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CANADIAN INSTITUTE OF PLANNERS / ASSOCIATION OF CANADIAN UNIVERSITY PLANNING PROGRAMS

Creating a Healthy and Sustainable Community in Richmond City Centre 1992 - 1993

City of Richmond • The University of British Columbia Task Force on Healthy and Sustainable Communities

Sustainable development has become an all-encompassing buzzword in the 1990s, yet little consideration has been given toward how it can actually be applied. This case study examines the application of Appropriated Carrying Capacity (ACC) and Social Caring Capacity (SCC), newly-developed research and planning tools from the School of Community and Regional Planning (SCARP) at the University of British Columbia. This case describes how these tools can be used in planning future development in the City of Richmond in order to minimize environmental impacts while maximizing quality of life.

Development Context

The City of Richmond is located in British Columbia's Lower Fraser Valley, which extends eastward 144 kilometers from Vancouver. This urban-agricultural region covers 4,000 square kilometers (400,000 hectares) and is home to 1,800,000 people, creating a population density of 4.3 people per hectare. Assuming average Canadian consumption patterns, estimates of corresponding land requirements show that the regional population has an actual ecological footprint (this concept is discussed later

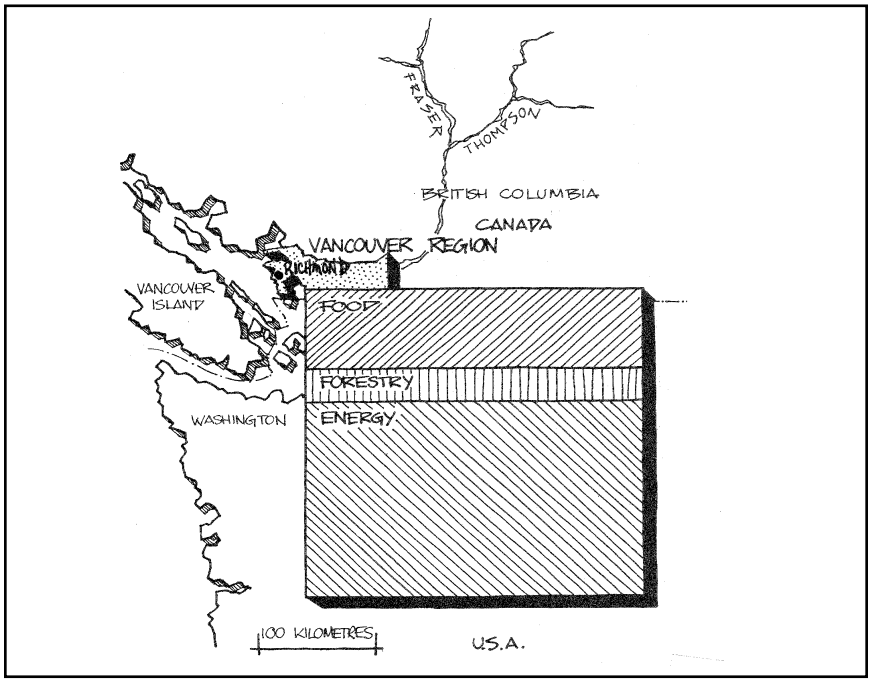

Figure 1: The Ecological Footprint of the Lower Fraser Valley. The residents of British Columbia's most populated and ecologically most productive region, the Lower Fraser Valley (stippled area), "appropriate" through trade and natural ecological flows, the productivity of an area 19 times the size of their home region (hatched area) to satisfy present consumption levels of food, forest, products, and fossil fuel.

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in the Case Study) of 73,000 square kilometers (7,700,000 hectares). In other words, the Lower Fraser Valley population requires an area 19 times larger than its home territory to support its present consumer lifestyles. This includes 23,000 square kilometers for food production, 11,000 square kilometers for forestry products, and 42,000 square kilometers to accommodate energy use.

Planning and Design Issues

From 1971 to 1991 Richmond's population more than doubled, and total growth averaged approximately 5% per year, presently totaling 130,000 residents. In recent years, Richmond's growth has been in line with the regional average. Richmond has grown faster than some municipalities like West Vancouver, North Vancouver, Vancouver, and Burnaby; yet it has grown at a much slower rate than Surrey, Port Coquitlam, Langley Township, and Coquitlam.

Richmond's Official Community Plan was last updated in 1989, and includes 5 main goals:

- to conserve Richmond's natural environment and agricultural community,
- to support Richmond's economic development,
- to enhance Richmond's living environment,
- to promote culture, recreation, and heritage in Richmond,
- to provide for the social needs of the community with adequate support services.

In 1989, the City of Richmond simultaneously adopted several objectives and policies in the Official Community Plan which are related to sustainable development. These were:

- to develop a transportation system that complements a balanced land use strategy (the strategy of balancing jobs, labor force, and agriculture),
- support alternative modes of transportation,
- protect the City's natural habitats,
- maintain and improve air and water quality,
- support the solid waste strategy of the lower mainland refuse project.

The concern was that within these development proposals, direction was required in terms of understanding and applying sustainable development procedures.

Actors and Stakeholders

The Task Force on Healthy and Sustainable Communities is a collaboration among representatives from the University of British Columbia's School of Community and Regional Planning (SCARP), the Centre for Human Settlements, Department of Family Practice, Institute of Health Promotion Research, Department of Health Care & Epidemiology, School of Nursing, and the School of Social Work. In existence since 1991, the Task Force works with communities to develop tools and strategies for decision-making toward sustainability. A key objective has been to make the sustainability dilemma understandable and to develop non-threatening paths for change.

Interaction with the City of Richmond occurred at four different levels:

- Council and senior management,
- Departmental staff (Planning, Health, Parks and Recreation, and Economic Development),
- formally designated citizens advisory groups,
- individuals within the community.

Central Problem or Opportunity

Considerable data is available on the current degradation of the global and regional commons. There is also significant data on the sources of that degradation and some indicators of the effects of that degradation on environmental quality, economic functions, and human health. What is singularly lacking are the effective means to translate this concern and knowledge into concrete plans to modify human conduct. This project focused on indicators of health, economy, and the environment, and how these factors might be used to ensure that the City of Richmond could see the real consequences of any given policy direction. Given current municipal growth trends, discussion centered around the policy issues relevant to planning for an influx of 40,000 more people into the "town centre" area over the next two decades.

Planning Goals and Objectives

The project aims were to examine and develop indicators of health, social equity, and the environment which link health and social and ecological concerns with policy development in order to promote an understanding of how economic, ecological, and health-related data and indicators can be integrated toward policies for healthy and sustainable communities in the City of Richmond.

Organizational Framework

This project was developed in the context of previous urban management plans and issue papers that had been implemented since the 1986 City of Richmond Town Centre Area Plan, and was carried out as part of Richmond's revision of its City Centre Plan. There was also a significant regional component, where Richmond represents one of six designated Regional Town Centres with the Greater Vancouver Regional District's (GVRD's) Livable Region Strategy, in which the intent was to link

in [ha/capita] ecologically productive land	a ENERGY	b DEGR.	c GARDEN	d CROP	e PASTURE	f FOREST	TOTAL
10 FOOD	**0.33**		**0.02**	**0.6**	**0.33**	**0.02**	**1.3**
11 vegetarian	0.14		0.02	0.18		0.01?	0.35
12 animal products	0.19			0.42	0.33	0.01?	0.95
20 HOUSING	**0.41**	**0.08**	**0.002?**		**0.4**	**0.89**	
21 constrn./maint	0.06					0.35	
22 operation	0.35					0.05	
30 TRANSPORTATIO	**0.79**	**0.1**					**0.89**
31 motorized private	0.6						
32 motorized public	0.07						
33 transp'n of goods	0.12						
40 CONSUMER GOODS	**0.52**	**0.01**		**0.06**	**0.13**	**0.17**	**0.89**
41 packaging	0.1					0.04	
42 clothing	0.11			0.02	0.13		
43 furniture & appl.	0.06					0.03?	
44 books/magazines	0.06					0.1	
45 tobacco & alcohol.	0.06			0.04			
46 personal care	0.03						
47 recreation equip.	0.1						
48 other goods	0						
50 SERVICES REC'D	**0.29**	**0.01**					**0.3**
51 gov't (+ military)	0.06						
52 education	0.08						
53 health care	0.08						
54 social services	0						
55 tourism	0.01						
56 entertainment	0.01						
57 bank/insurances	0						
58 other services	0.05						
60 TOTAL	**2.34**	**0.2**	**0.02**	**0.65**	**0.46**	**0.59**	**4.27**

(0.00 = less than 0.005 [ha] or 50 [m2]; blank = probably insignificant; ? = lacking data)

ABBREVIATIONS

a) ENERGY = **fossil energy consumed** expressed in the land area necessary to sequester the corresponding CO2.

b) DEGR. = **degraded land** or built-up environment.

c) GARDEN = **gardens** for vegetable and fruit production.

d) CROP = **crop land.**

e) PASTURE = **pastures** for dairy, meat, and wool production.

f) FOREST = **prime forest** area. An average roundwood harvest of 163 [m3/ha] every 70 years is assumed.

Table 1

each centre with a viable transportation system in order to shape and support growth, commensurate with the GVRD's Transport 2021 forecasting study for the region, completed in 1993.

The focus of the Task Force was a compendium of four reports that concentrated on community economic development, urban transportation issues, and the relationship between municipal policy-making and ACC. These reports were conducted on a research analysis basis in conjunction with stakeholders in the City of Richmond.

Decision Making Tools

The Task Force started from the commonly held notion of sustainability as a balance of social, environmental, and economic goals. This further led to emphasizing the interdependency of humans and nature through the connections between personal, community, and ecosystem health. It became clear that achieving health in these three spheres suffers from a fundamental tension: society must live within nature's carrying capacity (long-term survival), while at the same time securing a good quality of life (shorter-term livability).

The Task Force's approach to planning with communities for sustainability aims to foster a better understanding of how social equity, community health, economic viability, and ecological stability can be simultaneously nurtured and integrated into policies. The goal of the Task Force has been to develop two tools to visualize this tension and possible trade-offs.

The first one, called "Ecological Footprint" or "Appropriated Carrying Capacity" (ACC), analyses a community's dependency on nature's carrying capacity, where carrying capacity expresses the maximum rate of human resource consumption and waste discharge that the ecosystem can support (sustain) indefinitely. The "Ecological Footprint" is an estimate of the area of productive land required to maintain current levels of economic activity and living standards for a given community.

The second tool, called "Social Caring Capacity" (SCC), is still being developed. This tool should allow a community to examine its local livability. Only those policies that reduce the ecological footprint (ACC down) and increase the community's livability (SCC up) move the community toward sustainability.

1. Appropriated Carrying Capacity (ACC)

ACC can be defined from a consumption point of view as the land which people must appropriate to continuously provide all resources currently consumed, and continuously absorb all waste currently discharged using present technology. This can be applied at a number of scales from neighbournood to nation and in relation to a variety of project or policy choices (e.g., transportation mode, hydroponic agriculture, etc.).

The land use consumption for an average Canadian using the ecological footprint model, in 1991 is shown in Table 1.

This is then further extrapolated in the following considerations:

a. **Land requirements for commercial energy:** the ecosystem use implications of consuming fossil fuel, hydroelectricity, and other renewable energy sources.

b. **Accounting for built-up land:** paved-over, built upon, badly eroded or otherwise degraded, land is considered to have been "consumed" since it is no longer biologically productive and its future bioproductivity has been reduced.

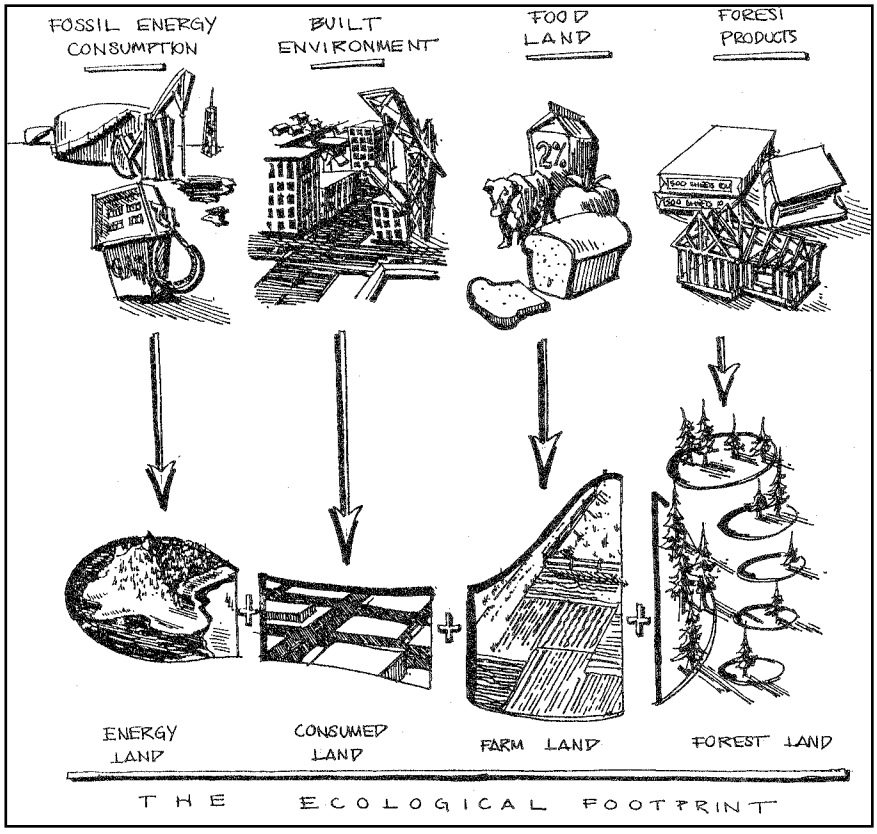

Figure 2

c. **Absorption of waste products:** nature's capacity to absorb waste is finite. What cannot be degraded and assimilated accumulates locally, or is carried away by water and air only to accumulate elsewhere, in the sea, or in global food chains.

d. **Protecting biodiversity:** the need to consider the extent to which modified and heavily exploited ecosystems such as well-managed forests conserve biodiversity and provide basic life-support functions.

2. Social Caring Capacity (SCC)

Once they have accepted the ecological imperative of sustainability, SCC provides a framework for communities to analyze quality of life related issues for the various options that might reduce their ecological footprints. The concept was initially defined for this project as the presence of opportunities for all members of the community to meet basic needs.

The UBC Task Force on Healthy and Sustainable Communities, along with members of the Richmond Planning and Health Department, used a literature review to establish the following seven criteria as important for enhancing the livability and sustainability of the Richmond region:

a. **Social Equity:** Equitable opportunities for all members of the community to meet their basic needs and enjoy a good quality of life, achieved through access to the decision making processes of the community, education, training, health care, social support services, housing, a quality environment, and an opportunity to earn a livelihood.

b. **Diversity:** A variety of ages, socioeconomic status, cultures, gender and family types, occupations, housing designs, employment opportunities, education, and health status.

c. **Interconnection:** The presence of opportunities to develop personal support networks enabling reciprocity between community services and community members and between community members themselves; and involvement in community activities and programs which foster a sense of community belonging.

d. **Safety:** The presence of a psychological sense of security, ease, and comfort in one's daily life; the absence of unnecessary dangers, risks, and hazards in the physical environment; and the presence of measures in the environment implemented for the purpose of decreasing possibilities of victimization (i.e. education, adequate lighting, and neighbourhood watch programs).

e. **Access to Recreational/Open Space:** The presence of functional parks and recreational areas that are easily accessible and extensively used by the community for a number of different recreational activities.

f. **Minimization of Household/Family Stressors:** Social, physical, and political interventions which serve to minimize daily personal and familial strains and pressures.

g. **Inclusion in Decision-Making Processes:** Community involvement in social, political, health, and environmentally related decision making processes, in order to elicit, understand, and attempt to meet community members' needs, allow empowerment, and facilitate a sense of responsibility and commitment to the community.

Options for Action and Their Evaluation

1. ACC

Using transportation as one example of ACC, supply and management options can be used to promote the development of "ecologically friendly" modes.

Supply Measures

- roads
- accommodation of pedestrians
- accommodation of bicycles
- rapid transit

Management Measures

- traffic controls
- ride sharing and trip reduction programs
- road/fuel/insurance pricing
- parking pricing and supply
- park-and-ride

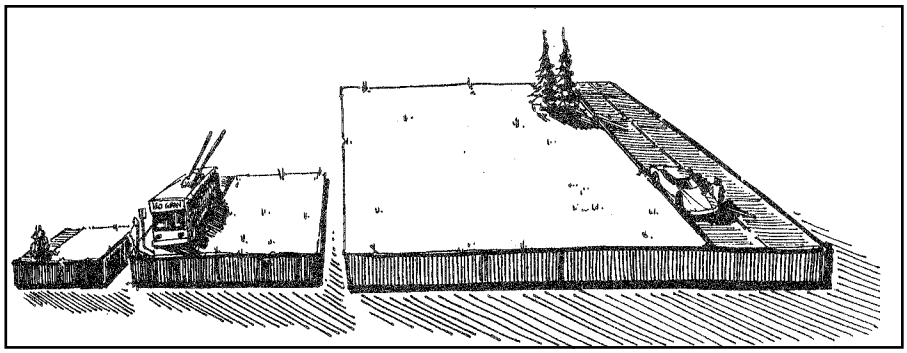

Figure 3: The Ecological Footprint of one person traveling five kilometers twice each workday (10 km per week) varies according to transportation mode: for bicycles, it is about 122 square meters, for buses 303 square meters and for cars 1,530 square meters.

Recommended complementary design measures include:

- concentrating community facilities and major commercial uses within a walkable downtown,
- lobbying for a rapid transit link to Richmond,
- locating a transit station in the heart of the downtown, within easy walking distance of the largest population concentration in the City Centre,
- developing a much greater pedestrian orientation in all parts of the City Centre.

Apart from achieving a balance in both supply and management policies, there needs to be a supportive land use policy in place. Modes that tend to result in reduced ACC are walking, cycling, and public transport, provided that adequate ridership levels are achieved. In contrast, automobile trips usually result in a higher level of ACC. However, simply providing bicycle paths or a rapid transit line will not be enough to convert automobile drivers to transit or cycling. Complementary land use policy can emphasize densification and multiple uses at nodes which can be easily accessed by various transportation modes, minimizing the effect on ACC.

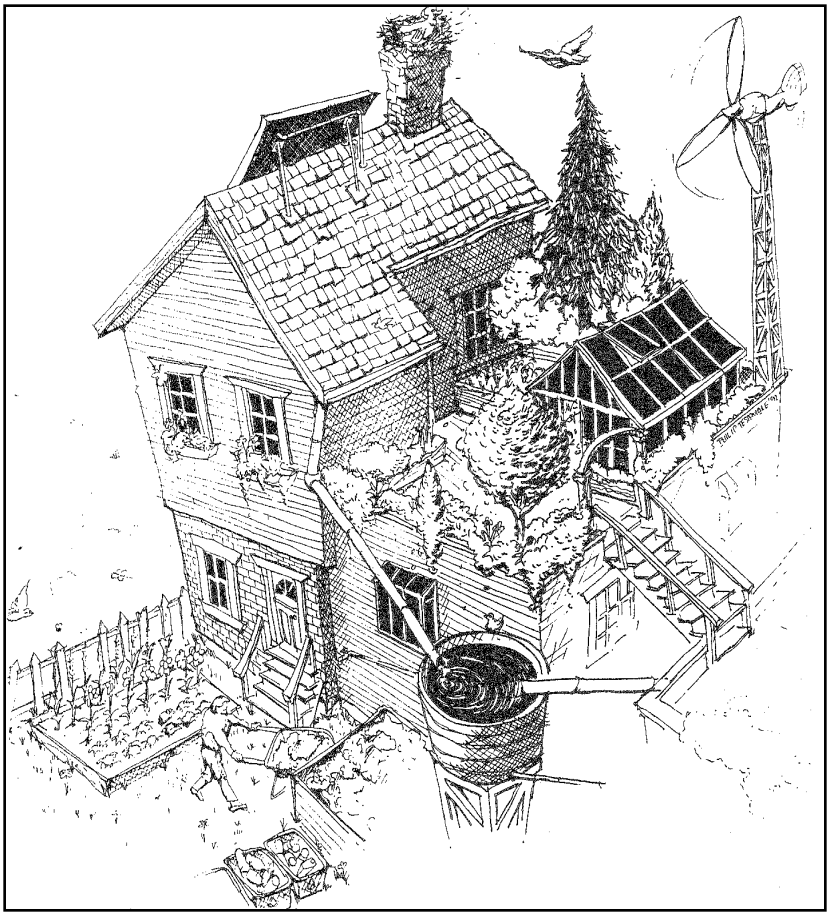

Figure 4

2. SCC

After establishing the SCC criteria in the preliminary literature review, the next stage involved consultation with six focus groups with a total of 46 participants to pursue answers to the broad question: What aspects of community life are seen by community members to contribute to, or detract from, the sense of support and connection community members feel to their community?

One component considered by this consultation process was the application of community-based economic strategies in Richmond. Using the SCC parameters, potential strategies include:

- **Affordability/Security:** Provide security for families and individuals,
- **Community Development:** Development of a strong locally owned and operated economic base,
- **Community Infrastructure:** Development and regeneration of social, ecological, and physical infrastructure appropriate for community well-being,
- **Home/Work:** Establish opportunities to further integrate living and working,
- **Community Governance:** Support the transition to greater community involvement in governance.

There are, however, certain legislative barriers, principally within the Municipal Act of British Columbia, which need to be addressed before Richmond will be able to implement specific community-based economic strategies. Acknowledging this, the Task Force concluded that:

- Municipal governments can take proactive planning measures, with or without senior government support, to initiate community-based economies strategies which will have a greater long-term effect and lead to more sustainable outcomes.
- Community based economies strategies initiated from the government level can play a crucial role in supporting grassroots economic development and planning strategies initiated and developed by community-based organizations.
- A community-based economies approach can form a holistic policy framework suitable for reconciling potentially conflicting social and economic policy initiatives and furthermore, move these social and economic policies in a direction which leads to more sustainable outcomes.

Implementation Strategies

The implementation and application process for the ACC and SCC recommendations have been stalled due to the municipal election results in 1993 that saw a more sustainable development-focused Council replaced by a pro-development one.

Lessons Learned

The main challenge for any interdisciplinary and/or inter community/university partnership is its ability to set aside individual agendas and work together effectively toward a common goal.

The SCC tool and concepts had been formulated in 1993 to reflect the fundamental requirements for the health and well-being of Richmond residents, regardless of socio-demographic characteristics. However, each community member could list numerous additional criteria which must be included in their own definitions of well-being based on their culture, beliefs, and life experiences. That is why the initial parameters were refined in 1994-95 through work with local focus groups to better reflect community desires, while validating the SCC tools and concepts.

In presenting the ecological footprint analysis to the community, stakeholders had misconceptions in terms of the concept of sustained economic growth versus sustainability. As well, it was not easy to gauge the precise impact of policies to minimize ACC, such as the environmental costs of vehicular traffic versus the infrastructural costs of public transit.

Finally, the application of both the SCC and ACC tools does not guarantee that simple knowledge of the consequences of its choices would result in the community making the "right" choice as far as sustainability is concerned.

Capitalism is inherently based on consumption and economic growth, and how you spend or allocate money creates consumption patterns. The next century, however, will be marked by the growth of limits; physical, environmental, social, and economic. These limits will increasingly constrain the options available for a sustainable future.

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