A CAPITAL IDEA
ALTERNATIVE APPROACHES TO GROWTH MANAGEMENT
FOR THE CAPITAL REGIONAL DISTRICT

by
SOUTH ISLAND SUSTAINABLE COMMUNITIES NETWORK
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ENDORSEMENTS

“We strongly support and endorse the general goals implicit in A Capital Idea: Alternative Approaches to Growth Management in the Capital Regional District produced by the South Island Sustainable Communities Network, while allowing for the fact that some members may disagree with some of the specifics contained herein.”

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INTRODUCTION

In 1996 the Capital Regional District embarked upon a regional planning process to develop a regional growth strategy ("RGS"). The purpose of the RGS is to:

- avoid urban sprawl and ensure that development takes place where adequate facilities exist or can be provided in a timely, economic and efficient manner;
- promote settlement patterns that minimize the use of automobiles and encourage walking, bicycling and the efficient use of public transit;
- move goods and people efficiently while making effective use of transportation and utility corridors;
- protect environmentally sensitive areas;
- maintain the integrity of a secure and productive resource base, including the agricultural and forest land reserves;
- facilitate economic development that supports the unique character of communities;
- reduce and prevent air, land and water pollution;
- ensure adequate, affordable, and appropriate housing;
- ensure adequate inventories of suitable land and resources for further settlement;
- protect the quality and quantity of groundwater and surface water;
- promote settlement patterns that minimize the risks associated with natural hazards;
- preserve, create and link urban and rural open space including parks and recreation areas;
- plan for energy supply and promote efficient use, conservation and alternative forms of energy; and
- ensure good stewardship of land, sites and structures with cultural heritage value.

Embracing these 14 principles, the South Island Sustainable Communities Network was formed in 1997 to formulate regional strategies for issues affecting, and from the perspective of, local community associations and other organizations. The Network is comprised of community associations, interested individuals, and other groups involved in issues around the Capital Region.

The Network’s first initiative, A Capital Idea: Alternative Approaches to Growth Management in the Capital Regional District was developed in response to the need for innovative alternatives as the foundation for the RGS.
EXECUTIVE SUMMARY

Managing Growth - Managing growth, not adapting to it, is the purpose of the Regional Growth Strategy. The rate of growth must be governed more by the goal of safeguarding the quality of life in the CRD, than as a response to population and growth projections. Many tools exist that can assist local governments to locate appropriate types of growth in appropriate areas. These include the use of urban growth boundaries, nodal development, and nature led design. The challenge is to select the most beneficial combination of these tools for use in each municipality.

Transportation - Consensus exists that new transportation strategies are required in the region. With each household in the CRD paying $803 per year in combined regional/provincial road and road maintenance costs, many citizens are calling for a re-allocation of that infrastructure tax. Demand management strategies and integrated transportation planning can increase the quality of life in the CRD and reduce costs for local governments and taxpayers.

Economic Development - Economic diversification is the foundation for attracting businesses to the region in a manner that can enhance the quality of life in the CRD. Community associations, and some municipalities and neighbourhoods, have already undertaken economic development strategies that can act as the foundation for the regional growth strategy. Supporting small businesses and community economic development can create a healthy regional economy.

Green/Blue Spaces - Protection of natural areas enhances a community's quality of life, preserves tourism values, and protects the local tax base over the long term by decreasing servicing costs and enhancing land values. Implementing the Green/Blue Spaces Strategy is a key challenge to the CRD and member municipalities as it would provide the “natural infrastructure” within which all future
growth in the region would occur. As such, it will also protect and develop those amenities that make the quality of life in the region so high.

Water - The provincial government has required the CRD to explore different options for water management in the region. Maintaining the ecological integrity of the watersheds that supply CRD water should be the foundation for any water management strategy. From that foundation, and by heeding examples from other regions, a comprehensive water management plan for the region is needed. An integral part of that plan is the use of demand management strategies and water conservation measures.

Agriculture - Municipalities can support local agriculture by ensuring the economical supply of water to farming operations. Limiting sprawl and increasing the value of land for agriculture through the use of urban containment boundaries and land trusts can help maintain the long-term viability of agriculture in the CRD. Community markets and other links between farmers and consumers are a key component of the natural amenities treasured by all residents in the CRD, and will raise the profile of agriculture as the backbone of regional food security.

Sewage - A decentralized treatment approach (DTA) can assist the CRD in addressing the regional sewage problem in a cost effective and environmentally sound manner. DTAs small flow sewage treatment technologies can service new developments, as well as some existing sewage sources, thus decreasing sewage volumes into Georgia Straight and reducing the capacity necessary for new sewage treatment facilities. DTA technologies are economically viable for zero-discharge residences, institutional/commercial sites and small communities. More importantly, DTAs reduce consumption of fresh water and conserve the valuable nutrients in sewage for use on land.

Housing - Where people live and the quality of housing are two of the most important determinants of individual and community health. Families and single people seek affordable housing in neighbourhoods that can meet their daily needs of employment, recreation, and commercial activity. Housing developments in the CRD can both enhance the regional vision for protected blue/green spaces, and provide for social and economic self-sufficiency close to home. Secondary suites, greater diversity of housing types, "ecovillages," and cohousing all offer possibilities for meeting development needs while creating livable neighbourhoods.

Governance - All of the above can only be achieved if regional planning is developed in consultation with the whole community so as to draw on community knowledge and generate community cooperation. Public participation, drawing on the knowledge, skills, and wisdom of community residents, is key to the success of any planning and implementation processes. Cooperation amongst municipalities and with Aboriginal communities, as well as increasing the role of community associations in local government decision-making, will lead to stronger governance in the CRD.

RECOMMENDATIONS:

MANAGING GROWTH

1. Plan from the principle that safeguarding the quality of life in the CRD shapes the amount and type of growth;
2. Identify settlement areas for increased density in municipalities;
3. Delineate an urban growth boundary, which includes a clear definition of urban and rural, for the CRD and for areas within each urban municipality;
4. Use development permit fees to discourage sprawl;
5. Identify opportunities for, and require, nodal development;
6. Use density bonusing for resource protection;
7. Formulate flexible regulations that encourage innovative development ideas;
8. Require all development to follow natural features and ecological systems;
9. Plan using performance-based criteria;
10. Implement Social/Environmental Reviews for all development applications over a certain size or with an identified special impact;
11. Explore the feasibility of a transferable development rights program in the region and a two-tier tax system; and
12. Build on the existing monitoring initiative of the CRD by involving citizens in the design and execution of a comprehensive quality of life indicators program.

TRANSPORTATION

13. Integrate full-cost, comprehensive transportation planning into all land use planning decisions;
14. Require transit oriented development;
15. Plan and fund a comprehensive pedestrian and bicycle infrastructure;
16. Develop a demand management strategy for the CRD before increasing road infrastructure;
17. Fund demand management programs to allow them to compete with roadway improvements in overall effectiveness;
18. Create a program to support transportation management initiatives by businesses, such as parking cash out arrangements and transportation management associations;
19. Implement a rail transit system between Victoria and outlying municipalities;
20. Improve transit service;
21. Expand transit capabilities through specialized public and private programs, including university/college and school trip management; and
22. Assist communities to develop traffic calming and other transportation management initiatives.

ECONOMIC DEVELOPMENT

23. Work with existing community associations who offer economic development services in the region to develop an economic development strategy;
24. Identify those sectors that enhance the quality of life in the CRD and attract and retain 'new economy' jobs and workers;
25. Attract those sectors that circulate economic value within the regional economy,
26. Support regional business mentor or incubator programs;
27. Develop a model bylaw for home-based businesses, and assist member municipalities to implement that bylaw;
28. Work with the GVCECD and partners to establish community economic development enterprises;
29. Assist municipalities to attract enterprises that use industrial ecology approaches; and
30. Explore the opportunity for an eco-industrial park in the CRD.

GREEN/BLUE SPACES

31. Develop a permanent inter-municipal and inter-agency program, in partnership with the Provincial Capital Commission, to implement the Green/Blue Spaces Strategy;
32. Establish a specific timeline for securing the greenways infrastructure for the CRD;
33. Conduct an on-the-ground sensitive ecosystems inventory in each municipality, and translate that inventory into ESAs and development permit areas in each OCP;

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34. Develop regional minimum standards for development permit areas, riparian protection, and open space requirements;
35. Adopt the Land Development Guidelines as a development requirement;
36. Develop density bonus and other incentives, where they are needed, for innovative developments that protect natural areas;
37. Assist local governments and staff with information about innovative design standards that decrease road widths, control stormwater naturally, and conserve natural areas;
38. Work with land trusts to protect sensitive areas; and
39. Work with the Ministry of Environment, Lands and Parks to promote landowner stewardship initiatives.

WATER

40. Develop a comprehensive water management plan in cooperation with other levels of government and agencies responsible for water and environmental concerns;
41. Adopt an ecosystem-based management approach to water supply and conservation;
42. Undertake a comprehensive review of the alternatives to dam expansion;
43. Implement a multi-faceted demand management program before using any supply-side options;
44. Develop a conservation-based municipal plumbing code/bylaw for CRD municipalities; and
45. Explore rate restructuring, including increased summer rates and agricultural subsidies.

AGRICULTURE

46. Ensure a long-term economical water supply for agriculture;
47. Involve representatives from the farming community in land and water regulation decisions that may affect water supply;
48. Support farming practices that conserve water, through education and land use regulations;
49. Facilitate farmer’s access to markets, especially farmers’ markets and direct marketing;
50. Examine the opportunity for a centralized, downtown weekly farmers market;
51. Work in partnership with the agricultural community to develop strategies to promote the non-farming benefits of agriculture;
52. Be strong advocates for the ALR system;
53. Establish an urban containment boundary for the CRD;
54. Develop and implement land use regulations that protect farming operations from incompatible neighbouring uses and inflated land values;
55. Examine land trust options, such as those used by the Delta Farmland and Wildlife Trust, and the CRD’s role in the use of land trusts;
56. Adopt the Land Development Guidelines to guide land use in the CRD;
57. Assist local governments to establish agricultural advisory committees;
58. Explore the opportunity to assist with a CRD agriculture week;
59. Support local agriculture education programs already underway in the CRD; and
60. Identify and liberate lands suitable for community gardens in each municipality.

SEWAGE

61. Adopt a precautionary approach to sewage treatment;
62. Promote a decentralized treatment approach for new developments and neighbourhood redevelopment;
63. Support local government requirements for greywater recycling and other innovative design standards to reduce freshwater use and discharge impacts;

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64. Use development cost charges and other local government tools to promote DTA systems;
65. Work with the Ministry of Health to develop regulatory support for small flow alternatives; and
66. Develop a comprehensive retrofit strategy to reduce existing discharges via the central sewage system now in place.

HOUSING

67. Promote developments and redevelopments that enhance the regional vision for the CRD, including transit accessibility, protection of natural areas, and the creation of neighbourhoods;
68. Allow natural features to lead development designs;
69. Promote neighbourhood vitality in all developments, including village centres, traffic calmed streets, local economies, and community facilities;
70. Require a pedestrian and cycling infrastructure in all developments;
71. Plan a greenways infrastructure;
72. Encourage a diversity of housing types to meet the diverse and changing needs of the region, including affordable housing, special needs housing, and seniors housing;
73. Experiment with ecovillages, wherever possible; and
74. Promote other regional goals through development approvals, such as reduced water use through installation of water conservation fixtures and innovative sewage treatment.

GOVERNANCE

75. Facilitate decisions to be made at the level closest to those affected by the decision and by those with the ability to make that decision, including making technical skills available to residents at those levels;
76. Work with all local governments in the CRD to formalize and augment effective consultation with the Aboriginal communities in the region;
77. Continue to develop interjurisdictional coordination mechanisms, especially to implement the RGS;
78. Explore the potential to establish CRD wide and inter-municipal administrative agencies to oversee aspects of RGS implementation, such as the Green/Blue Spaces Strategy and watershed-based management;
79. Increase municipal reliance on, and support for, community associations, including referring all development applications to the affected associations and non-governmental organizations;
80. Include community association members on all municipal advisory committees;
81. Assist community associations to establish community association networks. Rely on and support those networks;
82. Experiment with the use of charrettes and participatory budgeting to involve community members directly in establishing municipal priorities;
83. Examine the feasibility of selectively using referenda to improve the transparency and accountability of local governments;
84. Ensure that the RGS is comprehensive, takes a long-term view, and includes community-defined monitoring programs; and
85. Commit to implementing the RGS in partnership with community associations, the private sector, non-governmental organizations and individuals.
CHAPTER ONE
MANAGING AND BALANCING GROWTH: COMPREHENSIVE COMMUNITY PLANNING FOR THE CRD

Managing growth is a key element in creating sustainable communities. The development of regional growth strategies (RGS) in B.C. addresses this concern, enabling communities to formulate strategies for determining the kind and rate of growth that will contribute to a healthy community, and directing growth to appropriate locations. Having been faced with the issue of managing growth relatively recently, local governments in B.C. can look to tools that have been used in Europe and the United States, in jurisdictions that have been dealing with these issues for decades or even centuries, and choose those that best suit the region and its development issues.

This chapter will identify a variety of successful community planning and growth management tools. Growth is not an ineluctable force. It results from the choices of many people with respect to prices, zoning, amenities, and other factors. The problem is to accommodate moderate growth so that it enhances the quality of life for both present residents and newcomers. Moreover, experience indicates that the quality of life is highest where growth is concentrated in appropriate areas rather than sprawling randomly over formerly open spaces.

1.1 REGIONAL VISION AND RATE OF GROWTH

The fundamental goal of the RGS must be to maintain and enhance the quality of life in the CRD, and to manage growth to that end. High quality of life in the CRD has been defined by communities to include viable agriculture, healthy ecosystems, a diverse economic base, a comprehensive transit system, preservation of the region’s architectural and cultural heritage, and maintenance of vital neighbourhoods. This vision is consistent with recent surveys that show 80% of CRD respondents want a slower rate of growth than is forecast.

The rate and character of growth is not predetermined. Given the demographics of the CRD, with deaths exceeding live births, the growth rate results from individuals making decisions to migrate to and from this region. These decisions depend on an assessment of the benefits and costs of moving. In the end, land and development costs will rise to equalize the advantage of living in any particular place. The challenge is to manage growth so that development is accompanied by affordable housing, significant natural areas, and all the other factors that result in a high quality of life. Certainly the RGS must include population and employment projections, but these can take the form of reasoned forecasts within a range, with the underlying assumptions of the forecasts described for the public. One thing is clear, however; growth must be slower than the present forecast if residents are to implement the careful development strategies needed for a sustainable CRD.
In this context, the challenge for the CRD and member municipalities is to identify:

- what standards and policies lead to appropriate kinds of growth;
- what built-up areas can accommodate greater density by in-filling and neighbourhood redevelopment; and
- what areas are appropriate for new growth.

1.2 Importance of Density

A central theme of this document is the importance of settlement densities for economic, social and environmental sustainability. Increasing density in already settled urban areas in cities and villages reduces urban sprawl and protects agricultural and natural areas. When used in conjunction with an urban growth boundary (see below), it can help preserve the diverse rural and urban character of the CRD.

For example, efficient public transportation requires densities of 20 to 30 units per hectare, and people who live in high density areas use only one third as much energy for transportation as do low density dwellers. In fact, there is an inverse correlation between density and gasoline consumption: as urban densities decrease, gasoline consumption increases. For example, Toronto has 40 people per hectare who use twice as much gasoline as the 60 people per hectare in London or Munich. Likewise, the 12 people per hectare in Detroit and Denver use twice as much gas as Torontonians.

Higher densities are also less costly for local governments. Estimates indicate infrastructure and servicing costs of 70% more for local governments for developments in low density areas than in cities. In addition, denser developments generate 80% more revenues than do traditional suburban developments for local governments.

Denser neighbourhood developments are also better able to support local economic and social centres. In turn, neighbourhoods that offer diverse services encourage people to shop in their neighbourhoods, and to use less polluting forms of transportation. The densest neighbourhoods reduce reliance on automobiles by 75%, compared to suburban settlements. Grouping providers of frequent necessities and common amenities together in accessible nodal centres both conserves resources and creates more vibrant communities.
1.3 Tools for Containing and Managing Growth

Urban Growth Boundaries
In the 1500's Queen Elizabeth I forbade any building within three miles of London's city gates. That line, which created a division between settled and green areas, was the first "urban growth boundary" (UGB). By containing growth within bounded areas, UGBs preserve natural spaces, limit sprawl, and slow the inefficient extension of public services into rural areas. As a proactive tool, they usually involve inter-jurisdictional coordination between the municipalities in a region. This concept is not new to the CRD as the municipality of Saanich has had a UGB for decades, and local groups have been long-time advocates for containing urban areas.7

In B.C., UGBs support the agricultural land reserve system. They create certainty for landowners that land may be developed at either an urban or rural density. On the one hand, they create certainty that rural areas will be preserved; on the other hand, they encourage infill development that can revitalizes older urban areas and increases density in built-up areas. UGBs facilitate coordination between municipalities for design standards such as road widths, planning for future transportation facilities. Finally, they complement community plans as a tool for managing development.5

As of 1992, six U.S. states had legislation enabling the use of UGBs, and many cities and counties had adopted them.9 In BC, the Nanaimo Regional District and member municipalities have adopted a UGB as part of their growth strategy plan. Portland, Oregon established a UGB in the late 1970's to prevent sprawl and protect agriculture and forestry. Growth outside the boundary has decreased drastically, and community development, such as tree planting and replacing a downtown highway with a pedestrian area, has flourished. Even though developments within the UGB have not always taken advantage of the highest allowable density, housing prices have not risen dramatically.10

The regional council in Thurston County, Washington established an urban service boundary to concentrate development and rationalize service provision. Through a voluntary agreement, the member municipalities adopted a common approach and common standards for managing growth and providing public services and facilities, while each jurisdiction continued to control its own land use. As a result, there have been few subdivision requests in rural areas, and few utility extensions have gone beyond the identified growth area.

Development Permit Fees
Local governments can also levy higher development permit fees for developments that fall outside core service areas. In 1993, Lancaster, California instituted an anti-sprawl fee system whereby higher charges are levied for new developments outside service areas. The system was developed and implemented in consultation with developers and others affected by the fees.11

Nodal Development
A nodal development strategy -- where residential, commercial and community amenity uses are clustered in nodes or pockets -- can be applied to new development and redevelopment of existing neighbourhoods. Nodal development facilitates efficient transit and promotes a sense of
neighbourhood. Redevelopment of existing areas can become a key growth management strategy, bringing people near stores, workplaces and transit.  

**Density Bonusing**

Density bonuses enable a municipality to give a developer an increase in the number of units or square metres of commercial space allowed on a site in exchange for her or his providing a public benefit such as special needs housing, daycare facilities or affordable housing. Density bonuses can also be used to encourage developers to protect an ecological aspect of a site. For example, if half of a site is woods or wetlands, a density bonus can be granted so the developer can build the same number of units outside of the woods or wetlands area. Density bonusing is being used by 24 municipal governments in B.C.  

**Regulatory Flexibility**

Strict regulations often discourage environmentally-sensitive and innovative design, especially when the use of such designs lengthens the approval processes. Rigid regulations sometimes do more harm than good. For example, large lot zoning often destroys natural areas needlessly, and wide road widths and parking lot requirements significantly increase the percentage of impermeable ground surface, increasing run off, watercourse pollution, and storm drain requirements. Some regulations affect one element of the environment without considering the ecosystem as a whole. For example, tree protection affects water quality and quantity, while blacktop increases runoff.

Flexible regulations can reduce costs, protect the environment, and foster sustainable communities. Clustered housing preserves open space and requires less servicing. More flexible road widths and parking lot requirements can decrease impervious surfaces and calm traffic (as is done in the Highlands). Parking spaces can be shared between daytime businesses and those operating at night, and requirements for them can be based on typical, not peak, flow data. Stormwater can be managed naturally using grassy swales and gravel packed trenches.

Local governments in the state of Maryland have the power to pass ordinances that encourage environmental design. The State encourages planning boards to approve unusual designs that surpass environmental protection standards. Staff are encouraged to consider innovative ideas where unique cultural or environmental sites are concerned. For example, in developing a historic farm site, the zoning regulations were changed to allow village cluster development so that 50% to 80% of the land would remain open and all wetlands, steep slopes, and other special features protected.

Closer to home, in 1993, the District of Metchosin appointed a commission of community volunteers (the Commission) to make recommendations about development patterns for certain unsubdivided areas. In 1996, the Commission produced an extensive report, including recommendations allowing landowners to submit rezoning applications, without any increase in density over what could be achieved under existing zoning, containing the following features:

- allocation to the municipality of a minimum 25% of amenity lands which are environmentally sensitive and/or needed for public access or enjoyment;
- various sized building lots to provide flexibility in site planning and diversity in residential patterns;
- a road network that is more environmentally sensitive and less costly, allowing routes to fit within topographical and ecological constraints;
- provisions for special rules regarding land uses and set backs, to be incorporated into a bylaw; and
- covenants that could be held by other landowners, the municipality, and/or third party organizations to control uses on subdivided lots.
The District accepted the recommendations in principle, but have been slow to implement them due to a shortage of resources (both staff time and funds) and uncertainties about aspects of the recommendations. A pilot project of 100 acres is now in the planning stages, half of which will be park, and the remainder housing.

As a principle of regional growth strategy, flexible regulations can help local governments define and manage appropriate growth. The CRD can assist them by developing a flexible regulations manual for member municipalities. In Maryland, many counties compile regulation manuals developed by interdisciplinary working groups of business people, lawyers, planners, engineers, builders, developers and community group representatives. The manuals establish minimum standards, and also outline procedures for approving alternative methods of compliance. A key feature of innovative design is that it must be approved on a site by site basis. Proponents are encouraged to consult with local government planners and other interested parties before formally submitting a proposal.

Local governments may also request additional powers to achieve growth management goals through flexible regulations from the Ministry of Municipal Affairs. In 1997, the provincial government gave Victoria, Esquimalt and Sidney the power to designate special areas for intensive urban residential development where neighbourhood character must be preserved. Densification is allowed through smaller lot development, infilling, and redevelopment, but regulations control exterior design, finish and landscaping.

**Nature Led Design**

Nature led (as opposed to engineering led) design refers to planning and design approaches that "favour more creative solutions based on the biological productivity of natural systems, cycling of resources, or demand management to reduce need for new services." Nature-led design principles assist in determining what growth is appropriate for a specific development or redevelopment area. Instead of using traditional development standards such as road widths and drainage methods, nature led design takes site-specific ecological qualities into account. Where there are environmentally significant features, development is typically clustered and more greenspace left open. Ecologically sensitive areas are preserved, and impermeable surfaces are kept to a minimum. Natural features are retained, and hydrological systems altered as little as possible. Using flexible regulations, the possibilities are almost endless.

The basic principles of nature led design include the preservation of intact green spaces and habitat, and water cycling. Through long-term planning and the selective purchase of land, San Francisco has secured a 900,000 acre greenbelt that encircles the urban area with a diversity of farmland, parks, and wildlife habitat. The 234 unit Solomon's Landing development in Maryland was guided by tree
location and root system maps. The developer planned for wildlife habitat, and the site has been certified by the National Institute for Urban Wildlife as one of only 57 urban wildlife sanctuaries.\textsuperscript{21}

Some local governments are now considering nature led design in their approvals process. Through the community plan, the Regional District of Ottawa-Carleton must, where possible, require that development proposals incorporate methods of designing with nature.\textsuperscript{22} Suggested measures include retaining natural vegetation, maintaining natural contours, using natural infiltration and source controls, and natural channel design principles.

**Performance-based Criteria**
Another approach has local governments define what kind of community or ecosystem is desired (the performance criteria), but then adopt a flexible approach with respect to how to achieve their goals. A flexible approach encourages staff, developers, and the community as a whole to help define and locate appropriate growth, and to seek out innovative solutions. When the objective is defined, each site and street can be assessed as to how it contributes to that end as part of the integrated regional/municipal plan. Some jurisdictions call this "performance zoning." Instead of prescribing factors such as fixed lot sizes, performance zoning begins with the landscape, giving general goals that a developer is free to reach in a variety of ways.\textsuperscript{23} In this goal-oriented regimen, which is based on overall performance rather than specific land use rules, environmental protection is assured by carrying capacity standards, and neighbourhood quality is ensured by buffer standards between uses.\textsuperscript{24}

Using performance-based criteria, the whole site is evaluated for maximum development and resource protection, rather than carving up the site and evaluating each lot. Often environmental features such as trees or wetlands are concentrated in specific areas so that the approach can accommodate ecological development constraints.

**Environmental/Social/Economic Evaluations**
Individual projects can be evaluated to determine whether or not they are consistent with regional and community values, as outlined in the RGS and official community plans. Such evaluations consider individual projects in the context of broader community goals, and can assist decision-makers to better determine their real costs and benefits. The Municipality of Saanich has had a social and environmental evaluation process for many years. Each project is given an initial review by staff. If no significant impacts exist, the project may proceed. If potential social or environmental impacts exist, it may be subjected to a more thorough evaluation. The City of Ottawa has a similar process. Under the 1997 Local Government Statutes Amendment Act, local governments will have the power to require project proponents to fund assessments detailing the environmental and social impacts of their proposals.

**Planning Software**
Software programs exist that can model the environmental impacts of changes within a region. For example, "Eco-It", a program from the Netherlands, models resource inputs and outputs from urban communities. Municipalities can purchase this type of software in partnership and use it to coordinate planning and development activities.

**Transferable Development Rights (TDR)**
TDR programs exist in several U.S. states. They involve transferring development rights from one parcel of land (the "sending area") to another (the "receiving area"). The purpose is to direct growth to appropriate areas by transferring rights from ecologically sensitive or agriculturally significant parcels to parcels that are appropriate for development. Once the rights are transferred, the sending area can no longer exercise development rights, and the receiving area may exercise the additional
development rights. Property owners in the sending areas are compensated for the transfer through the TDR program, into which receiving area owners pay for their additional development rights.

The most famous TDR program was established in 1980 in Montgomery County, Maryland. A large outlying area was designated as an agricultural reserve, and a large area within the county’s urbanizing region was designated as the receiving area for the development rights. The program has been a success, preserving more than 43,000 acres of farmland and concentrating development where it can be serviced most easily and economically.

TDR programs are also used to protect water quality, such as in the Lake Tahoe Basin, and to protect fragile ecosystems, such as in the Everglades. In 1994 the Vancouver Charter was amended to specifically sanction the use of TDRs for heritage preservation in limited circumstances. Concerns exist that TDRs may create a right to compensation for loss of development opportunities and usurp some community power to zone. In addition, a TDR program is difficult to create, both politically and technically, and expert guidance is essential. However, a TDR pilot project could determine what benefits such a program might have for the CRD.

**Two-Tier Property Taxes**

Property taxes contain two components, taxing the value of buildings and of land. These two taxes create different incentives and results for development. Australia, New Zealand, Taiwan and Pennsylvania have all shifted the tax base from building values to land values which, in those jurisdictions, promotes more efficient use of land, utilities and other infrastructure, and decreases the pressure of urban sprawl by suppressing land speculation.

High taxes on improvements discourage owners from maintaining, restoring and improving their properties. By contrast, higher taxes on land discourages land speculation, including holding vacant land and run-down buildings. Often land in and around population centres remains vacant or under utilized because the owner is holding out in expectation of higher future prices. Prices rise, pushing development further out into rural areas, using green space and creating municipal infrastructure costs while land is under-utilized closer to urban areas. Property tax reform can create strong economic incentives to develop urban land, while reducing development pressures at the periphery.

The two-tier tax has played a strong role in revitalizing a number of cities in Pennsylvania during a period when the traditional steel and coal mining industries were in a tailspin. It has encouraged high rise construction and densification of downtown areas while limiting sprawl. Parks, infrastructure and services have all been expanded and improved. Taxes on residential property have declined slightly, while taxes on business properties have increased. In Harrisburg (population 53,000), the land tax rate is about 3 times higher than the building tax rate, a situation that is credited with a number of economic improvements between 1982 and 1995. The number of vacant structures fell from over 4,200 to less than 500, 12,500 building permits, representing over $1.25 billion in new investment, were issued, and employment increased by 4,700 people.

As an economic growth management tool for encouraging densification and urban renewal, the two-tier tax is a powerful tool for some cities and countries. While the effect, especially social, of such a tax may differ depending on land assessment methods and demographics in different jurisdictions, such a growth management tool may assist local governments in the CRD to implement the regional vision as set out in the RGS.
1.4 TOOLS FOR MEASURING COMMUNITY HEALTH AND PROGRESS: GENUINE PROGRESS AND SUSTAINABILITY INDICATORS

Community Monitoring
Many cities throughout North America are beginning to use social and environmental as well as economic indicators to monitor the health of their communities. In the process, many are redefining how they measure success. In Victoria, the CRD Roundtable on the Environment recently published a report offering 24 indicators which can help monitor conditions and trends for 13 environmental priorities. This represents a good start towards framing a comprehensive set of indicators to measure social and economic as well as environmental trends.\(^{30}\)

Monitoring community health is inherently a participatory process. It takes input from the community as a whole to define what environmental, social and economic indicators will best assist them and their elected officials in monitoring the health and progress of their community as a guide to effective decision making. Community members can not only help design the indicators; they can also help with the ongoing monitoring which provides data for yearly (or more frequent) "snapshots" of how the community is progressing. These "snapshots" can show how well a regional or community plan, or any other objective, is being implemented, and suggest what adjustments are necessary. They increase awareness of the state of the community and of the changes that are occurring, and provide important information for both government and the community at large.

In recognition of the importance of community indicators, the Canadian Mortgage and Housing Corporation has developed a model to assist municipalities in monitoring the quality of life in their communities.\(^{31}\) The Community Oriented Model of the Lived Environment applies 40 indicators that link quality of life and urban sustainability in municipalities. The Model is a good place from which communities can start to develop regional and site-specific indicators.

The region of Hamilton-Wentworth in southern Ontario has set up an extensive community monitoring program in partnership with the International Council for Local Environmental Initiatives and McMaster University's Environmental Health Program.\(^{32}\) A set of indicators was established to measure the community's progress in achieving the comprehensive community plan, Vision 2020. Results are documented annually in a report card that also details what individuals, businesses, local governments and the community as a whole can do to assist the process.

In Jacksonville, Florida, a citizen's organization has produced a quality of life report every year since 1985.\(^{33}\) Seventy four indicators, in nine categories, outline the historical and current progress towards specific goals. The report also explains the significance of the data, shows the trends over time, and highlights both successes and emerging problems. The report is widely used in the community for educational purposes, and by the local government for planning and budgeting activities. The project has evolved into a partnership between citizens, the Chamber of Commerce, and the local governments in the county.

Perhaps the most widely known community monitoring program is in Seattle. Hundreds of volunteers have dedicated time to design and research an integrated report card on long-term trends in their region. Seattle's "Indicators of Sustainable Community" are the product of a broad and creative community dialogue about a common future. The indicators provide an ongoing information base and guide for community action. They comprise the baseline data from which programs are reviewed and initiated.

As these examples show, measuring progress is not the same as making progress. To be successful, indicators must be used to guide community action.
1.5 Conclusion

Managing growth, not adapting to it, is the purpose of the Regional Growth Strategy. While population and growth projections have been made, the rate of growth must be governed by the goal of safeguarding the quality of life in the CRD. Many tools exist that can assist local governments to locate appropriate types of growth in appropriate areas. The challenge is to select the most beneficial combination of these tools for use in each municipality.

1.6 Recommendations

The following recommendations form the foundation for sustainable growth management planning for the CRD:

1. Plan from the principle that safeguarding the quality of life in the CRD shapes the amount and type of growth;
2. Identify settlement areas for increased density in municipalities;
3. Delineate an urban growth boundary, which includes a clear definition of urban and rural, for the CRD and for areas within each urban municipality;
4. Use development permit fees to discourage sprawl;
5. Identify opportunities for, and require, nodal development;
6. Use density bonusing for resource protection;
7. Formulate flexible regulations that encourage innovative development ideas;
8. Require all development to follow natural features and ecological systems;
9. Plan using performance-based criteria;
10. Implement Social/Environmental Reviews for all development applications over a certain size or with an identified special impact;
11. Explore the feasibility of a transferable development rights program and two-tier tax system in the region; and
12. Build on the existing monitoring initiative of the CRD by involving citizens in the design and execution of a comprehensive quality of life indicators program.

3 Urban Ecology, op cit.
4 MCubed, California at a Crossroads: The Cost of Sprawling Land Use Patterns (San Francisco: MCubed, 1994), as cited in Urban Ecology, op cit
5 Hemson Consulting Ltd., Conventional and Alternative Development Patterns: Phase II Municipal Revenues (Ottawa: Canada Mortgage and Housing Corporation, 1997).
7 See, for example, the work of the Citizens Association to Save the Environment, and specifically Gwen Mallard, Avoiding Strip City on Vancouver Island (Victoria: CASE, 1993).
9 Maryland Office of Planning, op cit.
10 Maryland Office of Planning, op cit.
12 Urban Ecology, op cit
18 Ministry of Municipal Affairs and Housing, Taking Action: Growth Strategies in B.C. (newletter), March 1997
21 Maryland Office of Planning, Achieving Environmentally Sensitive Design, op cit
29 City of Harrisburg, An Economic Profile (Harrisburg, PA: no date).
CHAPTER TWO
HOW WE GET TO WHERE WE ARE GOING:
TRANSPORTATION IN THE CRD

Easy access to many goods, services, and destinations is one of the most important urban amenities. Transportation is crucial to our work, leisure, economy, community and family lives. CRD residents have a plethora of choices about how to get from one place to the other - by car, bus, bicycle, on foot, by carpool, and for some, by boat. Currently, the most common transportation choice is the automobile which can provide increased access in some situations. However, to many, increasing traffic is the primary environmental change presently taking place in the CRD, and the primary challenge for the future quality of life here. The issue is not that cars are better, but that, in the absence of alternatives, car dependence becomes the only option, whatever the cost.

All modes of transportation and our communities are dominated by planning for the automobile. As a result, our region faces growing traffic and parking congestion. Vehicle accidents are the primary cause of death to residents in the 1-39 year age range, and a major cause of death, disability and injury for all ages. Cars are a significant financial burden on households (to pay vehicle costs), local governments (to pay for road and parking facilities), and businesses (to pay for parking facilities and reduced efficiency from traffic congestion). In fact, local governments and communities subsidize each automobile by $2,500 annually. Cars result in reduced travel choices for non-drivers, and particularly for economically and physically disadvantaged people. They degrade the quality of life in neighbourhoods by creating vehicle traffic noise, accident risk and air pollution. Finally, there is significant loss of greenspace to roads and parking facilities, resulting in habitat and watershed degradation. With up to 50% of urban areas dedicated to transportation (primarily automobile) and parking uses, many citizens are calling for equal treatment for all modes of transportation.

2.1 TRANSPORT PLANNING: A LESSON IN AUTOMOBILE OVERUSE

Transportation is seldom an end in itself. Even recreational travel usually has a destination. The ultimate objective of most transportation is "access," the ability to reach desired goods, services and destinations. Motor vehicle travel is simply one method of achieving access, and efforts to accommodate increased motor vehicle traffic volumes and speeds often result in reduced access, particularly over the long term due to land use impacts and reduced travel choices.

Traditional Land Use Planning Promotes Increased Automobile Use
Before the 1950's, development patterns tended to support mixed land uses in which most houses were within walking or bicycling distance of stores, schools and other services. This density and land use mix provided a relatively high level of access for both drivers and non-drivers. In contrast, automobile oriented land use patterns tend to be lower density, less mixed, have greater separations between destinations due to parking requirements, higher roadway traffic volumes and speed, and less consideration of pedestrian and bicycle requirements (including fewer delivery services, which eliminate customers’ need to carry large purchases home themselves). As a result, a dozen errands that require an hour of walking or bicycling in a traditional commercial area require an hour of driving...
between scattered destinations along an automobile-oriented commercial strip. Access, measured in the amount of travel required to reach goods and services, declines due to automobile dependency.

Current transportation planning is not well integrated with regional and municipal decision-making. For example, zoning decisions related to minimum parking requirements are often made without consideration of their transportation impacts. Abundant free parking encourages increased automobile travel. Similarly, decisions about the location of public facilities, such as schools and hospitals, are often based on lowest land costs, leading to more urban fringe development, without considering long term transportation costs to users, communities and the environment due to increased automobile travel.

**The Full Cost of Automobile Use is Poorly Understood**

Just as individual consumers demand to know the full costs of owning and operating a particular automobile before making a purchase decision, a community should be aware of the full impacts that transportation decisions have on long term economic costs, household travel requirements, access for drivers and non-drivers alike, and environmental quality.

An example of the relatively narrow scope of costs and benefits considered in current transportation planning is the omission of secondary costs such as parking. In 1996-97, two lanes were added to the Island Highway between Victoria and the Western Communities to accommodate additional peak period vehicle travel (primarily commuting). A rail transit alternative was rejected because it was projected to cost approximately $50 million more than widening the highway. However, the additional automobile travel associated with the highway will impose additional parking requirements and traffic congestion on surface streets. Taking these costs into account, the transit option can be less expensive. In addition, the transit option accommodates non-drivers, serving a wider range of residents, and addressing equity goals. It also eliminates the stress of driving for many commuters, and provide them with an interval in which to read or converse with fellow passengers.

Since British Columbia produces neither motor vehicles nor petroleum, expenditures on these goods provide relatively few jobs and little economic development compared with other consumer expenditures. According to data from the BC Treasury Board, expenditures on public transit provide three times as many jobs as the same amount of expenditure on automobiles, and seven times as many jobs as expenditures on petroleum.

A more efficient and diversified transportation system is important for our region's economic development. A more diversified transportation system can reduce business rents (due to reduced parking requirements) and improve the quality of life that attracts many small companies to our region. The long term employment and economic development impacts of different transportation strategies have not been evaluated in the CRD, but significant evidence exists demonstrating that increased automobile dependency reduces economic productivity and competitiveness.

**Transportation Planning Favours Increased Roadway Capacity over Other Solutions**

The current transportation planning process overemphasizes vehicle traffic congestion problems, and increased roadway capacity solutions, providing little consideration of other transportation costs or possible solutions. For example, the background information provided at the November 21-22, 1997 Regional Summit indicated that regional planners consider the existing urban area to have no significant transportation problem; the only problem they identified was unacceptable increases in projected traffic congestion in the Western Communities, due to population growth in these
automobile dependent communities. Other economic, social and environmental costs of transportation were ignored.

Another important factor that has been overlooked is the tendency of generated traffic (additional trips that would not otherwise occur) to fill roadway capacity expansions. Because of generated traffic, roadway widening provides only short-term reductions in traffic congestion, and tends to increase total transportation costs over the long term. Our current regional transportation models do not take into account generated traffic (they do not incorporate "feedback" or reactions of drivers to changing conditions). As a result, they overestimate the potential benefits of roadway improvements and underestimate the relative benefits of rail and busway alternatives.

These transportation planning problems identify a need for more comprehensive transportation planning that is integrated with land use planning and a true cost/benefit analysis of automobile dependency in the CRD.

2.2 STRATEGIES FOR IMPROVED TRANSPORTATION PLANNING

More comprehensive transportation planning considers a wider range of problems and impacts, and a wider range of possible solutions. Comprehensive transportation planning (also called "least-cost" transportation planning) gives facility construction and demand management strategies equal consideration. It integrates "full-cost" transportation planning with other issues, including land use (development patterns, location and design of public facilities, zoning, housing policy, etc.), economic development, community safety and environmental quality.

Below are some specific strategies for reducing transportation problems that form the framework for sustainable transportation planning in the Regional Growth Strategy. Most of these programs save money by reducing roadway and parking expenses. All are feasible and cost effective.

Transit Oriented Development
"Transit Oriented Development" or TOD is the name for residential and commercial neighborhoods designed to maximize the efficiencies of public transit, either rail or high quality bus service. Residents in TODs tend to drive significantly less than residents in conventionally designed neighborhoods, resulting in financial savings and environmental benefits.

Regional and local transportation demand management programs
Just as electric utilities can often avoid constructing expensive dams or generating plants by encouraging energy conservation, local and regional governments can save substantial amounts in direct expenses as well as support environmental and social goals by encouraging more efficient use of existing roadways. Provincial and regional financial support for demand management programs is less than support for traditional roadway projects, and only two local governments (the GVRD and the City of Kamloops) have developed travel demand management plans. The Kamloops program is predicted to reduce that city's roadway construction needs from $120 million to $15 million, as well as reducing per capita greenhouse gas emissions by approximately 3%.

Least-cost transportation funding
Transportation funding is biased toward roadway investments. Demand management alternatives receive less consideration and funding which results in increased public investment in, and consumer travel preference for, automobiles. "Least-cost" funding means that alternative programs and projects
are allowed to compete equally with roadway improvements based on total cost calculations and overall cost effectiveness.\(^1\) This creates a level playing field for transportation options, resulting in financial savings and increased efficiency.

**Transit and rideshare improvements**

Many types of transit improvements will benefit the Capital region. Often transit passengers must stand during peak periods, reducing comfort and use. More commuters would be willing to use transit if the service was more frequent, faster and more comfortable. More buses are needed. Roadway improvements can give buses priority over other modes. A rail transit system is justified as the next major transportation improvement between Victoria and suburban areas, in place of highway capacity expansion.

A variety of specialized transit services can be developed, either by public agencies or private businesses. Subscription bus and van services can accommodate commuters from outlying areas. Several van pools operate between Victoria, Mill Bay, and other municipalities. More transit services can be provided to ferry terminals, tourist destinations, special events and recreational destinations. Transit that responds to specific event or trends in demand and private jitney (low rate) services can be developed.

**Light Rail Transit**

Light rail transit (LRT) is a system of modern streetcars and interurban railways. The light rail vehicles rely on overhead power lines, are quiet, and energy efficient. LRT tracks can be installed along existing railway beds or roads, and can share road space with other traffic. Rail travel is also more attractive to commuters than bus travel because it is quiet, runs more smoothly and without exhaust, and is more spacious.\(^2\) LRT systems complement development patterns centred around village cores, and are a crucial element in addressing commuter traffic problems.

While the CRD has questioned the viability of an LRT system for the region, at least three LRT systems built in North America since 1981 operate at up to half the cost of diesel bus systems, especially when measured on a per-passenger basis, and attract 30% to 40% more passengers than the same level of bus service.\(^3\) LRT systems can also be viable for low density cities, as evidenced by the successful C-Train system in Calgary.

The current and extending use of LRT systems in France, Germany, Holland, Belgium, and Austria displays those country’s commitment to transit commuting and reducing greenhouse gas emissions. Decreasing automobile use has released city cores to pedestrians, and a revitalization of downtown businesses and improved community rapport has resulted. For the past 12 years, the members of the Greater Victoria Electric Railway Society have conducted extensive research into, and been strong advocates for, an LRT network for the CRD.\(^4\)

**Car Share Cooperatives**

For those regional trips where a car is necessary, or to have the use of a second vehicle, many individuals are opting to share the expense of owning a vehicle. If a vehicle is not required daily, it is cheaper to share one for local recreation and work uses. In the CRD, the Victoria Car Share Cooperative has been operating for one year, with 48 members and 4 vehicles. Members pay an $400 membership fee, $300 of which is refundable, and are charged on a per kilometre basis for use of the vehicles. This user fee covers gas, insurance, repairs, and all other vehicle costs. The vehicles are

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based in James Bay, with members booking vehicle times in advance. Plans are underway for another cell in Fairfield.\textsuperscript{15}

**Pedestrian and bicycle planning**

Walking and bicycling are among the best forms of exercise. Although many people enjoy walking when it is feasible, and our region has some of the highest rates of bicycle travel in Canada, there is no regional pedestrian or bicycle planning process, and little pedestrian or bicycle planning at the local level. A pedestrian and cycling infrastructure for the CRD is an important part of the Regional Growth Strategy.

**Transportation management associations**

Transportation management associations are organizations supported and managed by businesses in a particular commercial district or mall to provide transportation services such as rideshare matching, transit information and parking facility management.\textsuperscript{16} This structure allows even small businesses to participate in commute trip reduction programs, and allows more efficient use of facilities and resources.

**Parking "Cash Out"**

If an employer offers free parking to employees who commute by car, they can also offer the cash value of the free parking to employees who use other modes, such as transit, car pooling, bicycling or walking.\textsuperscript{17} For example, if an employer currently pays $50 per month to lease parking spaces, with a cash out program they would offer a $50 cash option to employees who do not drive or do not drive alone. This typically reduces automobile commuting by 10-30\%, is more equitable because it provides comparable benefits to driving and non-driving employees, and frees up money that employees can allocate to other transit options.

**Parking management**

A variety of specific parking management strategies can be used to encourage more efficient travel behavior, reduce costs to government and businesses, and reduce environmental impacts of parking facilities.\textsuperscript{18} Local governments can reduce parking requirements for businesses that have travel reduction programs. Employees are encouraged to commute by alternative travel modes, which can reduce automobile commuting by 5-10\%.

Parking requirements can also be reduced for "location efficient" housing.\textsuperscript{19} Residents in certain neighborhoods tend to own fewer automobiles and drive less than residents with more automobile oriented land use patterns. Reductions in parking requirements make housing more affordable and reduce transportation problems.

**Traffic calming**

Many families move to suburban communities to avoid the negative impacts imposed by motor vehicle traffic in urban areas. This is why homes on cul-de-sacs command premium prices. However, these same amenities can be provided by making minor modifications to existing streets which reduce traffic speeds and volumes.\textsuperscript{20} Called "traffic calming", such approaches include different design techniques, offering something for nearly any situation. Traffic calming has proven extremely effective at reducing accidents, improving neighborhood quality of life, and increasing residential property values. Currently, however, few opportunities and little funding exist for implementing traffic calming in Capital Region communities. Cook Street Village, however, provides an excellent example of the beneficial effects of traffic calming on an otherwise fast-moving thoroughfare.
Municipal governments should establish a process by which residents may request traffic calming in their area, and funding mechanisms to allow timely implementation.

**College/University trip management**

Colleges and universities offer many opportunities for increased efficiency in travel management. Although both Camosun College and the University of Victoria have transportation management plans, they are only partly implemented and there is little integration with local or regional planning. By reducing car dependence, parking lots are freed up as space for new buildings, taking pressure off campus green spaces.

**School trip management**

Two generations ago the majority of grade school students walked or bicycled to school. Today, less than 20% do so in most communities. A number of measures can be used to accommodate and encourage more non-motorized trips to school, such as walking schoolbuses. These measures can save costs to parents (reduced automobile use), schools (reduced parking) and communities (reduced roadway traffic congestion, and pollution).

### 2.3 CONCLUSION

With each household in the CRD paying $803 per year in combined regional/provincial road and road maintenance costs, many citizens are calling for a re-allocation of that infrastructure tax. Instead of subsidizing car use, integrated transportation planning can increase the quality of life in the CRD and reduce costs for local governments and taxpayers.

### 2.4 RECOMMENDATIONS

The following recommendations provide a framework for sustainable transportation planning in the CRD:

1. Integrate full-cost, comprehensive transportation planning into all land use planning decisions;
2. Require transit oriented development;
3. Plan and fund a comprehensive pedestrian and bicycle infrastructure;
4. Develop a demand management strategy for the CRD before increasing road infrastructure;
5. Fund demand management programs to allow them to compete with roadway improvements in overall effectiveness;
6. Create a program to support transportation management initiatives by businesses, such as parking cash out arrangements and transportation management associations;
7. Implement a rail transit system between Victoria and outlying municipalities;
8. Improve transit service;
9. Expand transit capabilities through specialized public and private programs, including university/college and school trip management; and
10. Assist communities to develop traffic calming and other transportation management initiatives.
CHAPTER THREE
COMMUNITY ECONOMIES: ECONOMIC DEVELOPMENT IN THE CAPITAL REGION

In this age of corporate globalization, local communities are often buffeted by economic forces beyond their control. The CRD has relied on population growth over the last decade as the major contributor to economic stability. With declines in primary industry and heavy manufacturing, and now downsizing and regionalization of the provincial government, the CRD must promote other activities which bring basic flows of income into the local economy. With a foundation of existing and emergent industries, the CRD must take a stronger role in actively pursuing options for economic diversification, restructuring and renewal. The key is sustaining a locally-based economy with high economic multipliers or value.

We are already well into the shift from a resource based economy to a technology and information-based economy, and the CRD has a number of firms which are competing successfully in the global market place. Even now, many of these businesses are feeling the effects of the growing economic debacle in Asia. We can complement these outward-looking enterprises and improve local stability by encouraging businesses which provide local services or use B.C. resources to make useful products for which there is a market locally as well as elsewhere, or even recycle usable materials which would otherwise take up landfill space. Some of these businesses may be very small indeed, like the 75% of CRD businesses with 5 of fewer employees, but collectively they can provide considerable economic stability. Given this situation, an emphasis must be placed on encouraging smaller-scale enterprises that are locally owned and managed, whether competing in export or domestic markets. Diversity promotes stability in the region. A local currency could also help promote local business, while keeping economic energy recirculating within the CRD.

The most critical “resource” in the CRD is the high quality of life and environment. The retirement industry and the tourist industry are both major mechanisms by which these resources are exported to other regions. The CRD has already shifted towards a technology and information-based economy, and these growth industries rely on skilled employees who are able to choose to work where they want to live, rather than living where they can find work. Promoting such growth industries can not only preserve the quality of life in the CRD, but also improve the cultural environment, such as support for the arts. A successful regional growth strategy (RGS) will also increase the skills of local residents to participate in these new economic opportunities.

In planning for the CRD, economic development approaches that are environmentally sustainable, socially acceptable and economically feasible are needed. Continued economic development through urban sprawl will undermine the short-term gains associated with such a strategy. Like managing growth, the CRD must attract appropriate economic opportunities that enhance the quality of life in the region. A unique opportunity exists to provide economic support to all the innovations that will flow from the implementation of the (RGS).

3.1 ECONOMIC DEVELOPMENT IN THE CRD

Several organizations with well-developed and innovative programs exist in the CRD to assist small businesses and promote regional economic development. These include the Greater Victoria...
Economic Development Commission, the three Chambers of Commerce in the region, and the new Greater Victoria Economic Development Corporation (GVEDC).

**Greater Victoria Economic Development Commission ("Business Victoria")**

Business Victoria is a non profit organization that offers a range of programs and services to primarily small businesses in the CRD. It is funded partly by some municipalities where Business Victoria acts as the economic development arm for those municipalities, and through Human Resources Canada. Programs include the Self Employment Assistance Program to assist those on employment insurance to start their own business, and a Mentor Program that provides training, counselling, and peer support to new entrepreneurs. Business Victoria houses a Business Information Centre that has resources on all aspects of business planning, and the regulatory requirements for businesses. Finally, in partnership with the City of Victoria and Human Resources Canada, it is developing an economic development strategic plan for the City of Victoria. The purpose of the strategic plan is to “develop an economic strategy that facilitates managed growth, diversification, job creation and long-term economic stability for Victoria”.

**Chambers of Commerce**

The Victoria, Peninsula and Westshore Chambers of Commerce exist in the CRD. As a membership organization, the Chambers represent their members interests to government and in the community. Through committees, breakfast meetings and workshops, the Chamber works on a variety of issues. The Victoria Chamber of Commerce has 1200 members, primarily small businesses. Its environment committee is leading the regional discussion about eco-industrial parks, and its home office support team offers networking and information sessions for entrepreneurs who work out of their homes. The Victoria Chamber’s Student Entrepreneur Program involves 2000 students each year in learning about business skills.

**Greater Victoria Community Economic Development Corporation**

The newly formed GVCEDC aims to “improve the social and economic well being of all sectors of Greater Victoria, by facilitating the development of community economic development infrastructure and providing services that will support local community initiatives.” Addressing the alleviation of poverty and unemployment, the GVCEDC aims to assist those who have not traditionally had access to business skills development, financing, or who have an innovative idea that falls outside of the scope of assistance from existing services. It provides education and training in community economic development, hosts an annual conference, and has a resource library. A key element of the GVCEDC is to build partnerships among business, financial institutions, and other organizations to support community economic development ventures. Pacific Coast Savings Credit Union is a member of the GVCEDC, and has assisted in its development and projects.

### 3.2 Strategies for Promoting Regional Economic Development

In keeping with the purpose of the RGS to develop a regional vision, economic development strategies must target and attract those sectors that add to the quality of life in the CRD. A key principle for economic development is for the development of sectors that retain the economic value generated in the CRD, in the regional economy. In this context, the location of businesses will have a
significant impact on regional patterns of transportation and residential development. Coordination is needed among local governments for the citing of economic development initiatives that will have significant regional impacts, for example retail operations and industrial areas. Sound regional development principles must lead municipal efforts to attract new businesses. The strategies explored below are not exhaustive, but build on the work already undertaken in the region.

Regional Business Incubators

Business assistance programs for start-up and fledgling entrepreneurial firms already exist in the CRD. Incubators typically offer their clients a range of financial and professional assistance, from business planning and networking opportunities, to assistance in dealing with financial institutions. Studies by both the US National Business Incubator Association and independent researchers have confirmed that companies who have used incubator services are much more likely to grow into viable job-creating businesses than firms without such support.5

Primary sponsors of incubators include public or not-for-profit organizations, academically-related organizations, or hybrids. Most incubators serve a particular jurisdiction (city or country), but many operate on a regional basis, such as the Center for Enterprise and Economic Development, Idaho, which covers twelve counties. In the CRD, Business Victoria offers a mentor program, akin to a regional business incubator.

Home-Based Businesses

More and more people are telecommuting from home, or running small information-based businesses from their homes. This working arrangement has advantages for those who consult or need to keep overhead costs low, and parents who need to keep flexible work hours. It eliminates the need for daily commuting, and those who work at home impose fewer demands on the regional infrastructure. Home-based businesses also help create more lively neighborhoods and reduce crime, just by being at home. While most municipalities restrict home-based businesses, appropriate businesses that do not adversely affect neighbourhoods can help create more vibrant communities. The CRD can assist municipality's support for home-based businesses by developing a model bylaw and working with municipalities to implement it.

Community Economic Development

Community economic development (CED) is a process by which communities initiate and generate solutions to their common economic problems.6 CED strategies take into account the social, environmental and economic benefits and drawbacks to any venture, the purpose of which is to alleviate poverty and unemployment while creating capacity in communities. As an employment generation strategy, CED initiatives bring together businesses, financial institutions, governments, and social and educational organizations as partners. All over the world, successes ranging from small loan funds to multi million dollar cooperatives point to the value of CED. In Victoria, CED projects have addressed social, ecological, and economic objectives by diverting waste from landfill and providing employment and training to individuals with few business skills.

Women In Need Thrift Stores and the Bent Nail: CED in action in the CRD

The Women in Need Thrift Store was initiated by a group of women who had experienced abuse in their lives. Their desire was to help women leaving transition houses by supplying them with basic household furnishings and clothing. They started the Women in Need (WIN) Thrift Store, which has been a great success. With two stores in Victoria, WIN offers skills training to women, diverts over 150,000 pounds from landfill each year, and contributes more than $1 million to the local community in donations in kind, employment, and other services.7
The Bent Nail, which aims to "put people and materials back to work in Greater Victoria" was initiated by the Victoria Street Community Association. As a used building supply business, the Bent Nail accepts used building supplies from builders and contractors, and re-sells them to the public. Crews also salvage good used supplies from demolition and construction sites. The Bent Nail diverts large amounts of material from landfill and with prices 40% below the retail price of new materials it offers an environmentally-friendly and economical alternative for people doing repairs and renovations. As part of its daily business operations, it also offers training and work experience to people who have been out of the work force for months or years.

**Industrial Ecology**

Industrial ecology is the term for industrial processes that internalize environmental impacts. Instead of using processes that are linear (resource inputs and waste outputs), industrial ecology seeks to eliminate by-products of manufacturing, or create "waste" that other industries can use. Pollution prevention strategies, life-cycle assessments, and dematerialization are all industrial ecology approaches. For example, the CRD awarded a $25,000 Diversion Council grant to Sterling Glass which uses waste from plate glass manufacturers. Diversion Council grants are available to businesses that divert waste from the Hartland Landfill as part of their business operations.

**Eco-Industrial Parks**

With the increasing prominence of information industries and clean technologies, eco-industrial parks offer opportunities for economic development with low environmental impact. The Chamber of Commerce is currently exploring how to have land set aside for, and attract, eco-friendly businesses. The idea is to dedicate land for an eco-industrial park and to develop a set of criteria all business on site must conform to. The criteria may address resource inputs and outputs, the possibility for reuse of materials on site, co-generation opportunities, and greywater recycling in all buildings.

**Local Currency and Trading Systems**

Many communities in North America and around the world have adopted local currencies, some of which have had a very significant impact on the local economy. Individuals and businesses join networks that use local currencies for good and services. Likewise, in local exchange trading systems individuals offer their services and skills to one another. The purpose is to keep economic value circulating within a region. A currency can be minted by a municipality, a business, a non-profit organization or a community economic development corporation. Some local currencies trade only among a small group of people who have joined the system, but in others they are accepted almost anywhere; even some banks accept limited amounts of local currency. Their virtue lies in the fact that they can only be used in the community where they are minted. While it cannot not replace the loony, a local currency can offer a pool of monetary energy which remains in near constant circulation in the community because it does not attract interest when idle and it has no value elsewhere.

**3.4 Conclusion**

Economic diversification is the foundation for attracting businesses to the region that enhance the quality of life in the CRD. Community associations, and some municipalities and neighbourhoods, have already undertaken economic development strategies that can be built on by a regional strategy. Supporting small businesses and community economic development can create a healthy regional economy.
3.5 RECOMMENDATIONS

The following recommendations form the foundation for sustainable economic development planning for the CRD:

1. Work with existing community associations who offer economic development services in the region to develop an economic development strategy;
2. Identify those sectors that enhance the quality of life in the CRD and so attract and retain ‘new economy’ jobs and workers;
3. Attract those sectors that circulate economic value within the regional economy;
4. Support regional business mentor or incubator programs;
5. Develop a model bylaw for home-based businesses, and assist member municipalities to implement that bylaw;
6. Work with the GVCECD and partners to establish community economic development enterprises;
7. Assist municipalities in attracting enterprises using industrial ecology approaches; and
8. Explore the opportunity for an eco-industrial park in the CRD.

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1 Greater Victoria Economic Development Commission, web page information. www.bizvic.com
4 Greater Victoria CED Corporation, information pamphlet.
5 National Business Incubator Association (NBIA); Telephone (614) 593-4331; Ida-Ore Planning and Development Association, 10624 West Executive Drive, Boise, ID 83713; Telephone (208) 322-7033; LENOWISCO Planning District Commission, US 48 421, P.O. Box 366, Duffield, VA 24244; Telephone (540) 829-7450.
7 Women in Need Society, annual report package 1996. 1105 North Park Street, Victoria, V8T 1C7, phone/fax: (250) 480-4006.
8 The Bent Nail, information pamphlet. 870 Devonshire Road, Victoria, V9A 4T6, phone: (250) 386-2332, fax: (250) 386-4500.
CHAPTER FOUR
GREEN/BLUE SPACES:
PARKS AND ECOLOGICAL SYSTEMS
IN THE CRD

Whether strolling along Dallas Road listening to the sea lions call, spending a day at the Sooke potholes, or enjoying the wildflowers and scenic vistas in any one of our extraordinary parks, the CRD is a beautiful place to live. Protected natural spaces, functioning ecological systems, parks, greenways, and natural ocean, lakes and streams contribute to the high quality of life in the CRD. The beauty that we love is also vital to the economy, drawing thousands of visitors each year. Decisions that protect, and ensure the health of, our wild and open spaces also make good economic sense.

In the CRD, the Provincial Capital Commission (PCC) is responsible for greenways (linear parks and pathways like the Galloping Goose which is jointly managed by the CRD). The PCC’s mandate extends to private land stewardship issues, while the CRD is responsible for parks and recreation.

While more than 80% of the CRD is greenspace (including agricultural and forested land), only 5% is in parks or protected areas, a figure that is well below the provincial goal of 12%. A more accurate indicator of the adequacy of natural areas for a growing population is the amount of green space per capita, reported at .59 hectares per person in 1996. Recognizing that our blue and green infrastructure must be planned before other development takes place, the CRD and Provincial Capital Commission undertook to develop a Green/Blue Spaces Strategy, the final document of which is currently in the publication process.

4.1 CRD GREEN/BLUE SPACES STRATEGY

The Green/Blue Spaces Strategy (the Strategy) is a joint effort to understand and identify why regional green space areas should be protected, which regionally significant green space areas should be protected, how protection should be achieved, and who should be responsible for that protection. The Strategy is a vision of cooperative stewardship that integrates the contributions of citizens, landowners, businesses, communities and all levels of government. It is a vision of sustaining the essential nature of the region, of continually creating and protecting a livable and healthy community, and passing on that legacy to future generations. The Strategy details a vision for the green/blue infrastructure in the CRD which forms the basis for all regional and municipal planning. Municipalities and other regulatory agencies are expected to work with communities and the private sector to implement the Strategy.

The Strategy identifies core green/blue areas, corridors, renewable resource working landscapes (such as agricultural and forest land), and valuable remnant ecosystems. Key blue/green space areas include: the Saanich Inlet and green corridor to Juan de Fuca Strait, including the Sooke Hills and the Sooke River and tributaries; Greater Victoria Water District lands; Department of National Defence lands (Rocky Point to Esquimalt Harbour); Mount Work Regional Park to Thetis Lake Regional Park; southern Saltspring Island; San Juan Ridge and the San Juan River estuary; Blenkinsop Lake, Swan
Lake, Elk/Beaver Lake, O'Donnel Creek, and Colquitz Creek; Craigflower Creek; Portage Inlet and the Gorge; and Active Pass and adjacent land on Galiano and Mayne Islands.

The Strategy details how the various levels of government, including First Nations, and community organizations, private landowners and the public can work together to achieve comprehensive green/blue spaces protection for the CRD. A combination of conservation methods and partnerships is envisioned to ensure widespread community and government participation in green/blue space protection. Outlined below are some tools that can be used to ensure that the Green/Blue Strategy is comprehensively implemented.

4.2 LOCAL GOVERNMENTS AS ENVIRONMENTAL STEWARDS

Land use planning is important for the protection of natural areas. As part of the community-wide partnership, local governments can take a lead role in implementing the Green/Blue Spaces Strategy in three ways: by identifying ecologically sensitive areas and dedicating them for protection, by placing controls on planning and development, and by regulating specific activities.

Land use planning
Many endangered ecosystems are located in urban areas, because the coastlines, lowland areas, and valleys that attract people are also prime natural habitats. The CRD recently mapped the sensitive ecological areas of the region and found that 14% of the CRD included in the Sensitive Ecosystem Inventory is unprotected. To relate this regional issue to municipal planning, a comprehensive inventory of all environmentally sensitive areas (ESAs) in each municipality is needed. Accurate inventories include those sites under .5 of a hectare, and use on-the-ground methodology, rather than simply relying on aerial photographs. Saanich is the only municipality to have prepared such an inventory (and which has an Environmental Planner to see that these sites are considered).

Once small and large ESAs are identified, ecologically sensitive areas can be designated as such in official community plans OCPs, and development permit requirements can be attached. The next step is to acquire land through purchase, either by the municipality alone or in partnership with other governments and citizen organizations (see the example of Ayum Creek below). Such lands include watercourses, endangered wildlife habitats, greenways, and shorelines.

The District of Salmon Arm makes extensive use of land use designations for regulating development. In keeping with its goals of preserving the lakefront and promoting economic development, the District has created unique land use categories for the Downtown Waterfront Area. Land use categories include: ESAs; Passive Areas (limited, low impact development allowed); Compatible Light Manufacturing Industry (light, non-polluting manufacturing, such as cottage industries allowed). All land uses are limited by sensitive ecological areas and potential impacts on the adjacent lake.4

OCPs provide a 5 year community vision for municipal planning. To uphold that vision and give more permanence to planning, alternatives to spot amendments are desired. Spot amendments of OCPs, or single amendments that do not take into account the cumulative effects of each spot amendment, can slowly erode the overall planning goals for a community. Spot amendments result in environmental and other assessments on a project-by-project basis while cumulative effects are difficult to assess without reviewing the whole OCP. Growth proceeds on an incremental basis, rather than as part of a community vision. Municipalities can consider making changes to OCPs not more than once each year.

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Regulating development
Many regulatory opportunities exist for local governments to shape development. As part of a comprehensive green/blue spaces strategy, each municipality can use zoning bylaws, Development Permit Areas, and density bonusing for the provision of green space.

The first step in all subdivision and development planning, before streets and lots are laid out, is to identify and protect natural areas. Sensitive areas lead the design. Streets and lots should go around ESAs, and development prohibited adjacent to watercourses, on steep slopes, and in other sensitive locations. Regulations can protect vegetation to control erosion and protect fisheries. In Wallace Township, Pennsylvania, the local government mandated that existing natural areas act as the "organizing principle" for the development.5 Environmentally sensitive areas, greenways links and cultural sites are identified first. Appropriate house sites are then located, and streets and lot lines drawn in last.

Local governments can encourage and require open space developments. This type of development clusters houses to protect green space. Density bonuses can be awarded to developers who build on only a portion of a site to preserve green space. Only 13.1% of the Windsong development site in Langley is built on, although 35% coverage is allowed. The City of Surrey enacted a zoning bylaw that awards density bonuses to developers who set aside at least 15% of a parcel in significant open space, an initiative that has helped develop a riparian linear park system.7 Open space subdivisions, with houses clustered in neighborly groups, can enhance human interaction while leaving 50% to 80% more land for shared open space.8 The extra space means that the owners can often have private garden allotments, as well as shared amenities like orchards and common grassy playspaces.

Municipalities can also enact bylaws protecting wetlands, riparian areas (adjacent to waterbodies), and other ESAs. They can also include all of the environmental requirements for development into one bylaw, such as regulations for tree cutting, soil removal, and thus streamline the development approvals process. The District of North Vancouver was the first to enact such a bylaw. The District requires developers to obtain permits for developments within 30 metres of fish-bearing streams or wetlands. Comprehensive environmental bylaws and regulations for riparian areas are a starting point for all municipalities. The City of Kelowna has designated all 32 kilometers of the shoreline of Lake Okanagan within its jurisdiction as a Development Permit Area, and has adopted 40 policies relating to development and use of the area.

The Land Development Guidelines for the Protection of Aquatic Habitat, a joint publication of the provincial and federal governments, sets out standards for development to help developers and local governments exercise good land stewardship. The Guidelines show how development can ensure continued hydrological cycling; suggestions include a 15 to 30 metre setback to protect wetlands and streams. The Guidelines also describe detailed construction methods that can minimize environmental impacts, and can be adopted into bylaws by local governments.9

Finally, all municipalities can make optimal use of their powers to obtain dedicated parkland when development takes place.10 Developers can be required to dedicate 5% of subdivisions as parkland, or
cash in lieu for purchase of parkland elsewhere. Municipalities, with school board approval, can require an additional 5% for dedication as school grounds. Development cost charges levied on developers can fund the purchase of natural areas and parkland. Municipalities can grant density bonuses for developments that provide additional public land to the community, or that protect natural areas. Local governments can also require dedication of public pathways, drainage easements, and public access to waterfront when such property is subdivided.

With all these tools available, developers often find it easier to use conventional development patterns rather than work with local governments on innovative design. Creative design can lead to delays in the approvals process which cost the developer financially. Municipalities can facilitate innovations by setting standards for open space and other designs that consider environmental features.

To assist in the development approval process, local governments will be able, under the new Local Government Statutes Amendment Act of 1997 (Local Government Act), to require development applicants to fund an assessment of social and environmental impacts of proposed projects.

Regulating other activities
Local governments can also make bylaws regulating tree cutting, soil removal, landscaping, and development requirements near watercourses. When the Local Government Act is brought into force, they will also have the power to limit the percentage of a parcel of land covered by impermeable surfaces (pavement and structures). The Local Government Act and the Fish Protection Act 1997 will give local governments significantly more powers to protect fish habitat and riparian zones on private land.

Light pollution is increasingly common in urban areas. It includes (a) sky glow, which obscures the view of the night sky, affecting not only astronomers but also denying everyone the ability to view and enjoy the heavens; (b) glare, which can cause accidents; and (c) light trespass, which reduces the ability of land owners to enjoy their own property due to unwanted light from neighbouring areas. Estimates indicate that 35% to 50% of light pollution derives from streets and highways. Because light pollution results from casting light where it is not wanted or needed, it involves substantial energy waste and excessive costs to householders and taxpayers. Inappropriate lighting has actually been found to increase crime and vandalism compared with less lighting. The key is to improve lighting design standards. This is fundamentally a regional issue, since failure to control lighting in one municipality adversely affects residents of others. A regional study of this issue, and consensus on common standards to be applied in all municipalities and the highways department, can yield major benefits to residents of all municipalities. Substantial international experience exists on these matters. 

4.3 Strategies to Promote Ecological Integrity

Greenways are "linear parks", such as the Galloping Goose Trail, which can be shared and used by a broad section of community residents. Threading their way along natural features such as streams and ridgelines, or alongside human-made features such as abandoned railroad rights-of-way, greenways offer opportunities for recreation, exercise, wildlife habitat, and enjoyment of nature, as well as being natural routes for travel by foot or bicycle.
Greenways are a series of nodes and links that connect people and communities. Ideally, households are located 10-20 minutes from a link or node which allows residents to walk, and, in some cases, cycle or ride horseback within their community and to neighbouring communities. Links may be simple walking paths with a minimum disruption of the landscape, or more elaborate connectors like the Galloping Goose. Nodes include anything from small protected natural areas (some with viewing stations) to major recreational parks or heritage sites.

The proposed Greenways network anticipates a complete north/south system from Swartz Bay and the Victoria International Airport to downtown, an east/west system from Saanich to View Royal, and a south coast route from the City of Victoria to Metchosin and Sooke. The Green/Blue Strategy envisions the development of inter- and intra-greenways systems as partnership ventures by all stakeholders.

Greenways are an economical option for governments facing shrinking budgets. Due to their linear nature, they have a high ratio of outer edge to total land area. For every dollar spent on acquiring greenways, $5 to $6 would have to be spent for the same amount of outer perimeter in a park. Greenways cannot replace parks, but a greenways system can multiply the value of ordinary parks by linking them together.

The most successful greenways are those that are planned comprehensively and identified as “infrastructure” before development takes place. Greenway areas must be selected and zoned as such in OCPs until they can be fully protected.

*Nature-led Design by Developers*

Traditional urban development often ignores natural features and processes. The usual approach is to change the site to fit the desired development, rather than incorporating the development into the natural system. However, developers are beginning to recognize that it can be profitable to help humans fit into ecosystems, rather than riding roughshod over them. Some innovative developers make good use of natural features when planning communities. The National Association of Home Builders has found that the presence of trees on development sites adds 2% to 17% to their value, and treed properties sell more quickly than non-treed properties.12
Wetlands can be used for natural storm water control, and narrower roads leave more natural areas for trees, grass, and flowers. The Highlands have used this strategy effectively, and the City of Portland, Oregon, has established a "skinny streets" division. Reducing requirements for street dedications can compensate developers for dedicating more open space. Local governments can require natural stormwater control, such as by using grassy swales, and can levy development cost charges for their construction. Instead of paving over natural areas that maintain functioning ecosystems, they can provide beneficial uses for all developments when they are used to help control stormwater.

The Regional Municipality of Ottawa-Carleton has incorporated nature-led design into their official plan.

**Land Trusts**

Land Trusts are non-profit, charitable organizations that work to protect specific pieces of land. They have been used to protect lands that are important for their ecological features such as streams or other special habitat, and to protect agricultural land, urban greenspace, and forests and parks. Land trust organizations protect land in a variety of ways. Sometimes they acquire the land outright as a gift or purchase, but they also hold conservation covenants, restrictive agreements registered against title, which require the landowner to protect certain features of the land. Special legislation allows them to enforce the covenants. Land trust organizations can also work with private landowners in an educational capacity, teaching them how to preserve natural features.

Around the world, the land trust movement plays a vital role in protecting natural areas. In Britain, the National Trust has 1.5 million members, employs a staff of 6000, and owns 1% of all the land in England, Wales and Northern Ireland (including 780 km of coastline). In 1993 it received over $160 million in membership fees and donations. Land trusts are also the fastest growing part of the conservation movement in the U.S. Local and regional land trusts have helped protect more than four million acres of land, and larger organizations such as the U.S. Nature Conservancy (with annual revenues of $270 million) and The Trust for Public Land hold over 7 million acres.

The land trust movement is also hard at work in B.C., as is evidenced by the recent acquisition of Ayum Creek in the CRD and other properties such as Jedediah Island (near Lasqueti) in the Gulf Islands. Groups like the Habitat Acquisition Trust and The Land Conservancy will be playing an increasingly important role in conserving critical lands.

One benefit to land trusts is they offer tax incentives for owners to donate or dedicate lands for protection, and for the public to make donations towards the acquisition of land. Moreover, when trusts are able to raise part of the money by donation, governments are often more willing to top up the necessary funds. For example, when the Habitat Acquisition Trust and Friends of Ayum Creek raised $200,000 privately for the purchase of the Ayum Creek estuary lands, the CRD allocated $150,000, the Sooke Park Commission added $50,000, and the Federal Department of Fisheries and Oceans came up with the final $270,000. Used in this way, land trust are an important public/private partnership mechanism to acquire land.

**Private Landowner Stewardship**

Most ecologically sensitive urban areas will remain in private ownership. Private landowners can play a significant role in protecting ecosystems and natural habitat. Every landowner can practice stewardship by managing his or her own land so as to promote wildlife habitat and ensure continued functioning of natural processes. Homeowner stewardship not only increases owners' pleasure in their land and enhances the ecological values of the whole area, but it also preserves and enhances property values. As such, adequate funding for acquisition and management of parks can be ensured through property taxes.

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One of the most important steps landowners can take is to identify and preserve wetlands and woodlands on their property. They can protect lands around waterways and wetlands by maintaining or restoring the integrity of stream banks and shores. This is especially important where farm animals, humans or vehicles are likely to accelerate bank erosion or damage stream-side vegetation. Reclaimed areas can be replanted with native plants to promote wildlife habitat and soil protection. Chemical fertilizer and pesticide use can be minimized by planting hardy native plants, which also protect streams and wetlands from pollution.

Governments' role in encouraging stewardship is primarily educational. For instance, the Ministry of Environment, Lands and Parks promotes a Naturescape British Columbia program which helps landowners steward their private property. The program shows how habitat can be created in gardens, and how nesting boxes can be constructed to attract ducks, birds, and bats. It offers a wide range of information, including how to use native plants in landscaping. Proactive assistance is also possible. Stewardship representatives from local governments, or from community or land trust organizations can contact landowners and offer to provide on-site assessment and help the landowner design a habitat conservation program for his or her property.

Finally, landowners can protect important habitat on their property by entering into agreements with land trust organizations. If such agreements are registered against the title, they bind all future owners who must abide by the terms of the protection agreement. The land trust organization ensures compliance, and can also assist future owners with habitat protection.

4.4 How do we pay for conservation of natural areas?

Most people agree that more natural areas need to be protected, but the cost of acquiring and dedicating land for parks and other conservation purposes is seen as another fiscal burden on all levels of government. However, working in partnership with community organizations, the private sector and the public, and by using some of the techniques suggested above, governments can help fund widespread protection of natural lands without unreasonable costs.

In 1992, a public survey in the CRD found that 70% of respondents supported an increase in municipal taxes to protect more land in regional parks. To take advantage of this opportunity, the CRD can identify what green and blue spaces local residents are willing to acquire, and act on this demonstrated goodwill.
Sources of funding green and blue space can be facilitated through the provincial government. Eco-licence plates, a tourism tax to help keep B.C. beautiful, preferential taxation for conservation lands, land "set aside" programs for farms and developments, and biodiversity impact fees are all possibilities. In the U.S., gasoline taxes have become a major source of funds for acquiring natural lands. By increasing gasoline taxes, the public subsidy for automobile use (provision of roads, policing and other services) could be partially offset by dedicating funds for natural areas.

Finally, designing with nature and protecting natural features can often result in significant public savings. This is in addition to the value of the region's beauty to residents and to the tourist economy. For example, Johnson County, Kansas, saved $120 million on storm water controls by setting aside $600,000 worth of riparian greenways.19

4.5 CONCLUSION

Protection of natural areas enhances a community's quality of life, preserves tourism values, and protects the local tax base over the long term by decreasing servicing costs and enhancing land values. Implementing the Green/Blue Spaces Strategy is a key challenge to the CRD and member municipalities as it will form the natural infrastructure for all future growth in the region. It will also protect and develop those amenities that make the quality of life in this region so high.

4.6 RECOMMENDATIONS

The following recommendations form the foundation for sustainable green/blue spaces planning for the CRD:

1. Develop a permanent inter-municipal and inter-agency program, in partnership with the Provincial Capital Commission, to implement the Green/Blue Spaces Strategy;
2. Establish a specific timeline for securing the greenways infrastructure for the CRD;
3. Conduct an on-the-ground sensitive ecosystems inventory in each municipality, and translate that inventory into ESAs and development permit areas in each OCP;
4. Develop regional minimum standards for development permit areas, riparian protection, and open space requirements;
5. Adopt the Land Development Guidelines as a development requirement;
6. Develop density bonus and other incentives for innovative developments that protect natural areas;
7. Assist local governments and staff with information about innovative design standards that decrease road widths, control stormwater naturally, and conserve natural areas;
8. Work with land trusts to protect sensitive areas;
9. Work with the Ministry of Environment, Lands and Parks to promote landowner stewardship initiatives.

2 Westland Resource Group, ibid
3 Westland Resource Group, ibid
4 District of Salmon Arm and Fraser River Action Plan, Tools and Techniques for the Protection of Environmentally Sensitive Areas (Salmon Arm: District of Salmon Arm, 1997).
7 Calvin Sandborn, Green Space and Growth: Conserving Natural Areas in B.C. Communities. Commission on Resources and Environment, Wildlife Habitat Canada, Fisheries and Oceans Canada, Ministry of Municipal Affairs and Housing (Victoria: Commission on Resources and the Environment, 1996).
8 Sandborn, op cit.
9 Department of Fisheries and Oceans and Ministry of Environment, Lands and Parks, Land Development Guidelines for the Protection of Aquatic Habitat (Victoria: Department of Fisheries and Oceans and Ministry of Environment, Lands and Parks, 1995).
10 Sandborn, op cit
18 Sandborn, op cit.
19 Trust for Public Lands, Healing American Cities (San Francisco: Trust for Public Lands, 1994).
CHAPTER FIVE

WATER WATER EVERYWHERE?:
WATER SUPPLY IN THE CRD

While citizens of the CRD complain about too much rain, the region is said to be facing a water supply problem. Population growth rates have caused the Regional Water District to make high projections about future water needs, and the proposed solution is to raise the Sooke dam. At the same time, CRD residents and businesses are among the most profligate water consumers in the world. Canadians as a whole use more water per capita than any other nation except the US. CRD residents use about 30% more water per person (545 litres/day) than the average person in Seattle.\(^1\) Fully 25% of the water used in the region is for outdoor purposes such as watering lawns.\(^2\) Experience from other communities suggests that attention to conservation and new efficient technologies can allow the CRD to avoid the supply-side solution of expanding the water supply.

Despite the evidence of excess usage, no requirements for the use of water efficient technologies exist in the federal and provincial plumbing codes, nor do any local governments pursue a demand-side management approach to reduce the demand for water, rather than increasing supply. Neither is the provincial government, one of the biggest users of CRD water, taking the lead either. For example, the new Jack Davis Building, owned and operated by the provincial government, has specially designed water cooled air conditioning that uses 11.5 million litres of water/year. This amounts 0.02% of the total annual CRD water consumption, for just one office building.\(^3\)

To address water supply problems, municipal management in Canada has traditionally focused on increasing water supplies to meet industrial and domestic demands. Greater demand has been met by adding to water and waste water infrastructure. However, the cost of expanding water delivery systems rapidly escalates as more distant and expensive sources are tapped. This is accompanied by detrimental impacts to water quality, fisheries, ecosystem health and water quantity which are not then reflected in the price to consumers. As the Canadian Council of Ministers of the Environment has recognized, this approach to water management is no longer affordable.\(^4\)

5.1 CRD WATER SUPPLY PLANNING

Concerned about meeting the increased demand for water consumption and the high rates of growth projected for the CRD, the regional water district (previously the Greater Victoria Water District) hired engineering consultants Dayton and Knight to develop a long term water supply plan in 1991. The consultants recommended meeting the projected demand by raising the Sooke dam and increasing the capacity of the Sooke Lake Reservoir.

The proposal to heighten the Sooke dam raises many issues. Risks to water quality from land clearing and flooding exist with a third raising of water levels. Flooding of the CNR railbed and Highway 117 could well create a methylated mercury pollution problem,\(^5\) and also lead to nutrient inputs and algae blooms in a nutrient sensitive lake.\(^6\)
The plan is based on high projected rates of growth, and high per capita water consumption of 590-680 litres/day, far above the national average of 350 litres/day. Ironically, to recover the construction costs, pressure to maintain a high rate of population growth and water consumption would be created. The plan fails to consider many technological opportunities and initiatives in water efficiency and demand management programs that could be implemented prior to and/or instead of supply expansion. Finally, the supply plan was designed in isolation of sewage, waste water and watershed health issues that are directly linked to water supply.

In response to these concerns, and because of the intense public opposition to raising the dam, the provincial government appointed a special commission to examine this issue. The Perry Commission made sweeping recommendations for water management reform in 1996. The provincial government agreed with many of the recommendations and has required that:

- all activities related to raising the Sooke dam be deferred until additional studies are undertaken by the new Water Commission;
- a public process be put in place prior to making a final decision on raising the dam; and
- a region-wide water conservation initiative be implemented.

To date, the regional water district has not undertaken an independent examination or evaluation of demand-side or water conservation options. A coordinated water management strategy involving regional, municipal and provincial agencies is necessary to ensure cost efficiencies, resource protection, and environmental health for all aspects of water supply, use and disposal. Water supply expansion decisions should result only in the context of a comprehensive water management strategy, developed in conjunction with the regional growth strategy (RGS). The public RGS process will identify real water needs and provide a mandate based on public priorities and values to the regional water district.

### 5.2 An Ecosystem-Based Approach to Water Management

In recognition that land use activities significantly affect and cannot be isolated from watershed functioning (how and where water flows), water utilities are increasingly taking a watershed or ecosystem-based approach to water management. Such an approach seeks to retain ecological integrity through sensitive land use planning and development practices. Water management decisions respect watershed conditions, such as water cycling and biological functioning, with the emphasis placed on protection and enhancement of the resource.
For example, the American Bureau of Reclamation has historically been known as the builder of big dams and diversion projects, and is the largest supplier of water in the western US. Over the last five years however, the Bureau has begun a fundamental shift in its philosophy of water management, recognizing the tremendous impacts on natural water courses, habitat and ecosystem function as a result of its supply-oriented infrastructure. It is also beginning to recognize that negative effects to watersheds and hydrologic functions could actually jeopardize the health and continued functioning of ecosystems. The Bureau's new philosophy now embraces efficiency, demand side management and recycling.

This new approach is not unique to the Bureau. Demand management has become a widely pursued and successful option for many North American cities faced with increasing demand on water supply. Demand management is often not just cheaper than supplying more water, but has beneficial side effects. It reduces energy use, the cost of water treatment, the cost of operating the water system, and demand on sewage treatment facilities. It also has lower social and environmental impacts. As a result, water conservation is fast becoming a cornerstone of many long term water plans.

5.3 Everyone Wins with Water Conservation: A Case Study

In 1989, consultants advised officials in Ashland, Oregon that their local water supply problem could be fixed by damming Ashland Creek at a cost $11 million. For a city of 20,000, this was a considerable expense. Based on successes with water conservation from other regions, Ashland pursued a second conservation option. The city approved a program that cost $825,000, one twelfth that of the dam program, in the spring of 1992. By July, the water department was conducting home water audits and issuing rebates for efficient toilets and showerheads.

By 1995, Ashland residents were saving 134,000 gallons a day and right on schedule for meeting the town's goal of saving 400,000 gallons per day by the end of the decade. The program is actually costing less than expected as water-efficient technologies have become cheaper. Meanwhile, the cost of the dam option has risen. By 1992 its price had risen 10%. The water department also believes that had Ashland proceeded with the dam, the city would have had to charge so much for water that customers would have voluntarily curtailed their use—a "death spiral" scenario in which the dam, once built, would render itself unnecessary and unrepayable.

Water savings and a freely flowing Ashland Creek are not the end of the story. Ashland's program saves residents more than 500,000 kilowatt-hours a year on water heating and reduces wastewater treatment volume by 43 million gallons annually.
The scale of the water issue in the CRD is much larger than that experienced in Ashland. However, this example demonstrates the range of benefits available through a demand-management option.

5.4 The Benefits of Water Conservation and Demand Management

Water conservation programs can be implemented without impact on the level of services or quality of life in the region. Demand management reduces and delays capital costs of water supply expansion. Most conservation measures have a payback period of 3-5 years, and conservation programs cost significantly less than capital intensive programs. Such programs also reduce energy use in water heating and the operating costs of water supply and waste water treatment facilities. Public water, sewer and energy bills are also reduced, and environmental impacts minimized. This includes the protection of watershed features and functions. The key to a water conservation strategy in the CRD is flattening the peak demand in the summer when only a low supply of water is entering the system.

5.5 Water for People, Fish and Streams: Strategies for Improved Water Management Planning

Strategies available to the CRD include consumer-based programs (targeting the end-users) and utilities-based programs (targeting the water supply system). Residential water use represents 70% of the total water consumed in the CRD. Reduced domestic use is a major component in an efficient water conservation program. Successful efforts to curb domestic water use include a combination of economic incentives, regulations and public outreach programs to promote the use of water saving technologies and behaviours. Common measures include installing water efficient household fixtures, fixing leaks, making outdoor watering and landscaping more efficient, and correcting wasteful water habits. Utility-based programs include reduced water pressure, leak detection and repair, metering, and improved rate structures.

Technical improvements to plumbing fixtures
Potential exists to reduce water consumption in the home simply by making technical improvements to plumbing fixtures. For example, replacing a 20 litre flush toilet with an ultra low volume (ULV) 6 litre toilet represents a 70% reduction in the amount of water flushed and will reduce indoor water use by about 30%. At 20 litres per flush and assuming at least 4 flushes per day, each household could save over 21,000 litres of clean fresh water each year by using low flush toilets. Low flush toilets are readily available in Victoria and retail for between $80 and $180.

After toilets, showers and baths consume the largest amount of water in the home. Low flow shower heads can reduce the water flow by 50% without effecting shower performance. Likewise, efficient faucet aerators can save 3-5% of total indoor water use. In addition, front loading washing machines use 40% less water than top loading.

Fixing leaks is another technical solution to water waste. A leaky toilet can waste an average of 3,050 litres (750 gallons) of water per month. A leaky faucet can waste an average of 1336.5 litres (300 gallons) per month. An American Water Works Association Study showed that toilet leakage of 109 litres (24 gallons) /capita/day is not uncommon in multi-family housing.
Finally, the other technologies such as composting toilets, greywater reuse, and local sewage treatment systems can all reduce water consumption (see Chapter 7 on sewage).

**Landscaping/Gardening**
Grasses require large amounts of water to keep green, especially in the low-supply summer months. In the CRD, outdoor watering accounts for a staggering 25% of residential water use, a figure that is 5% in the rest of Canada. Choosing vegetation that is native to a particular area over grasses will reduce water use significantly while providing suitable food and shelter for insects, birds and amphibians. Outdoor watering conservation measures include the use of timers, water gauges, cycle irrigation, drip irrigation and subsurface trickle irrigation. Many grasses are not harmed by drying out and dry grass needs little mowing. Efficient landscaping measures include limiting grass areas, improving soil conditions, mulching, and planting low water use plants.

**Water Infrastructure Operation and Repair**
Many operating and upkeep opportunities exist for the water supply system to reduce water waste. Over pressurized water systems can result in inefficient use and faster leaks. The most efficient pressure within the lines is 50-60 pounds per square inch. Finding and repairing system leaks is beneficial, especially in older cities. As urban water systems deteriorate because of age or inadequate maintenance, water can be lost through broken pipes in the distribution network. Up to 15% of the water in the CRD distribution system may be lost to leakage and old infrastructure.

**Plumbing code by-laws**
Potential exists to reduce water consumption in the home by 40% or more with little or no effect on lifestyle, simply by making technical improvements to plumbing fixtures.

The BC government has not implemented its commitment to develop a provincial plumbing code by 1996. However plumbing codes can be developed under the Municipal Act. In spite of requests from citizens for municipal by-law changes that enforce water efficient plumbing, no local governments have addressed this issue. In light of the Perry Commission recommendations, an opportunity exists for municipalities to take a proactive approach in this area.

**Rate structuring and metering**
Rate structuring and metering can encourage customers to use less water and avoid waste. In the CRD, only single family homes and townhouses are metered. Multi-family dwellings and condominiums are not metered, and water rate structures (the cost of water) are too low to encourage efficient use. Metering all consumers and structuring rates on an increasing block structure would encourage conservation. To make higher rates more palatable, customers must also be provided with information on how to use less water. Compass Resources Consultants identified several pricing opportunities available for implementation within the CRD. Changes in prices must make allowances for agricultural uses.

**True or Incremental cost pricing**
Pricing must reflect the true cost of supplying water. Pricing based on an increasing block structure can encourage conservation and ensure equity as those who use the most water pay for it. Such a rate structure can subsidize households for a low rate of consumption equal to basic needs while recovering full incremental costs of supply and distribution for consumption over that level. Allowances for agricultural uses must be made in this type of structure.
The use of marginal or incremental cost pricing raises the strong case for seasonal water pricing. Increased storage is needed only to handle high summer water demand. A higher subsidy for agriculture would be required, but higher summer rates can reduce water consumption.

**5.6 CONCLUSION**

The provincial government has required the CRD to explore different options for water management in the region. The ecological integrity of the watersheds that supply water in the CRD is the foundation for any water management strategy. From that foundation, and by heeding examples from other regions, a comprehensive water management plan for the region can be developed. An integral part of that plan are the use of demand management strategies and water conservation measures.

**5.7 RECOMMENDATIONS**

The following recommendations form the foundation for sustainable water planning in the CRD:

1. Develop a comprehensive water management plan in cooperation with other levels of government and agencies responsible for water and environmental concerns;
2. Adopt an ecosystem-based management approach to water supply and conservation;
3. Undertake a comprehensive review of the alternatives to dam expansion;
4. Implement a multi-faceted demand management program before using any supply-side options;
5. Develop a conservation-based municipal plumbing code/bylaw for CRD municipalities; and
6. Explore rate restructuring, including increased summer rates and agricultural subsidies.
4 Canadian Council of Ministers of the Environment, National Action Plan to Encourage Municipal Water Use Efficiency (Ottawa: Canadian Council of Minister of the Environment, 1994).
7 Dayton and Knight Ltd., Greater Victoria Water District Long Term Supply Plan (Vancouver: Dayton and Knight, 1994).
9 Perry, op cit.
12 Rocky Mountain Institute, op cit.
13 Rocky Mountain Institute, op cit.
15 Westland Resources Group, op cit.
16 Rocky Mountain Institute, op cit.
17 Rocky Mountain Institute, op cit.
18 Rocky Mountain Institute, op cit.
19 Westland Resources Group, op cit.
20 Rocky Mountain Institute, op cit.
22 Rocky Mountain Institute, op cit.
23 Berry et al, op cit.
CHAPTER SIX

FROM FARM TO COMMUNITY:
AGRICULTURE IN THE CRD

Food is essential to the survival of any community. Farming is a fundamental pillar of environmental, economic and social sustainability. Farmland is appreciated for its open space, attractiveness, and contribution to a sense of community. Local food production provides a diversified food source in the region, and decreases dependency on foreign food supplies. Both local governments and citizens of the CRD recognize the importance of agriculture in all its aspects, and ensuring the viability of local farms is one of the objectives for the Regional Growth Strategy.

The CRD is located in an area with some of Canada's best soils, and one of the most favourable climates for agriculture. Significant agricultural lands provide an important seasonal harvest for the region. However, farmland in and near urban areas is increasingly threatened. While farmland is protected by the Agricultural Land Reserve (ALR), the pressure of development is constant and continually encroaching on agricultural land. Development brings increased traffic, noise, odour complaints, farm fragmentation, loss of farm infrastructure, trespass, and vandalism problems. Speculation on ALR land raises prices to levels far beyond agricultural values, and makes farming unprofitable, by comparison. Municipalities face development pressure even as they try to protect agricultural land and community gardens.

Finally, buffeted by changes in international supply and pricing trends, labour costs, distant supermarket sourcing, uncertain and costly water supply, and the vagaries of climate, agriculture in the CRD faces uncertain viability. The issues are very complex, and spread beyond the bounds of the CRD. This chapter will outline the issues facing agriculture in the CRD, and to explore how the community can support local agriculture.

6.1 CURRENT STATUS OF LOCAL FARMING

The total CRD encompasses 16,000 hectares of agricultural land, with 6,400 of that located on the Saanich Peninsula. Population growth and changing land use patterns are having a significant impact on the area. Population in the Peninsula has increased 26% in the last ten years and future growth is projected to be between 34-42%. Many farms also exist in the Western Communities, and a higher percentage of the agricultural land in that area is farmed than in Saanich. Balancing the pressures of growth with the needs of a vital farming community is a key challenge.

Agriculture in the CRD is worth $33 million annually, with high direct local employment. The local popularity of organic methods of production also favour small, labour-intensive farms with opportunities for youth employment.
Area in the Agricultural Land Reserve (ALR) and Farming in CRD Planning Area

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Hectares of ALR Land</th>
<th>% of ALR in Farm Use</th>
<th>Number of Farms</th>
<th>Average Hectares per Farm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saanich</td>
<td>1,880</td>
<td>84%</td>
<td>275</td>
<td>5.7</td>
</tr>
<tr>
<td>Central Saanich</td>
<td>2,980</td>
<td>78%</td>
<td>180</td>
<td>12.9</td>
</tr>
<tr>
<td>North Saanich</td>
<td>1,570</td>
<td>43%</td>
<td>67</td>
<td>10.1</td>
</tr>
<tr>
<td>Total Peninsula</td>
<td>6,430</td>
<td>71%</td>
<td>522</td>
<td>8.8</td>
</tr>
<tr>
<td>Western Communities</td>
<td>1,367</td>
<td>94%</td>
<td>117</td>
<td>11.0</td>
</tr>
<tr>
<td><strong>Total CRD</strong> (excluding Gulf Islands)</td>
<td><strong>7,797</strong></td>
<td><strong>75%</strong></td>
<td><strong>639</strong></td>
<td><strong>9.2</strong></td>
</tr>
</tbody>
</table>

In recognition of the forces affecting agriculture, the Peninsula municipalities, in partnership with area farmers, the Agricultural Land Commission and the federal and provincial Ministries of Agriculture, formed the Saanich Peninsula Agriculture Steering Committee in 1996. One of its purposes was to develop a set of solutions to preserve and enhance agricultural sustainability (the Peninsula Strategy). The Peninsula Strategy is based on the principles of a “sustainable farm community”, defined as “a profitable, competitive, independent and responsible steward of farmland and the environment that strives to meet the needs of our community today while safeguarding the capacity and capability for future generations”. To this end, the Peninsula Strategy addresses five objectives:

- to secure a long-term, affordable supply of water for irrigation;
- to increase the economic returns to Saanich Peninsula farmers;
- to enhance the sustainability of the agricultural land base;
- to practice environmental stewardship; and
- to educate the public about the strategic importance of supporting and sustaining farming.

The Peninsula Strategy has been widely accepted in the farming community as an excellent starting point for long-term agricultural planning. As a result, the District A Farmer’s Institute Board, representing all farmers institutes on Vancouver Island, the Gulf Islands, and Powell River, are developing an agricultural strategy for Vancouver Island. The Vancouver Island Agriculture Survival Forum, held on March 31, 1998, commenced the process.

The agricultural community in the CRD appreciates the funding contributed to the Peninsula Strategy by the Peninsula municipalities. Both the municipal support for, and content of, the Peninsula Strategy provide a model for planning for sustainability on a district-by-district basis for the whole province. Adapted to a regional perspective, the Peninsula Strategy objectives and recommendations should also form the foundation for viable agriculture in the CRD.

**6.2 Secure a Long-term, Affordable Supply of Water for Irrigation**

The long term availability of good quality, reasonably priced water is of critical concern to the agricultural community. High prices can render agriculture unprofitable, and pollution of ground and
surface water sources can make it impossible to farm. In Metchosin, water expenses from the regional system are farmer’s third largest expense. Charged on a consumption basis, the CRD agricultural community pays an average of 13 times that assessed in other districts. For many farmers, alternatives to the regional water supply system, from creeks to groundwater sources, are not available. Farmers, therefore, have a high stake in a comprehensive water policy, including, for example, policies affecting sewage treatment which could produce irrigation grade effluent. (see Chapter 5 on water supply and Chapter 7 on sewage treatment)

In addition to a focus on demand management, the agricultural community has outlined provincial and regional strategies to support water needs for farming. While water pricing and availability affects everyone in the CRD, water for agriculture supports an especially important community. The total average annual household water consumption is 88% greater than the annual requirements for irrigation. Involving representatives of the farming community on boards and committees making water pricing and supply decisions can assist in safeguarding this amenity.

At present, land use planning decisions are not evaluated for cumulative impacts on water quantity and quality. Increasing percentages of impervious surfaces in a watershed affect water flows and groundwater aquifer recharge. The effect of land use development on water quality and supply can be evaluated, and growth directed appropriately. CRD involvement in documenting and taking a more active role in ground and surface water allocation and supply can help safeguard water quantity.

With the support of the provincial Ministry of Agriculture, many farmers are now adopting water efficient techniques such as drip irrigation. In addition, the growing trend in organic farming operations promotes soil water retention techniques such as mulching and cover cropping. A special water rate for agriculture, whether a discounted rate or one based on the number of hectares in production, can be set in such a way as to encourage both production and conservation.

6.3 INCREASE THE ECONOMIC RETURNS TO CRD FARMERS

While CRD farmers face cheaper foreign produce and rising labour and water costs, products grown regionally are fresher, and much of it can be grown organically. Moreover, a regionally-based food system cuts transportation costs (and associated fuel consumption and pollution), bolsters the local economy, and promotes greater regional food self-reliance and security.

Local agriculture has tremendous potential with respect to local market share. Current production does not even remotely meet the demand. Recently the provincial government has encouraged support of local farms through direct farm marketing initiatives, Buy BC labels, and signage to farms that market directly to the public. In 1994 the province enacted legislation for organic food certification and accreditation programs to standardize organic practice requirements. This market has grown 25% annually.

Of primary importance to local producers is enhancing access to markets. This includes improved signage identifying direct farm marketers, "brown box" programs, and local government support of community farmer’s markets. Brown box programs are run by individual farms whereby, for a set price, customers each week receive a box of, when possible, locally grown produce (usually organic).
These programs provide a steady income for local growers, allow customers to eat local products in season, and support regional food security.

Community markets support the local economy by providing an opportunity for farmers, backyard growers, crafts people and artisans to sell their products directly to the public. These markets also help to strengthen the community by providing an enjoyable place for families and individuals to meet the producers, to learn about the source of products, and to meet and mingle with their neighbours. Several community markets in the CRD exist, including those in Ganges (a well known tourist attraction), in Metchosin at the Municipal Grounds, in Langford on Wednesday afternoons, the Moss Street Market in Fairfield (selling only organic produce), and a new one in Sooke. A centralized retail venue for buying local farm goods in downtown Victoria could also assist farmers in the CRD to sell their products, most easily from the tailgate of their trucks. In Kamloops, every Wednesday and Saturday a street is blocked off for a successful farmers market. Supporting such markets requires very little infrastructure but benefits growers, consumers and the whole community as a social and educational, as well as nutritional, event with farm folk and city folk. All that is really needed is cooperation from local governments to provide the venues and necessary permits.

Acknowledging farming’s non-agricultural benefits can open up other economic opportunities. Strategies may exists to determine the economic contribution of agriculture to the social, economic and environmental well being of the community at large. This includes exploring the value of aesthetic rural landscapes, rural residential lifestyles, tourism, and biological waste disposal options. Opportunities also exist for “agri-tourism,” and bed and breakfast operations.

6.4 ENHANCE THE SUSTAINABILITY OF THE AGRICULTURAL LAND BASE

The threat of urban sprawl is highlighted by the recent controversy over the conversion of agricultural land in Kamloops for commercial development. The ALR is the fundamental pillar to preserving agricultural and open-space values. Land use planning for the urban fringe impacts directly on the viability of agriculture. Uncertainty over the future of the ALR encourages land speculation. If growth continues to promote sprawl, pressures on farm land will continue to build. With fewer youth entering farming, and significant tracts of agricultural land already owned by non-farmers, strategies are needed to ensure that farmers have access to an adequate and long term supply of land at a cost commensurate with farm values.

Reducing urban sprawl is the key. Drawing an urban containment boundary around urban areas can create certainty for agriculture. A boundary decreases land speculation in rural areas and separates often conflicting uses, such as residential and working farms. Farmers maintain their proximity to urban markets, but without conflicting residential and farming uses. Adequate buffer zones between rural and non-rural neighbourhoods can decrease both development pressures for agricultural land and complaints about normal farm operations due to odours and noise. While the Farm Practices Protection Act addresses some of these problems, it does not offer comprehensive strategies to support farming operations on the urban fringe.

Support by the CRD and member municipalities for the ALR is also important. The foundation for this support is political endorsement of the ALR land designation, and opposition to removing lands from it. The Farm Practices Protection Act sets out local objectives, such as developing sub-area
operational level Agricultural Area Plans that can be integrated with official community plans (OCPs) and associated bylaws. As with regional water rates, local governments can harmonize OCP principles, zoning and land use bylaws, minimum parcel size, livestock and density bylaws, direct farm marketing provisions, and buffering and environmentally sensitive area setbacks. A standardization of requirements across the region allows farmers to network more effectively and compete on a level playing field. To minimize transportation impacts, site-specific transportation requirements of farms should be considered by involving farmers in transportation planning.

Land trusts provide a long-term strategy that guarantees agricultural lands cannot be converted to other uses. Discussed in Chapter 4 on blue/green spaces, land trusts allow non-governmental organizations to hold covenants which establish parameters for the use of the land, and can stipulate continued agricultural, or at least greenspace, use. Registered against the title, covenants can restrict the resale potential of the land to make it economic for heirs of existing farmers and new farmers to acquire and work property. Land trusts (for example, the Delta Farmland and Wildlife Trust) can also purchase development rights and compensate farmers for the registration of a covenant on their property. This can cap the land at its farm value, mandate soil conservation and other sustainable farming practices, and promote value-added opportunities for farmers who manage sustainably.

Preserving the zoning of agricultural land is a basic requirement, especially in tandem with the need to increase the agricultural value of the land. Strong local government support is necessary.

6.5 Practice Environmental Stewardship

Agricultural practices can significantly enhance the ecological integrity of the CRD, especially in riparian areas and in creating habitat. The B.C. Federation of Agriculture and Ministry of Agriculture have cooperated with industry to prepare environmental guidelines for various agricultural commodities. A joint federal/provincial publication, the Land Development Guidelines for the Protection of Riparian Habitat (the Guidelines), outline appropriate development standards for land adjacent to waterbodies.16 Finally, under the new Fish Protection Act, local governments will have significant new powers to regulate land uses around waterbodies. Of benefit to both fish and the regional environment, local governments can ensure that implementation of this legislation is also beneficial to farming.

Some municipalities, such as the District of North Vancouver, have adopted the Guidelines into their OCPs. Local governments can also adopt, by bylaw, the environmental guidelines developed by industry, the Code of Agricultural Practice for Waste Management (under the Waste Management Act), and the Guidelines. Local governments can require site specific planning in environmentally sensitive areas and where adjacent uses may not be compatible. Local governments can work with farmers and the Ministry of Agriculture to assist farmers in implementing the Guidelines on their land.

An annual agriculture week may be adopted to increase both public and farmer appreciation for the interrelationship between agriculture and the environment, such as the one in the Greater Vancouver Regional District. Local governments can facilitate building a common bridge between farmers and environmentalists. To this end, regular agriculture/environment advisory committee meetings can be instituted at the municipal level to share perspectives on issues of joint priority.
Finally, the growing field of organic agriculture presents opportunities for environmental stewardship. Produced without synthetic fertilizers and pesticides, pollution to ground and surface water systems, as well as impacts on wildlife habitat, can be minimized. Often small-scale, intensive and mixed farms can increase regional food security.

6.6 Educate the Public about the Importance of Supporting and Sustaining Farming in the CRD

The importance of agriculture in sustaining the economic, social and environmental priorities of the region is being lost with the increasing urbanization of the CRD population. Because most goods are shipped from off-island, food security, or the amount of food consumed in the region that is produced here, is weak. Although the CRD has the longest growing season in the country, most of the food consumed in the region travels thousands of kilometres before it is consumed.

Local governments can improve public understanding of the interrelationship between the uses of ALR land and regional sustainability. Recommendations from the Peninsula Strategy include improving the awareness of non-farm community of what constitutes normal, sustainable farming practices, and working with the CRD Real Estate Board to develop an information package informing prospective buyers of the pleasures and obligations of living in close proximity to a working farm.

Local governments can also establish agricultural committees, where not already in place, to advise municipal councils and the CRD. These committees can educate planners, engineers and the public about preserving the integrity and sustainability of the ground and surface water supply. They can also assist in enhancing the perception of farming as a contributor to community welfare. Partnerships with school boards can bring agriculture to the classroom to educate younger residents. The successful Salmonids in the Classroom program of the Federal Department of Fisheries can be used as a model.

Several local programs aimed at linking city folk with farm folk already exist. The Linking Land and Future Farmers program brings people who want to farm but cannot afford to buy land together with landowners who are interested in loaning their land to these potential farmers. Farmers produce enough food to feed themselves and the owners of the land, and sell their surplus. The arrangement allows landowners to maintain farm tax status, and gives the farmers the opportunity to participate in their chosen career while preserving agricultural land and keeping it productive. Likewise, Stewards of Irreplaceable Land is a farm apprenticeship program designed to provide hands-on learning opportunities to those who want to develop agricultural skills. The placement service is available to any BC farmer who is using or moving towards sustainable (organic) methods. The Willing Workers on Organic Farms provides a similar function internationally.
The Shared Backyards Program is run by Life Cycles, a non-profit, youth-based group that promotes food, health and urban sustainability in Victoria. It links people who are interested in gardening but who do not have access to land with residents who are interested in sharing their land. Many elderly people, who still want to maintain their gardens but are no longer physically able to do so themselves, participate in the program. Approximately 35 people are currently participating.

Finally, urban community gardening and rooftop gardening has seen an explosion of popularity recently in Vancouver, Toronto and Montreal. Montreal's mayor, Pierre Bourque, is a strong proponent of such gardens and has established a municipal agency to assist in their creation. In the CRD, community gardens exist in James Bay, Gordon Head, and Saanich. They enable city people to grow their own food, and exchange seeds, conversation, and ideas with other gardeners. Urban gardens can also help people with low incomes to feed themselves, supplementing groceries, and building skills and self-confidence. Vacant lots and rooftops can become mini green spaces which look nice and offer residents a chance to work cooperatively. In Victoria, Life Cycles has reclaimed unused space and created gardens, the produce from which is donated to food banks. Life Cycles also creates container gardens, providing the soil, organic fertilizer and seeds, for persons with low incomes. Local governments can support local agriculture by supplying land at low or no cost for community gardens, or individual or cooperative allotment gardens.

6.7 Conclusion

Municipalities can support local agriculture by ensuring the economical supply of water to farming operations. Limiting sprawl and increasing the value of land for agriculture through the use of an urban containment boundary and land trusts can help maintain the long-term viability of agriculture in the CRD. Community markets and other links between farmers and consumers will raise the profile of agriculture as the backbone of regional food security, and a key component of the natural amenities treasured by all residents in the CRD.

6.8 Recommendations

The following recommendations form the foundation for sustainable agriculture planning for the CRD:

1. Ensure a long-term economical water supply for agriculture;
2. Involve representatives from the farming community in land and water regulation decisions that may affect water supply;
3. Support farming practices that conserve water, through education and land use regulations;
4. Facilitate farmers' access to markets, especially farmers' markets and direct marketing;
5. Examine the opportunity for a centralized, downtown weekly farmers market;
6. Work in partnership with the agricultural community to develop strategies to promote the non-farming benefits of agriculture;
7. Be strong advocates for the ALR system;
8. Establish an urban containment boundary for the CRD;
9. Develop and implement land use regulations that protect farming operations from incompatible neighbouring uses and inflated land values;
10. Examine land trust options, such as those used by the Delta Farmland and Wildlife Trust, and the CRD’s role in the use of land trusts;
11. Adopt the Land Development Guidelines to guide land use in the CRD;
12. Assist local governments to establish agricultural advisory committees;
13. Explore the opportunity to assist with a CRD agriculture week;
14. Support local agriculture education programs already underway in the CRD;
15. Identify and liberate lands suitable for community gardens in each municipality.

1 Eric Schulz, Appendix A to the B.C. Ministry of Environment, Lands and Parks Submission to the Greater Victoria Water District Rate Hearings. (Victoria: Ministry of Environment, Lands and Parks, 1996).
4 Schulz, op cit
5 W.R. Holm, op cit.
6 Sandra Martin, Vice-President, District A Farmers Institute and Metchosin farmer. Personal communication, March 12, 1998.
7 Sandra Martin, op cit.
8 Metchosin Producers, op cit.
9 Schulz, op cit.
10 See, for example, D. Mallard, “Comments on the draft of “To Ensure the Sustainability of the Saanich Peninsula’s Farm Community”, Citizens Association to Save the Environment, March 31, 1997.
11 Joan Roelofs, Greening Cities (New York: Bootstrap Press, date unknown).
13 Metchosin Producers, op cit
14 Sandra Martin, op cit.
CHAPTER SEVEN
MENTIONING THE UNMENTIONABLE:
INNOVATIVE SEWAGE SOLUTIONS
IN THE CRD

Flushing the toilet remains the last, untouched, and very controversial sustainability issue in the CRD. Sewage treatment in the CRD consists of pumping screened but essentially raw sewage through long pipes into the Strait of Georgia. The CRD has commissioned studies that show no evidence of harm to the marine ecosystem. However, with a predicted 3 million increase in population in the Georgia Basin over the next 25 years, the CRD is being forced to face the sewage issue. Amidst strong protests from local and state governments in the United States, the CRD is the sole local government in the Basin to discharge raw sewage into a waterbody that clearly cannot support other local governments doing the same.

The Precautionary Principle has been widely accepted throughout the globe, and it requires us to consider the uncertain, and certainly the cumulative, impacts of all forms of pollution from the increasing activity in the Georgia Basin. Of special concern is the cumulative impacts of pathogens and industrial chemicals in sewage, especially hormone-mimicking chemicals. This principle also suggests that we should not be unwittingly discharging nutrients into marine ecosystems that evolved without those nutrients, particularly when those same nutrients are needed in terrestrial ecosystems.

Regardless of the pollution effects, the CRD sewage system clearly contaminates large amounts of fresh water, either directly through the flush toilet or subsequently on the way to the ocean, via inflow and infiltration. The discharge system is also damaging the CRDs relationship with other local and state governments that share the Strait. These issues are becoming more pressing with the predicted surge of new housing development in parts of the Western Communities once the regional sewer system is extended to those areas.

The CRD is currently negotiating with the Ministry of Environment, Lands and Parks (MELP) on the timing for installation of secondary sewage treatment. Secondary treatment means any physical, chemical or biological form of treatment that can meet a specific effluent quality for biochemical oxygen demand and suspended solids set by MELP.¹ The main concerns with this approach are the cost of large, centralized treatment plants and the land they require, as well as when to begin the search for sites for the new treatment plants.

The CRD is faced with two unappealing options: discharge raw sewage into the Straight or build a very costly centralized treatment infrastructure. If these options are both problematic, a third sewage treatment option is a Decentralized Treatment Approach (DTA). DTA, based on small flow, new proven technologies that are appropriate for individual and community sewage systems, is available in the CRD. The use of small-flow sewage systems can reduce impacts on marine eco-systems, greatly reduce the generation of sewage-contaminated water, enable beneficial reuse of water that does become contaminated, create interesting employment opportunities for residents, help manage regional growth, and even enhance the region's eco-tourist potential. DTA also has the support of MELP.
Small flow systems are appropriate in the following situations:
- development in areas within an urban containment boundary not presently served by sewers;
- densification of existing neighbourhoods, especially according to eco-village concepts;
- new multi-family or commercial buildings; and
- possibly for retrofitting areas of the existing system.

This chapter describes the elements of DTAs involving small-flow technologies suitable for both single family residential and/or developments ranging in size from multi-family dwellings and office buildings to small communities.

7.1 High-Tech Solutions for the Sewage 'Problem'

Hill Murray and Associates Inc. - Salt Spring Island Village Resort Plan

Two electro-mechanical technologies exist that are based on enhanced conventional secondary and tertiary treatment. While they do not reduce the amount of water that is initially contaminated by sewage, they do produce effluent water that is of sufficiently high quality to be beneficially used for greenhouses, irrigation, toilets and urinals, or even discharged directly to watercourses or the ocean. Moreover, proponents of two of the most innovative of these technologies are based in the CRD, and have installations in the CRD.

Membrane Bioreactor (Hill Murray & Associates)

Hill Murray & Associates, based in Victoria, is the recipient of a 1997 Minister's Environmental Award for its contribution to B.C.'s environment health resulting from the installation of a number of sewage systems. The treatment process consists of supplying air for efficient microbial breakdown of the waste, and pulling the water through membranes by vacuum pumps, leaving solids and water-
borne pathogens behind. The water is prepared for reuse by passing it through a carbon filter and an ultraviolet sterilizer.

The company has installed sewage systems based on this technology in a number of resorts, mostly on Vancouver Island. They include Mt. Washington Resort, Kingfisher Oceanside Inn in Courtney, Sooke Harbour House, and Salt Spring Island Village Resort on Saltspring Island. The systems have also been installed in two communities, the Village of Ganges on Saltspring for the CRD, and the city of Powell River on the mainland. The technology works for flows ranging from 10,000 imperial gallons/day (IGPD) to 500,000 IGPD or more. In addition to the higher quality of effluent, the systems have a smaller footprint than a conventional system treating the same volume.

**Hydroxyl Systems**

Hydroxyl Systems, based in Sidney, has developed a very effective process for treating a wide range of organic waste streams, both municipal/residential and industrial. The system introduces ozone into the liquid waste stream, which is then subjected to mechanical energy, and ultimately reduced to carbon dioxide, salts and water. The effluent water is high-quality, colourless and odourless, suitable for beneficial reuse in a wide variety of applications that conserve water. The technology is modular, thereby making it easily expandable as well as transportable. The company claims its technology is the lowest cost available for high-quality, tertiary treatment.

The Hydroxyl system produces fewer biosolids (nutrient solids from the sewage that are usually treated as waste but can be used for fertilizer) than a conventional system, since some of the biosolids are converted to CO2 and water. However, the company has not had enough experience with larger installations to provide figures for biosolids reduction. In any case, the biosolids can be effectively composted, as Hydroxyl Systems is currently doing in its Septage and Biosolids Processing Facility in Duncan. The product is a "Class A" compost called Hydrox-Soil.

Hydroxyl Systems has installations planned or installed in several locations in the CRD. They include a 16-lot subdivision in Langford, a single family dwelling in Saanich, and the Tseycum First Nations Band in North Saanich. The benefits of the Tseycum facility include solving a long-standing sewage problem which caused related shellfish contamination and marine pollution, and enhancing spawning habitat and oxygen levels in Tseycum Creek through discharge of renovated water into a wetland area that feeds the creek.

Hydroxyl Systems also has installations throughout Vancouver Island, the San Juan Islands and the Interior. These include an office/restaurant/retail complex in Cowichan Bay, a landfill leachate treatment facility in Crofton, Brentwood College in Mill Bay, a public school in Royston, the Sustainable Technology Center in Friday Harbour and a hotel/restaurant/tourist centre in Jasper National Park.

Both Membrane Bioreactors and Hydroxyl Systems are ideal for diverting commercial and industrial effluent streams from the municipal sewer system. They can also be used to treat the sewage from
apartment blocks or institutional uses that lack the space for land-intensive systems, as well as for new residential subdivisions.

7.2 **ECO-TECH SOLUTIONS FOR A RENEWABLE RESOURCE**

The following technologies apply ecological engineering principles to conserve water and nutrients, the renewable resources in sewage. The principle features of eco-technologies are effluent separation (the engineering), aerobic decomposition of organic matter, and nutrient recovery (the ecology). “Blackwater”, the term for the flow from toilets and urinals, is separated from “greywater”, the term for the flow from sinks, tubs, showers and washing machines. Once separated, treatment of both streams using ecological processes is easier, and recovery of nutrients is an integral part of the process. In addition, eco-engineering technologies generally require less non-renewable energy in operations and manufacture compared to the hi-tech solutions.

*Composting Toilets*[^1] [^2]

Composting toilets of various designs have been on the market for decades. They are used in a wide variety of situations, usually where there is a shortage of water, high groundwater level, or lack of soil for a septic disposal field. Two basic types of composting toilets exist. Large volume toilets allow the waste material to decompose slowly and require minimal energy inputs. Small volume toilets compensate for reduced volume with electro-mechanical devices to speed up the composting process. The latter type is more prone to breakdown. The former requires considerable space and is best suited for new homes or other structures where it can be installed during construction. Both types can use solar energy to replace some or all of the electrical energy needed for their operation.

Until recently, composting toilets were considered for use only in small flow situations, such as single family dwellings, cottages, parks and roadside facilities. However, the sewage system at the new C.K. Choi Building, a 30,000 sq. ft. office complex at the University of British Columbia, consists of a series of large volume, Clivus Multrum composting toilets and associated greywater system.[^3]

However, one of the major obstacles to greater use of composting toilets is the Ministry of Health regulation that all buildings must have conventional toilet facilities and a conventional septage field or hookup to the municipal sewage system for greywater. This is a costly requirement that deters composting toilet use. In the case of the C.K. Choi facility, a sewer line connection was required. The CRD can support the long-standing efforts by composting toilet advocates to work with the Ministry of Health to adopt new standards for greywater disposal. The justification for such support is discussed in the next section.

[^1]: Sun-Mar Corp. Excel Model
[^2]: Sun-Mar Water Closet Multrum diagram
[^3]: March 1998
Greywater Systems

As its name suggests, greywater requires much less treatment than blackwater since it contains only 1/10 the amount of nitrogen and its organic content decomposes much more rapidly. Because of these differences, greywater can be treated more easily, locally, and reused on site. It makes sense to separate the two flows.

Speed is the key to greywater treatment. It has little odour immediately after discharge, but when held in a tank, its oxygen content is used up very fast and anaerobic decomposition causes very unpleasant odours. The simplest, most environmentally appropriate treatment consists of screening out fibres and grease, then introducing the greywater into an active, highly organic, shallow topsoil environment planted with vegetation that can utilize the nutrients in the water. These nutrients can be beneficially utilized in a variety of ways, including greywater-irrigated greenhouses, hedges used as property dividers, planters and leaf composters. In addition, the heat in the water enables outdoor plantings in cold climates.

The zero-discharge C.K. Choi Building at UBC uses a sub-surface greywater recycling system planted with tall grasses to cleanse the greywater. The renovated water, along with reclaimed stormwater, is used for on-site irrigation or discharged into the university storm water system when on-site needs have been met. Some of the greywater is mixed with compost "tea", a nitrogen-rich discharge from the composting toilets, then funneled into an 18-inch deep trench lined with bentonite and filled with rocks and plants. As the water trickles through the trench, its 'impurities' are removed by the rocks, roots and micro-organisms living among the roots.

Solar Aquatics Systems

The concept of Solar Aquatics was developed by John Todd, formerly of the Solar Ark Project in Nova Scotia. The technology has been commercialized by the firm Ecological Engineering, founded by Susan Peterson, John Teal, and John Todd. The technology is based on energy and nutrient flows through natural ecosystems. It creates a "sewage treatment ecosystem" consisting of a greenhouse containing a number of clear-sided tanks and artificial ponds. Sewage enters the system and is progressively "treated" as it moves through the tanks that contain micro-organisms, algae, snails, plants, crustacea and fish. Following ultraviolet disinfection, the final polishing takes place in an ecologically engineered marsh. The high quality renovated water may be discharged directly into the environment or used in irrigation systems.

A Solar Aquatics facility can provide treatment equivalent to secondary and tertiary systems but with reduced environmental impact and greater operating resilience. The system is odour-free, requires no chemicals, and uses less non-renewable energy. It also produces much less residual sludge, which can easily be recycled as fertilizer. Solar Aquatics is less susceptible to toxic shock because of its reliance on biodiversity. Hundreds of back-up organisms can respond to a toxic substance in the sewage killing a "friendly bug". The system should also be easier to maintain as it has far fewer electro-mechanical components than other systems. This resilience even extends to power failures as flow through the system does not depend on pumps, and the tanks can retain enough heat to maintain system functioning for a week.
Another benefit of a Solar Aquatics facility is its eco-tourism value. The first commercial application of Solar Aquatics technology in Canada has become an eco-tourist attraction. The facility in Bear River, a Nova Scotia community of 200 residences and businesses in the Annapolis Valley, is located in the centre of the village, and has received over 8000 visitors since it was constructed in the winter of 1995/96. Another facility in Nova Scotia serves a nursing home with a daily population of 750 residents and staff. It replaced an old sewage treatment system that handled 365,000 litres daily, but could not meet modern effluent requirements.

The first application of Solar Aquatics technology in British Columbia is the Beausoleil Solar Aquatics facility in Errington, constructed by Eco-Tek in July, 1996. The 8,500 IGP D facility treats septic tank effluent from a 46-unit mobile home park just outside the gates of the Englishman River Falls Provincial Park. It easily meets its monthly MELP discharge permit limits. The facility was built for $150,000 and has an annual operating costs of $10,000. The reclaimed water is currently used to recharge an aquifer. Although some of the 10,000 aquatic plants produced in the system each year are sold to local nurseries, most are composted. Future plans include setting up a Bioponics System in the greenhouse so that the resident operator, who currently works the equivalent of one hour/day, can learn about intensive horticulture/aquaculture with help from Malaspina College. Like the Nova Scotia experience, Beausoleil has become a tourist attraction, receiving visitors from the community and all over the world.

In addition to their environmental and tourist attraction benefits, Solar Aquatics facilities in the CRD can create job opportunities for a number of community residents, using easily-acquired skills. The potential also exists to generate revenue for the community through horticulture or silviculture, which would in turn create meaningful work opportunities within the community.

7.3 Low-Tech Modifications of Conventional Systems

Recirculating Granular Medium Filters

This technology is an enhancement of the septic tank/disposal field, and offers cost-effective treatment for sewage flows from small, lower density subdivisions where topography and/or soil conditions preclude the use of on-site systems.

The filter system includes a recirculation tank, recirculation pumps and a recirculating gravel medium filter. The filter itself consists of 0.6 m of 3 mm gravel sandwiched between layers of coarse, washed gravel, 2.5 - 6.3 mm in diameter. Treatment is achieved through biological, chemical and physical action within the filter. Wastewater is pumped from the recirculation tank to the filters at regular time intervals, usually for 5 minutes every half hour. Treated effluent from the bottom of the filter is carried back to the recirculation tank. Wastewater is circulated through this cycle approximately five times before being diverted for further treatment and discharge to a soil absorption field.

A system designed for a 47-lot subdivision in rolling terrain just east of San Francisco included two filters as described above, with ultraviolet light disinfecting the treated water. The treated water is both discharged into a soil absorption field and used to irrigate a small community park.

Source Control and Reduction

The CRD has instituted a source control program to control and reduce the amount and type of substances entering the municipal system. These include heavy metals and provincially permitted waste discharges. However, the effectiveness of such an approach is uncertain because there is no means by which to detect where in the system a substance enters. Until there is a way to detect points...
of entry, industries will not be accountable for those facilities that continue to discharge contaminants into the sewer system.

The CRD's source control program is a step in the right direction. However, further measures must be taken to reduce the amount of freshwater entering the sewage system and becoming contaminated. The small flow treatment technologies described above can assist to that end.

Significant amounts of water also enter the system when sewers are old and leaking through the processes of inflow and infiltration (I&I). To address this problem, traditional gravity sewers can be replaced with smaller diameter polyethylene pressure sewers. Several communities in Oregon have accomplished this by 'threading' the smaller sewer through the gravity sewer.\textsuperscript{16}

With reduction of I&I flows combined with a Decentralized Treatment Approach (DTA) based on small flow treatment technologies, existing sewer mains can slowly be transformed into simple storm sewers and long outfall pipes. Finally, sewage planning can be integrated with stormwater management planning to capture stormwater in a system of swales, ponds and engineered marshes that will further reduce ecological impacts in the Straight of Georgia.

7.4 CONCLUSION

A Decentralized Treatment Approach used together with reducing I&I flows offers huge potential for the CRD to address the regional sewage problem in a fashion that is cost effective and environmentally sound. DTA is an alternative to increasing sewage volumes into Georgia Strait from new developments. DTA reduces the capacity necessary for any new facility that must be built for those parts of the CRD that cannot employ a DTA. The composting toilet, greywater and Solar Aquatics technologies lend themselves to the needs of zero-discharge residences and micro communities. More importantly, as well as reducing the pressure on the regional water supply, the range of technologies discussed in this section assist in the shift in perception of sewage from a problem waste that is costly to manage to a valuable resource that can help restore the fertility of terrestrial ecosystems.

The place to start is with the Western Communities to ensure additional sewage is treated in a regionally responsibly manner.

7.5 RECOMMENDATIONS

The following recommendations provide a framework for sustainable sewage planning for the CRD:

1. Adopt a precautionary approach to current sewage treatment;
2. Promote a decentralized treatment approach for new developments and neighbourhood redevelopment;
3. Support local government requirements for greywater recycling and other innovative design standards to reduce freshwater use and discharge impacts;
4. Use development cost charges and other local government tools to promote DTA system;
5. Work with the Ministry of Health and MELP to develop regulatory support for small flow alternatives; and
6. Develop a comprehensive retrofit strategy to begin reducing existing discharges via the central sewage system now in place.

March 1998
According to the provincial Ministry of Environment, Lands and Parks, secondary treatment techniques must consistently meet an effluent quality of five day biochemical oxygen demand and total suspended solids each equal to 45 mg/L.


3 Personal communication, Joanne Raddatz of Hill Murray & Associates

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6 J. Rockandel, personal communication, Composting Toilets Western, West Vancouver, BC; John Bishop, Quartet Enterprises Ltd, Victoria.

7 Sun-Mar Corp. Cottage Toilets 1996-97 catalogue; 5035 North Service Road, C.9-10, Burlington, Ont. L7L 5V2

8 Internet: http://www.cityfarmer.org:80/compttoilet64.html#toilet

9 Internet: http://clivusmultrum.com/greywater.html


11 Kim Rink, personal communication, President of Eco-Tec Wastewater Treatments Inc, Langley, B.C

12 Internet: http://ccn.cs.dal.ca/communitysupport/cuso/sewage.html
   http://clan.tartanet.ns.ca/~munofan/solaraqu.htm/
   http://www.solaraquatics.com/sas.html

13 Jeffrey Pinhey, personal communication, Environmental Design Consultants, Halifax; Personal communication, Orenco Inc, Roseburg, Oregon

14 Kim Rink, op cit


16 Jeffrey Pinhey, op cit
CHAPTER EIGHT
IS THIS A SUSTAINABLE COMMUNITY, OR JUST ANOTHER SUBDIVISION?: HOUSING AND DEVELOPMENT IN THE CRD

We have all seen the standard 1990s-style subdivisions, with their wide curving roads and prominent two-car garages. The individual homes can be attractive - but as planned developments, do they help us build healthy, sustainable communities?

Concentrated development in towns and cities is much more efficient, financially, socially and environmentally. All over North America low density developments are creeping into rural areas, threatening urban ecosystems and eroding the benefits of urban living. City dwellers find it increasingly difficult to escape to rural and wilderness areas, while suburbanites depend on their cars to get access to the city amenities which their suburbs lack.

Suburban sprawl is more expensive to service than densification in core areas, and this increases municipal taxes. The suburbs still need roads, utilities and other services, but providing them can cost up to 400% more than for homes in the city.\(^1\) A recent Canadian study found that a higher density neo-traditional development was more economical on a life-cycle basis than a normal suburban development on the same site by at least 7.5\% for residential units and 55\% for non-residential units.\(^2\) Neo-traditional development was also found to generate 88\% more revenue for local government than normal suburban development.\(^3\)

8.1 EVALUATING DEVELOPMENTS FOR SUSTAINABILITY

How can we tell if a proposed subdivision will be a benefit or a drain to the wider community? To answer this question, we need to consider ten different factors. Using the checklist below, councillors, planners or residents groups can analyze and rate a proposed development, scoring each factor out of 10, and then proposing improvements. The checklist can also be used by councils, planners and residents to argue for minimum standards in land-use bylaws, Official Community Plans (OCPs) and zoning regulations.

This is a first attempt to create such a score-sheet. To make it work in an impartial, fair manner, research is needed to develop practical indicators for each factor which can be used by approving officers to score each proposed project.

1. Does it have a Sustainable Regional Logic?
This is the trickiest question, since it invites many sub-questions. Is it inside or outside an urban containment boundary - or the line where such a boundary might exist? Can it be easily served by transit? If it is a small development (less than 50 dwellings), is it within easy reach of a shopping and commercial centre, or will its residents have to drive each time they want something?
2. Does it include Ecological Protection?
For years, no-one bothered much about ecological realities prior to development. Land was analyzed on paper, the roads laid out according to prescribed engineering standards, and subdivision lines drawn in. Today, there is a wider expectation that ecological features such as creeks, swamps and groves of trees should be mapped, and that development should weave its way around them, not over them. By allowing nature to lead design, it is not necessary to pave paradise to put in a subdivision.

3. Does it have an attractive Village Centre?
A Village Centre, however small, allows people to stop for a morning coffee, chat with their neighbours and develop a sense of belonging and community. It is not enough to zone for just one corner store. The more attractive a village centre, with landscaping, trees and colour, the more it will be used. If a proposed subdivision is too small to merit a village centre, and it is not near an existing centre, it does not promote community values.

4. Do Active Plans for a Local Economy Exist?
Most subdivisions have no local economy; it is assumed that residents will drive somewhere else to work, contributing to traffic congestion and global warming. Larger projects often include commercially zoned land, but this falls short of actually planning for a local economy. Many ways to build an active local economy exist, including telecommuting centres, home-based business provisions, live-work units, eco-industrial parks, small business clusters and sales marketing to businesses.

5. Does it have Interconnecting, Traffic-Calmed Streets?
Interconnecting streets make it easier to get around, encouraging people to walk when they want to visit each other. Traffic calmed streets slow the traffic, making it safer for children and pedestrians. Wider roads encourage faster cars, causing parents to worry about their children playing on the street, and discouraging them from lingering by the road to chat about the geraniums.

6. Does it have Pedestrian Trails and Cut-throughs?
The choice exists between walking to a Village Centre down a winding path along a creek where you can watch the ducks feeding, or down the side of the main road. The more we walk, the more we meet our neighbours and stop to chat. The more attractive the footpaths, the more people choose to walk. Every neighbourhood should have its mini-parks, trails and secret cut-throughs.

7. Do the plans include Affordable Housing?
With new houses costing upwards of $250,000, how can younger people and people on lower incomes buy a home? The 1990 census shows that 45% of Capital Region households earn less than $35,000, which makes it hard to afford a big mortgage. Many ideas for affordable housing projects exist, from row-homes and grow-homes to sweat equity programs, and affordable rental options such as secondary suites, granny suites and live-above garages.
8. Do the plans include Adequate Community Facilities?
This criterion includes everything from a community hall to schools, parks and churches. Schools are the responsibility of the School Board, but what about a church, a sports centre, a park? If these amenities are in the development plans, do the plans actually exist to build them, or will the land be left empty in the hope that someone might build them someday? Community facilities make a village a village, instead of a bunch of houses laid out along a street.

9. Do the plans include Greenways & Trails?
Ten years ago, who would have guessed that strolling, hiking, cycling and riding along regional trails and greenways would have become such a popular pastime? With good advance planning, that possibility should be open to all of us, and integrated into all future developments.

10. Do the plans stipulate Energy & Water Efficiency, and the use of Non-Toxic Building Materials?
Decreasing water demand means the CRD does not need to build new dams and treatment plants, which saves taxpayers' money. When houses are energy efficient, they burn less oil, gas and hydro, decreasing their users' costs and their contribution to global warming. Non-toxic building materials address the problem of environmental sensitivities. Many common building materials and components, such as particle board, contain chemicals like formaldehyde which are known cancer-causing agents. Most new carpets are treated with fungicides. When non-toxic alternatives exist, how can we encourage their use?

8.2 HOUSING AND DEVELOPMENT INNOVATIONS

In addition to the evaluative principles listed above, the development ideas listed in the rest of this chapter promote sustainability and health urban communities. Many of them are proven successes.

Social & Environmental Development Cost Charges
This requires a change in legislation, but it makes sense for Development Cost Charges (the percentage of added servicing costs that developers pay to a municipality for a new development) to be scaled according to their social and environmental impact. The basic charge might be doubled or even tripled, but then reduced/increased for every social and environmental benefit or cost which reduced/increased the long-term cost of a development to the community. This provides a strong incentive for developers to plan for sustainability, and design more sustainable communities.

Density bonusing (allowing higher densities in a project in return for the developer providing community amenities such as daycares and preservation of natural areas) can also be used to encourage sustainability, the way it is already used to encourage the arts and affordability.

March 1998
Sustainable Subdivisions: A Model for the Future

Village Homes (Davis, California) is a 70 acre, 240 unit subdivision in Davis, California that was completed in 1981. The city engineers tried to stop it being built, the council only narrowly approved it, and when it was complete, local realtors refused to show people around. By 1995, however, the crime rate in Village Homes was 1/10th of that for Davis as a whole, there was a buyer's waiting list, and the houses sold for 13% more than similar sized units across the road.

Realtors were upset about the development design because the houses have no front streets. Instead, they are clustered in groups of 8, with car access by back lanes. In place of the street, there are large areas of common space, which the residents in each cluster design; some have simple lawns with barbecue pits, others have vegetable areas. Village Homes also has 12 acres of greenbelt and open space and 12 acres of agricultural land which is owned and managed by the residents, all within the overall 70 acres.

Many other features make this subdivision attractive to buyers. The neighbourhood contains a village centre with a community centre, and 4000 sq ft of commercial office space. The Homeowners Association owns and manages the household commons areas, the greenbelt commons, the agricultural lands (orchards & vineyards) and the community centre. Eighty percent of residents participate in community activities. The trees on the common land are all fruit-bearing. With all the agricultural land and food growing, there are frequent harvest festivals and other gatherings.

The clusters are connected by pedestrian paths, and the back streets are traffic-calmed, making for slower traffic. Many residents walk to work in nearby centres. Instead of the normal underground storm drains, the developer (Michael Corbett) put in natural grass soakaway swales. This saved $800 per lot, which was used to put in more landscaping and trees. The houses are all passive solar designed, and the trees make for a cooler climate in summer which results in less need for air-conditioning. When energy savings and the local food growing are combined, the average household bill is 1/2 to 1/3rd of houses in surrounding neighbourhoods. A sweat equity program was offered to low-income construction workers, to help them build and buy their own homes.
On the Sustainable Communities score-card (see the ten principles above), Village Homes would achieve almost a perfect score. It works, it sells, and the residents love it.

**EcoVillages**

An ecovillage is "a full-featured settlement in which human activities are harmlessly integrated into the natural world in a way that supports healthy human development and can be successfully continued into the indefinite future." In a nutshell, it is a small settlement that has been designed along social and ecological lines with clustered housing, pedestrian priority, lots of greenspace, and common parking off to one side. Using the latest water, energy and sewage treatment technologies, it is close to being independent, and does not need so much costly municipal infrastructure.

Its main disadvantage, to some people, is that you cannot drive your car direct to your front door, and the houses are closer together than in a normal subdivision. The advantages are that without the cars, the village becomes very sociable and safe for children. By clustering the houses more tightly, more land is left for open space, green space, forest, trails and agricultural land. Where a typical subdivision might put 80 houses on 10 acres, using all the land for streets and houses, an ecovillage would put the same 80 houses on just 5 of the acres, including a village centre, keeping the rest as greenspace and common land.

By using Hydroxyl or Solar Aquatic sewage treatment systems which treat sewage to the quality of almost drinking water, ecovillages do not need to be on a sewer main, and the recycled water can be used for irrigation and flushing toilets, reducing overall water use significantly. By using passive solar and energy efficient building designs, and supplementing them with solar or wind appliances and ground-source solar heating, emissions of greenhouse gases can be reduced to almost zero, while the technologies will pay for themselves over the years.

The evidence from Village Homes in Davis show that once an ecovillage is built, people will pay a premium to live there. They are an interesting alternative to normal subdivisions.
Fifteen Ways to Fix the Suburbs

Existing suburbs can be turned into charming villages, with a few minor design adjustments. In May, 1995, Newsweek Magazine ran a cover story called 'Bye-Bye, Suburban Dream', which included '15 Ways to Fix the Suburbs'. Their list included:

1. Give up big lawns.
2. Bring back the corner store
3. Design skinny streets
4. Drop the cul-de-sac
5. Draw boundaries
6. Hide the garage
7. Mix housing types
8. Create local footpaths
9. Put new life into old malls
10. Plan for mass transit
11. Link work to home
12. Make a town centre
13. Shrink parking lots
14. Turn down the lights
15. Think green

CoHousing

CoHousing is a form of settlement which started in Denmark in the 1970s, and spread to North America. Here in B.C., successful cohousing projects exist at Cardiff Place, 1246 Fairfield Rd, Victoria, and at Windsong, in Langley. A third project exists just across Georgia Straight to the south on Bainbridge Island.

"Cohousing is a way for a group of people to work together to develop places to live that offer both privacy and community with the values of an old-fashioned neighbourhood - safety, independence, mutual concern."5 For the typical cohousing project, the would-be residents work together for a couple of years to agree on their common goals, find a piece of land, and go through the stages of financing, design, rezoning, regulatory approvals and building. During this time, they get to know each other, and learn how to work by consensus.

The essence of a cohousing project is that each resident has a private dwelling (or an apartment, in the case of condo cohousing such as Cardiff Place), and there is a Common House (or common room) where the residents can cook and eat together if they so wish, and use for meetings, parties and other community purposes. Many cohousing projects also have shared tool-rooms, guest rooms, children's playspaces, teenage spaces and vegetable gardens. The houses are completely self-sufficient, the same as any house, but on average they are 7% smaller, the savings being used to build the Common House.

Cohousing groups park their cars off to one side, making the space between the houses car-free, either as a garden or a pedestrian street. This arrangement works well for parents and children. Since everyone knows each other, the area inside the cohousing settlement becomes very safe, where children can come and go between each other's homes without their parents worrying. With the revolution in home-based business and telecommuting, increasing numbers of cohousing adults are also choosing to work from home.

March 1998
Affordable Homes
Why do new houses have to be so big? For a young couple starting out on their own, 800 sq feet is a very acceptable size. In Montreal, builder and developer Avi Friedman developed the idea of 'Growhomes', small terraced, attached houses where the upstairs has no interior finishing at the time of sale, enabling the owners to do it themselves in their own time. The first floor is finished, the basement unfinished, and the second floor has a finished bathroom and movable partition walls for 2 bedrooms. Avi's Growhomes (with a potential of 1500 sq ft living space) sold for $76,000 in 1992.

Reducing the minimum allowable lot size can encourage affordable housing. Europe has many attractive towns and villages with densities of 30-50 units per acre, surrounded by green space.

What about single people and single parents? With family structures changing and a higher percentage of the population remaining single, increasingly individuals need a new place to live, when the money's tight. Small houses and apartments that can be bought for under $100,000 are needed. We need more co-operative housing, enabling single parents to live together around a shared courtyard (for instance) allowing the children to play together.

One simple way to make housing more affordable is to reduce the parking requirements for lower cost houses, and decouple the parking requirements from housing, especially for multi-family housing. With mandatory parking requirements, non-drivers are subsidizing drivers, whether they want to or not. With decoupling, a parking area is provided for vehicle owners, who pay for their spaces, enabling non-drivers to save up to $50 a month.

Secondary Suites
Secondary suites are another easy way to provide affordable housing. North Vancouver recently passed a bylaw legalizing suites for most of their homes, after careful public discussion. To date, there have been few problems. If residents worry about a flood of conversions, suites can be licensed, with a limit to the number approved each year. New communities can be zoned to allow secondary suites, as the big Royal Bay development in the Colwood gravel pits has done.

Special Needs Housing
People with disabilities and special needs, and those who live in poverty need housing as well. Zoning bylaws can specify that a percentage of houses be wheelchair accessible, and that a range of different housing types be built. For a diverse society with diverse needs, we need diverse types of housing.
8.3 CONCLUSION

Where we live is one of the most important determinants of individual and community health. Families and single people seek affordable housing in neighbourhoods that can meet their daily needs. The types of housing development promoted in the CRD can both enhance the regional vision for protected blue/green spaces, and provide for social and economic self-sufficiency close to home. The challenge is to develop models and support development and redevelopment that integrates these needs into the implementation of the regional growth strategy.

8.4 RECOMMENDATIONS

The following recommendations provide a framework for sustainable housing and development planning for the CRD:

1. Promote developments and redevelopments that enhance the regional vision for the CRD, including transit accessibility, protection of natural areas, and the creation of neighbourhoods;
2. Allow natural features to lead development designs;
3. Promote neighbourhood vitality in all developments, including village centres, traffic calmed streets, local economies, and community facilities;
4. Require a pedestrian and cycling infrastructure in all developments;
5. Plan a greenways infrastructure;
6. Encourage a diversity of housing types to meet the diverse and changing needs of the region, including affordable housing, special needs housing, and seniors housing;
7. Experiment with ecovillages, wherever possible; and
8. Promote other regional goals through development approvals, such as reduced water use through installation of water conservation fixtures and innovative sewage treatment.

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3 Hemson Consulting Ltd., Conventional and Alternative Development Patterns Phase II: Municipal Revenues (Ottawa: Canada Mortgage and Housing Corporation, 1997)
4 Robert Gilman, Ecovillages and Sustainable Communities, 1991
5 Kathryn McCamant & Charles Durrett, authors of 'Cohousing'. See also CoHousing: Contemporary Approaches to Housing Ourselves, The CoHousing Network, PO Box 2584, Berkeley CA 94702, USA Don Lindeman, Editor in Chief, (510) 526-6124 cohomag@aol.com and Western Canada Cohousing Newsletter Alan Carpenter, Community Dreams Creators, 20521 - 96th Ave, Langley, BC V1M 3W3 (604) 882-5337 Fax (604) 822-9331 acarpent@direct.ca

Other Resources:
Creating a Sustainable Future : The Georgia Basin Initiative (BC Round Table, May 93)
A Pattern Language, by Christoper Alexander. (OUP. New York, 1977)
Towards an Eco-City : Calming the Traffic, by David Engwicht (New Society Publishers, 1994)
Eco-City Dimensions : Healthy Communities, Healthy Planet, ed Mark Roseland. (New Society Publishers, 1996)
Eco-development Resource Directory (from EcoNews special Eco-development edition)
EcoDesign Resource Society, Vancouver PO Box 3981 - MPO, Vancouver V6B 3Z4 (604) 689-7622 Fax (604) 689-7016 edrs@infoserve.net www.ecodesign.bc.ca
Architects Designers Planners for Social Responsibility 1807 West Sunnyside, Suite 300, Chicago, IL 60640, USA (312) 275-1807 Fax (312) 275-1858 capal@aol.com
Building with Nature : Professional Networking Newsletter Carol Venolia, Editor, PO Box 4417, Santa Rosa CA 95402-4417 USA
Greenclips (biweekly free email newsletter) Chris Hammer, Sustainable Design Resources (415) 928-7941
Greenclips@aol.com http://solstice.crest.org/sustainable/greenclips/info.html
Guide to Resource Efficient Building Elements (annual) Centre for Resourceful Building Technology, PO Box 100, Missoula, MT 59806, USA (406) 549-7678 Fax (406) 549-9100 CRBT@montana.com www.montana.com/crbt/index.html
International Centre for Sustainable Cities Alan Artibise, #1150-555 West Hastings St, Harbour Centre, PO Box 12071, Vancouver, BC V6B 4N5 (604) 666-0061 Fax (604) 666-0009
Solplan Review (Solar architecture newsletter, 6 x per year)
Richard Kadulski, The Drawing Room, PO Box 86627, North Vancouver V7L 4L2 (604) 689-1841 Fax (604) 689-1841 solplan@cyberstore.ca
The Sustainable Urban Neighbourhood (SUN) (newsletter and project) 481 Old Birley St, Hulme, Manchester M15 5RF, England. (0161) 226-5078 Fax (0161) 226-7307 sun@urbed.co.uk www.urbed.co.uk/sun/
The Urban Ecologist : Journal of Urban Ecology (quarterly) $35US 405 14th St, Suite 900, Oakland, CA 94612, USA (510) 251-6330 Fax (510) 251-2117 urbancology@igc.apc.org
YES! A Journal of Positive Futures (4 x per year) yes@futurenet.org PO Box 10818, Bainbridge Island, WA 98110, USA (206) 842-0216 Fax (206) 842-5208

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CHAPTER NINE
HOW WE GOVERN OURSELVES:  
THE CAPITAL REGIONAL DISTRICT  
AND COMMUNITY-BASED MANAGEMENT

A broad consensus exists that community involvement in the municipal and regional decision making process makes for better decisions and a stronger public commitment to them. Moreover, as Canadians we believe that we have a right to participate in the decisions that shape our communities and touch our lives. Elections alone are not enough. In BC, the commitment to broad public participation is evidenced by the public consultation mandated in the Municipal Act, most notably in s.855, which pertains to the development of regional growth strategies (RGS).

In these times of rapid technological innovation and exploding information, governments cannot afford to ignore the wealth of knowledge and wisdom held by private citizens. Citizen involvement in the public decision-making process can expand the available options and open the way for more innovative and creative solutions. Full citizen involvement makes it possible to move towards leadership based on knowledge rather than power.

The RGS provides a unique opportunity to strengthen local governance by formalizing inter-municipal coordination and the involvement of the public in developing and implementing the regional vision. This chapter explores strategies for increased cooperation in local governance, and outlines some local and other initiatives underway.

9.1 THE FOUNDATION OF GOVERNANCE: SUBSIDIARITY

It is a basic principle of federal systems that each decisions should be made at the level closest to the community which has the breadth of vision and competence to make that decision, subject to legislative jurisdiction and to overriding principles of social equity and ecological integrity. The subsidiarity principle recognizes that decisions should be made, or at least strongly influenced, by those who will be most directly affected by their social, financial, environmental, and cultural consequences. The principle goes far beyond simply electing local governments. It recognizes that citizens must have an ongoing role in their governance.

9.2 GOVERNANCE ROLES IN THE CRD: WHO DOES WHAT

Two levels of local government exist within the CRD, municipal and regional (the Capital Regional District). Every three years we elect municipal councillors who govern in each of the 14 municipalities. Each municipality and electoral area appoints one or more elected official, depending on the jurisdiction’s size, to sit on the Capital Regional District Board. Both levels of government receive most of their authority from the Municipal Act, and have some potentially overlapping jurisdictions.

The Capital Regional District is responsible for regional parks, transportation, sewage treatment, trunk
sewers, the Hartland landfill, and regional planning. While individual municipalities may have transportation plans or master sewerage plans as part of their official community plan, the Regional District coordinates these systems and infrastructure regionally. The CRD is also responsible for land use planning for the unincorporated Sooke and Langford electoral areas.

Municipalities are responsible for all land use planning (official community plans, zoning, and development bylaws), municipal parks, business licensing, and other local concerns such as regulations for animals. Some municipalities work with community associations to develop sub-community or local area plans to guide development.

9.3 Aboriginal Peoples and Governance in the CRD

Aboriginal communities in the CRD have their own band and traditional governance systems. Indian reserves are considered federal land, but aboriginal communities are in the process of settling outstanding land claims to other areas. Even if an aboriginal community does not "own" land, their rights to hunt, fish, and carry on other traditional activities still exist. Provincial and local governments are required to consult with aboriginal communities if any development activities may affect traditional uses and rights. Even on private land, if a heritage or burial site is discovered, the municipality and landowner must consult with the aboriginal community before proceeding further.3

Local governments do not have the jurisdiction to exercise land use planning over reserve lands within municipal or regional district boundaries. Likewise, Aboriginal peoples have no formal mechanism to participate in municipal land use decisions. They can approach a local government or use the courts if there is potential infringement of aboriginal rights. This multi-jurisdictional planning can result in conflicting community visions. Aboriginal peoples have no standing to oppose and become involved in local government decisions, which often take place on traditional lands. Likewise, local governments and communities are not consulted about the development of federal reserve lands, and in the future, treaty settlement lands.

Harmonization of land use planning goals and consultation mechanisms in the CRD is important for both local governments and First Nations. Not only are local governments required to consult with Aboriginal peoples if municipal activities, either on municipal land or by issuing permits, affect aboriginal rights, there are significant incentives to do so. Harmonized planning and goals will ensure that land uses are consistent and preserve the quality of life in a community. Likewise, for First Nations, consultation may avoid destruction of culturally significant sites if building permits in traditional areas are referred to the First Nation before being issued. Benefits for aboriginal communities also accrue in the provision of sewage and water services by local governments. The Nanaimo First Nation initiated negotiations with the Islands Trust, the City of Nanaimo and the Nanaimo Regional District to reach agreement on principles for land use and consultation.4 Of primary concern was destruction of special sites on private land due to increasing development in the area. Development permits for areas where traditional aboriginal uses occurred are automatically referred to the First Nation.

It is increasingly important, given the scope of aboriginal rights and broadening local government powers into forestry and watercourse protection, to develop consultation mechanisms between Aboriginal peoples and local governments. It is only through coordinated consultation that land use issues can be addressed before harm occurs.
9.4 INTERGOVERNMENTAL AND INTERSECTORAL COOPERATION

Local governments can work with neighboring governments and with community groups to facilitate municipal objectives under OCP's, to plan for a unique geographic area, or to institute regional programs. Many different mechanisms are already used by CRD municipalities to address common issues. The four Core municipalities coordinate on arts and social planning. The Western Communities are consulting on the state of Bilston Creek. The three Peninsula municipalities coordinate efforts regarding agriculture and the aboriginal communities on the Peninsula. These initiatives form a solid foundation for cooperative implementation of the RGS. The premise of the RGS is that many issues have multi-jurisdictional or regional effects and that a coordinated vision and action plan for addressing those issues is needed. Municipal endorsement of the RGS is a commitment to work formally together.

Some jurisdictions take inter-municipal cooperation a step further and provide for the consideration of regional impacts when approving developments. Vermont’s planning legislation includes criteria for turning down projects which will have adverse impact on other jurisdictions within the state. Activities or projects that impose burdens or deprivations on other communities or the state as a whole cannot be justified on the basis of local benefit alone. Broader region-wide authority can assist local governments to monitor and implement the RGS.

Administrative agencies arising out of regional planning can guide local government planning and coordination. In 1934 a group of municipalities in Southern Ontario formed the Grand River Conservation Commission to address problems of flooding, pollution and safe water supply that affected their economic viability. By pooling their resources, the local governments have decreased flooding, ensured adequate water flows throughout the summer months, and increased recreational values. The Conservation Authority (as it is now known) provides assistance to municipalities in planning on a watershed basis, and has, with the assistance of community groups, preserved over 18,000 hectares of wetlands, forests and streams.

Non-governmental agencies and community groups can also facilitate local government cooperation. Increasingly, local governments are asked to endorse or work with economic development or conservation organizations on specific projects. The agencies coordinate the efforts of different jurisdictions and provide both volunteer and paid services to perform tasks for which the local governments lack the resources. The Fraser Basin Council is a large scale example. It is a partnership of all levels of government, First Nations, and community groups working together to ensure the continued functioning of the Fraser River system.

9.5 STRATEGIES TO INCREASE COMMUNITY INVOLVEMENT AND COOPERATION

Citizen involvement in government decisions is sometimes seen as unwieldy and inefficient in time and resource use. Local government officials often face short timelines and find it difficult to stimulate public participation. As a short-term solution, community involvement is often difficult. However, studies have shown that over the long-term, the time and effort pay rich dividends in public commitment and involvement. When citizens’ ideas and concerns are actually reflected in governmental decisions, the public are more much likely to accept those decisions and to help make them become a reality. When the public is granted a role in decision-making, individuals and sectoral representatives gain knowledge about their community and about how to work with the government and with each other: a new capacity is built in the community.

The relatively small and manageable scale of municipalities makes local governance an ideal setting in
which to integrate decision-making and community. Local knowledge makes it possible to mobilize resources within the community and to create partnerships with and among individuals and groups. If a commitment by local government and a core of individuals exists, other members of the public and different groups and sectors will follow the initiative.

The meaning of public participation varies from simply asking people their views, at one end of the spectrum, to community-based management whereby all sectors of a community are integrally involved in the development and execution of a project at the other. The ongoing involvement of the community in implementing programs is critical to the acceptance and success of those programs. Community involvement often leads to innovative solutions and broad sectoral partnerships which would not be discovered otherwise. By sharing its responsibility with the community, the local government is not left solely responsible for the initiation of expensive programs and services. It can act as the facilitator of community development, and build community capacity at the same time.

**Community Associations and Networks**

Community associations are a vital link between the citizens and government. Many of them monitor the community impacts of municipal development, and respond to development proposals as needed. Many of them provide social and economic development services. The Gorge-Burnside Community Association has a budget of $600,000, and operates two daycares and an after school program. It sponsors parenting and computer courses and mom and tot groups. They have also had an aboriginal community liaison staff person. Likewise, the James Bay Community Project houses a baby clinic, daycare, parenting resource library, and a toy and clothing exchange. It runs programs on parenting, and employs a youth outreach worker. One recent project is a process to “map the community assets” to gain a complete picture of the social, economic and environmental capacity of James Bay. Another project is to conduct a business evaluation to determine the feasibility of turning the old fire hall into a community amenity with services like a tea room and garden centre housed there. The James Bay Neighbourhood Environment Association is responsible for land use and resource issues in the neighbourhood.

Community involvement in local government decisions in the CRD is often formalized. While changes in zoning and other decisions require a public hearing, community members often have no chance to comment or make suggestions at the planning stage of a project. Some municipalities, like Langford, allow only those people living in that particular municipality to address council at a public hearing. Other municipalities, notably Saanich and Victoria, refer development applications, on an ad hoc basis, to neighbourhood community associations. Developers and the community have the opportunity to work out any opposition and explore alternatives before the application goes before council. This can expedite the application process and avoid extra costs for the developer, and encourage appropriate developments for the community. Community associations also play an important role in planning, and some municipalities develop local areas plans or sub-OCP plans in consultation with community associations.

Networks of community associations also exist. In Victoria, the Community Association Network (CAN) is a forum for groups to share information and keep each other up to date on neighbourhood developments. The Saanich Community Association Network (SCAN) acts as an information-sharing forum, but also coordinates community involvement on council committees. For example, two SCAN representatives were members of a recent committee to review the Saanich development approval.
process. On municipal-wide issues, SCAN can act on behalf of all community associations. The community association networks perform an important complimentary role. Many associations do not have the time or resources to keep informed of all municipal activities. By sharing information and coordinating responses to issues that affect all citizens, the networks make public participation more effective.

**Design Charrettes**
A charrette is an “illustrated brainstorm”. It is a planning workshop whereby community members, municipal staff and experts are brought together to explore alternatives for a specific area. A charrette typically deals with an urban design issue of social and civic importance, and provides the community with feasible and creative solutions. The resulting plan often reflects innovative ideas that residents support. Charrettes have been held in Victoria, and recently in Saanich for the Quadra-McKenzie area.

**Referenda**
In 1990, the citizens of Rossland, B.C. sought to make the municipal government more accountable by providing for referenda and elector initiatives in local matters. Citizens now have the right to petition council to submit bylaws and amendments to referendum prior to final adoption. The referendum bylaw does not apply to council initiatives that conform with the existing OCP. Seven of the 10 referenda held over the past seven years ratified council initiatives, and no petitions calling for changes in council policy have succeeded.

Other unanticipated benefits include an increase in voter registration and turnout, and substantial change in the relationship between the municipal council and the other members of the community. Closer citizen scrutiny has resulted in greater focus and attention on the part of council members. Councillors are in constant communication with the community to ensure that their policies are consistent with community priorities and objectives. Regular monthly reports and quarterly town hall meetings help keep citizens informed of municipal activities.

**Participatory Budgeting**
Allocating budget resources to projects makes municipal goals a reality. In B.C., local governments are not required to involve the public in the budget allocation process.

In what is a radical change for municipal budgeting, 70 municipalities in Brazil are undertaking participatory budgeting whereby the public decides where money should be spent. In Belo Horizonte, the city budget is divided in two. Half of it is allocated by elected officials and the other half is allocated through public consultation. The key to this process is consultation through neighbourhood groups. Over 96,000 people participated in the participatory budgeting process in 1995.

**Regional Planning as Comprehensive Community Planning (Local Agenda 21)**
Agenda 21 was the major document adopted at the United Nations Earth Summit held in Rio de Janeiro in 1992. The document stressed the need for governments to undertake comprehensive planning in order to achieve sustainability, and noted that "[l]ocal authorities construct, operate and maintain economic, social and environmental infrastructure, oversee planning processes, establish local environmental policies and regulations, and...as the level of government closest to the people, they play a vital role in educating, mobilizing and responding to the public to promote sustainable development." Agenda 21 urged that local governments must therefore be charged with comprehensive sustainability planning.
Municipal planning that comprehensively integrates social, environmental and economic objectives and is driven by a long-term community vision is now called Local Agenda 21 Planning. Over 1800 communities worldwide have undertaken Local Agenda 21 or similar planning exercises. In the CRD, a truly comprehensive RGS could be considered of the scope of Local Agenda 21 planning if implemented in partnership with community associations and various sectors.

In Sweden, over 200 municipalities have initiated Local Agenda 21 projects. Swedish municipalities involved all community members in the planning process, which, in addition to producing concrete initiatives, became "a tool for changing attitudes, behaviour and life styles, [which was] necessary for progress towards a sustainable society". Participating municipalities shared a strong sense of vision and a firm commitment to achieving sustainability by changing institutional procedures. They committed themselves to basing all future development on ecological principles and sustainability. This commitment included training all municipal staff in environmental issues, community-wide sharing of household innovations, linking rural and urban communities for local food production, and facilitating breakfast meetings with local businesses to exchange environmental information. Cooperation has increased among the business, environmental, and community sectors, promoting information sharing and holistic management.

In the United Kingdom, the Local Government Management Board (equivalent to the Union of B.C. Municipalities) has developed extensive resources to help local governments develop Local Agenda 21 plans. These resources include an overall framework document and video training for local authority staff. The Board also undertakes the important function of networking, and documenting and sharing information about what different local governments are doing. Multi-sectoral roundtables are underway to establish guidelines for sustainable development with respect to various topic areas such as community participation and transport. Local Agenda 21 roundtable guidance reports are being published for each topic area.

The Regional Municipality of Hamilton-Wentworth in southern Ontario was the first local government in Canada to adopt a process akin to Local Agenda 21. In addition to initiating the process, the government took a lead role in implementing the plan, both internally and in the community. Senior staff were required to integrate sustainable development and the community vision into the procedures for developing the budget and departmental programs. In addition, they were mandated to evaluate policies, programs and projects using a sustainable communities decision-making guide. Like the local governments in Sweden, the municipality sees this process as an opportunity to change both the goals and the operation of regional government. Community visioning has created goals against which all community decisions, whether made by businesses, citizens or local government, can be measured.

In 1990 Hamilton-Wentworth created a Citizens' Task Force on Sustainable Development to "explore, in cooperation with its fellow citizens, the concept of sustainable development as a basis for the review of all regional policy initiatives". The process, which took two and a half years and involved over 1,000 citizens, resulted in a vision statement, "Vision 2020: The Sustainable Region", and an implementation strategy. The consultation process included:

- seven town hall meetings, assessing vital issues and establishing guiding values;
- small focus group discussions with people who are usually excluded from the decision-making process, such as seniors and non-English speaking communities;
- "vision groups" of community organizations, which worked to create visions in specific topic areas;
- implementation teams of community organizations working to identify the decisions and actions needed to implement the vision; and
other activities such as a media campaign, a newsletter distributed throughout the region, television programs, staff seminars, and exhibits in shopping malls.

To date, projects have been undertaken in the areas of green spaces, water and wetlands, transportation, air quality, waste management, energy, education, land use, a new economy, and health and well-being, and progress is being monitored in all of these areas. Actions include:

- conducting a natural areas inventory;
- developing a volunteer group of citizens to provide professional advice to municipal staff on environmental issues;
- undertaking the largest wetlands restoration project in North America;
- developing a comprehensive municipal pollution prevention plan;
- creating partnerships with households and businesses to help reduce waste, water, and energy consumption;
- establishing a community indicators project to measure the progress towards Vision 2020;
- publishing health and environmental documents for the public;
- encouraging redevelopment rather than building on green spaces;
- supporting neighbourhood safety and rehabilitation projects; and
- adopting a long-term strategic plan for economic development.

As a result of Hamilton Wentworth's Vision 2020, municipal planning and policy documents such as the community plan, the Community Economic Strategy, and the Transportation Review were all revised to reflect the sustainable community vision. The OCP now incorporates almost 100 of the 400 detailed recommendations from Vision 2020.

Finally, an important part of sustainability planning is to monitor progress. This allows the community to evaluate and revise programs in light of changing environmental, social, economic, and technical realities. The CRD has initiated a monitoring program with the publication of a State of the Environment Report in 1997. This program can be expanded to include community-defined indicators and a yearly report card on progress and problems.

9.6 Local Governance: How Do We Pay for All of This?

Governments must of course consider the resources needed for developing and implementing sustainable community plans. These may include both staff time and cash. However, given the broad citizen and civic group involvement in developing community plans, and the wide public commitment which this attracts, municipalities are finding that many goals can be achieved at little or no cost. In Chattanooga, Tennessee, 70% of the goals identified by the community were achieved at no extra cost to the city, and in Mt. Washington Valley, New Hampshire, implementation of the goals is funded through local foundations and businesses as well as the 12 local governments involved and the state.

Local governments can also save money by working together on implementing the regional vision, and avoiding unnecessary competition. For example, consistency in development cost charges can fund infrastructure in keeping with the regional vision, and equalize development pressures.

However, while significant gains can be achieved without direct expenditures, local governments
usually provide the staff necessary for coordination, and make some level of monetary contribution in order to demonstrate the government's commitment to the process. Businesses, individuals and organizations may be more willing to match such contributions in different ways (either directly or with in-kind donations) when the local government takes the lead in coordinating and implementing the plan.

9.7 CONCLUSION

The Regional Growth Strategy provides an important opportunity to develop and implement a vision for a sustainable CRD. This must be accomplished as a partnership of all municipalities, community groups, and private sector interests. It is only through taking a long-term view of the strategic issues outlined in the document that the quality of life in the CRD will be preserved.

Comprehensive regional planning developed in consultation with the whole community can generate widespread public support and cooperation. Much of the work of both planning and implementation can be accomplished by volunteers, thus drawing on the knowledge, wisdom, and talent of all the citizens, and revitalizing not only the physical infrastructure but also the democratic spirit, social cohesion and cooperative potential of the community while spending a minimum of governmental resources.

9.8 RECOMMENDATIONS

The following recommendations form the foundation for sustainable governance in the CRD:

1. Facilitate decisions to be made at the level closest to those affected by the decision and by those with the ability to make that decision, including making technical skills available to residents at those levels;
2. Work with all local governments in the CRD to formalize and augment effective consultation with the aboriginal communities in the region;
3. Continue to develop interjurisdictional coordination mechanisms, especially to implement the RGS;
4. Explore the potential to establish CRD wide and inter-municipal administrative agencies to oversee aspects of RGS implementation, such as the Green/Blue Spaces Strategy and watershed-based management;
5. Increase municipal reliance on, and support for, community associations, including referring all development applications to the affected associations and non-governmental organizations;
6. Include community association members on all municipal advisory committees;
7. Assist community associations to establish community association networks. Rely on and support those networks;
8. Experiment with the use of charrettes and participatory budgeting to involve community members directly in establishing municipal priorities;
9. Examine the feasibility of selectively using referenda to improve the transparency and accountability of local governments;
10. Ensure that the RGS is comprehensive, takes a long-term view, and includes community-defined monitoring programs; and
11. Commit to implementing the RGS in partnership with community associations, the private sector, non-governmental organizations and individuals.


4 Murray Browne, Director, Nanaimo First Nation Treaty Office. Personal communication, February 9, 1998


8 James Bay Community Project, Information pamphlet. 547 Michigan Street, Victoria 361-9757.


10 Andre Carrol, op cit.


15 Local Government Management Board, undated guides for Local Agenda 21 Planning (Luton, United Kingdom: Local Government Management Board).

16 Bengt Westman, “Agenda 21 at the Local Level” in Nyström, op cit. 80-84.


18 Regional Municipality of Hamilton-Wentworth, op cit.

19 Regional Municipality of Hamilton-Wentworth, op cit.


21 Wolfe, op cit.