

REPORT

FINAL DRAFT SOLID WASTE MANAGEMENT PLAN

Regional District of Central Okanagan

Prepared for:

Peter Rotheisler

Regional District of Central Okanagan

Main Floor Reception

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6 March 2017

Peter Rotheisler
Regional District of Central Okanagan
Main Floor Reception
1450 KLO Road
Kelowna, B.C. V1W 3Z4

Re: Final Draft Solid Waste Management Plan

Dear Mr. Rotheisler,

Morrison Hershfield is pleased to submit the RDCO's Final Draft Solid Waste Management Plan (SWMP). This Final Draft Plan was developed with input from the members of the solid waste management Public Technical Advisory Committee (PTAC) as well as the input received from the community on the draft recommendations. This Plan is an update of the 2007 Plan and proposes a path forward for the RDCO and member municipalities for managing solid waste. The Final will be adopted by RDCO's Board once approved by the Ministry of Environment.

It has been a pleasure to work with the RDCO on the development of this Plan. Thank you for the opportunity to be of assistance.

Regards,

Morrison Hershfield Limited



Veronica Bartlett, M.Sc.
Solid Waste Planner

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Glossary

C&D waste	Waste materials generated at construction, renovation and demolition projects
Disposal	Landfilling
Diversion	Activities that divert waste materials away from disposal as garbage to alternatives such as recycling or composting.
Generation	The sum of all materials discarded that require management as solid waste, including garbage, recycling, and yard waste. Does not include organic waste composted at home.
ICI	Industrial, commercial and institutional (does not include heavy industry)
MOE	BC Ministry of Environment
Organic waste/organics	Kitchen scraps, food waste, yard and garden waste
SWMP	Solid Waste Management Plan
Plan	Solid Waste Management Plan
PTAC	Public Technical Advisory Committee

EXECUTIVE SUMMARY

The Regional District of Central Okanagan (RDCO) is updating its 2006 Solid Waste Management Plan. The new plan is intended to provide the region with the direction for solid waste management for the next 10 years. The plan has been updated in two phases.

The first phase focused on an assessment of the current system for managing solid waste in the RDCO. It resulted in a report that describes the current (2014) system and also provides the status of implementation of the 2006 Solid Waste Management Plan, as of February 2016. The current system report provides the baseline from which the new SWMP will be developed.

This report (the Final Draft Plan) is part of the second phase which has involved the assessment and selection of options to address the region's future solid waste management needs. This Final Draft Plan was developed with input from the members of the solid waste management Public Technical Advisory Committee (PTAC) as well as the input received from the community on the draft recommendations.

As part of the planning process, goals and guiding principles were established. The following three key goals were formulated in association with this new SWMP:

- The goal is zero waste – all of our discards are regarded as resources;
- Citizens are actively engaged in behaviours that reflect the waste management hierarchy (i.e. reduce before reuse before recycle...); and
- Make it easy for residents and businesses to make the right decisions.

The following guiding principles were developed by the Ministry of Environment (MOE) and are proposed to be adopted to help direct the long term management of waste materials in the region:

- Promote zero waste approaches and support a circular economy;
- Promote the first 3 R's (Reduction, Reuse and Recycle);
- Maximize beneficial use of waste materials and manage residuals appropriately;
- Support polluter and user-pay approaches and manage incentives to maximize behaviour outcomes;
- Prevent recyclables from going into the garbage wherever practical;
- Collaborate with other regional districts wherever practical;
- Develop collaborative partnerships with interested parties to achieve regional targets set in plans; and
- Level the playing field within regions for private and public solid waste management facilities.

Waste composition studies indicate that there is still a significant quantity of disposed waste that can be recycled or managed through backyard composting. The initiatives described in this report target the initial reduction of waste, increased reuse of waste materials, and the increased collection of recyclable and compostable components of the waste stream. Upon full implementation, these initiatives have the potential to reduce the amount of waste sent to landfill from the current estimate of 681 kg per person to 594 kg per person. Accordingly, this would increase the region's diversion rate from 43% to 50%.



Actual diversion rates are higher than what can currently be measured or estimated. For example, data is not available for diverted quantities from the ICI sector or multi-family buildings using private haulers and materials diverted through reuse by thrift shops, backyard composting, etc. Based on estimated diversion rates from other regions for the ICI and multi-family sectors (e.g. Metro Vancouver and the Comox Valley Regional District) the current diversion rate for the RDCO is likely over 50%, and could be as high as 57%. The RDCO may undertake its own estimates of ICI and multi-family diversion in the future to refine the overall diversion rate estimate and for tracking purposes.

The key diversion initiatives in this Plan are:

- Review and improve current curbside collection contract to encourage more waste diversion;
- Conduct a review of services offered at RDCO's recycling depots (e.g. review the need for recycling depots in Lake Country, Peachland and The Mission in Kelowna);
- Re-evaluate organic waste diversion opportunities while considering the need to maintain landfill gas collection and use at the landfill;
- Investigate opportunities to process and recycle C&D materials and to recover energy from C&D materials in collaboration with the local partners;
- Develop Glenmore Landfill in accordance with proposed fill plan; and
- Investigate the success in other regions to mitigate illegal dumping by providing curbside collection of bulky items.

The implementation schedule for this Plan is 2017 to 2021. The estimated additional annual operating costs to the RDCO range from \$29,000 to \$139,000. Only minor capital expenditures are anticipated at this stage but may include the establishment of recycling depots/ transfer stations at Lake Country, Peachland and The Mission in Kelowna if the service review deems these as feasible. Capital expenses relating to Glenmore Landfill fall under City of Kelowna's responsibility.

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



1. BACKGROUND

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

The Regional District of Central Okanagan's (RDCO's) current Solid Waste Management Plan (SWMP) was developed in 2005 and 2006. The plan adopted a Zero Waste goal and set a target of reducing per capital disposal to 34% of 2004 levels within the first five years.

Although the overall vision of the 2006 Plan is still relevant, the plan has been updated to establish the specific programs needed to meet the overall objectives and vision. The RDCO commissioned Morrison Hershfield (MH) to update the plan and provide the direction for solid waste management for the next 10 years and identify regional issues for the next 20 to 25 years.

The first phase of the process to update the plan focused on an assessment of the current system for managing solid waste in the RDCO. It resulted in a report that describes the current (2014) system to manage solid waste in the RDCO and provides the status of implementation of the 2006 Solid Waste Management Plan, as of February 2016. This report provides the baseline from which the new SWMP has been developed. The Stage 1 Report can be found on RDCO's website¹.

A solid waste management plan Public and Technical and Advisory Committee (PTAC) was established with public, local government and technical representation to provide input throughout the planning process.

This report (the Final Draft Plan) is part of the second phase which has involved the assessment and selection of options to address the region's future solid waste management needs. This Final Draft Plan was developed with input from PTAC as well as the input received from public consultation on the draft recommendations.

The planning process and the development of this report have been undertaken in accordance with the BC Ministry of Environment (MoE) document entitled "Guide to the Preparation of Regional Solid Waste Management Plans by Regional District" (BC MoE, 1994) with consideration of the MOE's draft updated document "A Guide to Solid Waste Management Planning" (May 2016).

1.1 GOALS AND PRINCIPLES FOR THE REGION'S SOLID WASTE MANAGEMENT

1.1.1 Plan Goals

There are three main goals associated with this new SWMP:

- The goal is zero waste – all of our discards are regarded as resources;
- Citizens are actively engaged in behaviours that reflect the waste management hierarchy (i.e. reduce before reuse before recycle...); and

¹ https://www.regionaldistrict.com/media/199818/SWMP_Update_Stage1_Report_Final.pdf

- Make it easy for residents and businesses to make the right decisions.

1.1.2 Guiding Principles

The following guiding principles were developed by the MoE and are proposed to be adopted to help direct the long term management of waste materials in the region:

- Promote zero waste approaches and support a circular economy;
- Promote the first 3 Rs (Reduction, Reuse and Recycle);
- Maximize beneficial use of waste materials and manage residuals appropriately ;
- Support polluter and user-pay approaches and manage incentives to maximize behaviour outcomes;
- Prevent recyclables from going into the garbage wherever practical;
- Collaborate with other regional districts wherever practical;
- Develop collaborative partnerships with interested parties to achieve regional targets set in plans; and
- Level the playing field within regions for private and public solid waste management facilities.

One element of the proposed guidelines relating to the prevention of organic waste from going into garbage was excluded from this list. This principle was excluded by the RDCO since organic waste (in particular food waste) will continue to be collected as part of the residual waste (garbage) and landfilled. In 2011 the RDCO commissioned a project to undertake a Life Cycle Assessment to determine the most sustainable way to manage organic waste within the region. The study considered a number of factors including environmental, social, economic, policy and adaptability. According to the LCA study, the management options currently utilized by the RDCO for the different organic waste streams represent the highest scoring option when compared to other alternative treatment methods. Based on the study, the introduction of segregated food waste collection is unlikely to provide benefits over current waste management practices (i.e. sending food waste to landfill where landfill gas is captured for energy recovery). However, the RDCO has included a commitment to re-evaluate organic waste diversion opportunities in the future while maintaining existing landfill gas collection infrastructure and commitments with Fortis for the sale of gas.

1.2 ROLES AND RESPONSIBILITIES

The RDCO, through the Regional Waste Reduction Office, oversees the majority of solid waste functions for its four member municipalities and two electoral areas. These functions include solid waste planning for the region, administration of contracts, depots and transfer stations and community based waste reduction programs. The majority of calls and inquiries from the community related to solid waste management are channeled through to the Waste Reduction Office.

The following is a list of roles and responsibilities for the RDCO and Member Municipalities.

RDCO Roles:

- Solid waste management planning for the region, including the development and update of the SWMP, waste composition studies, organic life cycle assessment, and administration of the solid waste technical advisory committee.
- Administration of the Multi Material BC (MMBC) contract and curbside contract (on behalf of the Member municipalities):
 - Curbside - contamination letters, cart inventory, data tracking, public inquiries; and
 - MMBC - primary connection with MMBC, tracking payments and data, public inquiries and education.
- Community-based waste reduction programs including:
 - Depots and recycling education;
 - Household hazardous waste (HHW) program;
 - Composter sale;
 - Community cleanup;
 - Illegal dumping program;
 - Furniture deconstruction;
 - Reuse events;
 - Web app; and
 - Living greener calendar.
- Solid waste services to the RDCO electoral areas, which include curbside collection and operation of two transfer stations.

Member Municipalities Roles:

- Maintain individual contracts for curbside collection with collector and MMBC;
- Collect payment from their residents, either through taxation or utilities, for solid waste services;
- Share waste reduction office info through their communication channels;
- Participate in the Technical Advisory Committee; and
- City of Kelowna owns and operates the region's only landfill, Glenmore Landfill, which includes the composting facility.



1.3 PARTICIPANTS IN THE PLANNING PROCESS

The planning process involved a number of stakeholders. The RDCO hired Morrison Hershfield as the technical consultant for the duration of the process to assist in updating the plan. A solid waste Public and Technical Advisory Committee (PTAC) was formed at the beginning of the planning process to provide community-based and technical input into the plan update and the planning process. The PTAC included representatives from member municipalities, interested individuals from the public, the waste management industry, the local university and other large institutions, First Nation communities, and RDCO staff (Table 1).

Table 1: List of Public and Technical Advisory Committee Members

ADVISORY COMMITTEE MEMBER	ORGANIZATION REPRESENTED
Peter Rotheisler	Environmental Services Manager, RDCO
Cynthia Coates	Waste Reduction Facilitator, RDCO
Rae Stewart	Waste Reduction Facilitator, RDCO
Andrew Reeder	City of Kelowna
Scott Hoekstra	Solid Waste Supervisor, City of Kelowna
Rob Mueller	Manager of Engineering and Operations, City of West Kelowna
Sid Smith	Engineering Technologist, District of Lake Country
Chris Anderson	City of West Kelowna
Mirjam Glass	Engineering Technologist, District of Peachland
Loretta Ghostkeeper	Westbank First Nations
Lorne Cooke	Manager of Housekeeping and Linen, Interior Health
Dean Dack	Classic Compost
Karen Dilullo	District Manager S. BC Interior, Waste Management
Derek Mahoney	Manager, Landscape and Contract Services, UBCO
Steve Fast	Sustainable Materials Management, Cascades Recovery
Lance Shaw	President, OK Environmental Waste Systems
Eric Hall	Peachland Resident
Michelle Cook	Kelowna Resident
Craig Kaether	Joe Rich Resident
Harold Schock	Energy and Sustainability Manager, School District #23
Deb Melnychuk	Lake Country Resident
Matt Loewen	Sale Manager, BC Interior, Progressive Waste
Angela Nagy	President, Greenstep Solutions, Kelowna Chamber Rep
Carrie Higginson	West Kelowna Resident
Mark Watt	SWANA BC Chapter President
Emily Nicholson	Earth and Environmental Science Student, UBCO
Andrew Gaucher	UDI
Veronica Bartlett	Consultant to RDCO, Morrison Hershfield
Todd Baker	Consultant to RDCO, Morrison Hershfield

2. PLAN AREA AND DEMOGRAPHICS

The RDCO is located along the shores of Okanagan Lake in the southern interior of British Columbia. The region consists of more than 2,904 square kilometers (1,142 square miles) of diverse landscapes and topography.

The RDCO has a population of 179,839 (2011 census), which makes up 4% of the BC population². The region is comprised of seven separate areas:

Table 2: Populated Areas within the Region (Population as per Census 2011)

AREA NAME	POPULATION
City of Kelowna	117,312
District of Lake Country	11,708
District of Peachland	5,200
City of West Kelowna	30,892
First Nations Reserves (including Westbank First Nation)	8,985
Central Okanagan West Electoral Area	1,947
Central Okanagan East Electoral Area (formerly Joe Rich – Ellison)	3,795
Total	179,839

The RDCO has experienced a long term population growth averaging 2.7% per annum since 1986 compared with the British Columbia average of 1.5% per annum over the same period³. The population is projected to continue to grow to 266,217 by 2036.

² <http://www.bcstats.gov.bc.ca/StatisticsBySubject/Census/OpenData.aspx>

³ The Okanagan Valley 2015 Economic Profile



3. EXISTING WASTE STREAM CHARACTERIZATION

This section summarizes the solid waste generated in the RDCO, including the composition of the waste stream, the amount disposed in landfill and the amount recycled. Additional information is presented in the Stage 1 report.

3.1 COMPOSITION OF WASTE DISPOSED

Figure 1 shows the current composition of the waste disposed at the curb by residents. The organic portion of the waste (food and yard waste) represents the largest portion of the waste stream collected at the curb from residents 41% by weight). Other significant contributors to the landfilled waste are plastic (13%), hygiene (10%) and paper (7%).

The category “Other” refers to fines, renovations materials, mixed material packaging, other glassware, Styrofoam, and other general reusable items. Only the largest contributors to the waste stream are emphasized (not including the material category “Other”).

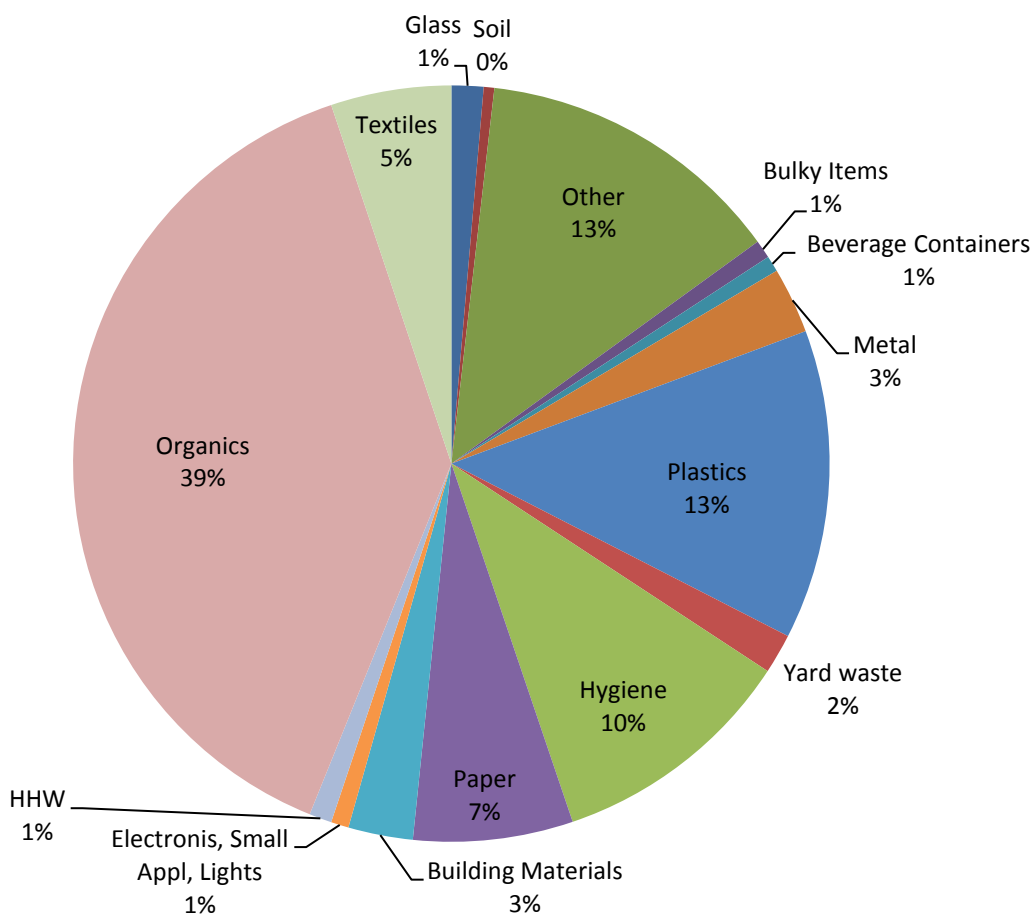


Figure 1: Waste Composition of Garbage Collected at Curbside From Residents (2013)

Figure 2 shows the composition of waste that was self-hauled to RDCO's transfer stations by residents. The composition of this waste is different than that collected at the curb. Building materials represent the largest proportion of the waste (37%) followed by bulky items (10%) and plastics (8%). Organic waste (yard and food waste waste) makes up only 7% of the waste. This waste composition is largely representative of the waste self-hauled to Glenmore Landfill as only a small fraction of waste hauled to Westside Transfer Station and Traders Cove Transfer Station was audited.

While the bulk of this category is from the residential sector there are a number of small businesses that self-haul that cannot be separated from this category.

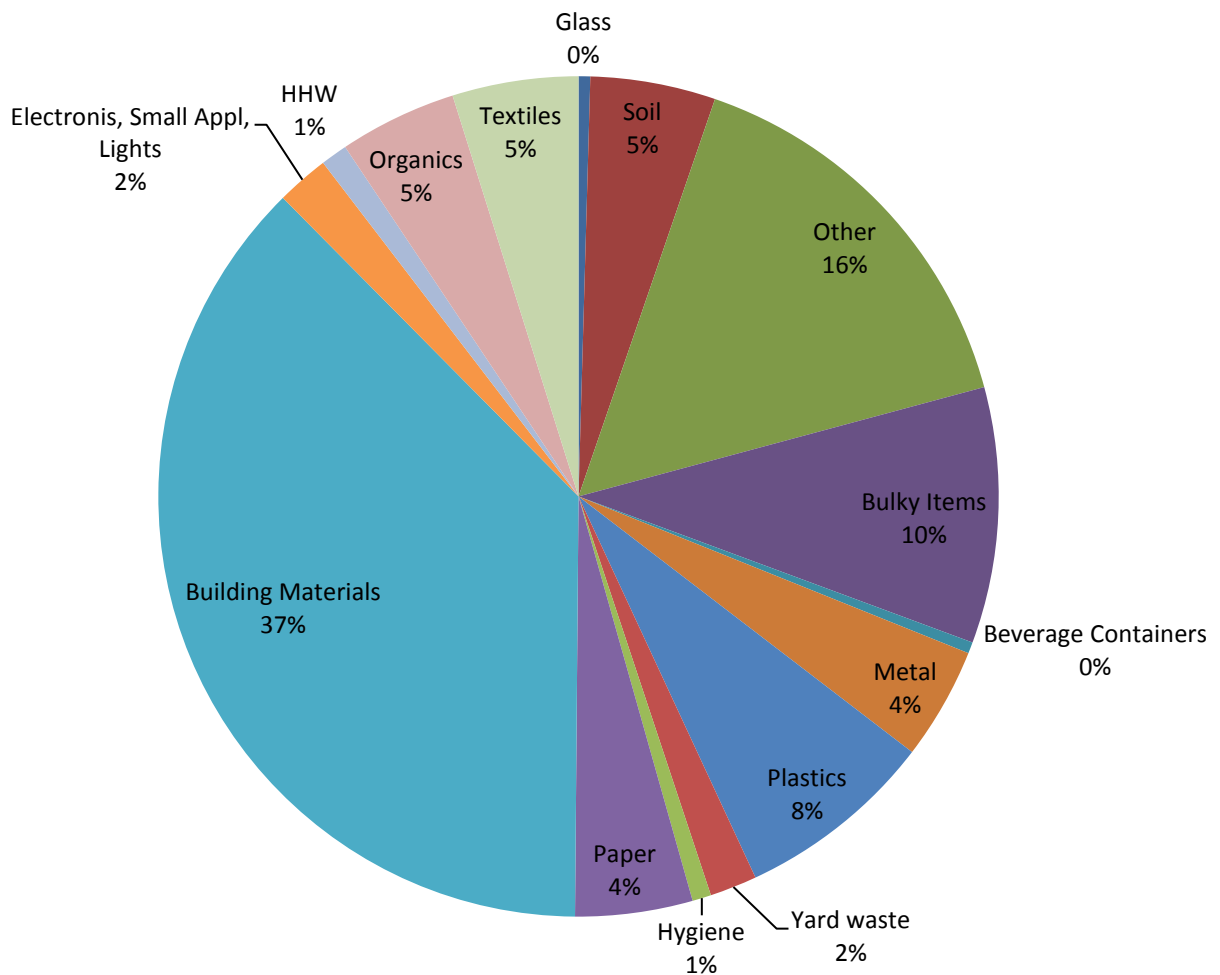


Figure 2: Waste Composition of Garbage Self-Hauled by Residents To Transfer Stations (2013)

Figure 3 shows composition of waste taken to Glenmore Landfill by the Institutional, Commercial, Industrial (ICI) sector. This category also covers multi-family buildings.

This waste stream is dependent on the types of activities and services undertaken locally. The 2013 audit found that organic waste contributed the largest proportion of ICI waste (27% organics), followed by building materials (13%) and plastics (12%).

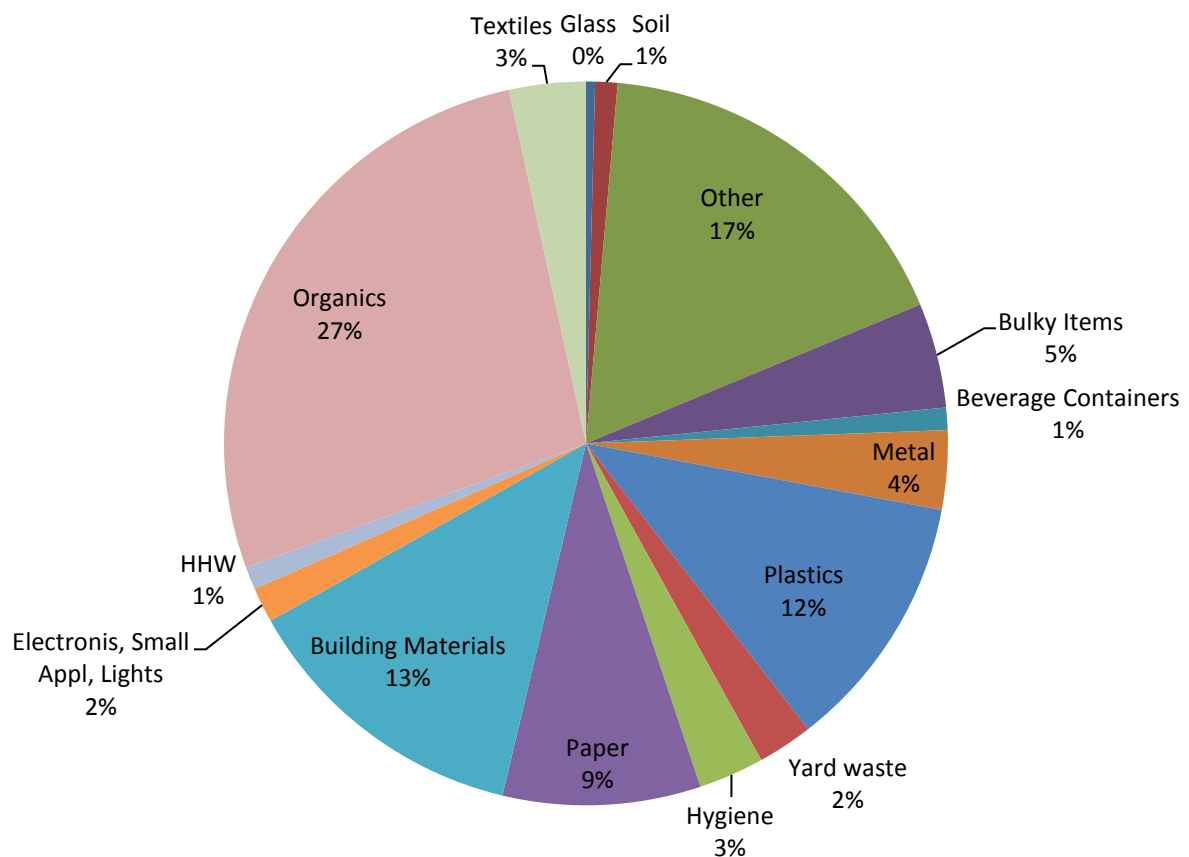


Figure 3: Waste Composition of ICI Garbage (2013)

3.1.1 Disposal and Diversion

The RDCO has tracked the landfill disposal quantities for a number of years. Figure 4 shows how the quantities have changed between 2007 and 2014 from the ICI, demolition construction and residential (self-haul and curbside) sectors. Between 2007 and 2012 there has been a general downward trend in the quantities of waste disposed within the RDCO due to changes in the economy and from waste diversion programs. Since 2012 the total quantities have increased slightly (a 10% increase) due to upturn in the economy and an increase in development across the region.

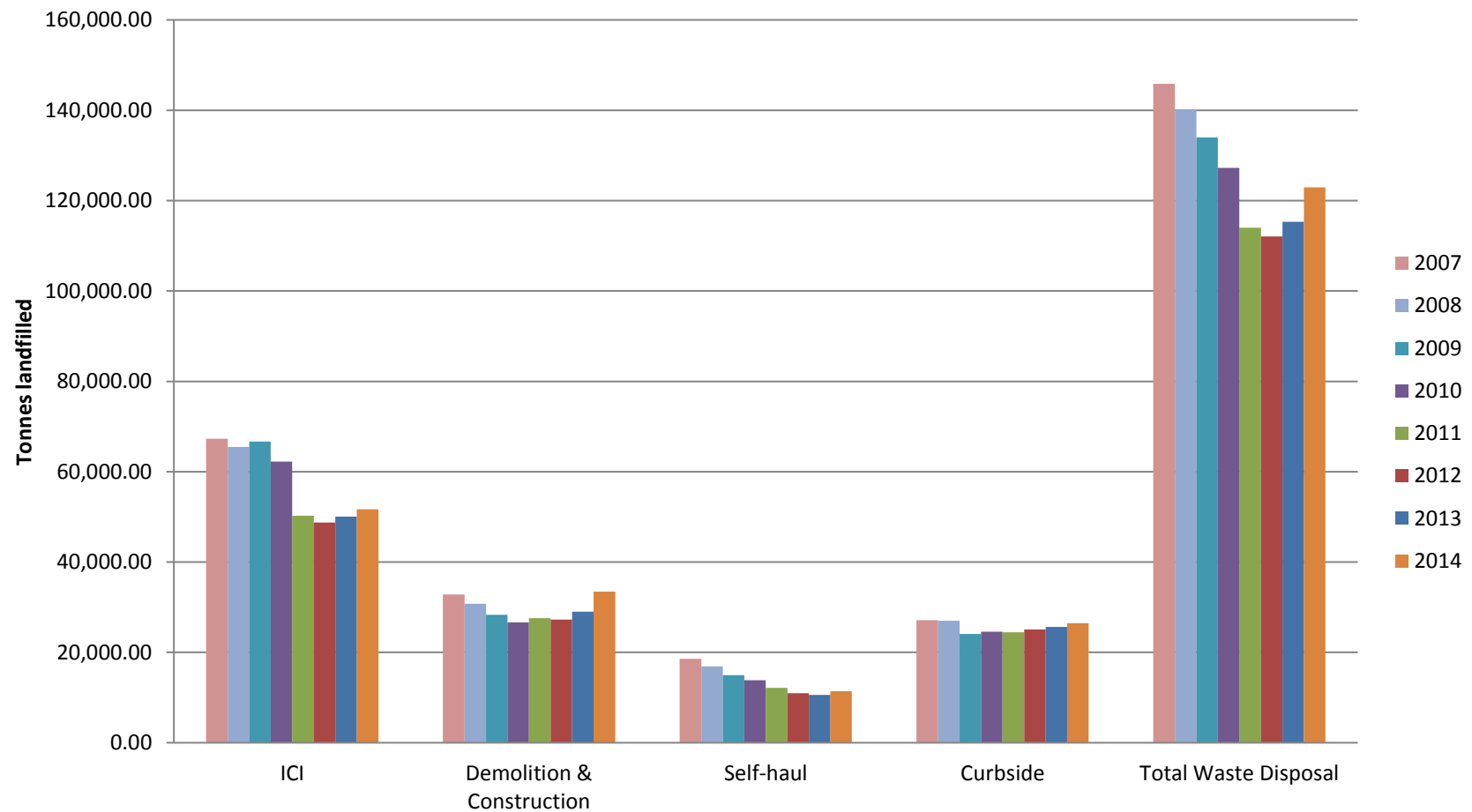


Figure 4: Landfill Disposal Quantities for RDCO's ICI, Demolition and Construction and Residents (Self-haul and Curbside)

The ICI sector contributed 42% of the total landfilled waste in 2014, demolition and construction 27% and the residential sector 29% (curbside collection 22% and self-haul to transfer stations 9%).

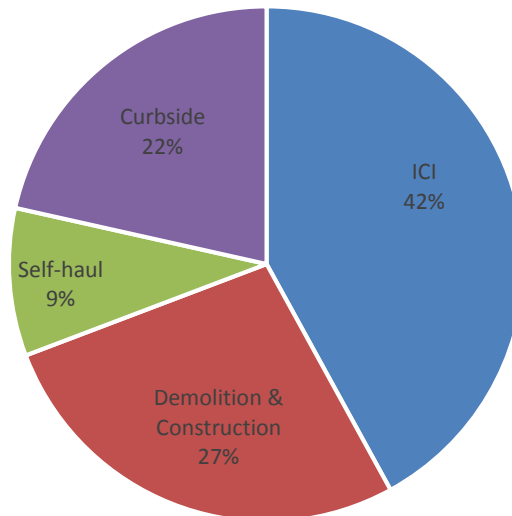


Figure 5: Break-down of Sources for Garbage Disposed to Landfill (2014)

Table 3 outlines the main activities that contribute to RDCO's disposal and diversion amounts. The quantities shown exclude biosolids, which are not considered solid waste. A description of the existing disposal facilities and the waste diversion activities in the RDCO is provided in Section 4 and in the Solid Waste Management Plan Update - Stage 1 report completed in March, 2016.

Table 3: Disposal and Diversion Estimates (2014)

DISPOSAL AND DIVERSION	ESTIMATED TONNES (2014)
Disposal	
Curbside collection (including garbage received from registered users at Traders Cove and North Westside transfer stations)	26,435
Self-haul	11,401
ICI waste	51,094
Demolition Landclearing Construction	33,465
Total disposal	122,394
Diversion	
<i>Diversion at Glenmore Landfill and other RDCO facilities (if stated)</i>	
Asphalt, asphalt shingles and concrete	11,846
Reuse through Big Brother at Glenmore Landfill	45
Gypsum (with small amount collected at Westside recycling depot)	4,276
Clean wood	7,353
Scrap metal (with small amount collected at Westside recycling depot)	1,602
Tolko Ash	1,008
Tree stumps	758
Yard waste self-haul	29,684
Christmas tree collection	55
Hazardous waste collection (Non EPR)	20
<i>Extended Producer Responsibility Programs</i>	
Product Care Paint, Pesticides, Flammables	126
Electro Recycle (small appliances, power tools)	335
Refundable beverage containers	4,592
Electronics	1,505
Packaging and Printed Paper	12,046
Tires	1,825
Automobile batteries (>5 kg)	10
Batteries (< 5 kg)	24
Used Oil, oil containers and anti-freeze	2,345
<i>Curbside Collection</i>	
Yard Waste curbside collection	14,269
Curbside recycling	Packaging and printed paper quantities managed by MMBC
Total diversion	93,724
Total waste generation (disposal + diversion)	216,118
Diversion rate (diversion/waste generation)	43%

Based on RDCO's available disposal and diversion quantities, the region achieved a diversion rate of 43% in 2014. Not all recycling and diversion activities have readily available data. The actual diversion rate is higher than what can currently be measured or estimated. For example, data is not available for diverted quantities from the ICI sector or multi-family buildings using private haulers and materials diverted through reuse by thrift shops, backyard composting, etc. A complete list of diversion activities for which there is no diversion data or estimates is presented in the Stage 1 report.

Metro Vancouver estimates its waste diversion from the ICI sector based on data provided by many private recycling and processing facilities as part of its annual reporting for solid waste management. If the RDCO applies the same per capita diversion (0.15 tonnes per capita in 2014 for the ICI sector and multi-family buildings⁴), this would result in a total diversion rate of 50% instead of the reported 43%. The Comox Valley Regional District has also estimated its diversion from the ICI sector, which equates to 0.38 tonnes per capita⁵. If the RDCO applied this diversion rate, the total diversion rate would be 57%. In summary, the diversion rate including the ICI sector and multi-family buildings could be as high as 57%. However the diversion rates of other regional districts may not be directly transferable to the RDCO since there are many factors that could impact the diversion rates in different communities in the ICI and multi-family sectors.

⁴ <http://www.metrovancouver.org/services/solid-waste/SolidWastePublications/2014SolidWasteManagementAnnualSummary.pdf>

⁵ Comox Strathcona Waste Management Stage 1 Report: Existing Solid Waste Management System (2010)



4. EXISTING SOLID WASTE MANAGEMENT SYSTEM

The RDCO solid waste management system is briefly summarized in the following sections. A detailed description of the system is included in the Solid Waste and Resource Management Plan Stage 1 Report available on the RDCO website.

4.1 EDUCATION AND PROMOTION

As a program of the RDCO on behalf of its municipal members, the Waste Reduction Office implements education and promotion programs to help reduce garbage going to the local landfill. A wide range of communication methods are used to support all solid waste services, including websites, social media, brochures, calendars, etc.

The RDCO provides residents with the myWaste App which provides collection info and scheduling and has an extensive search tool for disposal options. Another option for residents is to use a search tool on the RDCO website, which identifies what type of waste material can be taken to the various local waste management facilities. As the RDCO is a member of the Recycling Council of BC (RCBC), it also encourages its residents to contact the RCBC Recycling Hotline for information on recycling and to use RCBC's on-line searchable database called "Recyclopedia".

When a new program is launched, the RDCO provides community outreach by attending public festivals, a wide array of community and family events, trade shows and farmers markets.

4.2 REDUCTION AND REUSE PROGRAMS



The Regional Waste Reduction Office implements a number of programs throughout the year to promote waste reduction and reuse of resources. These include Repair Cafés (twice per year) aimed to bring people together to repair broken goods and Trunk Sales (twice per year) when residents sell household goods out of the "trunks" of their vehicles (as shown by picture on the left).

RDCO's waste reduction campaigns have targeted "Paper Free Homes" and "Make Holiday Memories, Not Garbage".

4.3 EXTENDED PRODUCER RESPONSIBILITY PROGRAMS

Extended Producer Responsibility (EPR) as a policy tool shifts the responsibility for end-of-life management of products (physically and economically) to the producer and away from municipalities to create an incentive for producers to include environmental considerations in design of products. The RDCO is a member of the BC Product Stewardship Council, a body that advocates on behalf of local government for effective product stewardship programs. A wide range of EPR products are collected in the region and recovered under the regulated programs.

4.4 RECYCLING

Recycling services available in the RDCO include:

- Residential curbside collection programs provided by municipal governments and the RDCO (currently all member municipalities have separate contracts, although the service was tendered as one package);
- Residential recycling drop off areas at the local landfill and recycling depots/transfer stations (refer to Schedule 1 for a list of waste management facilities operated by the RDCO, member municipalities and the private sector); and
- Private recycling collection companies for commercial customers.



Figure 6: Traders Cove Transfer Station and Recycling Depot

4.5 ORGANICS MANAGEMENT

A seasonal curbside yard and garden waste collection is offered to residents in most communities in the region. Yard waste can also be dropped off, year round, at the Glenmore Landfill and Westside Residential Waste Disposal and Recycling Centre. Yard waste is processed at the composting facility at Glenmore Landfill.

The RDCO also promotes backyard composting by subsidizing and distributing different types of composters and education on their use.

4.6 CONSTRUCTION, DEMOLITION AND LAND CLEARING WASTE MANAGEMENT

The Glenmore Landfill accepts a wide range of materials from construction and demolition (C&D) projects for recycling as long as they are source-separated. Source separation is encouraged by variable tipping fees. Accepted materials include concrete, asphalt, wood, gypsum wallboard, metal, asphalt shingles, and landclearing waste (used for the composting operations at the landfill). At present, there are no facilities in the RDCO that are capable of receiving a mixed load of C&D waste and segregating the material for recycling.

4.7 COLLECTED PRODUCTS NOT COVERED BY EPR PROGRAMS

There are some materials not covered by EPR programs that are being diverted from landfill. These include:

- Recycling of mattresses and other furniture with high metal content, through deconstruction (Westside Recycling Depot in West Kelowna);
- Recycling of cooking oils and greases (Westside Recycling Depot and Glenmore Landfill);
- Propane tank recycling (Glenmore and Westside Recycling depots); and
- Household hazardous waste collection (Battery doctors).

4.8 RECOVERY

Clean wood waste is sent to Tolko as fuel. The ash is sent back to the Glenmore Landfill where it is either added to the composting process or used in landscaping berms.

4.9 RESIDUAL WASTE MANAGEMENT

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

4.9.1 Collection and Transfer

A weekly curbside garbage collection service is provided to single family homes. Residents near Trader's Cove and along North Westside Road do not receive curbside collection of garbage and are required to drop off garbage at the local transfer stations for disposal.

Owners of multi-family buildings (condos and apartments) and the ICI sector are responsible for hiring a contractor for collection services.

First Nations are responsible for providing their own waste management systems, as regulated under the federal *Indian Reserve Waste Disposal Regulations*. Homes on Westbank First Nations land utilize private haulers but they also use RDCO's Westside Transfer Station and contribute to the funding of this site.

There are three transfer stations within the region: Traders Cove Transfer Station, North Westside Transfer Station and Westside Transfer Station.

4.9.2 Disposal

There is one operational landfill in the RDCO and three permanently closed landfills. The Glenmore Landfill is owned and operated by City of Kelowna. The original comprehensive site development plan was prepared in 2001. A new landfill entrance was constructed in 2014 with improved services for landfill customers. The landfill receives garbage from the curbside collection programs in the region, private haulers, self-haul customers (both residential and small business) and the transfer stations of Traders Cove and North Westside, Westside and garbage from Big White Resort in the Kootenay Boundary Regional District. It is estimated that the landfill has approximately 72 – 94 years of capacity remaining.



The landfill is expected to create nuisances such as dusty, noise, odour and litter. The City of Kelowna is expecting development in the immediate vicinity around the Glenmore Landfill. In order to avoid conflict with the landfill, the City of Kelowna should prescribe land uses near the landfill in its Official Community Plan (OCP) and use zoning to minimize potential land use conflicts. This will be important for protecting the landfill as a Regional asset and for protecting its citizens.



5. THE NEW SOLID WASTE MANAGEMENT PLAN

The development of strategies for the updated SWMP consisted of a series of meetings to discuss potential strategies in key topic areas and selection of strategies by the PTAC. The existing and proposed strategies are presented in the following order that reflects the waste management hierarchy and additional topic areas that are not easily placed within the hierarchy categories:

- Reduction;
- Reuse;
- Recycling;
- Resource recovery;
- Residual waste management;
- Illegal dumping;
- Wildlife and waste management; and
- Policy and land use planning.

The implementation schedule and cost implications of the proposed strategies are presented in Section 6 of the draft plan.

There are many strategies involving investigations into particular aspects of the waste management system. All investigations will lead to implementation of any resulting strategies and initiatives that are considered feasible with a strong cost/benefit case. The RDCO is committed to considering environmental, social and economic implications for all assessments.

5.1 REDUCTION AND REUSE

The RDCO is already undertaking many activities that target the reduction and reuse of waste in the region. The RDCO proposes to continue with:

- Existing promotion and education activities;
- Current activities for encouraging residential backyard composting;
- Advocating for reasonable service levels for the region from all EPR programs and full cost compensation by producers;
- Existing reuse activities (e.g. repair café, Big Brother collection at transfer stations); and
- On-going evaluation of the need to increase staff resources to deliver additional programs.

5.1.1 Proposed Strategies Targeting Reduction and Reuse

Six new strategies are proposed to target increased reduction and reuse of waste materials.

1. *Investigate options to support the reuse of items*
 - The RDCO will assess opportunities to:



- support markets for reuse items by identifying partnership organizations (e.g. facilitate finding markets for used furniture to UBC through website for example); and
 - support the establishment of a re-use-it-type facility at the Glenmore Landfill.
2. *Encourage residents to reuse bags through an awareness campaign and consider banning targeted materials (e.g. single-use plastic bags)*
- Develop waste reduction campaign to encourage the use of reuseable bags rather than single-use plastic bags; and
 - The RDCO will also work with member municipalities to assess if a ban of single-use plastic bags is appropriate. Plastic bags have been banned in Toronto and Montreal and more cities (Edmonton, Nelson) are currently, considering a ban. If a material ban is considered feasible (Strategy #2) all member municipalities will be involved with its implementation.
3. *Investigate collection of EPR materials at RDCO's recycling depots*
- In the past the RDCO has left it to the private sector to provide the services to collect EPR materials. A review will be undertaken to determine if EPR materials can cost-effectively be collected at RDCO's recycling facilities without negatively impacting existing private depots collecting EPR materials.
4. *Increase public awareness of existing collection opportunities for EPR products*
- Improve promotion and education of existing services, for example by providing improved communication, enhancing the website, better signage at recycling depots, etc. in order to support promotion undertaken by EPR programs.
5. *Assess options to incentivize backyard composting (residents)*
- The assessment could cover options such as a tax break or reduction in fees for residents that compost in their backyards.

5.2 RECYCLING

The RDCO proposes to continue with current recycling activities, including:

- Providing curbside collection service for recyclables, garden and yard waste (current collection contracts end in 2019);
- Providing residential recycling drop off areas at the local landfill and RDCO's recycling depots (transfer stations) until a service review has been undertaken (refer to Strategy #7);
- Using variable tipping fees to encourage recycling of C&D waste;
- Adopting successful campaigns used in other regions in order to improve waste diversion opportunities (e.g. Make Holiday Memories, Not Garbage);



- Monitoring of loads for banned materials and enforcements to improve waste diversion by residents and businesses;
- Recycling of mattresses and other furniture with high metal content, through manual (i.e. low technology and minimal labour) deconstruction at Westside Recycling Depot; and
- Recycling of propane tanks, cooking oils and greases collected at Westside Recycling Depot and Glenmore Landfill as these are not covered by existing EPR programs.

Refer to Schedule 1 for a list of RDCO's recycling facilities.

5.2.1 Proposed Strategies Targeting Recycling

Twelve new strategies are proposed to improve recycling rates in the region.

6. Conduct a review of services offered at RDCO's recycling depots

- The service review will focus on:
 - Existing hours of operation,
 - Materials accepted (e.g. glass); and
 - Number and location of recycling depots (e.g. review the need for depots in Lake Country, Peachland and The Mission in Kelowna).

7. Re-evaluate organic waste diversion opportunities while considering the need to maintain landfill gas collection and use at the landfill

- Investigate what additional organics diversion options are feasible in RDCO (these must be cost- effective, socially acceptable, etc.) in the future, if there is sufficient organic waste generated in the region. Options to assess include:
 - Opportunities for businesses and multi-family units; and
 - An organics curbside collection and processing program, if sufficient quantities are available in the future.

8. RDCO to adopt a preferential purchasing policy for green procurement that supports the 3Rs and encourage member municipalities to follow its example

- Green procurement may include requirements to:
 - Use a curbside collection contractor that can provide natural-gas/methane powered vehicle fleet;
 - Use locally generated compost in internal operations and contractors, wherever applicable (parks, road works, etc.). This can encourage the use of compost from Glenmore Landfill.
 - Demand a minimum amount of recycled content in material purchases where the quality required will not be compromised. Examples of common recycled-content products include office paper products (copy paper, file folders, envelopes), toilet paper, paper towels, concrete and plastic benches, curbside collection carts.

9. Lobby through the BC Product Stewardship Council to influence issues relating to EPR products and programs

- Specific issues that the RDCO proposes to raise include to:
 - Consider ways of making recycling easier (e.g. improve accessibility for RDCO residents for all materials);
 - Eliminate materials that are hard to recycle (e.g. Styrofoam);
 - Express concern with specific EPR programs regarding limited recycling opportunities for businesses (e.g. no packaging and printed paper from businesses are allowed to be accepted at RDCO's recycling centres as per MMBC requirements);
 - Encourage MMBC to improve collection of packaging and printed paper in streetscapes; and
 - Encourage the implementation of a provincial EPR program for furniture and mattresses in accordance with the Canada-wide Action Plan for EPR released by the Canadian Council of Ministers of Environment.

10. Investigate policy options to encourage recycling

- Assess options to:
 - Implement mandatory recycling for multi-family and the ICI sectors through using private providers; and/or
 - Incorporate waste management provisions into land use bylaws and development guidelines (e.g. mandatory space allocation, accessibility).

11. Investigate requiring all contractors for construction and demolition (C&D) projects to develop waste management plans to meet specified recycling target

- Collaborate with member municipalities to investigate a practical and cost effective solution to be implemented. For a project with a waste management plan, the application may be fast tracked or municipalities may be able to lower the cost of permits for the projects.

12. Encourage recycling and waste minimization at events

- The RDCO, with support from member municipalities, may provide guidelines for waste diversion at events and/or provide loaner equipment (e.g. flags, bin lids with clear signage).

13. Establish a mechanism for sharing knowledge with other stakeholder and interest groups within the region in order to improve waste diversion opportunities

- The RDCO can facilitate the sharing of knowledge (through meetings, social media, etc.) with other stakeholder groups, such as First Nation communities and the ICI sector.

14. Increase public awareness of existing recycling opportunities

- Improve promotion and education of existing recycling services, for example by providing improved communication, enhancing the website, better signage at recycling depots, etc.

15. Investigate facilitating waste audits to educate businesses/organizations on what is in their waste stream and to initiate discussion on diversion options

- The RDCO may wish to collaborate with member municipalities to support the facilitation of waste audits for the ICI sector. The program may include the development and sharing of reduction, reuse and recycling material, guidance and access to auditors/ training sessions for waste auditing. The RDCO will investigate the program design.

16. Before renewing the curbside collection contract, investigate a number of changes to the service to encourage improved waste diversion

- The RDCO in collaboration with member municipalities will investigate and implement the following changes to the current curbside collection service:
 - Weekly recycling collection Assess feasibility of increasing service level by providing a weekly collection of recyclables.
 - User pay (pay per cart tip) Each household receiving the curbside collection service would be charged a rate based on how much waste is placed at the curb. The carts are already equipped with the required ID tags.
 - Reduce garbage collection frequency (e.g. recycling every week with biweekly garbage collection) This initiative encourages more recycling and less garbage disposal.
 - Increase yard waste collection Assess feasibility of increasing the service level for yard and garden waste (i.e. larger cart or providing service during more weeks of the year).
 - Inclusion of glass, Styrofoam, and/or plastic bags that are currently only collected at recycling centres Consult with MMBC to assess feasibility of accepting additional recyclable materials in the curbside collection, e.g. via a quarterly collection.
- The option of handing over responsibility of curbside recycling to MMBC will also be given consideration. For all potential changes costs and benefits will be considered as part of the overall decision-making process.

17. Investigate opportunities to process and recycle C&D materials

- The RDCO will look at opportunities to support or partner with providers of existing facilities that accept and recycle C&D materials. For example this may mean that specific C&D materials can be accepted at the recycling depots and Glenmore Landfill in order to be picked-up by a private sector partner that has the ability to recycle the material.



5.3 RECOVERY AND RESIDUAL WASTE MANAGEMENT

The RDCO is committed to continuing existing recovery initiatives and ensuring safe disposal of residual waste. In particular, the RDCO is proposing to continue to:

- Provide existing curbside collection service for garbage until the service review (strategy # 16) is completed;
- Collect organic waste (yard waste) as part of the residual waste disposed to Glenmore Landfill with methane capture and recovery;
- Maintain existing residual waste transfer stations and dispose of all waste at Glenmore Landfill;
- Review and adjust landfill tipping fees on an as-need basis (e.g. review tipping fees in adjacent regional districts);
- Continue to evaluate challenges and opportunities for importing and exporting waste as needed; and
- Operate transfer stations and closed landfills in accordance with Provincial legislation and permits.

Refer to Schedule 1 for a list of RDCO's waste management facilities, including transfer stations and landfills.



Figure 7: Glenmore Landfill

5.3.1 Proposed Strategies for Recovery and Residual Waste Management

Four new strategies are proposed to enhance the recovery of waste material and the management of residual waste.

- 18. Investigate opportunities to process and recover energy from C&D materials*

- This initiative is closely linked with item 17, however it aims to target energy recovery of C&D materials. RDCO will investigate opportunities that provide wood waste for use as fuel by local partners such as the University of British Columbia (Okanagan campus).

19. Develop Glenmore Landfill in accordance with proposed fill plan

- City of Kelowna (with support from the RDCO) proposes to develop the landfill in accordance with the proposed fill plan which will secure landfill capacity for up to 100 years. The current interim plan gives the landfill 75 years of capacity assuming no changes to the footprint. The new “Peak” fill plan gives the landfill 90-100 years capacity by blending the crest of the landfill with the top of Tutt Mountain. The revised final topography plan will result in an ultimate crest height of approximately 532 m, roughly 20 m higher than the previous final topography plan.

20. Review tipping fees over the next 2-3 years as part of the development of Glenmore Landfill design, operation and closure plan

- As part of developing the design, operation and closure plan for Glenmore Landfill, the City of Kelowna will review and adjust tipping fees to ensure adequate funding.

21. Conduct feasibility studies to review overall services at transfer stations and potential improvements

- In close connection to item 7, the RDCO will collaborate with relevant member municipalities to conduct a service review with focus on:
 - Operating hours at transfer stations, and
 - Number and location of transfer stations (e.g. need for transfer station/recycling depots in Lake Country, Peachland and The Mission in Kelowna).

5.4 ILLEGAL DUMPING

The RDCO proposes to continue to mitigate illegal dumping by encouraging reporting of illegal dumping incidents and funding clean-up initiatives.

5.4.1 Proposed Strategies for Illegal Dumping

The RDCO proposes a new strategy aimed at preventing illegal dumping and encouraging the reuse of materials.



22. Investigate the success in other regions to mitigate illegal dumping by providing curbside collection of bulky items

- RDCO will assess the feasibility of providing curbside collection of bulky items (e.g. of furniture, mattresses) to residents.

5.5 WILDLIFE AND WASTE MANAGEMENT

The RDCO understands the importance of responsible waste management in order to prevent waste-related conflicts with wildlife. The RDCO proposes to continue advising residents of wildlife smart measures when selling backyard composting units to residents.

5.5.1 Proposed Strategies for Wildlife and Waste Management

In addition, it proposes to assess opportunities to make the curbside garbage collection carts wildlife proof.

- 23. When renewing the curbside collection contract, assess the option to incorporate bear-proof locks on the garbage carts for residents that report issues with wildlife*

5.6 POLICY AND LANDUSE PLANNING IN RELATION TO WASTE MANAGEMENT

There are currently limited policy and landuse planning provisions in the region that directly relate to waste management. Schedule 2 includes a list of existing bylaws.

5.6.1 Proposed Strategies for Policy and Landuse Planning

The following proposed strategy is aimed at ensuring that waste management is adequately addressed in future policy development and land use planning.

- 24. Work with municipal and RDCO planning departments to ensure that that long-range planning tools identify and preserve lands for future waste management facilities*
 - The RDCO and member municipalities will ensure that land use planning tools such as zoning do not jeopardize existing or planned waste management facilities. This includes recycling depots and transfer stations.
 - The RDCO and the City of Kelowna will collaborate to ensure that the City's Official Community Plan (OCP) specifically acknowledges nuisances identified in relation to Glenmore Landfill (refer to Section 4.9.2).

6. FINANCE AND ADMINISTRATION

6.1 COST OF EXISTING AND PROPOSED STRATEGIES

Table 4 presents the estimated annual operating cost by initiative for the following measures:

- Reduction and reuse;
- Recycling;
- Recovery and residual waste management; and
- Illegal dumping, wildlife management, policy and landuse planning.

All new strategies involving municipal costs will need to be defined and approved by each municipality. It is possible that the cost of some initiatives may be mitigated through contributions from municipalities as a result of collaboration efforts. All costs relating to the development of Glenmore Landfill in accordance with proposed fill plan will be carried by City of Kelowna (Strategy 19). Costs provided in this plan are estimated in 2016 dollars and may not reflect actual costs at the time of implementation.

The Plan includes a number of reviews that will take place during the five year period (2017-2021, refer to Schedule 3 for the Implementation Schedule). Table 4 only includes the costs of these reviews, and these evaluations may result in new capital and operating costs if the reviews deem a specific initiative as feasible. The capital and operating costs will be identified as part of the reviews and these can be included as part of the five-year effectiveness review or as part of the next SWMP update. Where suitable, the RDCO may decide to obtain approval for capital and/or operating spending as part of the annual budgets process and proceed with the new initiative within the current five year period. There are currently no capital costs included in the proposed budget.

Table 4: Revenue and Expenditures of the Solid Waste Management System Costs

	CURRENT PLAN	2017	2018	2019	2020	2021
REVENUE						
Taxes	\$ 6,665,700	\$ 6,799,014	\$ 6,934,994	\$ 7,073,694	\$ 7,215,168	\$ 7,359,471
Tipping Fees and Sale of Recyclables at Westside Transfer Station and Recycling Depot	\$ 412,500	\$ 420,750	\$ 429,165	\$ 437,748	\$ 446,503	\$ 455,433
MMBC Revenue	\$ 2,166,500	\$ 2,209,830	\$ 2,254,027	\$ 2,299,107	\$ 2,345,089	\$ 2,391,991
Total Revenue	\$ 9,244,700	\$ 9,429,594	\$ 9,618,186	\$ 9,810,550	\$ 10,006,761	\$ 10,206,896
OPERATING COSTS						
Existing Strategies						
Westside Transfer Station and Recycling Depot	\$ 811,000	\$ 827,220	\$ 843,764	\$ 860,640	\$ 877,852	\$ 895,410
Recycling Depots	\$ 290,000	\$ 295,800	\$ 301,716	\$ 307,750	\$ 313,905	\$ 320,183
Hazardous waste management	\$ 240,000	\$ 244,800	\$ 249,696	\$ 254,690	\$ 259,784	\$ 264,979
Waste reduction programs, salaries and education	\$ 745,000	\$ 759,900	\$ 775,098	\$ 790,600	\$ 806,412	\$ 822,540
Curbside collection and transfer stations	\$ 5,405,000	\$ 5,513,100	\$ 5,623,362	\$ 5,735,829	\$ 5,850,546	\$ 5,967,557
Tipping fees paid to Glenmore Landfill	\$ 1,753,700	\$ 1,788,774	\$ 1,824,549	\$ 1,861,040	\$ 1,898,261	\$ 1,936,227
Sub-total Costs	\$ 9,244,700	\$ 9,429,594	\$ 9,618,186	\$ 9,810,550	\$ 10,006,761	\$ 10,206,896
New Strategies						
1. Investigate options to support the reuse of items		\$ 15,000	\$ -	\$ -	\$ -	\$ -
2. Encourage residents to reuse bags through an awareness campaign and consider banning targeted materials (e.g. single-use plastic bags)		\$ -	\$ 10,000	\$ 5,000	\$ 5,000	\$ 5,000
3. Investigate collection of EPR materials at RDCO's recycling depots		\$ -	\$ -	\$ -	\$ -	\$ -
4. Increase public awareness of existing collection opportunities for EPR products		\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000
5. Assess options to incentivize backyard composting (residents)		\$ -	\$ -	\$ -	\$ -	\$ -
6. Conduct a review of services offered at RDCO's recycling depots		\$ -	\$ -	\$ -	\$ -	\$ -
7. Re-evaluate organic waste diversion opportunities while considering the need to maintain landfill gas collection and use at the landfill		\$ -	\$ 40,000	\$ -	\$ -	\$ -

	CURRENT PLAN	2017	2018	2019	2020	2021
8. RDCO to adopt a preferential purchasing policy for green procurement that supports the 3Rs and encourage member municipalities to follow its example		\$ -	\$ -	\$ -	\$ -	\$ -
9. Lobby through the BC Product Stewardship Council to influence issues relating to EPR products and programs		\$ -	\$ -	\$ -	\$ -	\$ -
10. Investigate policy options to encourage recycling (e.g. mandatory recycling for multi-family and ICI, waste management provisions into landuse)		\$ -	\$ 20,000	\$ -	\$ -	\$ -
11. Investigate requiring all contractors for C&D projects to develop waste management plans to meet specified recycling target		\$ -	\$ -	\$ 20,000	\$ -	\$ -
12. Encourage recycling and waste minimization at events		\$ -	\$ -	\$ -	\$ 25,000	\$ -
13. Establish a mechanism for sharing knowledge with other stakeholder and interest groups within the region in order to improve waste diversion opportunities		\$ -	\$ -	\$ -	\$ -	\$ -
14. Increase public awareness of existing recycling opportunities		\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000
15. Investigate facilitating waste audits to educate businesses/organizations on what is in their waste stream and to initiate discussion on diversion options		\$ -	\$ -	\$ -	\$ -	\$ -
16. Before renewing the curbside collection contract, investigate a number of changes to the service to encourage improved waste diversion		\$ 15,000 -	\$ -	\$ -	\$ -	\$ -
17. Investigate opportunities to process and recycle C&D materials		\$ -	\$ -	\$ 20,000	\$ -	\$ -
18. Investigate opportunities to process and recover energy from C&D materials		\$ -	\$ -	\$ 15,000	\$ -	\$ -
19. Develop Glenmore Landfill in accordance with proposed fill plan		\$ -	\$ -	\$ -	\$ -	\$ -
20. Review tipping fees over the next 2-3 years as part of the development of Glenmore Landfill design, operation and closure plan		\$ -	\$ -	\$ -	\$ -	\$ -
21. Conduct feasibility studies to review overall services at transfer stations and potential improvements		\$ 15,000	\$ -	\$ -	\$ -	\$ -
22. Investigate the success in other regions to mitigate illegal dumping by providing curbside collection of bulky items		\$ 10,000	\$ -	\$ -	\$ -	\$ -

	CURRENT PLAN	2017	2018	2019	2020	2021
23. When renewing the curbside collection contract, assess the option to incorporate bear-proof locks on the garbage carts for residents that report issues with wildlife		\$ -	\$ -	\$ -	\$ -	\$ -
24. Work with municipal and RDCO planning departments to ensure that that long-range planning tools identify and preserve lands for future waste management facilities		\$ -	\$ -	\$ -	\$ -	\$ -
Sub-total Costs		\$ 85,000	\$ 100,000	\$ 90,000	\$ 60,000	\$ 35,000
Total Expenditure	\$ 9,514,594	\$ 9,718,186	\$ 9,900,550	\$ 10,066,761	\$ 10,241,896	\$ 9,514,594
Monthly Cost to Homeowners	\$ 169	\$ 173	\$ 176	\$ 179	\$ 182	\$ 169

6.2 COST RECOVERY

Funding to implement the strategies identified in this plan is provided by the following methods:

- Utility and Taxation Revenue;
- Tipping Fees (user fees);
- Financial incentive for collecting packaging and printed paper under contract with MMBC; and
- Sale of Recyclables.

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



7. CONCLUSION

The RDCO has developed its existing waste management system with considerations of environmental, social and economic factors. There are many proposed strategies involving investigations into particular aspects of the waste management system. All investigations will lead to implementation of any resulting strategies and initiatives that are considered feasible. The RDCO is committed to continue considering environmental, social and economic implications for all assessments.



8. PLAN IMPLEMENTATION

A timeframe for implementing each plan strategy is included in Schedule 3. The schedule also include responsible parties who will be engaged in the implementation of each strategy.

8.1 ESTIMATED DIVERSION

Figure 8 shows the estimated diversion that can be achieved if all of the strategies listed in this plan are implemented. By diverting more waste materials to reuse, recycling and composting, the region can reduce the amount of garbage sent to disposal from 681 kg per capita (2014) to 594 kg per capita. Accordingly, this would increase the diversion rate from 43% to 50%. Actual diversion rates are higher than what can currently be measured. For example, data or estimates are not available for diversion activities related to the ICI sector or multi-family buildings using private haulers and materials diverted through reuse by thrift shops, etc.

Figure 8: Estimated Diversion From New Strategies

DISPOSAL AND DIVERSION	ESTIMATED TONNES (2014)	TONNAGES AFTER ANTICIPATED DIVERSION FROM NEW STRATEGIES
Total disposal	122,394	108,138
Total diversion	93,724	109,327
Total waste generation (disposal + diversion)	216,118	216,118
Diversion rate (diversion/waste generation)	43%	50%
Per capita disposal rate	681 kg	600 kg

8.2 PLAN TARGETS

Two plan targets have been set by the RDCO in order to measure progress. These were developed with considerations of draft Solid Waste Management Planning Guideline (MOE, May 2016).

1. The RDCO to achieve a waste diversion rate of 50% by 2022.

As presented in the previous section (section 8.8), upon full implementation, the initiatives presented in this plan are expect to achieve a measured diversion rate of 50% (up from 43% in 2014), indicating that the target is achievable but that the work laid out in this plan needs to be undertaken in order for it to be achieved. The RDCO will attempt to estimate waste diversion from the ICI sector and multi-family buildings and may need to update the targeted waste diversion rate to reflect this.

2. The RDCO to achieve an average municipal solid waste disposal rate of 600 kilograms per capita by 2022.

Based on the initiatives presented in this plan, the region is expected to achieve a per capita disposal rate of 600 kg per capita (down from 680 kg in 2014).

8.3 PLAN MONITORING

A Plan Monitoring Advisory Committee (PMAC) will monitor the implementation of the SWMP and make recommendations to increase its effectiveness. The terms of reference for the PMAC tasks are included in Schedule 4.

8.4 ANNUAL REPORTING

Progress towards the targets presented in Section 8.2 will be assessed on an annual basis.

The diversion rate will be measured using the aggregate quantity of municipal solid waste sent to disposal at Glenmore Landfill and the measured / estimated tonnages from diversion activities.

The per capita disposal will be measured using the quantity (in tonnes) of solid waste sent to disposal at Glenmore Landfill. This quantity will be divided by the estimated or known population as defined by BC Stats Census data and population projections.

The data on the quantity of waste sent to landfill will also be provided as part of annual reporting to the MoE via the Ministry's municipal solid waste disposal calculator.

In addition, the RDCO will prepare information in the RDCO annual report and provide links on the RDCO website to reports provided to the Board in relation to the plan. Topics to include will be based on the MoE's document "A Guide to Solid Waste Management Planning" (September 2016).

8.5 FIVE YEAR EFFECTIVENESS REVIEW

The RDCO will carry out a review and report on the plan's implementation and effectiveness in 2022. The on-going relevancy of the targets will be reviewed as part of the five year effectiveness review, as proposed by the MoE Solid Waste Management Planning Guideline (September 2016). Topics to include will be based on the Ministry's guide.

8.6 PLAN AMENDMENTS

The waste management strategies described in this plan are based upon knowledge of the waste management system and regulations in place in 2016 that may or may not be in place in the future.

As a result, initiatives described in this report may undergo further assessment, including an assessment of costs and continued community support, by the PMAC and/or the RDCO Board prior to implementation.

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

In accordance with MoE's Solid Waste Management Planning Guideline, the plan amendment procedure applies only to major changes to the solid waste management system. This can include for example the development of a new landfill, mixed waste processing facility or waste-to-energy facility. When a plan

amendment becomes necessary, the RDCO will undergo a public consultation process and submit a revised plan to the MoE for approval, along with a detailed consultation report.

If any of the information in the schedules to this plan needs to be amended during the 10-year lifespan of the plan, approval from the Minister may be required and engagement with the public may be necessary. The requirements depend on the type of change. Unless the change is considered major, in accordance with the guide, a change to a schedule should not require submission of the entire SWMP for review and approval.



9. APPROVAL BY THE BOARD

This Plan was approved by the Board of Directors by the following resolution on (add date):



Schedule 1: Waste Management Facilities

The following facilities form an integral part of the regional waste management system (as of July 2016):

SERVICE	LOCATION
Residential drop-off for recyclables and garbage:	
▪ Westside Residential Waste Disposal and Recycling Centre	Asquith Road, off Shannon Lake Road, West Kelowna
▪ North Westside Recycling Depot/ Transfer Station (limited to registered residents)	Whiteman Creek Forest Service Road
▪ Traders Cove Recycling Depot/ transfer station (limited to registered residents)	Intersection of Bear Lake Main & Westside Rd
▪ Glenmore Landfill	2720 John Hindle Drive, Kelowna
Commercial drop-off for recyclables:	
▪ Cascades Recovery Inc. material recovery facility	144 Cambro Rd, Kelowna
▪ Planet Earth Recycling	1400 Industrial Rd, West Kelowna
Commercial drop-off for garbage:	
▪ Glenmore Landfill	2720 John Hindle Drive, Kelowna
Operational Landfill	
▪ Glenmore Landfill	2720 John Hindle Drive, Kelowna
Closed landfills:	
▪ Westside Sanitary Landfill (RDCO owned)	2640 Asquith Road, West Kelowna
▪ Bouleau Creek Landfill (RDCO, occupancy license until 2020) (Replaced by transfer station)	1.4 KM North of the current North Westside Transfer station on Whiteman Creek Forest Service Road 141 m S of the NW corner of DL4021
▪ Peachland Landfill (Crown-leased property with management by District of Peachland)	Up Princeton Ave, Peachland, Lot A, DL1275, ODYD, Plan 37138

Schedule 2: Existing Bylaws

The following is a list the bylaws in place that govern solid waste management activities within the Central Okanagan:

- RDCO Bylaw No. 1298
- City of Kelowna Bylaw No. 10106
- City of West Kelowna Bylaw No.0065
- The District of Peachland Bylaw No. 1899
- District of Lake Country Solid Waste Management Regulation Bylaw No. 708, 2009 (consolidated 2009-10-27)

Schedule 3: Implementation Schedule for the Solid Waste Management Plan

No.	NEW STRATEGY	IMPLEMENTATION TIMEFRAME (YEARS)	PRIORITY RANKING (HIGH TO LOW) ⁶
6	Conduct a review of services offered at RDCO's recycling depots	1 – 2 (review), 3 – 15 (implement)	High
21	Conduct feasibility studies to review overall services at transfer stations and potential improvements	1 – 2 (review), 3 – 15 (implement)	High
1	Investigate options to support the reuse of items	2 – 3	High
24	Work with municipal and RDCO planning departments to ensure that that long-range planning tools identify and preserve lands for future waste management facilities	0 – 5	High
7	Re-evaluate organic waste diversion opportunities while considering the need to maintain landfill gas collection and use at the landfill	1 – 2	Medium
15	Investigate facilitating waste audits to educate businesses/organizations on what is in their waste stream and to initiate discussion on diversion options	1 – 2	Medium
22	Investigate the success in other regions to mitigate illegal dumping by providing curbside collection of bulky items	1 – 2 (review), 3 – 15 (implement)	Medium
3	Investigate collection of EPR materials at RDCO's recycling depots	2 – 3	Medium
8	RDCO to adopt a preferential purchasing policy for green procurement that supports the 3Rs and encourage member municipalities to follow its example	2 – 3	Medium
10	Investigate policy options to encourage recycling (e.g. mandatory recycling for multi-family and ICI, waste management provisions into landuse)	2 – 3	Medium
16	Before renewing the curbside collection contract, investigate a number of changes to the service to encourage improved waste diversion	2 – 3	Medium
23	When renewing the curbside collection contract, assess the option to incorporate bear-proof locks on the garbage carts for residents that report issues with wildlife	2 – 3	Medium
5	Assess options to incentivize backyard composting (residents)	3 – 5	Medium

⁶ Ranking based on input from the PTAC throughout the planning process.

No.	NEW STRATEGY	IMPLEMENTATION TIMEFRAME (YEARS)	PRIORITY RANKING (HIGH TO LOW) ⁶
11	Investigate requiring all contractors for C&D projects to develop waste management plans to meet specified recycling target	3 – 5	Medium
12	Encourage recycling and waste minimization at events	3 – 5	Medium
18	Investigate opportunities to process and recover energy from C&D materials	3 – 5	Medium
2	Encourage residents to reuse bags through an awareness campaign and consider banning targeted materials (e.g. single-use plastic bags)	0 – 5	Medium
4	Increase public awareness of existing collection opportunities for EPR products	0 – 5	Medium
9	Lobby through the BC Product Stewardship Council to influence issues relating to EPR products and programs	0 – 5	Medium
13	Establish a mechanism for sharing knowledge with other stakeholder and interest groups within the region in order to improve waste diversion opportunities	0 – 5	Medium
14	Increase public awareness of existing recycling opportunities	0 – 5	Medium
17	Investigate opportunities to process and recycle C&D materials	0 – 5	Medium
19	Develop Glenmore Landfill in accordance with proposed fill plan	0 – 5	Medium
20	Review tipping fees over the next 2-3 years as part of the development of Glenmore Landfill design, operation and closure plan	0 – 5	Medium

***Schedule 4: Terms of Reference for the Plan Monitoring Advisory
Committee***



Solid Waste Management Plan Review 2016

Public and Technical Advisory Committee (PTAC)

Terms of Reference

Purpose: The purpose of the joint Public and Technical Advisory Committee (PTAC) is to provide input, feedback and recommendations to the Regional District of Central Okanagan on proposed programs and policies that would make up the Solid Waste Management Plan.

Goal: The goal of the PTAC is to ensure a wide range of stakeholders are represented during the update of the Solid Waste Management Plan and to come up with preferred options for waste management in the region for the next 5-15 years

Responsibilities: Plan Advisory Committee members will:

- Review and become familiar with the existing Solid Waste Management Plan;
- Review and become familiar with the existing solid waste management system in the Regional District of Central Okanagan;
- Analyse and evaluate various waste management options for waste diversion, residual waste management and financing and policy development
- Provide comment on recommended public consultation strategy

Expected Outcomes: It is expected that the PTAC will recommend strategies and options to be included in the SWMP. Additionally, the PTAC will strive to enhance communication and collaboration through committee members.

Membership: The committee membership will strive to have a broad representation of interests including the following:

- Local government/public works representatives from municipalities within the RDCO (4 members)
- RDCO staff (3 members)
- First Nations representatives within the Westbank First Nations (1 member)
- Members at Large - Interested members of the public, including local environmental groups and recycling organizations, owners and operators of private waste facilities, commercial and institutional solid waste generators, haulers and operators.

Group Culture: The PTAC membership shares the common understanding that all participants will:

- Act in a professional and respectful manner;
- Actively listen;
- Act with integrity and;
- Attend meetings with a positive purpose;

Decision Making: The main role of the PTAC is to be an advisory committee to provide recommendations to RDCO Staff for amendments to the SWMP. RDCO staff will bring recommendations

to the Board, as the Board is the decision making body. Ideally, results recommended by the PTAC will be made collaboratively.

Committee Protocol

- The RDCO, in conjunction with a hired consultant, will chair and host the meetings.
- All PTAC members are equal and have equal opportunity to contribute at meetings, as well as responsibility to respect the opinions of others. Committee members are encouraged to actively participate in the discussions and use their experience, education, and insight to speak freely about any issues or opportunities to be considered.
- Committee members are present to give a voice to the community. However, members are equally responsible to listen and understand the views of others. It is only through this dialogue that real consensus can be achieved.
- Members are encouraged to work collaboratively and to be committed to reaching consensus where possible by using an interest-based approach rather than an individual member position-based approach. Consensus will be formally recorded in the meeting's Minutes. Any members unable to agree with the consensus decision may have their objections noted in the Minutes.
- Committee members may choose to express their personal views about the process to others outside the PTAC but may not speak on behalf of or in any way create the impression that they are speaking for the PTAC as a whole. In order to ensure open and honest dialogue, Committee members should not discuss comments or opinions expressed by other Committee members without their knowledge and consent.
- Members will be asked to arrive promptly at meetings.
- Members of the public may observe meetings but will not have speaking rights unless invited to speak by the Chair.
- Members are expected to make their best effort to attend all monthly advisory meetings during the planning process (5 meetings from Feb – June).

Reporting: The Joint Public Technical Advisory Committee reports to the RDCO Board, through RDCO staff.

Meetings: There will be a minimum of five meetings of the PTAC with the provision for additional meetings, workshops or other presentations at the committee's discretion. The RDCO will chair and host all PTAC meeting at the RDCO offices at 1450 KLO Road, Kelowna, BC. Agendas will be posted on the RDCO website at www.regionaldistrict.com/recycle

Resources: RDCO staff will provide administrative support to the PTAC including, but not limited to: arranging meetings, creating agendas, taking minutes, and distributing materials.

PTAC participation is voluntary with no remuneration provided for members' time.

Regional District of Central Okanagan Contacts Cynthia Coates, Waste Reduction Facilitator 1450 KLO Road, Kelowna, BC cynthia.coates@cord.bc.ca 250-469-6346	Rae Stewart, Waste Reduction Facilitator 1450 KLO Road, Kelowna, BC rae.stewart@cord.bc.ca 250-469-6258
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Schedule 5: Plan Dispute Resolution Procedures

The parties will make all reasonable efforts to attempt to resolve the dispute in an amicable manner without outside intervention. The Ministry of Environment does not become involved in resolving or making a decision in a dispute.

This dispute resolution procedure may apply to the following types of conflicts:

- Administrative decisions made by Regional District staff
- Interpretation of a statement, bylaw, policy or provision in the plan
- The manner in which the plan or an OC is implemented
- Any other matter not related to a proposed change to the wording of the plan or an OC

	COLLABORATIVE DECISION MAKING AND DISPUTE RESOLUTION PROCEDURE
Negotiation	<ul style="list-style-type: none">• Parties involved in the dispute make all efforts to resolve the dispute on their own.• Parties may make use of a facilitator
Plan Advisory Committee (if appropriate)	<ul style="list-style-type: none">• Parties involved in the dispute will have opportunity to speak to the Committee• Committee will review, consider and provide recommendations to the Board
Board	<ul style="list-style-type: none">• Parties involved in the dispute will have opportunity to speak to the Board• Board will receive recommendations from the Committee and settle the dispute; or, recommend mediation
Mediation	<ul style="list-style-type: none">• Parties involved in the dispute agree on a mediator. If the parties cannot agree on a mediator, the matter shall be referred to the BC Mediation Roster Society or equivalent roster organization for selection of a mediator• All efforts will be made to reach an agreement through mediation• Costs for mediation are shared by the parties in dispute
Independent Arbitrator	<ul style="list-style-type: none">• If the dispute cannot be resolved by a mediator, the matter will be referred to arbitration and the dispute will be arbitrated in accordance with the Local Government Act or BC Commercial Arbitration Act• The arbitrator shall make a final, binding decision• Costs for arbitration shall be apportioned at the discretion of the arbitrator