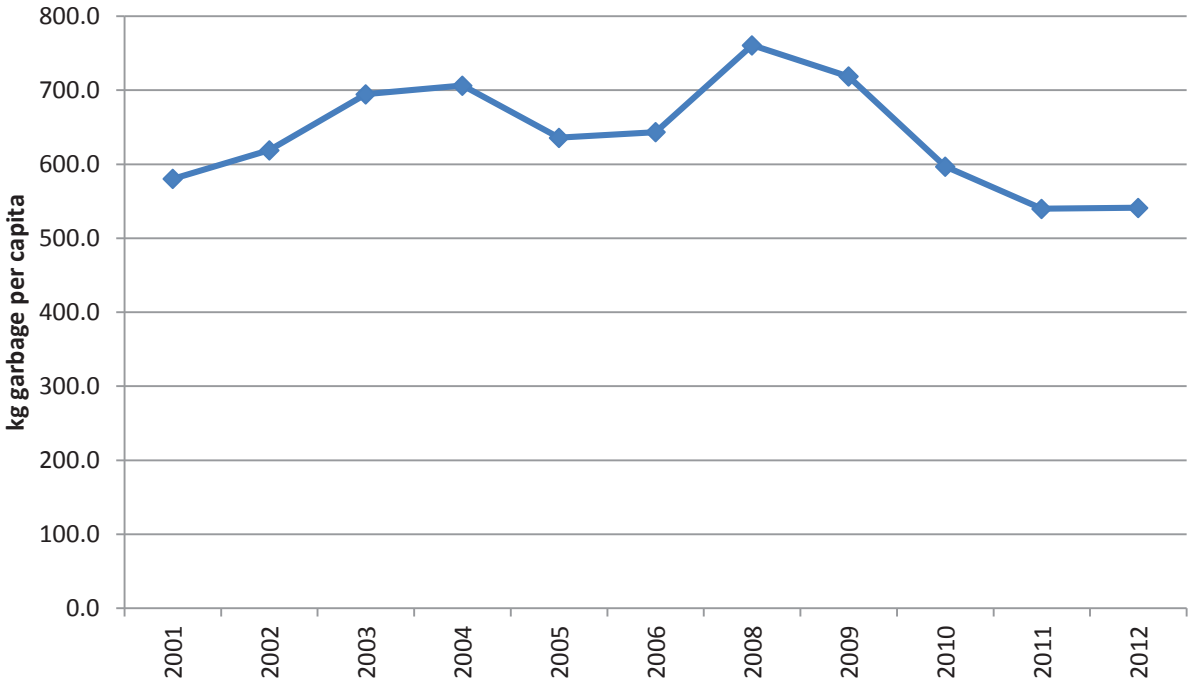


Figure 3-1: SLRD per Capita Waste Disposed (2001 – 2012)

Table 3-1 provides a summary of the estimated waste disposal and waste diversion quantities recorded at the different disposal facilities and for the various methods of diversion. The table presents disposal data for garbage disposed at landfills. The quantities exclude garbage disposed of in landfills on First Nations Reserves (believed to be a relatively small quantity) and biosolids because they are not considered solid waste.

Table 3-1: Disposal and Diversion Estimates (2012)

Disposal and Diversion	Estimated Tonnes (2012)
Disposal	
Squamish Landfill	11,692
Rabanco Regional Landfill via Whistler Transfer Station	12,795
Lillooet Landfill	2,479
Total disposal	**26,966**
Diversion	
Squamish curbside recycling program	936
Squamish other recycling + composting	5,525
Recycling at Whistler Transfer Station	1,698
Whistler other recycling	5,109
Whistler Composting Facility	2,510
Whistler Re-Use-It Center	309
Whistler Re-Build-It Centre	221
Pemberton Transfer Station Recycling	294
Lillooet Landfill Recycling (includes tonnes from Gold Bridge Transfer Station)	196
Devine Transfer Station Recycling	7
Extended Producer Responsibility Programs (estimated)	3,339
Total diversion	**20,144**
Total waste generation (disposal + diversion)	**47,110**
2012 Diversion rate (diversion/waste generation)	**43%**

The disposal data is based on scale data from SLRD and member municipality disposal facilities. Not all recycling and diversion activities have available data, so the estimated total diversion is considered to be conservative. Based on SLRD's estimated disposal and diversion quantities, the region achieved a diversion rate of 43% in 2012.

3.2 Composition Of Waste Disposed

The composition of the SLRD landfilled waste is estimated based upon several information sources including a regional waste composition study conducted by Dillon Consulting in 2012 as part of the Regional Composting Feasibility Study[4] and municipal data available for RMOW.

The purpose of the 2012 regional waste composition study was to estimate the proportion of potentially compostable organic materials in the garbage currently being landfilled. The study separated the garbage into 3 main categories: organics, recyclables, and residual waste. The organics waste stream was further broken down into: backyard compostable food, non-backyard compostable food, yard waste, and non-food organic. Table 3-2 shows the composition of the waste received at four different disposal locations separated by source. Figure 3-2 illustrates how the garbage is broken into the three primary categories (organics, recyclables, and residual waste).

Table 3-2: SLRD's Estimated Waste Composition at Four Disposal Locations shown as % by Weight (2012)

Location	Source	Food - Backyard Compostable	Food -Non Backyard Compostable	Yard Waste	Non Food Organic	Total Organics	Recyclables	Residuals
Squamish	Residential garbage	22	16	12	5	**56**	**13**	**32**
	Mixed Commercial garbage	11	26	0	8	**44**	**24**	**32**
Whistler	Residential garbage	16	14	5	4	**39**	**23**	**38**
	Commercial - Ski Resort Housing garbage	13	13	1	4	**31**	**39**	**30**
	Commercial - Grocery Store garbage	7	47	0	2	**56**	**21**	**23**
Lillooet	Residential garbage	10	11	9	3	**34**	**21**	**46**
	First Nations garbage	16	25	2	6	**49**	**25**	**25**
	Mixed Commercial garbage	11	10	1	5	**27**	**58**	**15**
Gold Bridge	Mixed Residential & Commercial garbage	16	26	2	7	**52**	**21**	**27**

[4] Dillon Consulting, Regional Composting Feasibility Study, Final Report, July, 2013.

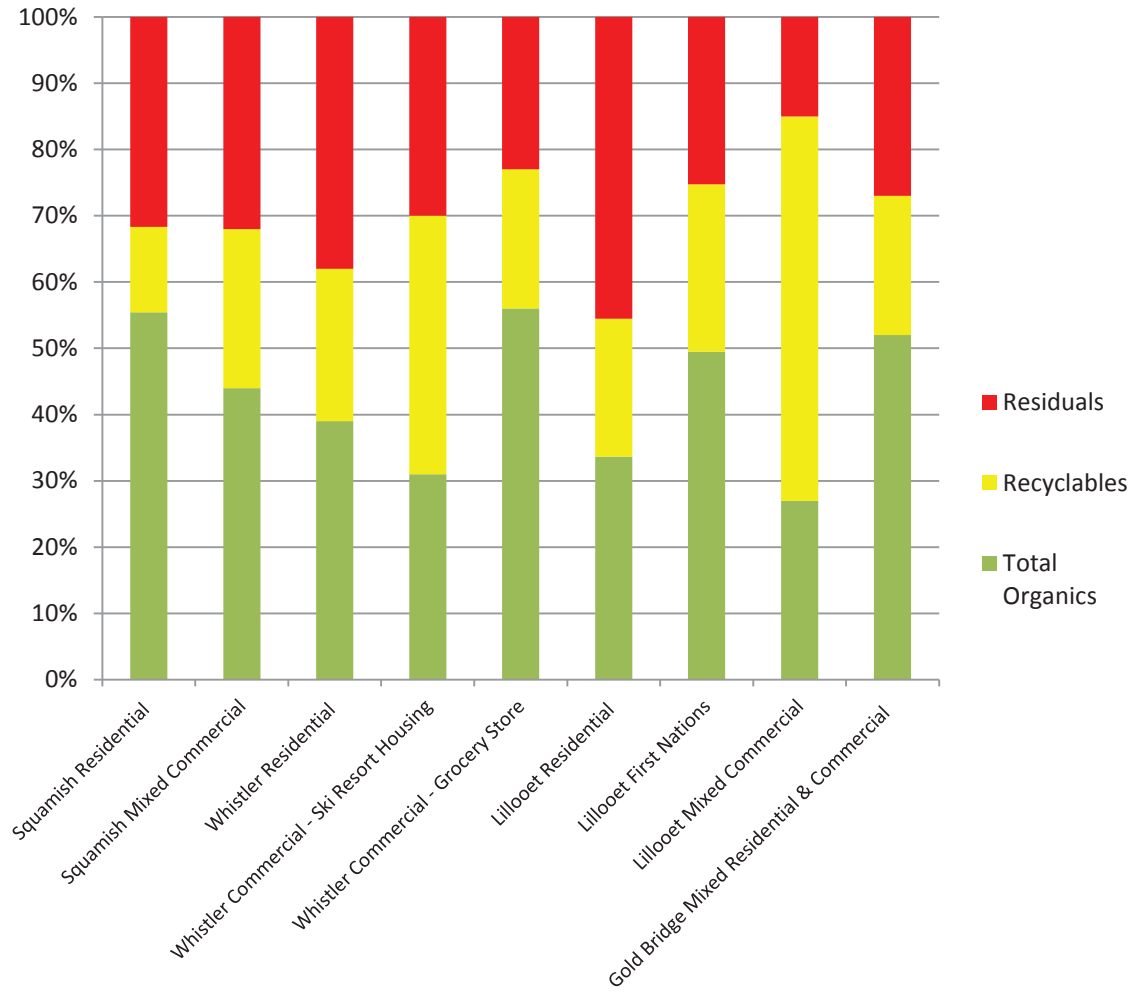


Figure 3-2: 2012 Estimated Waste Composition shown as the Proportion of Organics, Recyclables and Residual Waste (% by Weight)

The largest components disposed, by weight, are organic waste (average of 43% across sources), residual waste (30%) and recyclables (27%). The waste composition results were based on a one-week sort and do not represent seasonal variations in a waste stream.

To obtain additional insight into the potential composition of the waste currently sent to landfill, the results of a 2012 waste composition study conducted for the Regional District of North Okanagan (RDNO) were also considered. The RDNO is a combination of rural areas and smaller towns, similar to SLRD (with the exception of Whistler). As a result, the waste composition data from the RDNO is considered to have reasonable application for the SLRD's purpose. The RDNO's study provides a breakdown of the main waste composition categories, as shown in Figure 3-3. The RDNO study indicates that compostable organics constitute the highest percentage of waste landfilled (43%); and plastic and paper constituted the second highest percentage (13% and 12% respectively). Collectively, these three waste categories constituted at least 71 % of the residential waste stream[5].

[5] TRI Environmental Consulting Inc., 2012 Solid Waste Composition Study for Regional District of North Okanagan.

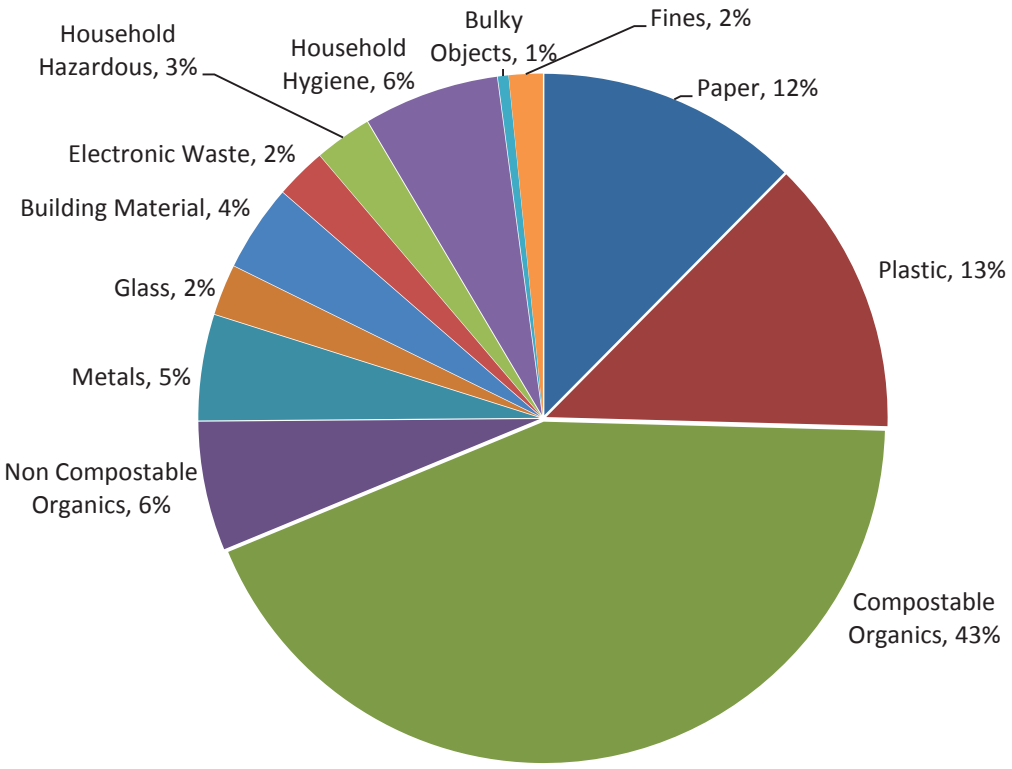


Figure 3-3: Waste Composition of Regional District Similar to the SLRD

3.2.1 RMOW Waste Composition

The RMOW has a unique demographic; it is a tourism community with a fluctuating population. The type and amount of waste produced in the municipality varies with number of visitors throughout the different seasons of the year. RMOW has conducted a variety of waste composition studies in 2004, 2010, 2011, and most recently in 2012. These studies indicated that the largest components of garbage disposed in Whistler are: compostables (25%), paper products (17%), wood waste (16%), plastics (8%) and metal (8%). The RMOW's 2013 Solid Waste Strategy states that 41% of Whistler's garbage could be diverted to the compost facility, and another 40% could be recycled[6].

[6] RMOW, Whistler Solid Waste Management Strategy, 2013.

4. EXISTING WASTE MANAGEMENT SYSTEM

The following sections provide a brief outline of the SLRD's existing solid waste management system. A detailed description of the system is included in the *Solid Waste and Resource Management Plan Stage 1 Report* available on the SLRD website.

Education and Promotion: The SLRD and member municipalities participate in educating residents and businesses about proper waste management. A range of waste management-related promotion and education programs are used to support all solid waste services. The SLRD provides financial support to the Recycling Council of BC (RCBC). RCBC provides a toll-free Recycling Hotline and an on-line searchable database called "Recyclepedia" that provides residents with information on waste management programs in the region.

In addition to the SLRD's initiatives, private and non-profit organizations in the region also engage in education and promotion activities to increase waste diversion.

Reduction and Reuse Programs: Across the SLRD communities there are several reduction efforts targeting edible unwanted food, the use of plastic bags, bottled water, and encouraging green purchasing and green building. Free stores are operated at the Pemberton, Gold Bridge and Devine transfer stations, as well as at the Lillooet landfill. There are also a number of commercial and non-profit stores in the region focused on reuse, repair or rental of equipment.

Extended Producer Responsibility Programs: The SLRD is a member of the BC Product Stewardship Council, a body that advocates on behalf of local government for effective product stewardship programs. SLRD staff has also engaged in consultation and discussions with stewardship programs in their plan development process. A wide range of EPR products are collected and recovered under the regulated programs. In addition, there are also voluntary programs operating in the SLRD, targeting things like bike tubes, obsolete agricultural pesticide, fridges, and old vehicles.

Back Yard Composting: The SLRD operated a residential composter distribution program, however this program ended due to lack of participation and the availability of composters at local retailers. Backyard composting is not widely encouraged in the SLRD due to concerns with attracting bears into residential areas. Some municipalities have addressed the issue in their bylaws.

Recyclables Collection: Curbside recycling collection is provided to single-family homes in Squamish, Furry Creek, Britannia Beach and on Squamish Nation's reserve lands. For residents in the rest of the SLRD, there are recycling, drop off facilities available in Squamish, Whistler, Pemberton, Lillooet, Devine and Gold Bridge.

In Squamish, Pemberton and Whistler, owners of multi-family buildings and industrial, commercial and

institutional (ICI) buildings can arrange for recycling collection via private collection service providers.

Compost Collection: Squamish residents receive seasonal curbside yard waste collection. Drop off facilities (available all year around) are available for yard waste in Squamish, Whistler, Pemberton and Lillooet. Britannia Beach and Furry Creek have seasonal drop off sites for yard waste. The ICI sector and multi-family buildings can arrange for their private collection service providers to collect organics in Squamish, Pemberton and Whistler.

Garbage collection: Curbside garbage collection is currently provided to residents in Squamish (municipal service), Lillooet (municipal service), Furry Creek and Britannia Beach (SLRD service), and on Squamish Nation reserve lands (Squamish Nation service). Private collection companies are available to provide residential garbage collection service on a subscription basis in Pemberton, Pinecrest and Whistler. Residents in other communities in the region and in rural areas self-haul their garbage to a transfer station, landfill or Whistler depot.

In Squamish, Pemberton, Whistler and Lillooet, multi-family and ICI buildings must hire a private garbage collection service.

Processing facilities for recyclables and compost: There are two Materials Recovery Facilities (MRFs) in the SLRD for sorting, processing and marketing of recyclables. The SLRD owns one at the Lillooet Landfill, which is operated by a private contractor. The other MRF is privately owned in Squamish.

There are two composting facilities located within the Region; a municipal facility in Whistler and a privately owned facility in Pemberton (Sea-to-Sky Soils). The SLRD recently established a yard waste composting capacity at the Lillooet Landfill.

Construction, demolition and land clearing waste management: Efforts have been made to encourage separation of the reusable and recyclable portions of construction and demolition (C&D) waste generated in the region. There are two C&D waste sorting and processing areas: one next to the Squamish Landfill, and the other at the Whistler Transfer Station. Source separation is encouraged through differential tipping fees charged at Squamish Landfill, Whistler Transfer Station, Lillooet Landfill and Gold Bridge Transfer Station.

Clean wood waste (i.e. untreated wood) is accepted at the Whistler Transfer Station, the Squamish Landfill and the Lillooet Landfill, where it is chipped for use in composting.

Source-separated scrap metal, cardboard and gypsum are collected and stored for recycling at all local government solid waste facilities in the SLRD (Lillooet, Pemberton, Squamish, and Whistler).

Land-clearing waste refers to tree waste, including trunks and stumps that are generated as a result of clearing land for development. In the SLRD, land-clearing waste is generally managed by grinding wood waste to incorporate into the soil, or for other uses such as composting or hog fuel.

Recovery and Residual Waste Management: Resource recovery means the extraction and utilization of materials and energy from the waste stream. None of the landfills within the Region are capturing landfill gas for energy recovery. Whistler's composting facility is recovering waste heat from the composting process and it is used to heat the compost operations building. Whistler is currently investigating the business case for producing biofuel from its current composting operation as a product for sale in addition, or as an alternative to, compost, which is the current saleable product.

Residual waste is the portion of the solid waste stream that is not managed through recycling, composting and/or recovery activities. It is commonly referred to as "garbage".

There are four publicly owned transfer stations operating in the region; the Whistler, Pemberton, Devine and Gold Bridge transfer stations. In addition, there are two depots located in Whistler, where residential garbage can be dropped off at no cost.

There are two operating landfills in the SLRD, the Squamish Landfill and the Lillooet Landfill. The planned closure date for the Squamish Landfill is 2018[7], however there is potential to expand the site to accommodate for waste disposal until 2059[8]. Since the closure of the Whistler Landfill, garbage from the Whistler transfer station and depots has been compacted and transported to Roosevelt Regional Landfill (also known as Rabanco) in Washington State, US.

First Nations are responsible for providing their own waste management systems, as regulated under the federal *Indian Reserve Waste Disposal Regulations*. In the SLRD, some communities have their own landfills, while others contract with commercially available collection and disposal services or they self-haul to SLRD or municipal facilities.

[7] Conestoga Rovers Associates, Lifespan Analysis Update - District of Squamish Landfill, 2013.
[8] Sperling Hansen Associates, Squamish Landfill Lifespan Analysis and Recommended Operational Improvements, 2011.

5. A NEW PLAN FOR THE SLRD

The components of the new plan focus on:

- Improving communication and collaboration. The new plan incorporates the recommendations of the SLRD Solid Waste and Resource Management Strategic Communications Plan that was approved by the SLRD Board in October 2014;
- Improving the use of existing recycling and composting services;
- Putting more emphasis on reduction (i.e. not creating waste that needs to be "managed"); and
- Identifying the process to establish long-term disposal capacity for District of Squamish, as well as the communities that use the DOS landfill for disposal.

The sections of the Plan are presented as follows:

- Communications
- Reduction and reuse
- Extended producer responsibility
- Waste diversion through policy
- Residential waste management
- Commercial and multi-family waste management
- Organic waste management
- Construction and demolition waste management
- Landclearing waste management
- Resource recovery
- Residual waste management
- Illegal dumping
- Wildlife and waste management
- Land use planning
- Monitoring of Greenhouse Gas Emissions
- Authority over waste management activities in the SLRD
- Plan Implementation
- Plan targets
- Monitoring and measurement
- Plan flexibility

A summary of the new initiatives is presented at the end of each section. For each new initiative, the summary table includes information under the following headings:

- Responsibility – indicating which organization(s) will be responsible to implement the initiative;
- Implementation – indicating the year(s) in which the initiative will be implemented;
- Estimated staffing requirements – indicating the estimated hours of SLRD staff time on an annual basis that the initiative will require;
- Estimated capital cost – referring to estimated SLRD capital expenditure requirements; and
- Estimated operating cost – referring to estimated SLRD operating expenditure requirements.

6. COMMUNICATIONS

During the first stage of this planning process, the top priorities for updating the Solid Waste and Resource Management Plan were identified. Some of these priorities relate to communications, specifically:

- Moving from awareness to action (behaviour change)
- Improving on existing reuse, recycling and composting activities
- Educating and improving awareness.

Consequently, many of the new initiatives in this plan are focused on communications. In October 2014, the Regional Board approved the Solid Waste and Resource Management Strategic Communications Plan prepared by Ecoinspire. The Strategic Communications Plan is intended to meet the waste reduction and diversion communications needs of the SLRD over the next five years by:

- Building on existing organizational objectives and strengths of the SLRD and partner organizations;
- Providing a unifying brand that harmonizes waste reduction efforts across the region;
- Focusing on proven audience-focused social marketing technique and behavioral change science;
- Identifying specific belief, behavior, and knowledge objectives, and a practical action plan to achieve them; and
- Creating an approach that can be replicated to solve other social, environmental or economic challenges.

The Strategic Communications Plan provides detailed information on the process and mechanisms for developing and implementing a successful communications plan and is included in Appendix A for reference. Implementing the Strategic Communications Plan will ensure that the waste reduction and diversion goals identified in the SLRD SWRMP (current and updated versions), as well as the waste reduction and diversion goals of member municipalities, are achieved sooner and with longer lasting effects.

Communication and education are critical support mechanisms to successful waste diversion. The SLRD already provides 20 workshops per year to schools throughout the SLRD and conducts an Earth Day event. Additionally, the SLRD has provided funding to AWARE's Zero Waste Station at the Whistler Farmers Market and there is on-line information provided by the SLRD, member municipalities, recycling collection companies and local environmental organizations.

To enhance current communication initiatives, improve on waste diversion programs and support new diversion actions, the following communications initiatives are planned:

1. The SLRD and member municipalities incorporate community based social marketing (CBSM) into solid waste management endeavors with a significant focus on behaviour change. CBSM is an approach to program promotion and education that encourages high rates of effective participation and long-term behavior change. As outlined in the Strategic Communications Plan, a CBSM plan should include 6 strategic phases (refer to Appendix A for details on each of these phases):
    - Analysis
    - Strategy development
    - Program and communication design
    - Pretesting
    - Implementation
    - Evaluation

2. Develop a Communications Strategy focused on reducing food scraps in waste from single-family homes. This will be the first communications strategy developed under the new SWRMP. The approach and tools used in this strategy are intended to be used for future strategies. It is anticipated that these campaigns could be a collaborative effort by SLRD, Squamish, Whistler, Pemberton, Lillooet, First Nations, and possibly other stakeholders.
3. Establish a mechanism for sharing, standardizing and coordinating communication and education efforts amongst organizations involved in providing waste management services, such as an annual strategic communications planning session. The SLRD would facilitate this collaboration of Squamish, Whistler, Pemberton, Lillooet, First Nations, and other stakeholders as appropriate. Through doing so, the desired outcomes can be harmonized and efficiencies improved.

Love this place. Reduce your waste.

4. Implement the logo and tagline "Love this place. Reduce your waste" developed for SLRD solid waste communications (part of the Communication Strategy).
5. Develop a communications strategy for ICI and multi-family properties to improve the performance of recycling and organic waste diversion.
6. Develop a communications strategy for tourist accommodations to improve the performance of recycling and organic waste diversion.
7. Coordinate local government efforts to establish internal zero waste programs, so that the SLRD and member municipalities can lead by example. See the ICI and Multi-family section for more information on this initiative.
8. Expand the SLRD's zero waste workshops beyond schools to other public venues.
9. Encourage and support "bear smart" backyard composting.
10. Increase public awareness of EPR take back programs available in the SLRD.
11. Promote construction and demolition waste reuse and recycling opportunities.

Table 6-1 below summarizes the new communication initiatives and resource requirements such as staffing and financial implications. An initiative not listed below indicates that there are no anticipated resource requirements.

Table 6-1: Summary of Communications initiatives

New Initiative	Responsibility	Implementation	Estimated Staffing Requirements (hrs/yr)	Estimated Capital Cost	Estimated Operating Cost
Incorporate community-based social marketing into major campaigns	SLRD, municipalities	2015 onwards	included under individual initiatives	included under individual initiatives	included under individual initiatives
Residential food scraps reduction campaign	SLRD, municipalities	2015-2017	1000	$ -	$ 66,000 over 3 yrs
ICI and multi-family communication strategy	SLRD, municipalities	2017-2018	1000	$ -	$ 30,000 over 2 yrs
Tourist accommodation communication strategy	Whistler, Squamish	2019-2020	500	$ -	$ 20,000 over 2 yrs

New Initiative	Responsibility	Implementation	Estimated Staffing requirements (hrs/yr)	Estimated capital cost	Estimated operating cost
Construction & demolition communication strategy	SLRD, municipalities	2019-2020	500	$ -	$ 15,000 over 2 yrs
Coordination of local governments' internal zero waste initiatives	SLRD, municipalities	2015 -2016	40	$ 0	$ 1000 over 2 yrs
Expansion of zero waste workshops	SLRD, municipalities	2015 onwards	0	$ -	$ 5,000 annually
Bear Smart backyard composting	SLRD, municipalities	2015 onwards	20	$ -	$ 1,000 every 3rd year
EPR awareness	SLRD, municipalities	2015 onwards	20	$ -	$ 1,000 every 3rd year
Promote local construction and demolition waste reuse/recycling opportunities	SLRD, municipalities	2015 onwards	40	$ -	$ 1,000 every 3rd year

7. REDUCTION AND REUSE

Reduction and reuse initiatives prevent waste from entering the waste management system resulting in conservation of resources. Although reduction and reuse initiatives are at the top of the waste management hierarchy, historically solid waste management strategies have not focused on these initiatives. As noted in the previous sections, one of the priorities for this planning process is improving on existing reuse, recycling and composting activities.

Real change will ultimately have to be driven from the consumer level. This can be driven by consumer demand for more durable goods, and also through increased consciousness regarding what and how much we consume. The SLRD and member municipalities can support a change in mindset through encouraging the reuse of goods before they become waste. This is currently being done through:

- Whistler's Reuse It and Rebuild It Centres
- Squamish's Reuse It Fair
- Free stores at the all SLRD transfer stations (Pemberton, Gold Bridge, Devine) and the Lillooet Landfill

In addition, there are other reuse opportunities in the SLRD available through non-profit initiatives such as Squamish ReBuild and Pemberton Re-Use-It, consignment and thrift stores, on-line services such as Facebook, Craigslist and Kijiji, and many rental, repair and maintenance shops.

The SLRD and member municipalities will be able to promote the "reduce and reuse" mindset shift through undertaking the following activities:

1. Develop campaigns to encourage reduction and reuse behavior. These campaigns are discussed in the Communications section. The initial focus would be on reducing the amount of food scraps in residential waste.
2. Establish a Re-Build-It Centre type of facility in Pemberton where usable construction, demolition and renovation discards can be stored for reuse.
3. Establish a Re-Build-It Centre type of facility at Lillooet Landfill.
4. Encourage bear smart backyard composting.
5. Establish a fund to foster local zero waste initiatives that would be administered by the SLRD. It is anticipated that applications for funding would be received and reviewed on an annual basis by the Plan Monitoring Advisory Committee (see Section 23 for additional information on this committee). The committee would collaborate on establishing criteria for eligibility for funding.

Table 7-1 below summarizes the new reduction and reuse initiatives and their associated resource requirements such as staffing and finances. Resource requirements for bear smart composting have been included under Communications.

Table 7-1: Summary of new reduction and reuse initiatives

New Initiative	Responsibility	Implementation	Estimated Staffing Requirements (hrs/yr)	Estimated Capital Cost	Estimated Operating Cost
Campaigns to encourage reduction and reuse behavior	Incorporated into Communication Initiatives				
Re-Build-It Centre type of facility in Pemberton	SLRD, Pemberton	2017	40	$ -	to be determined
Re-Build-It Centre type of facility at Lillooet Landfill	SLRD	2018	60	$ 15,000	to be determined
Bear smart backyard composting	Incorporated into Communication Initiatives				
Fund for local zero waste initiatives	SLRD	2017	15	$ -	$ 5,000 annually

8. WASTE DIVERSION THROUGH POLICY

Two policy approaches to encouraging diversion were explored during this planning process: variable tipping fees and disposal bans.

Variable tipping fees refers to the application of different disposal rates for different types of waste at landfills and transfer stations. For example, in the SLRD, tipping fees on recyclable and compostable materials are generally lower than the tipping fee for garbage. Additionally, loads of garbage that contain an excessive amount of recyclables can be charged a tipping fee higher than the one for regular garbage. Variable tipping fees act as a financial incentive to source-separate these types of materials from the regular garbage. This is particularly effective for businesses and construction/demolition projects.

Although variable tipping fees are in effect throughout the SLRD, how they are applied varies from facility to facility. The SLRD and member municipalities aim to use variable tipping fees to target the same waste types for source-separation (based on the availability of local alternatives) so that the policy is more consistent throughout the region. Waste types that could be considered include:

- Cardboard
- Metal
- Yard waste
- Food waste
- Clean wood waste
- Drywall
- Products covered under an Extended Producer Responsibility (EPR) program

A similar policy approach involves banning specific materials from disposal. Disposal bans are typically implemented using a bylaw that specifies which waste materials must be collected separately from garbage for the purpose of recycling or composting. Bans are also used to prohibit hazardous materials from entering landfills. They are enforced at the point where garbage is deposited at a landfill or transfer station and non-compliance with the bylaw results in the deliverer of the garbage being ticketed or having a surcharge placed on the tipping fee.

Disposal bans, which are not currently a policy tool used by in the SLRD, will only be implemented if variable tipping fees are not as effective at achieving the desired diversion behaviours. Some exceptions are anticipated when a specific waste stream is determined to warrant the establishment of a disposal ban prior to determining if variable tipping fees would be effective. To this end, it is also planned that landfill bans on most EPR products be established when and where local collection services are available for those products. The specific list of EPR products to be banned from garbage will be determined through collaborative dialogue between SLRD and the municipalities of Squamish and Whistler. This initiative is discussed further in the next section on EPR (Section 9).

Creating greater consistency in terms of disposal policies throughout the southern part of the SLRD will require that local government representatives meet on a regular basis (at least annually) to review existing policies and consider opportunities to enhance the effectiveness of their policies. Table 8-1 lists the new policy initiatives and their implications.

Table 8-1: Summary of new waste diversion policy initiatives

NEW INITIATIVE	RESPONSIBILITY	IMPLEMENTATION	ESTIMATED STAFFING REQUIREMENTS (HRS/YR)	ESTIMATED CAPITAL COST	ESTIMATED OPERATING COST
Establish regionally consistent tipping fee categories	SLRD, Whistler, Squamish. Coordinated by SLRD.	2016	10 hrs annually for collaboration and revisions to tipping fee schedule	$ -	$ -

9. EXTENDED PRODUCER RESPONSIBILITY

Use of Extended Producer Responsibility (EPR) as a policy tool aims to shift the responsibility for end-of-life management of products (physically and economically) to the producer and away from municipalities to create an incentive for producers to include environmental considerations in design of products. EPR programs in BC are mandated by Recycling Regulation 449/2004, under the Environmental Management Act. The regulation requires producers of the designated products to develop a program for their collection and recovery of materials and to consult stakeholders (including local governments) when developing their plans. The Ministry of Environment, who is responsible for the regulation, requires the product stewards to file annual reports on the materials collected and recovered, and to breakdown collection volumes by regional district where possible.

Table 9-1 lists the current EPR programs in BC. Most of these programs operated "take back" programs where consumers can return the used product to a depot or to the retailers. In the SLRD, several EPR programs have arranged for municipal and SLRD landfills and transfer stations to operate as take-back depots. It is planned that local governments continue to provide EPR take-back services, as needed, to ensure local access to these programs by residents. Local government participation may be dependent on the level of cost recovery that is offered by the EPR program to the SLRD or member municipality to provide the service.

Table 9-1: Current EPR programs in BC

PRODUCT CATEGORY	PROGRAM(S)
Antifreeze, Used Lubricating Oil, Filters and Containers	BC Used Oil Management Association
Beverage Containers	Encorp (non-alcoholic and wine, spirits, coolers and import beer in non-refillable containers)
	Brewers Distributed Limited (fillable and canned beer)
Electronics and Electrical	Call2Recycle (batteries and cell phones)
	Canadian Wireless and Telecommunications Association (CWTA) (batteries and cell phones)
	Electronics Products Recycling Association (EPRA) (electronics: Computers, televisions, audio-visual, medical equipment, office equipment)
	LightRecycle (lamps and lighting equipment)
	Major Appliance Recycling Roundtable (MARR) (large appliances)
	Outdoor Power Equipment Institute (OPEI) (Outdoor Power Equipment)
	Canadian Electric Stewardship Association (CESA) (small appliances, power tools, sports and exercise equipment, hobby, craft)
	AlarmRecycle (smoke and carbon monoxide alarms)
	Switch the 'Stat (thermostats)
	Canadian Brandowner Residual Stewardship Corporation (toys –electric and electronic)
Lead Acid Batteries	Canadian Battery Association
	Interstate Battery System
Packaging and Printed Paper (residential)	Multi-Material BC
Paint and Solvents and Flammable Liquids, Gasoline and Pesticides	Product Care
Pharmaceuticals	Health Product Stewardship Association
Tires	Tire Stewardship BC

The SLRD is a member of the BC Product Stewardship Council (BCPSC), a body that advocates on behalf of local government for effective product stewardship programs. As a member of BCPSC, it is planned that SLRD:

- Liaise with member municipalities to share information on the outcomes of the BCPSC meetings and provide information on other EPR-related initiatives.
- Encourage BCPSC to invite First Nations to participate on the Council.

SLRD staff also engage in consultation with stewardship programs in their plan development process, and advocates that these programs provide reasonable service levels for the SLRD.

To reinforce that EPR products are a private sector responsibility and they should not be landfilled in the SLRD, specific EPR products should be added to the list of materials that are banned from disposal as garbage. This ban should be implemented at landfills and transfer stations only when a take-back program for the targeted EPR products is locally available. A list of EPR products that could be banned from landfilling includes:

- Lead-acid batteries
- Appliances
- Paints and solvents
- Pesticides
- Household batteries – single use and rechargeable
- Electronics
- Motor oil and filters
- Pharmaceuticals
- Tires

During the planning process, it was noted that more awareness of the breadth of EPR programs and drop off locations is needed. SLRD and municipal staff intend to work with the product stewardships organizations to support increased awareness throughout the SLRD as part of the overall Communications strategy discussed in Section 6.

Table 9-2 below summarizes the new EPR related initiatives and their associated resource requirements such as staffing and finances.

Table 9-2: Summary of the new EPR related initiatives

NEW INITIATIVE	RESPONSIBILITY	IMPLEMENTATION	ESTIMATED STAFFING REQUIREMENTS (HRS/YR)	ESTIMATED CAPITAL COST	ESTIMATED OPERATING COST
Landfill bans on specified EPR materials/products	SLRD, Squamish, Whistler	2016	40 hrs for bylaw revision and communications	$ -	$ -
Increase awareness of EPR programs and services	Incorporated into Communication Initiatives				

10. RESIDENTIAL WASTE MANAGEMENT

This section describes collection services provided by local government to residents, including the collection of garbage, recyclables and compostable waste. Residential services *currently* provided in the SLRD include:

District of Squamish	Door-to-door collection of garbage, recycling and seasonal yard waste (curbside food waste to be collected with yard waste starting in 2015)
Resort Municipality of Whistler	Depot-based collection of garbage, recycling and food waste
District of Lillooet	Door-to-door collection of garbage
SLRD	Door-to-door collection of garbage and recycling in Britannia and Furry Creek
	Drop off facilities for seasonal collection of yard waste in Britannia and Furry Creek
	Depot-based collection of garbage, recycling and food waste in Pemberton
	Depot-based collection of garbage, recycling and yard waste in Lillooet
	Depot-based collection of garbage and recycling for Electoral Areas A, B and C

Note that the services above do not include collection services for multi-family buildings. For the purposes of waste collection, multi-family buildings are treated as commercial buildings. Refer to Section 11 for a list of actions related to commercial and multi-family buildings.

In addition to maintaining the current residential waste collection system, the following initiatives are planned:

- Implement curbside collection services in Pemberton and surrounding area. This process will begin with community consultation to determine the community's support for a collection service, the possible breadth of the service (garbage and/or recycling and/or organic waste collection) and the collection protocols (e.g. types of collection containers, frequency of collection). If there is support for a curbside service, it is expected that the service requirements for the Pemberton transfer station may be reduced and that there will be costs savings associated with operating the transfer station.
- Assess the provision of curbside recycling and yard waste collection services in Lillooet. District of Lillooet intends to undertake an assessment of the cost-benefit of adding curbside recycling and yard waste collection to their existing curbside collection service (currently for garbage only). One of the considerations for implementing this service may be the availability of funding for the recycling service through Multi-Material BC or other producer responsibility organization.

These initiatives are intended to achieve following objectives:

- To reduce the amount of residential garbage sent to landfill
- To provide services and incentives that encourage diversion of recyclable and compostable discards

Table 10-1 below summarizes the new residential waste initiatives and their associated resource requirements such as staffing and finances.

Table 10-1: Residential Waste Management Initiatives

New Residential Initiatives	Responsibility	Implementation	Estimated Staffing requirements (hrs/yr)	Estimated capital cost	Estimated operating cost
Curbside collection services in Pemberton and surrounding area					
a. Community consultation	SLRD and Pemberton	2015	80	$ -	$ 2,500
b. Implementation	SLRD or Pemberton	2016	150	$ -	$ 10,000
c. On-going collection service	SLRD or Pemberton	2017	40	to be determined	to be determined
Assess provision of curbside recycling and / or yard waste collection services in Lillooet	Lillooet	2016	20	$ -	$ -

11. COMMERCIAL AND MULTI-FAMILY WASTE MANAGEMENT

Throughout the SLRD, private collection companies are contracted to collect their garbage, recycling and organic waste from commercial, institutional and multi-family residential buildings. During Stage 1 of the planning process, it was noted that in communities where recycling and organic waste collection services are offered, not all businesses and multi-family buildings subscribe to these services. Waste composition data presented in the Stage 1 report indicates the 24% of Squamish's commercial garbage is recyclable, 39% of Whistler's ski resort accommodation garbage is recyclable, and 21% of commercial grocery store garbage is recyclable. This data indicates that there is a significant opportunity to increase diversion by improving the use of existing recycling services.

Current local government approaches to encouraging recycling and composting in commercial and multi-family settings include:

- Variable tipping fees at disposal facilities in Squamish, Whistler and the SLRD to encourage support source-separation and diversion (discussed in Section 8);
- Allowing small multi-family waste generators in Squamish to participate in the residential curbside collection service on a voluntary basis; and
- Implementing a bylaw in Whistler that makes recycling and organics collection from all multi-family and commercial buildings mandatory (the collection service will continue to be provided by private waste collection companies).

In addition to these approaches, the following initiatives are planned:

1. Develop a communications plan for the multi-family residential and commercial sectors to increase diversion of recyclable and compostable waste. This initiative is part of the Communication strategy described in Section 6. Possible initiatives to be considered include:
   - Implementation of a bylaw similar to Whistler's mandatory bylaw in other areas of the SLRD.
   - Like Squamish, allow small multi-family and commercial waste generators to participate in residential curbside recycling and organic waste collection service, where these services exist.
2. Improve recycling at tourist accommodations. This initiative would require the development of a communications strategy using community-based social marketing principles and is incorporated into the Communications initiatives described in Section 6.
3. Improve recycling and waste minimization at events. This initiative would include the development of common Event Guidelines that could be used as a template by local governments in the SLRD, as well as requiring the organizers of large events to submit a Solid Waste and Resource Management Plan for large events.
4. Require new multi-family and commercial developments (and significant re-developments and renovations) to design for 3 stream waste management (garbage, recycling, composting) storage and collection. The SLRD can coordinate the development of model bylaw language that could be used by the municipalities and would allow for greater consistency across the region.
5. Local governments should provide leadership to the ICI sector lead by working together to implement internal zero waste initiatives and procurement policies that support the waste minimization and diversion. This collaborative effort will be coordinated by the SLRD and is considered to be part of the broader communications strategy described in Section 6.

These initiatives are intended to meet the following objectives:

- Moving from awareness to action (behaviour change)
- Increasing the diversion of organic waste
- Improving on existing reuse, recycling and composting activities.

Table 11-1 below summarizes the new commercial and multi-family initiatives and resource requirements such as staffing and financial implications.

Table 11-1: New Commercial and Multi-Family Waste Management Initiatives

New Initiative	Responsibility	Implementation	Estimated Staffing Requirements (hrs/yr)	Estimated Capital Cost	Estimated Operating Cost
Commercial and multi-family communications plan	Incorporated into Communication Initiatives				
Improve recycling at tourist accommodations	Incorporated into Communication Initiatives				
Recycling and waste minimization at events	SLRD, municipalities. Coordinated by Whistler.	2016 - ongoing	20 to coordinate in Yr 1. 10 hrs/yr for each local government to implement and maintain	$ -	$ 1,000
Require new developments to design for 3 stream waste management	SLRD, municipalities. SLRD to coordinate.	2016 - ongoing	40 hrs to coordinate in Yr 1. 20 hrs for each local government to implement	$ -	$ 2,000
Local government leadership	Incorporated into Communication Initiatives				

12. ORGANIC WASTE MANAGEMENT

There has already been significant investment in organics processing facilities in Whistler (the Whistler composting facility), Pemberton (Sea to Sky Soils) and the yard waste composting facility at the Lillooet landfill. In addition, there are a range of collection services in place:

- Food waste drop offs in Whistler, Squamish and Pemberton.
- Seasonal curbside yard waste collection in Squamish.
- Yard waste drop offs in Squamish, Whistler, and Lillooet (Note: there is a private depot in Pemberton).
- Seasonal yard waste drop off in Britannia Beach and Furry Creek
- Curbside kitchen scraps collection in Squamish (starting in 2015).

However, the SLRD waste composition data presented in the Stage 1 report indicates that, by weight, organic waste (primarily food) remains a significant component of what is currently landfilled. Consequently, establishing mechanisms to capture organic waste for other purposes (e.g. compost, energy) has the greatest potential for waste diversion and has been identified as a priority for the updated SWRMP.

The following initiatives are intended to maximize the diversion of organic waste:

- Investigate the potential for curbside food scraps and yard waste collection for Pemberton and the surrounding area. See the Residential waste management chapter (Section 10) for more details on this planned initiative.
- Assess the potential for curbside yard waste collection for Lillooet. See the Residential waste management chapter (Section 10) for more details on this initiative.
- Consider the use of financial incentives (e.g. variable tipping fees) to encourage the diversion of yard waste to local yard waste depots and composting sites, help protect air quality and, at the same time, encourage residents to remove excess woody debris around their home. This initiative can be incorporated into the *variable tipping fee coordination* initiative described in the Policy section (Section 9).

Table 12-1 summarizes the new organic waste management initiatives and resource requirements such as staffing and financial implications.

Table 12-1: New Organic Waste Management Initiatives

NEW INITIATIVE	RESPONSIBILITY	IMPLEMENTATION	ESTIMATED STAFFING REQUIREMENTS (HRS/YR)	ESTIMATED CAPITAL COST	ESTIMATED OPERATING COST
Investigate organic waste collection in Pemberton	Incorporated into Residential Waste Management Initiatives				
Assess yard waste collection in Lillooet	Incorporated into Residential Waste Management Initiatives				
Financial incentives to encourage diversion of yard waste	Incorporated into Policy Initiatives				

13. CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

Waste generated by construction, demolition and renovation projects includes a wide variety of waste materials, including cardboard, plastic, metal and wood. A large portion of the waste is typically reusable, recyclable or can be used as hog fuel in accordance with MoE legislation, regulations and requirements, and therefore this waste stream represents a significant opportunity for waste diversion. The quantity of construction, demolition and renovation waste generated is quite variable compared to other waste streams as it tends to be directly linked with the level of local economic activity.

Local governments encourage separation of the reusable and recyclable portions of construction and demolition (C&D) waste generated in the region, including:

- Applying variable tipping fees;
- Supporting non-profit building material reuse centres in Whistler and Squamish; and
- Recovering of clean wood waste from mixed loads of C&D waste at the Whistler transfer station.

In addition to maintaining these activities, the following new initiatives are planned:

- Establish a Re-Build-It Centre type of facility in Pemberton and Lillooet. These initiatives are described under the Reduce & Reuse section
- Actively promote local C&D waste reuse and recycling opportunities
- Establish a communications plan targeting the construction, demolition and renovation industry that would reduce the amount of C&D waste sent to landfill. Coordinated by the SLRD, possible components of this plan could include:
    - Establishing a mechanism requiring large construction projects to commit to reusing and/or recycling their C&D waste materials as a condition of receiving a building/demolition/renovation permit;
    - Reviewing and revising permitting processes to reduce barriers to deconstruction and/or the complete re-use of a building at a different location (i.e. house moving); and
    - Establishing a 3Rs education and information program focused on construction, demolition and renovation contractors.

Table 13-1 summarizes the new C&D waste management initiatives.

Table 13-1: New C&D Management Initiatives

NEW INITIATIVE	RESPONSIBILITY	IMPLEMENTATION	ESTIMATED STAFFING REQUIREMENTS (HRS/YR)	ESTIMATED CAPITAL COST	ESTIMATED OPERATING COST
Establish a Re-Build-It Centre type of facility in Pemberton and Lillooet	Incorporated into Reduction and Reuse Initiatives				
Promote local C&D waste reuse and recycling opportunities	Incorporated into Communication Initiatives				
Establish a communications plan targeting the C&D industry	Incorporated into Communication Initiatives				

14. LANDCLEARING WASTE MANAGEMENT

Landclearing waste refers to tree waste, including trunks and stumps that are generated as a result of clearing land for development. In the SLRD, land-clearing waste is generally managed in one of the following manners:

- A grinder is brought to the site that was cleared and the ground wood waste is left on-site and incorporated into the soil;
- The wood waste is hauled to a wood waste management site that will grind the wood waste for a subsequent use (composting, hog fuel, etc.);
- At the Lillooet Landfill it is collected bi-annually – brush is chipped and large woody debris is burned or landfilled; and
- At the Gold Bridge Transfer Station it is accepted for fire reduction programs and burned by the Ministry of Forests, Lands and Natural Resources.

In recent years, there has been an emphasis on regularly clearing woody debris from around homes and other buildings to mitigate the risk and spread of forest fires. As a result, residents are encouraged to burn this debris or deliver it to a local facility. Information on burning safely and the Open Burning Smoke Control Regulation are promoted to the public.

There are no new initiatives associated with landclearing waste management planned.

15. RESIDUAL WASTE MANAGEMENT

Residual waste is the portion of municipal solid waste that remains after the diversion of materials destined for reuse, recycling, or composting. Residual waste can be managed through a combination of resource recovery and disposal technologies. Currently all residual waste in the SLRD is managed through landfilling.

15.1 RESOURCE RECOVERY

Resource recovery technologies involve the extraction and utilization of materials and/or energy from the residual waste stream prior to disposal and can provide an opportunity to maximize the use of the resources embedded in residual waste. Extraction of materials is typically done through mixed waste material recovery facilities (MRFs). Extraction of energy is typically done through thermal treatment of waste such as mass burn incineration, pyrolysis, or gasification.

These technologies were assessed for application to the SLRD's residual waste stream as part of the planning process. Specifically, mixed waste processing and waste-to-energy were considered. The assessment determined that: in order for these options to be economically feasible, both mixed waste processing and waste-to-energy require large volumes of waste, much greater than the tonnes available in the SLRD. Consequently, the consultants recommended the SLRD and member municipalities:

- Follow the developments in other regions (e.g. Metro Vancouver and Fraser Valley Regional District) that are exploring resource recovery options,
- Assess new opportunities as they arise or become cost-effective for lower tonnages, and
- Consider out-of-region resource recovery facilities as potential future solutions for managing a portion of the region's residual waste stream, as long as these options do not compromise local waste diversion initiatives.

During the community consultation phase of the planning processing, the Resort Municipality of Whistler and the District of Squamish both passed resolutions indicating that they do not support the thermal treatment of mixed waste as an option for future management of residual waste. Consequently, the above recommendations related to resource recovery will be pursued under this plan, but mixed waste thermal treatment will be excluded from further consideration. It is anticipated that the SLRD will act as a facilitator in the on-going exploration of resource recovery as a residual waste management option in the future.

15.2 DISPOSAL

The long-term vision for disposal in the SLRD is to establish infrastructure to manage residual waste that addresses the following issues:

- Establishing long term residual waste disposal capacity for Squamish,
- Developing strategies to meet the Regions' long term disposal needs for residual waste, and
- Continued regulatory compliance at all residual waste management facilities.

Residual waste is currently received at several transfer stations and landfills within the Region, as outlined in Table 15-1.

Table 15-1 - Summary of Garbage Receiving Facilities in the SLRD

LOCATION	SERVICES AREA(S)	DESTINATION OF RESIDUAL WASTE RECEIVED
Squamish Landfill	Squamish, Pemberton and Areas C,D	Squamish Landfill
Whistler Transfer Station	Whistler, Pemberton and Areas C,D	Rabanco Regional Landfill (Washington)
Whistler Function Junction Depot	Whistler, Pemberton and Areas C,D	Rabanco Regional Landfill via Whistler Transfer Station
Whistler Nester's Depot	Whistler, Pemberton and Areas C,D	Rabanco Regional Landfill via Whistler Transfer Station
Pemberton Transfer Station	Pemberton and Area C	Squamish Landfill
Lillooet Landfill	Lillooet and Area A,B	Lillooet Landfill
Devine Transfer Station	Area C	Squamish Landfill
Gold Bridge Transfer Station	Area A	Lillooet Landfill

Currently, all regional facilities meet provincial guidelines and regulatory requirements.

In order to ensure sustained landfill capacity and continued regulatory compliance at all residual waste management facilities, the following activities are planned:

1. Expand Squamish Landfill to increase the capacity of the landfill. Within the current disposal management operations, the DOS landfill will reach capacity in 2018. An expansion can include a number of steps:

    a) Expand the landfill laterally to the east. This expansion would provide Squamish with up to 46 years of additional landfill life. However, it may be several years before it is determined whether the lateral expansion is a viable option. For example Squamish needs to consult with Squamish First Nation. This option is also dependent on other expansion options, as described below.
    b) Expand the landfill vertically on their existing site by constructing retaining walls at the base of the existing landfill that allow the landfill to be built higher (i.e. a vertical expansion). This option has received approval-in-principle by Squamish Council. This could gain 13-14 years of additional capacity and would only accommodate the needs of current users (i.e. primarily Squamish). Whistler would continue to export their solid waste out of the region.
    c) If the Squamish Landfill receives approval to expand laterally, Squamish, with support from Whistler, Pemberton and SLRD should review the opportunity to designate the Squamish Landfill as a regional landfill. Whistler has indicated their intent to send their waste to the Squamish Landfill on the condition that the site meets BC Landfill Criteria guidelines and that the cost of using the disposal facility is cost competitive with out-of-region options.

2. Establish a working group made up of SLRD, Whistler and Squamish staff with the responsibility of evaluating residual waste management options and reporting to councils and the SLRD Board. This group would continually evaluate in and out of region options for shared disposal services including waste transfer. The group would work closely with First Nations communities and Aboriginal Affairs and Northern Development Canada to manage residual waste cooperatively. Objectives of the group would include lowering residual waste management costs for all and establishing secure long term options for the region.

    If a lateral expansion of the Squamish Landfill appears unlikely, SLRD, Whistler, Squamish and affected First Nations need to evaluate long term in and out of region options for shared services. In order to move waste

to an out-of-region waste management facility, a large-scale transfer station would need to be constructed either at the landfill or another location within Squamish.

3. Evaluate the requirements for the Lillooet Landfill to remain compliant with new BC Landfill Criteria, once the Criteria are finalized. This initiative would be conducted by a qualified consultant.

Table 15-2 details the implications of these recommendations.

Table 15-2: Residual Waste Initiatives

New Residual Waste Management Initiatives	Responsibility	Implementation	Estimated Staffing requirements (hrs/yr)	Estimated capital cost	Estimated operating cost
Expand Squamish Landfill	Squamish	To be determined if approvals are granted	0 (only DOS staffing required)	$ -	$ -
Establish a working group with the responsibility of evaluating residual waste management options	SLRD, and member municipalities	2016	20	$ -	$ -
Evaluate the requirements for the Lillooet Landfill to remain compliant with new BC Landfill Criteria	SLRD	To commence once the Criteria are finalized	20	$ -	$ 15,000 for assessment

16. ILLEGAL DUMPING

Illegal dumping is an issue in many areas of the SLRD, as it is across BC. Although quantities are not significant, illegally dumped waste in the bush and in alleyways is unsightly and can, on occasion, be an environmental hazard. Cleaning up illegal dump sites can also be a costly endeavor for both public and private landowners.

The SLRD and member municipalities regularly support organizations that undertake clean-ups of illegal dump sites or litter. There are bylaws in place throughout the SLRD prohibiting illegal dumping but enforcement is challenging. Consequently, a region-wide illegal dumping strategy will be developed that can better harness the collective resources available in the region. The development of this strategy could be led by the SLRD but it is anticipated that the following stakeholders may also get involved:

- Municipalities
- Forestry companies
- Back-country user groups (mountain bikers, fishermen, etc.)
- First Nations
- BC Hydro
- Ministry of Environment Conservation officers

This strategy may include the following actions:

a. Conduct a survey to determine the most common materials illegally discarded and the most frequent locations, providing a basis for types of materials and "hot spots" on which to build an education campaign and clean-up program;

b. Conduct targeted outreach campaigns if/when specific "problem" groups can be identified;

c. Establish a reporting mechanism where residents and outdoor groups can report dumping location, to be targeted for contracted / volunteer cleanup;

d. Post signs at frequent illegal dumping sites to educate about reporting and prosecuting dumpers; and

e. Establish enforcement capacity.

Table 16-1 outlines the estimated timing and resource requirements to establish and implement a regional illegal dumping strategy.

Table 16-1: New Initiatives to Prevent Illegal Dumping

NEW INITIATIVE	RESPONSIBILITY	IMPLEMENTATION	ESTIMATED STAFFING REQUIREMENTS (HRS/YR)	ESTIMATED CAPITAL COST	ESTIMATED OPERATING COST
Regional Illegal Dumping Strategy	SLRD, municipalities		200	$ 0	$ -
Survey		2017	20	$ 0	$ 10,000
Campaign		2018	100	$ 0	$ 10,000
Signage		2018	20	$ 0	$ 10,000
Enforcement		2018	to be determined	$ 0	to be determined

17. WILDLIFE AND WASTE MANAGEMENT

The SLRD is home to a large population of bears that are integral to the local ecosystem. Having a solid waste management system that minimizes the potential for human-bear conflict is a priority for all local governments and wildlife conservation groups in the area. Currently, local government have the following strategies and bylaws in place to mitigate the potential of wildlife-human conflict associated with solid waste:

- Support to local wildlife awareness groups that encourage citizens to be Bear Smart;
- Design and maintain all solid waste management facilities that receive food waste (e.g. landfills, transfer stations and composting facilities) such that they do not allow access by bears;
- Ensure that all litter containers are animal-proof; and
- Require commercial garbage and organic waste containers that contain bear attractants (e.g. food and grease) to be animal-proof. Note: this requirement is in place for all municipalities but not the SLRD.

It is anticipated that the SLRD will also mandate that commercial garbage and organic waste containers that contain bear attractants (e.g. food and grease) be animal-proof, so that all areas of the SLRD have the same requirement. It is also anticipated that each local government ensure that their bylaw is enforced in this regard.

Table 17-1 outlines the estimated timing and resource requirements for SLRD to establish or amend a bylaw to require commercial garbage and organic waste containers that contain bear attractants to be animal-proofed.

Table 17-1: New Wildlife Management Initiative

NEW WILDLIFE MANAGEMENT INITIATIVES	RESPONSIBILITY	IMPLEMENTATION	ESTIMATED STAFFING REQUIREMENTS (HRS/YR)	ESTIMATED CAPITAL COST	ESTIMATED OPERATING COST
Require commercial collection containers to be animal-proof in electoral areas	SLRD	2016	20	$ -	$ -
Enforce animal-proofing bylaw requirements	SLRD, municipalities	2016	to be determined	$ -	$ -

18. LAND USE PLANNING

Waste management facilities, including recycling, composting and disposal facilities are essential elements of a waste management system. The siting and operation of these facilities should be undertaken in conjunction with long-range community planning at the local government level to protect the environment and minimize the potential for future land use conflicts.

All of the municipal and electoral area Official Community Plans (OCPs) make specific reference to solid waste management and indicate an intention to reduce the amount of waste sent to landfill through the promotion of recycling and composting. Only the Whistler OCP makes specific reference to facilitating EPR facilities (take back depots) in land use decisions.

To ensure that there is a suitable land base available to support the solid waste related goals and initiatives laid out in this plan, as well as in other SLRD and municipal planning documents, it is anticipated that municipal and SLRD solid waste staff collaborate with their organization's planning staff to:

- Consider the need for dedicated zoning for waste management facilities;
- Ensure that land use planning decisions do not compromise the viability of existing or planned waste management facilities;
- Ensure that long-range planning tools like OCPs identify and preserve lands for *future* waste management facilities; and
- Recognize the need for an appropriate land base available to accommodate the shift to EPR take-back programs, which operate like reverse retail and require convenient access in order to be successful.

19. MONITORING OF GREENHOUSE GAS EMISSIONS

Activities relating to solid waste management have the potential to introduce significant quantities of greenhouse gas emissions into the atmosphere. These activities may represent an important proportion of the SLRD's contribution to climate change.

This SWRMP will contribute to reducing greenhouse gas emissions by facilitating waste reduction and treating solid waste as a resource to be reused or recycled. At present, the monitoring of greenhouse gas emissions from all activities within the SLRD is a component of the SLRD's Regional Growth Strategy.

Starting from the year of plan adoption the SLRD will conduct an annual review of greenhouse gas emissions from solid waste operations within the regional district. This review will serve as a starting point for identifying and assessing the feasibility of reducing our greenhouse gas emissions from the management of solid waste in the region, as well as assessing the effectiveness of the SWRMP initiatives in reducing greenhouse gas emissions.

Table 19-1 outlines the estimated timing and resource requirements for the SLRD to establish an annual review of the region's greenhouse gas emissions from solid waste operations.

Table 19-1: New Greenhouse Gas Monitoring Initiative

New Greenhouse Gas Monitoring Initiative	Responsibility	Implementation	Estimated Staffing Requirements (hrs/yr)	Estimated Capital Cost	Estimated Operating Cost
Monitor greenhouse gas emissions from solid waste operations on an annual basis; collect and compile data from available SLRD and Municipality Reports for solid waste operations	SLRD	2016	10 - 20	$ -	$ -

20. AUTHORITY OVER WASTE MANAGEMENT ACTIVITIES IN THE SLRD

For the purposes of implementing an approved SWRMP, Section 25 of the BC Environmental Management Act contains provisions for Regional Districts to assert authority over the establishment and operation of solid waste management facilities and haulers by regional districts.

The SLRD's current Plan includes a process to authorize new facilities that are not authorized within the Plan. This process is intended to ensure that new facilities in the SLRD support the objectives of the Plan and do not undermine the SLRD's or member municipalities' capacity to operate the programs and infrastructure described in the Plan.

During this planning process, other options to assert authority over facilities and haulers, such as licensing and codes of practice, were examined. It was concluded that these forms of regulatory control were not required at this time but may be required in the future. In the interim:

- As tipping fees in the region increase to cover capital and operating costs, the development of a waste stream management licensing system and/or flow control bylaw be considered to ensure that waste generated in the region is managed at authorized facilities; and
- The SLRD and member municipalities regularly monitor the level of waste export to determine if there is a need to establish a bylaw mechanism to regulate where waste generated in the SLRD can be delivered.

The current process to authorize new facilities, as presented in Appendix B, will be maintained and that all applicants for the development of waste management facilities within the boundaries of the SLRD (including within municipal boundaries) referred to the SLRD for consideration under the authorization process. This includes all facilities intending to handle municipal solid waste, including recycling and composting facilities. Facilities that will not be subject to this authorization process include:

- EPR facilities established by product stewardship organizations;
- Municipal solid waste management facilities; and
- Facilities established to refurbish and/or sell used goods, such as thrift stores and repair shops.

Currently authorized facilities include:

- District of Squamish Landfill;
- Lillooet Landfill;
- Lillooet Materials Recovery Facility (at the Lillooet Landfill);
- Resort Municipality of Whistler Transfer Station;
- Resort Municipality of Whistler Composting Facility (at the Whistler transfer station);
- Nesters and Function Junction Depots (Whistler);
- Gold Bridge Transfer Station;
- Devine Transfer Station;
- Pemberton Transfer Station;
- Carney's Materials Recovery Facility; and
- Sea to Sky Soils.

The SLRD anticipates reviewing the fee schedule associated with facility authorization to ensure that there is better cost recovery for the staff resources required to manage the authorization process.

21. PLAN IMPLEMENTATION

21.1 ESTIMATED DIVERSION

Table 21-1 shows the estimated diversion that can be achieved if all of the initiatives listed in this document are implemented. By diverting more waste materials to reuse, recycling and composting, the SLRD can reduce the amount of garbage sent to disposal from 526 kg per capita (2012) to 348 kg per capita. Accordingly, this would increase the diversion rate from 43% to 62%.

Table 21-1: Estimated Diversion

DISPOSAL AND DIVERSION	ESTIMATED TONNES (2012)	IMPACT OF NEW DIVERSION
Total disposal	26,966	17,833
Total diversion	20,144	29,276
Total waste generation (disposal + diversion)	47,110	47,110
Diversion rate (diversion/waste generation)	43%	62%
Per capita disposal rate	526 kg	348 kg

21.2 IMPLEMENTATION SCHEDULE AND COSTS

Table 21-2 shows the planned timing for implementation of the new initiatives described in the previous chapters as well as the estimated annual operating cost for each year, by initiative. The annual financial implications to the SLRD from 2015 to 2020 are provided on the bottom line of the table. All initiatives involving municipal costs will need to be defined and approved by each municipality. As shown, the annual cost of the new initiatives ranges from a high of $71,000 in 2018 to a low of $20,000 in 2020. It is possible that the cost of some initiatives may be mitigated through contributions from municipalities and First Nations as a result of collaboration efforts.

Table 21-2: Implementation Schedule and Estimated Costs

NEW INITIATIVES	2015	2016	2017	2018	2019	2020
Communications						
Residential Food Scraps Reduction Campaign	$ 46,000	$ 10,000	$ 10,000			
ICI and multi-family communication strategy			$ 20,000	$ 10,000		
Tourist accommodation communications strategy					$ 15,000	$ 5,000
Construction, demolition and renovation contractor communication strategy					$ 10,000	$ 5,000
Expansion of zero waste workshops	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000

NEW INITIATIVES	2015	2016	2017	2018	2019	2020
Coordination of local governments' internal zero waste initiatives	$ 500	$ 500				
Bear Smart backyard composting	$ 1,000			$ 1,000		
EPR awareness		$ 1,000			$ 1,000	
Promote local C&D waste diversion opportunities		$ 1,000			$ 1,000	
Reduction and Reuse						
Establish a Re-Build-It Centre type of facility in Pemberton			*cost to be determined*			
Establish a Re-Build-It Centre type of facility at Lillooet Landfill				*cost to be determined*		
Fund for local zero waste initiatives			$ 5,000	$ 5,000	$ 5,000	$ 5,000
Extended Producer Responsibility						
Landfill bans on specified EPR materials/products						
Policy Initiatives						
Establish more consistent tipping fee categories						
Residential Waste Services						
Curbside collection services in Pemberton area						
Community consultation	$ 2,500					
Implementation		*if approved*				
On-going collection service			*cost to be determined*			
Assess curbside recycling/yard waste collection in Lillooet						
Commercial and Multi-Family Waste Services						
Require recycling and waste minimization at events		$ 1,000				
Require new developments to design for 3 stream waste management		$ 2,000				
Residual Waste Management						
Assess Lillooet Landfill's compliance with new BC Landfill Criteria		$ 15,000				
Illegal Dumping						
Illegal Dumping Strategy						
Survey			$ 10,000			

NEW INITIATIVES	2015	2016	2017	2018	2019	2020
Campaign				$ 10,000		
Signage				$ 10,000		
Enforcement				*cost to be determined*		
Wildlife Management						
Mandatory animal-proof commercial collection containers						
Monitoring and Measurement						
Waste composition study				$ 30,000		
Estimated new operating costs	**$ 55,000**	**$ 35,500**	**$ 50,000**	**$ 71,000**	**$ 37,000**	**$ 20,000**

Capital costs associated with the initiatives are limited to the following:

- Establishing a Re-Build-It Centre at the Lillooet Landfill; estimated to be $15,000;
- Establishing a Re-Build-It Centre for Pemberton; the costs for this facility are to be determined and will be dependent on where the facility is located and who owns/operates it;
- Curbside collection containers for Pemberton; the costs to provide containers will be determined based on the extent of services provided (if collection services are implemented subsequent to community consultation);
- The expansion of the Squamish Landfill; these costs will be borne by the District of Squamish; and

Based on the evaluation of the requirements for the Lillooet Landfill to remain compliant with new BC Landfill Criteria, upgrades may be required (capital costs to be determined).

21.3 STAFFING IMPLICATIONS

Table 21-3 shows the SLRD staffing implications by initiative and annually. All hours shown in the table below are associated with new initiatives and are expected to require staff resources in excess of the resources currently allocated to solid waste management. This table does not include staff resource implications for the municipalities or First Nations to undertake or collaborate in the initiatives presented in this plan.

Table 21-3: SLRD Staffing Implications by Initiative and Annually

NEW INITIATIVES	2015	2016	2017	2018	2019	2020
Communications						
Residential Food Scraps Reduction Campaign	500	1000	200			
ICI and multi-family communication strategy			1000	500		
Tourist accommodation communications strategy					500	250

NEW INITIATIVES	2015	2016	2017	2018	2019	2020
Construction, demolition and renovation contractor communication strategy					500	250
Expansion of zero waste workshops						
Coordination of local governments' internal zero waste initiatives	40	40				
Beat Smart backyard composting	20	20	20	20	20	20
EPR awareness	20	20	20	20	20	20
Promote local C&D waste diversion opportunities	40	20	20	20	20	20
Reduction and Reuse						
Establish a Re-Build-It Centre type of facility in Pemberton			40	40	20	20
Establish a Re-Build-It Centre type of facility at Lillooet Landfill				60	20	20
Fund for local zero waste initiatives			15	15	15	15
Policy Initiatives						
Establish more consistent tipping fee categories		10	10	10	10	10
Extended Producer Responsibility						
Landfill bans on specified EPR materials/products		40				
Residential Waste Services						
Curbside collection services in Pemberton area						
Community consultation	80					
Implementation						
On-going collection service			*to be determined*			
Assess curbside recycling/yard waste collection in Lillooet		20				
Commercial and Multi-Family Waste Services						
Require recycling and waste minimization at events		10	10	10	10	10
Require new developments to design for 3 stream waste management		40	40			

NEW INITIATIVES	2015	2016	2017	2018	2019	2020
Residual Waste Management						
Assess Lillooet Landfill's compliance with new BC Landfill Criteria		20				
Illegal Dumping						
Illegal Dumping Strategy						
Survey			20			
Campaign				100		
Signage				20		
Enforcement				to be determined		
Wildlife Management						
Mandatory animal-proof commercial collection containers		20				
Enforce animal-proofing requirements in bylaw		*to be determined*				
Monitoring and Measurement						
Waste composition study				20		
Estimated new operating costs	**700**	**1260**	**1395**	**835**	**1135**	**635**

21.4 COST RECOVERY

Cost recovery mechanisms that will be utilized to fund the Plan's implementation include:

- User rates,
- Tipping fees,
- Taxation,
- Sponsorship, and
- Grants.

In general, user-pay and market-based incentives, such as tipping fees and user fees for curbside collection services, will be applied to the provision of solid waste services wherever possible. Where an initiative provides a global benefit, such as campaigns to encourage waste reduction and diversion or the clean-up of illegal dump sites, cost recovery through taxation may be applied. As appropriate, opportunities for sponsorship and grants will be utilized to assist in the funding of programs.

22. PLAN TARGETS

The BC Ministry of Environment has established service plan targets for solid waste management that they can only achieve through the actions of BC regional district and municipalities that have direct responsibility for managing solid waste programs and infrastructure. It was recommended by the Advisory Committee that the targets for this plan align with the Ministry's[9]. As a result, the following two targets are presented. Progress towards these targets will be assessed on an annual basis and the on-going relevancy of the targets will be reviewed within a five year period, as proposed by the Ministry's Solid Waste Management Planning Guideline Intentions Paper (September 2015) .

1. **The SLRD achieve an average municipal solid waste disposal rate of 350 kilograms per capita by 2020.**

   As presented in Section 22, upon full implementation, the initiatives presented in this plan are expect to achieve a per capita disposal rate of 347 kg per capita (down from 525 kg in 2012), indicating that the target is achievable but that the work laid out in this plan needs to be undertaken in order for it to be achieved.

2. **That 75% of SLRD's population is actively engaged in organic waste diversion.**

   The Province has identified organics diversion as one of the largest opportunities to achieve a significant reduction in the amount of waste disposed (by weight). Organics diversion is also a priority in this Plan, with several initiatives focused on enhancing organic waste diversion, particularly in the southern corridor where there are two composting facilities in operation. Based on 2011 census data, this target could be achieved by ensuring that the communities of Squamish, Whistler and Pemberton are actively engaged in organic waste diversion – these communities alone represent 77% of the SLRD population, as shown in the table below.

Census Area	% of SLRD Population[10]	
Lillooet	6%	
Pemberton	6%	**77%**
Squamish	45%	
Whistler	26%	
First Nations Reserves	9%	
Squamish-Lillooet A	1%	
Squamish-Lillooet B	1%	
Squamish-Lillooet C	5%	
Squamish-Lillooet D	2%	
Squamish-Lillooet	**100%**	

[9] The MOE's service plan targets are: Per capita municipal solid waste disposal of 350 kg per person) and 75% of BC's population covered by an organics disposal ban by 2020. Because disposal bans are not part of the planned initiatives in the updated plan, the target related to organic waste has been modified to achieve the same objective (organic waste diversion).

[10] http://www.bcstats.gov.bc.ca/StatisticsBySubject/Census/2011Census/PopulationHousing/MunicipalitiesByRegionalDistrict.aspx

23. MONITORING AND MEASUREMENT

Upon completion of this updated solid waste management plan, the Plan Monitoring Advisory Committee (PMAC) will resume. PMAC monitors the implementation of the Solid Waste and Resource Management Plan and reports directly to the Regional Board.

Plan Monitoring Advisory Committee members:

- Review and become familiar with the Solid Waste Management Plan;
- Review and become familiar with the existing solid waste management system in the SLRD;
- Identify methodologies to be employed in the monitoring and evaluation of the Plan's implementation;
- Monitor the implementation of the Plan and annually report to the Board on the effectiveness of the SWRMP at achieving its objectives; and
- Make recommendations to increase the effectiveness of the Plan or the solid waste management system.

The committee membership strives to have a broad representation of interests including the following:

- Local government/public works representatives from municipalities within the SLRD (4 members)
- SLRD staff (2 members)
- First Nations representatives within the SLRD (4 members)
- Members at Large - Interested members of the public, including local environmental groups and recycling organizations, owners and operators of private waste facilities, commercial and institutional solid waste generators, haulers and operators. (6 members, representing at least 3 electoral areas).

The Committee consists of a minimum of 7 and a maximum of 16 members. Terms of reference for PMAC are provided in Appendix C.

23.1 MEASURING PROGRESS

Progress towards the targets presented in Section 21 will be assessed on an annual basis.

Per capita disposal will be measured using the aggregate quantity of municipal solid waste sent to disposal at SLRD and municipal disposal facilities for landfilling. This quantity (in tonnes) will be divided by the estimated or known population as defined by BC Stats Census data and population projections.

To measure the percentage of population actively engaged in organic waste diversion, the Plan Monitoring Advisory Committee will assess which communities have implemented initiatives to support full organics diversion (yard waste and food waste diversion from the ICI and residential sectors), which may include some or all of the following:

- Implementing variable tipping fees that act as an incentive to source-separate organic waste;
- Implementing bylaws that require source-separation of organic waste at businesses;
- Providing collection services (curbside or depot) for residential organic waste;
- Ensuring the availability of commercial organic waste collection services; and
- Providing or supporting organic waste processing infrastructure.

Using BC Stats Census data and population projections for each municipality and electoral area, the percent of the SLRD actively engaged in organic waste diversion can be estimated.

23.2 On-Going Monitoring And Evaluation

A significant focus of this plan is on using community-based social marketing to help achieve a significant and sustained reduction in the amount of waste sent to landfill. Using a CBSM approach includes on-going measurement and evaluation of the communication initiatives to ensure that they are meeting their intended objectives. As each communication strategy is implemented, a combination of qualitative and quantitative evaluation criteria will be established to measure the effectiveness of the program and identify if there is a need to modify or enhance the program based on results.

In 2018, a waste composition study will be conducted to assess the types of materials that continue to be landfilled and their relative quantity. This study will identify how much of what is being landfilled in 2018 could be composted, recycled or managed through an EPR program.

24. PLAN FLEXIBILITY

Costs provided in this plan are estimated in 2015 dollars and may not reflect actual costs at the time of implementation. In addition, the initiatives described in this plan are based upon knowledge of the waste management system and regulations in place in 2015 that may or may not be in place in the future. As a result, initiatives described in this report may undergo further assessment, including an assessment of costs and continued community support, by the Plan Monitoring Advisory Committee and/or the SLRD Board prior to implementation.

The Plan's implementation schedule is intended to be flexible to allow for changes in priorities and available funding. Notwithstanding, the contents of this Plan are subject to legal requirements and, as a result, guidance and the direction from the Ministry of Environment will be sought in regards to the level of flexibility, as appropriate.

25. APPROVAL BY THE BOARD

This Plan was approved by the Board of Directors by the following resolution on March 16, 2016:

It was moved and seconded:

THAT the Squamish-Lillooet Regional District Board adopt the Solid Waste and Resource Management Plan (SWRMP), including Section 19 Greenhouse Gas Emission Monitoring, and approve its submission to member municipal Councils for their support and to the Ministry of Environment.

CARRIED