Environment

Regional District of Okanagan Similkameen

Solid Waste Management Plan

Prepared by:

AECOM
3292 Production Way, Floor 4 604 444 6400 tel
Burnaby, BC, Canada V5A 4R4 604 294 8597 fax
www.aecom.com

In association with:

Maura Walker and Associates Environmental Consultants
Jan Enns Communications

Project Number:
60145742-10

Date:
June 2011

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("Consultant") for the benefit of the client ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations")
- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
- may be based on information provided to Consultant which has not been independently verified
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- was prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

Consultant shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

Consultant agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but Consultant makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

The Report is to be treated as confidential and may not be used or relied upon by third parties, except:

- as agreed in writing by Consultant and Client
- as required by law
- for use by governmental reviewing agencies

Consultant accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of Consultant to use and rely upon the Report and the Information. Any damages arising from improper use of the Report or parts thereof shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

AECOM
3292 Production Way, Floor 4
Burnaby, BC, Canada V5A 4R4
www.aecom.com

604 444 6400 tel
604 294 8597 fax

June 20, 2011

J.D. French, Manager of Public Works
Regional District of Okanagan Similkameen
101 Martin Street
Penticton, BC V2A 5J9

Dear Mr. French:

Project No: 60145742

Regarding: Solid Waste Management Plan

AECOM, in association with Maura Walker and Associates and Jan Enns Communications, are pleased to submit the updated Solid Waste Management Plan for the Regional District of Okanagan Similkameen. The Plan describes how the Regional District and member municipalities will, in the coming years, evolve the solid waste management system to achieve a waste diversion rate of over 70%.

The Plan reflects input received during the public consultation process in May 2011. Modifications to the Plan as a result of community input were discussed and agreed on by the Technical, Public and Steering Committees at their meeting on June 6th, 2011. These committees have recommended that this Plan be submitted to the Minister of Environment for approval.

Sincerely,
AECOM Canada Ltd.

Todd Baker, P.Eng.
Senior Environmental Engineer
Todd.Baker@AECOM.com

Maura Walker, B.E.S.
Senior Environmental Planner
Maura Walker and Associates
Maura@maurawalker.com

MW:gc

Distribution List

# of Hard Copies	PDF Required	Association / Company Name
4	Yes	RDOS
	Yes	AECOM
	Yes	Maura Walker and Associates
	Yes	Jan Enns Communications

Revision Log

Revision #	Revised By	Date	Issue / Revision Description
2	M. Walker	June 20, 2011	Incorporates results of public consultation, committee and staff feedback.
3	M. Walker	June 29, 2011	Incorporates staff feedback on final draft.

AECOM Signatures

Report Prepared By:

Maura Walker, Maura Walker and Associates
Senior Environmental Planner

Report Reviewed By:

Todd Baker, P.Eng.
Senior Environmental Engineer

Table of Contents

Statement of Qualifications and Limitations
Letter of Transmittal
Distribution List
Glossary/Acronym List

page

Executive Summary **1**

1. Background **3**
1.1 Participants in the Planning Process 3
1.2 Guiding Principles 4

2. Plan Area **4**
2.1 Population and Population Projections 6
2.2 Economic Data 7
2.3 Housing 7
2.4 Air Quality Management Plan 7

3. Waste Stream Characterization **9**
3.1 Composition of Waste Disposed 9
3.2 Disposal and Diversion 10

4. Future Solid Waste Management System **12**

5. Education and Promotion **13**

6. Reduction and Reuse Programs **14**

7. Residential Services **15**
7.1 Single Family Collection 15
7.2 Multi-Family Services 17

8. Industrial, Commercial and Institutional (ICI) Services **18**

9. Recycling Activities at the Landfills and Transfer Stations **19**

10. Processing of Recyclables **20**

11. Private Sector Recycling **20**

12. Organic Waste Management **20**
12.1 Backyard Composting Program 21
12.2 Curbside Yard Waste 21
12.3 Yard and Wood Waste Drop Offs at the Landfills 21
12.4 Composting Facilities 21

13. Construction, Demolition and Renovation Waste Management **23**

14. Land Clearing Waste Management **25**

15. Disaster Debris Management **25**

16. Product Stewardship **25**

17. Household Hazardous Waste Management 28

18. Agricultural Waste Management 29

18.1 On-Site Composting of Agricultural Waste 29
18.2 Agricultural Plastics Recycling Program 29

19. Recovery and Residual Waste Management 29

19.1 Recovery and Residuals Objectives 32
19.1.1 Campbell Mountain Landfill 32
19.1.2 Okanagan Falls Landfill (OK Falls Landfill) 33
19.1.3 Keremeos Transfer Station 33
19.1.4 Oliver Landfill 34
19.1.5 Summerland Landfill 34
19.1.6 Princeton Landfill 35
19.1.7 Osoyoos Landfill 35
19.2 Other Residual Waste Management Initiatives 36
19.2.1 Variable Tipping Fees 36
19.2.2 Tipping Fee Harmonization 36
19.2.3 User-pay Landfills 37
19.2.4 Disposal Bans 37

20. Land Use Planning 37

21. Bear-Human Conflict Management 38

22. Illegal Dumping Program 38

23. Linkages 39

23.1 Waste Shed Agreements 39
23.2 First Nations 39
23.3 Internal and External Linkages 39

24. Facility Authorization 39

24.1 Additional Control Mechanisms 40

25. Implementation Schedule 40

26. Diversion and Targets 42

27. Triple Bottom Line Analysis 43

28. Financial and Staffing Implications 45

28.1 Estimated Expenditures 45
28.2 Cost Recovery Mechanisms 45
28.3 Staffing Implications 47

29. Plan Monitoring and Evaluation 47

29.1 Plan Monitoring Committee 47
29.2 Plan Evaluation 48
29.3 Plan Updates 48
29.4 Plan Flexibility 48
29.5 Dispute Resolution 48

30. Plan Approval 49

List of Figures

Figure 2-1. Map of Regional District of Okanagan-Similkameen 5
Figure 3-1. Estimated Composition of Landfilled Waste (by weight) 9
Figure 3-2. RDOS Disposal Trends (2005-2009) 11
Figure 4-1. Waste Management Hierarchy 12
Figure 19-1. RDOS Watersheds and Disposal Facilities 31

List of Tables

Table 2-1. Population 6
Table 2-2. Age Distribution 6
Table 2-3. RDOS Labour Force 7
Table 2-4. Number of Addresses in the RDOS (2010) 7
Table 3-1. Estimated Disposal and Diversion (2009) 10
Table 7-1. Local Government Curbside Garbage Collection Services (2010) 15
Table 7-2. Curbside Recycling Programs (2010) 16
Table 9-1. Recycling Activities at the Landfills and Transfer Stations 19
Table 12-1. Composting Facilities 22
Table 19-1. Service Area and Estimated Year of Closure for Existing Landfills 30
Table 25-1. Implementation Schedule 41
Table 26-1. Estimated New Diversion of Plan Components 42
Table 27-1. Triple Bottom Line Analysis 44
Table 28-1. Estimated Expenditures (based on 2011 dollars) 46
Table 28-2. Additional Staffing Requirements 47

Appendices

Appendix A. Local Government Approaches to Single Use Plastic Bags
Appendix B. Authorization Procedure for New Solid Waste Management Facilities

Glossary/Acronym List

Term	Definition/Description
Aseptic containers	Juice boxes, dairy and dairy substitute containers, soup boxes, etc.
Bulky waste	Bulky waste refers to discarded goods that are generally not collected as part of the regular (weekly/biweekly) residential curbside collection service such sofas and mattresses.
C&D waste	Construction and demolition (C&D) waste consists of the waste generated during the construction, renovation, and demolition of buildings, roads, and bridges. C&D materials often contain bulky, heavy materials, such as concrete, wood, metals, glass, and salvaged building components.
Carpet	Carpet, rugs
Composite materials	Products and packaging made of two or more materials: • Packaging (Dog food bags, food packaging such as cylindrical cardboard and metal tubes). • Household goods (children's toys). • Diapers, sanitary products • Bulky items (luggage, sporting goods)
Compostable paper products	Compostable packaging, paper bags, and non-recyclable paper such as tissues, paper towelling and food contaminated paper
Dirty wood waste	Treated wood, painted wood
Disposal	Waste that is buried at a designated waste disposal facility (landfill)
DLC waste	Demolition, land clearing and construction waste.
Diversion	Waste that is generated and managed through recycling, composting or reuse instead of being disposed.
E-waste	Electronic waste. All products operating by AC or DC current.
Extended producer responsibility (EPR)	An environmental policy approach in which a producer's responsibility (physical and/or financial) for a product is extended to the post-consumer stage of a product's life cycle. There are two key features of EPR policy: (1) the shifting of responsibility (physically and/or economically, fully or partially) upstream to the producer and away from local governments, and (2) to provide incentives to producers to take environmental considerations into the design of the product. EPR is also referred to as "Product Stewardship."
Glass	Includes: • Deposit bearing beverage containers (all beverage containers except those which contained milk or milk substitutes) • Non-deposit bearing containers (beverage containers that contained milk or milk substitutes) • Recyclable glass food containers (jars and bottles that did not contain beverages) • Non-container glass (window glass, mirrors, etc.); considered non-recyclable
Gypsum	Recyclable drywall, gypsum board or wallboard uncontaminated by materials other than paint and wallpaper.
Household hazardous waste (HHW)	Includes toxic products disposed by residents and includes items covered by stewardship programs (such as paint, solvents, used oil and containers, batteries) and similar items not covered by stewardship programs.
ICI waste	Waste generated by institutions (such as schools), commercial establishments (such as stores, restaurants) and industrial establishments (light manufacturing)
Inert waste	Waste that does not biodegrade, including dirt, rocks, ash, concrete, stone, glass
Land clearing waste	Waste materials generated by the clearing of land; generally includes trees, stumps, branches and brush. May also include soil, rocks and boulders.
LFG	Landfill gas (the gas generated by the decomposition of waste in a landfill)
Metal	Recyclable ferrous and non-ferrous metallic materials including but not limited to metal cans, sheet metal, siding, roofing, rebar, flashing, pipes, window frames, doors, furnaces, duct work, wire, cable, bathtubs, fencing, bicycle frames, automotive body parts, machinery, metal furniture, tire rims and metal appliances.
MoE	BC Ministry of Environment
MSW	Municipal solid waste. Includes predominantly household and commercial waste. MSW generally excludes hazardous wastes.
Organics	Food waste, yard waste (grass clippings, yard trimmings) and organic matter as defined by the BC *Organic Matter Recycling Regulation*
PAC	Public Advisory Committee for the Solid Waste Management Plan review

Term	Definition/Description
Plastics #1-7	**#1 PET:** soda bottles and water bottles **#2 HDPE:** milk bottles, detergent bottles and grocery/trash/retail bags **#3 PVC:** loose-leaf binders and plastic pipes **#4 LDPE:** dry cleaning bags, produce bags and squeezable bottles **#5 PP:** medicine bottles, aerosol caps, drinking straws and food containers (such as yogurt, ketchup bottles and yogurt tubs) **#6 PS:** compact disc jackets, packaging Styrofoam peanuts and plastic tableware **#7 Other:** reusable water bottles, certain kinds of food containers, plastic consumer goods
Product Stewardship	A term used in British Columbia to describe a government strategy to place the responsibility for end of life product management on the producer and consumers of a product and not the general taxpayer or local government. Also referred to as “Extended Producer Responsibility.”
RDOS	Regional District of Okanagan Similkameen
Reduction	Waste that is prevented from being generated. This may be achieved through changes in consumption habits or changes in the way products are sold.
Residential waste	Waste generated by households.
Residual waste	The waste that has not been captured through reuse, recycling or composting programs and requires disposal.
SWMP	RDOS’s Regional Solid Waste Management Plan
TAC	Technical Advisory Committee for the Solid Waste Management Plan review
Textiles	Clothing, rags, cloth material.
Waste management hierarchy	A concept that refers to the 5Rs of waste management: reduce, reuse, recycle, recover, residuals management. The hierarchy places greater emphasis on up-stream waste management activities, such as reduce and reuse.
Waste to energy (WTE)	Waste-to-energy (WTE) is the process of creating energy in the form of electricity or heat from the incineration of waste source. WTE also refers to a range of processes) where the waste is burned, gasified or digested at a high temperature. Most WTE processes produce electricity directly through combustion, or produce a combustible fuel commodity, such as methane, methanol, ethanol or synthetic fuels.
White goods	Large appliances such as ovens and freezers
Wood waste	Includes all woody waste including dimensional lumber, tree branches, plywood, particle board, furniture composed wholly of wood, wooden pallets and tree stumps

Executive Summary

This Regional Solid Waste Management Plan is a long term vision for solid waste management in the Regional District of Okanagan-Similkameen (RDOS). This document is an update to the previous plan that was approved in 1996.

This plan presents the programs, services, infrastructure and policies that will be implemented over the next several years. The plan was developed in a collaborative manner that involved:

- a Public Advisory Committee (PAC) with members representing community interests, including local environmental groups, local business groups, rate-payers associations and operators of private solid waste facilities;
- a Technical Advisory Committee (TAC) with members representing government and technical interests and including staff representatives from the RDOS, member municipalities, First Nations, Ministry of Environment, Ministry of Agriculture and the waste management industry;
- a Steering Committee, made up of members of the RDOS Board of Directors and local municipal councils,
- RDOS staff;
- Technical consultants; and
- Initial input from the general public through a variety of community consultation activities in 2010 and 2011.

The actions in this plan will increase waste diversion from its current level of 51% to 73%. The focus of this plan is on:

- Maximizing the diversion of organic waste from landfilling or burning through increasing composting;
- Increasing recycling levels at multi-family residences and workplaces;
- Increasing the reuse and recycling of construction, demolition and renovation waste; and
- Achieving these goals in a manner that is financially sustainable.

The following table outlines the key recommendations and proposed year of implementation.

Proposed Year of Implementation	Key Recommendation
2012	• Establish a garbage and recycling depot for Apex Alpine Ski Area • Develop a template for mandating waste management space requirements in all new multi-family and commercial developments. • Implement a Business Technical Assistance Program • Undertake a siting study for regional composting facility / multi-purpose waste management site • Continue to develop a Master Recycler / Composter Program • Implement a Bear-Human conflict management program • Establish more compost demonstration sites • Implement the Agricultural Waste Composting Assistance program
2013	• Begin implementation of mandatory recycling at all multi-family, industrial, commercial and institutional buildings • Develop a Disaster Debris Management Plan
2014	• Acquire land for regional composting site • Develop a Compost Marketing Strategy • Develop a 3Rs education program for the construction, demolition and renovation industry
2015	• Begin site development for the regional composting facility
2016	• Construct the regional composting facility • Prepare for curbside food waste collection • Undertake a waste composition study at local landfills
2017	• Begin operation of regional composting facility • Implement curbside food waste collection • Require large generators of food waste to source-separate food waste

1. Background

In British Columbia, each Regional District is mandated by the Provincial *Environmental Management Act* to develop a Solid Waste Management Plan that provides a long term vision for solid waste management, including waste diversion and disposal activities. Plans are to be 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.

The Regional District of Okanagan-Similkameen (RDOS) has undertaken a review and update of the 1996 Solid Waste Management Plan (SWMP) to reflect current and future waste management needs.

The process to update the Plan was conducted in three stages. The first stage involved a review of the current system and preparation of a report on the implementation status of the 1996 Plan. The second stage involved a review of options to address the region's future solid waste management needs and the selection of preferred management options. The third stage involved community consultation to obtain input on the proposed options and the preparation of this Plan.

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).

1.1 Participants in the Planning Process

Many groups participated in the planning process. A list of these groups and their participation activities is provided below.

- BC Ministry of Environment provided advice and direction to the RDOS in regard to the planning process and the plan's options;
- RDOS staff coordinated the planning process, participated directly in the development of technical reports and conducted the consultation processes;
- Consultants undertook technical studies, advised RDOS staff and participated in the consultation processes;
- The Public Advisory Committee (PAC) provided recommendations and advice to the RDOS Board of Directors, staff and consultants related to options and policy issues to be considered in the Solid Waste Management Plan. The PAC membership included organizations representing community interests, including local environmental groups, local business groups, rate-payers associations and operators of private solid waste facilities;
- The Technical Advisory Committee (TAC) provided recommendations and advice to the RDOS Board of Directors, staff and consultants related to options and policy issues to be considered in the Solid Waste Management Plan. The TAC membership reflected government and technical interests and included staff representatives from the RDOS, member municipalities, First Nations, Ministry of Environment, Ministry of Agriculture and the waste management industry;
- The Steering Committee, made up of members of the RDOS Board of Directors and local municipal councils, received input from the advisory committees and provided feedback to help guide the planning process. This committee also provided a linkage with the Regional Board; and
- The general public provided input to the Committees, Board and the project team through community consultation activities.

1.2 Guiding Principles

The guiding principles for the Solid Waste Management Plan were developed in consultation with the Public and Technical Advisory Committees. The guiding principles are:

- reduce the amount of waste requiring disposal to the greatest extent possible;
- be cost effective, considering both short and long term cost implications; establish objectives and targets that are clear and measureable;
- engage and involve all sectors of the community;
- reduce environmental impacts of solid waste management to air, water and land;
- establish programs, policies and objectives that are efficient, flexible and simple;
- encourage and support options that develop local socio-economic opportunities, such as the development of new businesses, and the creation or expansion of employment through waste management activities;
- develop and deliver services through effective partnerships with member municipalities, private and non-profit agencies, neighbouring regional districts, other levels of government and First Nations; and
- plan for and secure future disposal capacity for the region, recognizing the capacity limits of the current disposal system.

These principles have shaped the Solid Waste Management Plan and will assist with making future solid waste management decisions.

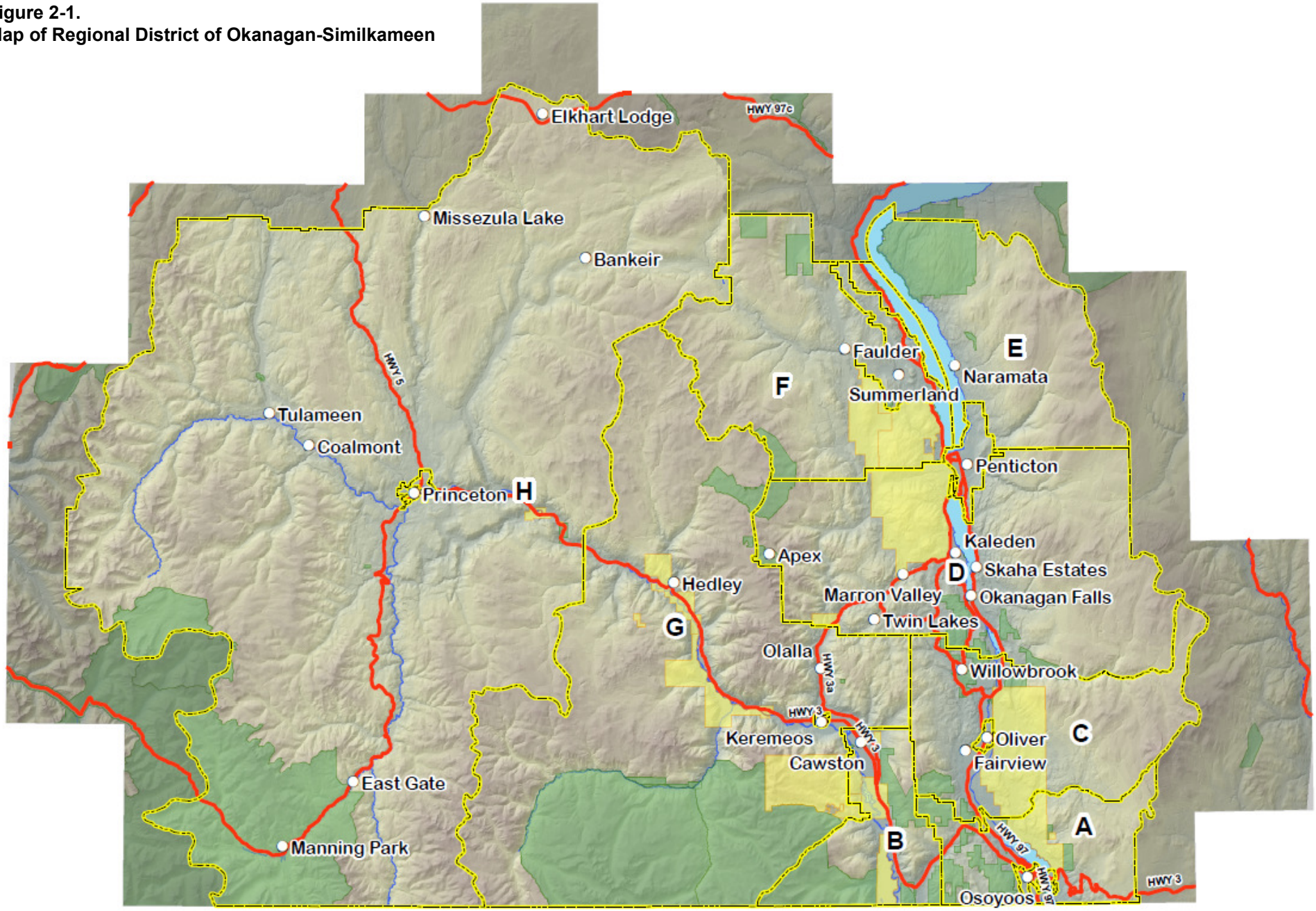
2. Plan Area

The RDOS is located in southern British Columbia and is bound by Manning Park to the west, Peachland to the north, Anarchist Mountain to the east and the United States border to the south. Adjacent regional districts include Central Okanagan, Fraser Valley, Thompson Nicola and Kootenay Boundary.

The Regional District has an area of 10,400 km^2, constituting 1.2% of the province's area. A map of the RDOS, showing municipal and electoral area boundaries is provided as Figure 2-1.

Climate is characterized by warm, dry summers and short, mild winters with over 2,000 hours of sunshine annually.

Figure 2-1.
Map of Regional District of Okanagan-Similkameen



Regional District Okanagan-Similkameen

Kilometers

0 4.5 9 18 27 36

2.1 Population and Population Projections

The estimated RDOS population in 2009 was 83,337. Table 2-1 shows the population distribution according to municipal area of residence.

Table 2-1. Population

Okanagan-Similkameen	2009 (estimated)
Village of Keremeos	1,479
Town of Oliver	4,783
Town of Osoyoos	5,189
City of Penticton	33,250
Town of Princeton	2,757
District Municipality of Summerland	11,243
Unincorporated Areas	24,636
Total	**83, 337**

Source: BC Stats.

The population grew at a rate of 1.2% per year from 2003 to 2008. The population is projected to grow to 87,831 by 2020 and 91,407 by 2030 (BC Stats).

In addition to the permanent resident population of 83,337 persons in the RDOS, the region experiences a significant influx of tourists. For example, the Penticton & Wine Country Chamber of Commerce estimates that there are roughly 90,000 people a day staying in hotel rooms just in Penticton and Naramata in July and August, compared to a resident population of approximately 35,000 for the same area.

The age distribution for the population is shown in Table 2-2. The RDOS has the highest percentage of seniors in the Province of BC. The RDOS expects the percentage of seniors to increase as the 'baby boomers' reach retirement age and seek to move to or stay in the Okanagan-Similkameen.

Table 2-2. Age Distribution

Age Range	% of RDOS Population
0 – 14 years	13%
15-24 years	10%
25-44 years	19%
45-54 years	16%
55-64 years	15%
65+ years	26%

Source: Data source: http://www.imaginepenticton.ca/your-business/demographics/population/ (Data reference on website is Stats Canada, Census of Population, 2006).

2.2 Economic Data

BC Stats reports that labour demand in the RDOS is primarily in the non-government service sector (66% of available jobs), as shown in Table 2-3 (based on 2006 data).

Table 2-3. RDOS Labour Force

		RDOS %	BC %
Goods	Primary	9.9	4.4
	Manufacturing	9.5	7.6
	Construction	10.3	8.6
Services	Non-Government	65.7	74.4
	Government	4.6	5.0
		100	**100**

Source: BC Stats.

2.3 Housing

Table 2-4 shows the number of addresses in the RDOS, based on current Canada Post householder counts. Based on this data, approximately 17% of the residential units in the RDOS are considered apartment units.

Table 2-4. Number of Addresses in the RDOS (2010)

	Houses	Apartments	Businesses
Penticton	12,627	5,286	1,504
Kaleden	827	0	22
Naramata	847	0	21
Okanagan Falls	1,609	80	93
Oliver	4,510	502	287
Osoyoos	3,175	536	225
Summerland	4,796	359	258
Cawston	510	0	7
Hedley	272	0	5
Keremeos	1,736	15	59
Manning Park	27	0	5
Princeton	2,539	0	143
Total	**33,475**	**6,778**	**2,629**

Source: Canada Post Householder Counts. (Total Points of Call) January 8 to February 11, 2010.

2.4 Air Quality Management Plan

The RDOS Air Quality Management Plan (AQMP) was prepared in 2006. The AQMP identifies the following activities as sources of pollutants that need to be addressed through a combination of public education and pollution reduction programs:

1. *Garbage burning, wood burning and yard waste burning,*
2. *Engine emissions, and*
3. *Dust.*

The central recommendations in the Air Quality Management Plan that relate directly to the management of waste and organics are:

- to utilize the comprehensive, multi-faceted Communication Materials prepared under the Air Quality Committee to promote Education and Awareness of the facts, issues and alternatives concerning smoke;
- to eliminate garbage burning by providing educational materials through a public information campaign and pollution reduction programs;
- to minimize smoke from wood and yard waste burning by providing educational materials through a public information campaign and pollution reduction programs;
- to minimize smoke from wood burning appliances by providing educational materials through a public information campaign and pollution reduction programs; and
- to integrate regional air quality goals into all policies including waste management, land use and transportation planning.

The implementation of the AQMP as it relates to solid waste management includes initiatives such as eliminating backyard garbage burning, an agricultural plastics recycling program, an agricultural wood waste chipping and disposal program, and a wood stove change-out program. These air quality initiatives are described under Section 5 of this report.

The AQMP recommendations that link to solid waste management are further supported by the initiatives in this Regional Solid Waste Management Plan.

3. Waste Stream Characterization

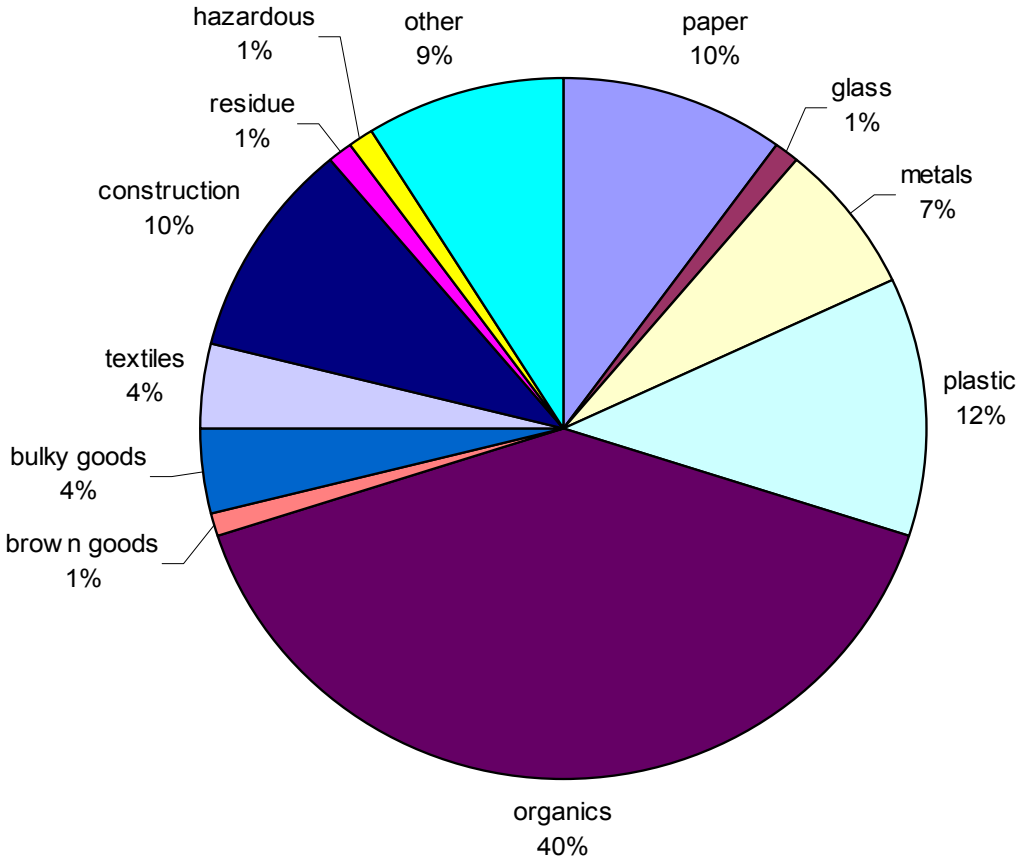
The following sections provide a characterization of the solid waste generated in the RDOS, including the composition of the waste stream and the amounts of waste disposed in landfill and recycled. This information provides the baseline for the measuring the success of future solid waste management initiatives.

3.1 Composition of Waste Disposed

Figure 3-1 shows the estimated composition, by weight, of the waste landfilled in the RDOS.[1]

Based on this estimate, the organic waste (yard waste plus food waste) represents the largest portion of the waste stream (40% by weight). Other significant contributors to the waste landfilled are plastic (12%) and paper (10%).

Figure 3-1. Estimated Composition of Landfilled Waste (by weight)[2]



[1] *This estimate is based on data from: a 2008 small scale waste audit at the Campbell Mountain Landfill in Penticton; a detailed waste composition study done at the Greater Vernon Landfill for the North Okanagan Regional District; and a detailed waste audit at the Glenmore Landfill in Kelowna done for the Regional District of Central Okanagan.*

[2] *In Figure 3-1, "brown goods" refers to large electronic goods like TVs and stereos that historically were housed in wooden cabinets, "bulky goods" refers to large non-electronic items such as sofas and mattresses and "fines" refers to items that were too small to sort into the other categories.*

3.2 Disposal and Diversion

Table 3-1 shows a breakdown of the tonnage accepted at the landfills throughout the RDOS, the estimated per capita disposal rate, a breakdown of the recycling / composting tonnages and the estimated recycling rate.

Table 3-1. Estimated Disposal and Diversion (2009)

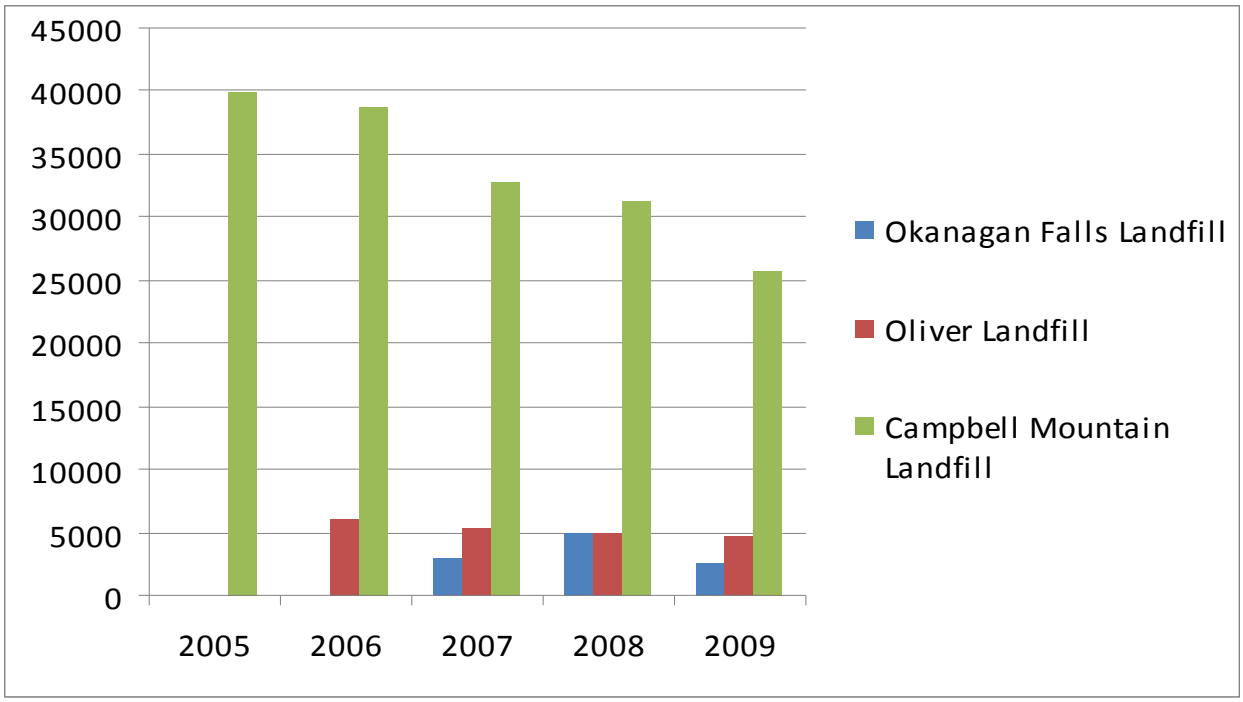
2009	Tonnes
Disposal	
Campbell Mountain	26,000
Oliver Landfill	4,600
Okanagan Falls Landfill	5,000
Summerland Landfill	10,000
Princeton Landfill	6,000
Osoyoos Landfill	14,000
Keremeos Transfer Station	n/a
Total Disposal	**65,600**
Per Capita Disposal Rate	**0.79**
Diversion	
Curbside Recycling	
Summerland	758
Penticton	6,438
Oliver and Osoyoos	3,602
Princeton	n/a
RDOS	2,876
Curbside Yard Waste	
RDOS	442
Penticton	938
Keremeos	10
Oliver	104
Summerland	254
Landfill Recycling and Composting	
Campbell Mountain	18,791
Oliver Landfill	6,807
Okanagan Falls Landfill	6,400
Summerland Landfill	8,102
Princeton Landfill	385
Osoyoos Landfill	1,873
Keremeos Transfer Station	1,004
Private Composting Facilities	4,650
Private Sector Recycling (Estimated)	2,000
Product Stewardship Programs	
Encorp	1,965
Product Care	64
Tire Stewardship	578
All Others	n/a
Total Diversion	**68,042**
Generation (disposal + diversion)	133,642
Recycling Rate	**51%**

In 2009, the RDOS disposed of an estimated 65,600 tonnes of municipal solid waste (MSW) and recycled / composted an estimated 68,000 tonnes of MSW-based materials, resulting in a recycling rate of 51%.

The per capita disposal rate for the RDOS in 2009 was 0.79 tonnes per person per year or 2.15 kg per person per day.

The amount of waste disposed has been decreasing in the RDOS despite population growth. Figure 3-2 shows recent annual disposal data for the 3 RDOS landfills for 2005 to 2009. This graph demonstrates the annual decrease in waste disposed.

Figure 3-2. RDOS Disposal Trends (2005-2009)



4. Future Solid Waste Management System

The future solid waste system will build on the existing framework of services and programs while seeking to improve the delivery of those services and continue to reduce the quantity of waste sent to disposal. The programs, infrastructure and policies for managing solid waste in the future are outlined in this section and presented in accordance with the waste management hierarchy, as shown in Figure 4-1.

Figure 4-1. Waste Management Hierarchy

The waste management hierarchy presents the various means of managing solid waste, from most desirable at the top, to least desirable at the bottom, as described below:

- “Reduce” is the most important part of waste minimization. Waste reduction avoids the unnecessary use of resources such as materials, energy and water and results in less waste to manage. The aim of waste reduction is to eliminate waste before it is produced and to reduce both the quantity and toxicity of waste.

- “Reuse” is the second level in the waste management hierarchy. Reuse is defined as the repeated use of a product in the same form, but not necessarily for the same purpose. For example, refillable bottles are a form of packaging reuse and making rags from clothes that are no longer wearable is another form of reuse.

- “Recycle” involves some form of processing of waste materials to produce the same or another product. For example, recycling aluminum cans back into aluminum cans or into aluminum car parts. Centralized composting of organic waste is also considered a form of recycling.

- “Recover” is the fourth level in the waste management hierarchy and is defined as the reclamation of energy or recyclable materials from the waste stream. This is typically done through the application of a waste-to-energy technology such as incineration or gasification.

- “Residuals” management is the final treatment and / or disposal of a waste that cannot be used in any other way. Within the RDOS, residual management of solid waste is undertaken through landfilling.

The hierarchy has been applied to the development of this solid waste management plan with the ultimate intent of minimizing the amount of residual waste that must be landfilled.

The following sections of this report describe the solid waste system for the RDOS and are organized into the following categories:

- Education and Promotion;
- Reduce and Reuse;
- Residential Services;
- Industrial, Commercial and Institutional Services;
- Recycling Activities at the Landfills and Transfer Stations;
- Processing of Recyclables;
- Private Sector Recycling;
- Organic Waste Management;
- Construction and Demolition Waste Management;
- Land Clearing Waste Management;
- Disaster Debris Waste Management;
- Product Stewardship;
- Household Hazardous Waste Management;
- Agricultural Plastics Recycling Program;
- Recovery and Residual Waste Management;
- Land Use Planning;
- Bear-Human Conflict Management;
- Illegal Dumping;
- Linkages;
- Facility Authorization;
- Implementation Schedule;
- Diversion and Targets;
- Triple Bottom Line Analysis;
- Financial and Staffing Implications; and
- Plan Monitoring and Evaluation.

Each section includes a description of the current approach and lists the actions that will be undertaken in the future.

5. Education and Promotion

The RDOS provides a wide range of waste management and waste reduction education / promotion services and opportunities. Education programs include classroom-based waste reduction programs and the Environmental Mind Grind. The Environmental Mind Grind pits the environmental wits of school teams from around the Okanagan-Similkameen in a fun, interactive, quiz show-style.

Additionally, the RDOS has become a partner of the Okanagan Similkameen Conservation Alliance (OSCA) ECOstudies Program. The ECOstudies program helps promote an assortment of free classroom-based courses for various grade levels offered by the RDOS, including:

- *Eat Dirt*, focused on composting;
- *Lunch Waste Audit,* focused on waste in the class room; and
- *"Where does all the garbage go?"* - a tour of local landfills.

The RDOS promotes local waste management programs and product stewardship opportunities through advertising. The RDOS also produces a yearly calendar, distributed to the majority of RDOS residents, summarizing available waste reduction and recycling options. Educational brochures have been developed for composting, grasscycling

and low-waste landscaping. In addition, for the last three years, the RDOS has hosted workshops to develop Master Composter/Recyclers.

The RDOS also funds the BC Recycling Hotline (1-800-RECYCLE), which provides phone-based waste management information to BC residents and businesses. This toll-free number responded to 727 calls in 2010 and 1,037 calls in 2009 from residents and businesses in the RDOS.

The future promotion and education program will continue with the above listed programs and also include the following new initiatives:

- Explore new methods of communication including social networking sites like Twitter and Facebook[3].
- Continue to develop and deliver a Master Composter / Recycler program.

6. Reduction and Reuse Programs

Reduction and reuse policies, programs and facilities minimize the amount of waste that must be managed by the waste management system.

Waste reduction initiatives in the RDOS include:

- Can limits – all curbside programs limit the weekly set out of garbage to one or two containers. All additional containers require a purchased tag. This policy acts as an incentive to reduce the amount of garbage and is described further in Section 7.1.
- A backyard composting program, described further in Section 11.1, promotes management of yard and garden waste where it is generated so that it does not enter the solid waste management system.

In Summerland, the municipality has hosted a community-wide yard sale. In addition, throughout the RDOS there are reuse venues available for the sale and purchase of reusable goods including:

- thrift stores and second-hand stores;
- online services such as Craigslist; and
- informal reuse events such as church sales and garage sales.

To support reduction and reuse, the RDOS will undertake the following new initiatives:

1. Develop campaigns to encourage reduction behaviour (e.g. “Reduce the Use” for single-use cups).
2. Develop a coordinated approach to reducing the use of single-use plastic bags (i.e. “shopping bags”) in the RDOS, including involving interested municipalities in the design and implementation of the approach. An overview of options to consider is provided in Appendix A. This process may apply to additional items such as single-use cups.
3. Pilot an area for reusable goods at one or more of the RDOS disposal sites.
4. In communities where there are no reuse facilities nearby, the RDOS will conduct a needs assessment for a reuse shed (i.e. a “free store”) to be set up at the local landfill or transfer station.
5. Promote existing reuse opportunities available in RDOS, including reuse websites.

[3] *It is anticipated that the use of social media (e.g., Twitter and Facebook) would be undertaken as a RDOS initiative for all RDOS programs and therefore the scheduling and budgeting for this service is beyond the scope of the Solid Waste Management Plan.*

7. Residential Services

7.1 Single Family Collection

Tables 7-1 and 7-2 outline the single family[4] curbside collection services for garbage, recyclables and yard waste. These services are provided by the municipalities and the RDOS.

Table 7-1. Local Government Curbside Garbage Collection Services (2010)

Curbside Garbage Collection	Weekly Volume Allowed	Bulky Items	Notes
Penticton	2 cans (max 120L)	1x/year, max 2 items (limited items allowed)	Yard waste and recyclables banned from garbage
Osoyoos	1 can (max 25 kg)	1 x / year, max 1 item, no ODS items	
Oliver	1 can (max 80L)	1 x / year, max 2 items	Yard waste and recyclables banned from garbage
Summerland	2 bags. Max 25 kg each		Yard waste and recyclables banned from garbage
Princeton	2 bags. Max 12 kg each	1 x / year, max 2 items	Metal and yard waste banned from garbage
Parts of Electoral Areas D, E and F	2 bags/containers (up to 190L in total), max of 25 kg per bag/container	1 x / year, max 2 items	Yard waste and recyclables banned from garbage
Parts of Electoral Areas A, B, C, D, F and G, Keremeos, Oliver	2 bags/containers (up to 190L in total), max of 25 kg per bag/container	1 x / year, max 2 items	Yard waste and recyclables banned from garbage

In all service areas, homes are restricted on the amount of garbage that can be set out each week as part of their regular garbage service. Garbage in excess of the “volume allowed” requires "tag-a bag" garbage stickers which must be purchased in advance and applied to each additional container. Most areas receiving weekly curbside garbage collection also receive collection of one bulky item per year for disposal of large items such as mattresses and large furniture.

Homes and businesses outside the collection service areas must haul their own waste to the local landfill or transfer station or hire a private waste collection company to provide the service. Residents in Electoral Area ‘H’ (rural Princeton) are provided 104 ‘Landfill Stickers’ per year allowing them to self-haul and dispose at no additional charge at the Princeton Landfill up to 104 bags of garbage. This service was implemented to provide Area ‘H’ residents an equivalent service to residents in the Town of Princeton.

[4] *“Single family” may refer to duplexes, triplexes, quadruplexes, townhouses and any other type of residence that is included in the curbside collection service provided by the RDOS or municipalities.*

Table 7-2. Curbside Recycling Programs (2010)

Curbside Recycling Program	Type of Program	Materials Collected	Separate Glass Collection (ending in 2011)	Yard Waste
Osoyoos	Blue-bag, collected bi-weekly	Cardboard, recyclable paper, rigid plastic containers, soft plastics, metal cans	4 x per year	1 x/ month (Feb-Nov)
Oliver	Blue-bag, collected bi-weekly		2 x per year	6 x / year
Parts of Electoral Areas D, E, F	Blue-bag, collected bi-weekly		On regular recycling day	6 x / year
Parts of Electoral Areas A, B, C, D and G, Keremeos	Blue-bag, collected bi-weekly		2 x per year	6 x / year
Summerland	Blue-bag, collected bi-weekly		No	6 x / year
Penticton	Blue box, collected weekly	As above plus glass	Included in curbside recycling	6 x / year
Princeton	Blue-bag, collected weekly	#2 plastic, paper, cardboard, metal cans, plastic bags	No	No collection

As shown in Table 7-2, there are established residential curbside recycling and yard waste collection programs in all municipalities and most unincorporated areas except Electoral Area 'H' (rural Princeton), parts of Electoral Area 'F' (rural Summerland), the Apex ski area, and Carmi in Electoral Area 'D'.

Generally, the range of recyclables collected at curbside includes cardboard, recyclable paper products, rigid plastic containers, soft plastics and metal cans. Glass is collected separately in most communities so that broken glass does not contaminate the other recyclable materials. In 2011, collection of glass at curbside will be discontinued, but will continue to be collected at the RDOS landfills and transfer stations.

Most communities in the region use the blue bag system but the blue box system is used by the City of Penticton. In 2011, the City of Penticton will also begin using the blue bag system.

Seasonal curbside yard and garden waste collection is offered in most communities in the RDOS. Service is typically offered from May through October on a bi-weekly basis and there is no limit on the amount that can be set out.

Municipalities and the RDOS contract their own collection services except in Keremeos where the RDOS manages the service. In all cases, the curbside service is delivered by contracted private collection companies. The RDOS has coordinated the Request for Proposal process on behalf of the municipalities for the collection contracts.

The following initiatives will be undertaken for single-family waste collection services to improve waste diversion and to ensure that all rural residents have reasonable access to garbage and recycling services:

1. To increase the diversion of yard waste from landfilling and burning, the frequency of yard waste collection services will be increased to a minimum of once per month through the growing, pruning and leaf-fall seasons.

2. To increase convenience for glass recycling, the RDOS will endeavour to set up glass collection at bottle depots. This service option will require the assent of the bottle depot owners and operators.

3. When composting capacity for food waste is developed, food waste will be collected at curbside from residents with curbside services. Food waste composting is discussed further in Section 12.4.

4. The RDOS will establish a garbage transfer station and recycling depot for the Apex Alpine Ski Area.

5. The RDOS will consider implementing full curbside collection services in the community of Carmi. Options for "bear smart" waste collection will be assessed by the RDOS's Bear Smart Coordinator and the community will be engaged in the selection of appropriate service protocols prior to implementation.

6. Prior to developing the next curbside collection contract, the RDOS will investigate the cost-benefit of sending of a portion of Electoral Area "G" solid waste collected at curbside to the Princeton Landfill (instead of sending all the waste to Campbell Mountain Landfill).

7. Prior to developing the next curbside collection contract, the RDOS will assess the cost-benefit of cart-based curbside collection. Research into this option will include an assessment of their application in both rural and urban communities.

8. In all other areas that do not receive RDOS or municipal collection services, a needs assessment will be conducted to determine if such services are feasible. When collection services are found to be feasible, a consultation process with the community will be undertaken to determine if there is support for becoming part of the local service area or a separate service area for collection services.

7.2 Multi-Family Services

Multi-family buildings may include apartment buildings, condominiums, townhouse complexes, mobile home parks or any other residential building considered "multi-family" under local bylaws.

Garbage collection services for multi-family buildings are privately contracted and not provided through the RDOS or member municipalities and therefore each building must hire a private garbage collection contractor. Recycling collection services, however, are provided by the City of Penticton, District of Summerland and Town of Oliver to multi-family buildings through their contractors. In these communities, multi-family buildings may voluntarily sign-up for the recycling service. The Town of Osoyoos mandates that all multi-family buildings must have a recycling service but the Town does not provide the service. Materials collected include mixed paper, newsprint, mixed recyclable cans and plastics, and glass containers.

The following initiatives will be undertaken to increase the level of recycling by the multi-family sector:

1. Adequate space for recycling containers is an issue for many multi-family buildings, and therefore all new multi-family and ICI buildings will be mandated to have adequate space dedicated for storage of garbage and recyclables. It is anticipated that this space requirement would be implemented through the building permitting process. The RDOS will coordinate the development of a template bylaw that can be applied at both the municipal and regional district levels.

2. To ensure that residents living in multi-family buildings are provided with convenient access to recycling, the provision of recycling services in all multi-family buildings will be mandated. It is anticipated that each municipality will determine the most effective approach to providing recycling to the multi-family buildings based upon the municipality's current waste management protocols for multi-family buildings. The following are examples of the approaches that could be employed:

    i. Mandate all multi-family buildings to implement a recycling collection service by a defined date. Under this approach, each building would contract recycling services to meet their specific needs.
    ii. Provide recycling collection services to multi-family buildings as a local government service. Participation in the program would be mandatory for all multi-family buildings.

3. The RDOS would work with member municipalities to develop an education and communication program in support of multi-family recycling. By having communications led by the RDOS, there will be greater consistency in the messaging and greater financial efficiency for program-related communications. The multi-family recycling education and communication program could include:

    i. The provision of in-suite containers to each unit in a multi-family building
    ii. Information materials for each suite
    iii. Posters for the central storage area for recycling in the building
    iv. An information kit for building managers
    v. Provisions of information sessions for buildings that are beginning their recycling program

8. Industrial, Commercial and Institutional (ICI) Services

The level of waste collection services provided by the public and private sector varies by community. Penticton's downtown business area has a mandatory bag-based garbage and recycling program. In Hedley, the same collection vehicles collect garbage and recycling from both residential commercial customers. In all other areas within the RDOS, businesses and institutions are responsible for hiring their own garbage and recycling collection service, or must haul their garbage and recyclables to the nearest disposal or recycling facility. Private recycling collection services are offered in most urban areas of the RDOS, but may not be available in rural areas or small communities.

The actions in this section aim to increase the level of recycling by the ICI sector:

1. Adequate space for recycling containers is an issue for many ICI buildings, therefore all new ICI buildings will be mandated to have adequate space dedicated for storage of garbage and recyclables.

2. In the urban areas of the RDOS, it is proposed that the provision of recycling services to commercial, institutional and light industrial buildings become mandatory. As with mandatory recycling in multi-family buildings, it is anticipated that each municipality will determine the most effective approach to providing recycling to the ICI sector based upon the municipality's current waste management protocols for ICI buildings. The following are examples of the approaches that could be employed:

    i. Mandate all ICI buildings to implement a recycling collection service by a defined date. Under this approach, each ICI building would contract recycling services to meet their specific needs.
    ii. Provide recycling collection services to ICI buildings as a local government service. Participation in the program would be mandatory for all ICI buildings; however exemptions for buildings with internal recycling systems could be made. The downtown Penticton program is a good example of how mandatory recycling services can be provided.
    iii. A combination of the above two approaches:
        - Small ICI buildings that can be serviced by the same collection vehicle that collects recyclables from the residential sector are included in the curbside program, similar to Hedley's program.
        - Larger ICI buildings that cannot be serviced by the curbside program would be required to contract recycling services directly with a collection company.

3. The RDOS will provide promotion and education assistance to support the ICI recycling programs to ensure consistency in communications. This assistance would be part of the Business Technical Assistance program described below.

4. To support waste reduction and recycling by the ICI sector, a technical assistance program specific to the ICI sector and implemented by RDOS is proposed. The technical assistance program could include:

    i. Web-based recycling directory (provided and maintained by the Recycling Council of BC).
    ii. Waste audit program.
    iii. Waste Minimization Awards program (this could be done in association with local Chambers of Commerce).
    iv. Working with local business associations to provide education and outreach in the commercial sector.
    v. Working with tourism / hotel associations to develop a program and support materials for tourists and tourist accommodations.
    vi. Developing tools and information specific to different types of businesses (office, retail, restaurant, etc.).

5. To encourage waste minimization in parks and at festivals and events, the RDOS will work with provincial / regional / municipal parks departments and festival organizers to develop a best-practices approach to recycling and identify how the RDOS can further support recycling efforts in parks and at festivals.

9. Recycling Activities at the Landfills and Transfer Stations

Table 9-1 outlines the waste diversion opportunities offered at each of the waste management facilities in the RDOS. Waste diversion will continue to be a key feature of the services offered at the landfills and transfer station, as this provides residents and businesses with convenient access to recycling, composting and household hazardous waste management. Promotion of these services will be increased to improve public awareness.

The services offered at each site will be reviewed regularly and will evolve with the waste management system and available funding.

Table 9-1. Recycling Activities at the Landfills and Transfer Stations

Recycling	Keremeos Transfer Station	Okanagan Falls Landfill	Oliver Landfill	Campbell Mountain Landfill	Summerland Landfill	Osoyoos Landfill	Princeton Landfill
Agricultural Plastics	x	x	x	x	x	x	x
Asphalt Roofing	x	x	x	x			
Cardboard	x	x	x	x	x	x	x
Clean Wood	x	x	x	x	x	x	x
Compost Sales				x	x		
Concrete, asphalt, masonry	x	x	x	x		x	
E-waste	x		x	x	x		
Glass	x	x	x	x			
Gyproc (drywall)			x	x			
Household Hazardous Waste			paint only	x			
Household recyclables	x	x	x	x	x	x	x
Lead-acid batteries	x	x	x	x	x	x	x
Mattresses & Boxsprings				x			
Metal	x	x	x	x	x	x	x
Motor oil			x	x	x	x	
Propane tanks	x	x	x	x	x	x	
Stumps	x	x	x	x	x	x	
Tires	x	x	x	x	x	x	x
Yard Waste	x	x	x	x	x	x	x

"x" indicates that this recycling opportunity is available.

10. Processing of Recyclables

Currently there are no materials recovery facilities (MRFs) in the RDOS for sorting and processing, and subsequent marketing of curbside recyclables. As a result, all curbside recyclable materials are transported out of the region by the private sector for processing. In the foreseeable future, all processing and marketing of currently collected recyclables will continue to be handled by the private sector.

The RDOS will continue to investigate and may develop processing and marketing capacity for materials not currently recycled by the private sector such as foamed polystyrene, hard plastics and textiles. Due to the strong public interest in recycling foamed polystyrene, the RDOS will confer with the Province regarding potential for this material to be covered under a future EPR program and will assess the cost-benefit of inclusion in the next curbside collection contract.

As stated in Section 18 of this report, the RDOS will continue to collect and market agricultural plastics.

11. Private Sector Recycling

At present, there are limited private and not-for-profit recycling operations located in the RDOS. The RDOS wants to encourage recycling businesses to locate within the RDOS borders. To support private and not-for profit recycling and reuse operations, the RDOS will undertake the following initiatives:

- Review tipping fees to ensure that they are not receiving materials that should be going to private / not-for-profit recycling operations.
- Enforce disposal bans on recyclable and compostable materials.
- Make source-separated materials collected at RDOS facilities available for use by local recycling industries.
- Set policies to maximize diversion from landfill.

Recycling businesses considering locating in the RDOS will be required to undergo the “facility authorization” process described in Section 24.

12. Organic Waste Management

Within the RDOS, a range of composting programs and services are in place including a backyard composting program, curbside and drop-off yard waste collection and yard waste composting facilities. The organic fraction of landfilled waste is estimated to be 40% (by weight) and therefore more can be done with organics to reduce the amount of waste going to landfills. A key component of this plan involves establishing initiatives to redirect the organic fraction from landfilling to composting. Redirecting the organic fraction to composting will result in:

- A reduction in the amount of waste landfilled (increasing landfill life);
- A reduction in the production of leachate at landfills;
- Less landfill gas and a reduction in greenhouse gas emissions;
- Less subsidence in the landfills;
- Lessening the attraction of vectors (birds, rodents, bears) to the landfills; and
- Useful end-products such as compost (that can also generate revenue).

Providing composting opportunities also reduces the incidence of burning as a means of disposal. Burning is commonly used to dispose of yard waste and agricultural waste from orchards and vineyards. The following sections describe current and planned efforts to divert organic waste from landfills and reduce the incidence of organic waste burning as a means of disposal.

12.1 Backyard Composting Program

Backyard composting is one of the most effective methods of reducing the amount of waste that enters the solid waste management system, reducing the amount of material that needs to be collected and delivered to a composting facility. The RDOS has a backyard composting program that includes:

- Distribution of “how-to” compost and grasscycling brochures;
- Sale and distribution of subsidized backyard compost bins;
- Vermi- composting workshops and the distribution of locally made worm bins to course participants; and
- Provision of in-depth composting courses (to be incorporated into the Master Composter / Recycler program noted in Section 5).

The backyard composting program will continue with the above listed activities and will establish compost demonstration areas at community gardens or other public locations.

12.2 Curbside Yard Waste

As mentioned in Section 7, seasonal curbside yard and garden waste collection is offered in most communities in the RDOS. To increase the diversion of yard waste from landfills and burning the frequency of curbside yard waste collection services will be increased in 2011 for areas where an increase in service levels is warranted.

12.3 Yard and Wood Waste Drop Offs at the Landfills

Yard waste is received and managed at all of the landfills and the transfer station. This organic material is chipped into fine pieces and used at local composting operations. To encourage use of the yard / wood waste drop offs, the RDOS allows the first 500 kg to be dropped off at no cost and, for weights in excess of 500 kg, the tipping fee is $25/tonne (2010 rate). The RDOS will review this financial incentive to determine if adjustments can be made to encourage additional diversion of yard and wood waste.

12.4 Composting Facilities

There are a number of composting facilities operating in the RDOS, and some of the large scale facilities have been listed in Table 12-1. Most of these facilities divert waste away from landfilling through the management of materials such as yard waste, wood waste, gypsum, and waste from local wineries and breweries.

Much of the organic waste currently landfilled is food waste and organic waste related to food production. Food waste requires the use of composting technologies that have tighter controls over temperature, moisture and odours than those used for composting yard waste. At present, there are no food waste composting facilities in the RDOS and to achieve significant additional diversion of waste from landfilling, local food waste composting capacity is required.

Table 12-1. Composting Facilities[5]

Facility	Location	Technology Type	Feedstocks	Annual Tonnes
District of Summerland compost, Summerland Landfill	Summerland	Turned windrow	L&YW, biosolids	500
City of Penticton compost, Campbell Mountain Landfill	Penticton	Aerated static pile	L&YW, biosolids	15,000
RDOS compost, Campbell Mountain Landfill	Penticton	Turned windrow	L&YW	6,000
RDOS compost, Okanagan Falls Landfill	Okanagan Falls	Static pile	Wood waste, biosolids	50
Town of Oliver compost	Oliver	Turned windrow	L&YW	300
Town of Osoyoos compost	Osoyoos	Turned windrow	Wood waste, L&YW, biosolids	725
Village of Keremeos compost	Keremeos	Static pile	L&YW, biosolids, sand and soil	200
Mission Hill Winery compost, Indian Rock Vineyard	Naramata	Turned windrow	Wood waste, L&YW, manure, winery waste, spent brewery grain	30
Private composting operation	Okanagan Falls	Turned windrow	Wood waste, manure	500
Mission Hill Winery compost, Oliver Vineyard	Oliver	Turned windrow	Wood waste, L&YW, manure, winery waste	150
Southern Plus Feedlots	Oliver	Static pile	Wood waste, L&YW, manure, winery waste	4,000
Private mushroom compost facility	Princeton	Aerated static piles	Straw, manure, gypsum	Confidential
Private mushroom compost facility	East Gate	Turned windrow	Straw, manure, gypsum	Confidential

L&YW = leaf and yard waste.

To achieve the desired organic waste diversion, additional composting capacity will be need to be developed. The RDOS studied developing local composting capacity and the results of the assessment are included in the *Regional Organic Waste Management Strategy*[6] which was prepared in 2010. This document identifies several scenarios (with associated costs) to increase the composting capacity for food waste, yard waste and biosolids.

The following actions will be undertaken to ensure that adequate composting capacity is available in the RDOS:

1. The RDOS will develop a detailed implementation plan for developing composting capacity composting that builds on the *Regional Organic Waste Management Strategy.* This implementation plan should identify the number of composting facilities that will be developed and the general location and type of composting facilities required. The implementation plan should also identify the types of materials that will be managed at each composting site and how those materials will be obtained (e.g., through municipal collection programs, disposal bans, delivery from local wastewater treatment plants, etc.). The implementation plan should also consider the long-term viability of existing publicly-operated composting facilities and their capacity to accommodate additional organic waste.

2. The largest of the existing local government composting facilities, the City of Penticton's biosolids composting operation at the Campbell Mountain Landfill, will need to be relocated on the landfill property in the near future to accommodate the landfill operation. Recognizing that on-site relocation will limit the ability of the facility to expand capacity, the RDOS will site and develop a regional composting facility. The siting process will also consider other long-term regional solid waste management needs and consider the acquisition of land to co-locate several waste management facilities on the same site. Incorporated into the site selection and purchase

[5] *Existing Organics Management Infrastructure, Technical Memorandum 2010 RDOS CH2M Hill.*
[6] *Prepared by CH2M Hill*

would be a requirement that the site have enough land to incorporate an effective buffer zone around the site. This buffer zone would mitigate the potential for future land use conflicts.

3. When designing the regional composting facility, the RDOS will consider importing biosolids from communities outside the RDOS as a means of gaining economies of scale. As part of this exercise, the financial, environmental and social implications of importing of biosolids will also be taken into account.

4. The long-term viability of the public composting operations will be dependent on having a local market for the compost. To assist with local market development and stability, the RDOS will develop a compost marketing strategy.

5. To be successful, the composting facilities will need a guaranteed supply of feedstocks (i.e. food waste, yard waste and clean wood waste). The following actions will need to be undertaken by the RDOS and local municipalities to support the regional composting facility, once it is in place:

    i. Add food waste to the residential curbside collection program and ban food waste from the curbside garbage collection service.
    ii. Similar to the current ban on yard waste and recyclables in garbage, food waste will be banned from the list of materials that can be landfilled at RDOS and municipal landfills.
    iii. Mandate that large commercial generators of food waste source-separate this material for composting or alternative uses such as animal feed.
    iv. Consider providing food waste collection to small and medium size ICI food waste generators that can be serviced through the curbside food waste collection program.

13. Construction, Demolition and Renovation Waste Management

Construction and demolition (C&D) projects generate a wide range of materials, most of which are reusable or recyclable. These include concrete, asphalt, wood, gypsum wallboard, metal, cardboard, asphalt roofing and plastic. There are several facilities in the RDOS that accept source-separated materials for recycling, including all of the RDOS and municipal landfills. The RDOS and municipal landfills promote source separation by offering significantly reduced tipping fees for source separated materials delivered to their waste management facilities, as compared to the tipping fee for mixed loads of C&D waste. Additionally, the RDOS has disposal bans on wood waste, cardboard, metal, concrete and masonry – waste materials that are commonly generated by construction and demolition activities.[7]

At present, there are no facilities in the RDOS that are capable of receiving mixed loads of C&D waste for segregating and subsequent recycling. The RDOS has a dedicated landfill for C&D waste in Okanagan Falls where mixed loads of C&D waste are received for disposal. (This facility is described in more detail in Section 18.1.2) There are plans for a private C&D waste composting facility to open in 2011.

As a means of encouraging source-separation at demolition projects, the RDOS requires all applications for demolition permits to include a demolition waste disposal plan[8]. Permits will not be issued until the disposal plan is approved by the Regional District's Public Works Department. Permit applications currently cost $500 with a refund

---

[7] *Disposal bans are enforced through the applications of a significantly higher tipping fee for mixed loads of waste containing banned materials.*

[8] *The RDOS only requires demolition permits in Electoral Areas with Building Permit requirements. The solid waste management plan requirements are only associated with demolition permits granted by the RDOS. These requirements are not applied at the municipal level.*

of up to 50% of the fee available subject to the owner submitting receipts proving compliance with the approved disposal plan.

C&D waste represents a significant opportunity to divert waste away from landfills. To support existing and future C&D waste reduction, reuse and recycling, the following actions will be undertaken:

1. The RDOS will expand their use of regulatory mechanisms to encourage diversion of C&D waste. This may include:

    i. Mandatory solid waste management plans for projects requiring a building permit (for electoral areas subject to RDOS building permit requirements).
    ii. Implementing fee / refund requirements that correspond to the size or value of the project (instead of the current flat fee for all projects).
    iii. Developing a reduced permit rate for deconstruction projects as compared to demolition projects.
    iv. Requiring that WCB Hazardous Materials reporting is completed as part of obtaining a demolition permit. Encouraging member municipalities to adopt similar regulatory mechanisms.

2. The RDOS will encourage the development of private and not-for-profit C&D waste reuse and recycling operations. This will be achieved through:

    i. The setting of appropriate tipping fees at landfills.
    ii. Using variable tipping fees to encourage waste to be source-separated.
    iii. Providing the construction, demolition and renovation industry with information regarding recycling and reuse opportunities in the RDOS.
    iv. Maintaining the requirements for waste management plans to be prepared in association with obtaining a demolition permit.

3. The RDOS will develop a reuse facility for used C&D materials at the Okanagan Falls Landfill. For the operation of such a facility, the RDOS will consider partnering with a local skills development organization.

4. The RDOS will develop a recycling facility for mixed loads of C&D waste at the Okanagan Falls Landfill if private / not-for-profit facilities are not developed to fulfil this need.

5. To ensure that there are accessible diversion opportunities throughout the RDOS, source-separated C&D waste materials will continue to be accepted at most public disposal facilities (space allowing), for the recycling and / or reuse of the materials.

6. A 3Rs education program focused on construction, demolition and renovation industry will be developed in conjunction with the local construction associations.

It should also be noted that the MoE is also considering the inclusion of C &D Waste materials as a future product stewardship category under their recycling regulation. As with other product stewardship programs (discussed in section 16), the RDOS expects that all costs associated with the collection, recycling and/or proper disposal of designated C&D waste materials will be borne by the producers and consumers, and not by local governments or taxpayers.

14. Land Clearing Waste Management

Land clearing projects typically generate residual trees, branches and stumps that require management or disposal. Many of these projects employ the use of a wood waste grinder on the project site; the land clearing waste is ground and left on the site. Other projects may employ burning as the method of managing the materials. Where on-site chipping is not feasible and burning is not allowed, land clearing waste can be brought to one of the landfills where the wood will be ground. Ground wood can be used for animal bedding, composting operations or sent to a co-generation facility to be used as fuel.

In support of the Air Quality Management Plan, the following actions will be undertaken to minimize the incidence of land clearing waste burning:

1. The RDOS will continue education initiatives associated with air quality, including providing information on how to “burn –smart”, smoke control bylaws, burn bans and alternatives to burning.

2. The RDOS will explore how more funding can be made available for enforcement of existing burning regulations. Presently, many areas experience low levels of enforcement of burn bans due to lack of funding for enforcement staff.

15. Disaster Debris Management

A significant volume of waste can be generated during a natural disaster, such as a flood, landslide or storm event. There have been disaster experiences where the amount of debris generated was equivalent in volume to years, and sometimes decades, of typical solid waste volumes requiring disposal. In these situations landfill capacities have become overwhelmed; many tonnes of waste are burned; and ad-hoc disposal sites have been established without adequate environmental consideration (including the disposal of hazardous wastes). Consequently, the long-term financial and environmental costs can be devastating for areas that are not prepared. At present, there is no plan or policy in place for managing disaster debris.

To improve disaster preparedness, the RDOS, in consultation with the municipalities, will develop a regional plan for the management of disaster debris. This plan should also address the management of animal carcasses that may result from a disaster.

16. Product Stewardship

“In British Columbia, Industry-led Product Stewardship is a government strategy to place the responsibility for end of life product management on the producer and consumers of a product and not the general taxpayer or local government.” (MoE Product Stewardship website).

Product Stewardship programs play an integral and increasingly significant role in the management of municipal solid waste in BC. Most existing Product Stewardship programs, also referred to as Extended Producer Responsibility (EPR) programs, have been established by producers and brandowners of products in accordance with requirements set out in the *BC Recycling Regulation*. Some other programs have been voluntarily set up by individual companies and industries (e.g. for milk containers).

In accordance with the *BC Recycling Regulation*, mandatory waste management programs have been (or will be as per regulatory phase-in schedules as indicated below) established for the following categories of products:

1. **Beverage Containers**
   - All ready-to-drink beverages except milk and milk substitute products.
2. **Electronic and Electrical Equipment (including mandatory phased expansion to 2012)**
   - Phase 1 (2007) - Televisions, computers, monitors, printers and computer peripherals.
   - Phase 2 (July1, 2010) - Audio-visual and consumer equipment, thermostats, cell phones, residential fluorescent lamps, batteries used in Phase 2 products.
   - Phase 3 (April 2011) - Small appliances, smoke detectors, batteries used in Phase 3 products.
   - Phase 4 (July 2012) - Large appliances, electrical and electronic tools, medical devices, automatic dispensers, lighting equipment, toys, leisure and sports equipment, monitoring and control instruments, IT and telecommunications equipment, and batteries used in Phase 4 products.
3. **Lead Acid Batteries**
   - Lead acid batteries as currently managed under the Province-run Lead-acid Battery Collection Program. A full Product Stewardship program managed by battery producers is scheduled for implementation by July 1, 2011.
4. **Used Lubricating Oil, Filters and Containers**
   - Oil - any petroleum or synthetic crankcase oil, engine oil, hydraulic fluid, transmission fluid, gear oil, heat transfer fluid or other fluid used for lubricating purposes in machinery or equipment.
   - Oil filters - any spin-on or element oil filter used in hydraulic, transmission or internal combustion engine applications — includes diesel fuel filters but does not include gasoline fuel filters.
   - Oil containers - any plastic container with a capacity of less than 30 litres that is manufactured to hold oil.
5. **Pharmaceuticals**
   - "All unused or expired consumer medications, as defined in the *Food and Drugs Act* (Canada) except for veterinary drugs and drugs from hospitals, health clinics or doctor's offices. Medications are prescription drugs, non-prescription drugs and natural health products that treat, prevent or alleviate symptoms of illness or disease."
6. **Paints**
   - Household paint such as latex and alkyd paint, coatings, sealers, glazes, primers, shellacs, undercoats, varnishes, paint aerosols and many other paint products.
7. **Solvents, Flammable Liquids, Gasoline and Pesticides**
   - Flammable liquids include acetone, BBQ lighter fluid, kerosene, paint thinner and flammable aerosols. Pesticides are accepted in liquid, solid or aerosol form, however, only domestic pesticides labelled with a poison symbol and a "Pest Control Product" registration number (e.g., PCP Reg. #2464) are accepted. Gasoline products include gasoline leftovers, spoiled gasoline, or old gas contaminated with oil or water.
8. **Tires**
   - Pneumatic or solid tires designed for use on a motor vehicle, farm tractor, trailer, or other equipment or machinery.
9. **Packaging and Printed Paper**
   - As of May 2011, MoE has added packaging and printed paper in the Recycling Regulation. The implementation of this program is estimated to take place at the end of 2014; during the term of this SWMP. The definitions used regarding packaging and printed paper appear to cover all materials currently collected by municipal and RDOS residential recycling programs.

The collection infrastructure for mandatory product stewardship programs may consist of return-to-retail and / or stand-alone depot systems. Stewardship agencies, set up by industry to manage the collection system, may directly operate their collection and / or recycling / disposal systems themselves or under contract to service providers including local government. In accordance with the BC Recycling Regulation, the costs of collection and management of Product Stewardship programs are to be borne by producers and consumer, not by local governments or taxpayers.

Most stewardship programs charge separate fees at the point of purchase to cover the costs of managing the discarded product, and the fee is shown on the sales receipt as an “eco-fee”. These fees are applied by producers / brandowners as part of the price of the product; they are not government-applied taxes. The Stewardship Agencies are responsible for educating consumers regarding their programs and for providing information about collection options, fees, and handling practices. Most agencies maintain websites, and / or utilize the services of the Recycling Council of BC. The RDOS also publishes information regarding aspects of some stewardship programs in its annual recycling calendar.

It is in the desire of the RDOS to ensure that 100% of stewardship materials are captured. The RDOS will undertake the following actions with the aim of facilitating & improving the product stewardship-related services in the RDOS:

1. Work with the Province and Stewardship Agencies to improve cost recovery, the quantity of stewardship materials returned to depots / retailers, and coverage of stewardship programs (both in terms of geography and products). As part of improving the services available in the RDOS, the RDOS will:

    i. Encourage the development of a “one stop shop” operated by the private sector for all products and packaging covered under a product stewardship program in each community.
    ii. Encourage all product stewardship depots in the RDOS to meet high customer service standards, such as ENCORPs ‘5 Star’ Certification Program.

2. Partner with Stewardship Agencies for public education on local stewardship collection services.

3. Partner with Stewardship Agencies to ensure reasonable access to stewardship collection services for all residents in the RDOS.

4. Participate on the BC Product Stewardship Council (BCPSC, an association whose membership includes province wide representation of all Regional Districts) to lobby stewardship agencies to improve services and funding levels to collection agents.

The RDOS will facilitate and assist the transition of solid waste management from a government-funded service to EPR. It is the expectation of the RDOS that all product stewardship regulated product plans will incorporate the following features:

- The product stewards pay 100% of all costs associated with the collection, transport and processing of all materials mandated for recovery under all applicable Product Stewardship regulations, including BC’s Recycling Regulation
- There will be no reduction of residential collection services including curbside recycling collection and local recycling depots.
- The product stewards will adequately promote any changes that occur due to the implementation of any product stewardship program.

The RDOS will support the efforts of product stewards to collect designated products and packaging by assisting with local service administration and promotion when and where feasible and agreed to by the RDOS or member municipalities.

The RDOS supports the concept and practice of Product Stewardship. The RDOS also acknowledges the fact that stewardship products not captured by the stewards must be dealt with by Local Government either at the landfill or as illegal dump sites. Ultimately, the RDOS aims to achieve 100% recovery of Product Stewardship products within the RDOS.

For any stewardship materials collected by the RDOS and member municipalities, either through a dedicated collection program or arriving at local landfills as garbage or illegal dump site clean-up, the RDOS will aim to have full cost recovery from the stewards. Cost recovery for stewardship materials received at the landfill as garbage will be based upon the value of the landfill space consumed. It is anticipated that waste audits will be the basis for determining cost recovery requirements and that these audits will be funded, in part, by the Stewardship Agencies.

17. Household Hazardous Waste Management

The RDOS operates a “one stop” household hazardous waste (HHW) facility at the Campbell Mountain Landfill. This facility accepts all HHW free of charge from residents living in Penticton, rural Penticton, Okanagan Falls and the Lower Similkameen. The facility is a designated Product Care Plus depot, handling labelled containers of paint and flammable aerosols, flammable liquids, domestic pesticides and fuels managed under the Product Care product stewardship program. The facility collects used oil and antifreeze on behalf of the BC Used Oil Management Association. In addition, the facility accepts a range of other HHW. The types of HHW accepted at the facility are:

- Roofing Tar
- Paint (latex and oil based)
- Aerosols
- Compressed Gas Containers
- Adhesives
- Pesticides
- Fertilizer
- Fuel
- Glass Cleaner
- Drain Cleaner
- Sealers
- Oil
- Ballasts
- Fluorescent light tubes
- Strippers
- Pool Chemicals
- Batteries
- Corrosive Materials
- Acids
- Caustics

The facility accepts products that are outside the scope of the Product Care program including those where the labels do not meet Product Care standards and unknown products that would not be accepted by Product Care. “Non-Product Care” materials are transported and disposed of by a private contractor paid for through the Campbell Mountain Landfill service.

The Oliver Landfill accepts paint as part of the Product Care program. Lead-acid and dry cell (household) batteries are collected at all RDOS disposal sites.

Hazardous waste from commercial and industrial sources is not accepted; however the ICI sector is encouraged to work with the RDOS HHW facility’s contractor to deal with their hazardous waste materials.

The RDOS will maintain this HHW depot and will work with stewardship agencies to develop appropriate funding in recognition of the RDOS’s role as a collection agent for several products and packaging covered under product stewardship programs.

The RDOS will work towards having HHW collection services available to all areas of the RDOS, including rural communities. Services may be in the form of a depot or HHW collection events. The RDOS will consider using their solid waste management facilities as collection points for Product Care and other stewardship products if local

private sector facilities cannot be sited and / or adequate funding can be secured for providing this service on the behalf of the stewardship agencies.

18. Agricultural Waste Management

18.1 On-Site Composting of Agricultural Waste

As with residential backyard composting, on-site composting of organic waste at agricultural operations reduces the amount of material landfilled, burned or that requires delivery to a composting facility. To assist local agricultural operations with establishing composting activities and to support composting efforts, the RDOS will:

1. Develop a composting assistance program that will provide on-going technical advice to farmers, wineries and food processing facilities.

2. Continue to provide a chipping service to agricultural operations to facilitate on-site composting. A chipping program for agricultural operations was recently piloted and well-received by the local agricultural community.

18.2 Agricultural Plastics Recycling Program

As part of a broader strategy to reduce air pollution associated with open burning of wood waste and agricultural waste, the RDOS maintains an Agricultural Plastics Recycling Program. Agricultural plastics such as agricultural films, black poly irrigation tubing, plastic twines, and plant pots are accepted at each of the RDOS-managed landfills, free of charge. The collected plastics are sent for recycling if there is an available market. All other plastics are landfilled. The RDOS will continue to provide this plastics program to the agricultural sector.

19. Recovery and Residual Waste Management

Residual waste is the portion of the MSW stream that remains following reuse, recycling, composting and / or recovery activities. Residual waste requires disposal at a landfill. Recovery is defined as reclaiming the recyclable components and / or the energy from the post-collection waste stream by methods such as manual / mechanical sorting, incineration, gasification and pyrolysis.

For the purpose of this section, recovery focuses on waste-to-energy (WTE). A recent policy statement developed by the MoE on WTE suggests that WTE is considered recovery (the 4th R) if a facility obtains 60% or more of the potential energy from the MSW fuel. If a facility achieves less than 60% efficiency it is considered a residual waste management facility (the 5th R), which would place the facility in the same category as a landfill.

All operating and closed landfills are governed by the following Provincial legislation:

- Landfill Criteria for Municipal Solid Waste (June 1993);
- Guidelines for Environmental Monitoring and Municipal Solid Waste Landfills (January 1996);
- Environmental Management Act (July 2004); and
- Landfill Gas Management Regulation (December 2008).

The new landfill gas management regulation will have an impact in management of landfills in the region. The regulation requires that landfill gas generation assessments are undertaken for regulated landfills. Regulated landfills

are those that have 100,000 tonnes of waste in place or receive 10,000 tonnes of waste annually in any year after 2008. If the gas generation assessment shows that the landfill generates more than 1,000 tonnes of methane per year, a landfill gas management facilities design plan must be prepared. Subsequently, landfill gas management infrastructure must be installed at the site in accordance with the regulation and the related guidelines.

Within the RDOS there are six (6) landfills that are owned and operated by the RDOS or one of the municipalities. There are currently no WTE facilities. The region's landfills are as follows.

- Campbell Mountain Sanitary Landfill (RDOS);
- Summerland Sanitary Landfill (District of Summerland);
- Okanagan Falls Sanitary Landfill (RDOS);
- Oliver Sanitary Landfill (RDOS);
- Osoyoos Landfill (Town of Osoyoos); and
- Princeton Landfill (Town of Princeton).

All of the sites are natural attenuation sites (i.e. no engineered liner) with the exception of the Summerland Landfill; the newest cell at the Summerland Landfill is contained by an engineered liner system.

Assessments of landfill gas generation have been undertaken for the Campbell Mountain, Oliver and Princeton Landfills. An assessment has not been undertaken for the Summerland Landfill; however this assessment is required under the regulation since over 10,000 tonnes of waste is landfilled each year. It is unknown whether a landfill gas assessment has been undertaken for the Osoyoos Landfill; although it is likely required as the total amount of waste in place is likely over 100,000 tonnes. Landfill gas assessments may be required for the Okanagan Falls and Keremeos Landfills.

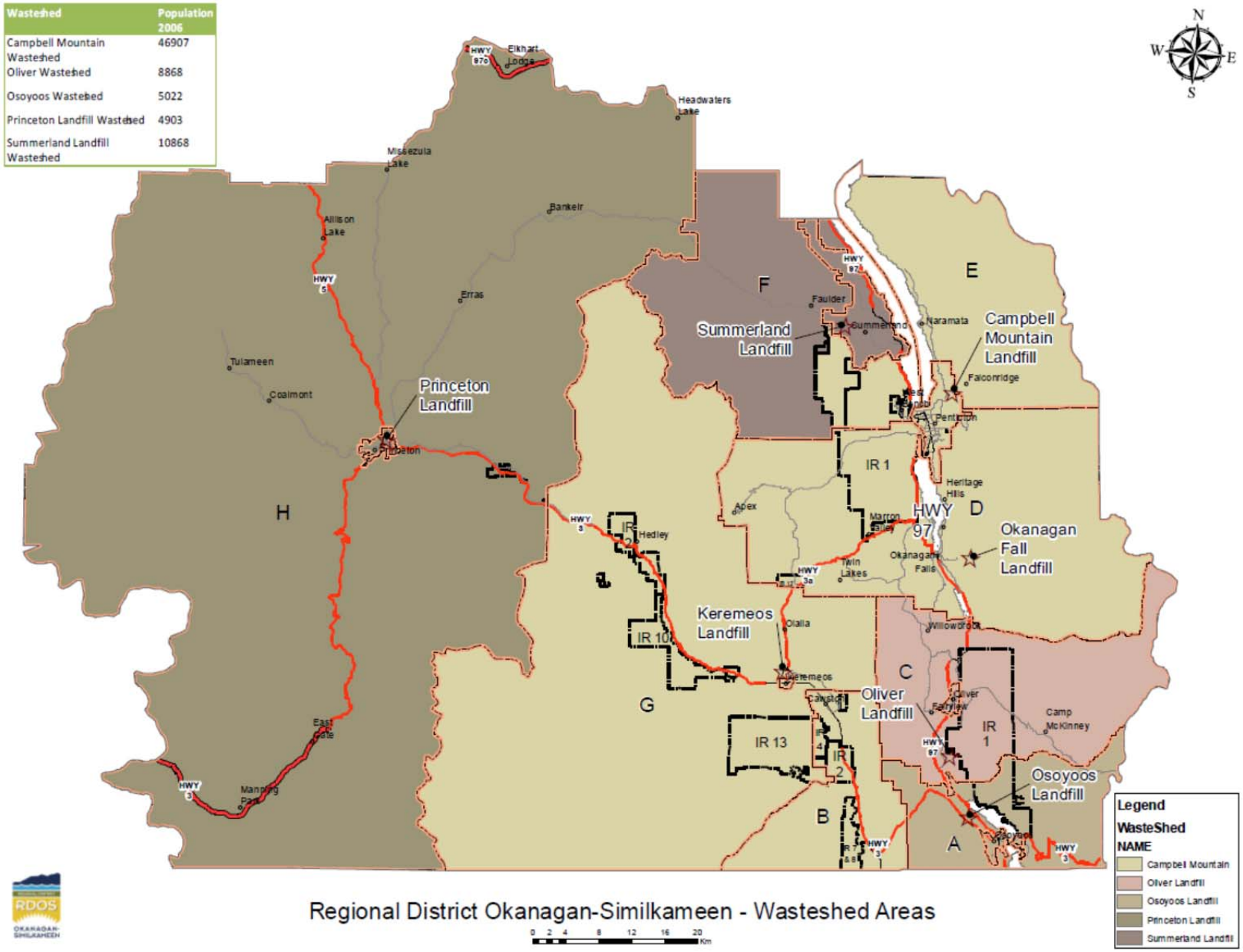
A summary of the landfills, their service areas and approximate dates at which capacity will be reached are provided in Table 19-1.

Table 19-1. Service Area and Estimated Year of Closure for Existing Landfills

Landfill	Service Area	Estimated Year to Reach Capacity
Campbell Mountain Landfill	Penticton, Naramata, West Bench/Sage Mesa/Westwood/Husula, Redwing, Kaleden, Lakeshore Highlands/Heritage Hills, Skaha Estates, Okanagan Falls, Twin Lakes, Olalla, Keremeos, Hedley, Cawston (including Electoral Areas B, E, D and G), and Penticton Indian Band	~ 2036 - 2047
Okanagan Falls Landfill (accepts only DLC waste)	Regional DLC landfill, service area includes entire Regional District	~ 2043
Oliver Landfill	Town of Oliver and Electoral Area C	~ 2050 - 2071
Summerland Landfill	District of Summerland and Electoral Area F	~ 2044
Princeton Landfill	Town of Princeton and Electoral Area H	~ 2038 -2095
Osoyoos Landfill	Town of Osoyoos and Electoral Area A	~ 2030 +
Keremeos Transfer Station	Operates as a transfer station and shares the same service area as the Campbell Mountain Landfill. Garbage is transferred to the Campbell Mountain Landfill.	Closed as a landfill, operates as a transfer station

Figure 19-1 shows the locations of the waste disposal facilities (i.e., landfills and transfer stations) within the RDOS, including both areas and population totals serviced.

Figure 19-1. RDOS Watersheds and Disposal Facilities



19.1 Recovery and Residuals Objectives

Previous studies completed for the RDOS and neighbouring regional districts concluded that landfilling remains the lowest cost residual waste management option over the short term and will likely remain the lowest cost option in the future, provided new landfill disposal capacity can be developed within a reasonable distance from the population centres.[9] The RDOS has significant landfill capacity as compared to other regional districts in British Columbia and from an economically, it is prudent to continue to utilize the existing landfill capacity to the greatest extent possible.

Waste-to-energy is of interest in the region; however developing WTE capacity based on existing technologies, total available tonnage within the RDOS and costs makes WTE cost-prohibitive at this time.

The overall direction for managing residual waste and for recovery of energy is to:

- Utilize existing landfill capacity to the greatest extent possible;
- Continue to maintain and upgrade existing landfills in accordance with regulatory requirements;
- Periodically evaluate long term management options and needs; and
- Develop a site that can be utilized for multiple waste management purposes including landfilling and WTE – this will ensure that a site is secured well in advance of the need to develop additional residual waste management capacity.

The following sections provide information on each of the existing landfills and outline the specific actions that will be required to meet the objectives stated above.

19.1.1 Campbell Mountain Landfill

The Campbell Mountain Landfill is located within the City of Penticton at 901 Reservoir Road. The landfill is owned by the City of Penticton and administered by the RDOS through a Lease Agreement. Within the landfill there are locations to drop-off of other recyclable items such as appliances, wood, yard / garden waste, tree stumps, batteries, propane tanks, tires and e-waste. There is a full-scale e-waste and household hazardous waste depot located on the site. There is also a yard waste composting operation on-site and a biosolids composting facility (operated by the City of Penticton) adjacent to the site.

The operation of the site is contracted out, except for the scalehouse and spotters. The RDOS works with local social organizations to assist with diversion activities happening at the landfill, such as debagging yard waste, e-waste collection and processing and mattress deconstruction.

The landfill accepts approximately 26,000 tonnes per year of waste for disposal and services approximately 47,000 people. It is estimated that the landfill has between approximately 25 and 36 years of remaining life.

An assessment of landfill gas generation was completed in 2010 and the assessment shows that the landfill currently generates approximately 1,400 tonnes of methane per year. The estimate undertaken of the generation rate is to be confirmed in 2011 through pumping tests, flux test, or other verifiable processes at the landfill. The updated estimate will be used to determine whether a LFG Management Facility Design Plan is required.

[9] *Interregional Disposal Alternatives Feasibility Study (2006)* done on behalf of NORD, CORD, RDOS and TNRD and *Review of Historical Solid Waste Management Reports (2010)* for the RDOS.

The following is a schedule of activities for the landfill over the next five years. These activities are outside the scope of general operations and typical small-scale capital improvements.

- confirm landfill gas generation rate;
- if required, prepare a LFG Management Facility Design Plan;
- if required, implement LFG management infrastructure as per the LFG Management Facility Design Plan;
- update the design, operations and closure plan including an update of the storm water management plan;
- determine the need for additional groundwater monitoring wells on the south property boundary;
- review the groundwater monitoring program protocol and leachate attenuation zone performance to determine if changes are required for the groundwater monitoring program; and
- undertake closure of part of Phase 1.

The current annual budget for the Campbell Mountain and Okanagan Falls Landfills is $3.3 M, of which $125,000 is allotted to consulting fees and $100,000 is allotted to capital improvements. Depending on the results of the supplementary LFG assessment and the anticipated date for closing a portion of Phase 1, additional consulting and capital works expenditures may be required after 2012. The estimated cost of LFG management, if required, is roughly $2 million. This potential expenditure has been included in Estimated Expenditures Table (Table 28-1).

19.1.2 Okanagan Falls Landfill (OK Falls Landfill)

The Okanagan Falls Landfill is located approximately 4 km east of Okanagan Falls on Allendale Lake Road in Electoral Area ‘D’. The landfill property is a Crown Lease held by the RDOS. The landfilling operation is undertaken by a contractor and the scale services are undertaken by RDOS staff. At the entrance of the landfill there is a depot for drop off of residential recycling. Within the landfill there are locations for drop off of other recyclable items such as appliances, wood, yard / garden waste, tree stumps, batteries, propane tanks and tires.

The landfill no longer accepts municipal solid waste; it is used as a regional C&D waste landfill and accepts approximately 2,600 tonnes of C&D waste per year for disposal. Mixed demolition waste makes up the greatest component of the landfilled waste at approximately 60% (by weight). It is estimated that the landfill has a little more than 30 years of remaining life.

The following is a schedule of activities for the landfill over the next five years. These activities are outside the scope of general operations and typical small-scale capital improvements.

- Prepare an updated design, operations and closure plan.
- Review the groundwater monitoring program protocol and to determine if changes are required for the groundwater monitoring program.
- Determine the need for additional groundwater monitoring wells.
- Determine whether an assessment of the LFG generation rate is required under the LFG Management Regulation.

The current annual budget for the Campbell Mountain and Okanagan Falls Landfills is $3.3M, of which $125,000 is allotted to consulting fees and $100,000 is allotted to capital improvements. Increases will be required beginning in 2012 for the activities listed above.

19.1.3 Keremeos Transfer Station

The Keremeos Transfer Station is located just north of Keremeos in Electoral Area ‘G’ off Keremeos Bypass Road on El Rancho Drive. The landfill, located at the same site, was closed in 2006 and a transfer station was

constructed. Waste accepted at the transfer station is transported to and disposed of at the Campbell Mountain Landfill. The site is managed under a Crown Lease held by the RDOS. The facility accepts municipal solid waste and recyclable materials. There is a soil remediation facility on site which accepts contaminated soil which can be rehabilitated to an Urban Park standard.

The following is a schedule of activities for the landfill over the next five years. These activities are outside the scope of general operations and typical small-scale capital improvements.

- Review the groundwater monitoring program protocol and to determine if changes are required for the groundwater monitoring program.
- Determine the groundwater gradient as part of the annual monitoring program.
- Determine whether an assessment of the LFG generation rate is required under the LFG Management Regulation.

The current annual budget for the transfer station is $220,000. Increases will be required in 2012 for the activities listed above.

19.1.4 Oliver Landfill

The Oliver Landfill is located approximately 6 km southeast of Oliver in Electoral Area ‘C’, off Black Sage Road on Sibco Landfill Road. The landfill is a Crown Lease held by the RDOS. Site operations are undertaken by a contractor and the scale services are undertaken by RDOS staff. The site has a depot for residential recyclables and areas within the landfill are provided for other recyclable items such as appliances, wood, yard / garden waste, tree stumps, batteries, propane tanks, tires and e-waste.

The landfill accepts approximately 4,600 tonnes per year of waste for disposal and services approximately 8,900 people. It is estimated that the landfill has between approximately 40 to 60 years of remaining life.

An assessment of landfill gas generation was completed in 2010 and the assessment shows that the landfill currently generates approximately 300 tonnes of methane per year. A landfill gas management plan and landfill gas management infrastructure is not required under the regulation. A hydrogeological assessment and a design, operations and closure plan were prepared in 2009 and 2010 respectively.

The following is a schedule of activities for the landfill over the next five years. These activities are outside the scope of general operations and typical small-scale capital improvements.

- Establish an environmental monitoring program for the site.
- Determine the need for additional groundwater monitoring wells.
- Undertake a test pit program to delineate the waste footprint and further characterize the subsurface conditions.
- Undertake slug testing to estimate the site-specific hydraulic conductivity beneath the site.
- Develop a buffer strategy.

The current annual budget for the landfill is $690,000. Increases will be required in 2012 for the activities listed above. Over the next ten years, approximately $84,000 of additional annual expenditures may be required to operate the landfill in accordance with the provisions of the 2010 Operations and Closure Plan.

19.1.5 Summerland Landfill

The Summerland Landfill is located within the District of Summerland on Bathville Road. The landfill is owned and operated by the District of Summerland. The landfill accepts the following items for recycling: residential recyclables,

appliances, e-waste, propane tanks, batteries and yard / garden waste, tires, gypsum, wood, and use motor oil and filters. There is a yard waste and biosolids composting operation on the site.

The landfill is partially lined and accepts approximately 10,000 tonnes per year of waste for disposal and services approximately 11,000 people. It is estimated that the landfill has approximately 30 years of remaining life.

An assessment of landfill gas generation has not been completed but is likely required as the annual tonnage is over 10,000 tonnes per year. An amended design, operations and closure plan was prepared in 2002, based on the original design operations and closure plan prepared in 1997. The plan provides a list of activities that must be completed at the landfill and the associated costs.

The following is a schedule of activities for the landfill over the next five years. These activities are outside the scope of general operations and typical small-scale capital improvements.

- Undertake an assessment of the LFG generation rate under the LFG Management Regulation.
- If required, prepare a LFG Management Facility Design Plan.
- Update the design, operations and closure plan.

The current annual budget for the landfill is $1.1M. A budget of $25,000 is in place for capital expenditures. This budget may need to be increased in 2012 to undertake the activities listed above. Additional money may also be required for the on-going costs of managing and treating leachate.

19.1.6 Princeton Landfill

The Princeton Landfill is located within the Town of Princeton on Princeton-Summerland Road. The landfill is owned and operated by the Town of Princeton.

There is no scale at this landfill but it is estimated that the landfill accepts approximately 5,800 tonnes per year of waste[10] for disposal and services approximately 4,900 people. Recycling activities on-site include residential recyclables, cardboard, plastics (#1 and 2) and scrap metal. The sorting and baling of the curbside recyclables is undertaken at the landfill site. It is estimated that its remaining lifespan ranges from approximately 30 to 80 years.

An operations plan update was prepared in 2009 and included an assessment of landfill gas generation as required by the regulation. The LFG generation assessment shows that the landfill currently generates approximately 300 tonnes of methane per year. A landfill gas management plan and landfill gas management infrastructure is not required under the regulation.

The current operational budget for the landfill is not known. It is also not known whether capital works or additional budget is required over the next five years.

19.1.7 Osoyoos Landfill

The Osoyoos Landfill is located approximately 5 km northwest of Osoyoos on 146 Avenue in Electoral Area ‘A’. The landfill is owned and operated by the Town of Osoyoos. The landfill accepts items such as household recyclables, appliances, propane tanks, batteries and yard / garden waste for recycling.

---

[10] *Annual buried waste has been recently estimated through a land survey conducted by Sperling Hansen Associates, as reported in their December 2009 study “Princeton Landfill Operations Update”.*

The landfill accepts approximately 6,000 tonnes per year of waste for disposal and services approximately 5,000 people. It is estimated that the landfill has over 20 years of remaining life.

A design, operations and closure plan for the landfill was prepared in 2001. While the annual tonnage into the landfill is under the threshold of 10,000 tonnes that requires an LFG assessment under the regulation, the total tonnage is not known. If the total tonnage in the landfill is over 100,000 tonnes a LFG assessment will be required.

The following is a schedule of activities for the landfill over the next five years. These activities are outside the scope of general operations and typical small-scale capital improvements.

- Assess whether a LFG assessment is required under the regulation.
- Update the design, operations and closure plan.
- Undertake capital upgrades listed in the 2009 annual report (actual upgrades required depend on what was undertaken in 2010, which is currently not known).

19.2 Other Residual Waste Management Initiatives

There are a number of initiatives that apply to residual waste management throughout the region and are not specific to a facility or management method. These initiatives are discussed below.

19.2.1 Variable Tipping Fees

The RDOS has differential tipping fees for various classifications of materials. There is a base tipping fee for municipal solid waste and other tipping fees are set based on the cost to manage the specific material and / or to act as a financial incentive to source-separate materials for recycling or composting. For example, loads containing recyclable materials (as defined by the *RDOS Landfill Regulations Bylaw*) are charged a rate double the regular tipping fee, and loads of source-separated yard waste and recyclable materials are received for free or charged significantly lower tipping fee. Variable tipping fees will continue to be used to finance disposal and recycling activities at the landfills, and will also be reviewed regularly to ensure that they are set at a level that encourages desired waste management behaviour (e.g. source separation for reuse, recycling and composting).

19.2.2 Tipping Fee Harmonization

Tipping fees at landfills currently vary throughout the region. This can create incentives for residents and businesses to utilize the lowest cost disposal option, which may not be the most suitable, and / or may result in waste being transported outside of the waste shed of a particular facility.

The RDOS will strive to create a “level playing field” whereby all municipal solid waste landfills have the same tipping fee and whereby all policies and waste tracking methods are consistent throughout the region[11]. The RDOS will consult municipalities that own and operate landfills and promote the benefits of harmonizing tipping fees throughout the region.

[11] *Tipping fees at the Okanagan Falls DLC Landfill may have fees differing from other landfills in the RDOS.*

19.2.3 User-pay Landfills

Currently RDOS landfills are paid primarily through tipping fees and to a lesser extent through taxation. The RDOS will move towards a full user pay system for landfills resulting in 100% of the costs for landfills being paid for through tipping fees. This will result in the full cost of maintaining landfills being borne by the users of the landfills and will promote waste reduction through higher disposal costs.

There are currently users of the landfills that do not contribute the same proportion of costs as residents who are taxed for maintaining the landfills. As full user pay is implemented, the RDOS will ensure that all residents pay fairly for managing waste at the landfills. Until a full user pay system is in place it may be necessary to develop new agreements with local service areas, municipalities and / or First Nations to recover the full cost of disposal (see Section 22.1 for more information on Wasteshed Agreements).

19.2.4 Disposal Bans

To encourage source-separation and diversion, disposal bans on recyclable and compostable materials have been implemented at RDOS and municipal disposal facilities. Disposal bans are enforced at the point of disposal (i.e. at transfer stations and landfills) through the application of significant surcharges on garbage containing more than 1% recyclable and compostable materials. At RDOS landfills, the following materials are presently banned from the disposal as garbage/refuse:

- Corrugated cardboard
- Glass bottles and jars
- Mixed paper
- Newsprint
- Box board
- Wood waste
- Yard waste
- Scrap metal
- White goods
- Propane tanks
- Lead acid batteries
- Tires
- e-waste
- Asphalt
- Refrigeration units
- Clean soil
- Recyclable gypsum
- Plastics acceptable for recycling
- Refundable beverage containers
- Asphalt shingles
- Masonry and concrete

As local diversion opportunities for additional materials are identified, banning those materials from disposal will also be considered. Implementation of bans will be based on the stability and capacity of the diversion option.

20. Land Use Planning

Waste management facilities, including recycling, composting, product stewardship and disposal facilities are essential elements of a sustainable waste management system. The siting and operation of these facilities must be done in conjunction with long-range community planning at municipal and regional levels to protect the environment and minimize the potential for land use conflicts.

The RDOS will work with regional district and municipal planning departments to develop land use planning policies that support / protect waste management infrastructure, including providing and protecting lands that act as a buffer surrounding waste management facilities (existing or planned).

Due to the difficulty in siting and securing property for public waste management infrastructure, a process to identify and secure a site or sites for future solid waste services will be undertaken. The RDOS will seek a site or sites that will have the potential to provide multiple waste management services (e.g. composting, waste-to-energy, recycling drop off, landfill). The site or sites should be protected against future land use conflicts using land use bylaws.

21. Bear-Human Conflict Management

The *South Okanagan-Similkameen Human-Bear Conflict Management Plan*, completed in 2010 by the SOS Bear Smart Stewardship Committee, was developed to provide a framework to assist communities in developing their own solutions for human-bear conflict management. This plan identifies a range of options and provides suggestions for implementing specific options. The plan's recommendations were considered in the context of updating the Regional Solid Waste Management Plan and consequently, the following actions will be undertaken to reduce the potential for bear-human conflict:

1. The RDOS will work with the local Bear Aware Coordinator to provide education to the public on methods for managing garbage, compost and recyclables and other attractants in a manner that is "Bear Smart".

2. The RDOS will facilitate the development of Bear Smart community programs, in concert with a broad range of stakeholders, including agriculturalists and managers of parks and recreation areas.

3. The RDOS and municipalities will establish set out times and / or container requirements for waste in their refuse collection bylaws.

4. The RDOS and municipalities will install electric fencing around landfills that receive putrescible waste (landfills that receive only construction / demo waste would not require electric fencing).

5. Municipal and regional Planning Departments will develop requirements for Bear Smart waste management, storage and collection systems in new developments.

6. The RDOS and municipalities will develop a 'Wildlife Animal Bylaw' to regulate bear and wildlife attractants on all non-agricultural properties. The attractants to be considered for this bylaw include organic and garbage residues or stockpiles, composting, orphan and residential tree fruits and nuts, feeding of dangerous wildlife and storage of anti-freeze and paint.

7. In partnership with Provincial, Federal and non-governmental organizations, the RDOS will create a regional program to implement the above actions.

22. Illegal Dumping Program

The RDOS has an illegal dumping program that includes reporting of illegal dumping and supporting community clean-up efforts. The program encourages people to report illegal dumping activities through a toll-free phone number *(1-866-5 NO DUMP)* or through email. The RDOS clean-up activities include the supply of bags, signage, vehicles, and support staff for community clean ups and the waiving of tipping fees at local landfills for waste collected as part of a community clean up. This approach to tackling illegal dumping will be maintained and the RDOS will explore establishing a bylaw that puts the responsibility for proper disposal of garbage on the waste generator, allowing enforcement agencies to require the waste generator (if this information can be determined) to clean up or pay for the clean-up of illegal dumping.

23. Linkages

23.1 Waste Shed Agreements

The RDOS has set up a number of agreements with municipalities and First Nations communities for use of disposal facilities. These agreements primarily set out the financial compensation to be paid to the facility owner. There are four agreements presently in place:

- An agreement between Area H and the Town of Princeton for use of the Town's landfill.
- Correspondence with the Town of Osoyoos that sets the terms for accepting waste from Electoral Area A and from the curbside collection program administered by the RDOS.
- An agreement with the Penticton Indian Band for several services provided by the RDOS to the Band Lands.
- An agreement with the Osoyoos Indian Band that permits use of the Oliver Landfill.

The RDOS will continue to develop agreements to ensure that there is a mechanism in place for the financing of waste management services and waste disposal infrastructure by all users. In particular, agreements will be developed for users of landfills that do not contribute directly through existing taxation mechanisms; this includes developing an agreement that would allow property owners in Area 'F' to use the Summerland landfill and Lower and Upper Similkameen Indian Bands to use the Keremeos Transfer Station and Campbell Mountain Landfill. In addition, a formal agreement between the Town of Osoyoos and Electoral Area A will be made.

23.2 First Nations

To ensure proper and cost-effective management of municipal solid waste generated in First Nations communities within the RDOS, it is recommended that RDOS liaise on an on-going basis with local First Nations to:

- Identify future disposal requirements at RDOS and municipal facilities.
- Identify opportunities to work together for waste management servicing (e.g. garbage and recycling collection).
- Develop service agreements to ensure that First Nation communities are fairly contributing to the infrastructure provided by RDOS or the municipalities.

23.3 Internal and External Linkages

To enhance sharing of ideas and resources, the RDOS will set up an annual meeting of the municipal and regional waste managers and landfill managers.

The RDOS will aim for consistency in waste management policies and tipping fees with surrounding other jurisdictions. The RDOS will foster the development of a South Okanagan-Similkameen Waste Managers Association to be made up of Solid Waste managers from the RDOS and member municipalities. The RDOS will continue to be active in the activities of the Southern Interior Waste Managers Association (SIWMA), Recycling Council of British Columbia (RCBC) and the Solid Waste Association of North America (SWANA) and other similar organizations.

24. Facility Authorization

To ensure that the goals of this Plan are not compromised by the development of solid waste facilities that may be contrary to the Plan's direction, all solid waste facilities developed after the adoption of this Plan must go through the

authorization process outlined in Appendix B to determine if they support the Plan's goals. If they are deemed to be in contradiction with the Plan's goals or direction, the proposed facility will not be permitted to proceed.

Proposed new facilities that are required to undergo this authorization process include but are not limited to private or not-for-profit sites, structures or activities used to manage solid waste, organic or recyclable materials.

Proposed new facilities that are not subject to this authorization process are landfills, waste-to-energy facilities or other facilities that are regulated directly through a Provincial Operational Certificate or permit. The RDOS does not have the authority to regulate these facilities. Also, publicly owned facilities will not be subject to this authorization process.

24.1 Additional Control Mechanisms

Additional control over private and not-for-profit waste management operations may be needed in the future in order to:

- Ensure the SWMP is implemented.
- Protect public and private investment in solid waste management infrastructure.
- Encourage desired waste management facilities and operators.
- Set a high standard for waste management facility operation to reduce illegal activities, such as theft, or negative impacts, such as odours

If there is a need for additional control mechanisms, "waste stream management licenses" and "codes of practice" will be considered in consultation with stakeholders.

Waste stream management licenses are a regulatory tool that can be used by regional districts to achieve operational and administrative control over solid waste sites and facilities. The authority to license is obtained through a bylaw that must be approved by the Province. Licenses are generally required by all solid waste facilities, except publicly-owned facilities and landfills / incinerators. As each license is tailored to address the conditions and activities associated with a waste management operation, the bylaw can accommodate a wide variety of waste management facilities and waste materials and address site specific concerns. Waste stream management licensing is used by Metro Vancouver, the Regional District of Nanaimo and Cowichan Valley Regional District.

Codes of practice are bylaws developed to address specific types of facilities and activities. They create a level playing field by establishing requirements that must be met by all designated facilities. Examples include the Capital Regional District's code of practice bylaw that regulates composting facilities.

At this time, the RDOS considers compost facilities and scrap metal retailers as activities that may be subject to additional control mechanisms within the implementation timeframe of this solid waste management plan (2012-2017).

25. Implementation Schedule

Table 25-1 outlines the proposed implementation schedule for new programs and initiatives. All programs and initiatives should be implemented by the end of 2017.

Table 25-1. Implementation Schedule

Year	New Program / Initiative
2012	• Continue to develop the Master Recycler / Composter Program • Coordinated approach to single-use plastic bags • Apex garbage and recycling depot • Carmi curbside collection • Template for mandating multi-family and ICI space requirements • ICI Technical Assistance Program • 2 compost demonstration sites • Siting study for a regional composting facility / multi-purpose waste management site • Design, operations and closure plan updates for Campbell Mountain, OK Falls, Summerland and Osoyoos landfills • Landfill gas generation assessments for OK Falls, Keremeos, Summerland and Osoyoos landfills • New groundwater monitoring wells at the Campbell Mountain, OK Falls, and Oliver landfills • Bear-Human conflict management program • Agricultural Waste Composting Assistance program
2013	• Mandatory multi-family and ICI collection • 2 additional compost demonstration sites • Disaster debris management plan
2014	• 2 additional compost demonstration sites • Acquisition of regional composting site • Compost Marketing Strategy • 3Rs education program for the C&D industry
2015	• Site development for regional composting facility
2016	• Construction of regional composting facility • Preparation for curbside food waste collection • Waste composition study
2017	• Operation of regional composting facility • Curbside food waste collection • Update regional solid waste management plan

26. Diversion and Targets

Table 26-1 presents the estimated new diversion from each of the proposed Plan components that can be achieved upon full implementation. The current waste diversion rate is estimated to be 51%; with the implementation of this plan, the diversion from landfill is expected to increase to 73%. This would result in a per capita disposal rate of 0.43 tonnes.

Table 26-1. Estimated New Diversion of Plan Components

Material	Estimated Percentage of Landfilled Waste	Tonnes Available	Diversion Potential	Tonnes Diverted	Tonnes Disposed
paper	10%	6,560	40%	2,624	3,936
glass	1%	656	1%	7	649
metals	7%	4,592	45%	2,066	2,526
plastic	12%	7,872	25%	1,968	5,904
organics	40%	26,240	65%	17,056	9,184
electronic waste	1%	656	90%	590	66
bulky goods (furniture, mattresses)	4%	2,624	0%	0	2,624
textiles	4%	2,624	0%	0	2,624
construction & demolition waste	10%	6,560	75%	4,920	1,640
fines (items too small to sort)	1%	656	0%	0	656
hazardous	1%	656	75%	492	164
other	9%	5,904	0%	0	5,904
Totals	100%	65,600	-	29,723	35,877
Existing Diversion (2009)			51%	67,000	
Estimated Diversion and Disposal Upon Full Plan Implementation			**73%**	**96,723**	

The South Okanagan Regional Growth Strategy adopted in 2007, recommends using annual waste disposed per capita as a means of tracking performance. Therefore, based on the schedule provide in Table 25-1 and the estimated diversion listed in Table 26-1, the following per capita disposal targets for waste diversion are proposed:

Year	Per Capita Disposal Rate
2011	0.79 tonnes
2013	0.64 tonnes
2016	0.43 tonnes

The per capita disposal rate will be determined using scale house data from RDOS and municipal solid waste management facilities.

27. Triple Bottom Line Analysis

Triple bottom line evaluations were undertaken for the new activities with significant financial cost implications, or where the impacts of the program could have a noticeable environmental or social benefit. In those cases where the suggested program is primarily related to policy changes or education initiatives that support other key actions, no formal evaluations were performed. Table 27-1 summarizes the triple bottom line evaluations.

Table 27-1. Triple Bottom Line Analysis

TBL Criteria	Multi-Family Recycling	ICI Recycling	Curbside Food Waste Collection	Develop and Support New Composting Capacity	C&D Waste Diversion	Total
Financial						
Capital Cost ($)	Depends on services offered	Depends on services offered	$ 1,258,000.00	$ 32,750,000.00	$ -	$ 34,008,000.00
Annual Operating Cost			unknown	$ 1,138,000.00	$ 5,000.00	$ 1,143,000.00
Avoided Disposal Costs (based on $55/tonne)	$ (36,657.50)	$ (329,917.50)	$ (243,100.00)	$ (694,980.00)	$ (270,600.00)	$ (1,575,255.00)
Environmental						
Net Waste Diversion Potential (tonnes)	666.50	5,998.50	4,420.00	12,636.00	4,920.00	28,641
Greenhouse Gas Reduction Potential (tonnes of CO2e)	3,300.20	29,701.80	4,420.00	12,621.44	4,500.00	54,543
Equivalent # of Honda Civics taken off the road	611	5,500	819	2,337	833	10,101
Social						
Increases the engagement and involvement of all sectors in responsible solid waste management	yes	yes	yes	yes	yes	
Supports local economic development	yes	yes	neutral	yes	yes	

28. Financial and Staffing Implications

28.1 Estimated Expenditures

Table 28-1 shows the estimated municipal and regional district capital and operating expenditures for the solid waste management system from 2012 to 2022. The largest new expenditures are:

- $275,000 in 2012 for the setup of a garbage and recycling depot for Apex ($21,000 per year amortized over 20 years)
- $650,000 for land acquisition for a regional composting facility ($52,000 per year amortized over 20 years)
- $750,000 in 2015 for site development for a regional composting facility ($60,000 per year amortized over 20 years)
- $2.4 million per year, starting in 2015, for the amortized capital cost of the regional composting system (including the regional biosolids composting facility)
- $1.1 million per year, starting in 2016, for the operation of the regional composting system
- $1.2 million in 2016 associated with purchasing collection containers for curbside food waste collection

This table is intended to be used by the RDOS and member municipalities in developing both their annual budgets and for 5-year financial planning exercises.

28.2 Cost Recovery Mechanisms

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

- User fees
- Tipping fees
- Taxation
- Sales (e.g., backyard composters, compost)
- Reserves
- Grants
- Sponsorships
- Funding from Product Stewardship agencies.

User-pay mechanisms will be applied to the provision of solid waste services wherever appropriate. Opportunities for sponsorship and grants will be explored to assist in the funding of programs.

It is recommended that equitable funding mechanisms for all plan programs be determined at the outset, and that reserve funds be established.

Table 28-1. Estimated Expenditures (based on 2011 dollars)

System Component	Responsible Organization	Current Annual Expenditure	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Education and Promotion	RDOS	$ 55,000	$ 65,000	$ 65,000	$ 65,000	$ 65,000	$ 65,000	$ 65,000	$ 65,000	$ 65,000	$ 65,000	$ 65,000	$ 65,000
Reduction and Reuse Programs	RDOS	Included under 3Rs Education and Promotion											
Residential Services													
Electoral Area A Curbside Collection	RDOS	$ 131,700	$ 143,580	$ 143,580	$ 143,835	$ 147,355	Contract to be retendered						
Electoral Area B Curbside Collection	RDOS	$ 70,455	$ 70,455	$ 70,455	$ 70,455	$ 70,455	Contract to be retendered						
Electoral Area C Curbside Collection	RDOS	$ 198,240	$ 226,560	$ 226,560	$ 240,720	$ 240,720	Contract to be retendered						
Electoral Area D,E,F Curbside Collection	RDOS	$ 335,400	$ 368,940	$ 368,940	$ 368,940	$ 368,940	Contract to be retendered						
Electoral Area G Curbside Collection	RDOS	$ 177,045	$ 193,140	$ 193,140	$ 193,140	$ 193,140	Contract to be retendered						
Keremeos Residential curbside collection	RDOS	$ 85,185	$ 85,185	$ 85,185	$ 85,185	$ 85,185	Contract to be retendered						
Okanagan Falls Residential curbside collection	RDOS	$ 207,480	$ 231,420	$ 231,420	$ 231,420	$ 231,420	Contract to be retendered						
Oliver Residential curbside collection	Oliver	$ 190,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	Contract to be retendered						
Osoyoos Residential curbside collection	Osoyoos	$ 232,000	$ 232,000	$ 232,000	$ 232,000	$ 232,000	Contract to be retendered						
Penticton Residential curbside collection	Penticton	$ 1,300,000	$ 1,300,000	$ 1,300,000	$ 1,300,000	$ 1,300,000	Contract to be retendered						
Summerland Curbside Collection	Summerland	$ 425,000	$ 425,000	$ 425,000	$ 425,000	$ 425,000	Contract to be retendered						
Apex Garbage and Recycling Depot	RDOS	$ -	$ 31,000	$ 41,000	$ 41,000	$ 41,000	$ 41,000	$ 41,000	$ 41,000	$ 41,000	$ 41,000	$ 41,000	$ 41,000
Carmi Curbside Collection (part of Area A service)	RDOS	$ -	$ 13,600	$ 13,600	$ 13,700	$ 13,800	Contract to be retendered						
Multi-Family Education and Promotion	RDOS	$ -	$ -	$ 35,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000
Mandatory Multi-Family and ICI Space requirements	RDOS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Mandatory Multi-Family Recycling	RDOS	$ -	$ -	Dependent on services offered									
ICI Services													
Mandatory ICI Recycling	RDOS	$ -	$ -	Dependent on services offered									
ICI Technical Assistance Program	RDOS	$ 10,000	$ 15,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	Program to be reviewed					
Recycling activities at RDOS landfills & transfer stations	RDOS	Included in landfill operating costs											
Processing of recyclables	multiple	Included in curbside collection and landfill budgets											
Organics Waste Management													
Compost Demonstration Sites	RDOS	$ -	$ 3,000	$ 3,000	$ 3,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Agricultural Waste Composting Assistance Program	RDOS	$ -		$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500
Agricultural Waste Chipper Service	RDOS	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000
Curbside Yard Waste Collection	multiple	Included in residential curbside collection program costs											
Yard and Wood Waste Drop Offs at RDOS Landfills	RDOS	$ 682,000	$ 682,000	$ 682,000	$ 682,000	$ 600,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
Compost Facility Siting and Land Acquisition	RDOS	$ -	$ 175,000		$ 650,000	Site acquisition costs of $650K would have an annual estimated cost of $52,000 if amortized over 20 years.							
Construction of a Regional Composting Facility	RDOS					$ 750,000	Capital and operating costs incorporated into regional composting system costs						
Compost Marketing Strategy	RDOS				$ 50,000								
Regional Composting System (includes food waste)	RDOS	The following annual costs include $32.5M capital cost amortized over 20 years.					$ 2,400,000	$ 3,500,000	$ 3,500,000	$ 3,500,000	$ 3,500,000	$ 3,500,000	$ 3,500,000
Curbside Food Waste Collection	multiple	Expenditure in 2016 reflects a $37/home capital cost for collection containers.					$ 1,258,000	Collection costs to be defined through into new curbside collection contract					
Construction, Demo and Reno Waste Management													
Construction and Demo Industry 3Rs Education	RDOS	$ -	$ -	$ -	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Landclearing Waste Management	RDOS	Included under Education and Promotion											
Disaster Debris Management													
Disaster Debris Management Planning				$ 80,000									
Product Stewardship	RDOS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Household Hazardous Waste and E-Waste	RDOS	$ 150,000	$ 154,000	$ 158,000	$ 79,000	$ 39,500	$ 20,000	$ 10,000	$ 5,000	$ 2,500	$ -	$ -	$ -
Agricultural Plastics Program	RDOS	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Recovery and Residual Waste Management													
Campbell Mountain Landfill	RDOS	$ 2,642,000	$ 4,362,000	$ 2,642,000	$ 2,642,000	$ 2,642,000	$ 2,642,000	$ 2,642,000	$ 2,642,000	$ 2,642,000	$ 2,642,000	$ 2,642,000	$ 2,642,000
Okanagan Falls DLC Landfill	RDOS	Included under Campbell Mountain Landfill											
Okanagan Falls DLC Landfill - New Projects	RDOS		$ 90,000										
Keremeos Transfer Station	RDOS	$ 182,000	$ 202,000	$ 182,000	$ 182,000	$ 182,000	$ 182,000	$ 182,000	$ 182,000	$ 182,000	$ 182,000	$ 182,000	$ 182,000
Oliver Landfill	RDOS	$ 603,000	$ 643,000	$ 603,000	$ 603,000	$ 603,000	$ 603,000	$ 603,000	$ 603,000	$ 603,000	$ 603,000	$ 603,000	$ 603,000
Summerland Landfill	Summerland	$ 651,695	$ 651,695	$ 651,695	$ 651,695	$ 651,695	$ 651,695	collection contract to be retendered					
Summerland New Landfill Projects	Summerland		$ 135,000										
Princeton Landfill	Princeton	Unknown											
Princeton recycling at Landfill	RDOS	$ 115,000	$ 115,000	$ 115,000	$ 115,000	$ 115,000	$ 115,000	$ 115,000	$ 115,000	$ 115,000	$ 115,000	$ 115,000	$ 115,000
Osoyoos Landfill	Osoyoos	$ 301,000	$ 499,000	$ 499,000	$ 499,000	$ 499,000	$ 499,000	$ 499,000	$ 499,000	$ 499,000	$ 499,000	$ 499,000	$ 499,000
Osoyoos LFG generation assessment	Osoyoos	$5,000											
Osoyoos Landfill Design, operations & closure plan update	Osoyoos	$ -	$50,000										
Osoyoos LF Capital works listed in the 2009 annual report	Osoyoos	$ 198,000	$102,000										
Recycling at Osoyoos Landfill (RDOS funded)	RDOS	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 7,200
Bear-Human Conflict Management	RDOS		$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Illegal Dumping Program	RDOS	$ 22,000	$ 22,000	$ 22,000	$ 22,000	$ 22,000	$ 22,000	$ 22,000	$ 22,000	$ 22,000	$ 22,000	$ 22,000	$ 22,000
Plan Implementation													
Annual Reporting	RDOS	$ -	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Waste Composition Study	RDOS						$ 40,000						
Update Regional Solid Waste Management Plan	RDOS							$ 75,000	$ 75,000				
Additional RDOS Staffing	RDOS	n/a	$ 98,000	$ 133,000	$ 122,500	$ 101,500	$ 136,500	$ 84,000	$ 17,500	$ 17,500	$ 17,500	$ 17,500	$ 17,500
Total		**$ 8,996,400**	**$ 11,651,775**	**$ 9,480,275**	**$ 9,997,290**	**$ 9,906,410**	**$ 9,261,895**	**$ 8,414,700**	**$ 8,343,200**	**$ 8,265,700**	**$ 8,263,200**	**$ 8,263,200**	**$ 8,263,200**

28.3 Staffing Implications

Most of the activities listed in this solid waste management plan will be undertaken by the current staff complement. However, some new initiatives will require additional staff as outlined in Table 28-2. These staffing requirements may be fulfilled through the hiring of new staff, contracted staff and / or consultants. Staffing for the operation of the regional composting system has not been specified in Table 28-2; however the cost of staffing is incorporated into the composting system estimated expenditures provided in Table 28-1.

Table 28-2. Additional Staffing Requirements

System Component	Local Government Organization	Year Of Start Up	End of Staffing Requirement	First Year Staffing Needs (# of FTE)	Subsequent Year Staffing Needs (# of FTE)
Bear-Human Conflict Management	RDOS	2012	2014	0.4	0.4
ICI Technical Assistance Program	RDOS	2012	2017	0.75	0.75
Multi-Family Education and Promotion	RDOS	2013	On-going	0.75	0.25
Compost Facility Siting and Land Acquisition	RDOS	2014	2014	0.25	n/a
Construction and Demo Industry 3Rs Education	RDOS	2014	2017	0.35	0.2
Construction of a Regional Composting Facility	RDOS	2015	2016	0.25	0.25
Curbside Food Waste Collection	Multiple	2016	2017	0. 5*	0. 5*

FTE = full-time equivalent staff person.

**At each organization implementing curbside food waste collection.*

29. Plan Monitoring and Evaluation

29.1 Plan Monitoring Committee

The Public and Technical Advisory Committees will be disbanded once the Regional Solid Waste Management Plan is approved by the Minister of Environment. A Plan Monitoring Committee will be formed to oversee the implementation of the Plan and report directly to the Regional Board. Committee members will:

- Review and become familiar with the Solid Waste Management Plan.
- Review and become familiar with the existing solid waste management system in the RDOS.
- Identify methodologies to be employed in the monitoring and evaluation of the Plan's implementation.
- Monitor the implementation of the Plan and report annually on the effectiveness of the SWMP at achieving its objectives.
- Provide recommendations for increasing the effectiveness of the Plan or the solid waste management system.

The committee membership will strive to have a broad representation of interests including local government, First Nations, the waste management industry, environmental organizations, the business sector, the residential sector and senior governments. Additionally, selection of members should create a committee with a balance of representation geographically, demographically, and with a variety of interests and perspectives. Representation of the Regional Board should be limited to no more than one member. This member would act as a liaison between the committee and the Board in an advisory capacity.

Typically there will be two meetings per year of the committee with the provision for additional meetings, workshops or other presentations at the committee's discretion or as required.

29.2 Plan Evaluation

To ensure that the plan's implementation adheres to the implementation schedule, it is recommended that, on an annual basis, RDOS staff compile data that reflects the status of the Plan's implementation and progress toward waste reduction targets. This data will be provided to the Plan Monitoring Committee, the Regional Board of Directors and the regional office of the Ministry of the Environment.

A multi-location waste composition study on the residual waste management stream will be conducted in advance of the next Solid Waste Management Plan update to assess the success of current waste diversion programs and policies and identify opportunities for additional diversion. This composition analysis will be a "moment in time" look at the waste stream, and as such, should be conducted during the summer so that the prevalence of yard waste in the waste stream can also be assessed.

The RDOS, through the Solid Waste Management Plan Function, shall allocate funds for the development of all landfill annual reports, curbside program reports, waste audits and other means by which data is gathered for plan monitoring and evaluation.

The RDOS will work with member municipalities to ensure that annual landfill reporting is completed so that this information can be used as part of the plan monitoring process. To this end, the RDOS will consider making the preparation of annual reports for all landfills in the RDOS (regional and municipal) a regional function.

29.3 Plan Updates

As suggested in the Provincial guidelines, a review and update of the Solid Waste Management Plan be undertaken every five years to ensure that the Plan reflects the current needs of the RDOS.

29.4 Plan Flexibility

Costs provided in this plan are estimates and may not reflect actual costs at the time of implementation. As a result, programs and infrastructure may undergo further assessment, including an assessment of costs and continued community support, by the Plan Monitoring Committee prior to implementation.

The Plan implementation schedule will be flexible enough to reflect the variability in priorities and available funding of the RDOS and the municipalities. The Plan is intended to be flexible when warranted to implement plan components, directly or through private firms and/or not-for-profit organizations.

Notwithstanding the above, the contents of this Plan are subject to legal requirements, and as a result, guidance and the direction from the Ministry of the Environment will be sought in regards to the appropriate level of flexibility in a specific circumstance.

29.5 Dispute Resolution

It is recognized that disputes may arise among stakeholders during Plan implementation. Disputes will first be presented to the Plan Monitoring Committee for review, consideration and for recommendations to the RDOS Board of Directors. Parties involved in the dispute will be given the opportunity to speak to the Plan Monitoring Committee

and to the Regional Board to present their viewpoints. Disputes may be settled by the Regional Board. The dispute resolution is limited to the following types of disputes:

- Administrative decisions made by RDOS staff.
- Interpretation of a statement or provision in the Plan.
- Any other matter not related to a proposed change to the actual wording of the Plan or an Operational Certificate.

Disputes that cannot be resolved at the Regional Board level or that are beyond the scope of the disputes described above may be referred to the Regional Manager of the Ministry of Environment or an independent arbitrator, who will make a final, binding decision.

Disputes between the RDOS and member municipalities or First Nations in relation to implementation or interpretation of this Plan will be referred to the Regional Manager of the Ministry of Environment to assist in resolving the dispute. Disputes that cannot be resolved by the Regional Manager will be referred to an independent arbitrator, who will make a final, binding decision. The costs for this arbitration will be split between the parties in dispute.

30. Plan Approval

At the ___ 2011 meeting of the RDOS Board, the following motion was approved:

> *INSERT BOARD MOTION THAT SENDS THE PLAN TO THE MINISTER OF ENVIRONMENT FOR APPROVAL.*

Appendix A

Local Government Approaches to Single Use Plastic Bags

Appendix A: Local Government Approaches to Single-Use Plastic Bags

This appendix provides guidance for communities considering the regulation of single-use plastic bags. This guide can also be used as a template for the evaluation of options in dealing with other targeted materials within the waste stream, such as disposable take-out cups.

The following is based on information provided by the following website:
http://dnr.wi.gov/org/aw/wm/recycle/issues/plasticbagsgovt.htm

Plastic Shopping Bag Information for Local Governments and Recycling Programs
A growing number of towns, cities, states and countries around the world are seeking ways to reduce plastic bag litter and its environmental impacts. This appendix contains information for local governments interested in exploring their options in this area.

What Options Does are there for Reducing Plastic Bag Use or Litter?
Communities around the world are trying several approaches to reducing plastic bag use and the litter and other problems associated with that use.

Mandatory recycling programs. Governments have required retailers to collect and recycle plastic bags from customers. This could be required of certain, large retailers or across an entire jurisdiction.
Voluntary recycling programs. Governments can encourage and / or provide incentives for retailers or retail associations to offer plastic bag recycling to customers.
Mandatory bans. Some governments have banned disposable plastic shopping bags, either at certain retail outlets (such as supermarkets and chain pharmacies) or throughout their jurisdictions.
Mandatory bag taxes. Governments have imposed taxes on disposal plastic bags--for example, requiring retailers to collect a 15-cent surcharge per bag from a customer, which is then put into an environmental fund.
Mandatory offering of reusable bags. Often in combination with other approaches, governments have required retailers to offer customers a reusable bag option (though the retailers can charge for the bags).
Offer plastic bag recycling as part of municipal recycling programs. A growing number of municipalities are adding plastic shopping bags to the list of items that can be collected by curbside or drop-off recycling programs. Make it clear that this recycling does not include plant-based "compostable" bags.
Retailer bag fees or credits. Governments can encourage or provide incentives to retailers to independently either charge for disposable plastic bags or give customers a small credit for bringing their own reusable bags.
Outreach. Governments can inform residents about plastic bag recycling programs and encourage them to participate.

What Are Other Governments Doing?
Cities, states and countries around the world have been using all of the above approaches to tackle the plastic bag problem. Some examples are below. (Please note that this is not a comprehensive list and is subject to change.)

- Leaf Rapids, Manitoba banned single- use plastic bags in 2007. Prior to the ban, they imposed a levy on each bag sold. (source: http://www.cbc.ca/canada/manitoba/story/2007/04/02/manitoba-bags.html)
- San Francisco banned large supermarkets and pharmacies from offering non-biodegradable plastic bags in the checkout line. The cities are encouraging the use of compostable plastic bags as one alternative, telling residents to use the bags to collect food scraps for the cities' organic material composting programs. Both cities have composting programs that can handle the bags.

- The City of Thompson has passed By-Law Number 1839-2010 known as the Single-Use Plastic Bag Ban. The By-Law takes effect on December 31, 2010. The By-Law prohibits the sale or give-away of plastic bags. The By-Law states specifically: “No person shall sell or provide single-use plastic bags free of charge or allow single-use plastic bags to be sold or provided free of charge”. This includes biodegradable bags that are below 2.25 mm thick. (source: plasticbagbanreport.com/thompson-subartic-city-in-canada-bans-plastic-bags)
- Thirty towns in Alaska have banned plastic bag use.
- California now requires large supermarkets and pharmacies to collect consumers' plastic bags for recycling and offer reusable bags.
- Hailey, Idaho worked in partnership with three major retail chains to undertake an education program called “Just Bag It” to reduce the use of single-use plastic bags (www.plasticbagreport.com)
- Connecticut requires retailers that offer plastic bags to offer paper bags as well.
- Ireland imposed a 15-cent bag tax in 2002 that cut plastic bag use by 90 percent. The tax was raised to 22 cents per bag in 2007.
- Los Angeles County has asked stores to reduce plastic bag use by 2013.
- Minneapolis and St. Paul have a voluntary plastic bag recycling program called "It's in the Bag".
- New York City requires retailers that hand out plastic bags to accept them for recycling.
- Rhode Island requires large retailers (those with more than $8 million in annual sales) to offer receptacles for customers to recycle plastic shopping bags, expanding on the state's existing plastic bag recycling program.

What Are Some Issues to Consider When Deciding on the Best Approach for Your Community?

- **What is the Primary Concern about Plastic Bags in Your Community?**

Make sure you are clear on what problem(s) you are trying to solve before choosing a policy option. If plastic bag litter is a particular nuisance or hazard (such as blocking storm drains and causing flooding, or posing a hazard to animals), some options may not be as effective. For instance, encouraging a switch to compostable plastic bags will not solve a litter problem because the bags don't break down quickly unless they are in controlled composting conditions. If global warming is a primary concern, you may want to consider options that would encourage the use of reusable bags, since both paper and plastic disposable bags contribute greenhouse gas emissions over their lifetimes.

- **What Laws are Already in Place, Especially at the Senior Government Level?**

In some jurisdictions, statutes prohibit local governments from imposing a tax on specific items. Other jurisdictions may have specific requirements about the recycling or disposal of plastic bags.

- **What Infrastructure does Your Community Have in Place for Plastic Bag Recycling or Composting Biodegradable Bags?**

Before requiring plastic bag recycling or encouraging the use of compostable plastic bags, make sure public or private waste haulers and solid waste processing facilities can handle the materials. Labelling requirements--that is, labelling plastic bags as recyclable and clearly marking bags that are compostable and cannot be recycled--are also important.

- **How Will You Know if Your Approach is Working?**

Set up numerical goals and measurements for your program. Also consider what actions will be taken if the program's goals are not met.

Appendix B

Authorization Procedure for New Solid Waste Management Facilities

Appendix B

Authorization Procedure for New Solid Waste Management Facilities

The authorization of new facilities or the modification of existing facilities may be done without undergoing a formal major change plan amendment process provided that the changes are being implemented to fulfill the mandate of the Solid Waste Management Plan. Such changes are subject to the successful completion of the procedure outlined below.

1. Any party wishing to establish a new or modified waste management facility shall present an application to the RDOS Board. This application must contain sufficient information for the Board to be able to evaluate the proposal and recommend its acceptance or rejection. The application will be assessed based on the compliance to the Solid Waste Management Plan, and on the potential impacts on the community. The RDOS may request further information as required for evaluation purposes. Any costs associated with developing or obtaining additional information will be borne by the applicant.

2. If the RDOS decides that the proposal will enhance solid waste management practices, the Board will provide a written request to the Ministry of Environment (MOE) for their input regarding the suitability of this authorization procedure for the proposed project.

3. The MOE will provide a written response indicating whether the project can be reviewed under the "new facility authorization" process and any specific considerations or actions that should be undertaken as part of the review. The MOE may, due to the nature of the project, request that a full plan amendment be undertaken. This is only anticipated if the proposed project has significant implications on the RDOS's solid waste management system and / or Plan objectives. Upon receipt of the written response from the Ministry, the RDOS will inform the proponent of the Ministry's decisions.

4. The proponent must undertake stakeholder and, if required, public consultation, as per the direction of the MOE and the RDOS Board. Consultation activities include, but are not limited to the following:

    a. Written and / or verbal presentation to the Plan Monitoring Committee, and
    b. A letter from the host municipality (or RDOS, if in an electoral area) where the facility / project is proposed indicating that the proposed use is in compliance with local land use bylaws.

5. Upon completion of the consultation, and the resolution of any technical issues, RDOS staff will prepare a report to the Board with a recommendation on the future of the project. The RDOS Board will consider the staff recommendation, input from the consultation process and the proponent in determining if the facility is aligned with the Solid Waste Management Plan and should be authorized.

6. If the Board is in support of authorizing the facility, the Board must then pass a resolution to that effect. Upon passage of the resolution, the facility is considered to be part of the Solid Waste Management plan, and a copy of the resolution shall be forwarded to the Minister.