

# REGIONAL DISTRICT OF BULKLEY-NECHAKO



## REGIONAL SOLID WASTE MANAGEMENT PLAN

September 1996

Regional District of Bulkley-Nechako  
Environmental Services Department  
37 – Third Avenue  
Burns Lake, British Columbia  
V0J 1E0

## ADDENDUM

### **Residuals Management**

The following section should be added to Appendix A - Landfill Action Plans of the Solid Waste Management Plan.

#### Smithers/Telkwa, Granisle Landfill Sites

The Board has made a decision to close these landfills by November 1998 and replace them with transfer stations. If the Board decides to operate these landfills beyond this date, then it must install an electric fence at both of them by Spring of 1999.

#### Burns Lake

The Board has made a decision to close this landfill by November, 1999 and replace it with a transfer station. If the Board decides to operate this landfill beyond this date then it must install an electric fence by Spring 2000.

All other landfills in the region that are to remain open must have an electric fence installed. Ultimately, there will only be two sub-regional landfill sites that will require electric fencing.

### **3Rs Coordinator**

The following section should be added to Sections 2.3.1 and 5.1 of the Solid Waste Management Plan.

The Regional District will hire a third person on a contract basis, to work in the Environmental Services Department. The role of this person will be to assist staff in the implementation of the residuals management portion of the Solid Waste Management Plan and, to carry out the promotion of waste reduction, reuse, private sector recycling, and composting.

The contract position will be for a two year term with an option for renewal.

### **Recycling**

The following section should be added to Sections 2.3.3 and 3.7.2 of the Solid Waste Management Plan.

The Regional District is fully committed to providing the following level of service for a recycling program:

- actively salvage metals, white goods, tires and car hulks from its landfill sites and transfer stations;
- promote and support existing provincially sponsored recycling programs such as the beverage container deposit program; the paint return program; used oil return program; and, any other future provincial recycling programs;

- issuing a call for Expressions of Interest from the private sector for the provision of recycling services across the region at no cost to the Regional District. At a minimum, the recycling program must collect tires, metals, cardboard, and paper. Additional materials for this program may include: glass, plastics and others. The successful applicant will be able to set up bins at all Regional District landfill sites to collect the recyclables.
- the Regional District will lend support by researching material markets for the recyclables as well as provide public notification and education on the recycling program;
- on a regular basis, the Regional District will continue to evaluate the markets for recyclables and assess local community support for recycling in the region.

Any provision of a recycling service will depend on the Environmental Services annual budget and the ability of the RDBN and member municipalities to finance implement this service.

### **User-Pay**

The following section should be added to Section 4 of the Solid Waste Management Plan.

The Regional District is prepared to implement a user-pay system as soon as is feasibly possible. A volume based tipping fee schedule will be developed and implemented at all sites within the region except for Manson Creek/Germanson Landing as maintaining site attendant at this landfill is not cost effective. Cost recovery for this site will come from taxation and/or per capita levies.

Efforts will be made to phase in the tipping fees gradually and provide a comprehensive public education program so that people will be aware of the change in funding of waste management.

The tipping fees will apply to everyone across the region (except Manson Creek/Germanson Landing) and will strive to cover the operating costs of waste transfer and landfilling. For those facilities that will receive weigh scales, the volume based tipping fees will be converted to weight-based fees.

Implementing user-pay sooner rather than later should help spawn opportunities for the private sector to become involved in providing recycling services.

### **Sub-Regional Waste Management**

The east portion of the RDBN comprising of: the Districts of Vanderhoof and Fort St. James, the Village of Fraser Lake, and, Electoral Areas "C", "D" and "F" has formed a sub-committee to deal with the implementation of the Plan in their areas. The primary purpose of this sub-committee is to focus on how the Plan components are to be implemented in their region. This sub-committee has no decision-making powers nor funding abilities. It strictly acts as an advisory committee and makes recommendations to the Board.

At a minimum, the eastern regional representatives are committed to implementing the plan recommendations and agree to the concept of regional funding. However, should a particular community want additional facilities, such as another transfer station, that is not described in the Plan, then that community would have to pay for it itself.

# TABLE OF CONTENTS

		Page No.
<b>TABLE OF CONTENTS</b>		<b>i</b>
<b>LIST OF FIGURES</b>		<b>ii</b>
<b>LIST OF TABLES</b>		<b>ii</b>
<b>LIST OF APPENDICES</b>		<b>iii</b>
<b>EXECUTIVE SUMMARY</b>		<b>iv</b>
<b>1.0</b>	<b>INTRODUCTION</b> .....	1-1
1.1	REGIONAL DISTRICT STUDY AREA .....	1-1
1.2	OVERVIEW OF SOLID WASTE MANAGEMENT PLANNING PROCESS.....	1-1
<b>2.0</b>	<b>PLAN POLICIES</b> .....	2-1
2.1	PLAN GOAL .....	2-1
2.2	PLAN OBJECTIVES .....	2-1
2.3	PLAN STRATEGIES .....	2-1
2.3.1	Administration .....	2-1
2.3.2	Reduction and Reuse.....	2-3
2.3.3	Recycling .....	2-5
2.3.4	Composting.....	2-6
2.3.5	Residual Management .....	2-6
2.3.6	Problem Wastes.....	2-9
<b>3.0</b>	<b>IMPLEMENTATION</b> .....	3-1
3.1	REDUCTION & REUSE.....	3-1
3.1.1	Education/Media Campaign .....	3-1
3.1.2	Tipping Fees and Variable Rate Charges.....	3-1
3.1.3	Tag-Bag Charges.....	3-2
3.1.4	Waste Reduction Plans/Waste Audit Manuals.....	3-2
3.1.5	Reuse Facilities.....	3-2
3.1.6	Political Initiatives.....	3-2
3.1.7	Community Group Initiatives .....	3-3
3.2	RECYCLING .....	3-3
3.2.1	Residential Recycling Program .....	3-4
3.2.2	Commercial Recycling Program .....	3-5
3.2.3	Ferrous Metals and White Goods Recycling .....	3-5
3.3	COMPOSTING .....	3-5
3.3.1	Back Yard Composting .....	3-6
3.3.2	Centralized Yard Waste Composting .....	3-6
3.4	RECOVERY .....	3-7
3.5	RESIDUAL MANAGEMENT .....	3-7
3.5.1	Landfills.....	3-7
3.5.2	Transfer Stations.....	3-8
3.5.3	Closure Plans .....	3-9

3.6	PROBLEM WASTE CONSIDERATIONS .....	3-9
3.6.1	Household Hazardous Waste.....	3-9
3.6.2	Wood Waste .....	3-9
3.6.3	Animal Carcasses .....	3-10
3.6.4	Tires.....	3-10
3.7	IMPLEMENTATION SCHEDULE .....	3-11
3.7.1	Reduction & Reuse .....	3-11
3.7.2	Recycling .....	3-12
3.7.3	Composting.....	3-12
3.7.4	Residual Management .....	3-12
<b>4.0</b>	<b>PLAN FINANCING .....</b>	<b>4-1</b>
4.1	PLAN COSTS.....	4-1
4.2	PLAN FINANCING .....	4-1
4.2.1	Funding Objectives .....	4-1
4.2.2	Cost Apportionment .....	4-3
4.2.3	Cost Recovery .....	4-3
4.3	FUNDING FORMULA.....	4-4
<b>5.0</b>	<b>ADMINISTRATION AND JURISDICTION .....</b>	<b>5-1</b>
5.1	STAFFING.....	5-1
5.2	PLAN MONITORING.....	5-3
5.3	CONTINGENCY PLANS .....	5-4
5.4	DISPUTE RESOLUTION.....	5-5
5.5	ENFORCEMENT .....	5-5
<b>6.0</b>	<b>OPERATING STRATEGIES AND REQUIREMENTS .....</b>	<b>6-1</b>
6.1	LANDFILL SITING CRITERIA AND METHODOLOGY .....	6-1
6.2	OPERATING REQUIREMENTS FOR FACILITIES.....	6-2
6.3	WASTE MANAGEMENT OPERATOR'S LICENSES .....	6-2

### LIST OF FIGURES

Figure 1.1	Regional District of Bulkley-Nechako Study Area.....	1-3
------------	--	-----

### LIST OF TABLES

Table 3.1	Plan Implementation Schedule.....	3-14
Table 4.1	Total Waste Management System Cost Estimates.....	4-2
Table 4.2	Funding for Plan Components.....	4-5
Table 4.3	Cost Recovery .....	4-5
Table 5.1	Organizational Responsibilities .....	5-2

## **LIST OF APPENDICES**

APPENDIX A Landfill Action Plans

APPENDIX B Detailed Plan Costs

APPENDIX C Plan Funding Model

APPENDIX D By-Laws

APPENDIX E Draft Operational Certificate

APPENDIX F Draft Licenses

APPENDIX G Draft Terms of Reference for the Plan Monitoring Advisory Committee

APPENDIX H Public Consultation Report

## **EXECUTIVE SUMMARY**

### ***Introduction***

The Regional District of Bulkley-Nechako comprises the Town of Smithers, the Districts of Vanderhoof, Fort St. James and Houston, the Villages of Fraser Lake, Burns Lake, Granisle and Telkwa, and Electoral Areas A, B, C, D, E, F and G. The current population of the Regional District is approximately 42,000 people, who generate approximately 30,000 tonnes of waste per year.

The Regional District has completed its Solid Waste Management Plan (SWMP), which provides a comprehensive and cost-effective plan to manage the Region's waste over the next 20 years. This plan lays out a strategy to reduce, reuse, recycle and compost (3Rs) the Region's waste, which strives to achieve a waste reduction goal of 30% by the Year 2000. The leftover residuals would be managed by a state-of-the-art landfill and transfer system, which meets or exceeds the provincial regulations. The SWMP consists of three stages. Stage 1 involves an analysis of the existing waste management system and makes recommendation for future options to study. Stage 2 involves a detailed evaluation of the various options for the 3Rs as well as transfer and landfill disposal. This evaluation takes into account the environment, public health and safety, economics, and social factors. Recommendations on which options the Region should pursue for future implementation are made. Stage 3 consists of developing a detailed implementation plan on the recommended components from Stage 2. This plan includes public participation needs, official by-laws, staffing requirements, facilities required and other details.

Stage 1 of the plan was completed in June 1994 and the results showed that the existing system had little or no system for recycling or composting. The residuals management system did not meet the current regulatory requirements and had been consistently marked out of compliance with its permits. Consultation with the public showed a definite demand for a region-wide recycling and composting program. Residents also wanted improved landfill sites and transfer stations and a more convenient access to those facilities.

The final Stage 2 report laid out a series of options that met the goals of the plan and the needs of the public. This report outlined various options for reducing, reusing, recycling, composting wastes, and options for transferring and landfill disposal. The costs for these options were also included and a discussion on how the plan could be financed.

Stage 3 took all of the recommendations in Stage 2 and developed a cohesive and comprehensive implementation plan. The following section outlines the results of the final plan.



### ***Plan Policies***

The Plan has developed a number of policies and objectives which provide the overall direction for solid waste management in the region. The policies and objectives have been developed for each component of the plan including: administration, reduction and reuse, recycling, composting, waste transfer, landfill, and problem wastes.

### ***Plan Implementation***

An implementation plan has been developed, which outlines how the plan will be implemented over the next decade. The proposed implementation strategy is described as follows:

#### ***Education & Promotion***

The success of any reduction, reuse, recycling and composting program depends on the public education and promotion campaign to support these programs. Based on the evaluation, it was determined that the most cost-effective and efficient approach to promotional and educational programs is to develop and implement them, region-wide from a central office. The educational and promotional programs include the following:

- newsletters that explain waste management activities in the Regional District;
- media campaign to promote specific waste management events, such as, the start up of the recycling program;
- *Smart Shopper* programs, which educate consumers on how to reduce waste when shopping and other opportunities for reducing waste at the home;
- *Master Recycler/Composter* program, which provides training to those people who want to become involved in teaching others how to recycle and compost;
- Regional District preferential purchasing policy, which sets priorities for purchasing products with recycled and/or reduced material content; and,

If these options are implemented, it is estimated that a waste diversion rate of 3 to 5% could be achieved.

#### ***Waste Reduction and Reuse***

Reduction can be defined as, "*the prevention of wastes at their source by minimizing the volume in products, packaging, and processes; extending their useful life; substituting reusable items instead of disposables; and reducing toxics.*" Reduction can have the greatest effect of diverting waste away from landfills by keeping material out of the waste stream. However, due to practical considerations, it is the most difficult activity to enforce.

Reuse can also have a significant impact on minimizing the waste stream as it emphasizes the reuse of materials over and over again. The following options, in order of priority, are included in the plan:

- tipping fees;
- material bans from landfills;
- variable disposal rates;
- waste reduction plans;
- development of reuse facilities;
- limits on waste cans per household;
- demonstration programs; and,
- waste audits;

The projected diversion rate of these options is estimated at 7.5%.

### *Recycling*

Due to the fact that there are limitations against implementing a recycling program such as, the Region's remoteness from markets, low volume of recyclables, low population densities, the Board is requesting that the Province and the private sector work together with the Regional District to stabilize market prices for recyclables in order to provide a better economic climate for private entrepreneurs to become involved in recycling. If and when recycling happens in this Regional District the following rudimentary system is proposed:

A series of drop-off depots in the form of modified roll-off containers will be placed in each municipality in the Regional District. These depots will initially accept newspapers, cardboard, fine paper, mixed waste paper, magazines and telephone books. A separate compactor unit and bin would be made available for cardboard. In the future, other materials will be added to the program as appropriate, such as, plastics, glass, metals, etc.

The Regional District would prepare a call for proposals from the private sector for the development of the capital works and the operation of the recycling program. The institutional, commercial and industrial (ICI) sector would also be encouraged to participate in the recycling program.

Initially, the recycling program is estimated to divert 8% of the total waste stream from landfill. If other materials are added to the program including, glass, metal, plastics and white goods, this diversion rate could rise to 14%.

### *Composting*

Composting is another method by which waste can be diverted from landfill. Composting involves the natural decomposition of waste into a humus like soil. This material can then be used as a soil conditioner in flower beds, gardens and other horticultural activities.

The Regional District will encourage all residents to compost their food and yard waste in their back yards. A Master Composter education program will be developed, which will provide information to all residents on how to properly compost their organic wastes.

A centralized yard waste composting program will be implemented through setting up six centralized sites located at Regional District landfills and transfer stations. These sites will receive organic material from those generators who do not want to back yard compost or cannot compost in their back yards (e.g., municipal works yards, etc.). After a few years, the Regional District will investigate the feasibility of adding food waste to the centralized composting operations.

The projected diversion rate of the combined back yard and centralized composting program is 1% initially, but should rise to 7% once the entire system is in place. If food waste is added to the centralized composting program this could increase the diversion rate as much as 10%-15%.

### *Residuals Management*

The Plan proposes to have two major sub-regional landfills and one small rural landfill in the region. The existing Knockholt landfill outside of Houston will be developed as the west sub-regional landfill and will service the central and west portion of the region (Burns Lake west). A new east sub-regional landfill will be located and developed and will service the east portion of the region (Endako east). Both sub-regional landfills will be developed to meet all of the new BC Environment standards and regulations.

The existing rural landfill in Manson Creek will be upgraded slightly and application for exemptions to the regulations will be made. If no exemptions are granted by BC Environment, this landfill will be closed.

All of the existing landfills will be closed over a period of time depending on capacity, environmental constraints and costs. Each landfill will be replaced with a transfer station. People will be able to haul their waste to these transfer stations where it will be placed in bins and then hauled to one of the sub-regional landfills.

### ***Plan Costs***

Once all of the components of the plan have been implemented, the costs are estimated to be approximately \$2.8 million dollars per year. This includes the capital costs, which have been amortized over a 20 year period at 10% interest as well as the annual operating costs. The breakdown of the costs is as follows:

Component	Capital Cost	Annualized Capital	Operating Cost	Total Annual Cost
Education & Promotion			\$42,400	\$42,400
Reduction & Reuse			\$61,400	\$61,400
Recycling	\$396,000	\$46,400	\$218,800	\$265,200
Composting	\$29,000	\$3,500	\$45,300	\$48,800
Residual Management	\$5,633,700	\$661,500	\$1,736,100	\$2,397,600
Total				\$2,800,000

### ***Financing Mechanisms***

Currently, the waste management function is financed through general property taxes based on the assessed value of homes and businesses. This system has many flaws, chiefly being that there is no incentive to reduce the amount of waste that is generated. Everyone is charged the same rate regardless of the amount of waste they generate.

A finance sub-committee made up of municipal administrators and treasurers and Regional District staff was developed to study various funding options and make recommendations to the Board. The Committee evaluated different ways of apportioning the costs (e.g., sub-regional funding vs. regional funding) as well as a number of alternative financing mechanisms such as user-pay and general taxation. The Committee's recommendations for funding the plan is as follows:

1. The cost of the plan should be apportioned on a region-wide basis. This best meets the objectives of harmonizing tipping fees across the region as well as ensuring a consistent level of service for all residents.
2. The cost of the plan should be recovered through an appropriate mix of user-pay and taxation mechanisms. Ultimately, the goal is to recover all of the operating costs of the recycling program, landfill and waste transfer through user-pay measures (70% of the total cost). The balance (30% of the total cost) will be recovered through taxation and

includes the necessary capital costs for recycling, composting, landfill and waste transfer as well as the promotion/education and reduction and reuse costs.

Based on this scenario, the cost of the plan is estimated as follows:

Sector	Assessment (\$/1000)	User-Pay \$/tonne	Per Capita Cost (\$/capita/year)
Residential	\$0.36	\$67.12	\$18.79
Commercial	\$0.89	\$67.12	n/a
Industrial	\$1.24	\$67.12	n/a

It is envisioned that the plan would be implemented over a period of eight years and there would be a staggered implementation strategy for the various components. It is recognized that this implementation plan must be flexible to accommodate unforeseen changes, such as, increasing stringent landfill regulations that may force the closure of existing landfill sites sooner than anticipated.

The provincial government has a number of funding programs that can be accessed by the Regional District to help finance the implementation of the plan. Based on a preliminary evaluation of the eligible costs it is estimated that the Regional District could recover approximately \$522,000 of its costs through the various funding programs.

***Administration and Jurisdiction***

The plan will be administered by the existing staff at the Regional District. The waste management planner/coordinator will be responsible for the overall implementation of the plan and will report to the Board during this process. The Field Services Supervisor will be responsible for the supervision of the landfills and transfer stations.

The plan also lays out criteria and a methodology for locating new the new east sub-regional landfill as well as the necessary operating requirements for the waste management facilities.

***Public Consultation***

One public meeting was held in the Regional District of Bulkley-Nechako Board Room in Burns Lake. Copies of the draft plan were available in each municipal office, Band office and libraries. The Regional District also accepted written comments from the public on the contents of the plan.

## 1.0 INTRODUCTION

### 1.1 REGIONAL DISTRICT STUDY AREA

The Regional District of Bulkley-Nechako comprises the Town of Smithers, the Districts of Vanderhoof, Fort St. James and Houston, the Villages of Fraser Lake, Burns Lake, Granisle and Telkwa, and Electoral Areas A, B, C, D, E, F and G. The current population of the Regional District is approximately 42,000 people, who generate approximately 30,000 tonnes of waste per year.

### 1.2 OVERVIEW OF SOLID WASTE MANAGEMENT PLANNING PROCESS

In 1989, the Provincial Government amended the Municipal Act and Waste Management Act to provide Regional Districts with the authority to prepare Solid Waste Management Plans (SWMP). All Regional Districts are to have their plans completed and approved by December 31, 1995. In addition, Cabinet endorsed a strategy to reduce the amount of municipal solid wastes by 50% by the year 2000, through reduction, reuse, recycle and residuals management. Due to time constraints the Regional District was unable to meet this plan completion deadline and consequently applied and received approval for an extension until September 30, 1996.

The Regional District of Bulkley-Nechako (RDBN) has completed its SWMP, which sets out a strategy to manage its municipal solid wastes for the next 15 to 20 years. This plan details options for the RDBN to reduce, reuse, recycle, transfer and dispose of its municipal solid waste.

The preparation of the SWMP was initiated in February 1993, when RDBN staff began the Stage 1 analysis. The Final Stage 1 report was completed in June 1994.

The Stage 1 analysis provided:

- a review and assessment of the existing solid waste management system in the Regional District;
- the identification and evaluation of a wide range of options for future solid waste management;
- a number of opportunities for public consultation and participation on current practices and future options.

The waste management options described in Stage 1 provided the basis for the Stage 2 analysis. **Figure 1.1** is a map of the Regional District of Bulkley-Nechako study area.

RDBN staff began the preparation of Stage 2 in July 1994. In November 1995, the Final Stage 2 Report was completed and involved a detailed analysis of the various waste management options including:

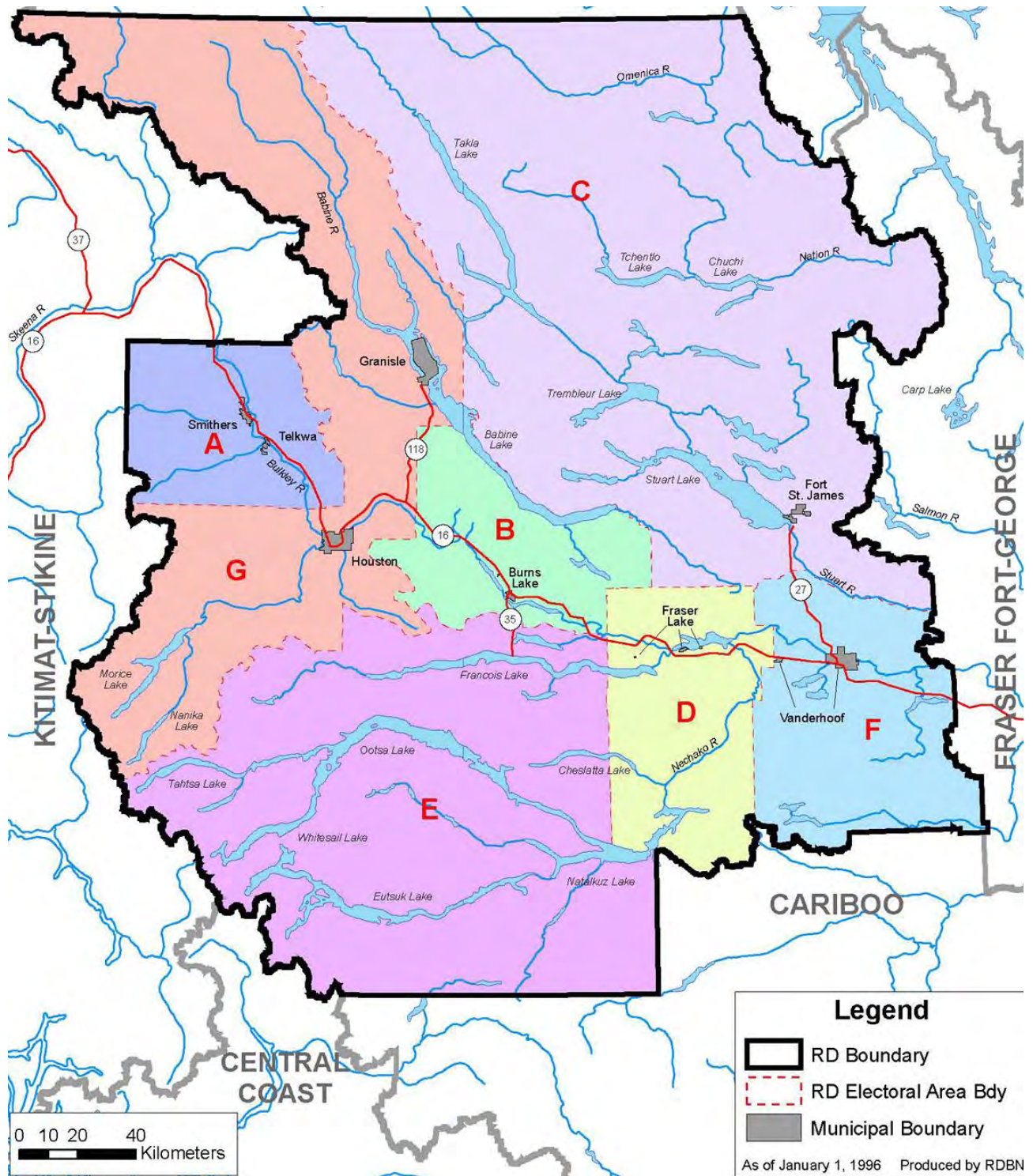
- promotional and educational programs;
- waste reduction and reuse programs;
- waste recycling programs;
- waste composting programs;
- residuals management, including transfer stations and landfills;

In addition, Stage 2 included a preliminary development of a phased implementation plan for recommended components of the plan.

The preparation of Stage 3 began in January 1996 and was completed in September 1996. The Stage 3 Report contains:

- Plan objectives;
- Plan strategies for administration, reduction and reuse, recycling, composting, residual management and problem wastes;
- Implementation plans and a schedule for reduction and reuse programs, recycling and composting programs, residual management program and problem wastes;
- Plan costs and funding mechanisms for recovering those costs;
- Description of administration and staffing requirements, plan monitoring strategy and contingency plans.
- Operational strategies and requirements; and,
- Draft operational certificates and waste stream management licenses.

**Figure 1.1 - Regional District of Bulkley-Nechako Study Area**





## **2.0 PLAN POLICIES**

### **2.1 PLAN GOAL**

The overall goal of the plan is to provide for the most environmentally safe and economically feasible method of managing our solid waste.

### **2.2 PLAN OBJECTIVES**

Regional objectives are to be reflected in the specific policies or strategies of the plan. During Stage 1, the planning process developed specific objectives as follows:

- That the weight of solid waste per capita requiring disposal be reduced (using the volumes in 1990 as our standard) by using the most environmentally and economically efficient methods acceptable to the taxpayer and that the suggested reduction of 30% by 1998 and 50% by the year 2000 be used as a method of judging our efforts;
- That this reduction be achieved through sequential strategies of reduction, reuse, recycling and composting;
- That the Solid Waste Management Plan identify problems with the present disposal system and supply possible solutions.
- That the Solid Waste Management Plan be funded through an appropriate mix of user-pay and taxation mechanisms.

### **2.3 PLAN STRATEGIES**

The following strategies and policies are based on the work completed in Stages 1 and 2 and have considered the regional objectives in their selection.

#### **2.3.1 Administration**

Objective:

To coordinate policies of this plan with other interested stakeholders.

1. The Solid Waste Management Plan, after being approved by the Minister of Environment, Lands and Parks, gives the Regional District the power to implement the policies and measures outlined in the plan. The Regional District would be responsible for reduction, reuse, recycling and composting, waste transfer and landfill disposal.

2. A permanent Plan Monitoring Advisory Committee (PMAC) should be established. The purpose of this committee would be to ensure that the waste management strategies are being implemented in accordance with the plan and that the target diversion rates are being achieved. The PMAC would report to the Board. A draft terms of reference for this committee has been developed and is in **Appendix G**.
3. The plan provides options which should allow the RDBN to achieve a 30% diversion of its solid waste from landfill by the year 2000. The main components of this diversion are reduction and reuse education, recycling and composting programs. While it is envisioned that the RDBN will take direct responsibility for the reduction and reuse education and composting programs, the RDBN may or may not choose to provide a recycling program. The Regional District would only provide a recycling program if it is economically viable. In addition, based on potential changes in the demographics and economic conditions in the region, the RDBN will also require that the plan be flexible enough that implementation of specific programs within the plan can be shifted before or after its proposed implementation date.

If the RDBN was to contract out specific recycling or composting services for the entire regional district or specific areas within the regional district it may not necessarily accept any unsolicited proposals but would initiate the process through a call for proposals and public tendering.

4. The plan has to be revised to reflect changing demographic and economic conditions within the RDBN. The plan shall be subject to annual reviews and a major review every five years to ensure that the strategies in the plan are still appropriate. The reviews shall be undertaken by RDBN staff with recommendations and reports to the PMAC and to the Board.
5. The RDBN will encourage communication among all stakeholders potentially affected by the implementation of the plan. These groups include the following:
  - member municipalities;
  - First Nation communities within the RDBN;
  - federal and provincial government agencies such as, Environment Canada, BC Environment and the Department of Fisheries and Oceans and others;
  - non-profit/community organizations, e.g., Recycling Societies;
  - operators of landfills, transfer stations and recycling/composting facilities;
  - the general public;
  - adjacent regional districts, including, Kitimat-Stikine, Fraser-Fort George, Skeena-Queen Charlotte, Cariboo and Peace River; and,
  - other stakeholders.

6. Staffing for this plan may include: waste management coordinator/planner and a field services supervisor. Details of the duties for these staff positions are given in **Section 5.1**.

### **2.3.2 Reduction and Reuse**

Objective:

To reduce and reuse the amount of waste generated as much as is practically possible.

1. The RDBN will lobby through the NCMA, UBCM and FCM, the federal and provincial governments to develop and implement programs and policies which encourage the reduction and reuse of waste materials, such as,
  - education and technical assistance to the ICI sector;
  - Waste Exchange information, including expanding access and funding for the existing federal and provincial waste exchanges;
  - continuation and expansion of environmental labelling, such as the “Environmental Choice” program, labelling for household hazardous products, and others;
  - increase priority for the deposit/refund legislation;
  - reduction of packaging through initiatives such as the National Packaging Protocol, labelling and standards;
  - increase funding for life cycle analysis (LCA) to enhance the knowledge of which products are environmentally friendly.
2. The RDBN shall prepare, publish and disseminate educational material stressing the benefits and methods of reducing waste. Information on this issue will be culled from all sources including, senior levels of government, other local governments, community organizations, industry and others. This will be done through various media including, radio newspaper, mail outs, etc. Some examples of educational materials include the following:
  - smart shopper program, which informs consumers about;
  - information on backyard composting;
  - lists of reuse options for certain products and materials;
  - lists of companies enabling reduction and reuse (scrap dealers, haulers, used product dealers, etc.);
  - promotion of other RDBN reduction and reuse programs;
  - information on Provincially sponsored programs, such as, paint exchanges;
3. The RDBN shall work with local school districts to promote and encourage curriculum changes with respect to waste management. A liaison will work closely in all schools, developing programs and assisting in education.

4. The RDBN would prepare and adopt an in-house purchasing policy which favours the purchase and use of materials that minimize the production of waste.
  5. The RDBN shall establish a weight based and volume based tipping fee structure as appropriate to partially cover the operating costs of waste management at its landfill sites and transfer stations.
  6. The RDBN may also establish a variable disposal fee for loads of refuse at its landfill sites and transfer stations that contain recyclable materials.
  7. The RDBN shall encourage all municipalities who provide residential garbage collection, to institute limits on the number of bags or cans that householders set out at the curb every week. A mechanism will be developed to charge for cans or bags over this weekly limit.
  8. All rural residents who self-haul their garbage to the landfill or transfer station will be charged a user-fee at the gate.
  9. The RDBN shall implement certain material bans and/or charge variable disposal fees at all landfills and transfer stations in the Regional District. Material bans and variable disposal fees would be implemented only when alternative systems are in place and could include materials such as,
    - used tires;
    - old corrugated cardboard (OCC), old newspaper (ONP), etc;
    - yard and wood waste (unless the landfill/transfer station has a separate yard waste composting area); and,
    - other recyclable materials.
- It is recognized that the above list of potentially banned materials is not necessarily complete and that other products could be added to or deleted from the list from time to time.
10. The RDBN in conjunction with the Province, shall encourage businesses to undertake waste audits and develop and submit waste reduction plans on a five year basis. Businesses would be encouraged to complete these plans through positive incentives, (e.g. businesses that complete a reduction plan and achieve their targets would receive an award of recognition from the RDBN). The RDBN would develop a manual or information kit, based on information from other jurisdictions, on completing waste audits and waste reduction plans.
  11. The RDBN will consider providing a facility/area for the separation and storage of reusable materials at its landfill sites and transfer stations. These materials would be available for salvage by the general public.

12. The RDBN shall encourage the participation of local recycling societies in reduction and reuse education and promotion through grants and other funding support.

### **2.3.3 Recycling**

Objective:

To support recycling as a viable method of reducing solid waste going to landfills provided that it is economically viable.

1. The RDBN shall promote recycling to be carried out by the private sector.
2. When economic conditions permit, the RDBN may develop a recycling program which at a minimum, may collect old newspapers, old corrugated cardboard, fine paper, mixed paper and magazines. Other recyclables that have a viable market would be included in the program over time. The RDBN shall monitor the cost effectiveness of the recycling program on an annual basis.
3. The RDBN shall work with member municipalities to develop a recycling program that may consist of a drop-off depot system, which can be located in shopping centres, public works yards, transfer stations and landfill sites or other highly visible centralized locations. Municipalities have the option of providing curbside collection of recyclables at their discretion.
4. The recycling program may be tendered out to the private sector. However, if no appropriate or cost effective response is received from the private sector the RDBN may provide this service.
5. The Regional District shall encourage commercial businesses and industries to participate in the recycling program. Businesses could participate in the Regional District's program for a fee or they could contract directly with private haulers to pick up recyclables.
6. The RDBN shall encourage member municipalities to adopt recycled product purchasing policies similar to that of the Regional District.
7. The RDBN shall support the cooperative marketing of recyclables with other Regional Districts, provided such an arrangement is cost effective.
8. The RDBN shall develop and disseminate educational and promotional material designed to encourage participation in the recycling program and in particular the commercial and industrial sectors where the largest amount of recyclable materials are generated.

9. The RDBN shall support, encourage and promote Provincial recycling initiatives including those for beverage containers, tires, batteries, paint and used motor oil.
10. The Regional District shall commit to negotiating with the private sector and the Province to develop stable markets for recycled materials to the point where recycling is economical in this area and at that time a user pay system will be implemented in conjunction with the recycling program.

### **2.3.4 Composting**

Objective:

To encourage composting as a method for waste reduction.

1. The RDBN shall include education and promotion as a high priority to encourage participation in back yard composting.
2. The RDBN shall investigate the need for purchasing back yard composter units. If the need exists, the RDBN may make these available to its residents at cost. In the case of municipal residents, the RDBN will encourage municipalities to purchase and distribute the composters.
3. The RDBN shall investigate the feasibility of, and may subsequently implement centralized yard waste composting sites.
4. Over the longer term, the RDBN shall keep abreast of the technology for small scale, cost effective centralized food waste composting. When this technology becomes feasible on a cost effective basis, the RDBN may consider implementing such a system.

### **2.3.5 Residual Management**

Objective:

To operate all regional landfills in accordance with BC Environment's Landfill Criteria for Municipal Solid Waste, June 1993.

1. The RDBN shall operate two sub-regional landfill sites. A new site shall be located in the eastern portion of the region (municipalities and electoral areas east of Burns Lake). The second site shall be the existing Knockholt landfill in Houston and service the western portion of the region (Burns Lake and municipalities and electoral areas west). These landfills will be designed and operated to meet the Landfill Criteria.
2. The RDBN shall upgrade the Manson Creek Landfill Site to meet the minimum requirements. Due to its remote location and small service area, application will

be made for exemptions to the full criteria. If exemptions are not granted, the RDBN will close this landfill.

3. The RDBN shall keep the existing landfills in operation as long as allowed by capacity, environmental protection and economics. All landfills that are to remain in operation greater than two years must have an operation/closure plan, prepared by qualified personnel, as a condition of the Operational Certificate. These operation/closure plans shall meet the requirements of BC Environment's Landfill Criteria for Municipal Solid Waste, June 1993.

All landfill sites must have a closure plan prepared by qualified personnel. The closure plan shall specify the conditions for closure and shall meet the requirements as laid out by BC Environment's Landfill Criteria for Municipal Solid Waste, June 1993.

4. A closure fund shall be developed for the two new sub-regional landfills, the Manson Creek landfill and any existing landfill slated to remain open longer than two years. The amount required for this fund and the means of raising the funds shall be identified in the closure plan.
5. Transfer stations may provided in convenient locations to service all of the communities in the Regional District. The purpose of the transfer stations is to provide a convenient level of service for both municipalities and residents who self haul their refuse to dispose of their waste.

The RDBN may consider constructing transfer stations at Fort St. James, Vanderhoof, Fraser Lake, Fort Fraser, Burns Lake, Granisle, Houston and Smithers/Telkwa. Prior to closing the existing landfills in these communities, the RDBN shall develop the necessary transfer stations and/or transportation systems.

6. A transfer station may be provided for Cluculz Lake.
7. An appropriate method of service may be provided for the south side and north side of Francois Lake in Area E, after consultation has been carried out with the residents of these communities.
8. All transfer stations will be designed and constructed to be bear proofed to the satisfaction of the Regional Waste Manager.
9. The RDBN reserves the right to not accept waste that originates from outside the Regional District at its residual management facilities.

10. The RDBN shall not accept special wastes, as defined by the Waste Management Act, except for those wastes for which handling and landfilling procedures are established in BC Environment's Landfill Criteria for Municipal Solid Waste, June 1993.
11. The RDBN may prohibit or control from disposal at its residual management facilities such materials for which alternative management facilities exist and which may from time to time be designated:
  - reusable, recyclable and/or compostable; and,
  - biomedical, and special hazardous wastes.
12. The RDBN shall establish a schedule of tipping fees. An attempt shall be made to harmonize such fees with those of adjacent Regional Districts. The RDBN shall gather information on tipping fees and variable rates to determine the implication of using these systems and to plan for their implementation. All such plans shall be developed in consultation with municipal councils, the Plan Monitoring Advisory Committee and submitted to the Board for approval.
13. The RDBN shall maintain segregated areas at its sub-regional landfills and transfer stations for the drop-off and recycling of white goods, bulky items, auto hulks and wood waste, unless alternative facilities exist locally.
14. Operating hours for landfill and transfer station sites shall be established to maximize service while minimizing costs. In addition, all landfill and transfer sites shall be attended to ensure proper disposal within the site and to guard against disposal of banned materials and to maintain them in a satisfactory and orderly fashion.
15. The RDBN shall enact a by-law regulating the use of its residual management facilities and setting penalties for contravention of this by-law.
16. The RDBN shall promote adoption of the "Industry Stewardship Model" to ensure that the true costs of waste disposal are internalized in the cost of products and that local government receive appropriate funding for the operation of residual management facilities.

### **2.3.6 Problem Wastes**

Objective:

To manage all problem wastes in an environmentally safe yet economic manner.



1. The RDBN shall lobby the provincial government to expand its stewardship programs for household hazardous wastes.
2. The RDBN shall investigate alternative methods of managing wood waste, including, sharing the cost of a material grinder with other Regional Districts and the private sector.
3. The RDBN shall accept animal carcasses at its landfill sites for a fee. All animal carcasses must be disposed of in a manner that is appropriate.
4. The RDBN shall enact a ban on all tires from its landfill sites and transfer stations effective the adoption of the Solid Waste Management Plan.
5. The RDBN shall develop tipping fees on auto hulks for the purpose of encouraging the development of private sector initiatives to alternatively manage these materials

## **3.0 IMPLEMENTATION**

This section describes the proposed implementation strategies for each component of the plan.

### **3.1 REDUCTION & REUSE**

The purpose of the reduction & reuse programs is to reduce the amount of waste created at the source and/or reuse the waste as much as possible. Implementation of the following programs and projects will allow the Regional District to achieve the policies set out in **Section 2.3.2** and to attain its reduction goal of 12.5%.

#### **3.1.1 Education/Media Campaign**

The public education and media campaign will be aimed at the general public and businesses, institutions and industries. The purpose of this campaign will be to educate people on the value of reduction and reuse programs. The campaign message will be delivered through:

- newspaper and radio (advertising and publicity);
- newsletters and brochures;
- liaison with school districts;
- liaison with the ICI sector;
- preferential purchasing policies;
- public speaking engagements; and,
- public contact at all waste management facilities.

The content of the messages will be prepared by Regional District staff, with prior approval from the RDBN Board.

#### **3.1.2 Tipping Fees and Variable Rate Charges**

The Regional District will develop a schedule of tipping fees at its landfill sites and transfer stations. The fees will be designed and implemented so that funding for waste management services reflects a "user-pay" philosophy. The implementation of this system will reflect a corresponding decrease in the amount requisitioned through taxation.

The RDBN will also consider charging different rates for materials brought to its landfill sites and transfer stations. This system would give a preferential treatment (lower charges) to source separated loads as opposed to mixed loads.

### **3.1.3 Tag-Bag Charges**

The municipalities will be encouraged to develop programs to reduce waste such as the tag-bag system. At the discretion of the municipalities, a tag-bag system may be put in place, once alternative markets for materials are available (i.e., recycling and composting). This type of system establishes a limit on the amount of garbage collected by the municipality from residences and businesses for the base rate (collected either via taxation or fee for service). For those residents or businesses who put out more than the current allowable limit, they must purchase tags which must be put on the bags or cans. The funds received from these tags will go toward the financing of the residual management program. The purpose of this system is to encourage people to reduce their waste going to landfill by participating in the recycling and composting programs.

### **3.1.4 Waste Reduction Plans/Waste Audit Manuals**

The Regional District, in consultation with the Province may provide information on self-auditing for businesses. At the request of businesses, staff will be available to assist in conducting the audit and developing waste reduction plans. Information for the manuals will be derived from other publications as well as similar manuals currently being used by other regional districts.

### **3.1.5 Reuse Facilities**

The Regional District may construct dry storage facilities at its landfill sites and transfer stations for the separation of reusable items (e.g., bicycle parts, old appliances, textiles, etc.). Materials left in these storage areas will be available to the public.

Separate storage areas may be developed for the storage and recycling of lead-acid batteries, paints and other reusable products.

### **3.1.6 Political Initiatives**

The Regional District will maintain communications with senior levels of government and demand the implementation of programs to further reinforce the reduction of waste. Such initiatives can include but are not limited to:

- support the proposed expanded deposit system for all beverage containers;
- support the regulation and standardization of packaging;
- support provincial funding programs;
- support the Province's paint stewardship program, tire recycling program, and battery recycling program;
- encourage the Province to assume responsibility for some aspects of public education in waste management;
- attending conferences; and,
- submitting briefs.

### 3.1.7 Community Group Initiatives

The Regional District will provide information to community groups, recycling societies, environmental groups and/or other non-profit groups on where grants can be obtained from senior levels of government to produce information or services promoting waste reduction. Some examples include:

- conducting home tours to demonstrate waste reduction/reuse techniques;
- conducting store tours to provide smart shopper information;
- implementing master recycling and composting programs; and,
- creating displays on waste reduction for community centres/events and shopping malls.

These environmental initiatives may be carried out under the direction of Regional District staff and should result in a higher level of commitment to changing lifestyles.

## 3.2 RECYCLING

The purpose of the recycling programs is to further reduce the amount of waste going to landfill sites. However, it is recognized that the field of recycling is subject to severe market fluctuations depending on the demand for recyclable materials. In order for recycling to succeed as a long term venture, the senior levels of government along with the private sector must provide appropriate mechanisms to ensure that markets for these recyclables will be secure and that prices for these materials will be relatively stable. **Once these measures are in place, the Regional District will consider implementing a recycling program for its residents.**

In the meantime, the RDBN will encourage any and all private sector recycling initiatives. However, the RDBN will not provide any funding for the support of these recycling programs.

Implementation of the recycling programs will achieve the policies and objectives set out in **Section 2.3.3**. The recycling system has a number of components which will be implemented over a period of time. The total waste diversion through recycling is expected to achieve 8% to 14%.

The cost effectiveness of the recycling program will be evaluated on an annual basis by Regional District staff.

### **3.2.1 Residential Recycling Program**

When it is economically viable, the Plan recommends the development of a recycling program which would service the Regional District. The program involves the establishment of a number of drop-off depots in the form of roll-off bins in each municipality, which would be designed at a minimum, to accept newspaper, fine paper, mixed waste paper and magazines. As well, a dedicated roll-off bin with a compaction unit would be provided for cardboard.

During the initial phase of the program, all of the materials would be hauled directly to the end-markets. The RDBN will continue to evaluate the feasibility of adding other materials to the program. These materials may include, but not be limited to, plastic milk jugs, metal containers and glass. As well, the necessity for constructing a materials recovery facility would also be assessed.

The Regional District, in consultation with the municipalities, will solicit proposals from the private sector to provide a recycling program. There are two options available for setting up the recycling program. 1- Sub-regional programs, and 2 - Regional program

#### *Option 1 - Sub-regional Programs*

This option involves dividing up the Regional District into sub-regions, whereby each sub-region would be serviced by its own recycling program. The key concern of this option is that each sub-region should strive to provide a similar level of service for its residents. The Regional District would be responsible for administering the contracts of the recycling firms for each sub-region, or the municipalities within the sub-regions could administer the contracts themselves. Each sub-region would pay for its own recycling program.

#### *Option 2 - Region-wide Programs*

In this option, a single recycling program is developed for the entire Regional District. The costs of the program would be shared equally by all municipalities and electoral areas in the region. One of the benefits of this option is that economies of scale would be achieved by being able to collect recyclables from all areas of the region. The main disadvantage is that due to the large geographic size of the region, very few local firms have the capability of providing the service on a region-wide basis.

### **3.2.2 Commercial Recycling Program**

While it is uncertain as to the proportion of the waste stream contributed by the industrial commercial and institutional sector (ICI), other jurisdictions have shown that it can range from 40% to 60% of the total waste stream. The majority of this waste consists of paper products, either corrugated cardboard or fine paper. To divert this material from landfill, the Regional District, in conjunction with municipalities, will encourage businesses to contribute to the residential recycling program through individual contract or if there is sufficient interest, the businesses could join together and contract out their own recycling system. It is hoped that through the use of material tipping fees, collection fees and material bans that the ICI sector will participate in the recycling program.

### **3.2.3 Ferrous Metals and White Goods Recycling**

The Regional District will provide space at its landfill sites and transfer stations for the drop-off of scrap metal and white goods (large appliances). The removal of these items will be carried out under a contractual arrangement with the assistance of funding under the Province's Recyclable Goods Transportation Financial Assistance Program or the Rural Waste Management Financial Assistance Program.

Although the scrap metal and white goods only represent 1% of the waste stream by weight, it is a significantly larger amount by volume. In order to ensure the cost effectiveness of safely removing ozone depleting substances from refrigerators and freezers, the Regional District will accept these appliances for a fee without requiring the ozone depleting substances to be removed. Once a sufficient number of appliances have been accumulated, the Regional District will retain a qualified contractor to remove the ozone depleting substances.

If all of the components of the recycling programs are implemented it is estimated that 8% to 14% of the waste stream would be diverted from landfill.

## **3.3 COMPOSTING**

The purpose of the composting programs is to further reduce the amount of waste going to landfill sites. Compostable materials make up 60% of the total waste stream by weight of which food and yard waste material can account for 30%. Implementation of the composting programs will achieve the policies set out in **Section 2.3.4**.

### **3.3.1 Back Yard Composting**

The primary objective of any waste management strategy is to reduce the amount of waste generated at the source. To this end, the Stage 2 Report recommended that the Regional District purchase a number of back yard composter units and resell them to residents at a subsidized price. However, over the last couple of years a number of municipalities have taken it upon themselves to purchase and sell back yard composter units to their respective residents. Therefore, the Regional District will encourage these municipalities to expand their back yard composting programs so that all municipal residents have had a chance to purchase a unit. For those municipalities that have not developed a back yard composting program, the Regional District will encourage them to do so through the application of material bans or tipping fees on yard waste.

The Regional District will be responsible for developing the appropriate education programs, in consultation with local community groups, which will educate people on how to compost.

It is estimated that 5% of the total waste stream can be diverted from landfill through back yard composting.

### 3.3.2 Centralized Yard Waste Composting

Centralized composting is a viable alternative for those residents, municipalities and others that do not want to or can not compost their organics at the source. It is proposed that locations be developed which may include landfill sites and transfer stations, for the drop off and composting of yard waste materials. However, where municipalities have already developed their own centralized composting sites, the Regional District will not duplicate this service.

At landfill sites, where equipment is available, the organic material may be placed in a windrow and turned on a regular basis. Contaminants such as plastic bags will be removed and brush material may require chipping. At transfer stations where equipment is not available, the material will be placed in a pile and left to compost. The development of these centralized composting sites will be phased in over a period of time.

It is estimated that 2% of the total waste stream can be diverted from landfill through a centralized yard waste composting system.

The next step for centralized composting is food waste as it can account for a significant portion of the organic waste stream. Food waste composting on a centralized scale may be a difficult operation as it may be required to be carried out indoors (e.g., in-vessel system) away from predators, such as, bears, ravens and other vermin. While there are existing technologies for small scale centralized in-vessel food waste composting, the costs are significantly higher than outdoor windrow composting. The Regional District will investigate the feasibility of developing a food waste composting system over the next few years and will keep up to date on the developments of new technology.

## 3.4 RECOVERY

No programs are planned for recovery through incineration at this time. Should the opportunity present itself, the Regional District will evaluate the potential for utilizing a co-generation facility to burn municipal solid waste.

## 3.5 RESIDUAL MANAGEMENT

The focus of the residual management program is to upgrade of the landfill sites and transfer stations to meet the requirements of BC Environment's Landfill Criteria for Municipal Solid Waste, June 1993. In order to meet these new requirements significant changes to the existing residual management system will be necessary. This section describes the work required to satisfy the policies outlined in **Section 2.3.5**.

### 3.5.1 Landfills

The Regional District will operate two sub-regional and one small rural landfill once the residual management program has been implemented. The Knockholt Landfill will service

the west end of the Regional District (Burns Lake west), a new landfill will be sited in the east to service the east end of the Regional District (Endako east), and the Manson Creek Landfill will service the residents of that area. The Regional District will develop operational/closure plans for the Knockholt, new eastern and Manson Creek landfills. BC Environment, in consultation with the Regional District, will develop operational certificates for all sites covered within the plan.

A preliminary hydrogeotechnical assessment was undertaken on the Knockholt landfill to determine its suitability for development as a long term sub-regional landfill. The study results showed that there were no significant problems that would prevent this site from being developed as a long term sub-regional landfill. Therefore the Regional District is proceeding on the basis that this site will serve as the west sub-regional landfill. The next step is to undertake a detailed hydrogeological study and a site design and filling plan in accordance with the Landfill Criteria. All appropriate government agencies such as Ministry of Environment, Lands and Parks, Ministry of Forests, Ministry of Transportation and Highways, Environment Canada, Ministry of Health and the Department of Fisheries and Oceans will be consulted on the hydrogeotechnical study and site design and filling plan methodology. Final approval from these agencies must be obtained before this site can be used as a sub-regional landfill.

Due to its remoteness and small service population, the Manson Creek landfill will receive minimum upgrades and application will be made for exemption to the BC Environment landfill criteria. If exemptions are not provided by BC Environment, the RDBN will close the Manson Creek landfill.

The existing landfills in Vanderhoof, Fort St. James, Fraser Lake, Fort Fraser, Burns Lake, Granisle and Smithers/Telkwa will be closed over time. Closure plans will be developed for each of these sites. These sites may be replaced with transfer stations. The waste collected from Vanderhoof, Fort St. James, Fraser Lake and Fort Fraser will be transferred to the new east site. The waste collected from Burns Lake, Granisle, Houston and Smithers/Telkwa will be transferred to the Knockholt site.

**Appendix A** contains landfill action plans which outline how the existing landfills will operate until their closure.

### **3.5.2 Transfer Stations**

Transfer stations will be considered for all communities including, Smithers/Telkwa, Houston, Granisle, Burns Lake, south side of Francois Lake, north side of Francois Lake in Area E, Fort Fraser, Fraser Lake, Fort St. James, Vanderhoof and Cluculz Lake. The location of these facilities will be selected based on convenience to users, availability of land, zoning, natural screening, cost and proximity to alternate disposal facilities. The style of the transfer station will be based on the needs for each community. Each transfer station system will be both bear proof and litter proof.



Waste management service may also be provided for the south side and north side of Francois Lake.

All transfer stations will be full service sites. They will be fenced, staffed and open a limited number of hours per week. In addition to accepting regular household and commercial garbage, there will be drop-off areas for white goods, scrap metal, wood waste and yard waste. Disposal fees will be charged at these sites. These sites may also include reuse facilities and drop-off bins for recyclables.

All transfer stations will be ready for use prior to the local landfill being closed. A promotion and education program will be delivered to local residents to explain how the new system will work. Attendants at the transfer stations may be employees of the Regional District, however, the collection of the waste from the bins may be done by private contract.

There were concerns expressed by members of the Local Solid Waste Advisory Committee about the lack of service provided to communities who have had their landfill sites closed for the last five years. Some of these include: Palling, Perow, Barker Meadows, Endako, and others. The feasibility of providing services to these communities will be investigated during the implementation phase of the plan.

### **3.5.3 Closure Plans**

According to BC Environment's Landfill Criteria for Municipal Solid Waste, June 1993, all existing landfills must have closure plans prepared and must include the following details:

- total waste volumes and capacity of landfill;
- topographic plan illustrating final contours, surface water diversion and drainage works;
- design of final cover, topsoil, vegetative cover and erosion controls;
- wildlife and rodent control procedures;
- post-closure end-use plan for property;
- environmental monitoring plan for 25 years after site closure;
- pollution abatement plan;
- cost estimates; and,
- public notification strategy about closure.

All of these plans will be prepared by a qualified professional and will be conducted as soon as possible.

## **3.6 PROBLEM WASTE CONSIDERATIONS**

Problem wastes such as household hazardous waste, wood waste, animal carcasses and tires require different solutions for their safe management. This section deals with strategies to manage these materials.

### **3.6.1 Household Hazardous Waste**

Currently, the provincial government has established stewardship programs for used oil, paint and lead acid batteries. The RDBN will continue to support these programs and lobby the province to expand to other materials, such as solvents. In addition, these materials may not be accepted for disposal at its residual management facilities.

### **3.6.2 Wood Waste**

Presently, the RDBN is allowed by its permit to burn wood waste at its residual management facilities. It is uncertain as to how long this will be continued as new standards are being developed for air quality. The RDBN will investigate alternative options for dealing with wood waste, which may include cost sharing with neighbouring regional districts and/or private industry for the purchase of a mobile tub grinder in order to grind the wood waste into chips. Other alternatives include acquiring air-curtain incineration units to burn the wood waste at a higher temperature, which will reduce the emissions.

It is also worth noting that BC Environment has required all saw mills to phase out their beehive burners and replace them with better technology to reduce air emissions. The RDBN will continue its communications with these industries on researching alternative technologies.

### **3.6.3 Animal Carcasses**

The RDBN will develop a policy for handling animal carcasses from farms and road kills. This policy will include a priority procedure for dealing with these wastes.

#### **Farm Mortalities**

1. Regional District landfill sites will accept the animal carcasses for a fee in order to recoup the costs of extra work required to dispose of them, or
2. Farm mortalities could be disposed on the farm property in accordance with the Agriculture Waste Control Regulation.

#### **Road Kills**

A strategy should be developed for road kills. The RDBN will set up a committee to investigate reasonable options. The committee will include representatives from: Ministry

of Transportation and Highways, CN Rail, BC Environment, BC Lands and Parks and the Regional District.

### **3.6.4 Tires**

Tire disposal is a major problem facing all communities in BC. Large uncontrolled piles of tires can create a fire hazard at landfill sites. Therefore, strategies are required to alternatively manage these materials.

The provincial government has developed a program, whereby transportation credits are provided for the collection and transportation of passenger and light truck tires to market for recycling. In the Lower Mainland this program is relatively successful as thousands of passenger tires have been diverted from landfill into recycling. Unfortunately, this program does not work as well in Northern B.C. where the communities are long distances from tire markets. In addition, the transportation credits are not sufficient to pay for the cost of collecting and transporting oversize truck tires and skidder tires.

Effective the adoption of the Solid Waste Management Plan, the RDBN will enact a ban on the disposal of tires at its landfill sites and transfer stations.

## **3.7 IMPLEMENTATION SCHEDULE**

The following implementation schedule proposes that the plan be implemented over an eight year period. This implementation period will allow for the necessary momentum to change the waste management system from small rural dumps and transfer stations to a system that encompasses waste reduction, reuse, recycling, composting and the environmentally safe management of the residuals. The development of this strategy is also based on timing the closure of landfill sites as they reach capacity. As operation/closure plans have not yet been developed for the existing landfills, there may be changes to the closure dates of landfills and installation of transfer stations. As well, implementation will also be affected by the ability of the RDBN to afford the cost of implementation in a given year. On this basis, the Regional District reserves the right to have some flexibility to delay or speed up implementation of the plan components. Based on the information currently available, the initial proposed implementation schedule is outlined below and presented in **Table 3.1**.

### **3.7.1 Reduction & Reuse**

Regional District promotion/education, reduction & reuse initiatives may be implemented primarily within the first three to four years of the plan (1996 - 1998). Regional District staff will coordinate all diversion initiatives (reduction, reuse, recycling and composting). The reduction & reuse programs to be implemented in the first year, include:

- encouraging provincial and federal governments to expand reduction initiatives;
- initiating promotion and education programs;
- planning education programs on waste reduction for local school districts; and,

- construction of reuse facilities.

In 1997 the following programs may be initiated:

- development of Master Composter and Master Recycler programs;
- development of a smart shopper program;
- continued promotion and education programs;
- development of waste reduction plan requirements for businesses;
- assist in the development of can/bag limit by-laws for member municipalities;
- continued construction of reuse facilities; and,
- development of fees and fines for noncompliance.

In 1998, these programs may take place:

- instituting volume and weight-based tipping fees;
- continued education and promotion programs;
- continued construction of reuse facilities; and,
- development of manual for waste audits for institutions and businesses.

### **3.7.2 Recycling**

Once the local economic climate is favourable for recycling to occur in this Regional District the proposed recycling program may commence. Initially RDBN staff will plan and develop a terms of reference for proposals from the private sector to provide recycling programs in the region. Discussions will be held with all member municipalities and electoral areas on the format and geographic area of the recycling contracts. The program will initially consist of drop-off depots in all major communities and the following materials will be collected: corrugated cardboard, newspaper, fine paper, mixed waste paper, magazines and telephone books. Once the program is up and running, Regional District staff will investigate the feasibility of adding other materials, such as, glass, tin cans, plastic milk jugs, etc.

If there is no response from the private sector to the call for proposals, then the Regional District may assume the responsibility of developing and operating the recycling program.

On an ongoing basis, the Regional District will investigate the need for the development of a materials recycling facility (MRF).

### **3.7.3 Composting**

The Master Composter education program may be initiated in 1997 and would be given to residents who wish to learn more about how they can compost their food and yard waste in their back yards.

The centralized yard waste composting program may begin in Year 2 (1997) and would involve setting up separate areas at landfill sites and transfer stations and other locations for the disposal of yard waste.

### **3.7.4 Residual Management**

Current landfill sites will continue to operate as long as possible based on capacity, environmental impacts and economics. Landfills that are expected to remain in operation greater than two years will require upgrading as identified in the Landfill Action Plans. Just prior to the landfills being closed, they will be replaced with transfer stations at the existing sites or in other convenient locations. All of the temporarily closed inactive sites will be closed out permanently as soon as possible.

It is expected that the Smithers/Telkwa and Granisle Landfill Sites will be closed within two to three years (1997 - 1998). Other landfills such as, Burns Lake will be closed in later years depending on the results from the operational/closure plans.

The timing of the closure of Fort St. James, Fraser Lake, Vanderhoof and Fort Fraser landfills will depend on when the new east sub-regional landfill is ready for operation. Fort St. James and Fort Fraser landfills are projected to close by the year 2000 when the new east sub-regional site is expected to be ready. Vanderhoof and Fraser Lake may close in 2001.

Based on the fact that the Knockholt site has been found to be suitable as a sub-regional landfill, the Regional District is carrying out the detailed hydrogeotechnical study and the design and operations plan in the balance of 1996. The site will then be developed in 1996-1997 and ready for operation in late 1997 or early 1998.

The search for a new east site will begin in 1996 and is estimated to take approximately four years before the site is ready for operation.

The Regional District will apply to BC Environment for exemptions to the criteria for the Manson Creek Landfill Site in 1996. Based on the response from the Ministry, the Manson Creek Landfill will receive some upgrading in 1997 and will improve its operations. If all exemptions are rejected by BC Environment, the Regional District will prepare a closure plan and close the landfill.

Transfer stations or other alternative services are being considered for Cluculz Lake, and the north side and south side of Francois Lake. The construction of these facilities may take place in 1996 and 1997.

**Table 3.1 Plan Implementation Schedule**

Plan Component	1996	1997	1998	1999	2000	2001	2002
Reduction and Reuse	<ul style="list-style-type: none"> <li>- initial reduction and reuse programs</li> <li>- encourage prov/fed gov't reduction programs</li> <li>- school education programs</li> <li>- reuse facilities</li> </ul>	<ul style="list-style-type: none"> <li>- continued reduction and reuse programs</li> <li>- Master Composter and Recycler program</li> <li>- Smart Shopper program</li> <li>- waste reduction plans for businesses</li> <li>- reuse facilities</li> <li>- develop fees and fines for noncompliance</li> </ul>	<ul style="list-style-type: none"> <li>- continued reduction and reuse programs</li> <li>- reuse facilities</li> <li>- develop audit manual for businesses</li> <li>- institute user-fees</li> </ul>	<ul style="list-style-type: none"> <li>- continued reduction and reuse programs</li> </ul>	<ul style="list-style-type: none"> <li>- continued reduction and reuse programs</li> </ul>	<ul style="list-style-type: none"> <li>- continued reduction and reuse programs</li> </ul>	<ul style="list-style-type: none"> <li>- continued reduction and reuse programs</li> </ul>

Plan Component	1996	1997	1998	1999	2000	2001	2002
Recycling	<ul style="list-style-type: none"> <li>- plan and develop terms of reference for call for proposals to provide recycling program in communities across the region</li> </ul>	<ul style="list-style-type: none"> <li>- put out call for proposals</li> <li>- select successful bidder(s), for a multi-year contract</li> <li>- promotion/education program on recycling</li> <li>- initiate recycling program in all communities</li> <li>- drop-off depots in major communities, collect newspaper, OCC, fine paper, mixed waste paper, magazines and telephone books</li> </ul>	<ul style="list-style-type: none"> <li>- continue public education program</li> <li>- continue recycling program</li> <li>- investigate new markets for materials</li> </ul>	<ul style="list-style-type: none"> <li>- continue public education program</li> <li>- continue recycling program</li> <li>- investigate new markets for materials</li> </ul>	<ul style="list-style-type: none"> <li>- continue public education program</li> <li>- continue recycling program</li> <li>- investigate new markets for materials</li> <li>- evaluate feasibility of adding other materials (e.g., tin cans, plastic milk jugs, glass)</li> <li>- evaluate need for materials recycling facility</li> </ul>	<ul style="list-style-type: none"> <li>- continue public education program</li> <li>- continue recycling program</li> <li>- investigate new markets for materials</li> </ul>	<ul style="list-style-type: none"> <li>- continue public education program</li> <li>- continue recycling program (last year of contract)</li> <li>- re-tender recycling program</li> </ul>
Composting		<ul style="list-style-type: none"> <li>- encourage municipalities to purchase backyard composters for their residents</li> <li>- carry out Master</li> </ul>	<ul style="list-style-type: none"> <li>- continue encouragement of municipalities to participate in backyard</li> </ul>	<ul style="list-style-type: none"> <li>- continue encouragement of municipalities to participate</li> </ul>	<ul style="list-style-type: none"> <li>- continue encouragement of municipalities to participate</li> </ul>	<ul style="list-style-type: none"> <li>- continue encouragement of municipalities to participate</li> </ul>	<ul style="list-style-type: none"> <li>- continue encouragement of municipalities to participate</li> </ul>

Plan Component	1996	1997	1998	1999	2000	2001	2002
		Composter program (see reduction and reuse) - initiate centralized yard waste composting program	composting program - continue Master Composter program - continue centralized yard waste composting program	in backyard composting program - continue Master Composter program - continue centralized yard waste composting program	in backyard composting program - continue Master Composter program - continue centralized yard waste composting program	in backyard composting program - continue Master Composter program - continue centralized yard waste composting program	in backyard composting program - continue Master Composter program - continue centralized yard waste composting program
Transfer	- design and build new transfer station for Southside	- design and build new transfer station for Francois Lake (north shore)	- design and build new transfer station for Granisle (haul waste to new Knockholt landfill) - design and build new transfer station for Smithers/Telkwa (haul waste to new Knockholt)	- design and build new transfer station for Burns Lake (haul waste to new Knockholt landfill)	- design and build new transfer station for Fort Fraser (haul waste to east sub-regional landfill) - design and build new transfer station for Fort St. James (haul waste to east sub-	- design and build new transfer station for Vanderhoof (haul waste to east sub-regional landfill) - design and build new transfer station for Fraser Lake (haul waste to east sub-regional)	- continued transfer station operation



Plan Component	1996	1997	1998	1999	2000	2001	2002
			landfill)		regional landfill) - design and build new transfer station for Cluculz Lake (haul waste to east sub-regional landfill) - continued transfer station operation	landfill) - continued transfer station operation	
Landfills	- prepare site closure plans for Vanderhoof, Fort St. James, Fraser Lake, Fort Fraser, Burns Lake, Granisle, Smithers/Telkwa  - interim upgrade and	- continued interim operation of landfills  - upgrade Knockholt as a sub-regional landfill  - upgrade Manson Creek Landfill  - continue site search in east end of region	- continued interim operation of landfills  - post-closure monitoring at large closed landfills  - continued operation of Manson Creek Landfill	- continued interim operation of landfills  - post-closure monitoring at large closed landfills  - continued operation of Manson	- post-closure monitoring at large closed landfills  - Knockholt sub-regional landfill operation  - continued operation of Manson	- post-closure monitoring at large closed landfills  - continued Knockholt sub-regional landfill operation  - continued operation of	- post-closure monitoring at large closed landfills  - continued Knockholt sub-regional landfill operation  - continued new east

Plan Component	1996	1997	1998	1999	2000	2001	2002
	<p>continued operation of Vanderhoof, Fort St. James, Fraser Lake, Fort Fraser, Burns Lake, Granisle and Smithers/Telkwa Landfills</p> <p>- close-out all inactive rural landfills</p> <p>- close-out Ootsa Lake and Smithers Landing landfill sites</p> <p>- conduct detailed hydrogeotechnical study and detailed design and operations plan for</p>		<ul style="list-style-type: none"> <li>- close Smithers/Telkwa Landfill</li> <li>- close Granisle Landfill</li> <li>- complete upgrading work for Knockholt, ready for operation as sub-regional landfill</li> <li>- continue site search in east end of region</li> </ul>	<p>Creek Landfill</p> <ul style="list-style-type: none"> <li>- close Burns Lake Landfill</li> <li>- Knockholt sub-regional landfill operation</li> <li>- complete site search in east, develop as sub-regional landfill</li> </ul>	<p>Creek Landfill</p> <ul style="list-style-type: none"> <li>- close Fort St. James Landfill</li> <li>- close Fort Fraser Landfill</li> <li>- Open new east sub-regional landfill</li> </ul>	<p>Manson Creek Landfill</p> <ul style="list-style-type: none"> <li>- continued new east sub-regional landfill operation</li> <li>- close Vanderhoof Landfill</li> <li>- close Fraser Lake Landfill</li> </ul>	<p>sub-regional landfill operation</p> <ul style="list-style-type: none"> <li>- continued operation of Manson Creek Landfill</li> </ul>

<b>Plan Component</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
Knockholt Landfill  - initiate new site search for east end of region							

Notes:

1. The implementation schedule should permit flexibility so that the timing of the plan components is reflective of the needs and abilities of the RDBN and its member municipalities to finance and implement the plan.
2. The construction of a transfer station for Vanderhoof may depend on the location of the new east sub-regional landfill.
3. The timing of the closure of existing landfill sites will partly depend on the results of the closure plans for these sites.
4. The timing of the recycling component depends on when the economic conditions are favourable for recycling to succeed in northern BC.

## 4.0 PLAN FINANCING

One of the most important aspects of the plan is financing, namely, how much will it cost and how will we pay for it. The following section deals with this issue.

### 4.1 PLAN COSTS

A summary of the plan costs, which do not include provincial grants or revenues from the sale of recyclables is provided in **Table 4.1**. Detailed costs are found in **Appendix B**. It should be noted the plan cost estimates were based on conceptual designs, which involved many assumptions and estimates. Detailed capital costs based on detailed design drawings will be developed during the implementation phase of the plan. As well, more accurate operational costs will be developed once various plan components have been put out to public tender.

**Table 4.1** illustrates that the annual waste management costs once the plan is fully implemented will run approximately \$2.8 million per year. These costs include capital costs that have been amortized over 20 years, capital replacement costs and operational costs.

### 4.2 PLAN FINANCING

#### 4.2.1 Funding Objectives

A finance sub-committee was formed consisting of representatives of the various municipalities and the RDBN to develop an appropriate funding formula for funding the plan. This committee looked at cost apportionment options, such as regional funding versus sub-regional funding. As well, cost recovery options were also evaluated, which included: taxation based on assessment or population, and user-pay fees. A funding model was developed and is included in **Appendix C**.

A number of objectives were developed to aid in the decision-making process on this funding issue.

1. Waste management funding should include mechanisms for user-pay to encourage waste reduction but retain enough taxation for stability of funding.

The purpose of this objective is to gradually shift the funding of waste management from property assessment to users of the system. This will involve the development of a user fee structure whereby the users of the system pay directly for that use.

2. There should be a minimum level of service for all residents across the region.

The purpose of this objective is to ensure that all residents will benefit from a convenient, environmentally safe, and economic level of service.

3. All tipping fees at waste management facilities across the region should be harmonized.

This objective tries to ensure that the tipping fees at all waste management facilities are the same so that residents will not travel to lower cost facilities to dispose of their waste.

All of these objectives were used in the evaluation of various funding models for financing the Plan.

#### **4.2.2 Cost Apportionment**

The first component of the funding model deals with cost apportionment. The question was asked, How should the Plan costs be apportioned to the residents of the Regional District? Two approaches were evaluated: regional funding and sub-regional funding. Regional funding means that waste management costs are apportioned equally across the entire region. This is based on the premise that waste management is a regional service and since all residents share and benefit from this service, all should pay. Sub-regional funding means that each sub-region pays its own actual costs for waste management.

The results of the evaluations showed that a regional approach would be the best method of apportioning the costs of the plan to the various municipalities and rural areas.

#### **4.2.3 Cost Recovery**

The second component of the funding model involves cost recovery. How should the costs of the Plan be recovered? Two options were considered: user-pay and taxation. The funding model in **Appendix C** evaluated a number of combinations of these two funding mechanisms and it was determined that a user-pay system in conjunction with taxation should be implemented according to the following principles:

- user-pay should be phased in gradually over a period of time so that municipalities, residents, businesses and industries can adjust to the change;
- there must be alternatives (e.g., recycling, composting) in place in all areas of the Regional District, which allow people the opportunity to reduce their waste stream, before user-pay is fully implemented;

- user-pay should fund at a minimum, all operating costs for waste transfer, landfill and recycling;

The mechanisms for user-fee collection will be based on actual costs for waste transfer, disposal and recycling. Waste collection will remain a municipal responsibility in municipalities. Waste recycling, transfer and disposal costs that will be recovered through user-fees will be converted into tipping fees at the sub-regional landfills and transfer stations. Tipping fees may be charged at the following solid waste management facilities:

- West Sub-Regional Landfill (i.e., Knockholt);
- East Sub-Regional Landfill;
- Vanderhoof Landfill/Transfer Station;
- Fort St. James Landfill/Transfer Station;
- Cluculz Lake Transfer Station;
- Fort Fraser Landfill/Transfer Station;
- Fraser Lake Landfill/Transfer Station;
- Burns Lake Landfill/Transfer Station;
- Southside Transfer Station;
- Francois Lake (north shore) Transfer Station;
- Granisle Landfill Transfer Station; and,
- Smithers/Telkwa Landfill/Transfer Station.

Any municipalities, individuals, businesses, and First Nations bringing waste to these sites may be charged directly for the volume or weight of waste delivered based on a fee structure in place at that facility. These costs can then be passed on directly to the generators of waste through various mechanisms, such as:

- can/bag limits;
- can/bag tags or stickers;
- can/bag subscriptions; and,
- utility charge per residence.

Municipalities will be responsible for recovering their collection and disposal costs.

It is expected that the remote area of Manson Creek will not have a user-pay system as maintaining site attendants at this landfill is not cost effective. Cost recovery for this landfill will come from taxation and/or per capita levies.

### **4.3 FUNDING FORMULA**

The funding formula will consist of taxation plus user-fees (tipping fees) at the landfill sites and transfer stations. Based on the proposed plan implementation costs it is estimated that 70% of the costs will be recovered through user-fees and 30% of the

costs will be recovered through taxation. The allocation of plan components through user-fees or taxation is illustrated in **Table 4.2**.

**TABLE 4.2  
FUNDING FOR PLAN COMPONENTS**

Plan Element	Funding Method	Area Paying
Administration, Promotion, Education, Reduction and Reuse	Taxation (based on assessment)	Entire Region
Recycling - Capital Composting	Taxation (based on assessment) Taxation (based on assessment)	Entire Region Participants only
Waste Transfer - Capital Landfill - Capital	Taxation (based on assessment) Taxation (based on assessment)	Entire Region Entire Region
Recycling - Operating Waste Transfer - Operating Landfill - Operating	User Fees User Fees User Fees	Entire Region Entire Region Entire Region

Based on the funding formula of 70% user-fees and 30% taxation, the costs of this plan will be as follows:

**TABLE 4.3  
COST RECOVERY**

Sector	Assessment (\$/1000)	User-Pay (\$/tonne)	Per Capita Cost (\$/capita/year)
Residential	\$0.36	\$67.12	\$18.79
Commercial	\$0.89	\$67.12	n/a
Industrial	\$1.24	\$67.12	n/a

**Note:**

The residential user-pay cost is based on the assumption that each person generates 0.7 tonnes of waste per year, which includes waste from the commercial and industrial sectors. It is also assumed that only 40% of the waste stream is generated by the residential sector. Therefore, the residential per capita user-pay cost is \$67.12/tonne times 0.7 tonnes/capita/year times 40% residential waste stream = \$18.79/capita/year.

## 5.0 ADMINISTRATION AND JURISDICTION

Some of the components of the plan fall under the jurisdiction of other organizations. For example, residential curbside garbage collection is normally a municipal responsibility and is outside the jurisdiction of the Regional District. **Table 5.1** identifies the various organizations involved in the plan and their respective responsibilities.

**TABLE 5.1  
ORGANIZATIONAL RESPONSIBILITIES**

Organization	Education Programs	Reduction & Reuse	Recycling	Composting	Collection	Transfer Station	Landfills
Federal Gov't	develop & implement	develop & implement	-	-	-	-	-
Provincial Gov't	develop & implement, partial funding	develop & implement, partial funding	partial funding	partial funding	-	partial funding for transfer station construction	partial funding for landfill closure
Regional District	develop & implement	develop & implement	develop	develop & implement	-	develop & operate	develop
Municipalities	cooperate & assist	cooperate & assist	cooperate & develop by-laws	cooperate & develop by-laws	provide collection	-	-
First Nations	cooperate	cooperate	cooperate	cooperate	develop & implement	develop & operate	close
Recycling Societies	cooperate & assist	cooperate & assist	cooperate & assist	cooperate & assist	-	-	-
Private Operators	-	-	provide program service	-	provide collection for businesses and some rural areas	provide waste hauling services	provide landfill maintenance services



The federal and provincial governments have the role of helping the RDBN in its reduction, reuse, education and funding initiatives. In order for the RDBN to achieve its 30% diversion goal, the senior levels of governments will have to provide the necessary aid through the implementation of initiatives such as the ones described in **Section 2.2.2**.

The Regional District has the responsibility for implementing the components of the plan, which includes the development and operation of most of the reduction/reuse programs, recycling and composting initiatives and the siting, development and operation of transfer stations and landfill sites.

Municipalities within the Regional District will be encouraged to cooperate in the implementation of the plan, assist in the development of education programs, sit on advisory committees and implement waste collection by-laws. First Nations will be encouraged to cooperate with the Regional District in implementing and participating in the waste management system. Any waste or recycling collection programs within First Nations communities will be the responsibility of the First Nations groups.

The RDBN will look to cooperate with neighbouring regional districts to reduce costs through economies of scale. Some of the opportunities to share include the following:

- development of reduction and reuse manuals for businesses;
- development of markets for recyclables;
- sharing of equipment such as a tub grinder to manage wood waste; and,
- sharing of landfill capacity, if agreeable.

## **5.1 STAFFING**

To meet the ongoing requirements of the Solid Waste Management Plan, the Regional District will have to dedicate personnel to the programs. A staff of two is planned, comprising:

- waste management planner/coordinator; and,
- field services supervisor.

Overall plan implementation would be managed by the Waste Management Planner/Coordinator. This person would report to the Board and work closely with the Plan Monitoring Advisory Committee. The Waste Management Coordinator would also be responsible for reporting, budgeting and coordinating the efforts of the Field Services Supervisor. This position would be responsible for undertaking all of the 3Rs initiatives as part of the Plan. This staff position currently exists, so no new position is required.

Due to the scope and number of contractors, the Field Services Supervisor will be necessary to oversee landfill, transfer station and hauling systems in the region. This

position will be responsible for contract administration of landfill and transfer station operators. This staff position currently exists, so no new position is required.

In addition to the above office positions, it is envisioned that the Regional District will need to hire landfill attendants (i.e., weigh scale attendants at sub-regional landfills) and transfer station attendants. When the Regional District brings in tipping fees at its landfill sites and transfer station, it would be beneficial to have its own staff collecting the fees.

It is assumed that the recycling programs, actual landfill operations and the waste hauling from the transfer stations will be contracted out to the private sector. However, if it is deemed appropriate, the Regional District could hire staff to carry out this function.

## **5.2 PLAN MONITORING**

After the adoption of the plan and its approval by the Ministry of Environment, Lands and Parks, the Regional District will establish a Plan Monitoring Advisory Committee (see **Section 2.3.1** for more information). This committee will oversee the implementation of the plan and ensure that all standards and targets are being achieved.

One of the key components of the plan implementation is the level of diversion that is being achieved. Therefore, part of the monitoring program will include a method for tracking the amount of waste going to the landfill sites and transfer stations. As well, all material going to recycling and composting must be documented with records being sent to the Regional District. Where no scales are available to weigh the material, volume estimates will be used by a method developed by the Regional District.

The amount of waste going to landfill will help provide a measurement of the waste that is being diverted. This quantity will be divided by the total population to determine a per capita generation rate. This will be compared to the baseline waste generation rate and a yearly diversion rate will be determined. Presently the baseline generation rate is estimated at 2.0 kg/capita/day or 0.73 tonnes/capita/year.

The quantity of waste going to other facilities (i.e. recycling and composting) will be divided by the Regional District population to determine the per capita diversion for each of these programs. The per capita generation of material diverted through reduction and reuse will be estimated based on the programs in place. If the per capita landfill rate and the per capita diversion rate, when added together do not add up to the total waste generation rate, it may be possible that unknown disposal or handling of waste is taking place, and therefore, should be investigated.

The PMAC will conduct an annual review of certain components of the plan to determine if changes are required. These components could include the following:

- effectiveness of can/bag limits;

- effectiveness of landfill material bans;
- effectiveness of education and promotional material; and,
- effectiveness of the cost recovery model in generating revenue to cover waste management costs, and assist the Waste Management Planner in determining the appropriate cost recovery structure for the approaching year.

### **5.3 CONTINGENCY PLANS**

In the case where the diversion targets set out in the plan are not being met a number of contingency plans have been developed and consist of the following:

#### **1. Identify the problem**

The specific problem will be identified and isolated, if possible. An example could be that the waste diversion rate is significantly lower than originally forecasted. Some reasons for this could include the following:

- market for recyclables are lower than anticipated;
- public participation is lower than expected;
- technology used is not effective;
- illegal dumping is occurring;
- federal and provincial governments have reduced the scope of their reduction/reuse programs; or
- the business sector is not participating in the diversion program.

#### **2. Develop a solution to solve the problem**

The Waste Management Planner, in consultation with the Board will develop a solution to overcome the problem and specific measures could include the following:

- increase emphasis on reduction/reuse initiatives;
- re-evaluate technologies;
- re-evaluate markets for recyclables;
- increase level of enforcement;
- implement a system of Waste Stream Management, Recycler and Hauler Licenses to provide better control over waste flow; or
- modify the user-pay mechanism.

### **5.4 DISPUTE RESOLUTION**

Where disputes arise during the implementation of the plan they may be settled through a dispute resolution procedure. Some examples of disputes include the following:

- interpretation of a statement or clause in the plan;
- RDBN administrative decision in the issuance of a license;

- other matters.

Where a dispute occurs, the following procedure shall be followed:

1. Both parties shall discuss the problem and come to an equitable agreement.
2. If an agreement cannot be reached by the two parties, then the matter will be forwarded to the Regional District Board who will decide on this issue. The Board may have the option to delegate the matter to the PMAC. The PMAC would evaluate the matter and submit a report detailing the dispute, and its recommendations to the Board. The Board will review the report, make inquiries as necessary and will settle the dispute. The decision will be accepted by both parties.

## **5.5 ENFORCEMENT**

It is anticipated that during the process of implementing the plan, there may be cases of illegal dumping by the public, outside the gate of a waste management facility or along the property boundary, in response to some of the plan policies (e.g., tipping fees). If illegal dumping does occur, the following procedure will be used:

1. Identify ownership of refuse

The contents of the refuse will be examined to determine the owner of the waste. Evidence such as envelopes with addresses or utility bills will usually indicate where the waste originated from.

2. Send Warning Notices

A warning letter will be forwarded to the offending party explaining that their waste had been found illegally dumped. The letter will outline the proper procedures for disposing of waste and remind them that illegal dumping is not permissible. As well, the offending party will also be required to clean up their own refuse.

3. Enforcement

If the offender has illegally disposed of its waste for a second time, the Regional District will have the option to enforce its illegal waste disposal by-law. This by-law gives the Regional District power to prosecute the offender for contravention of this by-law.

A copy of the illegal disposal by-law is available in **Appendix D**.

## 6.0 OPERATING STRATEGIES AND REQUIREMENTS

In order to implement the Solid Waste Management Plan, certain operating strategies and requirements are necessary. This section outlines procedures and operating requirements for landfill siting, operational certificates, and licenses.

### 6.1 LANDFILL SITING CRITERIA AND METHODOLOGY

The following procedure will be used when selecting a new site for the eastern end of the Regional District.

- 1) The landfill siting process shall be completed by RDBN staff with assistance of a qualified consulting team.
- 2) A Landfill Siting Advisory Committee may be formed to advise in all steps of this process. This committee could be a sub-committee of the Plan Monitoring Advisory Committee or it could be a separate committee. Representatives on this committee may include: Regional District staff, BC Environment, Environment Canada, Department of Fisheries and Oceans, Ministry of Health, Ministry of Forests, BC Lands and Parks, other interested provincial government agencies, and the general public.
- 3) Priority will be given to sites located on Crown land. Consideration will also be given to any offers of private land for landfill sites.
- 4) Candidate areas shall be identified using a constraint mapping approach or conversely through a positive attribute mapping process.
- 5) The candidate areas will then be subjected to a detailed screening process based on criteria identified in BC Environment's Landfill Criteria for Municipal Solid Waste, June 1993. This criteria may include but is not limited to:
  - proximity to residences;
  - proximity to water supply wells, water supply intake;
  - distance to parks, schools, churches, hotels, restaurants, food processing facilities;
  - distance to airports;
  - proximity to surface water;
  - floodplains;
  - distance to unstable areas;
  - agricultural land reserves;
  - wildlife habitats;
  - wilderness areas;
  - depth of ground water table;
  - depth of overburden;

- accessibility (distance to major transportation routes);
  - municipal zoning;
  - other criteria deemed suitable by the Landfill Siting Advisory Committee.
6. The candidate sites shall be evaluated using a weighted matrix system developed and approved by the Landfill Siting Advisory Committee.
  7. The candidate sites will be narrowed down to a short list of three or fewer sites and will be further evaluated and subjected to hydrogeotechnical studies. The results of this process will then be taken to the public for input.
  8. The final site will be selected through technical information, and, input from the public, the Landfill Siting Advisory Committee and the Board. Approval of the site for use will come from BC Environment.

## **6.2 OPERATING REQUIREMENTS FOR FACILITIES**

Operational Certificates will be required for any landfills and transfer stations that are part of the Solid Waste Management Plan. These certificates will replace the current BC Environment permit system. The Operational Certificates will be issued by the Ministry of Environment, Lands and Parks and will contain clauses and conditions which will ensure that the landfill siting, design, operation, closure and post-closure are in accordance with Waste Management Act and all its regulations, including BC Environment's Landfill Criteria for Municipal Solid Waste, June 1993.

A copy of a draft Operational Certificate can be found in **Appendix E**.

## **6.3 WASTE MANAGEMENT OPERATOR'S LICENSES**

The Waste Management Act grants Regional Districts the power to develop and issue licenses for operators of waste management facilities and services within the context of their Solid Waste Management Plans. The Regional District reserves the right to require Waste Stream Management Licenses. These licenses may include:

- Waste Stream Management Licenses (WSML) for facilities handling municipal solid waste;
- Recycler Licenses for operators of recycling services in the Regional District; and,
- Hauling Licenses for hauling contractors that operate within the boundaries of the Regional District.

The purpose of these licenses are to allow the Regional District to ensure that the facilities and services are being operated in accordance with the requirements of the plan. Licenses will not be required for facilities or services operated by the RDBN but may be required for those operated by other organizations within the Regional District.

This would include waste hauling, recycling program services and centralized composting services.

A copy of these draft licenses are available in **Appendix F**.