



Smart Growth on the Ground

FOUNDATION RESEARCH BULLETIN: Squamish

Research compiled by:

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URBAN AGRICULTURE

1.0 Introduction

Food (as we thought we knew it) is History

Food is the original industry of Squamish. A hay ranch once occupied what is now downtown Squamish, and Brackendale was home to dairy and hops farms. Farmers traded for goods imported by boat from Vancouver. Logging eventually replaced farming as the primary industry, and today Squamish residents rely on food that is imported from all over the world. The food industry is now a global system of production and exchange that provides people with more food choices than ever before. The increasing scale in both production and trade has made it possible for people in North America to eat whatever they want whenever they want it, and often at lower prices.

Urban agriculture

Agricultural production that takes place within and around urban areas.

Not everyone benefits, however, from this system. Developing nations that shift from food sufficiency to agricultural export are particularly at risk of food insecurity. In Canada, the cost of healthy food is rising while economic assistance to families is declining.¹ The use of food banks grows in step with the volume of global agricultural exchange.² Retail food prices have tripled even though net farm incomes have declined, and farmland is often valued only as scenery or future housing reserve.³

Local food

Food that is produced, processed, and consumed within the same area or region.

The transportation required for this system is also a staggering consumer of energy. BC foods are shipped to processors in Alberta, packaged, and then shipped back to BC. Foods from the grocery store typically have traveled between 2,500 and 4,000 kilometres.⁴ A diet based on imported foods can require four times more energy and generates four times more greenhouse gases than the same diet based on local production.⁵

Community Gardens

An area of public or private land that is maintained by renting small garden plots for individual use.

Urban food systems are just beginning to surface in the realm of urban planning and design. While each component of the system requires the allocation of space, many of them can serve multiple functions within the community, and can often complement rather than compete with other urban land uses. Community gardens, for example, can fit into laneways or create an edge to a park.

2.0 The Benefits of Local Food

Locally produced and consumed food offers other unique opportunities that are not realized in the global food model. The local food model engages agricultural production as a multi-functioning resource for healthy communities. Local agriculture is regarded as a part of a community food system which also includes the processing, distribution, consumption, and recycling of food and food wastes. This model recognizes that local agriculture provides valuable social, economic, and environmental services within the social and physical infrastructure of a complete community.

Economic

Food is an untapped economic opportunity - it is the fastest growing resource-based sector in BC, employing more people than logging and more than mining and fishing combined, even when labor shortages are the biggest impediment to growth.^{6 7} At the BC average of \$6,800 spent on food per household per year, the Squamish retail food sector represents a \$34.7 million dollar market.⁸ This money, when spent on locally produced food, stays in the community, generating nearly twice as much local income as money spent on imported food.⁹ Farmers and local processors receive a better share from each purchase, or provide better foods at lower costs.

Environmental

Local food production turns wastes into resources. Compostable organic wastes, which can be used as a soil amendment, account for 25 to 40 percent of municipal waste streams, and often end up emitting methane from landfills.¹⁰ Agriculture-based industrial networks can turn wastes into food and energy, or treat wastewater for re-use (see the Agricultural Eco-Park example below). Local food also reduces transportation requirements and the associated use of energy and production of greenhouse gases.

Social

Local food production and processing can also contribute to the social life of communities. Activities such as community gardening, vocational training, shopping at farmer's markets, or seasonal celebrations such as harvest festivals generate social opportunities that are accessible to a broad demographic. Food is relevant to all cultures. Community gardening often creates activity in areas that benefit from the informal surveillance, and from the increased sense of local ownership. Successful local farms often include recreational opportunities for area residents. Some local farm models, such as Community Supported Agriculture¹¹ (CSA), base their businesses on social networking and mutual interests.

3.0 The Potential for Local Food Systems in Squamish

Squamish already exhibits a high social capacity for supporting a local food system. There are several alternative food distribution programs run by the Rotary Club and area churches, a seasonal farmer's market, a new community food garden, several grocery stores, and an organic waste composting system.

The Agricultural Land Reserve (ALR) is a conventional indicator of productive capacity. There are large portions of ALR lands outside the district in the Squamish River Valley (over 2,800 ha), and smaller areas within the District of Squamish (364 ha). At average BC field crop yields¹² and per capita consumption¹³ this smaller area of land within the district (both ALR and non ALR lands) could theoretically provide Squamish with all its annual vegetable needs.

Since land ownership and agricultural enterprise do not always coincide, it is also necessary to consider a fine-grained network of small productive areas within the public or semi-public realm of urban development. This type of network usually emphasizes the social and environmental value of food systems over the economic, and requires creative solutions in both the design and management of each space.

4.0 Designing Community Food Systems

The local food model would see a robust food system that is integrated into the fabric of the community. Major North American cities such as Toronto and Vancouver, and many smaller municipalities including several in BC, have adopted food policies that seek to enhance the local food system. Vancouver's new Food Policy Council describes such a system as "one in which food production, processing, distribution and consumption are integrated to enhance the environmental, economic, social and nutritional health of a particular

place.” The Council outlines a sample of local food initiatives that provide the basis for design programming:

Production: Creating and promoting community gardens; promoting rooftop gardens; promoting urban agriculture; economic development opportunities linked to sustainable local agriculture; buy local campaigns.

Processing: Creating a coordinated food processing and distribution centre; studies on local food processing; supporting community kitchens; commercial kitchen incubator projects.

Distribution and access: Promoting food co-ops and buying clubs; coordinating emergency food systems; creating and supporting local farmers markets; volunteer programs for coordinating emergency food distribution; food sector job skills training for low income people.

Consumption: Provide assistance to the School Board, when requested, in meeting their established school nutrition goals; public education on food security and insecurity; infant and child nutrition projects; public forums on food security issues.

Recycling of productive wastes: Promoting food composting; using creative approaches to waste reduction, recycling and composting.¹⁴

The urban food program is more explicitly outlined in the Urban Agriculture Strategy for South East False Creek in Vancouver, which recommends uses that could be compatible with urban growth, including productive areas that fit within neighborhoods. This program includes community gardens, edible landscaping, hydroponic greenhouses, aquaponics (tank based fish farms), market gardens, shared food processing facilities, community kitchens, and farmer’s markets.¹⁵ There are also micro-livestock operations that are common in most of the urbanized world, although North American cities usually regard this as too much of a public health risk.

Larger agricultural areas, such as those within the ALR, also require design and planning consideration. ‘Edge’ planning attempts to anticipate and reduce urban/agricultural conflicts such as nuisance complaints from noise and smells, vandalism or destruction from unplanned public use of farm lands, or the leaching of pollutants from one land use to another - such as highway runoff that enters irrigation water. Buffering techniques vary according to each situation, but typical measures consider vegetated or constructed barriers, natural corridor edges, building setbacks, adjacent land use compatibility, and reduced densities near productive areas.¹⁶

Table 1: Designing Community Food Systems - Metrics

SYSTEM	SYSTEM ELEMENT	RATIOS PER 1000 POP.	SIZES (TYP. OR MIN.)
PRODUCTION	edible landscaping		linear (within right-of-ways)
	community gardens		100-500 sq m (1,000-5,400 sq ft)
	community garden plot	6.5 (Montreal)-22.2 (Berlin)	2-9 sq m (20-100 sq ft)
	allotment gardens		5 ha (12.5 acres)
	allotment garden plot		18 sq m (200 sq ft)
	community greenhouse		4.88x7.32 m (16x24 ft)
	aquaponics		1,860 sq m (20,000 sq ft)
	hydroponics		930 sq m (10,000 sq ft)
	microfarm / market garden		0.5 ha (1.25 acres)
PROCESSING	agricultural eco-park		4 ha (10 acres)
	community kitchen		37.5 sq m (400 sq ft)
	commercial kitchen		420 sq m (4,500 sq ft)
DISTRIBUTION	catering/processing kitchen		93 sq m (1,000 sq ft)
	grocery store		1,225 sq m (13,000 sq ft) small
	outdoor/covered marketplace		2,250 sq m (24,000 sq ft) medium
	marketplace vendor stalls		370-750 sq m (4,000-8,000 sqft)
	clubs/food banks/etc		3x3 m (10x10 ft)
RECOVERY	cafeteria		46-93 sq m (500-1,000 sq ft)
	solar aquatic waste treatment	1,500 sqm (16,000 sqft)	93-372 sq m (1,000-4,000 sq ft)
	In vessel composting	1,300 sqm (14,300 sqft)	200-1000 sq m (2,500-10,500 sq ft) [a 730 sq m (7,800 sq ft) system can serve up to 2000 homes]
			a 2 ha (5 acres) site serves 15,000 people



5.0 Case Studies

Edge planning: Urban/Rural Fringe (left)

This farm edge in Abbotsford illustrates a successful vegetated buffer between productive land and urban development. The proximity of housing here may still preclude certain production activities such as mushroom or pig farming. The BC Ministry of Agriculture provides several guidelines for appropriate planning and design techniques.¹⁷

Site Planning: Garden Villages (left)

24ha (60acre) / 10.2 gross uph (4.1 gross upa)

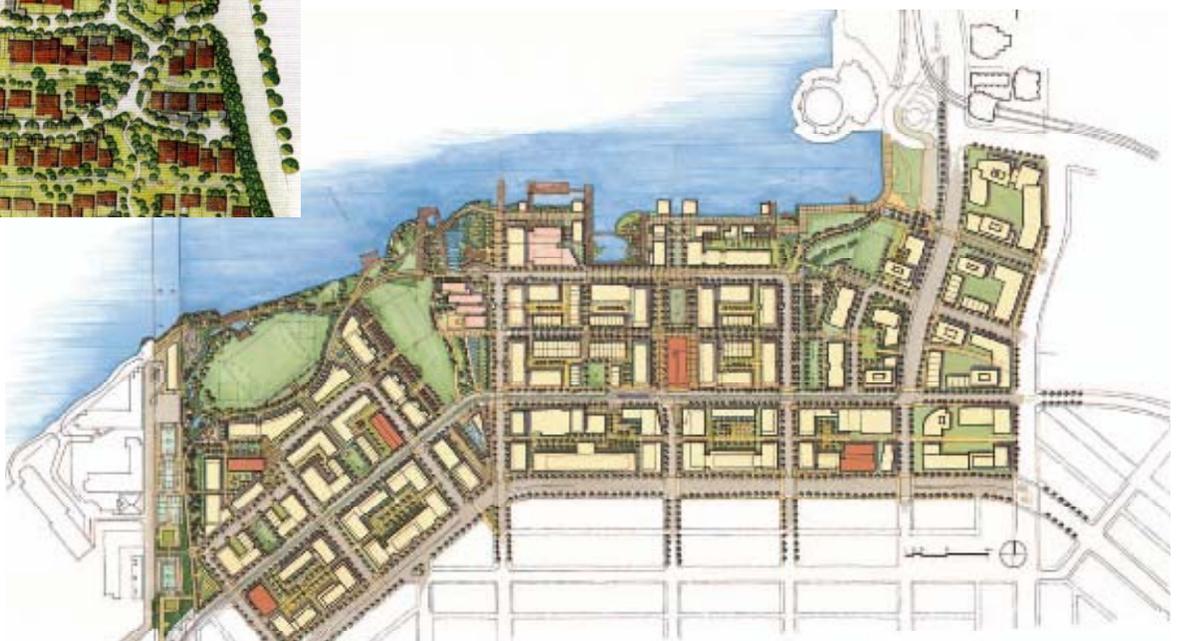
Village Homes in Davis California is a residential development that incorporates community gardens as an edge space, and orchards and edible landscaping as green corridors throughout. Almost 30 percent of the land is designated for production. Clusters of houses share common outdoor spaces which may also be used for food production. Streets run east/west and lots are oriented north/south to provide maximum solar exposure. Residents of this community grow 24% of their annual fruit and vegetable needs.¹⁸



Community Planning: Urban Food Systems (below)

36ha (80acres)

The Official Development Plan (ODP) for Southeast False Creek in Vancouver includes grocery stores, on-site composting, a school garden, demonstration gardens, roof gardens, a farmer's market, and edible landscaping such as fruit trees in the public right-of-ways. Southeast False Creek Draft Official Development Plan (ODP) By-law, 2005.¹⁹



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Community Greenhouse (top left)

4.9x1.5 m (16x5 ft) beds

The Inuvik Community Greenhouse (Northwest Territories) is a 1,490 sq m (16,000 sq ft) converted hockey rink that houses 88 beds and a commercial hydroponic system. Members grow their own food and provide plant baskets for the downtown streetscape.²¹

Community Gardens (not shown)

1x2m (3.2x6.4ft) plots

Mole Hill is a redevelopment in Vancouver that includes 70 community garden plots in the laneway between residential houses. This space was afforded by creatively reorganizing the parking and building access in the lane.²⁰



Allotment Gardens (middle left)

3x6 m (10x20 ft)

A community gardening association in Burnaby has managed 374 plots on 5 ha (12.5 acres) of ALR land for over 25 years. This is within an agricultural and industrial area.²²

Kitchen Incubator (bottom left)

418 sq m (4500 sq ft)

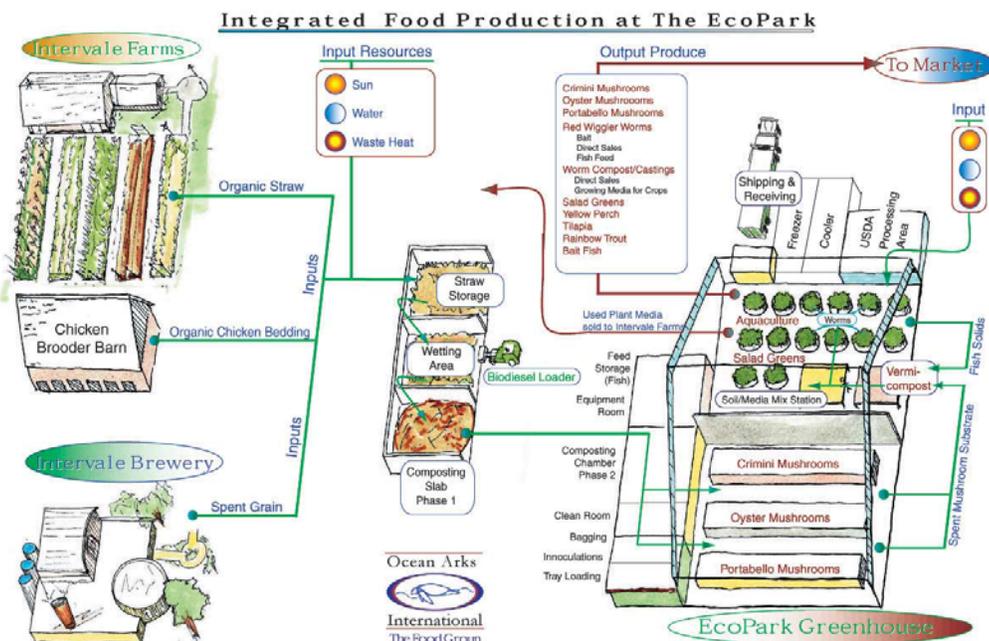
The Toronto Kitchen Incubator (TKI) is a fully-licensed commercial kitchen that can be rented by fledgling entrepreneurs and caterers to test ideas and begin food production for the marketplace.²³



Agricultural Eco-Park (below)

4ha (10 acres)

Burlington, Vermont's Eco-Park Food Enterprise Center will utilize waste heat from the local wood-fired power plant to fuel a series of year-round greenhouses, where byproducts from local food manufacturers and farms are converted to fish, shrimp, mushrooms, salad greens, and composts. Nutrients in this system are fully utilized as waste products from one process are used to fuel others.²⁴



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Notes

- ¹ The Cost of Eating in BC, 2003. Dieticians of Canada and Community Nutritionists Council of BC. (www.dietitians.ca)
- ² Hunger Count 2004. Canadian Association of Food Banks. <http://www.cafb-acba.ca/>
- ³ Tait, Fred and Qualman, Darrin. The Farm Crisis, Bigger Farms and the Myths of Competition and Efficiency. Canadian Centre for Policy Alternatives. October 2004. www.policyalternatives.ca
- ⁴ Halweil, Brian. Home Grown: The case for Local Food in a Global Market. Thomas Prugh, Editor. Worldwatch Paper 163. November 2002.
- ⁵ Halweil, Brian. Home Grown: The case for Local Food in a Global Market. Thomas Prugh, Editor. Worldwatch Paper 163. November 2002.
- ⁶ BC Stats 2003: Quick Facts About British Columbia.
- ⁷ Lawrence, Alexander and MacRae, Rod. CitiesPlus Agri-Food Foundation Paper. July 2002.
- ⁸ Based on 2001 figures from Statistics Canada: 5,100 households in Squamish x \$6,774 BC average household expenditure on food = \$34.7 million.
- ⁹ Halweil, Brian. Home Grown: The case for Local Food in a Global Market. Thomas Prugh, Editor. Worldwatch Paper 163. November 2002.
- ¹⁰ Recycling Council of BC, Organics Working Group. The Dirt on Composting in British Columbia: A Working Paper Addressing the Barriers to Expanded Composting in BC. April 2000.
- ¹¹ A CSA farm offers customers a pre-season, fixed-price share of its harvest, which is then distributed on farm or at a weekly central location. Customers essentially share the risk that each season may bring, since they are simply receiving a portion of whatever the farmer is able to grow. This provides farmers with an up front investment and a guaranteed client base for that season. Successful CSAs often grow as customers bring along friends and family in the following year.
- ¹² (17,000 kg/ha. This average is extrapolated from 2001 total yields and farm areas in field vegetable production) Factsheet: An Overview of the BC Field Vegetable Industry. BC Ministry of Agriculture, Fisheries, and Food, Industry Competitiveness Branch. December 2003.
- ¹³ Vegetables: 186 kg/person/year. Fruits: 133 kg/person/year. From www.statcan.ca 2003.
- ¹⁴ Food Security Policy Report, City of Vancouver. November 2003.
- ¹⁵ Holland Barrs Planning Group. Southeast False Creek Urban Agriculture Strategy. Prepared for City of Vancouver. November 2002.
- ¹⁶ Smith, Barry. Planning for Agriculture. Provincial Agricultural Land Commission, 1998. www.alc.gov.bc.ca/publications/planning/Planning_For_Agriculture/
- ¹⁷ http://www.alc.gov.bc.ca/publications/planning/Planning_for_Agriculture/
- ¹⁸ <http://www.eslarp.uiuc.edu/la/LA338-S01/groups/c/DavisCA.html>
- ¹⁹ <http://www.city.vancouver.bc.ca/commsvcs/southeast/draftodp/index.htm>
- ²⁰ http://www.wera.bc.ca/albums/events/2004/mh_opening/
- ²¹ <http://www.cityfarmer.org/inuvik.html>
- ²² <http://webmap.city.burnaby.bc.ca/burnabymap/viewer.htm>
- ²³ <http://www.foodshare.net/kitchen05.htm>
- ²⁴ <http://www.oceanarks.org/agriculture/>

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