THE CORPORATION OF THE DISTRICT OF BURNABY

ENVIRONMENT AND WASTE MANAGEMENT COMMITTEE

HIS WORSHIP, THE MAYOR
AND ALDERMEN

REPORT OF THE ENVIRONMENT AND WASTE MANAGEMENT COMMITTEE
RE: RECYCLING STRATEGIES RELATED TO THE G.V.R.D.'S ACTION PLAN

RECOMMENDATIONS:

1. THAT Council adopt the recycling strategies as more fully detailed herein.

2. THAT a copy of this report be sent to the recycling subcommittee of the G.V.R.D.'s Water and Waste Committee.

REPORT

1.0 BACKGROUND AND INTRODUCTION

Several reports have recently been submitted to Council from staff and from the Environment and Waste Management Committee dealing with recycling of Municipal refuse. At its regular meeting of 1988 September 19, Council adopted the recommendation that "... Council support the development of a comprehensive regional recycling strategy by the Greater Vancouver Regional District in association with member municipalities ...". The MacLaren Engineers report, entitled "Waste Reduction and Recycling in the G.V.R.D.: A Blueprint for Comprehensive Resource Management" was received and adopted by the G.V.R.D.'s Administration Board in 1989 July, and is considered to be the "comprehensive regional recycling strategy" required by the G.V.R.D. and member municipalities for waste reduction and recycling. Municipal staff have extensively reviewed this report and are in agreement with its basic philosophy and overall direction, with some qualifications regarding implementation concepts.

:- AGENDA 1989 OCTOBER 30
:- COPY - MUNICIPAL MANAGER
- DIRECTOR ENGINEERING
- DIRECTOR FINANCE
- DIRECTOR ADMINISTRATIVE & COMM. SERV.
- DIRECTOR PLANNING & BLDG. INSP.
- DIRECTOR RECREATION & CULT. SERV.
- CHIEF PUBLIC HEALTH INSPECTOR

The specific qualifications which staff had of the MacLaren Report were regarding:

a) Regional Processing Facilities

The decision on which role the G.V.R.D. will play in the provision of facilities for processing recovered materials is of fundamental importance to the success of any regional or municipal recycling program. It was staff's opinion that the G.V.R.D. should assume responsibility for establishing processing facilities and that such a decision should be made without delay.

b) Action Plan Implementation Schedule

Municipal staff were of the opinion that although the implementation schedule outlined in the MacLaren Report did set specific and fixed dates, several of the qualifications established were set too far in the future. Examples were the implementation of residential recycling and creation of composting facilities. Staff felt a more appropriate implementation schedule could be adopted that would expedite the establishment of these programs.

However, arising from a thorough review of the MacLaren report and discussion with Municipal staff, the Environment and Waste Management Committee recommended to Council that "... the Corporation endorse the G.V.R.D.'s MacLaren Report subject to the qualifications contained herein ...", with the qualifications being those listed above. Council adopted this recommendation at its regular meeting of 1989 August 08.

2.0 G.V.R.D. ACTION PLAN

The G.V.R.D.'s Administration Board adopted a detailed "Action Plan" entitled "Waste Reduction and Recycling in the G.V.R.D." at its meeting of 1989 September 27. Copies of the Action Plan are available in the Clerk's office for viewing.

The Action Plan was prepared under the direction of the G.V.R.D.'s Recycling Sub-Committee, and is based upon the MacLaren Report and with input from Municipal Managers and Engineers and other municipal representatives. Burnaby staff expressed Council's and Environment and Waste Management Committee member's positions to the G.V.R.D. in this regard, and several of the Municipality's concerns have been addressed - and several have not. Regarding G.V.R.D.'s Action Plan, the areas with which the Municipal staff disagree with G.V.R.D. staff are:

a) Regional Processing Centres

The recommendation contained in the MacLaren Report that the G.V.R.D. assume responsibility for establishing processing facilities has not been the G.V.R.D. staff's recommendation to their Administration Board. Instead the Action Plan contains the provision for a Tender to proceed towards the Regional role. It is Municipal staff's position that this process will only serve to delay the

implementation of recycling programs. However, since the G.V.R.D. has adopted this approach it is now incumbent upon ourselves to make the best of it. Staff are hopeful that this Tender will illustrate the effectiveness of a regional facility and subsequently that the G.V.R.D. will proceed, without delay, with the establishment of Regional Processing Facilities. However, should this Tender indicate that Regional Processing Centres are not the most effective path, two options are available to the Municipality - either to solicit, with other municipalities, for the G.V.R.D. to undertake this role on our behalf, or to market the collected recyclables by ourselves. Either option can be accommodated within the following Recycling Strategies.

b) Cost Recovery

Municipal staff recommended to G.V.R.D. staff that an elevated regional disposal rate should be implemented sufficient to fund recycling initiatives. Although an example of such a policy is discussed in the Action Plan, G.V.R.D. staff have recommended a "user-pay" principle. Municipal staff are of the opinion that a user-pay policy will do little towards fostering recycling, especially in the critical initial stages.

It should be noted that the final draft of the Action Plan does address the concerns that the Environment and Waste Management Committee had earlier regarding the timing of the implementation of the various recycling programs. Most of the programs are now scheduled to be implemented in Phase 1, 1989-1990, of the Action Plan.

The MacLaren Report, which as mentioned forms the basis of the G.V.R.D. Action Plan, recommends a non-linear implementation plan for the G.V.R.D. and its Member Municipalities requiring simultaneous action on several fronts: residential and non-residential; both curbside and beyond curbside. The MacLaren Report indicates that a linear approach, proceeding as follows: spend a year or so on pilot programs and then implement collection of residential recycling; pause and evaluate; initiate recycling of lawn and garden wastes; pause and evaluate; initiate recycling in apartments; pause and evaluate; etc., is a drawn out method which can result in greater uncertainty for all parties and increased costs in the long term. MacLaren Engineers felt that the non-linear approach is realistic and recommended for the G.V.R.D. and its Member Municipalities because proven methods and technologies exist around the world and are to be used as models in developing the G.V.R.D.'s Action Plan.

One of the main thrusts of the Action Plan is to have Member Municipalities undertaking multi-material curbside collection at single-family residences, with the provision of recycling containers to householders and the utilization of specialized collection vehicles to ensure material separation at the curbside, by the end of 1990 (Phase I). In addition, the inclusion of multi-family units is to be initiated at an early stage of this recycling program. Although participation is not mandatory at this time, the Action Plan has as

a clear objective that all municipalities are to make an equal effort to reduce and recycle wastes. The G.V.R.D. did not try to deal beforehand with equity of effort and performance, and the Action Plan recommends implementing the recycling program with regular monitoring to indicate whether additional efforts are needed. A comprehensive review of the whole program will occur after completion of Phase I and may result in measures being adopted during Phase II to ensure equal effort and results throughout the Region.

It is not intended to undertake a detailed critique of the G.V.R.D.'s Action Plan and the foregoing basically outlines the areas where Burnaby staff disagree with this Action Plan. However, as mentioned previously, since the G.V.R.D.'s Administration Board has adopted this Action Plan, it is appropriate and timely for Burnaby to adopt recycling strategies that can mesh with, and complement the G.V.R.D.'s Plan. The following strategies are put forward on this basis.

3.0 BURNABY'S ACTION PLAN

Council, at its regular meeting of 1989 October 02, received a report, for information purposes, on the status of the various recycling initiatives currently being undertaken by the Municipality. All of these recycling programs make a positive impact on the three R's of recycling - reduce, reuse, and recycle, while not requiring major expenditures and not compromising the Municipality's position regarding the G.V.R.D.'s Resource Management System. The following programs are intended to establish Burnaby's Recycling Strategies for the future as well as fully integrating the Municipality's recycling strategy with the G.V.R.D.'s Resource Management System (where practical).

The recycling strategies outlined herein can be implemented in isolation, or all together as one comprehensive program, and are presented in this manner. As mentioned previously, the G.V.R.D.'s Action Plan is based upon member municipalities implementing multi-material curbside collection by the end of 1990. Burnaby's Action Plan, shown following, includes four recycling strategies, namely:

1. Retain Administrative Resource.
2. Establish a Multi-Material Curbside Collection (MMCC) Program.
3. Establish the separate collection of lawn and garden wastes, with delivery to the G.V.R.D.'s composting operation.
4. Establish and maintain a Recycling Depot.

These basic strategies are described in detail in Section 4.0 of this report. The time lines identified for specific actions associated with the strategies are shown on the bar chart in Appendix I attached.

The time lines indicated are considered by staff to be attainable and will integrate the Municipality's recycling strategies with the G.V.R.D. Resource Management System.

Burnaby's Action Plan also allows, should the G.V.R.D. not set up regional processing facilities, sufficient time for staff to establish markets for the materials collected through the Multi-Material Curbside Collection Program.

4.0 RECYCLING STRATEGIES

This section describes the details of the proposed four basic strategies and itemizes the estimated costs associated with each strategy.

4.1 Retain Administrative Resource

The staff time commitment required to effectively initiate and develop the detailed recycling programs being proposed will require the addition of one full-time staff member, namely a Recycling Coordinator. It is anticipated that the Recycling Coordinator will coordinate all facets of the Municipality's recycling program; including developing multi-material curbside collection (MMCC) recycling programs, studying and reporting on future aspects of waste management, developing Institutional-Commercial-Industrial (ICI) recycling programs, managing the Recycling Depot, promotion and advertising strategies, and undertaking educational forums. It is recommended that this position be established as a first priority for the Municipality's recycling strategies.

4.1.1 Recycling Coordinator Costs

The capital, start-up and annual operating costs required to add this position are estimated to be as follows:

Capital and Start-Up Costs

1 - Mini-Van	$17,000
Administrative Organizational Costs (Office Space and Equipment Requirements)	15,000
Total Capital and Start-Up Costs	$32,000

Annual Operating Costs

Labour: 1 Recycling Coordinator	54,000
Equipment: 1 Mini-Van	5,000
Administration Overhead	4,000
Total Operating Costs	$63,000

4.2 Residential Multi-Material Curbside Collection

A residential multi-material curbside collection (MMCC) program requires residents to separate recyclable materials from their refuse and to set them at the curbside, in Municipally-owned containers, for pick-up by the Municipality. A successful MMCC program will demand a high degree of public involvement, public and municipal commitment and very extensive promotion. This high degree of promotion and commitment will require the proposed Recycling Coordinator to expend considerable time and effort to set up the program. While other forms of recycling have the potential to divert higher volumes from the waste stream, a residential multi-material curbside collection initiative provides a high profile recycling program which will significantly increase citizen awareness of all Municipal waste reduction and recycling programs. Research indicates that a well-run residential MMCC program has the potential to recycle about 10-12% of Municipally-generated wastes, or about 4,000-4,800 tonnes.

Engineering Department staff have extensively reviewed various alternatives and recommend the Municipality adopt a "blue box" collection program for glass, metals, old newsprint (ONP) and plastics with collection by Municipal crews utilizing specialized, one-man collection vehicles. Pick-up will be on the same day as regular refuse collection. Initial planning indicates that five (5) routes would be sufficient for the entire Municipality. Consequently, six (one spare) specialized collection vehicles would be necessary. (The City of New Westminster Engineering staff have indicated a willingness to cost-share in the capital and operating cost of the spare truck, since they only require one truck and cannot justify the capital expense of a spare truck. It is anticipated that they will share one-sixth of the capital cost and will provide for operating costs on a hourly charge-out rate basis.)

The Municipality's residential solid waste collection service presently requires thirteen routes, in five distinct zones, for weekly refuse collection. The addition of this MMCC program would require the adjustment of our existing refuse routes and would likely, in the initial stages, result in the elimination of one route.

The adoption of a MMCC program will require the addition of the following new staff: 1 Recycling Foreman, 3 Driver/Swampers; the additional driver/swampers required to fill the complement for MMCC will be existing employees freed up by route elimination. Six new specialized collection vehicles and one mini-pick-up for the recycling foreman will be required.

The delivery of the specialized collection vehicles is in the order of six to twelve months. It is recommended that the Municipality initiate the residential MMCC program in the fall of 1990 and use the intervening period to purchase trucks and ancillary equipment and to promote, advertise and plan this program, as well as to identify markets, if necessary.

4.2.1 Residential MMCC Costs

The capital, start-up and annual operating costs for this MMCC program are estimated to be as follows:

Capital and Start-Up Costs	Estimated Costs
1 - Foreman's Mini-Pick-Up	$ 15,000
6 - Specialized Collection Vehicles @ $100,000 each	600,000
40,000 Blue Boxes @ $6.50 each	260,000
Advertising and Promotion	20,000
Blue Box Distribution	15,000
Total Capital and Start-Up Costs	$910,000
Gross Annual Operating Costs	
Labour: 1 Recycling Foreman	$ 55,000
5 Driver/Swampers	219,000
Equipment:	
1 Mini-Pick-Up	5,000
6 Collection Vehicles (1 spare)	
Operating Costs	144,000
Depreciation Costs (average annual)	72,000
Container Replacement Fund @ 10% per year	26,000
Advertising and Promotion	20,000
Processing and Marketing Recyclables 4,800 tonnes @ $10/tonne (Net Costs - see notes, page 12)	48,000
Administration Overhead (heat, light, supervision, etc.)	32,000
Total Gross Operating Costs	$621,000
Annual Avoided Costs	
Decrease in routes due to MMCC Program Labour: 2 Driver/Swamper	87,600
Equipment: 1 Rear-Packer @ $27,000 ea/yr	27,000
Depreciation Costs (average annual)	16,600
Avoided Cost of Disposal: 4,800 tonnes @ $50/tonne	240,000
Avoided Administration Overhead	20,000
Total Avoided Costs	$391,200
NET ANNUAL OPERATING COSTS (Gross Operating minus Avoided Costs)	$229,800

4.3 Separate Collection of Lawn and Garden Wastes

According to their Action Plan, the G.V.R.D. will be establishing a facility in the region for the composting of lawn and garden wastes. Initially they propose a pilot project to compost material dropped off at a series of regional depots, beginning with existing regional transfer stations. The G.V.R.D. will encourage the separate collection of compostables once their processing facilities are in place.

Composting is both a waste reduction and recycling strategy. It decreases the amount of refuse entering the waste stream and produces a material that can be re-used. Composting wastes has the potential to divert a significant (20% - approximately 8,000 tonnes) amount of refuse from the waste stream - significantly more than a residential multi-material collection program.

It is recommended that the Municipality, subject to concurrence with the G.V.R.D., participate in the G.V.R.D.'s pilot program by undertaking the separate collection and disposal of lawn and garden wastes. This program can be initiated in March, 1990 (if the G.V.R.D. has their pilot program implemented), and would require the addition of five routes to cover the entire Municipality. Similar to the MMCC program, because the amount of refuse would be decreased for our regular refuse pick-up, this program would result in the expected elimination of two routes during the period of separate lawn and garden wastes pick-up (March 1 to November 30).

It is proposed that the lawn and garden wastes be collected as bundled tree prunings, or as lawn clippings and leaves collected in paper bags. Paper bags are recommended as plastic is not biodegradable and is difficult to remove prior to composting. As an incentive for residents to participate, it is recommended that initially two paper bags be delivered to each residence as part of the publicizing of this program.

The paper bags being considered for the separate lawn and garden waste pick-up have been tested in the eastern U.S.A.. They are a heavy-duty, weather resistant paper bag made of two plies of 50 lb. Kraft paper with a waterproof, non-toxic adhesive. The bag has a 16" by 12" square bottom, which allows it to stand by itself, and is 35" in height. During testing, the bags were found to stand up well - being difficult to puncture or tear, even after being submerged in water for several hours, and were less likely than plastic bags to split open during collection.

The adoption of this program will require the addition of 6 auxiliary driver/swampers during the collection period, March 1 to November 30. As with the MMCC program, the other additional driver/swampers required to operate the lawn and garden waste program will be existing employees freed up by route elimination.

Unlike the MMCC program, this program will not require the purchase of new equipment. It is proposed to use existing rear-loading packers for this program. During the last two years, the Corporation has purchased six new rear-packers for our regular refuse collection. All of the older trucks being replaced were to be auctioned off, but staff, in anticipation of the possibility of utilizing rear-packers for this separate pick-up of lawn and garden wastes, delayed three of the best from being auctioned. Should the separate collection of lawn and garden wastes initiative not be adopted by Council, these trucks would be auctioned off. These three trucks can be supplemented with two trucks from the reduction in regular routes which will occur during the separate pick-up period. It is anticipated that approximately $10,000 each would be required to be spent to upgrade these three rear-packers.

4.3.1 Separate Collection of Lawn and Garden Wastes Costs

The capital, start-up and annual operating costs for the separate collection of lawn and garden wastes are estimated to be as follows:

Capital and Start-Up Costs	Estimated Costs
3 - Upgrading existing rear loaders @ $10,000 each	$ 30,000
Advertising and Promotion	5,000
72,000 Paper Bags @ $0.55 each	39,600
Paper Bag Distribution	10,000
Total Capital and Start-Up Costs	$ 84,600
Gross Annual Operating Costs	
Labour: 10 Driver/Swampers for 9 months	328,500
Equipment:	
6 Rear Packers (1 spare)	
Operating Costs	162,000
Depreciation Costs (average annual)	99,600
Advertising and Promotion	10,000
Processing and Marketing Compost:	
8,000 tonnes @ $20/tonne	160,000
Administration Overhead	47,000
Total Gross Operating Costs	$807,100

Annual Avoided Costs

Decrease in routes due to separate collection of lawn and garden wastes:	
Labour: 4 Driver/Swampers	$175,200
Equipment:	
2 Rear-Loading Packers @ $27,000 ea/yr	54,000
Depreciation Costs (average annual)	33,200
Avoided Cost of Disposal:	
8,000 tonnes @ $50/tonne	400,000
Avoided Administration Overhead	38,000
Total Avoided Costs	$700,400
NET ANNUAL OPERATING COSTS (Gross Operating Costs minus Avoided Costs)	$106,700

4.4 Recycling Centre

A Recycling Depot will provide recycling opportunities for residents who do not otherwise have the opportunity to recycle and should form an integral part of the Municipality's Recycling Plan. The MacLaren Report recommends a multi-faceted approach to recycling which includes drop-off depots located throughout the G.V.R.D.. A Recycling Depot will continue to be used after the implementation of the MMCC program. However, since this program may affect the usage of the depot - MMCC, being more convenient, may reduce usage or heightened public awareness may increase usage - it is recommended that a permanent location for the Stride Avenue Recycling Depot be established subsequent to the establishment of the MMCC program.

While the Stride Avenue Recycling Depot has been very successful, a common complaint has been that it is not easily accessible for all Burnaby residents. Therefore it is recommended it be relocated to a central location, namely Municipally-owned lands on Still Creek Street west off of Douglas Road, on an interim basis until the establishment of a permanent Recycling Depot.

Although two depots (one located in North Burnaby and one located in the South) may be more advantageous for the public in terms of accessibility, staff recommend the future establishment of one permanent depot centrally located, for reasons of versatility. This centre should be open every day of the week including holidays (with perhaps the exception of Christmas, Boxing Day and New Year's Day) from 8:00 a.m. to 4:00 p.m. It is recommended that this centre be staffed with one permanent employee to assist residents and to ensure orderliness and cleanliness, and that the Municipality's Recycling Coordinator work out of this facility.

As well as being a recycling depot, this future facility should be used to present alternate technology demonstrations by Burnaby's Recycling Coordinator, such as home composting and other options. In the future, the site can act as the drop-off depot for lawn and garden wastes that are not Municipally collected. These lawn and garden wastes can be subject to initial volume reduction (grinding) at this site and then transported to the planned G.V.R.D. composting centre.

The Recycling Centre should also be the storage site for Burnaby's white goods collection and freon removal and recycling programs.

In addition, brochures and other information should be available at this site, in order that the public will come to identify this one site as the information focus for recycling in Burnaby. Audio-visual and printed information can be loaned out from this site and school tours can be accommodated. In other words, it is recommended that this site take the place of the Interim Recycling depot, but with a much wider focus, becoming a Recycling Centre - a focal point of Burnaby's recycling efforts.

4.4.1 Existing Stride Avenue Disposal Site

The Corporation's Stride Avenue disposal site presently accepts lawn and garden refuse from Burnaby residents and has done so for about the last 18 years. This disposal site diverts a very significant amount of refuse from alternate forms of disposal, and has been a significant benefit to Burnaby, in terms of providing a service to its residents, as well as the region as a whole, in terms of extending the life of major landfills, and, now, keeping it out of the G.V.R.D.'s Refuse Incinerator. In addition, the Corporation's Interim Recycling Depot is operated in conjunction with the lawn and garden waste disposal facility.

The G.V.R.D., as outlined in their Action Plan, is planning to implement a comprehensive composting program and related facilities by end 1990. Although the separate collection of lawn and garden wastes will substantially reduce its usage, an alternative to the disposal of residential lawn and garden waste at Stride Avenue must be pursued for this interim period until a regional composting facility is operational, and staff are actively pursuing options for the relocation of the lawn and garden waste disposal site.

The Engineering Department presently budgets $75,000 annually for the operation of the Stride lawn and garden waste disposal site. This cost is made up of the labour to man the site seven days per week, excluding statutory holidays, from 8:30 a.m. to 3:30 p.m., and the cost of periodic maintenance. It is anticipated that an expenditure of

a similar magnitude will be required for the operation of a lawn and garden waste disposal site for the interim period until the G.V.R.D. implements their comprehensive composting program. These costs are not included in the costs for the various recycling strategies detailed herein.

4.4.2 Interim Recycling Depot

As mentioned, in order to be more accessible for all Burnaby residents, it is recommended the Interim Recycling Depot presently being operated at the Stride Avenue disposal site be relocated to a central location - namely, Municipally-owned land at the foot of Still Creek Street, west off of Douglas Road. This Interim Recycling Depot should be maintained in operation until the permanent Recycling Centre is established.

4.4.3 Recycling Depot Costs

The capital and operating costs detailed following are for the relocation of the recycling depot to the central location at Still Creek Street, west of Douglas Road, and for its continued interim use until the successful implementation of the MMCC program and the establishment of the permanent Recycling Centre. The permanent Recycling Centre has not been costed as its usage, and consequently its size and cost, will depend upon the public's participation subsequent to the MMCC program being established.

The Stride Avenue Interim Recycling Depot presently collects approximately 360 tonnes of materials annually. An anticipated reduction in usage brought about by the convenience of a MMCC program may be more than offset by heightened public awareness due to the adoption of these recycling programs. Therefore for costing purposes, the Recycling Depot is projected to remain at its current usage levels. In addition, it should be noted that at present there is no cost to the Municipality for the further processing and marketing of the recycled materials collected at the Recycling Depot.

The capital, start-up and annual operating costs for this Recycling Depot program are estimated to be as follows:

Capital and Start-Up Costs	Estimated Costs
1 Van	$17,000
Relocate and upgrade Interim Recycling Depot	30,000
Total Capital and Start-Up Costs	$47,000

Gross Annual Operating Costs

Labour: Attendant	$40,700
Equipment: 1 Van	5,000
Advertising and Promotion	5,000
Administration Overhead	3,000
Total Gross Operating Costs	$53,700

Annual Avoided Costs

Avoided Costs of Disposal: 360 tonnes @ $50/tonne	$18,000
Total Avoided Costs	$18,000

NET ANNUAL OPERATING COSTS (Gross Operating Costs minus Avoided Costs)	$35,700

5.0 RECYCLING COSTS

This section provides general discussion on some of the costs identified in the previous section.

Cost is a paramount consideration for the Municipality's waste reduction and recycling program. It should be noted that the programs outlined herein will, at the present time, be more expensive than the traditional methods of disposal. However, given that there may be hidden environmental costs associated with landfilling and incineration of wastes, and the poor market that exists at present, in the long term recycling will likely prove to be the more economical of the alternatives.

The addition of a residential MMCC program and the separate collection of lawn and garden wastes will require the adjustment of the Municipality's existing residential solid waste collection routes. Discussions regarding the realignment of the existing routes and the set-up of new "task" systems will be undertaken between Engineering Department staff management and union representatives. Initial discussions indicate that both parties are committed to maintaining the competitiveness of this Municipally-supplied refuse collection and recycling service. A joint committee comprised of Engineering Department staff management and union representatives will be established to arrive at the necessary route adjustments and "task limits" for the new recycling collection routes.

The costs presented in this report have been obtained from staff's research or the G.V.R.D.'s MacLaren Report.

5.1 Processing and Market Costs

Included in the programs' operating costs are two items for processing and marketing costs, one for the material collected under the residential MMCC program and the other for the compostable material collected under the

Lawn and Garden Waste program. The former cost was obtained from the G.V.R.D.'s Action Plan, while the latter is staff's estimate of the anticipated costs. As mentioned previously, due to the present poor market conditions for recyclables, initially there will be a net cost for their disposal, which is currently estimated to be $10 per tonne for material collected under the MMCC program and $20 per tonne for lawn and garden wastes. This disposal rate for lawn and garden wastes will depend upon the marketability of the end composted material.

Markets have commonly been a weak link in any recycling strategy. As the MacLaren Report confirms, existing markets are "soft" and this trend is expected to continue through 1990. However, expanded markets do exist off-shore and in the U.S., and the G.V.R.D. and its Member Municipalities can create markets by developing appropriate procurement policies. Consequently, as these markets are developed it is expected that the return on recyclables will increase in the future.

5.2 Avoided Cost of Disposal

As noted above, there will likely be a net cost for the processing and marketing of the collected recyclables. However, there will be an avoided cost (presently projected by the G.V.R.D. to be $50/tonne for 1990) for not disposing of these materials at the regional facility, as is presently done. Therefore, by the diversion of approximately 4,800 tonnes of material from the MMCC program, the Municipality will avoid $240,000 in disposal costs and by the diversion of approximately 8,000 tonnes of material from the lawn and garden waste program, $400,000 will be avoided in disposal costs.

5.3 Advertising and Promotion Costs

A portion of the start-up and the annual costs identified for the various programs are for the promotion and advertising of the various recycling initiatives. Not only are the initial advertising and promotion aspects of these programs critical to their success, the advertising annual costs are necessary since a program's success will rely significantly on constant re-promotion and re-advertising. Although the G.V.R.D. is carrying primary responsibility for the development of region-wide education and promotion campaigns (and are budgeting approximately $350,000 annually) it will be necessary for the Municipality to undertake some promotion and education for the initiatives which are specific to Burnaby.

6.0 FINANCING

The capital and annual operating costs for each of the four proposed recycling strategies were itemized in Section 4.0. The operating costs were separated into the gross expenditures and avoided costs from which the net operating costs were estimated. The total costs for the entire program are shown in a consolidated format in Appendix II. The financing and budgetary impacts of the proposed recycling program are discussed below.

6.1 Capital Financing

The capital costs of the programs outlined total $1,073,600. Staff are in the process of obtaining information regarding senior government funding. Press reports indicate that GO B.C. will provide one-third of the capital costs of recycling programs involving blue boxes and specialized collection equipment, up to a maximum of $1,000,000. In addition, the Province will fund the first $5,000 in planning costs and 50% of the next $10,000 for a total of $10,000.

Therefore, if the funding application to be made by the Municipality is approved, the Municipality may receive approximately $283,800 from GO B.C. for blue boxes and collection equipment and approximately $10,000 in funding for the planning to be undertaken by the Recycling Coordinator.

In addition, the solid waste equipment reserves presently have a surplus of about $530,000, which, subject to Council's concurrence, could be used towards the capital cost of new recycling equipment.

The financing of the capital costs are as follows:

Item	Estimated Cost
Potential Grants for Senior Governments	$ 293,800
Existing Solid Waste Equipment Reserve Surplus	530,000
Contribution Received from City of New Westminster	16,700
Unfinanced Portion of Capital and Start-Up Costs	233,100
TOTAL FINANCING REQUIRED	$1,073,600

The $233,100 shown as unfinanced above could be provided as a contribution to capital from the Operating Budget in 1990 or alternatively this amount could be funded from existing provisions within the Solid Waste Equipment Reserve. The latter method would give rise to a shortfall within the reserve which could be replenished in subsequent years during the life of the vehicles.

6.2 Operating Financing

Appendix II shows the projected annual operating costs to be:

Gross Annual Operating Costs	$1,544,800
Annual Avoided Costs	1,109,600
Net Annual Operating Costs	$ 435,200

Thus it is estimated a full year's operation of the proposed program will have an estimated annual budgetary impact of $435,200.

Implementation of the Action Plan time lines shown on Appendix I will obviously not incur the full gross operating costs in 1990. The estimated gross operating costs for 1990 based on the proposed Action Plan are $927,800. This figure assumes that the G.V.R.D. would not charge the Municipality for processing and marketing compost under the pilot program and further projects that the MMCC will commence in October 1990. The net operating costs in 1990 are hard to predict because the extent of the avoided costs is uncertain. Based on the time lines in the Action Plan the avoided costs in 1990 should theoretically total $816,200. However, it would be unrealistic to expect that the recycling program will incur full citizen participation immediately upon start up. There will undoubtedly be an educational transitional "phase in" period which will limit the beneficial impacts of avoided costs. This report can serve however to give Council an appreciation of the financial scope of the proposed recycling program.

6.3 Budget Impacts

The Municipality currently provides a range of solid waste services to its citizens. This report recommends including recycling as an integral component of the Municipal solid waste management program. In order to gain an appreciation for the scale of the recycling initiatives within the overall solid waste program the theoretical budgetary impact is shown in Appendix III attached.

The actual net impact of the recycling initiatives on the Solid Waste Budget is subject to two significant variables, namely - the number tonnes of recyclables collected and the cost to process and market the recyclables. Increasing the tonnage of recyclables collected will increase the cost avoidance factor and consequently lower the net cost to the Municipality. The projected tonnages included in this report have been predicated on G.V.R.D. projections but may not be fully realized in the first year of operation. The second variable is a reflection of market conditions. Improved markets will increase resale value of recyclables and thus reduce net processing costs. The processing and marketing costs in this report reflect the current soft market.

7.0 FUTURE RECYCLING INITIATIVES

The recycling initiatives outlined herein, together with those already underway, provide for a significantly ambitious recycling environment for the Municipality. The next step after initiating those programs detailed herein would be to assess and fine-tune the results of the various programs, and to initiate an apartment/multi-family multi-material collection program.

An apartment/multi-family multi-material collection program would be much more difficult to operate than a residential MMCC program, requiring contact with building owners regarding space and tenants participation as well as developing collection methods for the complicated nature of apartment/multi-family units. Although the MacLaren Report's recommended non-linear approach suggests a commitment to simultaneous action, it would be more realistic to expect staff to turn their efforts towards developing an apartment/multi-family multi-material recycling program once the residential MMCC program is "up and running".

8.0 SUMMARY

The strategies detailed in this report have the potential to divert approximately 30-35% of the Municipally collected solid waste presently being disposed at the G.V.R.D.'s Burnaby Incinerator (10-12% from the residential multi-material curbside collection program and about 20% from the separate collection of lawn and garden wastes and composting of same). These programs, in conjunction with the recycling initiatives currently being undertaken by the Municipality, will establish Burnaby in the forefront of Canadian municipalities regarding recycling strategies.

Respectfully submitted,

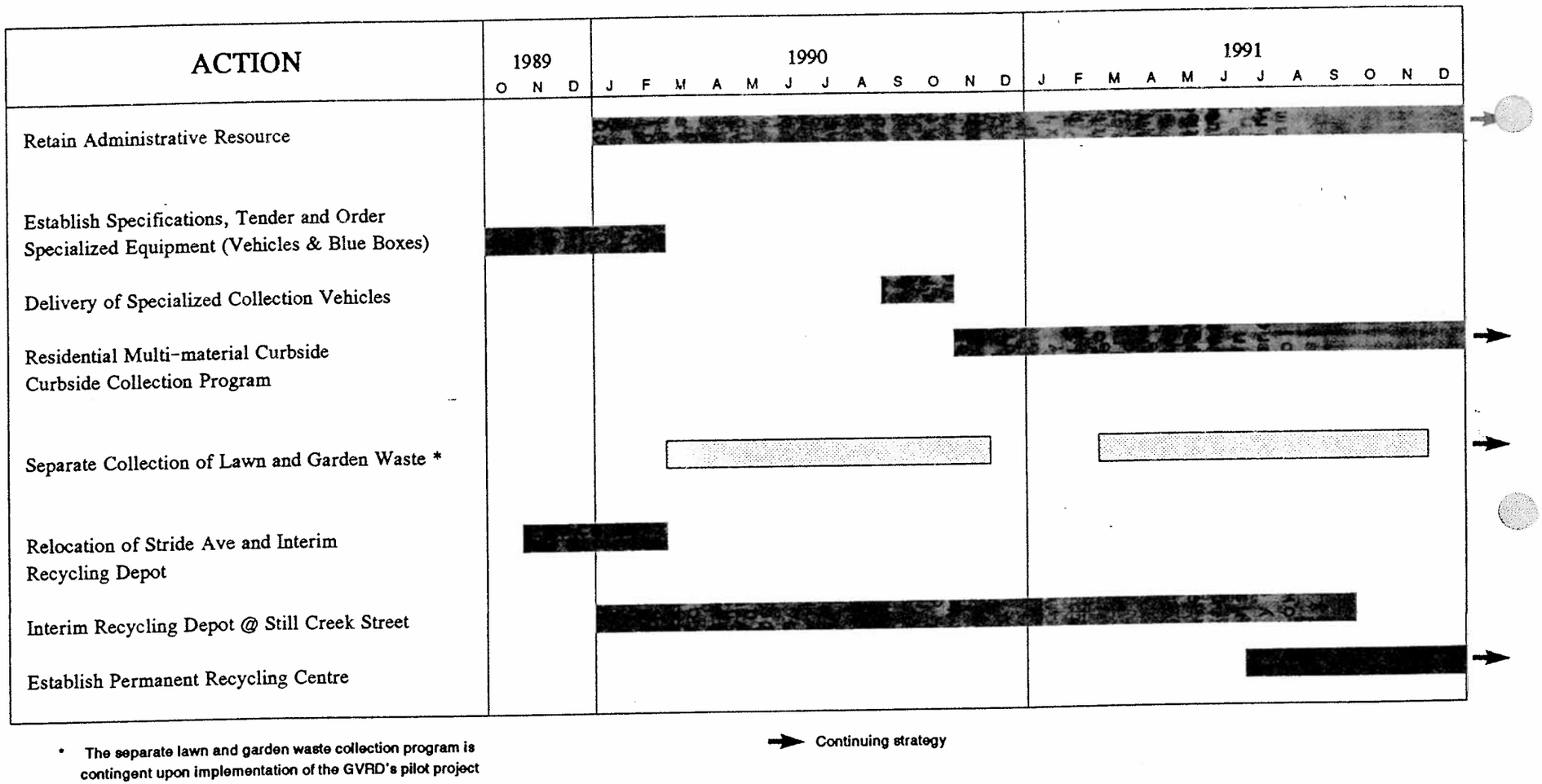
Alderman J.M. Sawicki
Chair

Alderman D.R. Corrigan
Member

Alderman D.P. Drummond
Member

APPENDIX I

BURNABY'S RECYCLING ACTION PLAN



* The separate lawn and garden waste collection program is contingent upon implementation of the GVRD's pilot project

APPENDIX II

RECYCLING PROGRAM - CONSOLIDATED COSTS

1.0 CAPITAL AND START-UP COSTS	
1.1 Vehicles	
2 Vans	$ 34,000
1 Mini Pick-Up	15,000
6 Specialized Collection Vehicles	600,000
3 Upgrading Rear-Loaders	30,000
1.2 Equipment	
40,000 Blue Boxes	260,000
72,000 Paper Bags	39,600
1.3 Start-Up Costs	
Advertising and Promotion	25,000
Blue Box Distribution	15,000
Paper Bag Distribution	10,000
Recycling Depot Relocation	30,000
Administrative Organizational Costs	15,000
TOTAL CAPITAL AND START-UP COSTS	$1,073,600
2.0 ANNUAL OPERATING COSTS	
2.1 Labour Including Benefits	
1 Recycling Coordinator	$ 54,000
1 Foreman	55,000
5 Driver/Swampers	219,000
10 Driver/Swampers (9 Months)	328,500
1 Depot Attendant	40,700
2.2 Vehicles and Equipment (Operational and Depreciation Costs)	
2 Vans	$ 10,000
1 Mini Pick-Up	5,000
6 Specialized Collection Vehicles	216,000
6 Rear Packers	261,600
2.3 Materials	
Blue Box Replacement	$ 26,000
2.4 Other	
Advertising and Promotion	$ 35,000
MMCC Marketing and Processing Recyclables	48,000
Processing and Marketing Compost	160,000
Administration Overhead	86,000
GROSS ANNUAL OPERATING COSTS	$1,544,800

APPENDIX II

3.0 ANNUAL AVOIDED COSTS

3.1 Labour	
6 Driver/Swampers	$ 262,800
3.2 Vehicles and Equipment	
(Operating and Depreciation)	
3 Rear-Loaders	$ 130,800
3.3 Other	
Disposal Costs	$ 658,000
Administration Overhead	58,000
TOTAL ANNUAL AVOIDED COSTS	$1,109,600

4.0 NET ANNUAL OPERATING COSTS

Gross Annual Operating Costs	$1,544,800
Annual Avoided Costs	1,109,600
Net Annual Operating Costs	$ 435,200

APPENDIX III

SOLID WASTE OPERATING BUDGET

Projected Provisional Operating Budget (1)	$5,635,430
Add Recycling Initiatives (2)	1,544,800
Deduct Avoided Costs (3)	(1,109,600)
REVISED OPERATING BUDGET	$6,070,630
Difference (4)	$ 435,200

(1) Reflects the preliminary 1990 Provisional Budget projections based on maintaining current services including:
- -residential/commercial, collection and disposal;
- -container service, collection and disposal;
- -street cleaning;
- -Stride Avenue disposal site operation (site to be relocated).

(2) Reflects the annual operating costs for the four recycling strategies for a full 12 month period - see Appendix II, Section 2.0.

(3) Reflects the theoretical annual avoided costs for a full 12 month period - see Appendix II, Section 3.0.

(4) This figure is the projected budgetary increase resulting from implementation of the recycling strategies over a full 12 month period - see Appendix II, Section 4.0.