

COWICHAN VALLEY REGIONAL DISTRICT

SOLID WASTE MANAGEMENT PLAN

NOVEMBER 15, 1995

Amendment No. 1 - June 25, 1997

**COWICHAN VALLEY REGIONAL DISTRICT
SOLID WASTE MANAGEMENT PLAN
STAGE 3**

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**SECTION 1 - STATEMENT OF REGIONAL OBJECTIVE
AND GUIDING PRINCIPLES**

The objective of the Cowichan Valley Regional District's (CVRD) Solid Waste Management Plan (SWMP) is the establishment of a regional solid waste management system including a new disposal facility, with the goal of meeting BC Environment's stated objective of 50% (percent) reduction in the amount of municipal solid waste requiring disposal according to the following guiding principles.

1. The consumption of material and energy resources is set at a level which is ecologically sustainable.
2. The regional solid waste stream is reduced to the greatest extent possible, in accordance with the hierarchy of reduce, reuse, and recycle, and consistent with local resources and the nature of the regional solid waste stream.
3. The goal of environmental policy is to not exceed the capacity of the environment to assimilate waste and ensure protection of public health, and the strategies for achieving that goal are in accordance with the precautionary principle.
4. Individuals and firms are enabled to make environmentally sound choices about consumption of resources and generation of waste through provision of appropriate information, including user-pay and market-based incentives wherever possible.
5. Reduction policies and strategies are developed through an open and effective public consultation process in a cooperative manner between government, private enterprise and community stakeholders. This may entail more flexibility in existing procedures and the setting of new procedures. The cost effectiveness of any strategy will be based on full accounting of costs and benefits both monetary and non-monetary.
6. The strategies and policies promote community development whenever possible, and are sensitive to the social needs of the region.
7. The overall program is flexible and can be modified to meet changing conditions such as future demands and new environmental criteria.

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SECTION 2 - PLAN DEVELOPMENT PROCESS

This plan has been developed in three stages, consistent with the process identified in the Ministry of Environment (MOE) guidelines. Stage 3 of the planning process is summarized in this report.

2.1 Stage 1 and Stage 2

Stage 1 involved the following:

- Authorization of the planning process by the CVRD Board and the initiation of planning activities through:
 - establishment of the Regional Solid Waste Management Committee (RSWMC), a sub-committee of the Board dealing with solid waste issues.
 - formation of a Local Solid Waste Advisory Committee (LSWAC) providing input from interested citizens and representatives from recycling, environmental and other nongovernmental organizations.
 - selection of a consultant, Dayton & Knight Ltd. and associated sub-consultants, to provide technical and administrative support efforts.
- Development of quantitative base information pertaining to the CVRD and existing waste management functions and the projection of population and waste generation values for the planning period.
- Evaluation of a wide range of waste management options including cost estimation of several major alternatives, including both landfill and incineration disposal.
- Conduct of public consultation, including open houses and forums allowing public questions and comments.
- Documentation of the Stage 1 process in a published report providing the developed information and recommendations.
- Preparation of terms of reference for Stage 2 work.

The Stage 1 report was accepted by the CVRD Board on October 10, 1990 and received Ministry approval on December 3, 1990.

Stage 2 work continued the planning process in accordance with recommendations and decisions from Stage 1 and in compliance with substantive guideline changes mandated by MOE. In the interim period prior to initiation of Stage 2 work District staff and local organizations initiated a number of waste reduction and recycling programs.

Stage 2 work involved the following:

- Existing data and projections were updated to reflect current conditions and separate siting studies for location of a new regional landfill disposal facility were undertaken concurrently with Stage 2 planning.
- Waste reduction measures potentially applicable to achievement of the MOE mandated goal of a 50 percent decrease in disposed wastes were developed and evaluated.
- Evaluations were also developed for disposal of the residues remaining after application of waste reduction measures using information characterizing four candidate sites from the parallel landfill siting studies.
- Waste management system recommendations were provided for meeting the intermediate waste reduction goal of 35 percent and the ultimate goal of 50 percent by the year 2000.
- Public consultation was provided through the periodic publication of significant information, including location of short-listed sites for a regional solid waste management complex (and associated landfill), and a series of town hall meetings and public consultations to obtain comment. Summaries of the siting studies and the Draft Stage 2 Plan were widely circulated to inform residents about the issues.
- Preparation of final Stage 2 planning documents and a separate landfill siting study report completed Stage 2 work.

The Stage 2 report and landfill siting studies were accepted by the CVRD Board on August 24, 1994. The Board selected Site B for the location of the solid waste management complex and associated landfills for disposal of process residues. The Stage 2 report was approved by MOE on September 29, 1994.

2.2 Incineration Disposal

Incineration disposal was initially considered in the Stage 1 planning process and was rejected by the Board in favour of centralized landfill disposal.

In response to continued interest in incineration for residue disposal, the Board action of August 24, 1994 included the following language, "that as a result of the requests made by members of the Cowichan Valley Regional District Board and by members of the public for more detailed information regarding the relative costs and viability of advanced technology incineration, including co-generation, that upon acceptance of the Solid Waste Management Plan Stage 2 by the Ministry of Environment, Lands and Parks, and in parallel to the acquisition of the selected landfill site, a detailed evaluation of a suitable municipal incinerator, incorporating co-generation of electricity be carried out including a comprehensive financial review of the capital and operating costs of such a facility".

Updated costs for centralized facilities both with and without energy production were prepared for Board consideration by Dayton & Knight and submitted in December 1994.

The Board reconsidered and again rejected the incineration disposal option on March 7, 1995.

2.3 Site D-1

Opposition, primarily by local area residents, to the selected Site B for the solid waste management complex (SWMC) led the Board to reevaluate site alternatives and to select a new Site D-1 in May, 1995. The amended Stage 2 plan incorporating Site D-1 was approved by the MOE on June 1, 1995, subject to the completion of favourable hydrogeological investigations and public consultation and review to be undertaken as part of the Stage 3 process.

The Site D-1 hydrogeological investigations were initiated in July 1995. Site D-1 was found to meet or exceed the MOE criteria for landfill disposal and also the additional criteria established in the Stage 2 SWMP for assessing the suitability of the site for the new SWMC. It was concluded that Site D-1 was suited for the intended use as the location for the SWMC. The Phase 1 assessment was submitted as a draft for Committee review on October 11, 1995.

The Committee endorsed the findings of the Phase 1 assessment. Phase 2 will involve site specific studies to provide data for detail design of the site facilities and to establish the requirements for monitoring.

2.4 Stage 3

Stage 3 work has included the following:

- Preparation of the Solid Waste Management Plan in Draft form, consultation with technical and public advisory bodies that sit jointly on the Solid Waste Advisory Committee, and presentation to the Engineering Services Committee for acceptance or modification.
- Concurrent hydrogeological investigation and Phase 1 Assessment of Site D-1.
- Present Draft Plan including Phase 1 Assessment of Site D-1 to general public at an Open House.
- Finalize Plan for approval by CVRD Board.
- Forward Plan for approval by the Minister of Environment, Lands and Parks.

2.5 Amendment No. 1

Concern over the high cost and technical difficulties of developing the Solid Waste Management Complex at the D-1 Site led to consideration of separating the recyclables receiving and processing components of the Solid Waste Management Complex in a separate location closer to Duncan and at a lower elevation. These facilities could be added to the recycling drop-off depot which was to be located north of Duncan to serve Duncan and the District of North Cowichan.

Also Site D-1 is located on Crown Land and is within a Tree Farm License held by TimberWest Forests Ltd. A lengthy and uncertain approval process through B.C. Lands would normally be required to acquire tenure on this site. However, if use of the site is restricted to landfilling only it becomes possible to consider full return of the site to active forest use as landfilling is progressively completed. The CVRD has applied to obtain tenure under the Forest Practices Code.

An investigation of the concept of separating the Solid Waste Management Complex from the landfill site was carried out by Dayton & Knight Ltd. which resulted in a report prepared April 1, 1996. It was found that overall costs would be marginally decreased and public accessibility enhanced by such an approach. Also the concept of re-establishing growth of harvestable trees on the landfill site was investigated by Polster Environmental Services in a report prepared in December 1996. It was determined that full return to active forest land is

achievable providing a thick soil mix is placed on top of the closed landfill, and pioneering species of vegetation established prior to reforestation.

Potential sites for the Solid Waste Management Complex and drop-off depot were investigated revealing that the only available suitably zoned centrally located properties of sufficient size were within the Highway 18 industrial area. After an appropriate due diligence process, the following resolution was approved by the CVRD Board August 28, 1996.

"That the Board report the following from Engineering Services Committee meeting of August 28, 1996.

1. That the Cowichan Valley Regional District Board complete the purchase of the entire 52.6 acre property described as that part of Section 3, Range 2, Somenos District, Title D2159, based on a purchase price of \$950,000.
2. That the Stage 3 Solid Waste Advisory Committee be reconvened to guide the public consultation process for the amendment of the Solid Waste Management Plan.
3. That the Terms of Reference for the Landfill Acquisition Committee be expanded to include:
 - .1 consideration of alternative service delivery arrangements for these facilities.
 - .2 the design, construction and operation of the Materials Recovery Facility Complex.
 - .3 the design, construction and operation of the Hill 60 Landfill Site."

After discussion with the Solid Waste Management Plan - Plan Monitoring Advisory Committee and the public at an Open House, the amended Solid Waste Management Plan was approved by the CVRD Board on June 25, 1997.

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SECTION 3 - BACKGROUND

3.1 Plan Area

The Solid Waste Management Plan serves the whole of the Cowichan Valley Regional District which is comprised of the following member Municipalities and Electoral Areas (EA):

- City of Duncan
- District of North Cowichan
- Town of Ladysmith
- Village of Lake Cowichan
- Electoral Area 'A' - Mill Bay/Malahat
- Electoral Area 'B' - Shawnigan Lake
- Electoral Area 'C' - Cobble Hill
- Electoral Area 'D' - Cowichan Bay
- Electoral Area 'E' - Cowichan Station/Sahtlam/Glenora
- Electoral Area 'F' - Cowichan Lake South/Skutz Falls
- Electoral Area 'G' - Saltair/Gulf Islands
- Electoral Area 'H' - North Oyster/Diamond
- Electoral Area 'I' - Youbou/Meade Creek
- Cowichan Tribes

A map of the plan area and existing waste management facility locations is provided on Figure 1.

3.2 Waste Stream

Historic and projected population and annual waste quantities are shown in Table 1. Population figures and waste quantities shown are from the CVRD Stage 2 Report or reflect revised estimates prepared in August 1995. Waste quantities projections are based on historic data for the residential and institutional, commercial and light industrial (ICI) wastes traditionally handled through the CVRD's facilities, with estimates for the additional wastes from land clearing and construction and demolition activities included for future planning. Because of the limited data available for estimating these additional waste quantities and the uncertainties relating to population growth projections, the values shown for future years are correspondingly uncertain and will require periodic updating.

The waste reduction quantities reflect the MOE mandated 35% and 50% reduction goals and timelines. The intent of the CVRD is to reduce beyond the 50% goal when feasible and when markets and cost benefit factors provide a favourable climate for a higher reduction goal.

TABLE 1
PROJECTED POPULATION AND WASTE GENERATION (Tonnes)

Year	Population ¹	Waste Generation Potential (tonnes) ²	Waste Reduction Quantities	Disposal Rate (tonnes/capita)
1990	58,340	39,000	600 (estimated)	0.658 (estimated)
1991	60,560	41,300	1400 (actual)	0.659
1992	63,165	42,385	2700 (actual)	0.628
1993	65,890	44,210	3579 (actual)	0.617
1994	68,730	46,115	4011 (actual)	0.613
1995	71,760	48,150	9354 (actual)	0.541
1996	73,190	49,110	9480 (actual)	0.542
1997	74,650	50,090	17,531 (35%)	0.437 (goal)
1998	76,125	51,080	17,878 (35%)	0.436 (goal)
1999	77,640	52,095	18,233 (35%)	0.436 (goal)
2000	79,180	53,130	18,596 (35%)	0.436 (goal)
2001	80,590	54,075	27,040 (50%)	0.335 (goal)
2006	89,850	60,290	30,145 (50%)	0.335 (goal)
2011	100,325	67,320	33,660 (50%)	0.335 (goal)

¹ Revised projections using values supplied by CVRD Development Services Department, August, 1995.

² Projected quantities calculated by multiplication of population values by the estimated 1990 base year waste generation rate of 0.671 tonnes per capita.

Table 2 provides an estimate of the current composition of the combined residential and ICI wastes now managed through the CVRD facilities. Composition estimates and breakout categories are from data developed in the Stage 2 Report and are quantified on the basis of 1992 waste deliveries. Good composition data do not yet exist for the additional wastes from land clearing (LCW), demolition and construction (CDW) activities.

TABLE 2 - ESTIMATED COMPOSITION OF CVRD MANAGED WASTES (1992)

Component	Percent (%) Distribution	Weight (tonnes)
Paper (total)	36.8	12,365
newspaper	7.3	2,453
cardboard	8.4	2,822
fine	3.0	1,008
glossy/phone	3.4	1,142
packaging	5.1	1,714
tetra brick	0.4	134
non-packaging	4.1	1,378
other/multimaterial	1.5	504
contaminated	3.6	1,210
Glass (total)	5.6	1,882
container	4.2	1,412
plate & other	1.4	470
Metals (total)	6.7	2,251
aluminum (bev)	0.2	67
other aluminum	0.6	202
tinned steel	2.4	806
other ferrous	2.6	874
non-ferrous & multimaterial	0.9	302
Plastics (total)	7.7	2,588
PET	0.2	67
rigid container HDPE & LDPE	1.3	437
film HDPE & LDPE	3.7	1,277
other plastics	1.6	538
composites	0.8	269
Leather (total)	0.4	134
Rubber (total)	1.2	403
tires	0.9	302
other	0.3	101
Organics (total)	27.7	9,307
food waste	16.5	5,544
yard waste	7.2	2,419
LCW	2.0	672
other wood	2.0	672
Textiles	2.4	806
Brown Goods	0.8	269
White Goods	0.9	302
Bulky Waste	1.3	437
CDW	2.0	672
HHW	1.8	605
Residue & Other	4.7	1,579
TOTAL	100.00	33,600

3.3 Existing Waste Management System

Most of the plan area residents have access to regular collection services, but use of such services is not mandatory and some elect not to participate. Collection services to residential units are provided as a municipal function in the municipalities of Duncan and North Cowichan, in the

Village of Lake Cowichan, and by the Cowichan Tribes. Collection services are provided in Ladysmith and in parts of Electoral Areas F - Cowichan Lake South/Skutz Falls and I - Youbou/Meade Creek through contracts with a private firm and in other areas by individual subscription to one of several available private firms. In Duncan and Lake Cowichan municipal collection services are also available to commercial accounts. Larger commercial accounts and commercial establishments elsewhere are serviced by private firms by subscription.

Disposal services for residential and ICI wastes are provided by the Regional District through its three incineration facilities located at Ladysmith, Lake Cowichan and Koksilah Road (near Duncan). Ash residue landfills are located adjacent to each incineration facility and the District operates one sanitary landfill at the Koksilah location to accommodate excess wastes and wastes unsuitable for incineration.

Beginning in 1990 the District established and maintained a number of activities directed at reducing the amount of wastes requiring disposal. These activities are summarized as follows:

Waste Reduction and Reuse

- Education and Promotion - staff personnel have expended considerable effort in the development and maintenance of an on-going program, including the development and use of locally based brochures, videos, displays, etc.
- Conduct of cooperative programs with schools and other groups.
- Implemented a Backyard Composting Pilot Program to quantify potential effectiveness of this measure.
- Distribution of some 4,000 household composter units at a subsidized price in conjunction with MOE and a private firm.
- Presentations, workshops and seminars provided at local events or in support of other programs.
- Cooperation with provincial and federal promotional programs and distribution of related information.
- Maintaining a central information telephone number to provide public access to information about solid waste management and waste reduction programs.

Recycling

- Multi-Product Neighbourhood Recycling Bins are operated at some 18 sites throughout the plan area. Bins are unmanned but some supervision is provided at each site by an "Environmental Partner".
- Blue bag collection of newspaper and old corrugated cardboard (OCC) from 1,000 accounts as a pilot program for planned curbside collections. Current participants are in the area served through CVRD contracting and an additional 1,000 accounts served by the Village of Lake Cowichan may be added.
- A newspaper recycling program incorporating 65 curbside drop-off bins has been established in the District of North Cowichan.
- The Town of Ladysmith has initiated a curbside collection of co-mingled bagged recyclable products. The program includes tin cans, old corrugated cardboard, box board and old newspaper product.
- Collection of telephone books in cooperation with local schools.
- Gypsum Drywall Recovery Program drop-off facilities provided at the Koksilah Road and Peerless Road incineration facilities.
- Manual recovery of scrap metals and white goods from wastes delivered to each of the three incinerator facilities.
- Supplemental drop-off facilities for recyclables provided at each incinerator facility. Other materials currently accepted include cardboard, lead-acid batteries, small vehicle tires, used oil filters, and clean wood waste (Peerless Road only).
- Other recovery programs for specific items or purposes (eg. wet cell batteries).

Processing and Composting

There are no permanent processing facilities established to date in the CVRD. Recycling activities have concentrated on items and methods intended to provide an adequate limitation on contamination commensurate with direct delivery of product to markets or market brokers. Processing facilities will be needed to substantially expand the program beyond the number and

total quantity of items currently targeted, especially those items which require densification for cost-effective handling. Processing facilities will also be necessary to support expansion of recycling activities to include curb-side collection.

Composting activities within CVRD are currently limited to the yard waste program operated by the City of Duncan. This program is currently limited to about 300 tonnes per year of lawn or leaf material and light brush clippings.

Waste Transfer

There are no transfer stations in the CVRD system. After collection, wastes are hauled directly to one of the three incinerator facilities or to the one operating landfill located at the Koksilah Road facility.

Landfills

There is only one municipal waste landfill in the CVRD. This landfill is operated by the CVRD at the Koksilah Road facility on land leased from the Cowichan Band. This landfill is in final stages of completion and closure. Replacement landfill capacity is an urgent priority.

Demolition, Construction and Landclearing Waste

Several burn sites for these wastes formerly operated within the CVRD, but only one, the Elizabeth Compton (PA-12982) site in the District of North Cowichan near Crofton, is currently permitted. This permit is limited to controlled open burning of up to 1500 m³/year of landclearing debris. One additional site, at Hillbank Gravel Supplies Ltd. is permitted (PR-8194) for landfilling only of up to 1200 m³/year of stumps, other land clearing debris and selected demolition debris. This site has an estimated life span of 3 to 5 years.

For the most part these wastes are currently trucked out of the District to other areas for disposal. The District accepts woodwaste from construction, demolition and land clearing activities if it is clean enough for chipping; only very limited quantities are received due to fees based on recovery of costs that are currently higher than other disposal alternatives.

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SECTION 4 - SOLID WASTE MANAGEMENT PLAN

This section provides an outline of the actions that will be taken by the CVRD, member municipalities, private businesses, community organizations and non-profit organizations in partnering to implement the Solid Waste Management Plan. The Plan facilities discussed in more detail in this section are located as shown on Figure 2.

4.1 Education and Partnership Program

Achieving success in continuing to reduce the amount of waste requiring disposal will require the commitment of considerable resources, including both finances and staff time, to partnership with the public. The CVRD will build on the educational programs initiated over the past several years to inform the general public, area businesses and organizations and responsible administrators about plan elements and to involve them in waste management and reduction. Some of the most effective programs are those that the community itself initiate and thereby generate ownership and pride which contribute to overall success. In this context the CVRD will implement an aggressive education and partnership (E&P) program comprised of the following:

- Allocation of adequate staff and budget to E&P.
- Involvement of the public and local community groups and businesses in decisions about waste reduction.
- Identifying and researching segments of the population targeted or affected by solid waste program elements.
- Identifying public institutions, including local governments, for setting up pilot programs and/or training in waste reduction.
- Developing and annually updating a 3-year regional plan to guide E&P activities.
- Coordinating E&P activities with the municipalities and other service providers.
- Coordinating District activities with Provincial Eco-Education program.
- Developing a district wide strategy for internal communication through use of a variety of levels and methods.
- Conveying a consistent image for the solid waste programs and goals.
- Maintaining records of the measures taken and the results achieved.
- Periodically evaluating the impact and effectiveness of E&P programs.

4.2 Waste Reduction and Reuse

The CVRD will take the local initiative in implementing actions directed at achieving waste reduction and reuse and will support or participate with the province in programs originating at provincial or federal levels. The Province is encouraged to vigorously promote waste reduction and support local programs and program implementation. The CVRD will implement the following local waste reduction and reuse initiatives:

Reduction and Reuse Education. The CVRD will adopt available materials or develop educational or promotional information specifically supporting local waste reduction and reuse initiatives. Member municipalities will assist in implementing educational programs and distribution of information.

Backyard Composting. The CVRD will continue to support and promote the distribution of backyard composters for use by local residents. Municipalities will assist in program promotion and composter distribution.

Regionwide User-Pay System. The CVRD will work with the municipalities to establish standards for an incremental or variable rate user-pay system throughout the District for each client category. Collection service will be made as universal as economically practical but implemented through a staged program, to ensure participation in payment of system costs by every waste generator. Areas of the District not currently receiving municipal or contracted private collection services will be divided into franchise areas as the basis for competitively-bid contracts.

Government Procurement Policies. The CVRD and member municipalities will develop stated policies and procedures to encourage suppliers to offer products and services that foster waste reduction and reuse. The CVRD will establish a task group to coordinate policy development and encourage district wide standards and "best practice" guidelines, where appropriate.

Waste Audits and Reduction Plans. The CVRD will identify larger institutional, commercial and light industrial (ICI) waste generators and provide staff assistance to them in determining ways to reduce the quantity of waste needing disposal. Staff and budget will be allocated by CVRD to develop program parameters and to provide information, advice and training in support of programs initiated by ICI establishments.

Reuse and Repair Centre Support. The CVRD will help promote reuse and repair activities such as non-profit or private thrift stores and free stores. Reusable and repairable goods delivered to drop-off depots operated by the CVRD will be made available to such organizations. CVRD will determine if other support activities are needed to ensure that adequate repair and reuse

opportunities are available within the community.

Disposal Bans and/or Differential Tip Fees. As reduction or recycling measures are implemented and become well established, the CVRD will consider the necessity of imposing substantially higher disposal fees for certain materials to encourage the use of these management alternatives. When necessary, and after a 6 to 18 month phase-in period, the CVRD may ban the targeted materials from disposal.

Enforcement. During the period of establishment of significantly different and more costly practices there is potential for resistance and the resort, by some, to non-sanctioned or prohibited practices. Educational initiatives and incentives will be employed to minimize the number of individuals choosing inappropriate practices. The CVRD will, to the extent found necessary, establish a program of fines and other penalties to be imposed when such practices are persistent.

Effective implementation of the CVRD's solid waste management plan will require cooperation and participation from all sectors of society including individuals, community groups, IC&I establishments, private service providers, manufacturers, member municipalities, and senior levels of government. Many of the most effective reduction and reuse initiatives require provincial action. This plan encourages provincial assistance and action focused on those aspects which extend beyond the jurisdiction or control of local government, with emphasis on the following key areas:

- national packaging protocols
- manufacturer responsibilities
- government procurement policies
- container deposit/refund system expansion
- educational and promotional support

4.3 Recycling and Recycleables Processing

The CVRD will develop a multi-faceted program for extending recycling opportunities to all residents and ICI establishments in the District. The major elements of this program are as follows:

- The existing MPNRB collection system will continue to operate until other elements are established and will then be phased out.
- The CVRD will implement route collection of commingled recyclables based on, most probably, a colour coded 2-bag system. Both single family and multi-family complexes will be serviced. The CVRD will support this form of collection by construction of a

sortation and processing facility to be located at the Solid Waste Management Complex (SWMC) on Highway 18 site. This material recovery facility (MRF) is described in Section 4.4.

- Recycleables collection services will be provided to the degree possible by modification and extension of existing systems and providers, probably by alternate week co-collection with garbage. New franchise areas will be the basis for providing collection services in areas not now receiving service from municipalities or under municipal or district contract.
- ICI establishments will be afforded access to the commingled bag collection system or will be offered alternative services more appropriate to their specific situation. Substantial producers of organic wastes will be encouraged to segregate materials suitable for composting.
- Route collection of recyclables will be supported by drop-off depot service centres located at the present Lake Cowichan and Peerless Road facilities, at the **SWMC on Highway 18 site**, and at a new service centre to be located in the southern part of the District. These depot service centres will have scheduled attendant service hours and will accept a wider range of separated materials, including larger scrap metals, white goods, reusable items, and yardwaste. These service centres will also accept household waste items not accommodated through normal collection services, such as bulky goods, and serve as collection points for tires, wet cell batteries, and household hazardous wastes.
- Route collection of recycleables will also be supported by assistance and incentives for community organizations and private businesses interested in assisting with waste reduction, reuse and recycling.
- The CVRD will support collection of yardwastes at its depot service centres by construction of a composting facility as part of the centralized facilities at the new SWMC site. Yardwastes collected at the depot service centres will be periodically transferred to the compost facility for processing by pile aeration or windrow techniques.

4.4 Materials Recovery

The CVRD will support its recycleables collection programs by constructing and operating a materials recovery facility (MRF) as part of the waste management functions centrally located at the new SWMC as described in Section 4.9. The MRF will include a sorting line providing a combination of manual and mechanized separations of the commingled materials and additional equipment for baling, densification or other material preparation steps facilitating interim storage,

transportation and market acceptance. Bagged recycleables will be separated from refuse materials in the unloading area or from a transfer conveyor. The transfer and sorting lines will be designed with the flexibility to allow possible future incorporation of screening functions for separation of an organic-rich fraction for composting.

4.5 Construction and Demolition Wastes

The CVRD will seek the cooperation of its member municipalities and the private firms active in the building trades to provide opportunities for greatly reducing the amount of construction and demolition (CD) waste requiring disposal. Several initiatives will be implemented.

Salvaging: The CVRD, in co-operation with its member municipalities, will develop a requirement of construction and demolition projects to provide the opportunity for salvage of materials. This may involve amendments to building bylaws and the issuance of a permit to allow only the residuals following salvage operations to be disposed at the landfill.

Source Separation: The CVRD will seek agreement with its member municipalities on specific sortation and waste segregation requirements to be consistently applied, following salvaging, as building permit conditions or as contract conditions on all new construction/demolition projects within the district. Simple separation of wastes into major type categories at the construction site can greatly facilitate processing for materials recovery and the CVRD will strongly encourage this practice by applying substantially increased disposal fees to unsorted wastes or declining to accept them for processing and disposal. CVRD will develop program guidelines to assist local builders in establishing effective site sorting techniques and waste reduction programs.

Mechanical Processing: To support materials recovery from CD waste the CVRD will include as part of its centralized solid waste management complex certain process functions for conversion of CD waste fractions to useable materials. These are expected to include screening and possibly pulverization for demolition rubbles, and shredding following by magnetic separation for wood wastes.

4.6 Land Clearing Wastes

The CVRD will seek the cooperation of its member municipalities and the private firms active in land clearing (LC) and development to provide opportunities for greatly reducing the amount of land clearing waste requiring disposal. All future applications for LC waste activities will be processed by the CVRD to ensure that such activities are consistent with the Plan objectives and that such activities will not compromise the viability of district initiatives. Several initiatives will be implemented.

Source Management: The CVRD will seek agreement with its member municipalities on specific sortation and waste segregation requirements to be consistently applied as permit conditions to the subdivision, clearance, or other development of land. Simple segregation techniques, by waste type or size, can greatly facilitate processing for materials recovery. The CVRD will strongly encourage reasonable source separation practices by refusal to accept unsorted wastes or by application of substantially increased disposal fees. Assistance to local developers will be provided by a CVRD program establishing acceptable site sorting practices.

Mechanical Processing: To support materials recovery from LC waste the CVRD will include the necessary process functions as part of the new centralized solid waste management complex. Process functions likely to be provided are those such as screening, shredding and chipping that allow conversion of the woody fractions to a range of useable products, such as wood chips, mulch, or hogged fuel. Brushy fractions would be shredded in preparation for composting. Large or difficult to process items, such as stumps, would be directed to the landfill for disposal.

Composting: The CVRD will provide capacity within its composting facility to process brushy portions of the LC wastes. Certain other products of LC processing, such as wood chips or hogged fuel, may be used as needed for bulking agents.

Controlled Burning: Because of the long-accepted practice of burning, either at the clearance site or at private accumulation sites, there is significant potential for resistance to new practices based on more stringent site controls and recovery processing. The province is encouraged to develop and maintain clear and consistent guidance about the role, if any, that pile burning or the use of more controlled combustion techniques can continue to play in the disposal of portions of this waste stream.

Existing burn sites, such as the Elizabeth Compton (PA-12982) and any future proposed management sites, will be evaluated by the CVRD to determine whether their continued operation is consistent with Plan objectives and alternative methods of management of these waste components.

4.7 Household Hazardous Waste

The CVRD will take the following actions with regard to household hazardous wastes:

- cooperate with and assist in promotion of provincial initiatives;

- incorporate household hazardous waste into overall E&P programming;
 - support industry funded and operated management initiatives by imposing differential fees or disposal bans on specific targeted products;
 - promote waste exchanges or swap days developed by local community groups or provincial manufacturing associations;
 - provide for collection and disposal of specific items through the CVRD depot service centres on an on-going or periodically scheduled basis;
 - evaluate the feasibility of cooperative CVRD/ICI establishment programs for the collection and storage or retrievable disposal for problematic items, such as dry cell batteries, for which local recovery options do not currently exist.

4.8 Marketing and Market Development

Material recovered through recycling programs and produced through composting and other process operations must be continuously and routinely conveyed to markets for the system to be sustainable. For paper products and metals the markets are reasonably well defined and the marketing effort is primarily focused at the local level. For a number of material and compost products major efforts must be expended on market development at both local and provincial levels. This section describes the actions to be sustained by the CVRD and its member municipalities and the nature of supporting actions needed from the provincial level.

CVRD. The CVRD will assign staff and budget to develop and sustain marketing efforts to effect and coordinate routine transfer of material products to available markets. A major focus of this effort will apply to development of local markets for compost and other organic products, other useable products recovered through processing operations, and recycleables not covered by a manufacturer responsibility program. Alternative local markets including uncompensated beneficial uses, will also be sought for recycleables, such as glass, when established market destinations make transfer economically infeasible. The CVRD will also take other supporting actions:

- Active promotion of the use of compost products for a variety of horticultural, landscaping, and soil amendments uses by the general public and local ICI establishments.
- Review of CVRD activities to identify internal uses for compost or process products and the encouragement of similar reviews by member municipalities.
- Participation in discussions by the Association of Vancouver Island Municipalities (AVIM) regarding cooperative marketing or other ventures.

- Promotion of the use of the B.C. Materials Exchange.
- Development of specific initiatives to encourage local markets or uses for secondary materials.

Member Municipalities. Municipalities will be encouraged to support marketing and market development through a number of cooperative actions with the CVRD:

- ensure that municipally operated or contracted collection programs for recycleables are consistent with CVRD guideline requirements.
- review internal purchases and uses of materials similar to those produced through CVRD operations to identify potential local options for substitution of secondary materials such as compost and mulches, recovered fill materials, etc.
- support source separation requirements for LC and CD wastes through appropriate land use planning functions, permit conditions, and contract provisions.

Provincial Government. The Province is encouraged to continue to develop markets and market conditions conducive to sustaining local programs and capabilities, with emphasis on those activities that are beyond the influence of local governments. Provincial initiatives needed in support of local efforts include the following:

- Expansion of existing manufacturer responsibility programs to include a more comprehensive range of materials and development of economic incentives to encourage market development by product manufacturers.
- Maintain an on-going and adequately staffed market development planning function to monitor market conditions and capacities and provide practical marketing support information to local governments.
- Support local governments by providing incentives in the form of grants, loans, loan guarantees, technical advice, demonstration or pilot program support, other research and development support, and through providing assistance with required procedural or administrative functions.
- Support the use of recycled products by an aggressive internal program of procurement and

use and by reduction, where possible and appropriate, in the restrictions on the use and application of secondary materials.

4.9 Solid Waste Management Complex on Highway 18

The site was selected to establish the CVRD's regional Solid Waste Management Complex (SWMC) due to its central location, appropriate zoning, adequate size, low elevation, proximity to urban Duncan and because the site is surrounded in the immediate area by other industrial facilities.

Thus the site may serve both as a public drop-off facility and as the major processing facility for reuse, recycling and composting operations. The Solid Waste Management Complex will be comprised of the following facilities or service functions:

- Entrance facilities for receiving, weighing of wastes and billing or payment of fees;
- Provision for a drop-off depot service centre for service to the general public;
- A sheltered tipping floor for receiving of route collected recyclables and refuse;
- A Materials Recovery Facility (MRF) for sorting, preparation, short-term storage and transport loadout of recyclable materials;
- A transfer station to transfer residues to the Hill 60 landfill;
- A processing area providing screening, shredding, chipping, magnetic separation and/or other unit processes needed for conversion of portions of the LC & CD waste streams to useable product;
- A composting facility constructed initially for composting of yardwaste and brushy portions of the land clearing wastes. Composting of putrescible wastes will be considered when technology is available to resolve odour and leachate concerns.
- Maintenance support facilities for the management system.

The CVRD will construct the SWMC as the basis for implementing other elements of the solid waste management plan. When the new Hill 60 Landfill is fully operational the existing incineration based disposal system will be discontinued and the existing facility sites modified for alternative use or closed.

- The existing incinerator facility at Lake Cowichan will be converted to continue in operation as a drop-off depot service centre. The adjacent ash residue fill will be closed.
- The existing incinerator facility at Peerless Road near Ladysmith will be converted to continue in operation as a drop-off depot service centre. The adjacent ash residue fill will be closed.
- The existing Koksilah Road incinerator facility near Duncan will be dismantled and the adjacent ash residue fill will be closed.

- One additional drop-off depot service centre will be located and constructed in the southern part of the District in the general vicinity of Mill Bay.
- Hours of operation and levels of staffing at each depot will be determined by service demands.

4.10 Hill 60 Landfill

The CVRD has conducted extensive siting studies as the basis for selecting one major regional site for location of new landfill facilities to serve the District's needs over at least the next 50 years. The Hill 60 landfill will be comprised of the following facilities:

- A lined sanitary landfill for putrescible wastes to be developed on a cell by cell basis;
- A lined select waste landfill providing disposal for benign or inert residues (such as mixed rubble and other similar demolition waste unsuited for processing, selected process residues, etc.) to be developed on a cell-by-cell basis;
- A leachate containment, collection and conveyance system to deliver leachate for treatment and disposal with municipal sewage at the treatment facilities that serve the City of Duncan and District of North Cowichan subject to the final recommendations of the Central Sector Liquid Waste Management Plan. Provisions for pretreatment of leachate will be incorporated into the site layout and design.
- Minimal maintenance support facilities.

4.11 Facility Closures

The transition from incineration-based disposal to the CVRD's new management system will mean the demolition of existing incinerator units and support structures and the closure of adjacent ash residue landfills. In addition, the Koksilah Road incinerator site and the CVRD's present Koksilah Road landfill are on land leased from the Cowichan Tribes and will be closed as soon as availability of a new disposal site permits. The District has also identified 11 sites that are old landfills or have been damaged by prolonged non-sanctioned dumping of refuse. Each of these sites will receive rehabilitation or closure measures appropriate to the assessed environmental impairment.

The following is a summary listing of facility closure work included in this CVRD plan:

- three ash residue landfill closures;
- Koksilah Road incinerator facility closure;
- incinerator unit removal at all three facilities;
- Koksilah Road landfill closure;
- rehabilitation or closure measures at 11 abandoned fill sites.

4.12 Staffing, Funding and Enforcement

The CVRD will hire staff, contract with private sector firms or cooperate with community groups as needed to ensure implementation of this plan. We estimate the need to increase administrative staff by three positions (one already created) to accomplish education, marketing, and operational supervision of the new system. New and different positions will also be created by the conversion of incinerator facilities to depot service centres and the new process functions at the waste management complex; existing employees will be retained for alternative positions to the greatest extent possible and will be provided with retraining as required for new responsibilities and duties.

Adequate funding will be provided by the CVRD for implementation of the waste management functions and services of this plan. Funds will come from several sources and will be balanced using a method that is generally consistent with the following:

- Costs that generally benefit all property owners within the Regional District and are not directly related to quantity of wastes generated for disposal or actual use of the system will be recovered through property tax assessments. Such costs are considered to include a portion of the capital cost of establishing the new system, education and promotion, and general program administration.
- Costs that reflect use of the system and its services at the level of service established by the CVRD as the standard service level for all District users will be recovered through a District-wide user fee. This service fee will be set at a rate sufficient to recover all normal operating and maintenance costs of the District's system (including waste reduction, recycling, recovery operations, and disposal), except the costs of collection whether accomplished by municipalities or by contracted private firms. This District-wide user fee will also recover any portion of the annualized costs of capitalization of the system not recovered through property taxes.
- Costs that reflect use of the system beyond the standard level of service will be covered through a system of additional fees and surcharges. Examples of such additional fees are extra bags or cans for route collection, added services provided by collectors, wastes collected through the depot service system, costs due to transfer of wastes, etc.

The standard service level for the District will be established by the CVRD to represent the waste management services; including waste reduction, recycling, recovery, collections, and residuals disposal, that must be available within the system in order for the system to meet the objectives of

this plan. Services above the base standard may be provided by municipalities, by the District's system, or by private contractors provided that the costs of such extra or additional services are funded by the provider through additional fees or fee surcharges.

Availability of collection services consistent with the established service levels are an essential part of this plan. These services, however, will be provided by the municipalities or by private firms through service contracts with municipalities or the District. The costs of collection services are in addition to the costs addressed in this plan and will be recovered by separate charges billed or assessed as determined by the entity responsible for providing or contracting service.

**COWICHAN VALLEY REGIONAL DISTRICT
SOLID WASTE MANAGEMENT PLAN
STAGE 3**

SECTION 5 - PROJECTED WASTE REDUCTION AND COSTS

This section summarizes the projected effects of this plan in achieving waste reduction and the currently anticipated costs of plan implementation. Effects and costs are summarized from the Stage 2 Report completed in 1994.

This Plan addresses the waste management system that will serve residents of the CVRD over at least the next 20 years. The implementation of this plan will result in a waste management system that is substantially different and more complex in many respects than the current system. This plan will also encompass two major waste streams, construction and demolition wastes and land clearing wastes, that have not heretofore been the responsibility of the Regional District.

The CVRD intends to implement the system in a staged manner keeping existing facilities and functions operational until the alternative replacement facilities can be constructed and made operational. This staged transition will be substantially completed within the initial 5 year period covered by this plan.

Accomplishment of a 50 percent level of reduction in wastes subject to disposal necessarily involves major reduction in the organic portions of the waste and the consequent large scale use of composting techniques. The CVRD intends to implement composting operations in two phases. The first phase will involve composting of yardwastes, brushy portions of the land clearing wastes, and selected similar wastes from ICI establishments. Working with these organics will give us the experience and the necessary understanding of system functions and costs to extend and expand composting to mixed organics as the second phase. The first phase of organic composting will occur within the initial 5 year period covered by this Plan. The second phase of organic composting probably will not be implemented within the initial 5 year period, although process trials and test programs may be done in this period to prepare for such implementation early in the second 5 year period.

5.1 Projected Waste Reduction

Table 5.1 summarizes the programs and facilities included in this Plan and the anticipated contribution of each toward the overall reduction goals. Elements shown as Phase I will be implemented within 5 years; elements shown in Phase II would be added subsequently, or are less likely to be implemented within 5 years.

TABLE 5.1
ANTICIPATED WASTE REDUCTION EFFECTS
OF RECOMMENDED PROGRAM ELEMENTS

Recommended Elements	Percent Reduction Phase I, through 1997 - 2001	Percent Reduction Phase II, Post- 2001
Administrative Programs: - Mandated Collection - Franchise Services	Broad Reduction Effect Not Directly Quantifiable (BRE)	BRE
Promotion & Education Programs	BRE	BRE
Reduction & Reuse: - Progressive Rates - Backyard Composting - Other	6 to 9 1 to 2 BRE	BRE 1 to 2 BRE
Recycling Programs: - residential mat'ls - commercial mat'ls - yard wastes - commercial organics - drop off centers	5 to 6 2 to 2.5 2.5 to 3 0.5 to 1.5 3.5 to 5	6 to 8 3 to 4.5 2.5 to 3 0.5 to 1.5 3.5 to 5
Centralized Processing Facilities: - yard waste composting - LCW processing - CDW processing - mixed organic composting	Indicated above 4.5 to 6.5 4 to 5.5 Not implemented	Indicated above 6 to 8.5 4.5 to 6.5 15 to 19
Total Effect Range	29 to 41	42 to 58
Mean Effect	35	50

5.2 Implementation

Implementation of initiatives regarding the education and partnership, and waste reduction and reuse components of the Plan will progress as scheduled upon the CVRD Board's approval of the Plan.

Since implementation of the physical components of this plan is dependent on the development of the SWMC, landfill and depot service centres and their incorporated functional capabilities, acquisition of the sites for these facilities is the critical point determining much of the implementation schedule. For the purposes of scheduling construction activities we have assumed that the Hill 60 landfill site can be acquired and made available for construction related activities by summer of 1997 in order to accomplish construction of the most essential facilities at each site by about October of that year. Essential facilities are considered to include the entrance facilities and transfer function at the SWMC on Highway 18 site, and the initial lined cell of the sanitary landfill, and the initial cell of the select waste landfill at the Hill 60 landfill site.

Initial implementation activities will be focused on expediting site acquisition in order to meet the above target dates. Program planning, design of essential facilities, and other selected priority activities would be done in the period leading up to the spring of 1997. Other activities are timed to allow staged construction of additional facilities and implementation of programs followed by

staged conversion or closure of existing facilities in the period from early 1988 through the year 2000. Operation of existing incinerators will be discontinued as soon as the landfill is fully operational. By the end of the year 2000, the planned Phase I new facilities and programs should be fully implemented, providing that the new landfill site is available for construction in 1997.

Figure 3 provides a preliminary schedule for implementation of the plan based on the above assumptions. The CVRD will apply its best efforts to implementing all elements of Phase 1 of the plan within the initial 5 year period.

5.3 5 Year Cost Summary

The programs and services covered by this plan involve substantial new investment in personnel and construction of facilities. The following tables provide summaries of the anticipated costs of implementing this plan. Costs shown are current best estimates and will be updated as the level of planning and facility design are advanced. Base estimates from the Stage 2 Report have been adjusted to reflect 1997 as the base year and to include PST, financing costs and other anticipated project costs.

Capital Costs. The capital costs associated with construction of new facilities and conversion or closure of existing facilities are summarized in Table 5-2.

TABLE 5.2
ESTIMATED CAPITAL COSTS FOR SOLID WASTE RECEIVING,
PROCESSING & DISPOSAL FACILITIES

Facilities	Estimated Capital Cost in 1997\$ ¹	Annual Debt Service ^{2,3} 1997\$/yr	Probable Year of Construction
<u>DROP-OFF DEPOTS</u>			
New site, South	400,000	44,000	1998
Conversion of TRP1 (Lake Cow.)	192,500	21,200	1998
Closure of TRP2 (Duncan)	245,000	27,000	1998
Conversion of TRP3 (Ladysmith)	192,500	21,200	1998
Service Truck	105,000	17,900	1997
New Central Site	(in SWMC)	-	-
<u>SOLID WASTE MANAGEMENT COMPLEX</u>			
Site Access & Power	283,000	311,000	1997
Site Development and Paving	756,000	83,200	1997
Entrance/Drop-off Facilities	528,000	58,100	1997
Material Recovery Facility	2,405,000	264,600	1997/8
Waste Transfer Facilities	1,045,000	115,000	1997
Yard Waste Composting	474,000	52,100	1999/01
Leachate Forcemain to Duncan	(in Hill 60 Landfill)		
LCW/CDW Processing	1,620,000	178,200	1998/9
Loaders and Transfer Vehicles	881,000	149,800	1997/8
<u>HILL 60 LANDFILL</u>			
Site Access	411,000	45,200	1997/8
Site Development and Paving	359,000	39,500	1997/8
Maintenance Building	195,000	21,500	1997/8
Sanitary Landfill	1,300,000	143,000	1997/8
Select Waste Landfill	300,000	33,000	1997/8
Leachate Forcemain (to Duncan)	1,450,000	159,100	1997/8
Landfill Equipment	525,000	89,300	1997
<u>LANDFILL CLOSURES</u>			
Koksilah Landfill	645,000	70,900	1998
Ashfills	140,000	15,400	1999
Abandoned Landfills	348,000	38,300	2000/01
TOTAL	14,800,000	1,718,600	

¹ - construction cost estimates from the Stage 2 report have been adjusted to reflect 1997 as the base year and to add GST, financing, legal and other project expenses not previously included.

² - assumes debt service at 11% of capital (approx. 9% interest rate over 20 years).

³ - vehicles and equipment debt service at 17% (approximate 8% interest rate over 7 years)

Operations and Maintenance Costs. The annual O&M costs associated with operating the facilities and providing services within the plan are summarized in Table 5.3.

TABLE 5.3
ESTIMATED O&M COSTS OF SOLID WASTE RECEIVING,
PROCESSING & DISPOSAL FACILITIES

Facilities	O&M Cost 1997\$/yr	Probable Year Initiated
<u>DROP OFF DEPOTS</u>		
Three Sites	327,000	1998
Service Truck	131,000	1998
<u>SOLID WASTE MANAGEMENT COMPLEX</u>		
Site Access & Development	13,600	1998
Entrance/Drop-off Facilities	226,600	1998
Material Recovery Facility	655,000	1998/9
Waste Transfer	419,000	1998
Yard Waste Composting	75,000	1999/00
LCW/CDW Processing	330,600	1999
<u>HILL 60 LANDFILL</u>		
Site Access and Development	23,000	1998
Landfills and Equipment	224,000	1998
Leachate Disposal	12,000	1998
<u>LANDFILL CLOSURES</u>		
Koksilah Landfill	20,300	1998
Ashfills	20,300	2000
Abandoned Landfills	20,200	2002

Administrative and Supervisory Staff Costs. The implementation of new programs and the supervision of new facilities and more extensive operations will require an estimated increase of about 3.0 staffing positions. These new staffing requirements and associated costs are shown in Table 5.4.

**TABLE 5.4
ADMINISTRATIVE AND SUPERVISORY STAFFING REQUIREMENTS
AND BUDGETARY SUPPORT ALLOCATIONS FOR NEW PROGRAMS**

Activity	Staff Effort	Initial Capital Expense	Annual Expenses	
			Supplies	Consultants
Administrative Programs	0.25 FTE	11,500	--	--
Promotion & Education	0.75 FTE	--	\$37,000	\$22,000
Reduction & Reuse	0.25 FTE	11,500	\$6,500	\$6,000
Recycling Programs & Markets	0.75 FTE		\$22,000	\$11,000
Drop-off Facilities Supervision	0.25 FTE		\$6,500	--
Solid Waste Management Complex Supervision	0.75 FTE		\$16,500	--
Staffing Totals	3.0 FTE			
TOTAL COSTS	\$146,400	\$23,000	\$88,500	\$39,000

¹ - assumes average salary and overheads of \$48,800 per FTE as 1997 cost.

5 Year Annualized System Costs. Annual costs during each of the initial 5 years of operation of the new solid waste management system will include administration and staffing costs, the support budgets, capital cost debt service, facility operation and maintenance and the O&M and debt service costs of continuing to operate existing system elements through the transition period. Annualized costs of the services provided by CVRD through the first 5 years of implementation of this plan are summarized in Table 5.5. Collection costs are not included in Table 5.5.

**TABLE 5.5
MANAGEMENT SYSTEM COSTS, 1996 THROUGH 2000¹**

	1997	1998	1999	2000	2001
Annualized Capital Costs (From Table 5.2)	-	1,120,300	1,515,800	1,680,300	1,718,600
Operations & Maintenance (Table 5.3)	-	1,651,200	2,436,800	2,477,400	2,497,600
New Administrative Staff & Support Costs (Table 5.4)					
Continuing Costs of Existing System (O&M)					
Unpaid existing Debt Service	675,000	350,000	150,000	150,000	150,000
	75,000	--	--	--	--
Yearly Totals (1997-2001)	750,000	3,121,500	4,102,600	4,307,700	4,366,200
Projected Waste Generation (Tonnes/Yr)	50,090	51,080	52,095	53,130	54,075

¹ - Costs are estimated in 1997 dollars. Capital cost components have been annualized assuming 20 year bond financing at a 9 percent interest rate.

**COWICHAN VALLEY REGIONAL DISTRICT
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STAGE 3**

SECTION 6 - APPROVAL, MONITORING AND AMENDMENTS

6.1 Board Approval of Plan

This Solid Waste Management Plan was approved by the CVRD Board of Directors on November 22, 1995.

The list of directors is as follows:

- City of Duncan - Michael Coleman
- District of North Cowichan - Rex Hollett, Glen Ridgway, Tom Walker
- Town of Ladysmith - Rob Hutchins
- Village of Lake Cowichan - Earle Darling
- Electoral Area 'A' - Mill Bay/Malahat - Mike Renning
- Electoral Area 'B' - Shawnigan Lake - David Towner
- Electoral Area 'C' - Cobble Hill - Richard Hughes
- Electoral Area 'D' - Cowichan Bay - Don Robinson
- Electoral Area 'E' - Cowichan Station/Sahtlam/Glenora - John Clarkson
- Electoral Area 'F' - Cowichan Lake South/Skutz Falls - Joseph Allan
- Electoral Area 'G' - Saltair/Gulf Islands - Lenard Platt
- Electoral Area 'H' - North Oyster/Diamond - Bruce Cooper
- Electoral Area 'T' - Youbou/Meade Creek - Lois Gage

The resolution of the Board was as follows:

"That the following documents:

1. COWICHAN VALLEY REGIONAL DISTRICT SOLID WASTE MANAGEMENT PLAN dated November 15, 1995, prepared by Dayton & Knight Ltd., Consulting Engineers.
2. PRELIMINARY GEOTECHNICAL AND HYDROGEOLOGICAL ASSESSMENT OF LANDFILL SITE D1 dated October 1995, prepared by Piteau Associates.
3. REPORT ON PUBLIC CONSULTATION FOR THE CVRD'S STAGE 3 SOLID WASTE MANAGEMENT PLAN dated November 15, 1995, prepared by Context Research Ltd.

4. SWMP - SITE D-1 PHASE 1 ASSESSMENT letter dated November 6, 1995, prepared by Dayton & Knight Ltd.

comprising the Cowichan Valley Regional District's Stage 3 Solid Waste Management Plan be accepted and be forwarded to the Minister of Environment, Lands and Parks for acceptance."

The Solid Waste Management Plan Amendment No. 1 was approved by the CVRD Board of Directors on June 25, 1997.

The list of directors is as follows:

- City of Duncan - Michael Coleman
- District of North Cowichan - Anne Murray, Glen Ridgway, Tom Walker
- Town of Ladysmith - Robert Hutchins
- Town of Lake Cowichan - Jean Brown
- Electoral Area "A" - Mill Bay/Malahat - Charlie Boas
- Electoral Area "B" - Shawnigan Lake - Bill Davies
- Electoral Area "C" - Cobble Hill - Richard Hughes
- Electoral Area "D" - Cowichan Bay - Don Robinson
- Electoral Area "E" - Cowichan Station/Sahtlam/Glenora - John Clarkson
- Electoral Area "F" - Cowichan Lake South/Skutz Falls - Joseph Allan
- Electoral Area "G" - Saltair/Gulf Islands - Glen Maddin
- Electoral Area "H" - North Oyster/Diamond - Mary Marcotte
- Electoral Area "I" - Youbou/Meade Creek - Jack Waite

The resolutions of the Board were as follows:

1. At its regular meeting of June 11, 1997, the Cowichan Valley Regional District Board of Directors resolved:

That the Context Research Ltd. report entitled SUPPLEMENTARY REPORT ON PUBLIC CONSULTATION FOR AN AMENDMENT TO THE CVRD's SOLID WASTE MANAGEMENT PLAN, dated June 4, 1997, and recommendations be accepted, and, together with the REPORT ON THE FEBRUARY 27, 1997 OPEN HOUSE FOR: CVRD SWMP AMENDMENT AND HILL 60 LANDFILL INFORMATION, be included in the package to be forwarded to the Minister of Environment, Lands and Parks for approval of the CVRD's Solid Waste Management Plan Amendment No. 1.

2. At its regular meeting of June 25, 1997, the Cowichan Valley Regional District Board of Directors resolved:

That the Dayton & Knight Ltd. report entitled FINAL DRAFT COWICHAN VALLEY REGIONAL DISTRICT SOLID WASTE MANAGEMENT PLAN - November 15, 1995 - AMENDMENT NO. 1 JUNE 1997, as amended by the Landfill Acquisition Committee June 25, 1997 be forwarded to the Minister of Environment, Lands and Parks for approval.

6.2 Monitoring and Reporting

The CVRD will track the progress of its plan by preparing a brief annual report summarizing disposal quantities and waste reduction program activities to compare projected and actual waste diversion. Individual programs will be evaluated periodically by the CVRD to assess their impact and effectiveness. Solid waste quantities, composition, and other characteristics and their impacts on Regional and Municipal programs will be updated by the CVRD every 5 years. Results of periodic reassessments and update studies will be included with the annual report.

A plan monitoring committee, incorporating members from the general public, representatives of governmental and non-governmental agencies, and staff personnel, will be formed by CVRD to monitor CVRD progress in implementing the Plan. The committee will report its findings to the CVRD Board of Directors.

6.3 Amendment Process

Changes in factors such as market conditions, waste generation or composition, resource availability, demographic changes, technology, etc. may make deviation from the approved Solid

Waste Management Plan desirable and/or necessary.

Failure to open or premature closing of major facilities, or the cancellation of entire programs may require major plan amendments. Schedule delays or lesser deviations will require only minor amendments. It is assumed that the MOE will determine whether a particular deviation requires a major or minor amendment, or any amendments at all.

Minor Plan Amendments. The CVRD will make minor amendments to the Plan by documenting the changes in consultation with appropriate stakeholders, the Regional MOE and the RSWMC. The documented amendment would then be submitted to the Ministry for approval.

Major Plan Amendments. The CVRD will make major amendments to the Plan by discussing the changed conditions and proposed amendments with:

- Appropriate stakeholders
- Member municipalities and adjacent Regional Districts)
- Regional MOE
- The RSWMC
- The general public

The CVRD staff will consider the responses from the other groups, and work with the Engineering Services Committee to finalize the proposed amendments for approval by the CVRD Board of Directors.

The documented and Board approved amendment would then be submitted to the Ministry for approval.

	4th Q 1996	1st Q 1997	2nd Q 1997	3rd Q 1997	4th Q 1997	1st Q 1998	2nd Q 1998	3rd Q 1998	4th Q 1998	1st Q 1999	2nd Q 1999	3rd Q 1999	4th Q 1999	1st Q 2000	2nd Q 2000	3rd Q 2000	4th Q 2000	1st Q 2001	2nd Q 2001	3rd Q 2001	4th Q 2001		
SWMC Site Acquisition																							
System Master Plan																							
Landfill Site Acquisition																							
Education & Partnership Program																							
Reduction & Reuse Program																							
SWMC Site Development																							
- Surveys																							
- Entrance facilities design / construction																							
- MRF design / construction																							
Hill 60 Landfill																							
- Site Clearing / Survey																							
- Sanitary Landfill design / construction																							
- Select Waste Landfill design / construction																							
- Leachate Foremain design / construction																							
Depot Service Centers:																							
- South site acquisition																							
- New depot design and construction																							
- Conversion TRP's 1 & 3																							
- Closure TRP's																							
Other Facilities																							
- Phase 1 Composting (Yard Waste)																							
- LC waste processing																							
- CD waste processing																							
Closures:																							
- Koksilah LF																							
- Ashfills																							
- Abandoned sites																							

COWICHAN VALLEY REGIONAL DISTRICT
SOLID WASTE MANAGEMENT PLAN
PLAN IMPLEMENTATION SCHEDULE - PHASE 1, 1997 - 2001