



To: Russ Smith, Senior Manager, Environmental Resource Management
From: Maura Walker
Date: August 7, 2012
Re: Stage 1 Integrated Solid Waste and Resource Management Plan – Issues for Consideration

Introduction

This memorandum outlines issues and challenges identified during Stage 1 of the process to prepare an Integrated Solid Waste and Resource Management Plan (ISWRMP) for the CRD. The list of issues and associated challenges presented in this memo were aggregated from the following sources:

- Stakeholder interviews and site visits conducted between March and June 2012
- CRD staff reports to Environmental Sustainability Committee (see the appendix for a list of these reports)
- Stage 1 on-line feedback results
- 2009/2010 Hartland landfill waste composition study data

Prior Stage 1 work informing these analyses includes a review of the existing solid waste management system, described in a previous report entitled "Stage 1: Existing Solid Waste Management System." This previous report was submitted in draft for review by the Public and Technical Advisory Committee in July 2012 and describes current activities and policies and an estimation of disposal and diversion rates.

Together, this memo and the previous report on the existing system complete the documentation phase for Stage 1 and form the baseline of information to be used in the development and selection of options during Stage 2.

Challenges Related to Waste Reduction and Reuse

'Reduce and Reuse' are at the top of the waste management hierarchy, however these behaviours have not been promoted to the same extent as have recycling and proper waste disposal.

Challenge 1: Encouraging behaviours that move “up the hierarchy” from recycling to reduction and reuse

One of the most significant challenges with promoting reduction and reuse behaviours is that it is counter to the ubiquitous marketing of consumption. Additionally, the impact of reduction and reuse practices are difficult to quantify compared to other diversion activities like curbside recycling.

Challenge 2: Sustainable product design and manufacturing

In recent decades it is common for consumer goods to be designed and manufactured to be disposed rather than repaired or disassembled for reuse of components. Even if repair is possible, the low cost of many manufactured goods encourages disposal rather than repair.

Challenges Related to Extended Producer Responsibility (EPR)

EPR shifts the end-of-life management costs of consumer goods from local government taxpayers to producers and consumers. In BC, the Recycling Regulation (BC Reg. 449/2004) defines the products and packaging that are included in an EPR program. Management programs for designated products are operated by stewardship organizations who - in turn - organize collection services throughout the province. In recent years, the number of products listed in the Recycling Regulation has grown significantly, as has the number of ways in which consumers of these products are intended to properly discard used products.

Challenge 3: Lack of Public Awareness

One of the challenges with the recent rapid expansion of products included under an EPR program is that the public is not always well informed regarding what products are now included, as well as how and where they are to properly dispose of the product. There seems to be some confusion as a result of the proliferation of EPR programs and stewards. Examples of new products covered by EPR programs with low consumer awareness are smoke detectors and mercury-filled thermostats.

Challenge 4: Uncertainty Regarding the Impact of Adding Packaging and Printed Paper to EPR

The upcoming EPR program for packaging and printed paper (PPP) will include all materials collected in the CRD blue box program, as well as PPP received at many non-profit and for-profit recycling facilities. The program is scheduled for roll out in 2014. The plan for how this program will be implemented is under development but is expected to address the role of local government, service types, level of service, funding mechanisms and cost recovery options.

The challenges associated with PPP EPR are the uncertainty regarding how this program will impact the current system and what role local governments will have once the EPR program is in place.

Challenge 5: Uncertainty Regarding the Implications of Future EPR Programs

The list of products included in BC's Recycling Regulation is planned to expand. In addition to PPP, products that are slated to have an EPR program in the future are: carpet, furniture and construction and demolition waste. The on-going shift of responsibility for specific waste

streams presents a challenge to local governments in terms of planning, for example, with respect to cost recovery and landfill life expectancy

Challenges Related to Recycling

Curbside Collection Services

There is a diverse range of residential waste collection service levels offered from municipality to municipality – ranging from 3 stream collection (garbage, recycling, kitchen scraps) to recycling only (as provided by the CRD).

Challenge 6: Multiplicity of Collection Service Providers

In all CRD municipalities, the CRD provides the blue box service, but there are several providers for garbage collection and organics collection. The variability of residential waste collection service providers from community to community can create confusion or frustration for residents regarding who to contact regarding collection services. This diversity of service providers can also limit opportunities for standardized waste management education due to variability in collection protocols or the lack of a singular point of reference for communications.

Challenge 7: Need for Increased Curbside Recycling Diversion

Based on the data from the 2010 waste composition study at the Hartland landfill, it is estimated that 13% of residential waste is recyclable paper fibres and plastic and metal food containers that could be recycled via the curbside blue box program. The challenge emerging from this data is the need to improve diversion of recyclable waste generated by homes receiving blue box service.

Organics Diversion

The CRD intends to ban kitchen scraps from disposal in 2015. The CRD does not intend to be involved with the collection or processing of kitchen scraps from either the residential or commercial sectors.

Challenge 8: Levels of Satisfaction

Respondents to the Stage 1 on-line feedback forms indicate a low level of satisfaction with organic waste collection services. Note: This will likely change as organics collection programs are implemented in expectation of the 2015 disposal ban.

Challenge 9: Limited Local Capacity for Processing Kitchen Waste

There is limited local capacity in the CRD to handle kitchen scraps. Currently, kitchen scraps collected through municipal collection services are transferred to a composting facility in the Cowichan Valley Regional District. Private sector processing facilities will need to be established to allow for residents, businesses and institutions to comply with the ban.

Challenge 10: Planning Challenges

In previous years, plans for organics diversion and dates targeted for organic waste bans were modified; this has caused challenges for businesses wanting to establish or expand services related to organic waste management and hindered the development of private sector services. The other planning challenge regarding kitchen scraps is two-sided: municipalities have been waiting to put collection programs in place but there has been a lack of local facilities to process the materials, and processors have not been willing to invest until a steady supply of feedstock is available through a municipal collection contract and/or a disposal ban was put in place.

Challenge 11: Implications of 2015 Ban

Municipalities and private collection service providers that collect garbage will need to consider how they can comply with organics ban. In areas without municipal collection, there is a need to determine how these residents can comply with organics ban.

Challenge 12: Need for Long-Term Commitment

In order to have new composting capacity developed in the CRD, private sector composting companies will want to have contracts that are long enough to minimize risk their financial risk. The length of these contracts may need to be longer than typical recycling processing contracts. Note: The CRD's current organics processing contracts for municipally collected kitchen scraps is 23 months long.

Challenge 13: Sourcing Feedstocks for Processing

Due to the anticipated increase in the amount of food waste collected, there may be a challenge with sourcing carbon rich materials for composting (needed to effectively compost food waste). Yard waste is often used as amendment but there are limited municipal yard waste collection programs in place.

Not-for-Profit Recycling Depots

Recycling depots in the Southern Gulf Islands and Salt Spring Island are operated by not-for-profit organizations. The challenges associated with these recycling depots are:

Challenge 14: Stable Funding

Not-for-profit organizations operating recycling depots are looking for stable funding sources so that they can invest in facility improvements. Their challenges include the need for long-term lease arrangements for the property that they operate on and the need for long-term contracts to provide collection services.

Challenge 15: Lack of Full Cost Recovery Associated with Provision of EPR Collection Services

Many depots report that they do not get the full cost of providing collection services for some EPR products (such as land-related costs and staffing costs) from stewardship organizations.

Industrial, Commercial and Institutional (ICI) Waste Diversion

Disposal bans are the main policy mechanism employed by the CRD to encourage recycling by the ICI sector.

Challenge 16: Need for Increased Diversion of ICI Waste

Based on the data in the 2010 waste composition study at the Hartland landfill, an estimated 10% of ICI waste is recyclable paper even though paper and cardboard are banned from disposal. The challenge emerging from this data is the need to improve diversion of ICI waste to ensure that diversion from this sector is maximized.

Recycling Markets

The recycling industry requires an end use (market) for the collected materials in order to be successful. There are several challenges associated with certain recycling markets:

Challenge 17: Film Plastic Contamination

There is a limited market for post-consumer film plastic due to high levels of contamination, such as food waste left inside of bags. The film plastic market is further challenged by the increasing popularity of biodegradable and compostable plastic shopping bags being used by local retailers. This plastic is not recyclable and is very difficult to visually distinguish from recyclable plastic; therefore the issue of contamination is further exacerbated

Challenge 18: Limited Market for Post-consumer Glass

There is a limited market for post-consumer glass in BC. On Vancouver Island, most glass collected in recycling depots and through curbside programs is crushed and stockpiled for use as aggregate.

Construction and Demolition (C&D) Waste

Construction, demolition and renovation waste is composed of a wide variety of materials, including recyclable materials such as wood, cardboard, metal and drywall. There are several private companies that provide waste collection and recycling services to this sector. C&D waste can be disposed at Hartland Landfill or the Tervita Highwest Landfill.

Challenge 19: Diversion of Shingles from Landfill

Wood shingles are 48% and asphalt shingles are 21% of C&D waste disposed at Hartland Landfill, despite the fact that there are recycling facilities for these products. The challenge is how to most effectively encourage the diversion of old shingles to recycling facilities. (Note: In 2011, the CRD began a pilot project to take asphalt shingles collected at Hartland Landfill to a recycling facility in Nanaimo.)

Challenge 20: Lack of Data Regarding C&D Waste

Because construction and demolition waste management is largely conducted by the private sector, the quantity of C&D waste recycled and disposed in the CRD is unknown, making it challenging to effectively plan (also see "Monitoring and Measurement Issues").

Challenge 21: Lack of Clarity on Future C&D Regulations

C&D waste is slated to be covered BC's Recycling Regulation, making it part of an EPR program. The extent and design of the regulation and program are unknown but may limit investment in the recycling and reuse of this material until additional information is known.

Wood Waste Management

Wood and wood products make up 10% of the waste stream disposed at Hartland Landfill, representing a significant opportunity for diversion. Challenges related to wood waste have implication for the potential market for wood waste:

Challenge 22: Uncertain Outlook for Wood Waste Market

The main market for wood waste is as a fuel source for pulp mills and greenhouses. The long term viability of these markets is unknown and is likely to become an issue if there are future pulp mill closures on the island.

Challenge 23: Unknown Existing Quantities of Wood Waste

C&D waste is composed primarily of wood waste, and because we do not know the quantity of this C&D waste currently being managed in the CRD, we are not presently able to predict the impact of the elimination of local wood waste markets on local landfill capacities (Hartland and Tervita Highwest)

Challenges Related to Recovery

Recovering valuable resources from our waste streams is garnering significant attention as commodity prices increase.

Challenge 24: When and How to Implement Resource Recovery

Resource recovery is considered an option for extending the life of Hartland Landfill, as it can significantly reduce the quantity of residual waste requiring landfilling. The challenge is to determine when to move forward with a resource recovery facility and what it will look like. As part of addressing this challenge there are several questions that will need to be addressed:

- Which resource recovery technology is best suited to the CRD's waste stream and size?
- How much will it cost and is it financially sustainable?
- Where should a resource recovery facility be located?
- Should the facility service other jurisdictions, such as Cowichan Valley Regional District and the Regional District of Nanaimo?

Challenge 25: Integration with Liquid Waste

The CRD will be constructing new infrastructure to treat liquid waste. There is the potential for combined treatment of liquid and solid waste, for example, through either anaerobic digesters and/or waste-to-energy (WTE) facilities. Facilities for the treatment of liquid waste may also be co-located with solid waste infrastructure at Hartland Landfill. The integration of liquid waste and solid waste operations has potential impacts on how the Hartland Landfill property will be developed and the exploration of resource recovery options.

Challenges Related to Residual Waste Management

Hartland Landfill

The following issues were identified in regards to the Hartland Landfill

Challenge 26: Maximizing the Hartland Landfill's Life

Due to public resistance to new landfill sites, it is unlikely that a replacement landfill for Hartland can be sited within the CRD. As a result it will be necessary to maximize the available capacity at Hartland or identify means to extend its life.

Challenge 27: Understanding and Recognition of the Hartland's Potential

The Hartland Landfill property is a significant public asset that can provide long-term value to the CRD. Options to maximize the value of this site have yet to be fully explored. Understanding the site's potential will be critical to decisions related to siting facilities for biosolids treatment and resource recovery.

Illegal Dumping

Challenge 28: Tackling Illegal Dumping

Illegal dumping is an issue in both rural and urban areas of the CRD. The most common materials illegally discarded in the CRD are furniture and mattresses; these materials are most frequently found on municipal boulevards. In addition, unsuitable materials are often "donated" to charities and thrift shops; these materials also require disposal at a cost borne by the charity (although generally at a reduced tipping fee).

Challenges Related to Solid Waste Management Planning

Monitoring and Measurement

Data regarding the quantity and composition of the various solid waste streams can provide insight into the effectiveness of current programs and policies, and indicate where the greatest opportunities for further diversion can be realized.

Challenge 29: Incomplete ICI and C&D Data

There is incomplete data on the quantity of ICI and C&D collected, recycled and disposed in the CRD. Because of this, the actual diversion rate in the CRD cannot be calculated and it will be difficult to assess the impact of future programs and policies that target these sectors.

Challenge 30: Lack of Capacity to Track Waste Managed by the Private Sector

The collection of this type of data is difficult because many private sector waste businesses consider this type of data to be proprietary information and some businesses do not track their material flows in tonnes (the common form of data collection).

Challenge 31: Lack of Regional Waste Import and Export Data

For the same reason as above, there is no data available on waste being imported or exported out of the region. This also impacts our understanding of how the system is working and on the accuracy of diversion calculations.

Challenge 32: Unknown Effectiveness of Waste Reduction Efforts in Multi-Family Sector

There is no recent, reliable waste composition data for the multi-family sector, and because multi-family buildings are serviced by the private sector, there is minimal data available on the quantity of garbage and recycling generated by residents living in multi-family buildings. Consequently, we are unable to determine of how effective current recycling initiatives are for this sector.

Financing

The CRD receives 95% of the funds for its programs from tipping fees at Hartland Landfill. This means that waste diversion programs are being funded through garbage disposal fees.

Challenge 33: Unsustainable Financial Model

This is a challenge because the amount of waste diverted has been increasing and garbage levels are decreasing, making this method of funding diversion is not sustainable. Budget projections indicate that within three years, revenue from tipping fees will not be able to fund both the CRD's disposal costs and diversion costs. This projection includes having the collection and processing of residential packaging and printed paper funded through an EPR program.

Land Use Planning

Challenge 34: Public Resistance to the Siting of Waste Management Facilities

Although the public appreciates the convenience of existing locations to drop off recyclables, yard waste and garbage, it can be extremely difficult to gain public acceptance for to site waste management facilities.

Challenge 35: Community Planning for Waste Management Facilities

Community land use planning rarely considers the location of waste management facilities (including recycling depots, transfer stations, composting facilities and EPR depots) in their community design. With an ever-increasing amount of waste diversion to recycling, composting

and EPR programs, there will be a need to site facilities where they can be easily accessed but not conflict with surrounding land uses.

Bylaw Enforcement

The CRD has implemented bylaws to create codes of practice for specific types of waste management facilities. The intention of these bylaws was to establish criteria to ensure the protection of the environment and community, and to create a level playing field for all operators.

Challenge 36: Overlapping Jurisdictions

Although the CRD has bylaws in regards to the operation of some types of waste management facilities, these bylaws are applied in conjunction with land use regulations including municipal, Island Trust and Agricultural Land Reserve regulations. There are instances where the CRD solid waste facilities code of practice bylaw cannot be implemented until other land use issues are resolved or because a facility is located on land where the CRD has no jurisdiction (e.g. First Nations reserves), sometimes resulting in frustration by stakeholders that want to have all facilities operating on a “level playing field.”

Summary

Based on discussions with waste management stakeholders, the Stage 1 on-line feedback from the public, and a review of CRD reports, thirty-eight challenges associated with the existing solid waste management system have been identified for consideration during Stage 2 of the process to develop the Integrated Solid Waste and Resource Management Plan. These challenges range from the challenge of “moving up the hierarchy” to emphasize reduction and reuse, to enhancing existing services, to managing new policies associated with EPR and organics, to establishing infrastructure and markets to achieve our waste diversion goals.

Appendix: List of Reviewed Reports to the Environmental Services Committee

Date	Report Subject	Description
27 April 2011	Integration of Liquid and Solid Waste Plans – Feasibility Study	Presents the results of study that considers the feasibility of integrating liquid and solid waste management plans. The study concluded that the current regulatory structure is not conducive to integrating the plans, but that there remains opportunities for integration at an operational level.
22 June 2011	Results of Feasibility Studies on Waste to Energy	Presents the results of a tri-region (Capital, Cowichan and Nanaimo regional districts) WTE feasibility study and a technical memo on a CRD stand-alone WTE facility. For the CRD, the studies indicate that a stand-alone facility would be financially favourable due to reduced transportation costs.
21 September 2011	Addition of Polycoated Cartons to the CRD Blue Box Program	Recommends the addition of polycoated cartons to the CRD Blue Box Program at nominal additional cost to the CRD and the potential to divert 800 tonnes of waste.
21 September 2011	2011 Environmental Resource Management Budget Mid-Year Report	Provides an update on the solid waste budget based on current year's performance. Due to increased revenues from the sale of recyclable materials and reduced debt servicing costs, the planned 2012 tipping fee increase is no longer recommended.
26 October 2011	Illegal Dumping and Waste Abandonment	Includes a brief description of the CRD's current initiatives to tackle illegal dumping and recommends working with municipalities and other stakeholders to develop a regional illegal dumping strategy.
26 October 2011	Waste to Energy Update	Presents an overview of Canadian WTE projects.
25 January 2012	2012 Environmental Resource Management Priority Issues	Outlines departmental priority issues and work plan for 2012. Priority issues include the ISWRMP, the business (financial) model for solid waste management, EPR, kitchen scraps management, resource recovery and residual waste management.
22 February 2012	Hartland Landfill – Long Term Landfill Gas Management Plan	Provides a summary of the Long Term Landfill Gas Management Plan and recommends approval of the plan.
22 February 2012	Kitchen Scraps Management in the Region	Describes potential roles for the CRD associated with kitchen scrap management, including facilitation, regulation and education. A summary of consultation with businesses and a list of existing and planned organics collection and processing services are also included.

Date	Report Subject	Description
22 February 2012	Hartland Environmental Program Annual Report	Presents a summary of the 2010-2011 Hartland Landfill Environmental Program Annual Report which includes the monitoring results for landfill gas, groundwater, surface water and leachate. Monitoring programs indicate that leachate is being effectively controlled but that efficiency improvements are required for the landfill gas system.
28 March 2012	Regional Kitchen Scraps Strategy	Recommends a phased approach to banning organics from the landfill. A summary of consultation with businesses and a list of existing and planned organics collection and processing services are also included.