



2008 Regional Solid Waste Management Plan



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# 2008 Regional Solid Waste Management Plan



Prepared for  
**Regional District of Fraser Fort George**

Submitted by  
**Gartner Lee Limited**

# **2008 Regional Solid Waste Management Plan**

Prepared for  
**Regional District of Fraser-Fort George**

In association with  
**AMEC**

**September 2008**

Reference: **GLL 70-961**



Gartner Lee Limited

September 10, 2008

Petra Wildauer  
General Manager of Environmental Services  
Regional District of Fraser-Fort George  
155 George Street.  
Prince George, BC V2L 1P8

Dear Ms. Wildauer:

**Re: GLL 70-961 – 2008 Regional Solid Waste Management Plan**

We are pleased to submit the Regional Solid Waste Management Plan Update – which is an update to replace the 1997 Plan. This plan, upon full implementation, will increase the waste diversion rate of the Regional District to over 50% of the amount of waste generated. Much of this diversion will be achieved through increasing recycling and composting activities.

It has been a pleasure and privilege to work with the Regional District and the Technical Advisory Committee during the development of this updated Plan.

Yours very truly,  
GARTNER LEE LIMITED

Maura Walker  
Senior Environmental Planner

MHW:gc

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# 1. Background

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In British Columbia, Regional Districts are mandated by the Provincial *Environmental Management Act* to develop Solid Waste Management Plans that are long term visions of how each regional district would like to manage their solid wastes, including waste diversion and disposal activities. These plans are updated on a regular basis to ensure that the plan reflects the current needs of the regional district, as well as current market conditions, technologies and regulations.

The Regional District of Fraser Fort George (RDFFG) has undertaken a review of the 1997 Regional Solid Waste Management Plan to ensure that the plan reflects current public and political direction. This document outlines the status of solid waste operations in 2007, and presents an updated plan for solid waste management in the RDFFG. The Plan includes programs, policies and infrastructure to meet the objectives of:

- minimizing the amount of waste sent to landfill and maximize landfill life;
- increasing recycling opportunities, particularly for plastics and organics;
- incorporating Extended Producer Responsibility (EPR) into Plan;
- addressing the final closure and monitoring of the small landfills; and
- addressing the management of construction and demolition waste.

## 1.1 Guiding Principles

The guiding principles for the Solid Waste Management Plan are:

- the consumption of material and energy resources is set at a level which is ecologically sustainable;
- the regional solid waste stream is reduced to the greatest extent possible, in accordance with the hierarchy of reduce, reuse, and recycle, and consistent with local resources and the nature of the regional solid waste stream;
- the goal of environmental policy is zero pollution and the strategies for achieving that goal are in accordance with the precautionary principle;
- individuals and firms are enabled to make environmentally sound choices about consumption of resources and generation of waste through provision of appropriate information, including user-pay and market-based incentives wherever possible; and
- reduction policies and strategies are developed through public consultation and are socially acceptable and cost-effective, based on full accounting of costs and benefits, both monetary and non-monetary.



## 2. The Planning Process

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The process to update the plan was conducted in three phases. The first phase was an assessment of the current system and a report on the implementation status of the 1997 Plan. The second phase was the review of options to address the region's future solid waste management needs and the selection of preferred options. The final phase, planned for June to August 2008, will be a community consultation process to obtain input into the selected options.

The planning process has involved a number of stakeholders and the general public through a variety of different activities. These are outlined below.

The RDFFG hired Gartner Lee Limited as their technical consultant for the duration of the process to update the plan. Gartner Lee guided the process, provided technical input on the options, wrote the planning documents, and assisted with the consultation process.

A Technical Advisory Committee (TAC) was formed by the RDFFG to provide community and technical input into the planning process and provide recommendations to the Regional Board. The TAC has representatives from the member municipalities, First Nations, and Ministry of Environment. This committee met regularly throughout the planning process. Committee members were:

- Tom Kadla and Sean LeBrun (Alternate), City of Prince George;
- Warren Waycheshen, District of Mackenzie;
- Eliana Clements, Village of McBride;
- Doug Fleming, Village of Valemount;
- Petra Wildauer, Regional District of Fraser-Fort George; and
- Ben VanNostrand, Ministry of Environment.

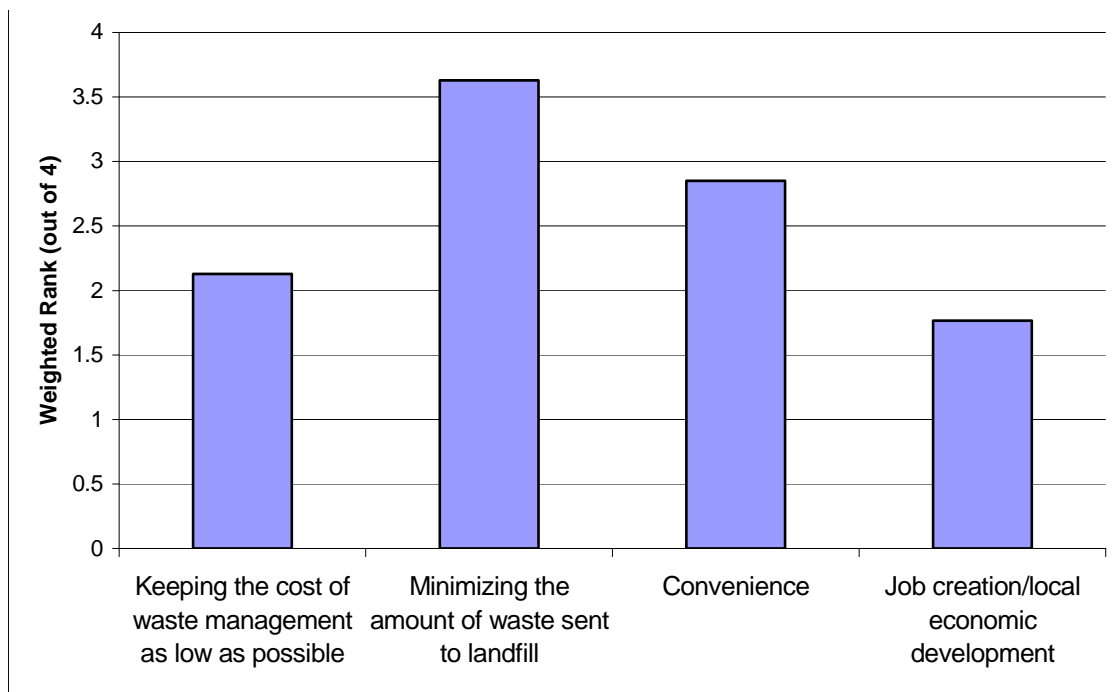
Other waste management stakeholders, such as private sector service providers and the local environmental non-governmental organization, REAPS, were consulted throughout the planning process through interviews. Stakeholders, along with TAC members, participated in a day-long solid waste management plan workshop to identify options for consideration in the planning process. At the workshop, participants identified the following criteria for shortlisting the options to be included in the updated Plan. The criteria are listed in order of importance:

- Reduce waste to landfill
- Convenience
- Air quality
- Marketability of materials
- Cost
- Enforceability
- Minimize carbon footprint

- Access
- Programs aligned with landfill goals/operation
- Compatible with incentives
- Support waste management hierarchy.

The general public was also engaged in the planning process. At the start of the process, the public was given the opportunity to respond to a survey to assist with the identification of key issues. Over 700 surveys were received and the results indicated a strong demand for curbside recycling in Prince George, a demand for more plastic recycling, and support for ban on disposal of recyclables if curbside recycling is introduced. Respondents were also asked to indicate the relative value they place on the criteria for the selection of Plan options. The response to this question is shown in Figure 1.

**Figure 1 Relative Importance of Criteria for Selecting Waste Management Options**



Additional public consultation was conducted once the draft Plan was prepared. This consultation included public meetings, a newsletter, presentations to municipal councils, a website, press coverage and a second survey. Over 800 people responded to the survey and 98% of respondents supported the content of the draft plan.

### 3. Plan Area

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The Solid Waste Management Plan applies to the entire RDFFG, which covers nearly 52,000 km<sup>2</sup>. The electoral boundaries are shown on Figure 2 and include the City of Prince George, the District of Mackenzie, the Village of McBride, the Village of Valemount, and Electoral Areas 'A' Salmon River and Lakes, 'C' Chilako River-Nechako, 'D' Tabor Lake-Stone Creek, 'E' Woodpecker-Hixon, 'F' Willow River-Upper Fraser, 'G' Crooked River-Parsnip, and 'H' Robson Valley-Canoe. In addition there are two Indian Reserves<sup>1</sup>.

The RDFFG is located in central-eastern BC. It is bounded by Alberta to the east, the Columbia-Shuswap and Thompson-Nicola Regional Districts to the south, the Cariboo Regional District to the southwest, the Bulkley-Nechako Regional District to the west, and the Peace River Regional District to the north/northeast. The RDFFG is home to Mount Robson Provincial Park, which is the second oldest provincial park in British Columbia and home to Mount Robson, the highest peak in the Canadian Rockies. Together with neighbouring Jasper National Park, Mount Robson Provincial Park comprises a portion of one of the world's largest blocks of protected areas. It was designated as a part of the Canadian Rocky Mountains World Heritage Site by UNESCO in 1990.

The RDFFG experiences a moderate and dry climate, with daily average temperatures of -9.6°C in January and 15.5°C in July. The heaviest snowfall occurs in January (55.8 cm) and the heaviest rainfall occurs in June (72.7 mm). Winds are generally from the south all year long.<sup>2</sup>

#### 3.1 Population

As shown in Table 1, the 2006 census count for the region in 2006 was 92,264, including municipalities, electoral areas and Indian Reserves. BC Statistics indicates that the population has fallen 3.2% since 2001, but predicts a gradual increase in population over the next 25 years to 100,385 in 2032 (a 1.1% increase).

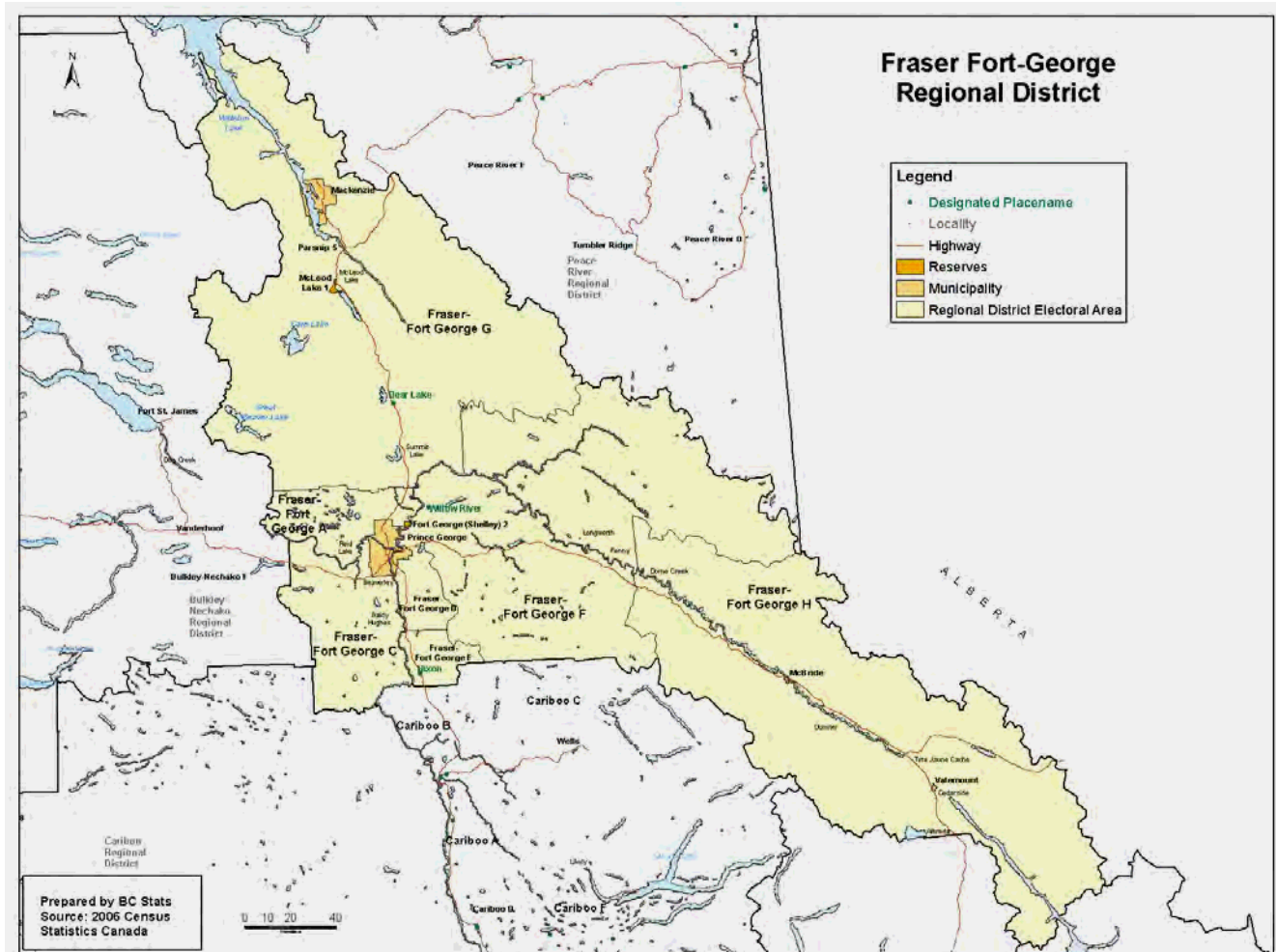
The only population to increase between 2001 and 2006 was that of the First Nations communities. While this group makes up only 0.2% of the total population of the RDFFG, it grew 14.2% from 2001 to 2006.

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<sup>1</sup> RDFFG 2006 Census Profile available from BC Stats online at: <http://www.bcstats.gov.bc.ca/data/cen06/profiles/detailed/rd53.asp>

<sup>2</sup> Climate data from <http://www.climate.weatheroffice.ec.gc.ca>

Figure 2. Map of Regional District of Fraser-Fort George



In contrast to the data from BC Statistics, staff from the City of Prince George and the RDFFG believe that there has been an increase in the population in recent years, as indicated by the increasing volumes received at municipal wastewater treatment facilities and the increase in the number of houses setting out garbage for collection (the vacancy rate has dropped significantly). As a result, there is some question in regard to the accuracy of the data presented in Table 1.

**Table 1. 2006 Population, By Area**

| Area                                           | Population    | % of RDIFFG Total |
|------------------------------------------------|---------------|-------------------|
| District of Mackenzie                          | 4,539         | 5.5%              |
| Village of McBride                             | 660           | 0.7%              |
| City of Prince George                          | 70,981        | 76.0%             |
| Village of Valemount                           | 1,018         | 1.3%              |
| Indian Reserves                                | 201           | 0.2%              |
| Electoral Area A                               | 3,275         | 3.6%              |
| Electoral Area C                               | 3,217         | 3.3%              |
| Electoral Area D                               | 4,361         | 4.7%              |
| Electoral Area E                               | 502           | 0.6%              |
| Electoral Area F                               | 1,284         | 1.5%              |
| Electoral Area G                               | 349           | 0.5%              |
| Electoral Area H                               | 1,877         | 2.1%              |
| <b>Regional District of Fraser-Fort George</b> | <b>92,264</b> | <b>100%</b>       |

### 3.2 Economic Data

In 2006, there were 36,465 households in the RDIFFG; 80% of these dwellings were single-detached, semi-detached, row houses or duplexes, with the remainder being apartments and movable dwellings.<sup>3</sup> The average number of people per household was 2.5, which is the same as the BC average.

According to BC Statistics 2006 census data, the main industries (by labour force) for the region are logging and forest products, manufacturing, retail trade, health care and social assistance, and wood product manufacturing.<sup>4</sup>

<sup>3</sup> Source 2006 Census Profile of Fraser-Fort George, BC Stats.

<sup>4</sup> Source: 2006 Community Facts for Fraser-Fort George, BC Stats.

## 4. Existing Solid Waste Management System

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This section provides a description of the current solid waste management system in the RDFFG, which includes an overview of the major infrastructure, services, and programs in place in the RDFFG that contribute to the management of solid waste. A more detailed description of the solid waste management system in 2008 is provided in Appendix A.

### Education and Promotion Activities

- The RDFFG has a broad array of waste management information available on their website as well as through tours, advertisement, and brochures.
- City of Prince George provides a wide variety of waste management information on their website.
- REAPS (Recycling and Environmental Action Planning Society) acts as a local clearinghouse for waste reduction and recycling information through their website, workshops and classroom activities. REAPS receives support from the RDFFG and the City of Prince George.

### Waste Reduction and Reuse Programs

- Backyard composting is promoted as a means to reduce the amount of waste that needs to be collected or managed by the waste management system. Roughly 5,000 subsidized compost bins have been distributed by the RDFFG to date. REAPS provides backyard composting education through workshops, a compost demonstration garden and a hotline.
- Swap sheds have been set up at the Foothills Boulevard and Mackenzie landfill and at some transfer stations. These facilities provide places where residents may leave unwanted but usable items for other residents to take.

### Recycling Programs

- Residential Recycling:
  - Residents' primary access to recycling is through recycling depots. There are 17 depots distributed throughout the RDFFG.
  - The depots consist of roll-off bins with compartments for cardboard, paper, newspaper, natural HDPE (e.g., milk jugs), and metal food and beverage containers.
  - The total amount of material recycled through residential programs in the RDFFG in 2007 was 2,735 tonnes.
- Recycling Activities at the Landfills:
  - The Foothills Boulevard and Mackenzie landfills receive the following for recycling: scrap metal, used tires, used motor oil and filters, antifreeze and lead-acid batteries, in addition to the recycling bins for household recyclables. In 2007, 1,240 tonnes of these materials were recycled at the landfills.

- Industrial, Commercial and Institutional (ICI) Recycling:
  - Recycling services for the ICI sector are generally provided by private sector collection companies on a subscription basis.
  - An estimated 10,000 tonnes of ICI waste materials were recycled in 2007.
- All processing and marketing of recyclables is done by the private sector.
- Centralized Composting:
  - A large-scale composting facility is in operation at the Foothills Boulevard Regional Landfill. This facility accepts residential and ICI yard and garden waste.
  - In 2007, the composting facility at Foothills Boulevard Regional Landfill received 8,020 tonnes of material.

### **Collection Services**

- Curbside garbage collection is provided to residents and some businesses by all municipalities in the RDFFG.
- In the electoral areas, waste collection is privately contracted or self-hauled to a local disposal facility.
- In Prince George, most businesses have privately contracted waste collection.

### **Transfer Stations**

- There are 18 transfer stations in the RDFFG. All of the transfer stations offer household waste disposal and most offer multi-material recycling services for household recyclables. Some of the larger transfer stations offer a broader range of recycling services.

### **Landfills**

- There are five operating landfills in the RDFFG: Foothills Boulevard Regional Landfill, Mackenzie Landfill, Dome Creek Landfill and Sinclair Mills Landfill receive municipal solid waste. The Legrand Select Waste Landfill receives only construction, demolition and landclearing wastes.
- The Mackenzie Landfill provides disposal services to the northern part of the region and also offers marshalling areas for tires, fridges/freezers, metals, oil & filters, and anti-freeze.
- The Legrand Select Waste Landfill accepts select inert waste from both private and public sectors. Inert waste includes demolition, landclearing debris and construction waste, scrap metal, and vehicle hulks.
- Dome Creek & Sinclair Mills Landfills are estimated to receive less than 50 tonnes per year at each site. The RDFFG's 1997 Solid Waste Management Plan slated these sites for closure.
- There are 13 landfills that are no longer operational. Only one of these sites has undergone final closure/capping. The remaining 12 sites still require final closure.

### **Product Stewardship**

■ The following BC product stewardship programs are active in the RDFFG and contribute to reducing the burden of waste management on the RDFFG and member municipalities:

- Beverage Container Stewardship Program;
- BC Lead Acid Battery Collection Program;
- Tire Stewardship BC;
- Product Care (for paints, solvents/ flammable liquids, gasoline and pesticides);
- Medications Return Program
- BC Used Oil Management Program; and
- Electronics Product Stewardship.

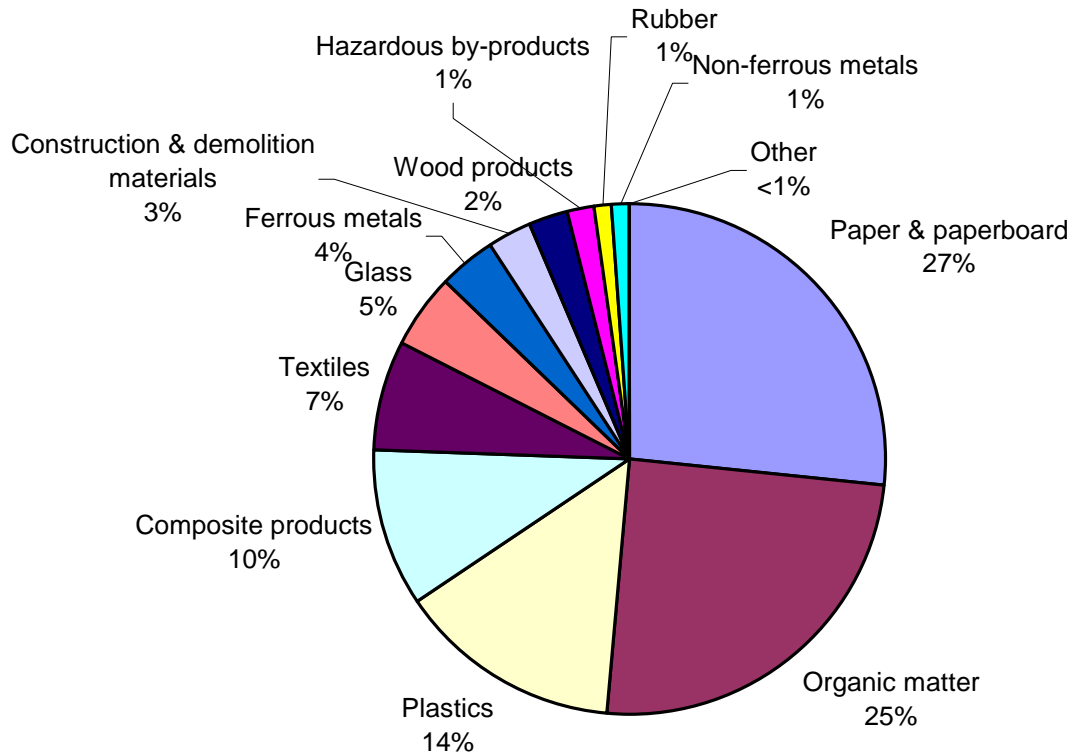


## 5. Current Waste Stream Characterization

This section provides a general description of the solid waste generated in the RDFFG in 2007, including the composition of the waste stream, and the quantities of waste disposed in landfills and recycled. This information, along with the system description in Section 4, provided the baseline for the solid waste management planning process.

### 5.1 Composition of Waste Disposed

Figure 3 shows the composition of the waste disposed of at Foothills Boulevard Regional Landfill, based on data from the 2007 *Waste Characterization Study for Foothills Boulevard Regional Landfill*.<sup>5</sup> The Foothills Boulevard Regional Landfill receives 96% of the RDFFG's residual waste.



**Figure 3. Estimated Composition of Waste Disposed of at Foothills Boulevard Regional Landfill (2007)**

<sup>5</sup> 2007. Technology Resource Inc.

## 5.2 Disposal and Diversion in 2007

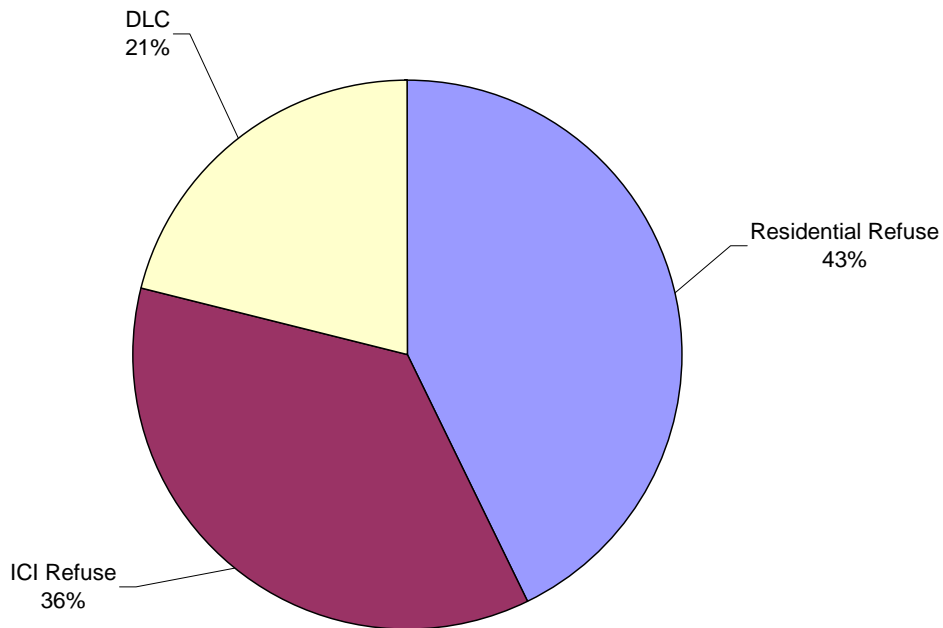
In 2007, the RDFFG disposed of 95,311 tonnes (based on scale house records from Foothills Boulevard Regional Landfill and Mackenzie Landfill and an estimate of tonnes received at Dome Creek, Sinclair Mills and Legrand Landfills). It is estimated that almost 26,000 tonnes of material were recycled in the region in 2007, resulting in a recycling rate of 21%. Table 2 outlines the main activities that contribute to the RDFFG's disposal and diversion rates.

**Table 2 2007 Disposal and Diversion**

| <b>Waste Management Activity</b>                                                              | <b>Tonnes</b> |
|-----------------------------------------------------------------------------------------------|---------------|
| <b>Disposal Activities</b>                                                                    |               |
| Foothills Boulevard Regional Landfill                                                         | 91,842        |
| Mackenzie Regional Landfill (weighed loads plus an estimate of residential loads not weighed) | 3,650         |
| Legrand Select Waste Landfill (estimate)                                                      | 134           |
| Dome Creek Landfill (estimate)                                                                | 44            |
| Sinclair Mills Landfill (estimate)                                                            | 36            |
| <b>Total Disposal</b>                                                                         | <b>95,706</b> |
| <b>Recycling Activities</b>                                                                   |               |
| Recycling at Foothills Boulevard Regional Landfill                                            |               |
| Tires                                                                                         | 143           |
| Appliances                                                                                    | 263           |
| Scrap Metal                                                                                   | 776           |
| Compostables                                                                                  | 8,020         |
| Lead acid batteries                                                                           | 43            |
| Used motor oil and filters                                                                    | 26            |
| Antifreeze                                                                                    | 2             |
| Recycling at Mackenzie Landfill                                                               |               |
| Scrap Metal                                                                                   | 1446          |
| Vehicles                                                                                      | 2             |
| Lead acid batteries                                                                           | 8             |
| Used motor oil and filters                                                                    | 14            |
| Antifreeze                                                                                    | 1             |
| Multi-material recycling depots                                                               |               |
| Cardboard                                                                                     | 630           |
| Mixed Paper Products                                                                          | 1,038         |
| Newspaper                                                                                     | 944           |
| Clear #2 Plastic                                                                              | 23            |
| Mixed food and beverage containers                                                            | 52            |
| Private sector recycling (estimate for fibre, metal and pallets)                              | 10,000        |
| REAPS organic recycling (from ICI sector) (estimate)                                          | 3             |
| Backyard composter distribution (250 kg x 5,500 bins)                                         | 1,375         |
| Encorp recycling (based on an estimate of 10 kg/capita/year)                                  | 1,000         |
| <b>Total Recycling</b>                                                                        | <b>25,809</b> |
| <b>Recycling Rate (recycling / [disposal + recycling])</b>                                    | <b>21%</b>    |

### 5.3 Waste Generators

The Foothills Boulevard Regional Landfill tracks the source of loads of waste delivered to the facility. Loads are categorized as Residential, Industrial/Commercial/Institutional (ICI), and Demolition/Landclearing/Construction (DLC). The Mackenzie Landfill does not weigh residential loads, and the Legrand landfill only accepts DLC waste. The data presented below is therefore from the Foothills Boulevard Regional Landfill only. Since the Foothills Boulevard Regional Landfill receives 96% of the waste buried in the region, the waste generator data shown in Figure 4 is regarded as representative of the RDDFG as a whole.



**Figure 4. Waste Generators (Sources of Landfilled Waste in 2007)**

## 6. Future Solid Waste Management System

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The solid waste system in the RDFFG will build on the existing framework of services and programs while seeking to improve the delivery of those services and continue to reduce the quantity of waste sent to landfill. The programs, infrastructure and policies that comprise the updated Solid Waste Management Plan are outlined in this section and presented in accordance with the waste management hierarchy, as shown in Figure 5:



**Figure 5. Waste Management Hierarchy**

### 6.1 Reduction and Reuse Components

Reduction and reuse programs focus on minimizing the quantity of materials that need to be recycled or disposed. The reduction and reuse components include:

- swap sheds at staffed RDFFG disposal facilities;
- promotion of reduction and reuse opportunities; and
- promotion of backyard composting.

Each of these components is described below.

### 6.1.1 Swap Sheds

Swap sheds will operate at each staffed RDFFG waste management site to allow site users to drop off or pick up reusable household items. Swap sheds are presently available at seven transfer stations and Foothills Boulevard and Mackenzie Landfills. These sheds provide a “last chance” opportunity for goods that have a reasonable opportunity for reuse. The swap shed at Foothills Boulevard Regional Landfill is shown in Figure 6.



**Figure 6. Swap Shed at Foothills Boulevard Regional Landfill**

### 6.1.2 Promotion of Reduction and Reuse

On-going promotion of reduction and reuse ensures that these components of sustainable waste management become part of everyday action of residents and businesses in the RDFFG. Examples of reduction and reuse promotion include:

- promotion of swap sheds and reuse prior to annual community clean up events;
- promotion of existing electronic swap boards (e.g., Freecycle, Craigslist, MEC Gear Swap);
- promotion of existing local reuse and repair operations;
- campaigns in favour of reusables (e.g., shopping bags, coffee cups); and
- grasscycling campaigns and “how to” information.

The promotion of reduction and reuse will be undertaken by the RDFFG.

### 6.1.3 Backyard Composting Program

The RDFFG will maintain a backyard composting promotion program to encourage residents to compost at home. The program will include:

- distribution of up to 1,000 backyard composters every other year (as long as demand is sustained). An example of a common type of backyard composter is shown in Figure 7.
- educational activities and materials, including a compost demonstration garden and advisory service. Educational material will include how to compost in a manner that is “Bear Aware”. It is anticipated that REAPS<sup>6</sup> will be contracted to deliver composting education services and to staff and maintain the compost demonstration garden.
- promotion campaign.



Figure 7. Backyard Composter

## 6.2 Residential Recycling Components

The 2007 waste composition study conducted on the Prince George residential curbside garbage program indicated that roughly 50% of the waste disposed was recyclable. The residential recycling components of this Plan aim to increase the diversion of the recyclable portions of the residential waste stream to existing and new recycling services.

The key features of the recycling services to residents will be:

- curbside recycling in Prince George;
- depot-based recycling for all other areas of the RDFFG; and
- the processing and marketing of collected recyclables.

### 6.2.1 Residential Recycling in Prince George

In Prince George, curbside recycling services will be provided to all homes currently receiving curbside garbage collection. The estimated cost of this service is \$30-40 per year, in addition to the current fees paid by residents for their garbage collection program. The estimated cost for the curbside recycling program is based on a review of other curbside programs outside of the Lower Mainland, including the following 4 communities:

- Kamloops cart-based recycling program is \$33 per year per home.
- Sechelt cart-based program is \$58 per year per home.
- Kelowna is \$82 per year per home for garbage, recycling & yard waste collection. The cost of the carts is an additional \$25 per year.
- The Regional District of Nanaimo is \$32 per year per home for a blue box + 2 reusable bags.

<sup>6</sup> REAPS is a local not for profit organization focusing on solid waste reduction and environmental education.

Some cost savings may be realized as a result of the recycling program by an overall reduction in the amount of garbage tipping fees paid by the City. Additionally, some individual households may be able to reduce the size of their garbage cart and realize some cost savings.

The current depot-based recycling program will be maintained. However, with the introduction of curbside recycling, the usage of the depots will be monitored and those sites that are under-utilized may be discontinued. The City of Prince George will continue to operate the Quinn Street and Vanway waste management centres as a “one stop shop” for a range of waste materials, including recyclables, yard waste and a range of household hazardous wastes.

Residents in multi-family dwellings may be able to participate in the curbside recycling program if the dwelling is located on or near collection routes and can be serviced in the same manner as a single-family home. Buildings not able to participate in the curbside service can contract with a private collection service. Residents that do not have a recycling program at their building will be able to self-haul recyclables to a recycling depot.

### 6.2.2 Residential Recycling in All Other Areas



**Figure 8. Rural Recycling Depot**

The RDFFG will provide recycling depots for residents in the municipalities of Mackenzie, McBride and Valemount, and the electoral areas. Multi-material recycling bins for household recyclables are presently available at eight transfer stations and both landfills. It is the intention of the RDFFG to ultimately provide full-scale recycling services for household recyclables (such as plastic, paper, cardboard and

metal food cans), scrap metal and CFC-containing appliances at all staffed transfer stations and landfills.

## 6.3 Residential Recycling Supporting Programs and Policy Components

Residential recycling programs must be supported by policy and education to achieve maximum success in terms of participation and diversion. The following policies and programs will support the residential recycling programs:

- reduce the limit on the number of cans of garbage that can be set out each week for curbside garbage collection in municipalities other than the City of Prince George;

- variable charge rates according to cart volume for the City of Prince George cart-based garbage collection program;
- promotion and education; and
- bans on the disposal of recyclable materials in the garbage.

### **6.3.1 Can Limits**

In Mackenzie, McBride and Valemount, the weekly can limit will be reduced to two cans per week for each household receiving curbside garbage collection service<sup>7</sup>. Additional cans will require that a tag be purchased. This reduction in the can limit provides a financial incentive to recycle, backyard compost and engage in waste reduction behaviours and allows garbage collection to become more of a “user pay” service.

### **6.3.2 Variable Container Rates**

The City of Prince George will continue to charge a variable fee based on cart size to provide an economic incentive to reduce the amount of waste set out as garbage.

### **6.3.3 Bans on Recyclable Materials**

Once curbside recycling is introduced in Prince George, municipal waste collection staff will begin to enforce the existing ban on recyclable materials in the garbage. Designated recyclables will also be banned from disposal as garbage at all landfills and transfer stations within the RDFFG.

## **6.4 Businesses Recycling Components**

In the RDFFG, businesses will continue to have their recyclables picked up by a private contractor or self-haul their recyclables to local recycling facilities. To encourage businesses to engage in recycling, the RDFFG will introduce bans on recyclable materials in the garbage and conduct a promotion and education program. These two actions are described below.

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<sup>7</sup> In Mackenzie, the garbage collection bylaw will have to be modified to use cans rather than bags as the measurement of garbage set out for collection.



### 6.4.1 Bans on Recyclable Materials

The RDDFG will encourage businesses, industries and institutions to recycle by enacting disposal bans on recyclable materials enforced at the point of disposal, i.e., staffed transfer stations and landfills. Banned materials will be those materials with established recycling markets and collection infrastructure such as cardboard and metal, or be products covered under product stewardship programs, such as tires and beverage containers.



**Figure 9. Recycling at Businesses**

### 6.4.2 Business-Focused Promotion and Education

As with the residential recycling programs, encouraging businesses to participate in recycling requires education support to achieve maximum success in terms of participation and diversion. Educational materials and promotional programs will be developed targeting the needs and interests of employers and employees of local businesses and may include:

- a web-based list of diversion opportunities for businesses;
- a waste audit and advisory service; and
- recognition programs, e.g., Sustainability Certification, Annual Awards.

## 6.5 Yard Waste Collection Components

Yard waste is generated from spring to fall in the RDDFG and can represent a large volume of the waste material generated. Although residents will be encouraged to backyard compost yard waste, there remains a portion of the yard waste that is not or cannot be composted in backyards. To minimize the amount of yard waste in the landfill and the amount of air pollution caused by backyard burning, alternative opportunities to dispose of yard waste are required. The following approaches will be used for yard waste collection:



**Figure 10. Yard Waste Drop-off Bin**

- seasonal yard waste drop-off depots will be provided at all staffed transfer stations and landfills;
- the Municipality of Mackenzie will implement spring and fall curbside collection events for yard waste. The estimated annual cost for a spring and fall collection (two days of collection per season) is \$8 per property;
- the City of Prince George will assess options for yard waste collection in Prince George, including curbside collection and depot-based collection. This assessment may include a collection pilot project. The City may also consider the collection of other compostable wastes, such as food waste and non-recyclable paper (tissues, paper towelling, soiled newsprint, etc.). Curbside collection of

yard waste in Prince George cannot begin until there is additional yard waste composting capacity available (as discussed in Section 6.6 below).

- the City of Prince George will ban backyard burning of yard waste in conjunction with establishing a yard waste collection program (linking the yard waste collection program with air quality management); and
- encourage participation in yard waste diversion (to either backyard composting or to a yard waste collection program) through education initiatives, the implementation of disposal/collection bans, reduced limits on the number of garbage cans set out each week, and the implementation of tipping fees for all garbage disposal at RDFFG facilities.

## 6.6 Yard Waste Composting Components

Yard waste is currently composted at the Foothills Boulevard Regional Landfill and the Mackenzie Landfill.

The Foothills Boulevard Regional Landfill composting facility is at capacity and will need to increase its capacity in advance of the implementation of any new yard waste collection programs that intend to deliver materials to the site. An expansion of the site footprint will allow the site to process more material annually.

The current operation at the Mackenzie Landfill is limited in terms of processing capability. The future need and costs for an improved composting operation at the Mackenzie Landfill will be assessed. This assessment will be completed in advance of curbside yard waste collection in Mackenzie.

Composting of yard waste at the closed Valemount landfill will also be assessed.

## 6.7 Food Waste Composting Components

The waste composition study conducted in 2007 indicated that food waste comprises up to 25% of the waste in the landfill by weight. Although this represents a significant opportunity for waste diversion, the waste diversion priority of this Solid Waste Management Plan is improving the recycling rates, as recyclable materials represent 40% of the waste in the landfill. However, in support of food waste composting in the future, the RDFFG plans to update the source-separated organics composting feasibility study conducted in 2002 to:

- look at recent composting facility developments and technology costs;
- assess opportunities for co-composting (food waste, yard waste, wood waste, sewage sludge);
- understand the implications of organics diversion on the long-term management plan of the Foothills Boulevard Regional Landfill, particularly as it relates to the production and usage of landfill gas; and
- consider locations for an organic waste management facility.

## 6.8 Promotion and Education Components

The success of waste management programs and policies requires that people know and understand why and how to effectively participate. Promotion and education, therefore, are critical to all components of the solid waste management system.

Promotion and education efforts related to municipal waste management services such as garbage collection will continue to be done by each municipality. The RDFFG will be responsible for promotion and education efforts related to their services such as recycling depots, transfer stations, landfills, as well as promotion and education in regards to waste reduction and reuse, composting, household hazardous waste and product stewardship programs. Promotion and education activities will include:

- print media, e.g.:
  - newsletters;
  - newspaper column; and
  - advertising campaigns (print, radio, TV, web).
- community liaison activities, e.g.:
  - participation in community events; and
  - tours.
- promotional activities, e.g.:
  - contests; and
  - recognition programs.
- web-based information, e.g.:
  - searchable on-line directories; and
  - on-line, downloadable, brochures.
- information phone line; and

- school education program.

## 6.9 Extended Producer Responsibility Components

Extended Producer Responsibility (EPR) programs generally put the responsibility for the management of waste in the hands of the manufacturer, retailer and consumer of the product. This removes the responsibility, cost and infrastructure for collection, recycling and disposal from local governments and taxpayers. In BC, EPR has been applied to many products that are seen to be particularly problematic for local governments, either because of their toxic nature, or because of their prevalence as litter. In BC, there are EPR programs in place for:

- Used motor oil;
- Tires;
- Lead-acid batteries;
- Pharmaceuticals;
- Paint;
- Pesticides;
- Electronic waste;
- Compact fluorescent light bulbs (in planning stages).
- Solvents;
- Fuels; and
- Beverage containers.

EPR as a waste management tool is supported by the RDFFG and member municipalities. The following actions will be undertaken by the RDFFG in support of current EPR programs and to encourage the expansion of EPR to other waste products and materials:

- advocate the Province and the federal government for improved/expanded Extended Producer Responsibility and enforcement of existing regulations;
- participate on BC Product Stewardship Council;
- advocate for the effective collection services for EPR products in the RDFFG, including the presence of collection services in the RDFFG and full-cost recovery for organizations operating as collection points for EPR products;
- work with program stewards to ensure all areas of the RDFFG have reasonable access to collection programs through depots and/or round-up events; and
- promote and educate the public about existing EPR programs and how they can be accessed in the RDFFG.

## 6.10 Policy Components

The following policies will be implemented to support the RDFFG's programs and infrastructure and to aid in achieving the waste diversion targets set out in this Plan:

**Disposal Ban Policy** – Once a material or product has readily available recycling or composting alternatives in the RDFFG, this material/product will be banned from disposal as garbage. At present recyclable cardboard, metal, motor oil and tires have readily available recycling opportunities, and therefore, these items will be the first set of materials banned from the garbage in the RDFFG. It should be noted that a disposal ban would be phased in, with the first phase being

promotion and education, the second phase being notifications given to haulers bringing in garbage containing banned materials, and the final phase being a ramp-up of financial penalties.

**User Pay Policy** – A user pay policy for garbage disposal will be established that will ultimately require that all users of the RDFFG garbage disposal facilities will be assessed a fee for disposal. A detailed implementation plan for introduction of user fees will be defined by RDFFG staff.

**Walk-the-Talk Policy** – Government offices in RDFFG will establish themselves as models of waste reduction to ensure that their activities support and reflect the RDFFG's waste reduction and climate change goals, and to demonstrate diversion opportunities in the workplace.

## **6.11 Demolition, Land clearing and Construction Waste Reduction and Diversion Components**

Demolition, land clearing and construction (DLC) waste represents 21% of the waste disposed annually at the Foothill Boulevard Regional Landfill. Much of this waste is recyclable or compostable, including cardboard, plastic, metal and wood, and therefore this waste stream represents a significant waste diversion opportunity.

An assessment of DLC waste diversion opportunities will be undertaken as part of a study to determine long-term disposal capacity requirements for this waste stream in the RDFFG. This study is further discussed in Section 6.14.2.

The RDFFG will work with Municipal and Regional Building Permit and Planning Departments to assess the feasibility of:

- variable permit costs (deconstruction vs. demolition) to encourage source-separation, reuse and recycling of DLC Waste;
- mandatory solid waste management plans for large construction projects to ensure that waste diversion is considered in the planning for construction; and
- adopting green building standards (e.g., LEED) that will reduce the amount of waste generated during construction and through the life of the building.

In line with the disposal ban policy outlined in Section 6.10, once recycling opportunities are established for components of the construction/demolition waste stream, these materials will be banned from disposal in the landfill. Bans will reinforce the RDFFG's and municipalities' expectation that construction and demolition projects will be undertaken with the intention of minimizing the amount of waste sent to the landfill.

DLC waste diversion will be supported by variable tipping fees (lower tipping fees on source-separated recyclable/compostable materials) as well as promotion and education targeting the construction industry.

## 6.12 Residual Waste Collection and Transfer Components

This section of the plan outlines the system for collection of residual waste (garbage) and the transfer of residual waste to the Mackenzie and Foothills Boulevard Regional Landfills.

Since 1997, the RDFFG has been closing small, rural landfills and moving towards having only regional landfills that receive waste from large geographic areas. By regionalizing landfills, the RDFFG has been able to invest in better-designed and operated landfills and reduce the long-term risk associated with landfills.

Related to the closure of small landfills, transfer stations have been set up as marshalling points for garbage from communities that are distant from the two regional landfills. Waste from a community or series of communities is centralized at a transfer station and then shipped from the transfer station to a regional landfill.

### 6.12.1 Garbage Collection Services



**Figure 11.**  
**Prince George Cart-based Collection**

The system for the collection of garbage from households and businesses within municipalities and in the electoral areas will remain the same as it is at present. In the municipalities, the local government will provide curbside collection services to households and some multi-family buildings and businesses, as defined by each municipality. Businesses and multi-family buildings that are not serviced by a

municipal program can contract with a private waste collection company or self-haul to a disposal facility. In the electoral areas, residents and businesses can contract with a private waste collection company or self-haul to a disposal facility.

### 6.12.2 Transfer Stations

The RDFFG will continue to operate transfer stations throughout the RDFFG to service residents in small municipalities and in the electoral areas. The transfer stations are intended to become full-service waste management facilities that will include staffing, recycling centres, reuse areas (swap sheds) and yard waste collection. In order to achieve this higher level of service at the transfer stations and to ensure that the solid waste system is financially sustainable, a Transfer Station Operations and Amalgamation Study will be conducted to determine which transfer facilities can be combined. This study will also look at operating hours and community servicing needs to ensure that there is reasonable access to waste management services for all communities in the RDFFG.

As shown in Figure 12, there are currently 18 transfer stations within the RDFFG, with 12 transfer stations within 50 km radius of Prince George where the Foothills Boulevard Regional Landfill is located. Table 3 shows the distance from Prince George for the 12 transfer stations.

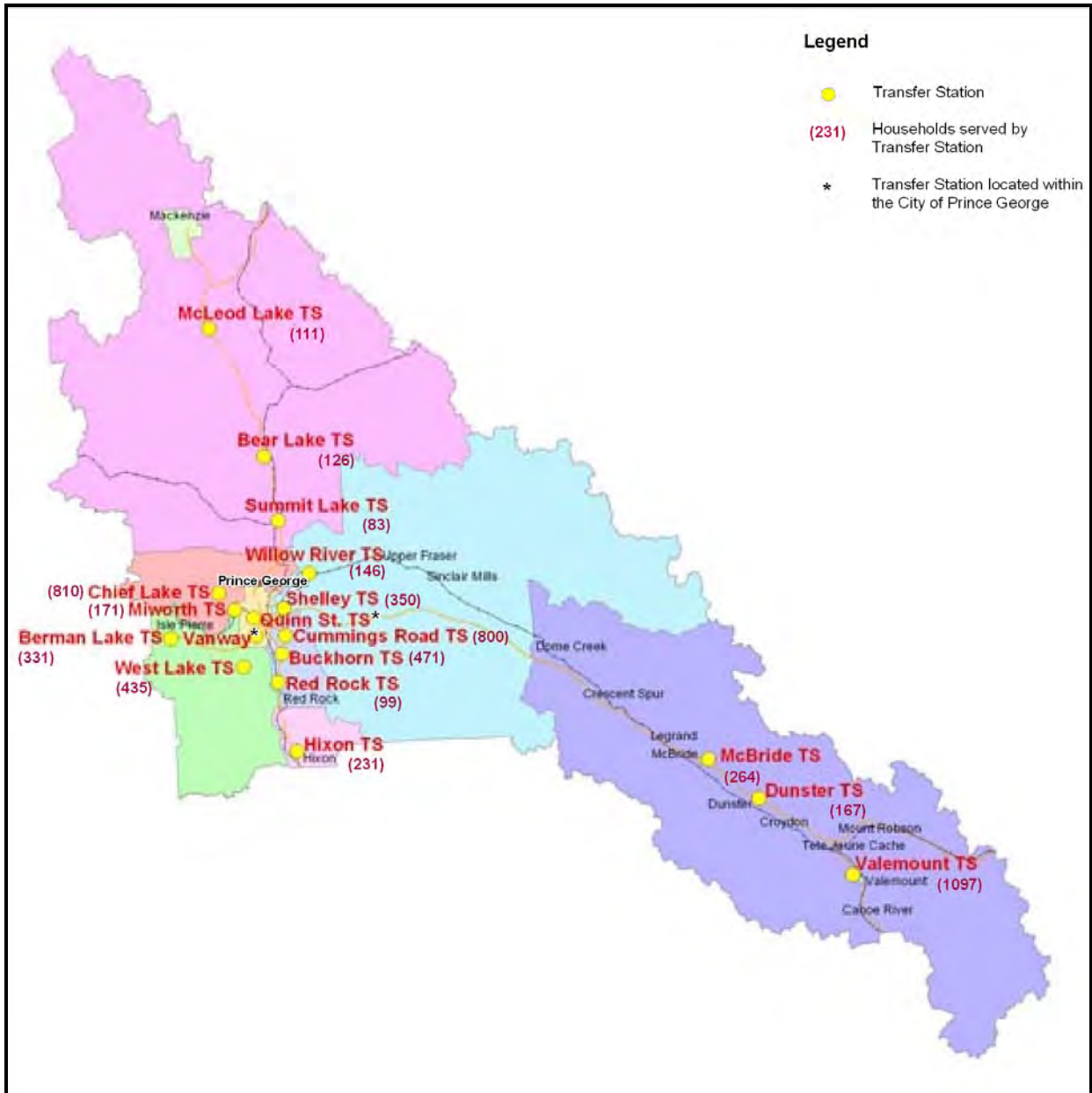


Figure 12 Transfer Stations in the RDFFG (2008)

**Table 3. Transfer Stations within 50 km of Prince George**

| Transfer Stations*             | Distance from Prince George (km)** |
|--------------------------------|------------------------------------|
| Summit Lake Transfer Station   | 39                                 |
| Willow River Transfer Station  | 28                                 |
| Chief Lake Transfer Station    | 17                                 |
| Miworth Transfer Station       | 8                                  |
| Shelley Transfer Station       | 12                                 |
| Quinn St. Transfer Station     | 1                                  |
| Cummings Road Transfer Station | 15                                 |
| Buckhorn Transfer Station      | 19                                 |
| Vanway Transfer Station        | 8                                  |
| Red Rock Transfer Station      | 28                                 |
| West Lake Transfer Station     | 21                                 |
| Berman Lake Transfer Station   | 34                                 |

\*\* Distance reported is straight-line radial distance from the city centre.

Several transfer stations serve small numbers of properties. The numbers shown on Figure 12 are the estimated number of households served by each transfer station. The small service population for most of the sites contributes to the financial inefficiency of the current transfer system. It is the intention of the RDFFG to amalgamate some of the transfer stations to increase efficiencies, but also have the remaining transfer stations become full-service waste management facilities so that the overall transfer station service is improved for all users.

### 6.13 Bear-Human Conflict Management

The RDFFG is home to a large population of bears that are integral to the local ecosystem. Developing and maintaining a solid waste management system that minimizes the potential for human-bear conflict will enhance public safety and prevent the unnecessary destruction of bears.

The RDFFG will work with local Bear Aware groups and the Province to establish and fund on-going awareness and education campaign for waste generators that addresses “bear awareness”. Municipalities and the RDFFG will ensure that their waste collection bylaws require containerization of garbage and enforced set out times for curbside collection to minimize wildlife access opportunities. Backyard composting education materials will address how to compost in a manner that does not attract wildlife into residential areas.



## 6.14 Landfills

The vision for the residual waste management system is one regional landfill for municipal solid waste (MSW) that serves the whole RDFFG, one or two small landfills that receive demolition, landclearing and construction (DLC) waste, and for all other landfills sites to be fully and properly closed to ensure that they do not pose a future health risk. To achieve this vision, the actions outlined in this section will be undertaken by the RDFFG.

### 6.14.1 MSW Landfills

The Foothills Boulevard Regional Landfill (Foothills Boulevard Regional Landfill) will become the only Regional Landfill for MSW in the RDFFG. This site currently receives 96% of the MSW disposed of in the RDFFG. The Mackenzie Landfill, located in geological setting that is not well suited to MSW landfilling, will be closed and a transfer station will be set up to transfer waste to Foothills Boulevard Regional Landfill.

#### 6.14.1.1 Foothills Boulevard Regional Landfill

The following actions will be undertaken to ensure the air space utilization at the landfill is maximized and that the site complies with Provincial landfilling requirements:

- the design and operations plan for the Foothills Boulevard Regional Landfill will be updated;
- a post-closure conceptual plan for the landfill will be developed; and
- the landfill gas management plan will be updated to address the requirements of the upcoming BC Landfill Gas Regulation.

Based on the December 2006 *Design and Operations Plan* prepared by AMEC, there is roughly 13 years of capacity left at the landfill based on filling rates in 2006. Closing Mackenzie Landfill and shipping the MSW to Foothills Boulevard Regional Landfill will decrease this estimate to 12.5 years. However, the impact of new waste diversion programs is expected to extend the life of the site to 18 years (to 2026). The impact of diversion is discussed further in Section 7.1. Consequently, the RDFFG will try to acquire additional undeveloped land surrounding the landfill to ensure that a significant buffer is maintained around the site, which will reduce the likelihood of land use conflicts in the future.

At least ten years before the landfill is expected to be full, the RDFFG will conduct an assessment of alternative residual waste management options to identify the most appropriate approach to management of residual waste for the future. The significant advance timing of the assessment is based on the recognition that once an option is selected, several years are generally required for siting, obtaining approvals and construction.

#### 6.14.1.2 Mackenzie, Sinclair Mills and Dome Creek Landfills

The remaining small landfills receiving municipal solid waste – Mackenzie, Sinclair Mills and Dome Creek – will be closed. Dome Creek and Sinclair Mills landfills were identified for closure in the 1997 Solid Waste Management Plan. Associated with these site closures, the following tasks will be required for each site:

- develop Closure and Post-Closure Plans (as required by the Ministry of Environment);
- create a Site Profile as per the requirements of the BC *Contaminated Sites Regulation*;
- abandon the existing MoE Permits for each;
- undertake final closure and cover applications; and
- conduct any required groundwater monitoring as defined in the approved Closure Plans.

A full-service transfer station will be set up to service Mackenzie and there will be no net loss of waste management services to the community. The landfill site will be assessed for on-going use as a DLC landfill and as a composting facility.

The set up of transfer stations for Sinclair Mills and Dome Creek will be part of the transfer station operations and amalgamation study, which will also include community consultation.

#### 6.14.2 Demolition, Landclearing and Construction (DLC) Waste Landfills

Currently, DLC waste is received at Foothills Boulevard Regional Landfill and Mackenzie Landfill, as well as the Legrand Select Waste Landfill, which receives only DLC waste. The Valemount Landfill also receives DLC waste on occasion.

An assessment of the short and long-term DLC waste disposal needs is required in order to define the need for localized DLC waste landfills. This assessment is intended to determine if the Mackenzie Landfill is needed as a DLC landfill after the site has been closed to MSW, and if all DLC waste from Valemount should be directed to the Legrand Landfill. This assessment will consider options for recycling components of the DLC waste stream, with a particular focus on wood waste, since wood typically makes up the largest portion of the DLC waste stream. The assessment will also need to consider local plans for biomass energy facilities, as such operations may be an alternative use for wood waste associated with construction and demolition.

##### 6.14.2.1 Legrand Landfill

A design and operations (D&O) plan for Legrand will be developed subsequent to the DLC Capacity Assessment discussed above. The D&O Plan will define the capacity and lifespan of this landfill site.

### 6.14.3 Closed Landfills

There are currently 13 landfills in the RDFFG that no longer receive waste. These sites are listed in Table 4. Once a landfill ceases to receive waste, the landfilled area must undergo “final closure” requirements to minimize the potential for groundwater pollution. In many cases, groundwater monitoring is required for several years after closure to ensure that the final closure system is effective.

**Table 4. Closed Landfills (2008)**

| Closed Landfills in the RDFFG |               |                |
|-------------------------------|---------------|----------------|
| ■ Aleza Lake                  | ■ Mud River   | ■ Summit Lake  |
| ■ Bear Lake                   | ■ McLeod Lake | ■ Valemount    |
| ■ Berman Lake                 | ■ Shelley     | ■ West Lake    |
| ■ Chief Lake                  | ■ Stoner      | ■ Willow River |
| ■ Hixon                       |               |                |

For each of the 13 sites, the following tasks will be required:

- develop Closure and Post-Closure Plans (as required by the Ministry of Environment);
- create a Site Profile as per the requirements of the BC *Contaminated Sites Regulation*;
- abandon the existing Ministry of Environment Permit;
- undertake final closure and cover applications (this task has already been completed for the West Lake Landfill); and
- conduct any required groundwater monitoring as defined in the approved Closure Plans.

Because final closure can be very expensive, the RDFFG plans to close one or two sites per year. The priority for final closure will be based on an initial assessment of all sites.

### 6.14.4 Illegal Dumping Prevention

Illegal dumping of waste is a common affliction of rural areas in the RDFFG and throughout British Columbia. Programs to reduce illegal dumping include:

- work in partnership with the Ministry of the Environment to identify illegal dumping offenders, conduct site clean-ups and enforce illegal dumping bylaws;
- waive tipping fees for community clean-up events; and
- establish a fund that community groups can access to purchase materials (gloves, safety vests, bags, etc.) for clean-up activities.

### **6.14.5 Household Hazardous Waste**

Household hazardous waste (HHW), when disposed of improperly, threaten human and environmental health. The following activities will help to ensure the proper disposal of HHW:

- develop an education campaign in regards to proper disposal of HHW;
- broadly promote the facilities within the RDFFG that have been set up for the free drop off of used motor oil, paint, pesticides, fuels, solvents, rechargeable batteries, (some) electronic waste and pharmaceuticals;
- work with stewardship agencies to conduct household hazardous waste round-up events and/or the establishment of depots in smaller communities; and
- continue to work with stewardship agencies and the Province to expand the range of HHW handled through stewardship programs.

### **6.15 First Nations Linkages**

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

- identify future disposal requirements at RDFFG waste management facilities;
- identify opportunities to work together for waste management servicing (e.g., recycling collection); and
- develop service agreements.

### **6.16 Neighbouring Regional Districts**

The RDFFG will aim for consistency in waste management policies, such as disposal bans, with neighbouring Regional Districts. The RDFFG will also liaise with neighbouring regional districts to share information and as appropriate, conduct collaborative studies.

The RDFFG currently works cooperatively with neighbouring Regional Districts in the servicing of residents living near the borders of the RDFFG. Cooperative servicing and infrastructure will continue to be employed whenever servicing efficiencies can be realized.

## 7. Implementation Schedule

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Table 5 outlines the implementation schedule for the Regional Solid Waste Management Plan from 2009 to 2019. For most of the new programs, a year or more is allocated for program development and start-up (as shown in yellow on the table).

As shown in the table, most diversion-related activities are implemented by 2012. Design and operations plans for the landfills are shown at various intervals throughout the schedule to reflect the need to update those operating plans on a regular basis. The final closure of the sixteen landfills is expected to be done over 12 years, and consequently the implementation period for landfill closure continues through the whole timeframe shown in the implementation schedule.

**Table 5. Regional Solid Waste Management Plan Implementation Schedule**

| Plan Component                                                        | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Reduction &amp; Reuse</b>                                          |      |      |      |      |      |      |      |      |      |      |      |
| <i>Swap Shed</i>                                                      |      |      |      |      |      |      |      |      |      |      |      |
| <i>Promotion of Reduction and Reuse</i>                               |      |      |      |      |      |      |      |      |      |      |      |
| <i>Backyard Composting Program</i>                                    |      |      |      |      |      |      |      |      |      |      |      |
| <b>Residential Recycling</b>                                          |      |      |      |      |      |      |      |      |      |      |      |
| <i>Curbside collection - Prince George</i>                            |      |      |      |      |      |      |      |      |      |      |      |
| <i>Recycling Depots</i>                                               |      |      |      |      |      |      |      |      |      |      |      |
| <b>Residential Recycling Supporting Programs and Policy</b>           |      |      |      |      |      |      |      |      |      |      |      |
| <i>Reduce Can Limits in Municipalities</i>                            |      |      |      |      |      |      |      |      |      |      |      |
| <i>Variable Can Rates in Prince George</i>                            |      |      |      |      |      |      |      |      |      |      |      |
| <b>ICI Recycling</b>                                                  |      |      |      |      |      |      |      |      |      |      |      |
| <i>Business-Focused Promotion and Education</i>                       |      |      |      |      |      |      |      |      |      |      |      |
| <b>Yard Waste Collection</b>                                          |      |      |      |      |      |      |      |      |      |      |      |
| <i>Yard Waste Collection Depots</i>                                   |      |      |      |      |      |      |      |      |      |      |      |
| <i>Mackenzie Seasonal Curbside Collection</i>                         |      |      |      |      |      |      |      |      |      |      |      |
| <i>Prince George Yard Waste Collection Study</i>                      |      |      |      |      |      |      |      |      |      |      |      |
| <i>Backyard Burning Ban in Prince George</i>                          |      |      |      |      |      |      |      |      |      |      |      |
| <b>Yard Waste Composting</b>                                          |      |      |      |      |      |      |      |      |      |      |      |
| <i>Expand Facility at the Foothills Boulevard Regional Landfill</i>   |      |      |      |      |      |      |      |      |      |      |      |
| <i>Establish Facility at the Mackenzie Landfill</i>                   |      |      |      |      |      |      |      |      |      |      |      |
| <b>Update Food Waste Composting Feasibility Study</b>                 |      |      |      |      |      |      |      |      |      |      |      |
| <b>Promotion &amp; Education</b>                                      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Extended Producer Responsibility Advocacy and Promotion</b>        |      |      |      |      |      |      |      |      |      |      |      |
| <b>Policies</b>                                                       |      |      |      |      |      |      |      |      |      |      |      |
| <i>Disposal Bans</i>                                                  |      |      |      |      |      |      |      |      |      |      |      |
| <i>User Pay</i>                                                       |      |      |      |      |      |      |      |      |      |      |      |
| <i>Walk-the-Talk</i>                                                  |      |      |      |      |      |      |      |      |      |      |      |
| <b>Construction &amp; Demo Waste Reduction</b>                        |      |      |      |      |      |      |      |      |      |      |      |
| <b>Municipal Curbside Garbage Collection</b>                          |      |      |      |      |      |      |      |      |      |      |      |
| <b>Transfer Stations</b>                                              |      |      |      |      |      |      |      |      |      |      |      |
| <i>Transfer Station Operations and Amalgamation Study</i>             |      |      |      |      |      |      |      |      |      |      |      |
| <i>Transfer Station Amalgamation</i>                                  |      |      |      |      |      |      |      |      |      |      |      |
| <b>Bear Awareness</b>                                                 |      |      |      |      |      |      |      |      |      |      |      |
| <b>Residual Waste Management</b>                                      |      |      |      |      |      |      |      |      |      |      |      |
| <i>Update Foothills Boulevard Regional Landfill D&amp;O</i>           |      |      |      |      |      |      |      |      |      |      |      |
| <i>FBRL Post Closure Plan</i>                                         |      |      |      |      |      |      |      |      |      |      |      |
| <i>Update FBRL Landfill Gas Management Plan</i>                       |      |      |      |      |      |      |      |      |      |      |      |
| <i>FBRL Acquisition of Additional Property</i>                        |      |      |      |      |      |      |      |      |      |      |      |
| <i>Alternative Disposal Options Assessment</i>                        |      |      |      |      |      |      |      |      |      |      |      |
| <i>Cease landfilling - Sinclair Mills, Dome Creek &amp; Mackenzie</i> |      |      |      |      |      |      |      |      |      |      |      |
| <i>DLC Capacity Needs Assessment</i>                                  |      |      |      |      |      |      |      |      |      |      |      |
| <i>Legrand DLC Landfill D&amp;O Plan</i>                              |      |      |      |      |      |      |      |      |      |      |      |
| <i>Small Landfills - Final Closure</i>                                |      |      |      |      |      |      |      |      |      |      |      |
| <i>Illegal Dumping Prevention</i>                                     |      |      |      |      |      |      |      |      |      |      |      |
| <i>Household Hazardous Waste Management</i>                           |      |      |      |      |      |      |      |      |      |      |      |
| <b>First Nations Linkages</b>                                         |      |      |      |      |      |      |      |      |      |      |      |
| <b>Neighbouring Regional Districts Linkages</b>                       |      |      |      |      |      |      |      |      |      |      |      |
| <b>Solid Waste Management Plan Update</b>                             |      |      |      |      |      |      |      |      |      |      |      |
| <b>Waste Composition Study</b>                                        |      |      |      |      |      |      |      |      |      |      |      |

LEGEND  Implementation  Maintenance

## 8. Diversion and Targets

### 8.1 Diversion

Table 6 shows the estimated diversion potential, by material type, anticipated through the full implementation of this Plan. New waste diversion resulting from the programs and policies of the Plan, plus current diversion activities happening in the RDDFG, are expected to achieve a 53% diversion rate.

A rough estimate of the impact of this diversion on the lifespan of the Foothills Boulevard Regional Landfill is an extension of the life span from reaching capacity in 2018 to 2026.<sup>8</sup>

**Table 6. Estimated Potential for Waste Diversion**

| Material                                                              | 2007 Composition | 2014 Tonnes Available | Diversion Estimate | 2014 Tonnes Diverted | 2014 Tonnes Disposed |
|-----------------------------------------------------------------------|------------------|-----------------------|--------------------|----------------------|----------------------|
| Paper and Paperboard                                                  | 27%              | 26,384                | 75%                | 19,788               | 6,596                |
| Organic Matter                                                        | 25%              | 24,429                | 20%                | 4,886                | 19,544               |
| Plastics                                                              | 14%              | 13,680                | 35%                | 4,788                | 8,892                |
| Composite Products                                                    | 10%              | 9,772                 | 0%                 | 0                    | 9,772                |
| Textiles                                                              | 7%               | 6,840                 | 0%                 | 0                    | 6,840                |
| Glass                                                                 | 5%               | 4,886                 | 50%                | 2,443                | 2,443                |
| Ferrous Metals                                                        | 4%               | 3,909                 | 90%                | 3,518                | 391                  |
| Construction and Demolition Materials                                 | 3%               | 2,932                 | 50%                | 1,466                | 1,466                |
| Wood Products                                                         | 2%               | 1,954                 | 80%                | 1,563                | 391                  |
| Hazardous By-products                                                 | 1%               | 977                   | 90%                | 879                  | 98                   |
| Rubber                                                                | 1%               | 977                   | 0%                 | 0                    | 977                  |
| Non-ferrous Metals                                                    | 1%               | 977                   | 90%                | 879                  | 98                   |
| Other                                                                 | <1%              | 0                     | 0%                 | 0                    | 0                    |
| Total New Diversion                                                   | 100%             | 97,718                | 41%                | 40,211               | 57,507               |
| 2007 (Existing) Diversion                                             |                  |                       |                    | 25,809               |                      |
| <b>Estimated Diversion and Disposal Upon Full Plan Implementation</b> |                  |                       | <b>53%</b>         | <b>66,020</b>        | <b>57,507</b>        |

<sup>8</sup> This lifespan calculation assumes that the landfilled space will continue to have the same density throughout the life of the landfill.

## 8.2 Targets

Based on the schedule provide in Table 5 and the diversion targets listed in Table 6, the following targets have set for waste diversion in the RDIFFG:

- By 2012:
  - Curbside recycling will be implemented in Prince George;
  - Disposal bans on cardboard, recyclable paper, metal, motor oil and tires will be fully implemented;
  - An extensive promotion and education campaign to support recycling and waste diversion will be in place; and
  - A diversion rate of 35% will be achieved.
  
- By 2015:
  - The diversion programs and policies listed in this Regional Solid Waste Management Plan will be implemented; and
  - A diversion rate of 50% will be achieved.

## 9. Plan Financing and Staffing

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### 9.1 Staffing

To implement the Plan, the RDIFFG will hire 2.0 –2.5 new full-time equivalent staff, primarily for the purposes of program implementation and maintenance, as well as promotion and education. Additional technical staff may be required to manage and maintain solid waste management infrastructure. It is expected that contractors, consultants and co-op students will also be required to undertake some elements of this Plan. Enforcement staff for the disposal bans have not been included in this estimate of additional staffing needs since the enforcement mechanism is not defined at this time.

The City of Prince George anticipates the need for additional staff for the curbside recycling program.

### 9.2 Estimated Expenditures

Table 7 provides an estimate of the capital and operating expenditures associated with the solid waste management system from 2009 to 2019, based on the programs, policies and infrastructure outlined in this Plan. All costs are in 2008 dollars. The table includes the capital and operating costs for RDIFFG and municipal waste management programs, but does not include staffing costs with the exception of providing for two *new* RDIFFG staff dedicated to solid waste management activities.



The operating costs shown are net of revenue from product sales. Revenue sources include the following:

- Backyard composting program includes revenue from the sales of backyard composters (a \$40 revenue for the \$50 expenditure of each composter is assumed);
- Revenue received from the multi-material recycling processor is included in the operating costs for the depot programs;
- Revenue from compost sales is included in the operating costs of the composting facility at Foothills Boulevard Regional Landfill.

As shown in the table, the annual expenditure on solid waste management is estimated to be roughly \$12 million to \$13 million annually. The most significant new costs are:

- capital expenditures for yard waste composting facilities (\$595,000)
- a transfer station for Mackenzie (\$740,000 capital cost)
- final closure of landfills and on-going monitoring (an average of \$647,000 in capital costs annually).

### 9.3 Cost Recovery Mechanisms

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

- User fees;
- Tipping fees;
- Taxation;
- Sales (e.g., backyard composters, compost, recyclables)
- Revenues from landfill tipping fees;
- Grants, and
- Sponsorships.

Reflecting the guiding principles of this Plan, user-pay mechanisms will be applied to the provision of solid waste services wherever appropriate. Opportunities for sponsorship and grants will be explored to assist in the funding of programs.

Table 7. Solid Waste Management System Costs (Regional District and Municipal Expenditures)

|                                                                                                                    | 2009                                                             | 2010         | 2011         | 2012         | 2013         | 2014         | 2015         | 2016         | 2017         | 2018         | 2019         |
|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Reduction and Reuse</b>                                                                                         |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Swap Sheds                                                                                                         | Costs included in transfer station and landfill operating budget |              |              |              |              |              |              |              |              |              |              |
| <b>Promotion of Reduction and Reuse</b>                                                                            |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Costs included in general promotion and education budget                                                           |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Backyard Composting Program                                                                                        |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$10,000     | \$0          | \$10,000     | \$0          | \$10,000     | \$0          | \$5,000      | \$0          | \$5,000      | \$0          |
| Operating Costs                                                                                                    | \$20,000                                                         | \$20,000     | \$20,000     | \$20,000     | \$20,000     | \$20,000     | \$20,000     | \$20,000     | \$20,000     | \$20,000     | \$20,000     |
| <b>Residential Recycling</b>                                                                                       |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Prince George Curbside Recycling                                                                                   |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Estimated costs                                                                                                    | \$1,103,000                                                      | \$832,500    | \$832,500    | \$832,500    | \$832,500    | \$832,500    | \$832,500    | \$832,500    | \$832,500    | \$832,500    | \$832,500    |
| <b>Recycling at Transfer Stations &amp; Landfills</b>                                                              |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$60,000                                                         | \$60,000     | \$60,000     | \$60,000     | \$60,000     | \$60,000     | \$60,000     | \$60,000     | \$60,000     | \$60,000     | \$60,000     |
| <b>Multi-Material Recycling Depots</b>                                                                             |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$400,000                                                        | \$408,000    | \$416,160    | \$424,483    | \$432,973    | \$441,632    | \$450,465    | \$459,474    | \$468,664    | \$478,037    | \$487,598    |
| <b>ICI Recycling</b>                                                                                               |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Business-Focused Promotion and Education</b>                                                                    |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$0                                                              | \$0          | \$35,000     | \$12,500     | \$12,500     | \$12,500     | \$12,500     | \$12,500     | \$12,500     | \$12,500     | \$12,500     |
| <b>Yard Waste Collection</b>                                                                                       |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Mackenzie Seasonal Curbside Collection</b>                                                                      |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$900        | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$0                                                              | \$0          | \$10,400     | \$10,400     | \$10,400     | \$10,400     | \$10,400     | \$10,400     | \$10,400     | \$10,400     | \$10,400     |
| <b>Prince George Seasonal Curbside Collection Study</b>                                                            |                                                                  |              |              |              |              |              |              |              |              |              |              |
| To be completed in-house                                                                                           |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Yard Waste Collection Depots (at Transfer Stations)</b>                                                         |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$14,100     | \$14,100     | \$14,100     | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$0                                                              | \$58,200     | \$59,200     | \$60,200     | \$60,200     | \$60,200     | \$60,200     | \$60,200     | \$60,200     | \$60,200     | \$60,200     |
| <b>Yard Waste Composting</b>                                                                                       |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Yard Waste Composting Facility at Foothills Boulevard Regional Landfill</b>                                     |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$595,000                                                        | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$325,000                                                        | \$300,000    | \$300,000    | \$300,000    | \$300,000    | \$300,000    | \$300,000    | \$300,000    | \$300,000    | \$300,000    | \$300,000    |
| <b>Yard Waste Composting Facility at Mackenzie Landfill</b>                                                        |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$165,000    | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$0                                                              | \$12,000     | \$23,000     | \$29,000     | \$10,000     | \$10,000     | \$10,000     | \$10,000     | \$10,000     | \$10,000     | \$10,000     |
| <b>Food Waste Composting</b>                                                                                       |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Update Food Waste Composting Feasibility Study</b>                                                              |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$0                                                              | \$0          | \$0          | \$40,000     | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| <b>Promotion and Education</b>                                                                                     |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>RDFFG Promotion/Education Activities</b>                                                                        |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$146,000                                                        | \$146,000    | \$146,000    | \$146,000    | \$146,000    | \$146,000    | \$146,000    | \$146,000    | \$146,000    | \$146,000    | \$146,000    |
| <b>Extended Producer Responsibility</b>                                                                            |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Promotion, Education and Advocacy</b>                                                                           |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Included in general promotion and education costs (above)                                                          |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Policy</b>                                                                                                      |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Disposal Bans Policy</b>                                                                                        |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$7,800                                                          | \$700        | \$700        | \$4,000      | \$700        | \$700        | \$700        | \$700        | \$700        | \$700        | \$700        |
| <b>User Pay Policy</b>                                                                                             |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Incorporated into annual promotion & education budgets, as well as landfill and transfer station operating budgets |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Walk-the-Talk Policy</b>                                                                                        |                                                                  |              |              |              |              |              |              |              |              |              |              |
| To be incorporated into RDFFG corporate management budget                                                          |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Residual Waste Collection</b>                                                                                   |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Prince George Curbside Collection</b>                                                                           |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$3,500,000                                                      | \$3,500,000  | \$3,500,000  | \$3,500,000  | \$3,500,000  | \$3,500,000  | \$3,500,000  | \$3,500,000  | \$3,500,000  | \$3,500,000  | \$3,500,000  |
| <b>Mackenzie Curbside Collection</b>                                                                               |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$100,000                                                        | \$100,000    | \$100,000    | \$100,000    | \$100,000    | \$100,000    | \$100,000    | \$100,000    | \$100,000    | \$100,000    | \$100,000    |
| <b>McBride Curbside Collection</b>                                                                                 |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$28,000                                                         | \$28,000     | \$28,000     | \$28,000     | \$28,000     | \$28,000     | \$28,000     | \$28,000     | \$28,000     | \$28,000     | \$28,000     |
| <b>Valemount Curbside Collection</b>                                                                               |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$40,000                                                         | \$40,000     | \$40,000     | \$40,000     | \$40,000     | \$40,000     | \$40,000     | \$40,000     | \$40,000     | \$40,000     | \$40,000     |
| <b>Transfer Stations</b>                                                                                           |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Transfer Station Operations &amp; Amalgamation Study</b>                                                        |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$100,000                                                        | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| <b>Existing Transfer Stations</b>                                                                                  |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$1,500,000                                                      | \$1,500,000  | \$1,500,000  | \$1,500,000  | \$1,500,000  | \$1,500,000  | \$1,500,000  | \$1,500,000  | \$1,500,000  | \$1,500,000  | \$1,500,000  |
| <b>Mackenzie Transfer Station</b>                                                                                  |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$740,000    | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$0                                                              | \$0          | \$0          | \$415,000    | \$415,000    | \$415,000    | \$415,000    | \$415,000    | \$415,000    | \$415,000    | \$415,000    |
| <b>Bear-Human Conflict Management</b>                                                                              |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Bear Awareness Program</b>                                                                                      |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$2,000                                                          | \$2,000      | \$2,000      | \$2,000      | \$2,000      | \$2,000      | \$2,000      | \$2,000      | \$2,000      | \$2,000      | \$2,000      |
| <b>Residual Waste Management</b>                                                                                   |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Foothills Boulevard Regional Landfill Operation</b>                                                             |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$3,700,000                                                      | \$3,700,000  | \$3,700,000  | \$3,700,000  | \$3,700,000  | \$3,700,000  | \$3,700,000  | \$3,700,000  | \$3,700,000  | \$3,700,000  | \$3,700,000  |
| <b>Foothills Boulevard D&amp;O, LFG and Post-Closure Plans</b>                                                     |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$125,000                                                        | \$35,000     | \$0          | \$0          | \$0          | \$0          | \$50,000     | \$0          | \$0          | \$0          | \$0          |
| <b>Mackenzie, Sinclair Mills &amp; Dome Creek Landfill Operation</b>                                               |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$324,000                                                        | \$307,000    | \$275,000    | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| <b>DLC Capacity Study</b>                                                                                          |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$0                                                              | \$40,000     | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| <b>Legrand Landfill DLC Operation (incl. D&amp;O Plan)</b>                                                         |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$77,400                                                         | \$77,400     | \$107,400    | \$77,400     | \$77,400     | \$77,400     | \$97,400     | \$77,400     | \$77,400     | \$77,400     | \$77,400     |
| <b>Mackenzie Landfill DLC Operation (incl. D&amp;O Plan)</b>                                                       |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$0                                                              | \$0          | \$0          | \$40,000     | \$40,000     | \$40,000     | \$40,000     | \$40,000     | \$40,000     | \$40,000     | \$40,000     |
| <b>Development of Closure Plans for Closed Sites</b>                                                               |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$90,000                                                         | \$90,000     | \$90,000     | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| <b>Landfill Closures and Monitoring</b>                                                                            |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$396,667                                                        | \$396,667    | \$396,667    | \$396,667    | \$396,667    | \$396,667    | \$396,667    | \$396,667    | \$396,667    | \$396,667    | \$396,667    |
| Operating Costs                                                                                                    | \$250,000                                                        | \$250,000    | \$250,000    | \$250,000    | \$250,000    | \$250,000    | \$250,000    | \$250,000    | \$250,000    | \$250,000    | \$250,000    |
| <b>Illegal Dumping Prevention Program</b>                                                                          |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          | \$0          |
| Operating Costs                                                                                                    | \$3,000                                                          | \$3,000      | \$3,000      | \$3,000      | \$3,000      | \$3,000      | \$3,000      | \$3,000      | \$3,000      | \$3,000      | \$3,000      |
| <b>Household Hazardous Waste Management</b>                                                                        |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Included in general promotion and education costs                                                                  |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Other Components</b>                                                                                            |                                                                  |              |              |              |              |              |              |              |              |              |              |
| <b>Waste Composition Study</b>                                                                                     |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$40,000     | \$0          | \$0          | \$0          | \$0          | \$40,000     | \$0          |
| <b>Solid Waste Management Plan Updates</b>                                                                         |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$0                                                              | \$0          | \$0          | \$0          | \$80,000     | \$0          | \$0          | \$0          | \$0          | \$80,000     | \$0          |
| <b>RDFFG Staffing (2 new Waste Management Coordinators)</b>                                                        |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Capital Costs                                                                                                      | \$150,000                                                        | \$150,000    | \$150,000    | \$150,000    | \$150,000    | \$150,000    | \$150,000    | \$150,000    | \$150,000    | \$150,000    | \$150,000    |
| <b>Total Costs</b>                                                                                                 |                                                                  |              |              |              |              |              |              |              |              |              |              |
| Total Capital                                                                                                      | \$1,141,667                                                      | \$735,767    | \$1,301,667  | \$570,767    | \$666,667    | \$556,667    | \$546,667    | \$551,667    | \$546,667    | \$671,667    | \$546,667    |
| Total Operating                                                                                                    | \$12,051,200                                                     | \$11,659,800 | \$11,648,360 | \$11,744,483 | \$11,810,673 | \$11,699,332 | \$11,778,186 | \$11,717,174 | \$11,726,364 | \$11,855,737 | \$11,745,298 |
| Total Annual Cost                                                                                                  | \$13,192,867                                                     | \$12,395,567 | \$12,950,027 | \$12,315,250 | \$12,477,340 | \$12,255,999 | \$12,324,852 | \$12,268,841 | \$12,273,030 | \$12,527,404 | \$12,291,964 |

## 10. Monitoring and Evaluation

---

### 10.1 Plan Monitoring Committee

The Technical Advisory Committee that was formed to develop this updated plan will be discontinued once the Plan is approved the Minister of Environment. However, a Plan Monitoring Committee will be formed to monitor the implementation on the Plan and report directly to the Environmental Services Committee of the Regional Board. Monitoring Committee members will:

- review and become familiar with the Solid Waste Management Plan;
- review and become familiar with the existing solid waste management system in the RDEFG;
- identify methodologies to be employed in the monitoring and evaluation of the Plan's implementation;
- monitor the implementation of the Plan and annually report to the Environment and Parks Standing Committee on the effectiveness of the SWMP at achieving its objectives; and
- make recommendations to increase the effectiveness of the Plan or the solid waste management system.

The committee membership will strive to have a broad representation of interests including local government, First Nations, the waste management industry, environmental organizations, the business sector, the residential sector and senior governments. Additionally, selection of members will attempt to create a committee with a balance of representation geographically, demographically, and with a variety of interests and perspectives. It is anticipated that the Chair of the Environment and Parks Standing Committee will also sit on the Plan Monitoring Committee to provide a strong link with the Regional Board.

In general there will be 2-3 meetings per year of the committee with the provision for additional meetings, workshops or other presentations at the committee's discretion.

### 10.2 Plan Evaluation

On an annual basis, Regional District staff will compile data that reflects the status of the Plan's implementation and progress toward waste reduction targets. This data will be provided to the Plan Monitoring Committee and the regional office of the Ministry of the Environment.

A multi-season waste composition study on the residual waste management stream will be conducted in advance of the next RSWMP update to assess the success of current waste diversion programs and policies and identify opportunities for additional diversion. This composition analysis

will be a “moment in time” look at the waste stream, and as such, should be conducted during the summer so that the prevalence of yard waste in the waste stream can also be assessed.

### **10.3 Plan Updates**

A review and update of the Solid Waste Management Plan will be undertaken every five years to ensure that it reflects the current needs of the RDFFG.

### **10.4 Plan Flexibility**

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

The Plan implementation schedule will be flexible enough to reflect the variability in priorities and available funding of the RDFFG and its member municipalities. The Plan is intended to be flexible when warranted to implement plan components, directly or through private firms and/or non-profit organizations.

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

## **11. Approval by the Board**

---

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

SEE TAB NO. 2.

FW

REGIONAL DISTRICT OF FRASER-FORT GEORGE  
CERTIFIED EXTRACT

2008 REGIONAL SOLID WASTE  
MANAGEMENT PLAN

A staff report was presented regarding the 2008 Regional Solid Waste Management Plan.

Mr. Jim Martin, Administrator and Ms. Petra Wildauer, General Manager of Environment Services were in attendance and made a presentation regarding the 2008 Regional Solid Waste Management Plan (RSWMP) noting the three stages of the planning process (review of current system, identification of options and public consultation), amendments to the draft RSWMP its key components and targets and the next steps of approval process and implementation.

Discussion ensued regarding curbside recycling and the Administrator responded to queries from Directors regarding costs, measurables, waste analysis evaluation and timeline.

*RES.NO. 903/08 Starchuck/Burgess*

*THAT the staff report be received.*


CARRIED

*RES.NO. 904/08 Gendron/Townsend*

*THAT the "Final Draft" of the 2008 Regional Solid Waste Management Plan be approved.*

CARRIED

Certified a true and correct extract from the Minutes of the Regional District of Fraser-Fort George Board meeting held on September 18, 2008.

  
T. Yates  
General Manager of Corporate Services

Dated: February 5<sup>th</sup>, 2009

# Appendix A

## Phase 1 Report – Existing Solid Waste Management System (2008)

# Phase 1 Report: Existing Solid Waste Management System



Prepared for  
**Regional District of Fraser-Fort George**

Submitted by  
**Gartner Lee Limited**

**May 2008**

# **Phase 1 Report: Existing Solid Waste Management System**

Prepared for

**Regional District of Fraser-Fort George**

**May 2008**

Reference: **GLL 70-961**

Distribution:

**1 Regional District of Fraser-Fort George (PDF)**

**1 Gartner Lee Limited**





Gartner Lee Limited

May 30, 2008

Petra Wildauer  
General Manager of Environmental Services  
Regional District of Fraser-Fort George  
155 George Street.  
Prince George, BC V2L 1P8

Dear Petra:

**Re: GLL 70961 - Phase 1 Report: Existing Solid Waste Management System**

We are pleased to submit our Phase 1 report that describes the existing (2007) solid waste management system in the RDFFG and provides a review of the implementation status of the 1997 Solid Waste Management Plan.

We would like to acknowledge the kind assistance of Regional District and municipal staff, as well as staff from local waste management industry and REAPS in the preparation of this report.

Yours very truly,  
GARTNER LEE LIMITED

Maura Walker  
Senior Environmental Planner

MHW:kms

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## 1. Background

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The Regional District of Fraser-Fort George (RDFFG) is undertaking a review of the 1997 Regional Solid Waste Management Plan. The process to review the plan will be conducted in three phases. The first phase is an assessment of the current system and a report on the implementation status of the 1997 Plan. The second phase is the review of options to address the region's future solid waste management needs and the selection of preferred options. The final phase will be a community consultation process to obtain input into the selected options.

This document is the Phase One report and outlines the implementation status of the original Plan, the current status of solid waste operations and issues for waste management in the region. This information will be used as the baseline for Phase 2 of the planning process.

## 2. Plan Area

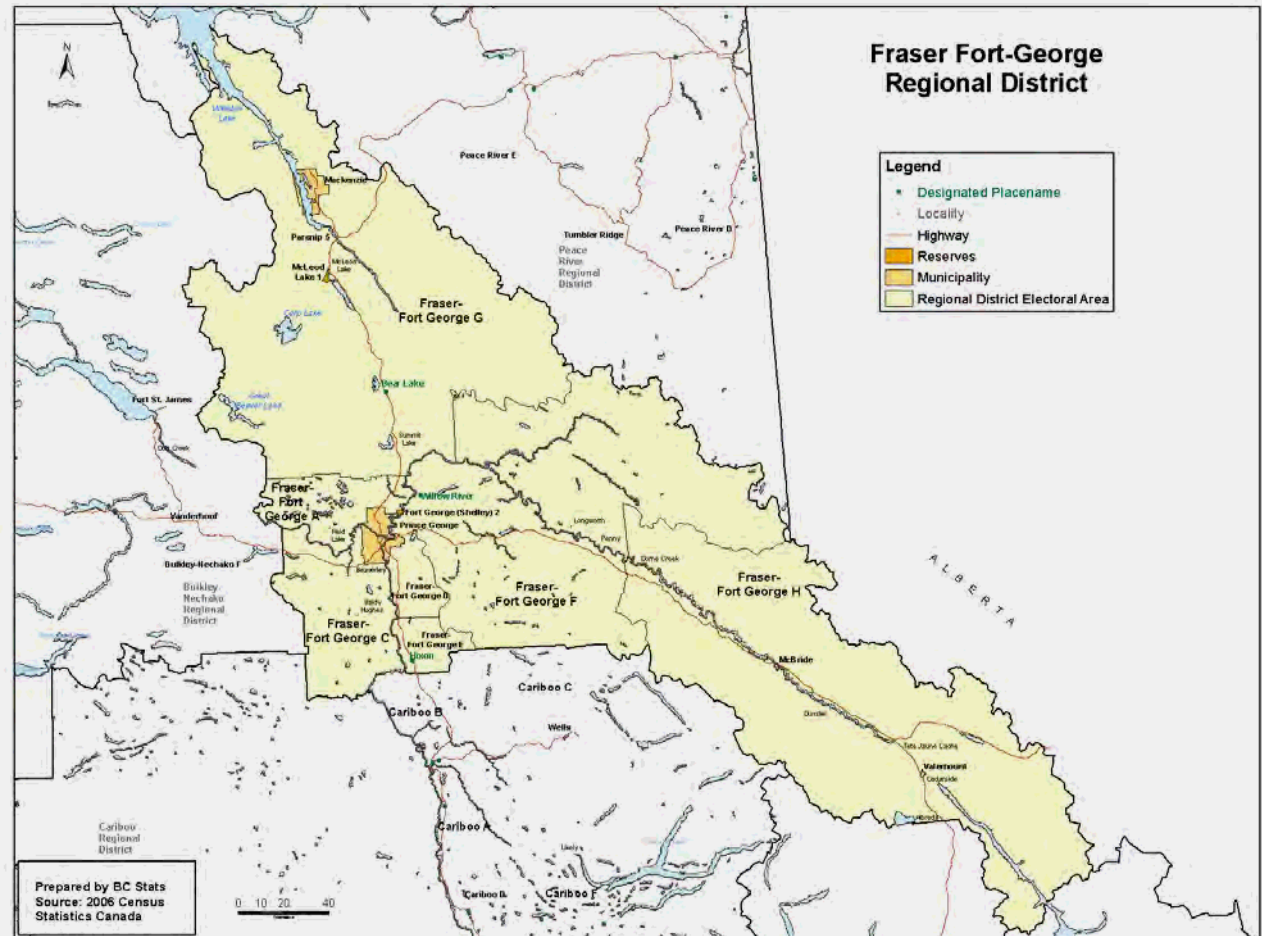
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The Solid Waste Management Plan applies to the entire RDFFG, which covers nearly 52,000 km<sup>2</sup>. The electoral boundaries are shown on Figure 1 and include the City of Prince George, the District of Mackenzie, the Village of McBride, the Village of Valemount, and Electoral Areas 'A' Salmon River and Lakes, 'C' Chilako River-Nechako, 'D' Tabor Lake-Stone Creek, 'E' Woodpecker-Hixon, 'F' Willow River-Upper Fraser, 'G' Crooked River-Parsnip, and 'H' Robson Valley-Canoe. In addition there are two Indian Reserves<sup>1</sup>.

---

<sup>1</sup> RDFFG 2006 Census Profile available from BC Stats online at:  
<http://www.bcstats.gov.bc.ca/data/cen06/profiles/detailed/rd53.asp>

**Figure 1. Map of Regional District of Fraser-Fort George**



The RDFFG is located in central-eastern BC. It is bounded by Alberta to the east, the Columbia-Shuswap and Thompson-Nicola Regional Districts to the south, the Cariboo Regional District to the southwest, the Bulkley-Nechako Regional District to the west, and the Peace River Regional District to the north/northeast. The RDFFG is home to Mount Robson Provincial Park, which is the second oldest provincial park in British Columbia and home to Mount Robson, the highest peak in the Canadian Rockies. Together with neighbouring Jasper National Park, Mount Robson Provincial Park comprises a portion of one of the world's largest blocks of protected areas. It was designated as a part of the Canadian Rocky Mountains World Heritage Site by UNESCO in 1990.

The RDFFG experiences a moderate and dry climate, with daily average temperatures of -9.6°C in January and 15.5°C in July. The heaviest snowfall occurs in January (55.8 cm) and the heaviest rainfall occurs in June (72.7 mm). Winds are generally from the south all year long.<sup>2</sup>

<sup>2</sup> Climate data from <http://www.climate.weatheroffice.ec.gc.ca>

## 2.1 Population

As shown in Table 1, the 2006 census count for the region in 2006 is 92,264, including Municipalities, Electoral Areas and Indian Reserves. The population has fallen 3.2% since 2001, but BC Statistics predicts a gradual increase in population over the next 25 years to 100,385 in 2032 (a 1.1% increase).

The only population to increase between 2001 and 2006 was that of the First Nations communities. While this group makes up only 0.2% of the total population of the RDCFG, it grew 14.2% from 2001 to 2006.

**Table 1. Population, By Area**

| <b>Area</b>                                         | <b>2006<br/>Population</b> | <b>% of RDCFG<br/>total</b> |
|-----------------------------------------------------|----------------------------|-----------------------------|
| District of Mackenzie                               | 4,539                      | 5.5%                        |
| Village of McBride                                  | 660                        | 0.7%                        |
| City of Prince George                               | 70,981                     | 76.0%                       |
| Village of Valemount                                | 1,018                      | 1.3%                        |
| Indian Reserves                                     | 201                        | 0.2%                        |
| Fraser-Fort George A                                | 3,275                      | 3.6%                        |
| Fraser-Fort George C                                | 3,217                      | 3.3%                        |
| Fraser-Fort George D                                | 4,361                      | 4.7%                        |
| Fraser-Fort George E                                | 502                        | 0.6%                        |
| Fraser-Fort George F                                | 1,284                      | 1.5%                        |
| Fraser-Fort George G                                | 349                        | 0.5%                        |
| Fraser-Fort George H                                | 1,877                      | 2.1%                        |
| <b>Regional District of Fraser-<br/>Fort George</b> | <b>92,264</b>              | <b>100%</b>                 |

## 2.2 Economic Data

In 2006, there were 36,465 households in the RDCFG; 80% of these dwellings were single-detached, semi-detached, row houses or duplexes, with the remainder being apartments and movable dwellings.<sup>3</sup> The average number of people per household was 2.5, which is the same as the BC average.

<sup>3</sup> Source 2006 Census Profile of Fraser-Fort George, BC Stats

According to BC Statistics 2006 census data, the main industries (by labour force) for the region are logging and forest products, manufacturing, retail trade, health care and social assistance, and wood product manufacturing. <sup>4</sup>

### **3. Waste Stream Characterization**

---

This section provides a general description of the solid waste generated in the RDFFG, including the composition of the waste stream and how much waste is disposed in landfill and recycled. This information, along with the system description in Section 4, provides the baseline for the solid waste management planning process.

#### **3.1 Composition of Waste Disposed**

The RDFFG commissioned a waste composition study in 2007. The study examined two waste streams: material delivered to the Foothills Boulevard Regional Landfill, and material collected through the Residential Automated Collection System (RACS) in Prince George. The composition of the waste delivered to the landfill included material collected by RACS.

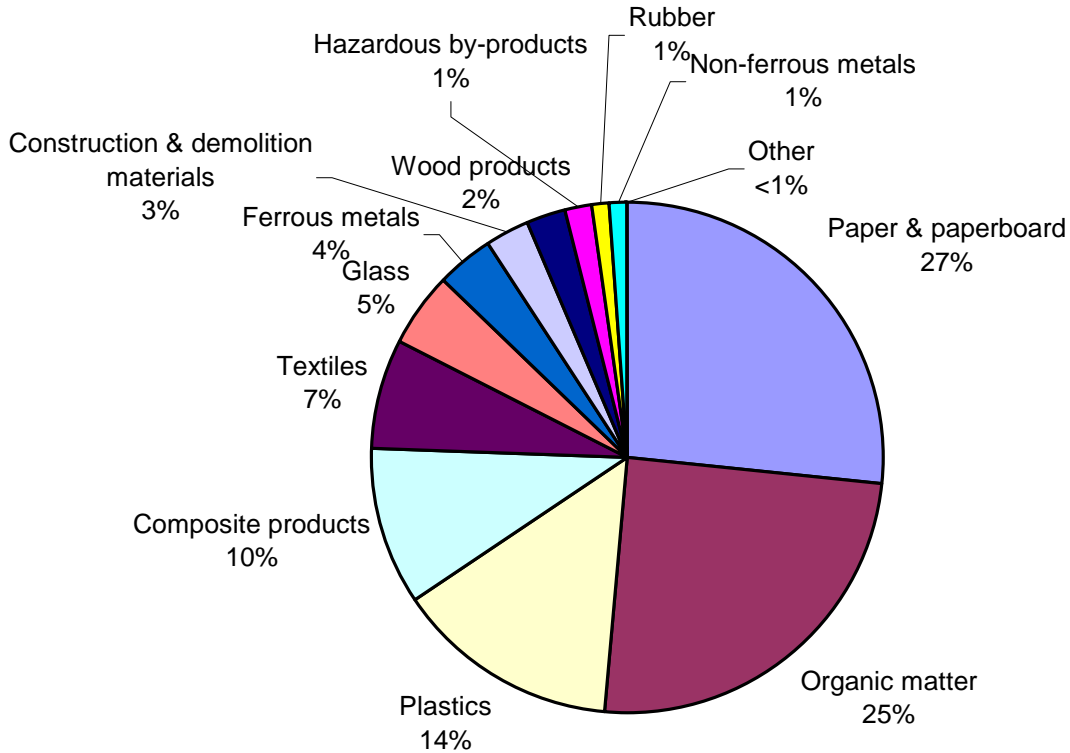
Figure 2 shows the composition of the waste disposed of at Foothills Boulevard Regional Landfill (FBL), based on data from the 2007 *Waste Characterization Study for Foothills Boulevard Regional Landfill*.<sup>5</sup>

---

<sup>4</sup> Source: 2006 Community Facts for Fraser-Fort George, BC Stats

<sup>5</sup> 2007. Technology Resource Inc.

**Figure 2. Estimated Composition of Waste Disposed of at Foothills Boulevard Regional Landfill (2007)**



The waste received at FBL is categorized as follows:

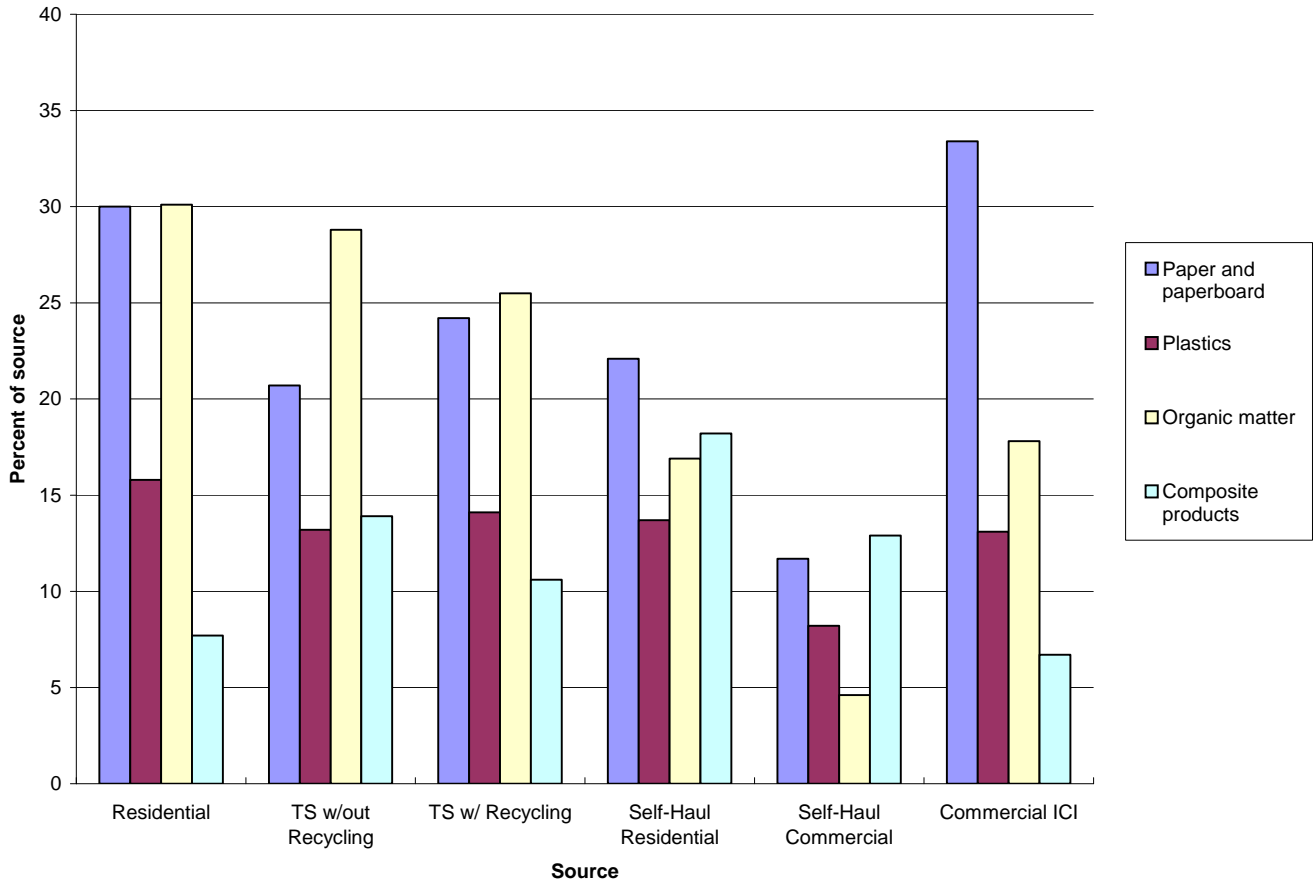
1. Residential, including waste collected by the Residential Automated Collection System;
2. Rural transfer stations (with and without recycling facilities);
3. Self haul residential;
4. Self haul commercial; and
5. Commercially collected ICI (Industrial, Commercial and Institutional);

Using data from the 2007 *Waste Characterization Study for Foothills Boulevard Regional Landfill*, and as shown in Figure 3, a comparison of the composition from each waste source indicates that organic matter and paper products are the two most common waste streams from all but self-haul ICI sources. The next two most common waste streams tend to be plastics and composite products. The most common materials in self-haul ICI sources are textiles.

The analysis also notes that the percentage of hazardous materials in the waste stream was much higher from transfer stations without recycling (where it made up 4.1% of the waste stream, compared to 0.2-1.3% of other waste stream sources).



**Figure 3. Waste Composition by Source (2007)**



### 3.2 Disposal and Diversion

Table 2 outlines the main activities that contribute to the RDFFG's disposal and diversion rates. A description of the disposal facilities and the recycling activities in the RDFFG is provided in Section 4.

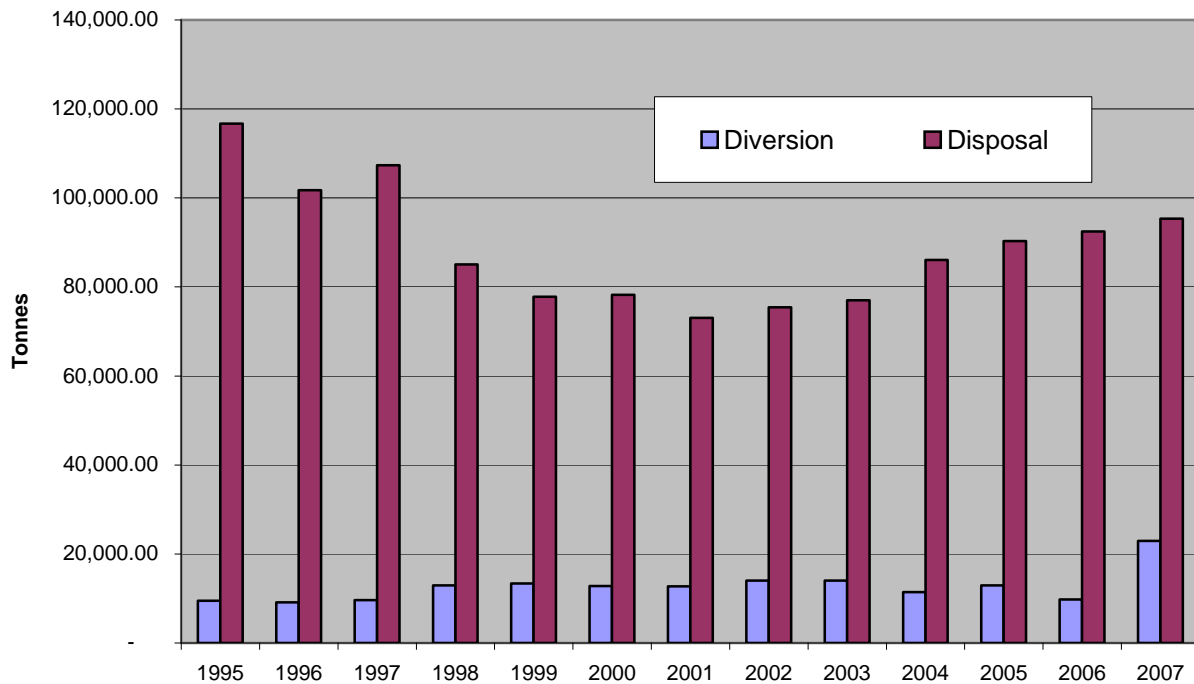
In 2007, the RDFFG disposed of 95,311 tonnes (based on scale house records and an estimate of tonnes received at Dome Creek and Sinclair Mills Landfills). It is estimated that almost 26,000 tonnes of material were recycled in the region, resulting in a recycling rate of 21%.

**Table 2. Diversion and Disposal Activities in 2007**

| <b>Waste Management Activity</b>                                                              | <b>Tonnes</b> |
|-----------------------------------------------------------------------------------------------|---------------|
| <b>Disposal Activities</b>                                                                    |               |
| Foothills Boulevard Regional Landfill                                                         | 91,842        |
| Mackenzie Regional Landfill (weighed loads plus an estimate of residential loads not weighed) | 3,650         |
| Legrand Select Waste Landfill (estimate)                                                      | 134           |
| Dome Creek Landfill (estimate)                                                                | 44            |
| Sinclair Mills Landfill (estimate)                                                            | 36            |
| <b>Total Disposal</b>                                                                         | <b>95,706</b> |
| <b>Recycling Activities</b>                                                                   |               |
| Recycling at Foothills Boulevard Regional Landfill                                            |               |
| Tires                                                                                         | 143           |
| Appliances                                                                                    | 263           |
| Scrap Metal                                                                                   | 776           |
| Compostables                                                                                  | 8,020         |
| Lead acid batteries                                                                           | 43            |
| Used motor oil and filters                                                                    | 26            |
| Antifreeze                                                                                    | 2             |
| Recycling at Mackenzie Landfill                                                               |               |
| Scrap Metal                                                                                   | 1446          |
| Vehicles                                                                                      | 2             |
| Lead acid batteries                                                                           | 8             |
| Used motor oil and filters                                                                    | 14            |
| Antifreeze                                                                                    | 1             |
| Multi-material recycling depots                                                               |               |
| Cardboard                                                                                     | 630           |
| Mixed Paper Products                                                                          | 1,038         |
| Newspaper                                                                                     | 944           |
| Clear #2 Plastic                                                                              | 23            |
| Mixed food and beverage containers                                                            | 52            |
| Private sector recycling (estimate for fibre, metal and pallets)                              | 10,000        |
| REAPS organic recycling (from ICI sector) (estimate)                                          | 3             |
| Backyard composter distribution (250 kg x 5,500 bins)                                         | 1,375         |
| Encorp recycling (based on an estimate of 10 kg/capita/year)                                  | 1,000         |
| <b>Total Recycling</b>                                                                        | <b>25,809</b> |
| <b>Recycling Rate (recycling / [disposal + recycling])</b>                                    | <b>21%</b>    |

As shown in Figure 4, in recent years the amount of waste disposed has been increasing and the amount of waste diverted has been decreasing. The growth in the amount of waste disposed is believed to be the result of increasing population in and around Prince George and the recent closure of several small landfills that had no scales and now the waste from these communities is more accurately accounted.

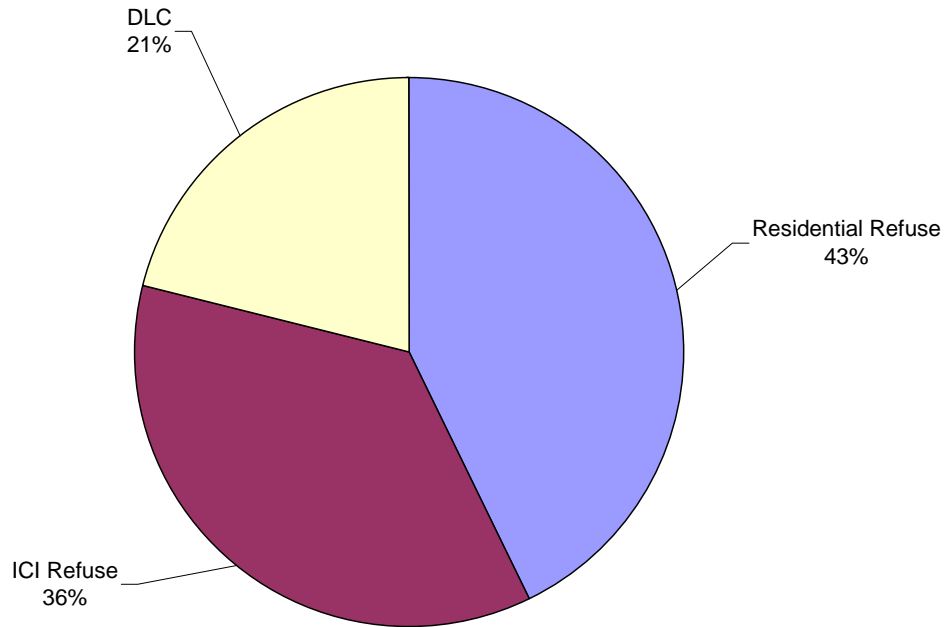
**Figure 4. Disposal and Diversion (1995-2007)**



### 3.3 Waste Generators

The Foothills Boulevard Regional Landfill tracks the source of loads of waste delivered to the facility. Loads are categorized as residential, Industrial/Commercial/Institutional (ICI), and Demolition/ Landclearing/ Construction (DLC). The Mackenzie Landfill does not weigh in residential loads, and the Legrand landfill only accepts DLC waste. The data presented below is therefore from the Foothills Boulevard Regional Landfill only. Since the Foothills Boulevard Regional Landfill handles 96% of the waste buried in the region, the waste generator data shown in Figure 5 is regarded as representative of the Regional District as a whole.

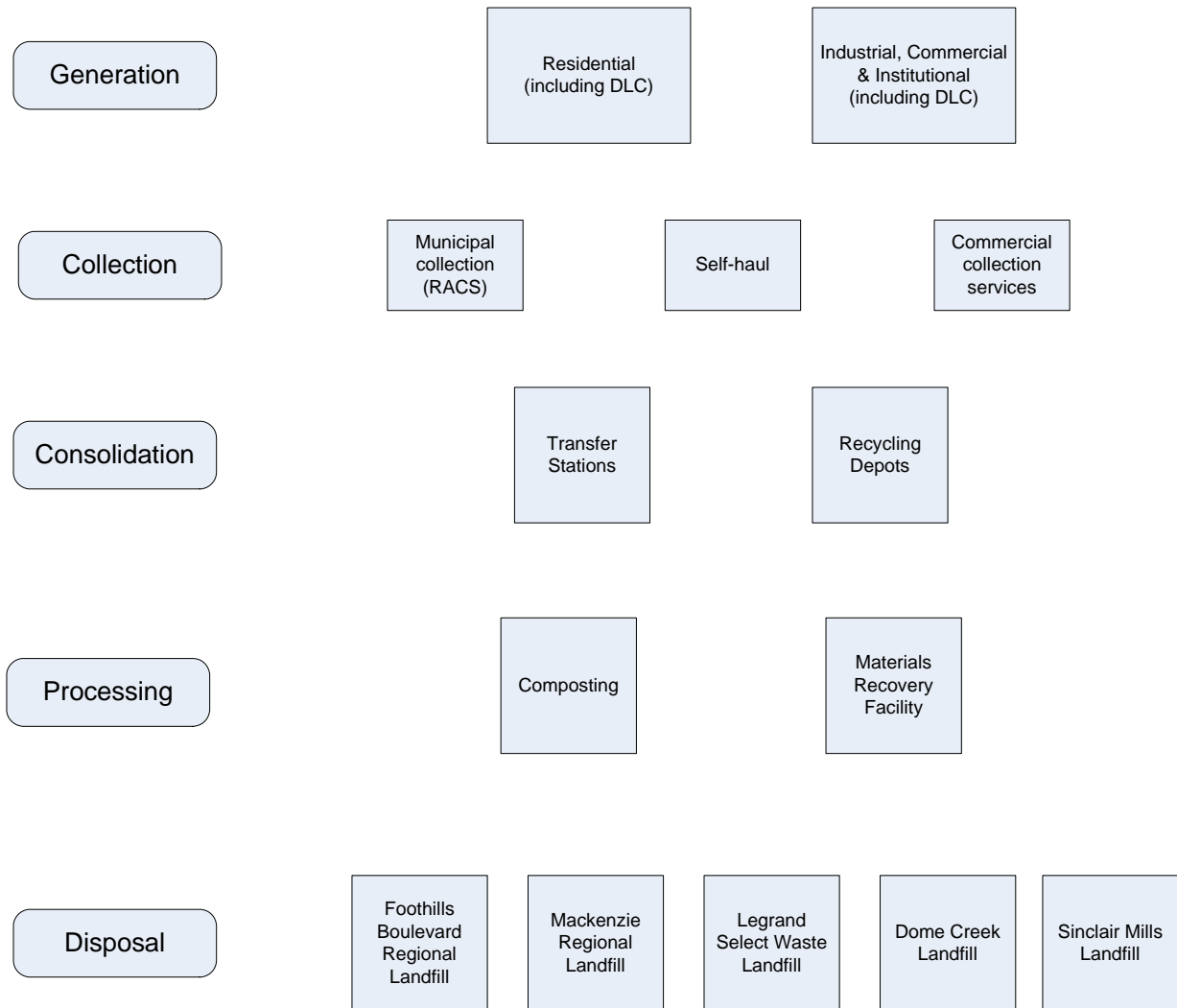
**Figure 5. Waste Generators (Sources of Landfilled Waste in 2007)**



## 4. Existing Solid Waste Management System

Figure 6 shows a general overview of the solid waste management system in the RDFFG in 2007. Education programs, as well as government policies and bylaws support these activities. This section of the report describes the major infrastructure, services, programs and policies in place in the RDFFG that contribute to the management of solid waste.

**Figure 6. Waste Management Activities in 2007**



## 4.1 Education and Promotion

Education and promotion initiatives in the RDFFG are primarily conducted by the RDFFG, the City of Prince George and REAPS (Recycling and Environmental Action Planning Society).

REAPS (Recycling and Environmental Action Planning Society) acts as a local clearinghouse for waste reduction and recycling information. They provide information on the telephone, on their website, and through workshops and a newsletter. REAPS also undertakes curriculum-linked classroom activities in addition to setting up schools with composting programs and used beverage containers recycling programs. REAPS receives financial support from the RDFFG and is provided with a building/workspace through the City of Prince George.

The Regional District has a broad array of waste management information available on their municipal website, including brochures, composting information, a recycling guide and map, as well as a link to the REAPS website. The Regional District also provides tours of waste management facilities, has a waste management telephone service, makes hard copies of brochures available to the public, and does advertising on the radio and in the local newspapers on a regular basis.

The City of Prince George also provides a wide variety of information related to waste management on their website, including information on garbage collection, recycling, transfer stations and reuse opportunities in Prince George.

## 4.2 Reduction and Reuse Programs

There are minimal waste reduction programs in place in the RDFFG. The primary waste reduction driver in place is the implementation of tipping fees at the landfills for commercial waste generators, and the variable rates charged for residential waste collection by the City of Prince George (with smaller containers costing less per year).

Backyard composting is another means of waste reduction that is used by many communities to reduce the quantity of organic waste disposed. The RDFFG has promoted backyard composting by offering subsidized compost bins and by providing financial support for a compost demonstration garden. Approximately 5,000 composters have been distributed through this initiative. Bins were last sold in June 2006 during a 1-day event at which 400 bins were sold.

Waste reuse is supported by the establishment of swap sheds at the landfills and transfer stations. Residents may leave unwanted but usable items in the shed for other residents to take. Swap sheds are cleaned out regularly (unclaimed items are disposed of), and limits have been placed on the frequency and duration of visits to reduce "professional picking" of items with strong demand.

In addition to the swap sheds, there are several commercial and non-profit organizations that receive and sell used goods.

## 4.3 Recycling

In the RDFFG, there is a wide range of recycling opportunities, including residential recycling services, recycling areas at the landfills, and commercial recycling services, as well as through extended producer responsibility (EPR) programs.

### 4.3.1 Residential Recycling

Residential recycling opportunities in the RDFFG are generally in the form of recycling depots. There are 17 depots distributed throughout the RDFFG, although the majority are in the City of Prince George. Depots in the City are located at shopping centres, other high-traffic public locations, and at the two transfer stations located in the City. Depots outside the City are located at landfill or transfer station sites.

The depots consist of roll-off bins with compartments for cardboard (OCC), paper (MPP), newspaper (ONP), natural HDPE (e.g. milk jugs) and metal food and beverage containers (MFBC). The number of bins varies between depot sites. The depots are serviced by the RDFFG's contractors, who haul the bins to Metro Materials' Material Recovery Facility (MRF) in Prince George. A representative photograph of the depots are provided in Figure 7.

**Figure 7. Typical Multi-Material Recycling Depot**



The quantities received at each depot are listed in Table 3. Quantities of HDPE and metal food and beverage containers are reported overall and not for each site.

**Table 3. Multi-Material Recycling (2007)**

|                       | Depot                         | OCC    | ONP    | MPP     | HDPE  | MFBC                |
|-----------------------|-------------------------------|--------|--------|---------|-------|---------------------|
| In Prince George      | Hart Mall                     | N/A    | 137.75 | 70.15   |       |                     |
|                       | Ospika & Dufferin             | N/A    | 107.76 | 120.8   |       |                     |
|                       | Kinsmen Hall                  | N/A    | 55.49  | 60.61   |       |                     |
|                       | Quinn Rd                      | 194.23 | 259.8  | 278.83  |       |                     |
|                       | 1 <sup>st</sup> Ave & Nechako | 79.95  | 129.77 | 139.48  |       |                     |
|                       | Foothills Boulevard LF        | 101.15 | 58.68  | 73.27   |       |                     |
|                       | Cummings Rd. TS               | N/A    | 14.18  | 18.29   |       |                     |
|                       | Connaught Youth               | N/A    | 19.95  | 16.74   |       |                     |
|                       | Bon Voyage                    | N/A    | 61.62  | 58.16   |       |                     |
|                       | Shelley                       | N/A    | 7.67   | 14.15   |       |                     |
|                       | Metro Plant                   | N/A    | 1.05   | 21.04   |       |                     |
|                       | Vanway TS                     | 77.33  | 88.71  | 107.36  |       |                     |
| Outside Prince George | Valemount                     | 76.64  | N/A    | 27.49   |       |                     |
|                       | Dunster                       | N/A    | N/A    | 7.13    |       |                     |
|                       | McBride                       | 53.62  | N/A    | 23.05   |       |                     |
|                       | Bear Lake TS                  | N/A    | 1.11   | 3.89    |       |                     |
|                       | Mackenzie                     | 33.14  | 0.93   | 57.82   |       |                     |
| Total (by material)   |                               | 616.06 | 944.47 | 1098.26 | 20.49 | 55.29               |
| Total                 |                               |        |        |         |       | <b>2,735 tonnes</b> |

In some parts of the Regional District, private recycling collection services are available for hire by individual residents. The amount of recycling collected by private contractors is unknown but is believed to be captured in the amounts reported by the residential depots and commercial quantities reported by Metro Materials.

The total amount of material recycled through residential programs in the RDFFG in 2007 was 2,735 tonnes.

#### 4.3.2 Recycling Activities at the Landfills

Foothills Boulevard and Mackenzie landfills receive scrap metal, including appliances, for recycling. Coolant is removed by a contractor from appliances such as refrigerators and air conditioners and recycled. Used tires are also received at the sites and recycled through the Provincial tire stewardship program. Other materials collected for recycling include used motor oil and filters, antifreeze and lead-acid batteries.



**Table 4. Recycling at Foothills Boulevard and Mackenzie Landfills**

| <b>Material</b>                                    | <b>Tonnes (2007)</b> |
|----------------------------------------------------|----------------------|
| Recycling at Foothills Boulevard Regional Landfill |                      |
| Tires                                              | 143                  |
| Appliances                                         | 263                  |
| Scrap Metal                                        | 776                  |
| Used Motor Oil and Oil Filters                     | 26                   |
| Antifreeze                                         | 2                    |
| Lead-acid Batteries                                | 43                   |
| <b>Total Foothills Boulevard Regional Landfill</b> | <b>1,253</b>         |
| Recycling at Mackenzie Landfill                    |                      |
| Scrap Metal                                        | 30                   |
| Vehicles                                           | 2                    |
| Used Motor Oil and Oil Filters                     | 6                    |
| Antifreeze                                         | 1                    |
| Lead-acid Batteries                                | 1                    |
| <b>Total Mackenzie Landfill</b>                    | <b>40</b>            |
| <b>Total Landfill Recycling</b>                    | <b>1,293</b>         |

### 4.3.3 Industrial, Commercial and Institutional (ICI) Recycling

Recycling services for the ICI sector includes:

- Paper and cardboard collection services by private sector waste collection companies;
- Private paper collection and shredding services; and
- Self haul to the recycling depots (small businesses only) or to Metro Materials MRF in Prince George. RDFFG has installed cardboard compactors at the Valemount and McBride depots to allow for larger volumes of cardboard to be collected.

Metro Materials estimates that 8,520 tonnes of ICI recyclables from RDFFG were processed at their MRF in 2007.

Some businesses backhaul recyclable materials to their central distribution centres located outside the Regional District; the quantity of recycling handled in this manner is unknown.

### 4.3.4 Centralized Composting

There is a large composting operation at the Foothills Boulevard Regional Landfill. That facility accepts residential and ICI yard and garden waste, as well as some land clearing debris. Material is hauled directly to the facility by generators, and is brought in from transfer stations. The facility uses aerated windrows to process the material. In 2007, the Foothills Boulevard Regional Landfill Composting Facility received 8,020 tonnes of material. This finished product is classified as Class

A compost. The final product is sold to the public and used primarily by the City of Prince George for public works.

There is also a compost demonstration garden operated by REAPS in Fort George Park. At the garden, there are 13 backyard composting bins and 3 vermicomposting bins. REAPS receives organics from selected ICI generators to stock the composters in the demonstration garden.

## **4.4 Residual Waste Management**

### **4.4.1 Collection Services**

#### *4.4.1.1 Prince George*

The City of Prince George collects garbage from approximately 23,000 homes within the City limits, using an automated garbage collection system. The automated system has been in place since April 2005. When the system was rolled out, each household was supplied with a cart (available in a choice of three sizes). The fee charged for garbage collection varies with the size of cart used. Garbage collection is provided weekly.

Residents with excess waste may bring it to one of two transfer stations located in the City, or directly to the Foothills Boulevard Regional Landfill. Open burning of waste within a prescribed area of the City is prohibited under Bylaw 7721.

The City also offers curbside collection to a limited number of ICI generators, including churches and seniors' homes.

The majority of ICI waste generators in the City subscribe to commercial waste collection services from Waste Management Inc (WMI), which recently purchased a local company (PG Sanitation). ICI generators also have the option to bring their waste directly to the landfill.

The City and Regional District also undertake a spring clean up collection program for yard waste and bulky materials. Roll-off bins are placed around the City for a limited time for use by residents.

#### *4.4.1.2 District of Mackenzie*

The District of Mackenzie provides both residential and ICI collection service. The collection vehicle brings the material directly to the Mackenzie Landfill.

#### *4.4.1.3 Village of McBride*

The Village of McBride provides both residential and ICI collection service. The collection vehicles transfer the garbage into a reserved bin at the McBride Transfer Station. The bin is then emptied by the RDFFG's collection contractor, and hauled to the Foothills Boulevard Regional Landfill.

#### 4.4.1.4 *Village of Valemount*

The Village of Valemount provides garbage collection services to both residential and ICI customers through a contractor. The collection vehicle transfers the garbage into a reserved bin at the Valemount Transfer Station. The bin is then emptied by the RDFFG's collection contractor, and hauled to the Foothills Boulevard Regional Landfill.

#### **4.4.2 Transfer Stations**

There are 18 transfer stations in the Regional District of Fraser Fort George (RDFFG), as shown in Figure 8. Most of the transfer stations offer household waste disposal and multi-material recycling services. Some transfer stations offer a wider variety of waste management services that include scrap metal recycling, yard and garden waste drop-off, swap sheds for reusable goods, and refrigeration appliance recycling. A list of the 18 transfer stations and the range of services at each site is provided in Table 5.

**Figure 8. Map of Transfer Stations in RDFFG (2007)**



**Table 5. Summary of Services at RDDFG Transfer Stations**

| <b>Transfer Station</b>      | <b>Garbage Disposal</b> | <b>Multi-Material Recycling</b> | <b>Scrap Metal Recycling</b> | <b>Yard &amp; Garden Composting</b> | <b>Swap Shed</b> | <b>Building Materials</b> | <b>Refrigeration Appliances</b> | <b>Tire Recycling</b> |
|------------------------------|-------------------------|---------------------------------|------------------------------|-------------------------------------|------------------|---------------------------|---------------------------------|-----------------------|
| Valemount                    | X                       | X                               | X                            | X                                   | X                | X                         | X                               |                       |
| Dunster                      | X                       | X                               | X                            |                                     | X                | X                         |                                 |                       |
| McBride                      | X                       | X                               | X                            |                                     | X                | X                         | X                               | X                     |
| Hixon                        | X                       |                                 | X                            | X                                   | X                | X                         |                                 |                       |
| Red Rock                     | X                       |                                 |                              |                                     |                  |                           |                                 |                       |
| Buckhorn                     | X                       |                                 |                              |                                     |                  |                           |                                 |                       |
| Cummings Road                | X                       | X                               | X                            |                                     |                  | X                         |                                 |                       |
| Shelley                      | X                       | X                               | X                            | X                                   | X                | X                         |                                 |                       |
| Willow River                 | X                       |                                 |                              |                                     |                  |                           |                                 |                       |
| Summit Lake                  | X                       |                                 |                              |                                     |                  |                           |                                 |                       |
| Bear Lake                    | X                       | X                               | X                            | X                                   | X                | X                         |                                 | X                     |
| McLeod Lake                  | X                       |                                 |                              |                                     |                  |                           |                                 |                       |
| Chief Lake                   | X                       |                                 |                              |                                     |                  |                           |                                 |                       |
| Miworth                      | X                       |                                 |                              |                                     |                  |                           |                                 |                       |
| Berman Lake                  | X                       |                                 |                              |                                     |                  |                           |                                 |                       |
| West Lake                    | X                       |                                 |                              |                                     |                  |                           |                                 |                       |
| Quinn St. (in Prince George) | X                       | X                               | X                            | X                                   |                  |                           |                                 |                       |
| Vanway (in Prince George)    | X                       | X                               | X                            | X                                   | X                |                           |                                 |                       |

### 4.4.3 Landfills

#### 4.4.3.1 Foothills Boulevard Regional Landfill

The Foothills Boulevard Regional Landfill was operated by the City of Prince George from 1976 until 1994, at which point the Regional District assumed responsibility for the facility. The landfill is located on 87.3 hectares, of which approximately 25 hectares is in use for solid waste disposal, composting and recycling services. The facility handles 96% of the municipal solid waste (MSW) generated in RDFFG.

In 2006 the Regional District updated their Design and Operation Plan. Under the current design draft 2,070,400 cubic metres of airspace are available which would accommodate landfilling activity in the current footprint until 2018. Additional fill areas within the existing lease may be developed beyond 2018, although concept plans have yet to be prepared.

Features of this site and its operations include:

- Open seven days per week including most statutory holidays.
- An on-site transfer station facilitates residential drop off of MSW and yard trimmings. Material is hauled from the transfer station over the scales to the active face.
- Multi-material recycling bins, as well as recycling facilities for used oil, anti-freeze, batteries, propane cylinders, tires, scrap metal, and appliances.
- A salvage building (swap shed).
- Large commercial waste collection vehicles unload their waste directly at the active face of the landfill.
- A yard waste composting facility.
- Weigh scales and scale house (scales were installed in 1994 and put to use in January 1995 to coincide with the introduction of variable rate tipping fees).
- Groundwater monitoring: 13 on-site wells and 4 off-site wells.
- Leachate is retained on site through natural attenuation (rather than a synthetic liner).
- A landfill gas collection system was installed in a portion of the closed landfill in 2002. Gas is collected and flared.
- Gas collection infrastructure is being installed as filling occurs in the active portion of the landfill.
- Uses alternative daily cover (tarps), with weekly soil cover applied. If bears are noticed in the area, daily soil cover is applied. The site is three-quarters fenced.

The Foothills Boulevard Regional Landfill receives approximately 43% of its waste from the residential sources, and 36% from ICI sources. The remaining 21% is demolition, land clearing and construction waste.

#### 4.4.3.2 Mackenzie Landfill

The Mackenzie landfill provides disposal services to the northern part of the region. Residential loads are not weighed, and no fee is charged to residential users. ICI loads are logged in and weighed by the truck driver.

In addition to waste disposal, the site also offers marshalling areas for tires, fridge/freezer, metals, oil & filters, and anti-freeze. There are also static composting piles for yard and garden waste, and a swap shed. There are no multi-material recycling bins at this site, as bins are located in the town of Mackenzie.

The Mackenzie landfill is completely surrounded by an electric fence. As a result, there are few wildlife issues.

The Regional District is trying to get approval for use of alternative daily cover at this site, with the objective of maximizing the use of the available space and keeping the site operational for as long as possible.

#### 4.4.3.3 Legrand Select Waste Landfill

The Legrand Select Waste Landfill was originally a disposal facility for municipal solid waste. When the McBride Transfer Station was opened in 2006, the operation of the Legrand Landfill changed to receipt of select inert waste only. This waste includes:

- Demolition, Landclearing Debris & Construction Waste
- Scrap Metal (marshalled for recycling);
- Drywall;
- Bulky waste;
- Vehicle Hulks (marshalled for recycling);
- Off Road Tires (marshalled for recycling); and
- Car wash pumpings (dewatered and free of contaminants such as oil/grease)

Waste generators must make an appointment with the landfill operator to drop off loads.

In 2007, 52 loads were brought to the site; 34 contained DLC waste and 18 contained metal. The private sector brought 11 of the DLC loads, and the remaining 23 DLC loads were from Regional District transfer stations. All of the metal loads were from Regional District transfer stations.

There is no scale at Legrand Select Waste Landfill. Therefore, volumes of waste are recorded. In 2007, there were 743 m<sup>3</sup> of DLC waste, and 554 m<sup>3</sup> of metal received at the site.

#### 4.4.3.4 *Dome Creek & Sinclair Mills Landfills*

No disposal data is available for these sites. Both of these sites were slated for closure based on the Regional District's 1997 Solid Waste Management Plan. These sites are still operating and the closure of these sites is outstanding.

#### 4.4.3.5 *Closed Landfills*

There are 12 known closed sites that were used as dumpsites in the past. The locations of these sites are:

- Aleza Lake
- Bear Lake
- Berman Lake
- Chief Lake
- Hixon
- Mud River
- McLeod Lake
- Shelley
- Stoner
- Summit Lake
- Valemount
- West Lake
- Willow River

The only one of these sites to receive final closure/capping is West Lake landfill.

The Valemount landfill continues to receive limited quantities of construction and demolition waste, but is fully closed to receiving municipal solid waste.

#### **4.4.4 Management of Controlled Wastes**

Disposal of controlled wastes (materials which require special handling and disposal practices to avoid creating health hazards, nuisances or environmental pollution) requires pre-approval by the Regional District and appropriate permits. Tipping fees for controlled wastes are higher than for MSW. Controlled wastes are accepted at Foothills and Mackenzie Landfills, and a sub-set of controlled wastes is accepted at the Legrand Select Waste Landfill.

The following materials are not accepted at any RDFFG landfill or transfer station:

- Liquids,
- Slurry (except as listed under controlled waste),
- Empty steel and plastic drums (unless crushed or shredded/fully rinsed, no residues),
- Ignitable waste,



- Reactive waste,
- Radioactive waste,
- Special Waste except as permitted as controlled waste (asbestos);
- Refuse that is on fire or smouldering,
- Explosives,
- Industrial chemical waste,
- Small tires or large tires mounted on rims,
- Ozone depleting substances (except as permitted as Controlled Waste contained in household appliances only); and
- Wire rope.

For proper disposal of household hazardous waste (HHW), there is a Product Care depot in Prince George. The Nechako Bottle Depot is a "Paint Plus" depot that takes back waste paint, solvents, pesticides and fuels.

There are other HHW stewardship programs operating in BC, including programs for pharmaceuticals, rechargeable batteries and electronic waste (e-waste).

#### **4.5 Demolition, Land Clearing and Construction Waste**

Construction and demolition debris is accepted at all landfills in the RDFFG, including Foothills, Legrand and Valemount. Construction and demolition waste received at municipal solid waste landfills consists primarily of wood and to a lesser extent, roofing materials, plastic and cardboard and other construction/renovation related materials. Metal is usually removed for recycling by the contractor. Concrete and pavement are often recycled or used as fill material, and consequently do not usually end up in municipal solid waste landfills.

At Foothills Boulevard Regional Landfill, DLC waste is disposed of in an area separate from the MSW. There are no known facilities for managing land clearing waste in the RDFFG. Within municipal boundaries, land clearing waste is typically chipped and left on-site.

## 4.6 Bylaws

This section outlines the regional and municipal bylaws related to solid waste management that are in place.

### Regional District of Fraser-Fort George

#### Regional District of Fraser-Fort George Disposal Site Regulation Bylaw (No. 78, 145)

This bylaw outlines the operations of waste disposal sites in the RDFFG, including access to the site, locations for dumping, and activities that require a permit (burning waste, scavenging, and disposal of offensive waste). Bylaw 145 adds a prohibition against the discharge of firearms onto a disposal site.

#### Greater Prince George Waste Disposal Local Service Establishment Bylaw (No. 1302)

This bylaw establishes waste disposal as a local service to Electoral Areas A, C, D, E, F and G, with the cost of providing waste disposal service to be apportioned among participating areas through property taxes and through fees and charges for service. This bylaw sets the maximum annual requisition at \$340,000.

#### Solid Waste Management Local Service Establishment Bylaw (No. 1453)

This bylaw is similar to the previous one, but it establishes a solid waste management local service area within the City of Prince George, District of Mackenzie, Village of McBride, Village of Valemount, and Electoral Areas A, C, D, E, F, G, and H. The cost of providing waste disposal service will be apportioned among participating areas through property taxes and through fees and charges for service. This bylaw sets the maximum annual requisition at \$5,000,000.

#### Foothills Boulevard Regional Landfill Tipping Fee Regulation Bylaw (Nos. 1503, 1547, 1578, 1701, 1797, 2105)

This bylaw outlines the charges and material restrictions at the Foothills Boulevard Regional Landfill. It also specifies controlled waste costs, hazardous/special waste considerations, inspection and weighing of materials and penalties for violations. The various amendments are consolidated in a new bylaw, No. 2105.

#### Solid Waste Management Transfer Station Local Service Establishment Bylaw (No. 1677)

This bylaw establishes a solid waste management rural transfer station local service within Electoral Areas A, C, D, E, F, G and H, with the cost of providing waste disposal service to be apportioned among participating areas through property taxes. The RDFFG retains the right to impose fees and charges for service. This bylaw sets the maximum annual requisition at \$350,000.

Mackenzie Regional Landfill Tipping Fee Regulation Bylaw (No. 1746)

This bylaw outlines the charges and material restrictions at the Mackenzie Regional Landfill. It also specifies controlled waste costs, hazardous/special waste considerations, inspection and weighing of materials and penalties for violations.

Valemount Regional Transfer Station Tipping Fee Rate for the Village of Valemount Bylaw (No. 2101)

This bylaw establishes that a tipping fee is payable to the RDFFG for the delivery of waste to the Valemount Transfer Station for waste originating from the Village of Valemount collection system.

Valemount Reg. Transfer Station Tipping Fee and Site Regulation Bylaw (No. 1577 and 2104)

This bylaw outlines the charges and conditions for the deposition of waste material at the Valemount Transfer Station. It specifies a schedule of fees, charges for the disposal of controlled waste, site regulations and penalties for violations.

McBride Regional Transfer Station Tipping Fee Bylaw (No. 2145)

This bylaw establishes that a tipping fee is payable to the RDFFG for the delivery of waste to the McBride Transfer Station for waste originating from the Village of McBride collection system.

McBride Regional Transfer Station Tipping Fees and Site Regulations Bylaw (No. 2146)

This bylaw outlines the charges and conditions for the deposition of waste material at the McBride Transfer Station. It specifies a schedule of fees, charges for the disposal of controlled waste, site regulations and penalties for violations.

#### **4.6.1 City of Prince George**

Garbage Collection Regulation (Bylaw No. 7661)

This bylaw establishes the service of collecting, removing, and disposing of garbage, using both automated and manual collection systems. The bylaw also includes a provision for the operation of transfer stations in the City. It outlines collection cart/garbage container specifications, location and timing of placement, acceptable types of material, and weight of collection containers. It also outlines the roles and responsibilities of property owners and the City to minimize risks, maximize safety and efficiency in waste collection. The bylaw also outlines the operation of transfer stations including fees payable, transportation requirements, types and quantities of acceptable material.

Clean Air (Bylaw No. 7721)

This bylaw prohibits the open burning of garbage, demolition and construction waste, landclearing debris, and yard and garden waste within a set boundary within the City of Prince George.

#### **4.6.2 District of Mackenzie**

##### Garbage Bylaw (Nos. 1083 and 1139)

This bylaw outlines collection times, fees and material restrictions for garbage collection. It outlines roles and responsibilities of property owners in managing their waste and maintaining their bin. It applies to single and multi-family dwellings, as well as commercial generators.

#### **4.6.3 Village of Valemount**

##### Garbage Bylaw (Nos. 312 and 511)

This bylaw outlines collection times, fees and material restrictions for garbage collection for residential and commercial customers. As per Bylaw 511, a limit of 3 cans per week is allowed, cardboard is banned from collection and all waste set out for collection must be contained.

### **4.7 External Programs and Policies**

The BC Environmental Management Act (EMA) was enacted in 2004 and is administered by the Ministry of Environment. It combined the Waste Management Act and the Environment Management Act to create a single statute governing environmental protection and management in British Columbia. The Act outlines regulatory regimes such as the Recycling Regulation (BC Reg. 449/04). The Recycling Regulation provides a legal framework for establishing new product stewardship programs. Each of the programs listed in this section is regulated by this Act. A number of the programs have been or are currently being reviewed within the context of the Recycling Regulation.

#### **4.7.1 Beverage Container Stewardship Program Regulation**

BC was the first province to establish a mandatory deposit-refund system for soft drink and beer containers through the Litter Act in 1970. In 1997 the Beverage Container Stewardship Program Regulation replaced the outdated Litter Act to increase the range of materials regulated. It required all beverage brand-owners of ready-to-drink beverages - with the exception of milk, milk substitutes, liquid-meal replacements and infant formula - to establish a province-wide return collection system for beverage containers, under a deposit-refund system. The regulation established the goal of a minimum 85 percent recovery rate and requires that redeemed containers be either refilled or recycled.

This Beverage Container Stewardship program is now regulated by the Recycling Regulation. The Ministry of Environment is currently reviewing this program.

There are three main stewardship agencies, Encorp Pacific Canada who are responsible for non-alcoholic beverage containers (57.2% of beverage containers sold), Liquor Distribution Branch is responsible for wine, spirits, non-refillable beer, cider and cooler containers (9.6% of beverage containers sold) and Brewer's Distributed Limited is responsible for refillable glass bottles and aluminum cans for domestic beers, ciders and coolers (33.3% of beverage containers sold).

In RDFFG, the Encorp depots collecting these materials are in Mackenzie, McBride, Valemount and Prince George. In addition most stores that sell liquor, beer and wine take back empty alcoholic beverage containers.

#### **4.7.2 BC Lead Acid Battery Collection Program**

In 1991 the Ministry of Environment implemented the BC Used Lead-Acid Battery Collection Program, the only initiative of its type in Canada. The battery program provides Transportation Incentive Payments (TIPS) as a form of funding assistance to ensure safe collection and transportation of end-of-life batteries from generators to an approved broker or processing facility. The objectives of the program are to recover at least 98% of all end-of-life vehicle batteries generated annually in BC, to ensure that end-of-life batteries generated anywhere in BC can be economically transported to a processor. Under the program, virtually 100% of the end-of-life lead-acid batteries generated annually in the province are recovered.

In addition a \$5 environmental levy applies to purchases of new lead-acid batteries weighing two kilograms or more. The levy does not apply to rebuilt or reconditioned batteries, or new lead-acid batteries purchased solely to power an electric wheelchair or a three wheeled motorized device designed for the transportation of a person with a physical impairment.

In RDFFG, lead acid batteries are currently collected at some transfer stations and landfill sites, as well as through Richmond Steel in Prince George.

#### **4.7.3 Tire Stewardship BC**

In 1991 a \$3 levy on the sale of new tires in BC was introduced through the Financial Incentives for Recycling Scrap Tires (FIRST) program. The FIRST program was funded by consumers and administered by government, with no involvement of the tire industry, other than retailers, who collected the levy on behalf of the government and voluntarily took back scrap tires from consumers.

On January 1 2007, BC's Scrap Tire Recycling Program shifted from a government led program to an industry run program under the authority of the BC Recycling Regulation. Tire Stewardship BC collects an "Advance Disposal Fee" on the sale of each tire. Over 90% of the money is paid to the processors and haulers to collect, transport and recycle the scrap tires.

In the RDFFG, the majority of tires are managed by tire retailers. In addition, tires are currently stockpiled at the Regional District's landfill and transfer station sites.

#### **4.7.4 Paints, Solvents/ Flammable Liquids, Gasoline & Pesticides (Product Care)**

Product Care is a non-profit association established in response to the Recycling Regulation requiring brand owners of paint, solvents/flammable liquids, gasoline and pesticides to establish a collection program for consumers to return leftover products. This Regulation is intended to provide consumers with a safe and convenient method to manage household hazardous waste (HHW) and reduce improper disposal.

There is one full Product Care Depot in RDFFG, the Nechako Bottle Depot in Prince George, which collects all the materials under this program. There is no charge to drop off program products. The collected material is reused, recycled or used for its energy value. Product Care's web site [www.productcare.org](http://www.productcare.org) contains information on the types of products accepted through the program.

#### **4.7.5 Tree-Marking-Paint Stewardship Association**

The Tree-Marking-Paint Stewardship Association was formed by brand owners and distributors of industrial aerosol paint to manage industrial aerosol containers. Industrial aerosol paint is sold primarily in bulk to the forest industry or surveyors for the marking of trees, roads and other surfaces. There is currently a consultation paper reviewing the existing program ([www.treepaint.ca](http://www.treepaint.ca)).

#### **4.7.6 Used Lubricating Oils, Filters and Containers Program**

Since 2003 the British Columbia Used Oil Management Association (BCUOMA), a not-for-profit industry association, that administers the used oil, filter and container stewardship program, as a requirement of the Recycling Regulation.

Used oil is collected at Regional District disposal facilities as well as garages and service stations throughout the area.

#### **4.7.7 Medications Return Program**

Pharmaceuticals are a small but very important component of the waste stream affecting every household in British Columbia. Unused pharmaceuticals pose a significant health, safety and environmental hazard when improperly stored or disposed to the environment. In response to this concern, the pharmaceutical industry voluntarily established the Medications Return Program in 1996. Pharmaceutical producers are currently regulated under the Recycling Regulation and their program allows consumers to return (at no charge) their residual medications to most pharmacies in the province. As of 2004, over 90 per cent of pharmacies in the province participate in the return program.

The Residuals Management Group Ltd., through funding by the Post-Consumer Pharmaceutical Stewardship Association, administers the Medications Return Program.

In the RDFFG, there are 24 locations registered to accept used pharmaceuticals for safe disposal. In Mackenzie the drop off locations includes the People's Drug Mart and Pharmasave. In McBride, the Robson Valley Pharmacy is a drop-off location. In Valemount, the Pharmasave is the local drop-off. In Prince George, there are 21 drop-off locations including Costco Pharmacy, London Drugs, Save-on Pharmacy, Shopper's Drug Mart, Wal-Mart Pharmacy, Zellers Pharmacy, and a number of other local pharmacies.

#### **4.7.8 Electronics Product Stewardship**

The Recycling Regulation requires the electrical and electronic industry to implement a product stewardship program. In response to this the Electronics Product Stewardship Canada (EPSC), a not-for-profit organization representing industry producers for electrical and electronic products, has developed a program that was implemented in August 2007 and delivered in partnership with Encorp Pacific Canada.

Collected materials are only shipped to pre-qualified recyclers and processors who meet the exacting standards of the Vendor Qualification Program developed by Electronic Product Stewardship Canada (EPSC). The authorized recyclers are E-Cycle Solutions, Sims Recycling and Teck Cominco. In addition to these primary recyclers, all of their downstream processors, are also subject to the rigorous Recycling Vendor Qualification Program to ensure the highest levels of adherence to environmental, occupational health & safety, export and other standards. More information about the standards is available online at <http://www.epsc.ca/recycle/>.

The electronics industry has undertaken to improve the material content, design and construction of its products to improve environmental performance. Re-use of computers and other electronic equipment by charitable organizations and other individuals prior to them entering the collection system will be promoted.

The environmental handling fee is specific to product type and is designed to reflect the true costs of managing the program. The environmental handling fee will be evaluated on an annual basis and will be adjusted to ensure there is enough revenue generated to operate the program and that funds are not being over or under accumulated. Fees and categories for British Columbia are harmonized with fees in other provinces. The current fees are: televisions - from \$15 to \$45 depending on size, computers - \$10, printers - \$8, laptop/notebooks - \$5, computer monitors- \$12.

In RDFFG, the BBK Bottle Depot in Prince George is the collection centre for electronic waste handled by EPSC.

## 5. Solid Waste Management Plan Implementation Status

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The primary achievements since the 1997 plan are the replacement of rural landfills with transfer stations, and the establishment of a multi-material recycling depot system. Details on these and the status of other initiatives in the 1996 Solid Waste Management Plan are provided in Table 5.

In general, many of the initiatives listed in the Plan were implemented or are in the process of being implemented. Using the categories in the 1997 Plan, the following is an assessment of each category's implementation:

- **Promotional and Educational Programs:** Implemented but needs enhancing.
- **Reduction and Reuse Programs:** Partially implemented.
- **Waste Exchange Program at Landfills and TS:** Swap sheds have been installed at some locations.
- **Multi-material recycling:** Implemented.
- **Centralized Composting:** Partially implemented (capacity increased, leachate lagoon constructed, but no food waste composting, no new equipment).
- **Reduce ozone depleting substances:** Implemented.
- **Additional Landfill Technical reports:** Partially implemented.
- **Landfill Upgrades:** Landfill gas collection and management at Foothills as of 2002. Scale, swap shed, yard waste composting and electric fencing at Mackenzie
- **Problem Materials:** Mostly implemented (all but DLC programs).
- **Transfer Station System:** Mostly implemented.
- **Waste to Energy Opportunities Assessment:** Implemented.



**Table 6. 1996 Plan Program Status**

| Type                                       | Action # | Action Description                                                                                                                                                                                                                            | Status                                                                                                         |
|--------------------------------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Promotional and Educational Programs       | 5.1.1    | Waste reduction and recycling hotline (local PG and 1-800 number)                                                                                                                                                                             | 1-800-667-1959<br>250-960-4486                                                                                 |
|                                            | 5.1.2    | Newsletter 2x/year to 35,800 homes on recycled paper, vegetable ink etc.                                                                                                                                                                      | Done initially, not recently (not much feedback received)                                                      |
|                                            | 5.1.3    | Media communications/ advertising using: <ul style="list-style-type: none"> <li>■ Yubie (owl mascot)</li> <li>■ "Be wise, don't compromise, you can make a world of difference" slogan</li> </ul>                                             | Yubie is used intermittently, may need to be modernized<br>Slogan needs to be updated not used as much anymore |
|                                            | 5.1.4    | Smart Shopper program                                                                                                                                                                                                                         | REAPS                                                                                                          |
|                                            | 5.1.5    | Master composter/master recycler                                                                                                                                                                                                              | REAPS (not master recycler)                                                                                    |
|                                            | 5.1.6    | Establish/maintain Speakers' Bureau                                                                                                                                                                                                           | REAPS & RDFFG                                                                                                  |
|                                            | 5.1.7    | Adoption of preferential purchasing policy by RD                                                                                                                                                                                              | Green procurement in RD purchasing policy                                                                      |
| Reduction and Reuse Programs               | 5.2.1    | Home Composter distribution program – subsidized price for residents                                                                                                                                                                          | Yes, sales stopped in early 2000, restarted in 2004                                                            |
|                                            | 5.2.2    | Compost demonstration garden at Fort George Park through REAPS (Recycling and Environmental Action Planning Society)                                                                                                                          | Yes                                                                                                            |
|                                            | 5.2.3    | ICI technical assistance program <ul style="list-style-type: none"> <li>■ Waste audit kit</li> <li>■ Newsletter</li> <li>■ Financial support to RCBC materials exchange program</li> <li>■ Variable rate tipping fee for DLC waste</li> </ul> | Yes, available not used often (over 100 businesses audited in past)<br>No<br>Possibly<br>No                    |
| Waste Exchange Program at Landfills and TS | 5.3      | Supervised salvage areas at selected LF (Foothills, Mackenzie) and TS (Valemount, McBride)                                                                                                                                                    | Swapsheds in place at selected locations (McBride, Bear Lake, Hixon, Shelley, Foothills, Mackenzie, Valemount) |
| Multi-material recycling                   | 5.4      | Contract with private sector for MRF construction/operation                                                                                                                                                                                   | Contractor came in on own                                                                                      |
|                                            | 5.4.1    | 16 drop off depots for res and ICI MPP, ONP, OCC, steel, tin and aluminum                                                                                                                                                                     | Yes                                                                                                            |
|                                            | 5.4.2    | ICI recycling program: receive materials directly from generators at MRF                                                                                                                                                                      | Yes                                                                                                            |

| Type                              | Action # | Action Description                                                                                                                                                                                                                                                                                              | Status                                                                                                                                                                           |
|-----------------------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | 5.4.3    | Allow markets for recyclables to develop (both collection and processing)                                                                                                                                                                                                                                       | Only now seeing development (e waste received at local bottle depot)                                                                                                             |
|                                   | 5.4.4    | Details of MRF operations – hours, capacity<br>■ 8-4, M-F                                                                                                                                                                                                                                                       | Approximately 2700 tonnes per year received from multi-material bins                                                                                                             |
|                                   | 5.4.5    | Auto-hulk, scrap metal and white goods<br>Mostly in the hands of the private sector<br>Establish marshalling areas at remote TS, fee for services                                                                                                                                                               | Bear Lake,(all) Shelley(scrap metal), McBride(scrap metal), Valemount (all), Hixon (all),<br>No collection of fees at these sites (revenue generated from scrap metal recycling) |
| Centralized Composting            | 5.5.1    | Overview – 3 phases:<br>■ Yard and garden waste with biosolids<br>■ Add food waste from PG<br>■ Curbside collection of yard and food waste from PG                                                                                                                                                              | Feasibility study done on food w/ yard and garden waste                                                                                                                          |
|                                   | 5.5.2    | Phase 1 – started in 1994 with 741 tonnes, up to about 1000 tonnes per year by 1997<br>■ Constructed a 11,000m <sup>2</sup> asphalt pad and purchased a windrow turner<br>■ Leachate lagoon to be constructed in 1997<br>■ Small scale composting to start at Mackenzie LF, Legrand LF and Valemount TS in 1997 | Lagoons functional<br>Mackenzie & Valemount – little success<br>Static piles – used as onsite cover                                                                              |
|                                   | 5.5.3    | Phase 2 – 1998-2000<br>■ Add food waste and non-recyclable paper from ICI to FBRLF facility<br>■ Construct second pad (11,000m <sup>2</sup> ), and leachate lagoon, buy a larger turner                                                                                                                         | No food waste, no paper<br>Additional pad (total area 18,000 m <sup>2</sup> )<br>Leachate lagoon and wetland area completed, no additional turner                                |
|                                   | 5.5.4    | Phase 3 – 2001 and beyond<br>■ Curbside collection of SSO and YW in PG<br>■ Receive food waste from restaurants, stores, institutions<br>■ Construct building for receiving, shredding, mixing and screening feedstock<br>■ Continue small scale windrow operations in Mackenzie, Valemount and McBride         | Feasibility study done (2000/1)<br><br>Static windrow piles, no active turning                                                                                                   |
| Reduce ozone depleting substances | 5.6      | Fee for service program at FBRLF, Mackenzie LF, Valemount TS, Legrand LF, McBride TS                                                                                                                                                                                                                            | Reduced fee from \$25 to \$15 in July 2007                                                                                                                                       |

| Type                               | Action # | Action Description                                                                                                                                                                                                                                                                                                       | Status                                                                                                          |
|------------------------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Additional LF<br>Technical reports | 5.7      | Close Mackenzie LF by 2003, potentially replace with TS or new LF                                                                                                                                                                                                                                                        | No                                                                                                              |
|                                    | 5.7      | <ul style="list-style-type: none"> <li>■ Close Valemount LF in 1996, construct TS</li> <li>■ Upgrade Legrand LF from 1996-9</li> <li>■ Close Legrand LF 2000</li> <li>■ New TS in Dunster 1996</li> <li>■ TS in McBride 1999</li> <li>■ Transfer waste from Robson Valley area to FBRLF starting in 2000</li> </ul>      | Yes<br><br>Moved from MSW to DLC only<br>No (DLC only landfill)<br>Yes<br>Yes. Started transfer in 2003 or 2004 |
| Landfill Upgrades                  | 5.8.1    | Foothills Boulevard Regional LF <ul style="list-style-type: none"> <li>■ Gas monitoring and management system (after 1996)</li> <li>■ Expand fill area</li> </ul>                                                                                                                                                        | 2001 construction, 2002 operational<br><br>Not really                                                           |
|                                    | 5.8.2    | Mackenzie Regional LF <ul style="list-style-type: none"> <li>■ Closed progressively by 2003</li> <li>■ Improvements to be made between 1997-2003 included electrical servicing, scale/scalehouse, waste exchange building, yard and garden waste composting and implementation of tipping fees</li> </ul>                | No<br>Yes                                                                                                       |
|                                    | 5.8.3    | Valemount Regional LF <ul style="list-style-type: none"> <li>■ To be closed w/ synthetic cover by 1996</li> <li>■ 200yd<sup>3</sup> Transtor and marshalling area to be installed</li> <li>■ Waste to be hauled to Legrand until 1999, then to FBRLF</li> </ul>                                                          | No<br>Yes<br><br>2003 to Foothills                                                                              |
|                                    | 5.8.4    | Legrand Regional LF <ul style="list-style-type: none"> <li>■ To be closed 1999, transformed to TS and marshalling area to serve McBride and area</li> <li>■ Waste to be sent to FBRLF</li> <li>■ Env. monitoring program to commence 1997</li> <li>■ Tipping fees to be implemented in 2000 at new McBride TS</li> </ul> | Landfill kept as select waste facility, TS established for MSW<br><br>No<br>Yes<br>Yes (Commercial loads only)  |
|                                    | 5.8.5    | Aleza Lake LF <ul style="list-style-type: none"> <li>■ To be closed 1997, no TS to be established</li> </ul>                                                                                                                                                                                                             | Yes, not capped                                                                                                 |

| Type | Action # | Action Description                                                                                                                                                                           | Status                                                         |
|------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
|      | 5.8.6    | Bear Lake Regional LF<br><ul style="list-style-type: none"> <li>■ To be closed in 2000</li> <li>■ TS and marshalling area to be constructed on expanded lease area adjacent to LF</li> </ul> | Yes, not capped<br>Yes                                         |
|      | 5.8.7    | Berman Lake LF<br><ul style="list-style-type: none"> <li>■ To be closed 2001, converted to TS</li> </ul>                                                                                     | Yes, not capped                                                |
|      | 5.8.8    | Chief Lake Regional LF<br><ul style="list-style-type: none"> <li>■ To be closed 1997, replaced by TS on site</li> </ul>                                                                      | Yes, not capped                                                |
|      | 5.8.9    | Dome Creek Regional LF<br><ul style="list-style-type: none"> <li>■ To be closed 2002, TS to be constructed</li> </ul>                                                                        | No                                                             |
|      | 5.8.10   | Hixon Regional LF<br><ul style="list-style-type: none"> <li>■ To be closed 1998, TS to be constructed</li> </ul>                                                                             | Yes, not capped                                                |
|      | 5.8.11   | Mud River Regional LF<br><ul style="list-style-type: none"> <li>■ To be closed 2000, TS to be constructed</li> </ul>                                                                         | Yes, not capped. No T/S (area residents use Vanway T/S)        |
|      | 5.8.12   | McLeod Lake Regional LF<br><ul style="list-style-type: none"> <li>■ To be closed 1999, replaced with TS</li> </ul>                                                                           | Yes, not capped                                                |
|      | 5.8.13   | Shelley Regional LF<br><ul style="list-style-type: none"> <li>■ To be closed 1999, replaced with TS/marshalling area</li> </ul>                                                              | Yes, not capped                                                |
|      | 5.8.14   | Sinclair Mills Regional LF<br><ul style="list-style-type: none"> <li>■ To be closed 2001, replaced with TS</li> </ul>                                                                        | No                                                             |
|      | 5.8.15   | Stoner Regional LF<br><ul style="list-style-type: none"> <li>■ To be closed 2000, replaced with TS/marshalling area</li> </ul>                                                               | Yes, not capped. No T/S, (area residents us Red Rock PL6 bins) |
|      | 5.8.16   | Summit Lake Regional LF<br><ul style="list-style-type: none"> <li>■ To be closed 1999, replaced with TS</li> </ul>                                                                           | Yes, not capped                                                |
|      | 5.8.17   | West Lake Regional LF<br><ul style="list-style-type: none"> <li>■ To be closed 1997, replaced with TS</li> </ul>                                                                             | Yes, capped                                                    |
|      | 5.8.18   | Willow River Regional LF<br><ul style="list-style-type: none"> <li>■ To be closed 1998, replaced with TS</li> </ul>                                                                          | Yes, not capped                                                |

| Type                    | Action #                                                                                                                                             | Action Description                                                                                                                                                                                                                                                                                                                               | Status                                    |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Problem Materials       | 6.1                                                                                                                                                  | DLC Materials <ul style="list-style-type: none"> <li>Primarily plan to chip, will use forced air burning on a site specific basis</li> <li>Some chipped material can be used in composting operations</li> <li>Pursue opportunities with private sector for energy generation</li> <li>Differential tipping fees as incentive to sort</li> </ul> | No to all.                                |
|                         | 6.2                                                                                                                                                  | Tires <ul style="list-style-type: none"> <li>Supports BC Env.'s Financial Incentives for Recycling Scrap Tires</li> <li>Will accept tires off rim at landfills for marshalling</li> </ul>                                                                                                                                                        | Yes                                       |
|                         |                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                  | Yes                                       |
|                         | 6.3                                                                                                                                                  | Bulky metallic objects <ul style="list-style-type: none"> <li>RD will issue RFP for contract with private sector contractor to reuse/recycle materials marshaled at RD facilities (auto hulks, white goods, scrap metal)</li> <li>Use of private facilities encouraged</li> </ul>                                                                | Yes                                       |
|                         |                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                  | Yes                                       |
| 6.4                     | Septage is not accepted at RD facilities                                                                                                             | Yes                                                                                                                                                                                                                                                                                                                                              |                                           |
| 6.5                     | HHW <ul style="list-style-type: none"> <li>Supports provincial programs</li> <li>Will include info on prov, programs in P&amp;E materials</li> </ul> | Yes, stewardship programs<br>Yes                                                                                                                                                                                                                                                                                                                 |                                           |
| Transfer Station System | 7.1                                                                                                                                                  | Bear Lake TS – 2000 <ul style="list-style-type: none"> <li>80yd<sup>3</sup> Transtor – transfer to FBRLF</li> <li>Marshalling area for bulky, DLC etc. Periodic crushing, grinding, baling and/or burning of this material on site</li> <li>Fees for materials that are marshaled, no fees for household waste</li> </ul>                        | Yes<br>Yes, but no burning<br><br>No fees |
|                         |                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                  | 7.2                                       |
|                         | 7.3                                                                                                                                                  | Chief Lake TS – 1997 <ul style="list-style-type: none"> <li>80yd<sup>3</sup> Transtor – transfer to FBRLF</li> </ul>                                                                                                                                                                                                                             | Yes                                       |

| Type | Action # | Action Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Status                                                                                                 |
|------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
|      | 7.4      | Cummings Rd. Regional TS – continued<br><ul style="list-style-type: none"> <li>■ 80 yd<sup>3</sup> capacity roll off</li> <li>■ recycling drop depot container</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                              | Yes<br>Yes                                                                                             |
|      | 7.5      | Dome Creek Regional TS – 2002<br><ul style="list-style-type: none"> <li>■ 40yd<sup>3</sup> Transtor – transfer to FBRLF</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                     | No                                                                                                     |
|      | 7.6      | Dunster TS – 1996<br><ul style="list-style-type: none"> <li>■ Replace current bins with 4 PL6 Haul All containers</li> <li>■ Transfer to Legrand until 1999, then to FBRLF</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                  | Yes<br>Transferred to McBride which in turn is hauled to Foothills                                     |
|      | 7.7      | Hixon TS – 1998<br><ul style="list-style-type: none"> <li>■ 80yd<sup>3</sup></li> <li>■ Possible cost-sharing with Cariboo RD</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                               | Yes<br>Yes                                                                                             |
|      | 7.8      | McBride TS/Marshalling Area – 1999<br><ul style="list-style-type: none"> <li>■ 200yd<sup>3</sup> Transtor</li> <li>■ Scale to be in operation by 2000</li> <li>■ RDO no fee for household waste, commercial loads will pay tipping fee</li> <li>■ Transfer to Legrand until 1999, then FBRLF</li> <li>■ Co-located with recycling drop depot</li> <li>■ Other marshalling services on fee for service basis (bulky, DLC, ODS etc) Periodic crushing, grinding, baling and/or burning of this material on site</li> <li>■ Small scale static pile composting</li> </ul> | Yes<br>No scale<br>Yes<br>Yes<br>Yes<br>Yes, no burning, metal to Legrand<br>Yes                       |
|      | 7.9      | McLeod Lake TS – 2003<br><ul style="list-style-type: none"> <li>■ 40yd<sup>3</sup></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Yes 80yd <sup>3</sup>                                                                                  |
|      | 7.10     | Mackenzie TS/Marshalling – 2004<br><ul style="list-style-type: none"> <li>■ Potential for push-pit TS, making use of existing LF infrastructure</li> <li>■ Household waste sent to FBRLF</li> <li>■ DLC, etc. marshaled and handled on site for a fee</li> </ul>                                                                                                                                                                                                                                                                                                       | Still landfill, working towards Operation Certificate (no T/S)<br>No<br>Yes (fee for commercial loads) |
|      | 7.11     | Miworth TS – year not given<br><ul style="list-style-type: none"> <li>■ 4 Haul All PL6 containers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Yes                                                                                                    |

| Type            | Action # | Action Description                                                                                                                                                                                                                                                                | Status                                                                                                                                       |
|-----------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|                 | 7.12     | Mud River TS/Marshalling – 2000/2001<br><ul style="list-style-type: none"> <li>■ 80yd<sup>3</sup> Transtor</li> <li>■ Household waste sent to FBRLF</li> <li>■ DLC, etc. marshaled and handled on site for a fee</li> </ul>                                                       | Temporary 2x 30yd <sup>3</sup> bins, site closed in 2004.<br>No<br>Yes<br>No                                                                 |
|                 | 7.13     | Prince George TS – 1997<br><ul style="list-style-type: none"> <li>■ RD to contribute to relocation cost</li> </ul>                                                                                                                                                                | Yes (Quinn St and Vanway T/S operated by the City of PG)                                                                                     |
|                 | 7.14     | Shelly TS/Marshalling – 1999/2000<br><ul style="list-style-type: none"> <li>■ 80yd<sup>3</sup> Transtor</li> <li>■ Household waste sent to FBRLF</li> <li>■ DLC, etc. marshaled and handled on site for a fee</li> </ul>                                                          | 3 Transtors, 120 yd <sup>3</sup><br>Yes<br>1 40yd <sup>3</sup> DLC, 1 40yd <sup>3</sup> compost, 1 40yd <sup>3</sup> metal<br>No fee for DLC |
|                 | 7.15     | Sinclair Mills TS– 2000/2001<br><ul style="list-style-type: none"> <li>■ 80yd<sup>3</sup> Transtor, transfer to FBRLF</li> </ul>                                                                                                                                                  | No, still operating landfill                                                                                                                 |
|                 | 7.16     | Stoner TS/Marshalling – 2000/2001<br><ul style="list-style-type: none"> <li>■ 80yd<sup>3</sup> Transtor</li> <li>■ Household waste sent to FBRLF</li> <li>■ DLC, etc. marshaled and handled on site for a fee</li> </ul>                                                          | No site Closed (area residents use Red Rock 2 PL6 bins)<br>No<br>No                                                                          |
|                 | 7.17     | Summit Lake TS – 1999/2000<br><ul style="list-style-type: none"> <li>■ 40yd<sup>3</sup> Transtor , transfer to FBRLF</li> </ul>                                                                                                                                                   | Yes                                                                                                                                          |
|                 | 7.18     | Valemount TS/Marshalling – 1995<br><ul style="list-style-type: none"> <li>■ 200yd<sup>3</sup> Transtor exists</li> <li>■ Transfer to Legrand until 1999, then to FBRLF</li> <li>■ Tipping fees start 1997</li> <li>■ DLC, etc. marshaled and handled on site for a fee</li> </ul> | Yes<br>Yes<br>Yes<br>Yes, operates DLC landfill on site with fee for service                                                                 |
|                 | 7.19     | West Lake TS – 1996/97<br><ul style="list-style-type: none"> <li>■ 80yd<sup>3</sup> Transtor, transfer to FBRLF</li> </ul>                                                                                                                                                        | Yes                                                                                                                                          |
|                 | 7.20     | Willow River TS – 1998/99<br><ul style="list-style-type: none"> <li>■ 80yd<sup>3</sup> Transtor, transfer to FBRLF</li> </ul>                                                                                                                                                     | Yes                                                                                                                                          |
| Waste to Energy | 8.0      | Will investigate options with private sector (pulp mills taking hog fuel)<br>Will commission a LFG study in 1997                                                                                                                                                                  | Yes (not feasible)<br>Yes, LFG system built in 2002                                                                                          |

## 5.1 Issues and Opportunities

During stakeholder interviews and site visits, several issues with current system and opportunities for the future were identified. These issues and opportunities are listed below and will be considered in the development of options for the future RDFFG waste management system.

### Residual Management

The installation of transfer stations instead of several small landfills is considered a successful feature of the current waste management system.

- There is a significant amount of trucking associated with the movement of materials from the various transfer stations to the landfills and recycling locations. There may be opportunities to reduce costs and emissions within the waste transportation system.
- Need to close Dome Creek & Sinclair Mills landfills. Nearby residents resistant to the closure.
- Transfer station users frequently leave the garbage bin doors open, resulting in an increased risk of bear-human conflict.
- The transfer station bins are subject to frequent vandalism (e.g. fires).
- There are several small transfer stations serving small population bases. In many cases, these transfer stations are relatively close to each other or to the Foothill Boulevard Regional Landfill. There is an opportunity to amalgamate some of the sites to increase collection and transportation efficiencies.
- The hours of operation of the sites does not necessarily match with user demand.
- CD waste is disposed at the landfill site as a mixed inert waste. It may save landfill space to have wood waste source separated for future volume reduction (grinding, crushing) for composting or landfill cover. Source separation could be encouraged through reduced tipping fees or disposal bans.
- The CD filling area of the Foothills Boulevard Regional Landfill lacks compaction. This is anticipated to create challenges in the future for closure as significant settling can pose a problem for cover integrity and leachate and gas collection systems.
- The closed landfills are an unfunded liability.
- Almost all of the closed landfills still require final closure measures.

### Waste Diversion

- The following activities were identified as working very well:
  - Automated collection system (bins with wheels)
  - REAPS delivery of waste reduction outreach
  - Used oil filters & antifreeze program.
- The community wants more recycling opportunities; particularly for plastics.



- Political and community interest within the City of Prince in developing a curbside recyclables collection system.
- Because glass is a significant contaminant to other recyclables, it has limited market value and is primarily handled through the bottle-deposit system, should it be collected as part of the municipal residential recycling service?
- More products should be covered by extended producer responsibility.
- The current stewardship programs are not well known or understood by consumers.
- There is a need for better servicing from stewardship programs (tires, etc).
- The composting facility is at capacity and will need to expand its capacity if additional yard waste recovery is achieved.
- Food waste composting represents a significant waste diversion opportunity based on the waste composition study.
- Education programs need to be better coordinated by the government agencies to avoid duplication and maximize promotion/education spending.
- The multi-material bins fill up unevenly making the hauling of recyclables less efficient. With the upcoming modifications to Metro Material's MRF, can fully commingled recyclables be implemented so that there is only one section needed in the multi-material bins?

### **Policies and Bylaws**

- Material bans
- More enforcement of existing bylaws
- There are varying services available at the transfer stations, e.g. access to recycling and yard waste drop-off depots.
- The Regional District tipping fee bylaws are inconsistent and do not promote user pay disposal.