



TO: Ben Van Nostrand, P.Ag.,AScT., Team Leader
Environmental Health Services, Operations Management
Columbia Shuswap Regional District

DATE: September 30,2015

PROJECT: CSRD ODS

FROM: Carey McIver
Maura Walker

SUBJECT: Draft Organics Diversion Strategy for the CSRD

1. Introduction

The Columbia Shuswap Regional District (CSRD) has engaged Maura Walker & Associates (MWA) to assist with the development of an organics diversion strategy for the region. Based on the success of similar strategies implemented in other regional districts, notably the Regional District of Nanaimo, MWA has developed a draft strategy in collaboration with key stakeholders in the CSRD, including municipalities, waste haulers, major organic waste generators and existing processors.

To facilitate effective collaboration, the CSRD hosted a stakeholder workshop in Salmon Arm on September 10, 2015. At this workshop MWA presented participants with the components of a draft strategy including discussion of options related to organics processing, collection, regulation and enforcement, as well as communications and education. The input and feedback received at this workshop has been incorporated into the following draft organics diversion strategy.

2. Why divert organics?

Diverting organic wastes (food waste, yard waste, clean wood waste and compostable paper) from landfill and producing compost contributes to sustainability in many communities in BC and North America due the potential environmental, economic and social benefits outlined in Table 1.

Table 1: Benefits of Organic Diversion

Environmental Benefits	Social Benefits	Economic Benefits
<ul style="list-style-type: none">Reduces GHG emissions	<ul style="list-style-type: none">Protects human health	<ul style="list-style-type: none">Extends landfill life
<ul style="list-style-type: none">Preserves landfill capacity	<ul style="list-style-type: none">Reduces landfill safety risks	<ul style="list-style-type: none">Produces a marketable product
<ul style="list-style-type: none">Reduces landfill leachate	<ul style="list-style-type: none">Contributes to land preservation	<ul style="list-style-type: none">Provides employment
<ul style="list-style-type: none">Improves soil	<ul style="list-style-type: none">Contributes to healthy local soils and agriculture	<ul style="list-style-type: none">Reduces costs to manage leachate and landfill gas

Due to these benefits, particularly with respect to reducing greenhouse gas emissions, four regional districts in BC (Regional District of Nanaimo, Cowichan Valley Regional District, Capital Regional District, and Metro Vancouver) have already implemented bans on landfill disposal of organic waste. As a result, roughly 66% of the population of BC lives in regional districts with organic waste disposal bans in 2015.



Why divert organics? It's in the Solid Waste Management Plan

Organics diversion was a focus of CSRD 2009 Solid Waste Management Plan (SWMP). Organic diversion initiatives in the 2009 plan included:

- Natural Landscaping Program
- Master Composter Program
- Backyard Composting Incentive Program
- Regional Yard Waste Drop-off Depots
- Curbside Christmas Tree Collection
- No-charge Drop-off Periods
- Periodic Curbside Yard Waste Collection
- Composting infrastructure in Golden, Revelstoke, and Salmon Arm
- Regional Wood Waste Diversion/Reuse Program

Since 2009, the CSRD has also been working with the communities of Golden, Revelstoke and Salmon Arm to investigate the potential of developing a source separated (SSO) organic waste collection and processing program to complement existing yard and wood waste diversion programs. In 2013, the CSRD retained CH2M Hill to evaluate residential SSO organic collection programs and regional organic waste management systems for these waste sheds.

In 2013, the CSRD retained TRI Environmental Consulting Inc. to undertake solid waste characterization studies for the Salmon Arm, Sicamous, Revelstoke and Golden waste sheds. The results of these studies confirmed that, at 30%, compostable organics represent the largest component of the waste landfilled in the CSRD

The results of these evaluations and waste characterization studies were incorporated into the 2014 SWMP Review which recommended the design and delivery of pilot programs leading to the full introduction of curbside collection of household organics (kitchen, leaf and yard waste) during the 2015-2019 Plan implementation period. These recommendations received strong public and Board support.

Why divert organics? It's happening in the Salmon Arm waste shed already

Independent of the SWMP, a private composting facility was constructed at Spa Hills Farm outside of Salmon Arm. Spa Hills Compost (Spa Hills) collects food waste and other organic material to make a chemical free soil amendment for their 300 acre farm. Spa Hills has been offering commercial organic waste collection services to local businesses and institutions in the Shuswap and North Okanagan, including many companies in Salmon Arm, for a collection and processing fee of \$110 per tonne.

This local facility has an annual capacity of 4,000 tonnes of organics based on a six week processing cycle. According to representatives from Spa Hills, the facility is currently running at 20% of capacity. This is likely due to the cost differential between the current CSRD landfill tipping fee of \$70 per tonne and the Spa Hills processing fee of \$110 per tonne.

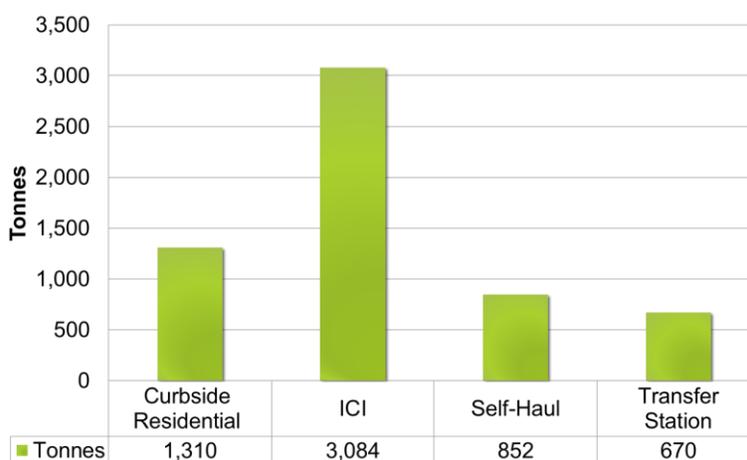
3. Who would divert organics?

Although the CSRD SWMP has focused on diverting organic wastes from the curbside residential programs in the CSRD, there is significant potential for diversion of food waste from the industrial, commercial, residential (ICI) sector as evidenced by the results of the 2013 waste composition study.



Extrapolating from the results of the waste characterization studies discussed above, MWA estimates that the ICI sector is responsible for roughly 50% of the food waste generated in the CSRD. This is illustrated in Figure 1 which identifies food waste generation by sector: curbside residential, representing food waste collected by municipalities; ICI, representing food waste collected by private haulers; self-haul, representing food waste delivered by residential and ICI generators directly to landfills; and transfer stations, representing food waste delivered by residents and businesses directly to rural transfer stations.

Figure 1: Food Waste Generation by Sector



Given the magnitude of food waste generation in the ICI sector plus the presence of a commercial composting operation in the area, in 2005 the Regional District of Nanaimo and the Cowichan Valley Regional District banned commercial food waste from landfill disposal well in advance of providing residential curbside collection programs for organic waste. The disposal bans enacted by the Capital Regional District and Metro Vancouver in January 2015 apply to all sectors as this provides the maximum diversion of organics from landfill and hence the maximum reduction in greenhouse gas emissions.

Consequently, to maximize environmental, social and economic benefits the CSRD organics diversion strategy should apply to all generators in the Salmon Arm, Sicamous, Revelstoke, Golden and surrounding areas waste sheds as indicated in Table 2.

Table 2: Who would divert food waste?

Residential	Industrial/Commercial/Institutional
<ul style="list-style-type: none"> • Curbside 	<ul style="list-style-type: none"> • Restaurants
<ul style="list-style-type: none"> • Self-Haul 	<ul style="list-style-type: none"> • Retail Food Stores
<ul style="list-style-type: none"> • Multi-Family 	<ul style="list-style-type: none"> • Wholesale Fresh Food Suppliers
	<ul style="list-style-type: none"> • Hotels
	<ul style="list-style-type: none"> • Schools
	<ul style="list-style-type: none"> • Health Care Facilities



4. How will we divert organics?

The mechanics of a successful organics diversion strategy involves supporting regulations and cost-effective systems for processing and collection in the residential and ICI sectors.

Supporting Regulations

As discussed above, the implementation of landfill disposal bans by regional districts can provide a powerful incentive for organic waste diversion. An example of a ban implementation schedule is provided as Table 3. This schedule can be designed to provide sufficient time for municipalities and businesses to plan and develop collection systems and processing facilities. Enforcement can also be phased in to ensure a successful transition to new collection systems.

Table 3: Example Ban Implementation Schedule

	JUNE – DEC 2016	JAN – JUNE 2017	JULY – DEC 2017	2018
THRESHOLD	Education Period	25%	10%	5%
SURCHARGE	Education Period	50%	100%	

In most cases, disposal bans on organic waste have been implemented in regional districts where landfill tipping fees are higher than organic waste processing fees. This is currently not the case in the CSRD and consequently, prior to adopting an organics disposal ban, the CSRD should complete an in-depth review of its solid waste management financial model to determine whether tipping fees will need to be increased in the future to comply with regulatory requirements.

Processing Capacity

Based on feedback from key stakeholders, this strategy recommends a decentralized regional processing system given geography and regional transportation issues. The strategy envisions developing local composting capacity in each of the the Salmon Arm, Revelstoke and Golden waste sheds. At present, there may be sufficient processing capacity in the Salmon Arm waste shed for food waste (Spa Hills) and yard waste (Salmon Arm Landfill). However, in the Revelstoke waste shed, processing capacity is limited to yard waste only (Revelstoke Landfill) while the Golden waste shed currently lacks capacity for both yard and food waste composting. Consequently the development of processing capacity in the Revelstoke and Golden waste sheds will be an important component of the organics diversion strategy.

Residential Food and Yard waste Collection

Much work has already been completed under the SWMP to evaluate residential curbside collection systems for organic wastes. Although many communities in BC collect food waste commingled with yard waste at the curb, given that yard waste is not currently collected at the curb in any of the CSRD waste sheds, and based on municipal feedback, this strategy recommends that the current system whereby residents self-haul their yard waste to existing CSRD facilities be maintained. A possible



exception is Golden which currently provides automated cart-based garbage and recycling collection. Cart-based collection programs typically collect commingled food and yard waste, as long as there is food waste composting capacity available.

With respect to food waste, this strategy envisions that each municipality will implement curbside food waste collection programs once their current collection contracts expire, assuming that local composting capacity is available. It is also anticipated that municipalities may want to consider small pilot projects to confirm how food waste collection will perform in their community. Piloting food waste collection would also allow CSRD to pilot the processing of food waste at the Revelstoke and Golden landfills.

ICI Food Waste Collection

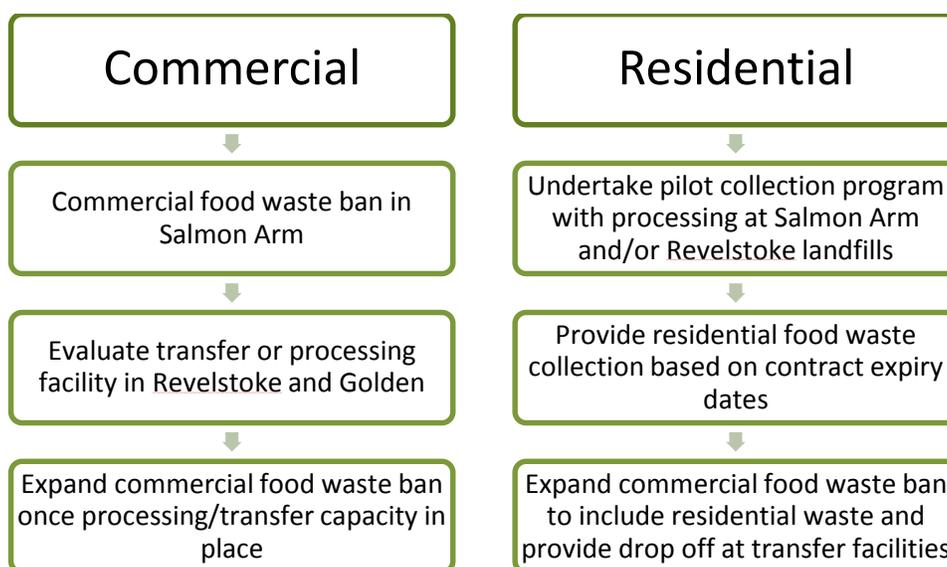
In the ICI sector privately contracted collection is the most common model for organic waste collection. Private haulers can tailor food waste collection systems to the specific customer needs. Competition for business between private haulers also contributes to the development of cost effective collection systems.

5. What is the priority?

Given the location of the Spa Hills Compost in the Salmon Arm waste shed, the organics diversion strategy recommends that priority be given to implementing a ban on commercial food waste disposal in the Salmon Arm waste shed. Given current municipal contract expiry dates, expansion of the ban to the residential sector will be the second priority. To minimize contamination levels, food waste drop-off facilities for self-haul customers at the Salmon Arm Landfill and rural transfer stations will follow the implementation of education and promotion programs for single-family residential sector.

The proposed strategy for both the commercial and residential sector is illustrated in Figure 2.

Figure 2: Proposed Organics Diversion Strategy





6. What is the work plan and timeline?

The implementation of the organics diversion strategy will begin in 2016 with all elements of the strategy in place by 2020. A work plan and schedule for the next five years is provided in Table 4.

Table 4: Proposed Organics Diversion Strategy Work Plan and Schedule

Year	Task
2016	<ul style="list-style-type: none"> ➤ Complete financial evaluation of solid waste system costs to determine whether tipping fees need to be increased ➤ Ban the disposal of commercial food waste at the Salmon Arm Landfill ➤ Trial Spa Hills as processing facility with respect to: <ul style="list-style-type: none"> ○ Capacity ○ Direct haul ○ Transfer from landfill
2017	<ul style="list-style-type: none"> ➤ Trial residential food waste composting at the Salmon Arm and Revelstoke landfill ➤ Undertake a pilot curbside collection program in Salmon Arm and Revelstoke ➤ Evaluate Spa Hills as a processing facility
2018	<ul style="list-style-type: none"> ➤ Implement residential curbside collection in Salmon Arm based on performance of Spa Hills and/or the existing Salmon Arm Landfill composting facility ➤ Expand the commercial food waste ban to include organic wastes from the residential sector in the Salmon Arm waste shed ➤ Provide drop-off facilities at the Salmon Arm Landfill and rural transfer stations in the Salmon Arm waste shed for self-haul residential and ICI customers ➤ Implement residential curbside collection in Revelstoke based on performance of combined residential food and yard waste composting at Revelstoke landfill ➤ Establish residential food and yard waste composting facility at Golden Landfill ➤ Evaluate options for commercial food waste processing in the Revelstoke waste shed
2019	<ul style="list-style-type: none"> ➤ Implement residential curbside collection in Golden ➤ Implement a disposal ban on commercial and residential organic waste at the Revelstoke Landfill ➤ Provide drop-off facilities at the Revelstoke Landfill for self-haul residential and ICI customers ➤ Evaluate options for commercial food waste processing in the Golden waste shed
2020	<ul style="list-style-type: none"> ➤ Implement a disposal ban on commercial and residential organic wastes at the Golden Landfill ➤ Provide drop-off facilities at the Golden Landfill for self-haul residential and ICI customers