



*Solid Waste Management Plan*

**DRAFT Technical Memo 4:**

# **FOOD WASTE REDUCTION**

APRIL 4, 2019

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## REVISION TRACKING

Revision	Date	Revision by	Purpose	Changes made
Rev. 0	April 5, 2019	Authored by S. Wilmot and J. Coosemans; Reviewed by R. Tooms, M. Daly and N. Veikle	Initial authoring of document	
Rev. 1	To be completed following PTAC meeting on April 16, 2019	N. Veikle	Integrate feedback from PTAC prior to presenting to RDKS Board	

The Regional District of Kitimat-Stikine (RDKS) is developing a new Solid Waste Management Plan (SWMP; the Plan) to provide direction for how to reduce, reuse, recycle and dispose of our waste for the next decade. The SWMP will be developed in consultation with stakeholders; a Public and Technical Advisory Committee (PTAC) will advise the Regional District Board on the development of plan targets and strategies. The primary focus of the SWMP will be to improve the operational efficiency of existing programs, services and facilities. Multiple topics have been identified for discussion and development of management strategies within the Plan. Each topic requires scope and context, problem formulation, and identification and preliminary evaluation of options. This information will be presented to PTAC to confirm initial content is sufficient to engage stakeholders. Stakeholder engagement will provide an opportunity for additional topics and options to be identified and evaluated. Feedback from stakeholders and PTAC will help the technical team prioritize topics and identify preferred option(s).

This technical memo presents information related to food waste reduction strategies and how these strategies may be implemented in the RDKS.

## 1. Scope and Context

### 1.1. Background

More than a third of food produced and distributed in Canada never gets eaten (National Zero Waste Council, 2018). In 2014, the value of this wasted food was estimated at \$100 billion annually (Gooch & Felfel, 2014). This waste happens throughout the production cycle as well as at the consumer level. About half occurs during production, transportation and distribution, during processing, and by retailers such as grocery stores and restaurants. The other half occurs once the food reaches consumers, as illustrated in Figure 1. (National Zero Waste Council, 2018).

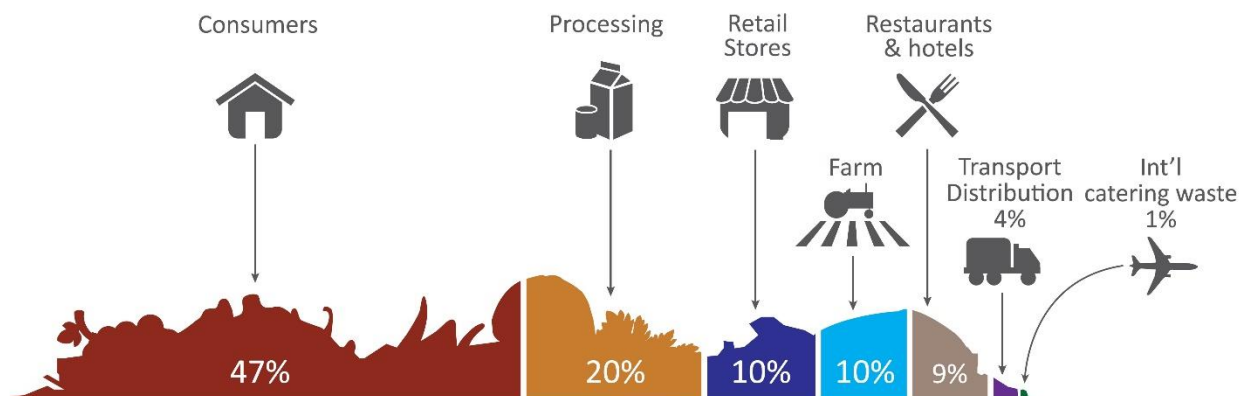


Figure 1 Food Waste in Canada (source: National Zero Waste Council)

Uneaten, wasted food is only the tip of the iceberg. Resources used in food production are also wasted, as shown in Figure 2. Furthermore, landfilling food waste generates methane gas, which is a greenhouse gas (GHG) 25 times more harmful to the environment than carbon dioxide (US EPA, 2007).

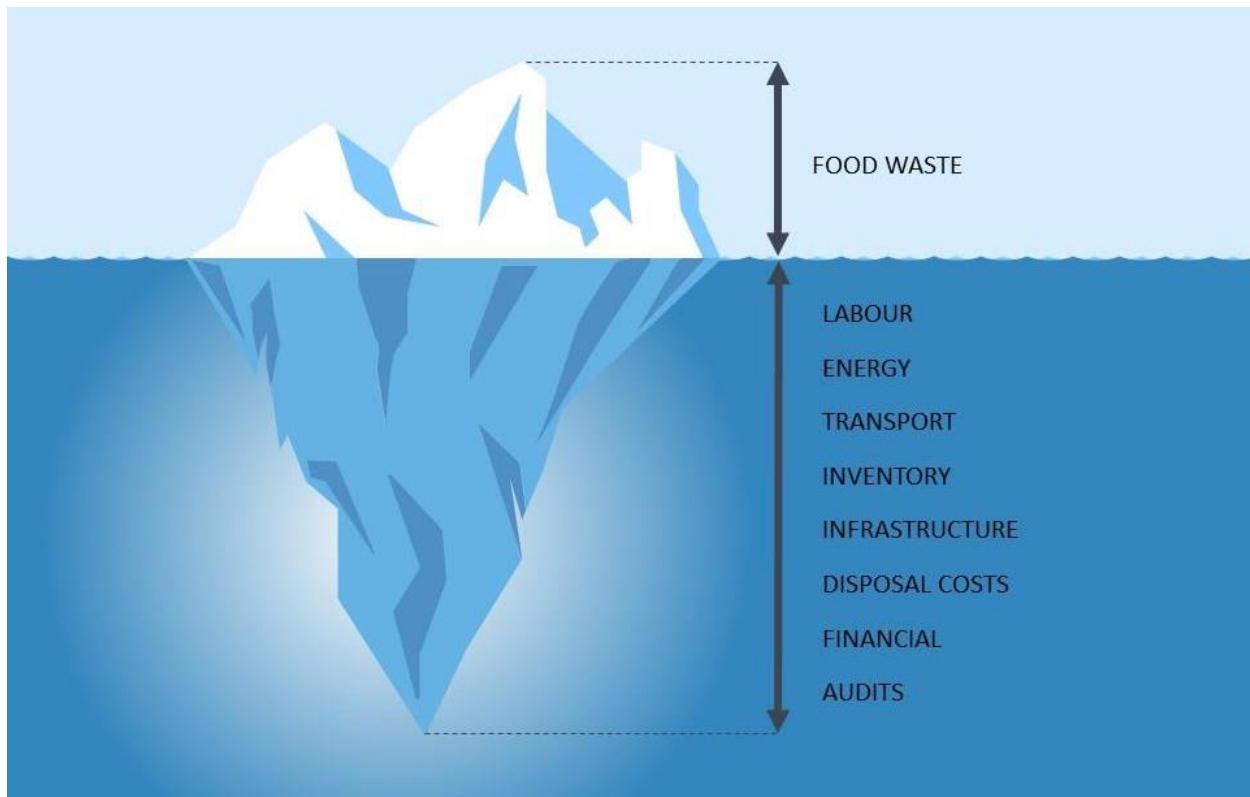


Figure 2. Wasted resources from wasting food (Gooch & Felfel, 2014)

Food waste can be divided into two categories: avoidable and unavoidable (WRAP, 2009). Avoidable food waste is food that could have been eaten. This category includes food some people eat and others do not (e.g. bread crusts), and food that can be eaten when an item is prepared in one way but not another (e.g. potato skins). Unavoidable food waste consists of portions of food that are not eaten under normal circumstances, such as bones, egg shells and tea bags. Food waste reduction efforts focus on avoidable food waste.

A food waste reduction and prevention strategy has the potential to reduce the amount of food entering the municipal waste stream. A successful strategy can save money for both consumers and local governments. The food waste issue has gained national and international attention.

A few notable agencies with food waste reduction campaigns include:

- The National Zero Waste Council of Canada has adopted and adapted the Love Food Hate Waste campaign and supporting materials, as first developed in the United Kingdom;
- The US Environmental Protection Agency (US EPA) has developed a strategy called Food: Too Good To Waste (British Columbia Ministry of Environment, 2015);
- WRAP (Waste & Resources Action Programme) U.K. has multiple campaigns related to food waste prevention.

## 1.2. Local Context

Within the Terrace Service Area in 2018, 8,196 tonnes of refuse and small loads of construction and demolition material were disposed of through the Thornhill Transfer Station. A study was done in 2017 to assess the composition of waste moving through the Thornhill Transfer Station. This study found that approximately 20% of garbage was composed of compostable organic materials (TetraTech Inc., 2017). Compostable organics were further subdivided into several categories, including unavoidable backyard compostable food waste, unavoidable food waste that is not backyard-compostable, and avoidable food waste. The quantity of food waste within each category (shown as percentages and volumes of waste deposited at the Thornhill Transfer Station) is shown in Table 1.

*Table 1. Quantity of food waste in volumes of Food Waste and their corresponding percentages in the Waste Stream, Greater Terrace Area, 2017.*

Waste Type:	Volume of Waste (tonnes)	Percentage of Waste (%)
Total waste disposed	8,196	100%
Food waste – backyard compostable (unavoidable)	279	3%
Food waste – non-backyard compostable (unavoidable)	42	1%
Food waste – avoidable	863	11%
Food waste subtotal	1,184	14%

From this study, we can extrapolate that 14% of the waste stream (1,184 tonnes of organics) could have been avoided or directed to the compost facility. Of those 1,184 tonnes of organics, 73% (863 tonnes) was avoidable (i.e., could have been eaten).

In the Terrace Service Area, the focus to date has been on diverting food waste to the composting facility. Organic waste is classified as a Restricted Waste, which means it must be delivered to the Thornhill Transfer Station in separated loads. The tipping fee for organic waste is lower than the tipping fee for garbage (i.e. \$99/tonne for organics; \$110/tonne for garbage), which creates an incentive for commercial generators to separate their food waste. The residential sector is provided with a dedicated collection service for food and yard waste. In 2018, 859 tonnes of food and yard waste were collected from the residential sector; 560 tonnes were collected from the commercial sector. No composition studies have been done to assess the quantity of avoidable food waste within these streams. Differential tipping fees were intended to encourage the reduction the amount of food waste that is sent to the landfill; however, they do not reduce the amount of food waste produced.

As the Hazelton and Highway 37 North service area does not have a compost facility, it may be inferred that the quantity of avoidable food waste in the garbage may be higher than in the Terrace Service Area. There has not been a waste composition study completed for the Hazelton & Highway 37 North Service Area. The absence of weigh scales at the waste

management facilities and waste composition results makes it difficult to estimate the quantity of food being disposed. The calculated volume of food waste generated in the Greater Terrace Area, when converted to a per capita generation rate, can be applied to the population of the Hazelton and Highway 37 North Service Area to produce an estimate of the quantity of food wasted. The results of this analysis are presented in Table 3.

Table 2. Volumes of food waste generated in the Terrace and Hazelton and Highway 37 North Service Areas based on extrapolated volumes from the Terrace Area.

	Population	Waste Volume (tonnes)
Greater Terrace Area Population	19,073	
Total food waste disposed in the Greater Terrace Area, 2018		1,184
Per capita food waste disposed		0.062
Total composted (assumes all ICI organics and half of residential organics are comprised of food waste)		990
Composted per capita		0.052
Total food waste generated per capita		0.114
Hazelton and Highway 37 North Service Area population	6,941	
Estimated food waste volume for Hazelton and Highway 37 North Service Area		791

Figure 3 illustrates the U.S. EPA’s model developed for the management of food waste (United States Environmental Protection Agency, n.d.).

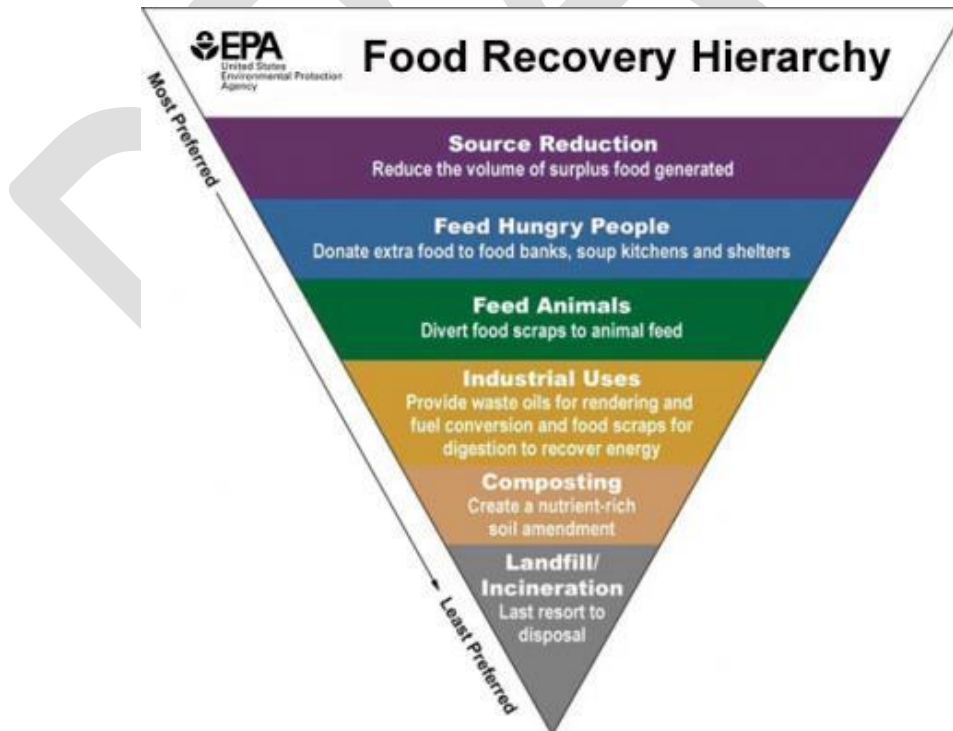


Figure 3. Food Recovery Hierarchy (United States Environmental Protection Agency, n.d.)

An investigation of the current food waste management practices was conducted by the Regional District in September 2018. Staff examined how local food producers, retailers, and food distribution organizations operate in the Greater Terrace Area. The study included grocers and select restaurants. The most common approach to managing food waste is using unsellable food as animal feed or compost. Local grocers are all connected with Food Distribution Organizations (FDOs), although the proportion of food that is given to FDOs rather than composted or disposed of was not specified. Based on the 560 tonnes of food waste composted and 552 tonnes landfilled (as quantified through scale records and the waste characterization study), it is clear that more can be done to strengthen ties between food retailers and FDOs to increase the proportion of food distributed to feed hungry people.

The Regional District is aware of one organization in the Hazelton and Highway 37 North Service Area that is active in food waste reduction. Northwest BC Food Action Network promotes local food security and resilience in the context of food systems.

The City of Terrace's most recent Official Community Plan (City of Terrace, 2017) has stated that Food Waste Reduction initiatives are a priority over the next 5 years. The City intends to work with the Regional District in achieving streamlined waste reduction objectives.

## 2. Problem Formulation

**Is a food waste prevention strategy appropriate throughout the RDKS?**

**How will a food waste prevention strategy affect organizations that currently distribute excess food to people in need?**

**Should a food waste prevention strategy target residents, the ICI sector, or both?**

### 2.1. Applicability

The advantage of focusing on food waste reduction is that it is applicable across the Regional District, regardless of infrastructure or service level. It is also applicable to all residents, regardless of income or housing type. Anyone can benefit from shopping carefully, planning meals, and storing food in the right way to maintain freshness.

Food waste prevention is applicable to much of the Industrial, Commercial, and Institutional (ICI) sector, although the specific strategies applicable vary between subsectors. For example, organizations that prepare and serve food such as restaurants, hotels and hospitals can take steps to reduce the amount of food they waste by changing ordering and preparation practices and carefully considering portion sizes. Food retailers can take steps to manage inventory and donate surplus edible food. Recent innovations in technology, such as the new FoodMesh platform – a Canadian platform developed in 2015 that connects businesses, growers, processors, charities, and other consumers to find good food a destination - have increased the ease with which donations can be made (National Zero Waste Council, 2018). Efforts to support food waste reduction in the ICI sector should be tailored to the specific needs of a particular subsector (i.e. food service and food distribution will require specific strategies).

### 2.2. Influence of the Food Recovery Hierarchy

Food Distribution Organizations (FDOs) including Food banks and soup kitchens may see a reduction in donations if food retailers take significant steps to reduce food waste (e.g. by

ordering less stock). Steps should be taken to maximize donations of edible food that remains after other steps are taken to reduce food waste generation.

The RDKS has recently implemented a compost facility in the Greater Terrace Area. A highly effective food waste reduction program could impact the quantity of feedstock available for the compost facility. However, the substantial portion of food waste being disposed in the landfill indicates that there is potential for reduction without negatively impacting the composting facility. Education and awareness messaging from the RDKS should emphasize the importance of reducing food waste through better planning; secondary messaging should direct citizens to compost unavoidable food waste.

### 3. Stakeholders

The following organizations and categories of individuals will be impacted by measures taken to reduce food waste:

- RDKS
- Ministry of Environment and Climate Change Strategy (MoE)
- Member municipalities
- Residents
- Businesses (Restaurants, grocers, camps)
- Food Distribution Organizations (FDOs)

### 4. Options Analysis

There are numerous initiatives and projects under review within the new SWMP. The RDKS recognizes that implementation of new initiatives under the SWMP must take into consideration multiple factors. Prioritizing new waste management initiatives must consider:

- The needs of the community;
- Servicing requirements, including provincial regulations, bylaws and contracts;
- Cost and financial implications, such as increases in taxation; and
- Organizational impacts, including capacity and resource limitations.

#### 4.1. Focus on Residential Sector

At the household level, a food waste prevention campaign typically includes:

- Messaging about the cost of wasting food;
- Messaging about the environmental impacts of wasting food;
- Messaging about the health impacts of wasting fruits and vegetables;
- Tips on how to shop more carefully (e.g. make a meal plan, look in your pantry and fridge first and then make a shopping list);
- Tips on how to store food so that it lasts longer;
- Tips on how to store and use leftovers; and
- Guidance on best before, use by and sell by dates (British Columbia Ministry of Environment, 2015).

Residential food waste prevention campaigns are currently being run in many large jurisdictions such as Metro Vancouver, Toronto, York Region (National Zero Waste Council, n.d.), and more.



Canadian municipalities may design and implement their own campaigns, or they may elect to join a larger national movement called Love Food Hate Waste. In British Columbia, the Ministry of Environment and Climate Change Strategy has entered into an agreement with the Love Food Hate Waste Campaign to provide free access to BC Regional Districts and Municipalities.

The BC Ministry of Environment & Climate Change Strategy is a partner in the National Zero Waste Council, which is the organization responsible for the Love Food Hate Waste campaign in Canada. Through the partnership, tools from the Love Food Hate Waste campaign are available to communities province-wide for free. A [residential food waste prevention toolkit](#) has been published by the Ministry of Environment and Climate Change; a number of other resources are also available on the Ministry's [website](#) (British Columbia Ministry of Environment, 2015).

#### 4.2. Focus on the ICI Sector

As there are far fewer food retailers than households, focussing on ICI sources of food waste may be more feasible, higher impact, and more easily implemented than influencing household behaviour change. The BC Ministry of Environment & Climate Change Strategy has published a [food service food waste prevention toolkit](#) that may support ICI outreach work in the RDKS (British Columbia Ministry of Environment and Climate Change Strategy, n.d.).

#### 4.3. Develop and Implement a Comprehensive Strategy

The SWMP could commit the RDKS to developing a comprehensive food waste reduction strategy. Developing a strategy could take several years, if the RDKS chooses to undertake primary research and material development, and do extensive consultation. However, since significant work has been done in this area already, and there is unlikely to be a significant benefit from developing local materials. If the RDKS leverages work already done and made freely available from the resources described in Section 1.3, 4.1, and 4.2 then a strategy and materials could be developed more quickly.

#### 4.4. Minimal Effort

As an alternative approach, the RDKS may simply include links to the MOE's toolkits on its website and direct residents and organizations to those resources. In this scenario, RDKS staff would continue to spend considerable effort promoting and enforcing compliance with requirements to separate organic waste from the rest of the garbage, for use at the centralized composting facility.

### 5. Recommended Management Approach

The RDKS should focus its efforts on applying the Love Food Hate Waste Campaign. This will target the residential sector with messaging throughout all service areas. At a minimum, messaging can be delivered through social media and/or the RecycleCoach waste app used by the Regional District. Additional elements of the campaign may include printed posters at event booths (i.e. farmer's markets, business expos, wellness expos, etc.), distribution of fridge magnets and brochures that will nudge residents and businesses to take steps to reduce food waste.

It is important that the food waste management hierarchy be reflected in the messaging, particularly in the Greater Terrace Area, where significant effort has gone into promoting the

mandatory organics separation requirement and accompanying residential service. Generators of food waste need to understand the difference between avoidable and unavoidable food waste and the roles that food waste prevention and composting play in the overall waste management system.

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