



Solid Waste Management Plan

CHM HILL Engineering Ltd.
in association with
Woodward Environmental Management

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Preface

Throughout this document, use of the term "RDC-S" refers to both the geographic region of Regional District of Comox-Strathcona and the legal entity of the Regional District of Comox-Strathcona.

This Solid Waste Management Plan has been prepared in general accordance with guidelines established by the BC Ministry of Environment, Lands and Parks as set forth in the following documents:

- *Guide to the Preparation of Solid Waste Management Plans by Regional Districts*, June 1990.
- *Guide to the Preparation of Solid Waste Management Plans by Regional Districts*, Final Draft, March 1994.

The following companion documents to this plan are incorporated by reference:

- *Regional Solid Waste Management Plan Stage 1 Report*, Regional District of Comox Strathcona, December 1992.
- *Landfill Evaluations and Action Plans*, CH2M HILL Engineering, Ltd., August 1993.
- *Analysis of Powell River Regional District Waste Import Proposal*, CH2M HILL Engineering, Ltd., July 1994.
- *Groundwater Monitoring Reports for the Campbell River, Pidgeon Lake, Gold River and Tahsis Landfills*, CH2M HILL Engineering, Ltd., October 1994.
- *Solid Waste Management Plan Stage 2 Report*, CH2M HILL Engineering, Ltd., et al., November 1994.
- *Solid Waste Management Plan Record of Public Consultation*, Woodward Environmental Management, November 1994.

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Section 1

Plan Objectives

The Regional District of Comox-Strathcona (RDC-S) is preparing its solid waste management plan in accordance with guidelines established by the BC Ministry of Environment, Lands and Parks (MOELP). The MOELP has established a province-wide goal of reducing the amount of municipal waste requiring disposal by 50 percent by the year 2000. The goal of this plan is to reduce waste in accordance with the MOELP strategy, while ensuring that reduction opportunities for the general public and the industrial, commercial, and institutional (IC&I) sectors are economically viable. The plan was developed in accordance with the following key principles:

- The plan would be developed in an open, public process. The vehicle for this process will be a comprehensive public involvement program throughout Stages 2 and 3 of the plan review.
- The plan must adopt strategies that promote pollution prevention and sound resource management. To the extent practicable, the plan should follow the polluter-pay principle wherein consumers and producers of products and packages that become waste must be responsible and accountable for the cost of managing the wastes they generate.
- Evaluations should be done on the basis of three major criteria: ability to divert waste from disposal, environmental and social impacts, and cost effectiveness.
- Effective two-way communication on an ongoing basis between the RDC-S and local residents, businesses, and institutions is crucial to the success of the plan.
- Education and promotion of waste reduction, reuse, and recycling is critical to the success of this solid waste management plan. The plan must ensure that the benefits associated with reducing wastes going to landfills are communicated to all sectors of society, particularly to youth through the schools.
- All landfills in the RDC-S will be developed and operated in conformance with the *B.C. Landfill Criteria for Municipal Solid Waste* (Criteria).
- The plan must recognize regional differences and allow for flexible implementation of options tailored to the needs of specific communities in the RDC-S.

Section 2

Plan Development Process

Consistent with the MOELP guidelines, this plan was developed in three stages:

Stage 1 involved:

- Forming a Local Solid Waste Advisory Committee (LSWAC) comprised primarily of interested citizens, members of local nongovernmental recycling and environmental organizations and representatives from MOELP and member Municipalities
- Establishing the Regional Solid Waste Management Committee (RSWMC), a sub-committee of the Board that deals with solid waste issues
- Hiring a consultant (i.e., the NovaTec Consultants team) to conduct technical evaluations of waste management options and direct the public consultation program
- Conducting public consultation activities including press releases, a newsletter, a series of open houses, and a questionnaire to inform the public of the Plan Review and solicit their input
- Documenting the existing solid waste management system, developing and analyzing options, and presenting recommendations
- Preparing the terms of reference for Stage 2

The Stage 1 report was approved by the MOELP in March 1993.

Stage 2 includes analysis of waste management options and a recommended waste management strategy. Stage 2 activities include the following:

- Establishing a Public Advisory Committee (PAC) and a Technical Advisory Committee (TAC). The PAC consists of stakeholders in the community including members of waste management firms and organizations, businesses and institutions, schools, and the general public. The TAC consists of municipal engineers and other stakeholders including members of waste management organizations, recycling organizations, and environmental groups.
- Hiring a consultant (i.e., the CH2M HILL Engineering, Ltd. team) to conduct the necessary technical evaluations and public consultation

- Conducting an intensive public consultation program including multiple workshops with the PAC, TAC, and RSWMC; informal presentations to Municipality staff, administrators, and elected officials; communications activities (press releases and newsletters); and public open houses
- Preparation of working documents in the form of three technical memoranda for comment, and the draft Stage 2 report
- After consultation with the committees and the general public, preparation of the final Stage 2 report

After Board approval of the Stage 2 report, it will be sent to the Manager for approval.

Stage 3 will include the following:

- Preparation of this draft plan, consultation with committees and elected officials, and preparation of the final plan for Board approval
- Submittal of the plan to the Manager and the Minister for MOELP approval
- Plan implementation including preparation of operating plans and waste management licenses for plan facilities

Section 3

Background

This section provides a description of the solid waste management plan area, the RDC-S waste stream, and the existing waste management system.

Plan Area

The solid waste management plan area includes the following RDC-S member Municipalities and Electoral Areas:

- District of Campbell River
- Town of Comox
- City of Courtenay
- Village of Cumberland
- Village of Gold River
- Village of Tahsis
- Village of Zeballos
- Village of Sayward
- Electoral Area A
- Electoral Area B
- Electoral Area C
- Electoral Area D
- Electoral Area G
- Electoral Area H
- Electoral Area I
- Electoral Area J

A map of the plan area is provided in Figure 1.

Waste Stream

The population and waste stream for the RDC-S at the beginning and end of the planning period are shown in Table 1. The population data are from the document *Summary Statistics for Local Health Areas* (Ministry of Finance and Corporate Relations, 1993).

Figure 1
Regional District of Comox-Strathcona
Solid Waste Management Plan Area

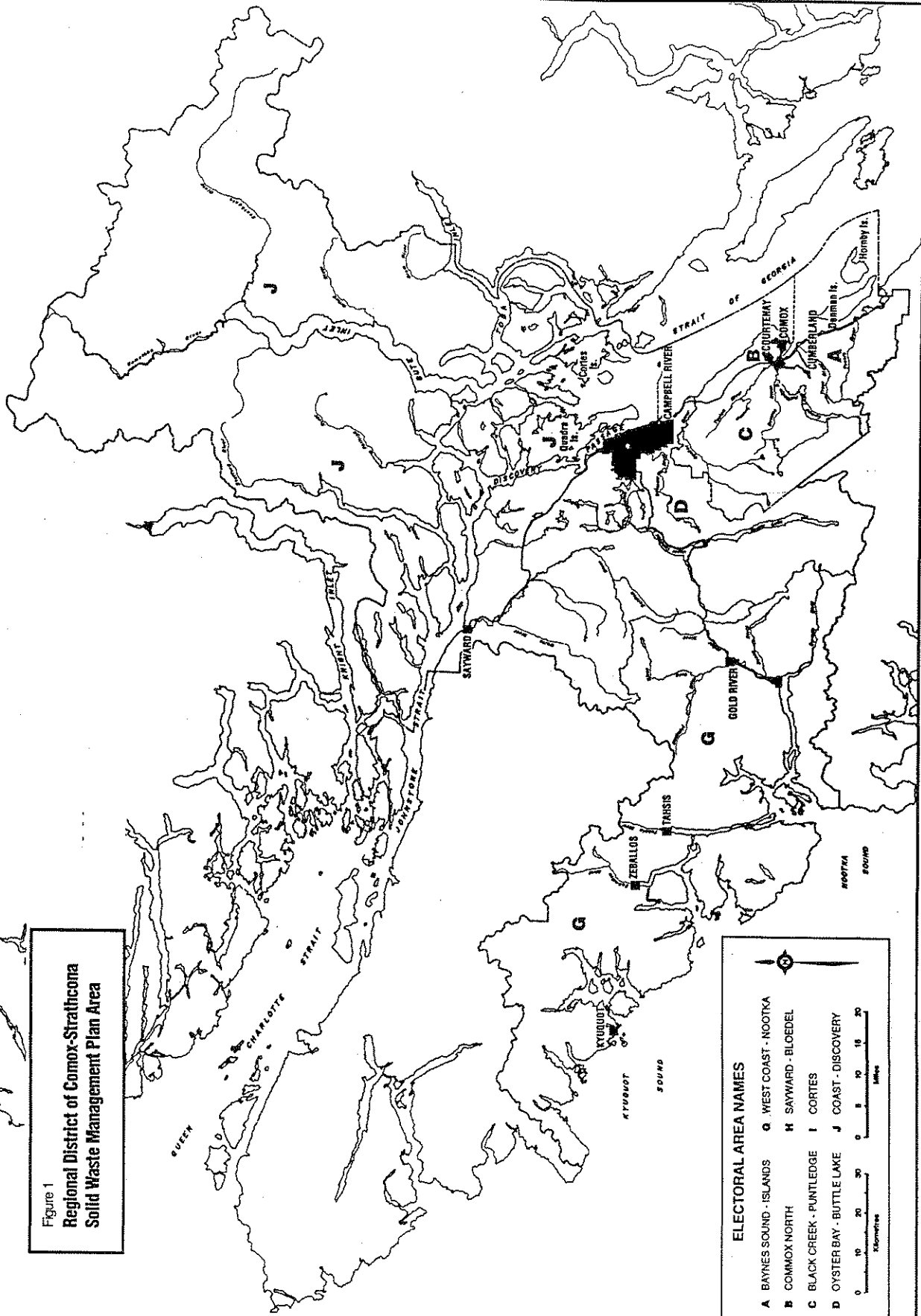


Table 1 Projected Population and Potential Waste Generation				
Year	Population	Potential Generation (Tonnes)		Total Potential Generation
		MSW	DLC	
1994	90,600	60,000	10,000	70,000
2014	122,300	81,000	14,000	95,000

In the Stage 2 Report, the effects of higher than anticipated population growth on landfill capacity were examined. The sensitivity analysis assumed that the population of the nonisland areas of School Districts 71 and 72 would grow at an annual rate of 4 percent (based on the growth rate assumed in the *Comox Valley Transportation Study Population and Employment Forecasts, Working Paper #3*, Reid Crowther & Partners Ltd., November 1994). The high forecast also used higher estimates of current population in Courtenay and Comox consistent with estimates prepared for the transportation study. The analysis indicated that under a high growth scenario, the Campbell River Landfill and Pidgeon Lake Landfill would each close about 2 years sooner than projected under the base assumptions included in the plan.

For the purposes of this Plan, municipal solid waste (MSW) refers to waste typically delivered to municipal landfills in the RDC-S from the following sources:

- Residences
- IC&I establishments
- Demolition, landclearing, and construction (DLC) projects

DLC includes only DLC wastes delivered to private landfills. Potential generation is the waste generation that would be projected to occur if no measures were taken to reduce, reuse, or recycle wastes. Table 2 provides an estimate of the current composition of municipal solid waste in the RDC-S for both residential and IC&I wastes.

Existing Waste Management Practices

This section provides a brief description of existing waste reduction, reuse, and recycling (3Rs) programs and residuals management practices in the RDC-S. General waste management methods include the following:

- Existing waste reduction and reuse strategies include backyard composting, education and promotion, and other initiatives such as procurement policies and free stores.

Table 2
1994 Potential Generation by Material Type

Material Type	Potential Generation					
	Tonnes			Percent		
	Res	IC&I	Total	Res	IC&I	Total
Paper	8,308	10,477	18,785	28.4	34.6	31.6
ONP	2,704	792	3,496	9.2	2.6	5.9
OCC	1,268	4,155	5,423	4.3	13.7	9.1
Fine Paper	575	734	1,309	2.0	2.4	2.2
MWP	2,939	3,742	6,682	10.1	12.4	11.2
Box Board	242	311	553	0.8	1.0	0.9
OMG	579	742	1,322	2.0	2.5	2.2
Glass	1,688	1,064	2,752	5.8	3.5	4.6
Clear	975	611	1,586	3.3	2.0	2.7
Coloured	499	304	803	1.7	1.0	1.3
Non-recyclable	214	149	363	0.7	0.5	0.6
Metal	659	2,808	3,467	2.3	9.3	5.8
Ferrous	571	1,718	2,290	2.0	5.7	3.8
Non-ferrous	88	1,090	1,177	0.3	3.6	2.0
Plastic	1,642	2,539	4,181	5.6	8.4	7.0
PET	81	107	188	0.3	0.4	0.3
HDPE	218	351	569	0.7	1.2	1.0
Film Plastic	538	835	1,373	1.8	2.8	2.3
Other Plastic	805	1,246	2,051	2.8	4.1	3.4
Food & Yard Waste	7,872	5,573	13,445	26.9	18.4	22.6
Food Waste	4,030	4,539	8,569	13.8	15.0	14.4
Yard Waste	3,841	1,034	4,876	13.1	3.4	8.2
Other	9,077	7,828	16,905	31.0	25.8	28.4
White Goods	593	0	593	2.0	0.0	1.0
Bulky Goods	1,771	0	1,771	6.1	0.0	3.0
Textiles	581	559	1,140	2.0	1.8	1.9
HHW	477	826	1,303	1.6	2.7	2.2
Wood	130	4,084	4,214	0.4	13.5	7.1
Other Compostable	2,242	0	2,242	7.7	0.0	3.8
Other Non-comp	2,725	2,360	5,085	9.3	7.8	8.5
Brown Goods	556	0	556	1.9	0.0	0.9
TOTAL:	29,246	30,290	59,535	100	100	100

- The existing recyclables and residuals collection programs in the urban, rural, and island communities are conducted in varying degrees by the public sector, private sector, and self-haulers.
- The destination facilities include RDC-S landfills, municipal landfills, island transfer/recycling depots, private and public recycling depots, and materials recovery facilities.

Waste Reduction and Reuse. Waste reduction and reuse initiatives in the RDC-S include the following:

- Backyard composting - it is anticipated that over 2,800 composters will have been distributed in the RDC-S by the end of 1994
- Education and promotion - a variety of nongovernmental organizations provide programs to promote the 3Rs including newsletters, articles in local papers, drop-off days, and clean-up events
- User-pay systems - per-bag charges and can limits are in effect in some areas of the RDC-S
- Procurement policies - many organizations have informal policies for purchasing paper with recycled content including local governments, federal government agencies, CFB Comox, and some businesses
- Provision of reuse and repair opportunities - there are thrift stores and free stores in some communities and various businesses that sell products in bulk or in reusable containers

The provincial and federal governments also have a number of programs to promote waste reduction and reuse.

Recycling and Processing. Curbside collection of recyclables is provided in the Village of Gold River, and newspaper and cardboard is collected from residents in Comox. Significant quantities of cardboard and some office paper is collected from IC&I establishments in Campbell River and the Comox Valley. Recycling depots are in place in a number of rural and island communities.

There are currently four main recyclables processing facilities in the RDC-S: Glacier Recycling Depot in Comox, CR Returns Recycling Depot in Campbell River, the Gold River Recycling Plant in Gold River, and Island Bottle and Recycling in Campbell River. Some of the rural and island depots also do a variety of processing and marketing functions. Except for Island Bottle and Recycling, all the processing facilities are publicly owned. Each facility conducts its own marketing for their materials.

Composting. There are five main composting operations currently operating in the RDC-S:

- Gold River - part of the Gold River Recycling Plant
- Pidgeon Lake Landfill - biosolids composting by the RDC-S
- Comox Works Yard - composting of self-hauled wood chips and yard waste
- Pacific Biowaste Recovery - in-vessel composting of fish offal and various other materials
- Burns Road - composting of fish offal, wood waste, yard waste, and agricultural waste

Collection Programs. Municipalities are responsible for collecting waste or contracting with the private sector for service. The RDC-S contracts with the private sector to provide universal collection in various service areas in the Electoral Areas of the RDC-S. Waste is typically collected from single-family residents in side-load vehicles, and multi-family waste is collected in the same vehicle as single-family waste or in front-loaders. IC&I wastes are collected in front-loaders or in roll-off containers.

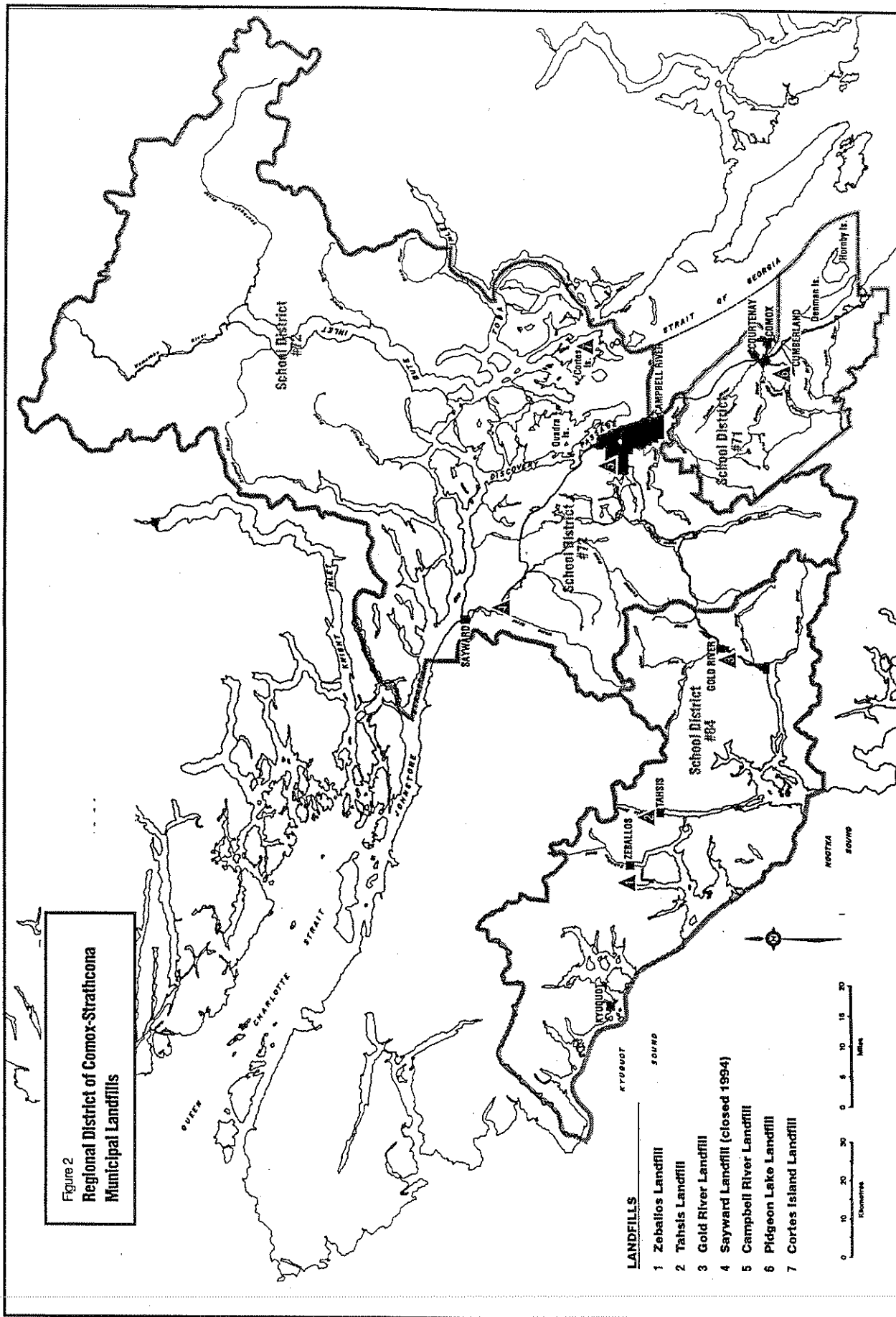
Waste Transfer. Currently, the only transfer station in the RDC-S is at Hornby Island. Waste is direct-hauled to landfills in two areas in which landfills were recently closed (Denman Island and Sayward).

Landfills. There are six municipal waste landfills currently operating in the RDC-S: Campbell River, Pidgeon Lake, Cortes, Gold River, Tahsis, and Zeballos. Recently, the RDC-S has closed three landfills: Sayward (1994), Hornby Island (1992), and Denman Island (1991). The Cortes Island Landfill is scheduled for closure in Spring 1995. The location of these landfills is shown on a map of the RDC-S in Figure 2.

Demolition, Landclearing, and Construction Waste. DLC waste is currently hauled to municipal landfills as well as to one of four private landfills. There are relatively few 3Rs initiatives for DLC waste; existing operations include some chipping of wood waste for composting and other uses, and recycling of concrete and asphalt.

Household Hazardous Waste. Current household hazardous waste programs in the RDC-S include some educational initiatives and dry cell battery recycling by nongovernmental organizations and provincial initiatives for vehicle batteries, used oil, and the recently enacted stewardship initiative for used paint.

Remote Areas and First Nations. A variety of different waste management methods are used in the remote areas of the RDC-S. Remote areas include the community of Kyuquot; government parks, highways, and wharves; Fair Harbour; and remote logging camps. First Nations occasionally use municipal landfills for waste disposal.



Section 4

Solid Waste Management Action Plan

This section outlines the series of actions that will be taken by the RDC-S and the member Municipalities in implementing the RDC-S Solid Waste Management Plan.

Reduction and Reuse

In addition to actions that can be implemented by the RDC-S and its member Municipalities, the province is encouraged to take various actions to promote reduction and reuse. The RDC-S will take the lead in implementing waste reduction and reuse programs. Twelve source reduction and reuse initiatives are listed below.

Backyard Composting. The RDC-S will aggressively promote, purchase, and distribute backyard composting units to local residents. Municipalities will assist in promotion and distribution.

Regionwide User-Pay System. The RDC-S will work with the Municipalities to establish standards for a variable rate user-pay waste collection system (e.g., one-can limit, per-bag, or per-tag), then work with the Municipalities to standardize methods of collection throughout the region to the extent practicable. The RDC-S and the Municipalities will implement the user-pay standard throughout the RDC-S.

Reduction and Reuse Education. The RDC-S will develop and implement education and promotion programs, and the Municipalities will facilitate implementation. (See the discussion of education and promotion below).

Reuse and Repair Centres. The RDC-S will set aside funds to help promote reuse and repair centres and activities such as private and nonprofit thrift stores and free stores. The RDC-S will also investigate opportunities for reuse at each transfer station and landfill in the region, and ensure that adequate reuse and repair opportunities are available in the community surrounding that disposal facility.

Government Procurement Policies. The RDC-S and the member Municipalities will develop stated policies and procedures to encourage suppliers to provide products and services in a manner that fosters waste reduction and reuse. The RDC-S will establish a task force to coordinate policies and to establish districtwide standards and "best-practices" where appropriate.

Waste Audits and Reduction Plans. The RDC-S will develop a program that will identify larger IC&I waste generators and offer to provide them with assistance in determining ways to reduce the quantity of wastes going to landfills. Visits to IC&I organizations will be conducted by RDC-S representatives to provide information, advice, and training.

Differential Tip Fees and Disposal Bans (IC&I). Once opportunities for reduction or recycling are well established, the RDC-S will ensure that certain materials are charged a differential tipping fee at landfills (two or three times the regular rate). After a 6 to 18 month phase-in period, the targeted material will be banned from disposal.

Effective implementation of the RDC-S's solid waste management plan will require action and cooperation from all sectors of society including individuals, IC&I establishments, community groups, member Municipalities, manufacturers, and senior levels of government. In the area of reduction and reuse, many of the most effective reduction initiatives will require provincial action. This plan encourages provincial assistance and participation in the following key areas:

- Expanded deposit/refund system
- National packaging protocol
- Manufacturer responsibility
- Source reduction and reuse education
- Government procurement policies

Education and Promotion

Successful reduction of wastes from RDC-S landfills will require devoting significant resources, including staff and finances, to educating internal staff, residents, and businesses about opportunities to reduce waste. The RDC-S will inform the public about the new solid waste management plan, and implement an aggressive education and promotion (E&P) program. The RDC-S E&P program will include the following:

- Allocating adequate staff and budget to E&P
- Researching the different segments of the population targeted for programs
- Developing a 3-year regional E&P plan that will guide all subsequent activities
- Establishing a new working group of providers of waste reduction and recycling services in the RDC-S
- Involving the public, schools, and local community groups
- Coordinating E&P activities with the Municipalities and other service providers
- Implementing a districtwide internal communication strategy
- Developing a consistent image for the program

- Using a variety of communication methods
- Keeping records of the strategies used and the results of those strategies
- Evaluating the impact of education and promotion programs
- Using community resources whenever possible
- Cross-promoting solid waste management activities
- Establishing a central information telephone number so that the public will have instant access to information on waste reduction and recycling programs

Recycling

Residential. The RDC-S will develop an aggressive depot-based program for residential recyclables in the RDC-S. A network of unstaffed depots will be located throughout the more populated areas of the RDC-S. The RDC-S will contract with the private sector for collection of material from the depot network. Municipalities will work with the RDC-S to determine optimal locations for depots and to help identify IC&I establishments that will act as "partners" and look after depots placed on their premises. The RDC-S will ensure that rural areas and island communities have either a depot that is part of the main network or a staffed depot that functions as a depot/processing centre.

The depots will include maximum accessibility to bins, obvious promotion, and a variety of materials. The RDC-S will target ONP, OMG, all other fibres, clear and coloured glass, ferrous and non-ferrous metal, PET plastic, and HDPE plastic for collection. The actual mix of materials collected will depend on market conditions.

The RDC-S will distribute two bags to each residence in the RDC-S to carry ONP and other fibres to the depot, and will institute a program that will promote the sale of boxes for carrying containers.

The RDC-S will ensure the provision of a van and a recycling field person whose job will include periodic visits to each depot to speak with residents, make literature available, sell recycling bins and bags, and promote the 3Rs. These functions will be provided directly by the RDC-S or under contract with the private sector.

The Gold River program may continue operating as it does today. The RDC-S will work with the Village to improve material recovery through changes in collection techniques and increased promotion and education.

The RDC-S and the member Municipalities will establish bylaws requiring the establishment of recycling opportunities in all new multifamily dwellings and IC&I establishments.

The Municipality of Comox may continue its existing curbside collection programs, and may also participate in the depot program. Multi-material curbside collection for the urban areas of the RDC-S will be re-evaluated once other 3Rs programs are well established.

IC&I. Municipalities and the RDC-S will take actions as necessary to ensure that recycling collection services are available for IC&I establishments. The RDC-S will enact differential tipping fees followed by a landfill ban on OCC. The RDC-S will develop a program of voluntary waste audits and reduction plans. Larger multi-family dwellings will be targeted as part of the IC&I program.

Processing

The RDC-S will contract with the private sector to develop and operate processing facilities in Campbell River and the Comox Valley. The contract will be structured so that the depot system remains fundamentally similar throughout the RDC-S, even if separate contractors are selected.

Staffed depots in rural areas and island communities will deliver material to the main processing centres for Campbell River and the Comox Valley, or with the consent of the RDC-S, may send materials directly to brokers or end-use markets.

Market Development

RDC-S. Top priorities for the RDC-S include compost and recyclable or reusable materials not covered within a manufacturer responsibility program. The RDC-S will take the following actions:

- Actively promote the use of compost for horticulture, landscaping, and soil amendment (public or private). The compost products will be made available to the general public for sale or trade.
- Conduct a comprehensive review of current purchasing policies and prepare a comprehensive guide to secondary content purchasing and a directory of sources in the RDC-S for use by both RDC-S departments and member Municipalities. The RDC-S will establish a general policy to purchase products and materials with secondary content.
- Continue participating in the recent discussions held by the Association of Vancouver Island Municipalities (AVIM) regarding opportunities for

cooperative arrangements. The RDC-S will support future programs that result from these discussions to the extent they are consistent with the objectives of this solid waste management plan.

- Consider funding small-scale initiatives to develop local markets for secondary materials.

Municipalities. Where applicable, Municipalities will support market development by taking actions to deliver clean, marketable secondary materials from municipal recycling and composting programs. This will include:

- Providing markets for compost products in parks and other facilities
- Adopting procurement policies that incorporate the use of recycled material

Member Municipalities will also play a role in market development through their siting and land use planning functions and by integrating support of secondary materials industries into overall local economic development activities.

Province. A number of initiatives that will encourage market development for recycled materials cannot be implemented by local government. Three key initiatives that the province is encouraged to address in support of this plan include:

- Developing a comprehensive manufacturer responsibility program that will provide economic incentives for manufactures to develop markets for recycling their materials, and make their products more readily recyclable.
- Maintaining an ongoing, in-house market development planning function that would monitor the capacity of markets versus the supply of materials, while identifying specific barriers, issues, and opportunities. Then providing incentives such as grants, loans, loan guarantees, technical advice, assistance with approvals procedures, and research and development support to address the specific market development needs identified.
- Developing aggressive procurement policies and promoting waste reduction in all of its operations.

Composting

School Districts 71 and 72, Excluding Island Communities. The RDC-S will establish a network of unstaffed depots for collection of yard waste. The Municipalities of Campbell River, Comox, and Courtenay will each assist in securing a location for a depot. The RDC-S will work with the District of Campbell River to secure a suitable site for private sector development of a processing and transfer facility in Campbell River for collection, chipping, and loading of yard waste and construction wood waste.

The RDC-S will develop a facility for co-composting of yard waste and wood waste with biosolids from the Comox Valley Water Pollution Control Centre (CPCC). In developing this facility, the RDC-S will investigate the feasibility of using a more central location than the Pidgeon Lake Landfill, secure a suitable site, and then build the composting facility. The Town of Comox may continue operating its works yard waste composting facility or may use the facility as a depot and send yard waste to the RDC-S co-composting facility.

The RDC-S will call for proposals from the private sector to develop the Campbell River processing and transfer station with an option to include onsite composting. If a viable proposal is received for composting in the Campbell River area, the RDC-S will then conduct a cost analysis to determine which mix of facilities is most cost-effective (including transportation), and proceed accordingly.

After other composting initiatives are in place, the RDC-S will conduct pilot studies and investigate the feasibility of implementing a food waste composting program for selected IC&I establishments.

School District 84 and Island Communities. The RDC-S will work with the Municipalities and island communities as follows:

- Continue programs that are in existence at this time and expand whenever possible
- Implement low-cost programs at existing landfills and solid waste collection depots, including either drop-off events and periodic chipping with composting conducted at a more central location, or onsite composting

Household Hazardous Waste

The RDC-S will take the following actions with regard to household hazardous waste:

- Assist in the promotion of provincial initiatives
- Incorporate household hazardous waste into its overall education and promotion program
- Enact differential tipping fees followed by a disposal ban on hazardous products for which an industry-funded and operated management system is in place

- Encourage IC&I establishments to store used dry cell batteries for eventual recycling
- Promote waste exchanges or swap days developed by local community groups

Demolition, Landclearing and Construction Waste

Waste Reduction, Reuse, and Recycling. The RDC-S will take the lead in implementing and administering DLC 3Rs programs. The main 3Rs initiatives of the plan include the following:

- **Education and Promotion** - The RDC-S will develop an E&P program that seeks to modify traditional practices and attitudes, and to promote awareness of waste generated at construction and demolition sites.
- **Procurement Policies** - The RDC-S and member Municipalities will develop bid specifications for recycled materials and products to be incorporated into government construction projects. They will also revise building code requirements to include recycled products and materials.
- **Differential Tipping Fees and Disposal Bans** - The RDC-S will implement a differential tipping fee for recyclable and compostable wood waste that will be enforced at both municipal and private landfills.
- **Mandatory Source Separation Requirements** - The RDC-S and its member Municipalities will use mandatory separation requirements as a backdrop measure if E&P efforts are not totally effective and illegal dumping or other problems arise because of implementation of the differential tipping fee for wood.
- **Waste Audits and Reduction Plans** - The RDC-S will develop a program to assist local builders in conducting waste audits and reduction plans.

Landfills. The RDC-S will require that private operators prepare operating plans to ensure that operations at private sites are consistent with the Criteria and plan objectives.

The following four private DLC landfills are included in this plan: Five Star Aggregate and Excavating, Norm's Backhoe and Excavating, Surgenor Sand and Gravel, and Uplands Excavating. As these sites reach capacity, the RDC-S will encourage the private sector to develop new sites or expand existing sites to meet demand for disposal of DLC wastes that are not reduced, reused, or recycled. The RDC-S will approve proposals to develop new sites or expand existing sites prior to requesting an operational certificate from the province.

Waste Collection, Transfer, and Landfills

Universal Collection

The RDC-S will implement universal collection in all Electoral Areas and will consider allowing exemptions in certain circumstances. The RDC-S will either include waste from IC&I establishments in the collection contract(s) or allow different haulers to compete for business as is the case today. Municipalities will remain responsible for collecting waste or contracting with the private sector for service.

Landfill Management

In accordance with responsibilities given to regional districts in the Waste Management Act, the RDC-S will establish standards for landfill operations and will draft operating plans that will be used by the province to issue operational certificates to all landfill operators. Consistent with those responsibilities, the RDC-S will ensure that the transfer stations and landfills in the RDC-S are operated as an integrated system of facilities with the following three objectives:

- Protecting human health and the environment
- Ensuring adequate service levels for all residents of the RDC-S
- Minimizing long-term costs to the RDC-S as a whole

The RDC-S will coordinate with Municipalities, where applicable, and implement the action plans identified in the *Landfill Evaluations and Action Plans* as modified by the Stage 2 report. (Refer to the Stage 2 report for information about specific actions to be taken at each landfill). As long as water quality in existing or future water supply aquifers remains above that allowed by the appropriate provincial criteria, the Campbell River, Pidgeon Lake, Gold River, and Tahsis Landfills will remain open until the capacity of the existing footprint of each landfill is reached. At that time, each site will be closed in conformance with the Criteria.

The RDC-S will establish a landfill closure fund structured to provide, at a minimum, sufficient revenues to pay estimated closure costs. After implementing the recommended 3Rs initiatives and upgrading landfills to conform with the Criteria, the RDC-S will consider increasing its annual contribution to the closure fund to make payments toward the cost of developing new, engineered landfills.

The RDC-S will be responsible for developing and operating all landfills in the region, and will either operate the landfill with RDC-S staff, or allow Municipalities or the private sector to operate landfills to standards established by the RDC-S.

Long-Term Transfer and Landfill Plans

Campbell River. The RDC-S, consulting with the District of Campbell River, will conduct investigations of the site adjacent to the existing landfill "Block J." The

investigations will commence no later than 5 years prior to the proposed closure of the existing footprint. If the site proves suitable, the site will be developed as a long-term disposal facility for Campbell River and other outlying areas of the RDC-S.

If for some reason the site does not prove suitable, another site will be identified, or a transfer station should be built from which waste would be sent to the Pidgeon Lake Landfill or another facility. The RDC-S will also conduct a siting study in the Campbell River area to investigate other potential sites for a landfill or transfer station. The study will be done concurrent with the investigations of the site adjacent to the existing landfill.

Pidgeon Lake. The RDC-S will investigate the area between the landfill and Bevan Road for possible expansion of the landfill, and enter into discussions with the property owner about its possible sale. If the site appears suitable and the property can be purchased, the RDC-S will purchase the property no later than 5 years prior to the planned closure date of the existing landfill. Prior to purchasing the property, the RDC-S will seek permission to conduct site investigations to evaluate the feasibility of the site. The RDC-S will also conduct site-specific investigations into the relative cost-effectiveness of operating one lined landfill and one transfer station versus two lined landfills. If for some reason the site does not prove feasible, the RDC-S will identify another suitable landfill site or a site for a transfer station from which waste would be sent to the Campbell River Landfill or some other facility.

Gold River. Once the Gold River Landfill reaches the capacity of its footprint, the RDC-S will close the landfill. At that time, the RDC-S will work with the Village to develop a transfer station from which wastes would be transferred to Campbell River.

Tahsis. Similar to Gold River, the RDC-S will close the Tahsis Landfill once it reaches the capacity of its footprint. At that time, the RDC-S will work with the Village to develop a transfer station from which wastes would be transferred to Campbell River.

Cortes Island. Once its capacity is reached (projected for 1995), the RDC-S will close the Cortes Island Landfill and request an exemption from the long-term monitoring and post-closure care requirements. Waste from Cortes Island will be transported to the Campbell River Landfill.

Zeballos. The RDC-S will request an exemption from the Criteria to allow operation of the Zeballos Landfill to the maximum extent allowed on its existing site without ground-water monitoring.

Sayward. The Sayward Landfill was closed in early 1994. The RDC-S will provide for drop-off events or a bulky waste transfer station for Sayward residents.

Denman Island. Waste will be direct-hauled from Denman Island to the Pidgeon Lake Landfill.

Hornby Island. The RDC-S will conduct various improvements to the Hornby Island Transfer Station.

Quadra Island. The RDC-S will provide for drop-off events or a bulky waste transfer station for Quadra Island residents.

Remote Areas and First Nations

RDC-S will initiate contacts with other agencies, as appropriate, to seek cooperative delivery of services to remote areas.

Staffing, Funding, and Enforcement

The RDC-S will hire staff or contract with the private sector as needed to ensure implementation of this plan.

The RDC-S will fund waste management services using a method that is generally consistent with the following three-part method:

- Part 1: A parcel tax to pay for costs that benefit property owners and are not directly related to disposal quantities including closure and post-closure costs, education, and general program administration.
- Part 2: A local tipping fee surcharge for the cost of transferring garbage from a transfer station in an outlying area (i.e., west coast or island communities) to disposal facilities in Campbell River or the Comox Valley.
- Part 3: A uniform, region-wide tipping fee, levied at all transfer stations and landfills, to cover all other 3Rs and residuals management costs up to a standard service level. The tipping fee will be calculated by dividing all remaining waste management charges (waste reduction, reuse, recycling, and disposal not included in Parts 1 and 2) by projected tonnes disposed in the regional district.

The standard service level will be established to represent the maximum amount of funds that would be included in the tipping fee for 3Rs programs in outlying areas. The RDC-S will establish the standard for service. Any added costs above the base service levels will be need to be funded by the individual Municipality or service area through a parcel tax or a surcharge on tipping fees, or by using volunteer labour. In such instances, the local community would pay the difference between actual system costs and the base service level.

The RDC-S will increase funding for the enforcement and cleanup of illegal dumping and will enact a bylaw that gives the RDC-S authority to enforce illegal dumping bylaws throughout the regional district including the Municipalities.

Implementation

The RDC-S will make its best efforts to comply with the proposed implementation schedule shown in Table 3.

Table 3
Solid Waste Program Implementation Summary

Program	1995	1996	1997 and Beyond
Waste Reduction and Education	Hire Education and Waste Reduction Coordinator. Institute disposal ban on cardboard and white goods.	Introduce regionwide user-pay garbage collection.	
Recycling and Processing	Hire Recycling Coordinator. Add 15 new unstaffed depots. Issue tender for depot collection. Issue tender for processing recyclable materials. Build depot at Tahsis.	Add 15 additional unstaffed depots. Add IC&I/DLC Coordinator. Begin waste audits and reduction plans.	Re-evaluate residential curbside collection.
Composting	Establish yard waste depots. Determine site for Campbell River wood waste transfer station. Determine site for biosolids compost facility.	Build biosolids facility. Contract out development of transfer facility. Institute disposal ban on yard waste.	Institute disposal ban on wood waste. Conduct IC&I food waste pilot study.
Demolition Landclearing and Construction Waste		Conduct education and promotion. Begin waste audits and reduction plans.	Institute disposal ban on wood waste.
Remote Areas	Meet with other agencies and implement improvements.		
Collection	Implement universal collection in Electoral Areas.		
Transfer Stations	Build transfer station on Cortes Island. Institute dropoff events at Sayward.	Upgrade transfer station on Hornby Island. Institute dropoff events at Quadra Is.	Build transfer stations at Gold River (2001) and Tahsis (2002).
Landfills	Establish and make annual contributions to closure funds and prepare closure plans for Campbell River, Pigeon Lake, Gold River, and Tahsis Landfills. Prepare operations plan and install new monitoring wells at Pigeon Lake Landfill. Conduct improvements at Campbell River Landfill.	Complete all facility and operational upgrades needed to conform with the Criteria. Develop and conduct 5-year tender for improved operation of Campbell River Landfill.	Develop lined, engineered landfills in Comox Valley (2008) and Campbell River (2012).

Section 5

Projected Waste Reduction and Costs

This section provides estimates of the amount of wastes reduced through the actions outlined in this plan and estimates of cost during the first 5 years of plan implementation.

Projected Waste Reduction

Table 4 provides an estimate of the waste reduction that would result from implementing the recommended system. As shown, the recommended 3Rs actions are projected to increase the amount of reduction, reuse, and recycling as a percent of potential generation (3Rs percent) from 11 percent in 1994 to 35 percent by the year 2000. Dividing total year 2000 disposal by population results in estimated disposal of 430 kilograms-per-capita per year, or 1.2 kilograms-per-capita per day.

Table 4 Projected Material Flow for Municipal Solid Waste					
Year	Population	Potential Generation (tonnes)	Reduction Reuse Recycling (tonnes)	Disposal (tonnes)	3Rs (percent)
1994	90,600	59,540	6,280	53,260	11 %
2000	101,200	66,670	23,150	43,520	35 %
2014	122,300	80,920	28,030	52,890	35 %

Table 5 provides another picture of projected material flows by including DLC materials delivered to private sites and includes the biosolids composted at the co-composting facility. As shown, the projected 3Rs percent (36 percent) is similar to that for municipal waste once these materials are included.

Five-Year Cost Summary

The costs that follow are conceptual planning-level estimates of the costs associated with implementation of the plan. More refined cost estimates can be prepared once the specific parameters of each program are identified at the time of implementation.

<p align="center">Table 5 Projected Material Flow for Municipal Solid Waste Including DLC and Biosolids</p>					
Year	Population	Potential Generation (tonnes)	Reduction Reuse Recycling (tonnes)	Disposal (tonnes)	3Rs (percent)
1994	90,600	73,340	10,380	62,960	14%
2000	101,200	82,080	29,460	52,620	36%
2014	122,300	99,290	35,600	63,690	36%

Table 6 provides estimated annual costs during the first 5 years of plan implementation. Three categories of cost are shown in the table:

- RDC-S Costs are those that would be incurred by the RDC-S and paid for using the first and third parts of the three-part funding method described in Section 13, the parcel tax and regionwide tipping fee.
- Other Costs would be incurred by Municipalities, IC&I establishments, and residents, and includes the second part of the three-part funding method. The second part is a surcharge to rural and island communities for services above the regionwide standard (i.e., Gold River Recycling Plant operations and waste transport from transfer stations).
- Total Costs are the sum of RDC-S costs and other costs.

The results demonstrate that the RDC-S and its citizens will incur significant added costs to implement this waste management plan. Under the implementation schedule shown above, estimated total RDC-S costs would more than double in the first 2 years of the plan, increasing from \$2.2 million in 1994 to a peak of \$5.0 million in 1995, and declining to about \$3.7 million by 1999. Other costs would increase only slightly over the planning period. Total costs would increase from \$6.1 million in 1994 to a high of \$9.6 million in 1996 declining to \$8.3 million in 1999.

Part of the increase in costs in 1995 and 1996 is due to \$2.8 million in capital expenditures, and over \$12 million in capital would be needed for waste management facilities in the remaining years of the planning period (2000 to 2014). Debt-financing could be used to moderate the impacts of some or all of these costs. It should also be noted that in the first 1 to 3 years of the plan, revenues from waste delivered from the Powell River Regional District will help reduce the burden of these cost increases.

Table 6
Five-Year Total Cost Estimates (1994\$)

	1994	1995	1996	1997	1998	1999	Capital Costs 2000-2014
RDC-S Costs							
General Solid Waste	509,000	128,000	123,000	123,000	123,000	123,000	
Education and Promotion	25,000	146,000	126,000	116,000	116,000	116,000	
Reduction and Reuse	0	28,000	75,000	48,000	35,000	35,000	
Residential Recycling	114,000	467,000	586,000	421,000	391,000	391,000	
Processing	163,000	250,000	280,000	322,000	322,000	322,000	
Composting	29,000	316,000	1,246,000	634,000	693,000	693,000	
DLC	0	0	25,000	25,000	25,000	25,000	
Remote Areas	10,000	13,000	15,000	15,000	15,000	15,000	
Transfer Stations	18,000	122,000	80,000	40,000	40,000	40,000	
Landfills	1,290,000	3,047,000	2,427,000	2,186,000	2,019,000	1,978,000	140,000
Total RDC-S Costs	2,158,000	4,517,000	4,983,000	3,930,000	3,779,000	3,738,000	12,029,000
<i>Increase Above 1994</i>		2,359,000	2,825,000	1,772,000	1,621,000	1,580,000	12,169,000
<i>Percent Above 1994</i>		109%	131%	82%	75%	73%	
Other Costs							
Municipality 3Rs	369,000	487,000	482,000	477,000	472,000	467,000	
Other 3Rs	394,000	490,000	548,000	684,000	805,000	870,000	
Waste Collection	3,142,000	3,507,000	3,502,000	3,402,000	3,285,000	3,142,000	
Rural/Island Waste Transport	18,000	35,000	44,000	44,000	44,000	44,000	
Total Other Costs	3,923,000	4,519,000	4,576,000	4,607,000	4,606,000	4,523,000	0
<i>Increase Above 1994</i>		596,000	653,000	684,000	683,000	600,000	
<i>Percent Above 1994</i>		15%	17%	17%	17%	15%	
Total Costs	6,081,000	9,036,000	9,559,000	8,537,000	8,385,000	8,261,000	12,169,000
<i>Increase Above 1994</i>		2,955,000	3,478,000	2,456,000	2,304,000	2,180,000	
<i>Percent Above 1994</i>		49%	57%	40%	38%	36%	

There are a variety of funding programs available to assist local governments in implementing solid waste management plans. In part because funding for these programs has been reduced significantly in recent years, the cost estimates shown above do not account for potential funding assistance from cost sharing programs. The costs incurred by the RDC-S will be reduced if grant funding from the provincial or federal government is received. The RDC-S will monitor all expenditures and apply for grant funding when an expenditure may qualify for financial support.

Section 6
Approval, Monitoring, and Amendments

Board Approval of Plan

On June 26, 1995, the Regional District of Comox-Strathcona Board of Directors approved this Solid Waste Management Plan by a vote of 14 to 4.

List of Directors:

<u>Jurisdiction</u>	<u>Board Member</u>
Campbell River	Councillor Dorothy Andrews
Campbell River	Councillor Bill Matthews
Campbell River	Councillor Bill Harrison
Comox	Councillor Gwyne Mack
Courtenay	Councillor Doug Bell
Cumberland	Councillor Andrew Harvie
Gold River	Mayor M. Anne Fiddick
Sayward	Mayor Jacquie Smith
Tahsis	Mayor Tom McCrae
Zeballos	Councillor Bill Heidrick
Electoral Area A	Marion Brett
Electoral Area B	Barbara Price
Electoral Area C	Harold Macy
Electoral Area D	Brenda Leigh
Electoral Area G	Tom Pater
Electoral Area H	Fae Hansen
Electoral Area I	J. Ralph Nursall
Electoral Area J	James Abram

The resolution of the Board was as follows:

“1. THAT it be recommended to the Regional District Board that the original Solid Waste Management Plan which had been presented to the Board in January, 1995 in draft form, be now sent to the Minister of Environment for approval.”

“THAT Recommendation No. 1 of the Report of the Regional Solid Waste Management Committee meeting held June 21, 1995 be adopted.”

Nay - Bell/Harvie/Mack/Macy

Section 781(4)

CARRIED

Review, Reporting, and Monitoring

The RDC-S will track the progress of its plan by preparing a brief report covering regional 3Rs and disposal quantities and program summaries on an annual basis. The RDC-S will reassess solid waste quantities, composition, and other characteristics and their impacts on Regional and Municipal programs every 5 years. Results of that periodic reassessment will be included with the annual report comparing projected and actual waste diversion.

The RDC-S will form a Plan Review Committee whose function will be to monitor RDC-S progress in implementing the Plan. The committee will report its finding to the RDC-S Board of Directors.

Amendment Process

Changes in factors such as markets, waste generation or composition, available resources, waste flows, and technologies may make occasional deviation from the approved Solid Waste Management Plan desirable and/or necessary.

The opening or closing of major facilities, or the start or cancellation of entire programs may require major plan amendments. Lesser deviations will require only minor amendments. It is assumed that the MOELP will determine whether a particular deviation requires a major or minor amendment, or any amendment at all.

Minor Plan Amendments. The RDC-S will make minor amendments to the Plan by documenting the change in consultation with appropriate stakeholders and the RSWMC. The documented amendment would then be submitted to the Ministry for approval.

Major Plan Amendments. The RDC-S will make major amendments to the Plan by discussing the proposed amendments with:

- Appropriate stakeholders (including other regional districts and the member Municipalities)
- The RSWMC
- The general public

Then RDC-S staff will consider the feedback from the other groups and finalize the proposed amendment for approval by the RDC-S Board of Directors. The documented amendment would then be submitted to the Ministry for approval.