RESEARCH HIGHLIGHTS

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SOUTHEAST FALSE CREEK DESIGN CHARRETTE: EXPLORING HIGH DENSITY, SUSTAINABLE URBAN DEVELOPMENT

Introduction

Current examples of sustainable communities tend to be in suburban settings and reflect suburban characteristics, especially in terms of density. However, higher density housing in urban environments is important in meeting today's development needs.

Southeast False Creek (SEFC) is an urban sustainable neighbourhood development initiative. The intent is to create a high-density urban community by redeveloping approximately 32 hectares (79 acres) of polluted industrial waterfront in downtown Vancouver into a residential area for between 8,000 and 10,000 people.

The planning process for SEFC included 18 months of research and public consultation. This consultation resulted in a draft policy statement and comprehensive sustainable design guidelines.

The policy statement endorsed integration with existing neighbourhoods and a mixed land-use strategy with a predominance of housing. As well, it stated that SEFC intended to be a family neighbourhood, with parks, a school, a community centre and a range of employment options.

The guidelines provided goals, objectives and targets for numerous sustainable development criteria: energy, resources, waste, ecosystem and habitat integrity, global climate change, pollution, food security, social health and economic stability.

Following the consultation phase, the municipality held a design charrette (an intensive four-day design exercise) focusing on approximately 19 hectares (49 acres) of city-owned land within the study area. The charrette aimed at determining whether the draft policy statement and guidelines would compromise development in any way and demonstrating that a dense urban development can be sustainable in a manner appropriate to scale, location, context, opportunities and constraints of the site. A core principle was that SEFC should be explored as a model of high-density sustainable urban development which could inform other Canadian cities.

Three multidisciplinary design teams participated in the charrette, giving rise to solutions applicable not only to SEFC but also, in varying degrees, to most urban developments. The outcome demonstrated that many approaches can be taken to developing high-density, sustainable communities. It showed that business and sustainable interests can complement each other, with objectives for both being achievable without sacrificing the interests of one for the other.

Planning Process and Charrette Objectives

Planning for SEFC officially began in the summer of 1997. Prior to then, several studies had been conducted on soil contamination and the economic feasibility of and preliminary designs for various conventional development scenarios for SEFC had been established.

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The first stage of the official planning process (summer 1997-spring 1999) focused on creating a policy statement to guide development of the site. This included broad public participation. The policy statement was finalized and subsequently accepted by Vancouver City Council in late 1999 as a direct result of the charrette demonstrating its feasibility.

As part of this initial phase, the municipality, in consultation with the community, commissioned guidelines which presented a framework of principles, practices and targets for SEFC. This structured and defined a vision of sustainability for the neighbourhood. The report's issues and performance targets helped set objectives for the design charrette, as well as for the entire planning process.

The second stage (spring 1999-fall 1999) focused on creating an official development plan for the site in accordance with the policies developed in the first stage. Many ideas from the design charrette were incorporated at this stage and in subsequent rezoning. The third phase (fall 1999-fall 2001) focuses on rezoning the land for development.

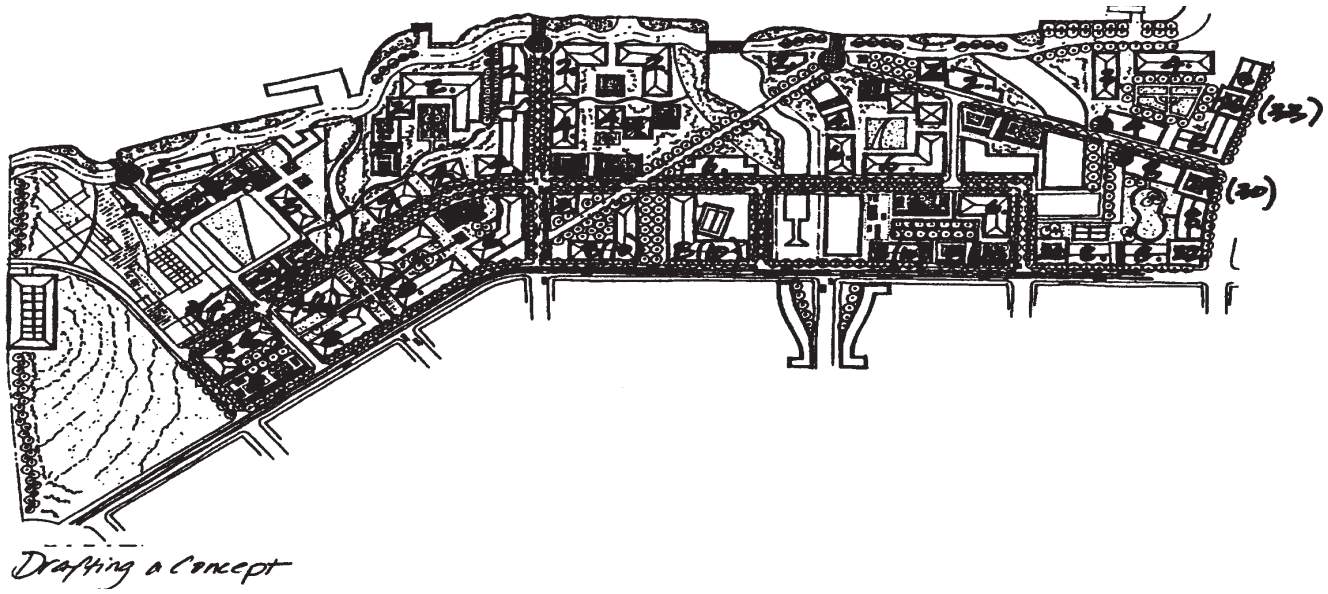
The primary goal of the charrette was to provide several conceptual development options for the site. All options had to conform with the proposed policies, follow the proposed development program and emphasize long-term economic, social and environmental sustainability. More specifically, the charrette had six objectives:

- Test the efficacy of the proposed policy statement and performance targets without compromising the development program.
- Create a setting for leading British Columbia designers to exchange ideas and viewpoints with experts in sustainable design.
- Establish new, more sustainable urban typologies to guide the planning and design of the SEFC site and which could also be used as prototypes for other sites.
- Illuminate the connection between sustainability and liveability.
- Provide a conduit for public participation and dialogue with regard to the site's future.
- Make the sustainability functions of the site both transparent and didactic.

The multidisciplinary nature of charrettes provides a unique opportunity to develop realistic, innovative solutions to complex problems which emerge as a result of disciplines working together to achieve their objectives.

Participants in SEFC's charrette were grouped into three multidisciplinary design teams, which were assisted by a resource team and City staff. Each design team included two architects, two landscape architects, one engineer, one developer/development consultant, one planner/regulator and four University of British Columbia students. The resource team provided additional specialist knowledge in such areas as alternative building design, energy efficiency and alternatives, transportation, aquatic habitat and contaminated soils.

Figure 1. Example of Overall Concept



Team Solutions

All three design teams were given the same directives, information, issues and targets to be met, yet they each developed different solutions. While the solutions differed, common priorities, achievements and design directions emerged. The charrette report provides a detailed, well-illustrated summary of the ways in which the design teams responded to the objectives and targets set for the various aspects they were asked to address.

Rainwater

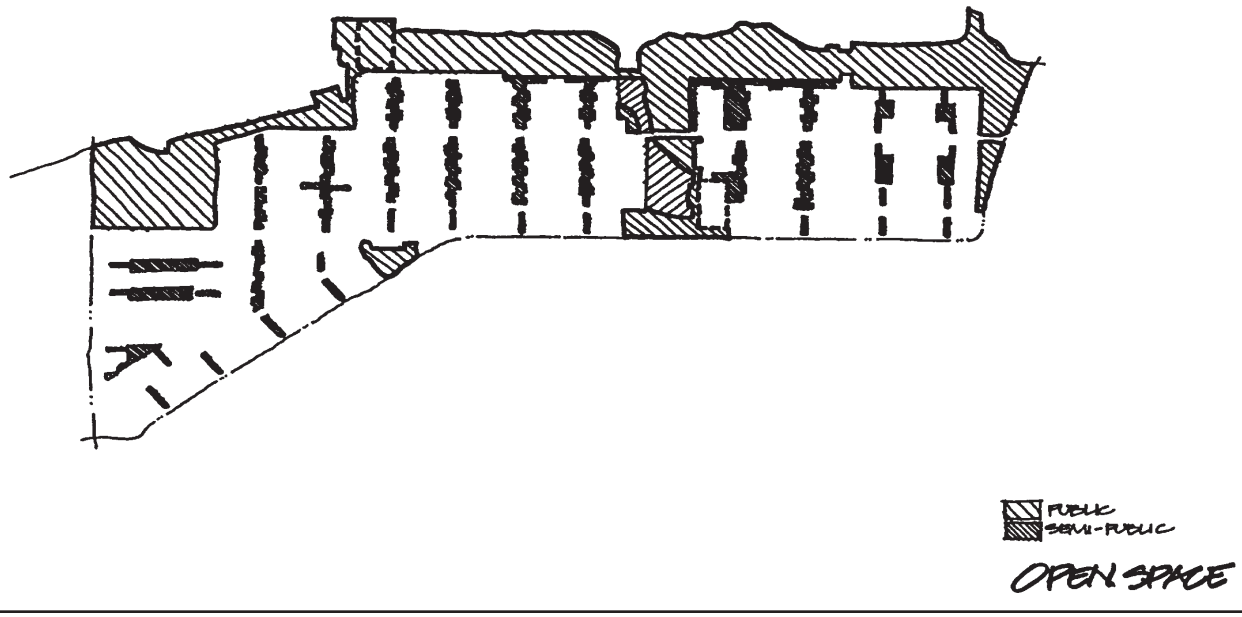
All teams met the objective of finding ways to manage all of the site surface run-off on-site. Collection and cleaning were achieved via rooftop capture, swales and marshes, reed bed, lagoon and estuary.

Captured rainwater and greywater would be used for irrigation and toilets. On-site water purification and reuse might be introduced in the future to support the domestic supply.

Working Open Space

The teams closely integrated open space with the street and circulation systems and saw it serving functional, recreational and ecological infrastructure needs. Specific approaches included private and community gardens, urban agriculture, water treatment and reuse, and opportunities for recreation and education. Spaces varied from urban courtyards and quiet enclaves to heavily landscaped settings.

Figure 2. Open Space Network-Team 3



Soil Contamination

The teams had to proceed without definitive information regarding soil contamination. They proposed a range of strategies to address the site's contaminated soils. These included capping or entombing certain areas of the site, a berm or hill as a depository of heavy metal soils and a phased development approach to take advantage of quickly evolving soil remediation technology. They recommended that all ecosystem restoration efforts and drainage systems be constructed above the contaminated soils.

Public Greens

All teams created a network of multi-purpose greenways throughout the site for transportation, recreation, habitat and water management, with water features incorporated as a key component. In general, teams favoured continuous swaths of green rather than nodes.

Waterfront

Seawall treatment varied, although all teams tended toward a more natural edge, with marshes and habitat areas being hospitable to a range of species. A walkway/bikeway runs along the waterfront.

Residences

The teams had no difficulty meeting or exceeding the requirement to provide housing for 5,000 people. (While the entire SEFC development is to house between 8,000 and 10,000 people, the charrette only dealt with the 19 hectares of city-owned land, about 60 per cent of the entire area.) The proposed housing reflected a range of building types (townhouses, apartments, lofts, live-work, rental) to suit a diversity of ages, family types, tenure and income.

Parking

All teams met the requirement for one parking space per dwelling, using underground garages located in mixed-use buildings and on-street parking. However, they felt that a lower parking standard would be more suitable. The designs called for permeable surfaces with linkages to treatment lagoons or marshes, to facilitate stormwater drainage.

Commercial and Industrial Areas

Much of the space for commercial, office and industrial use was situated in a mixed-use scenario and concentrated on the existing street along the southern boundary of the site.

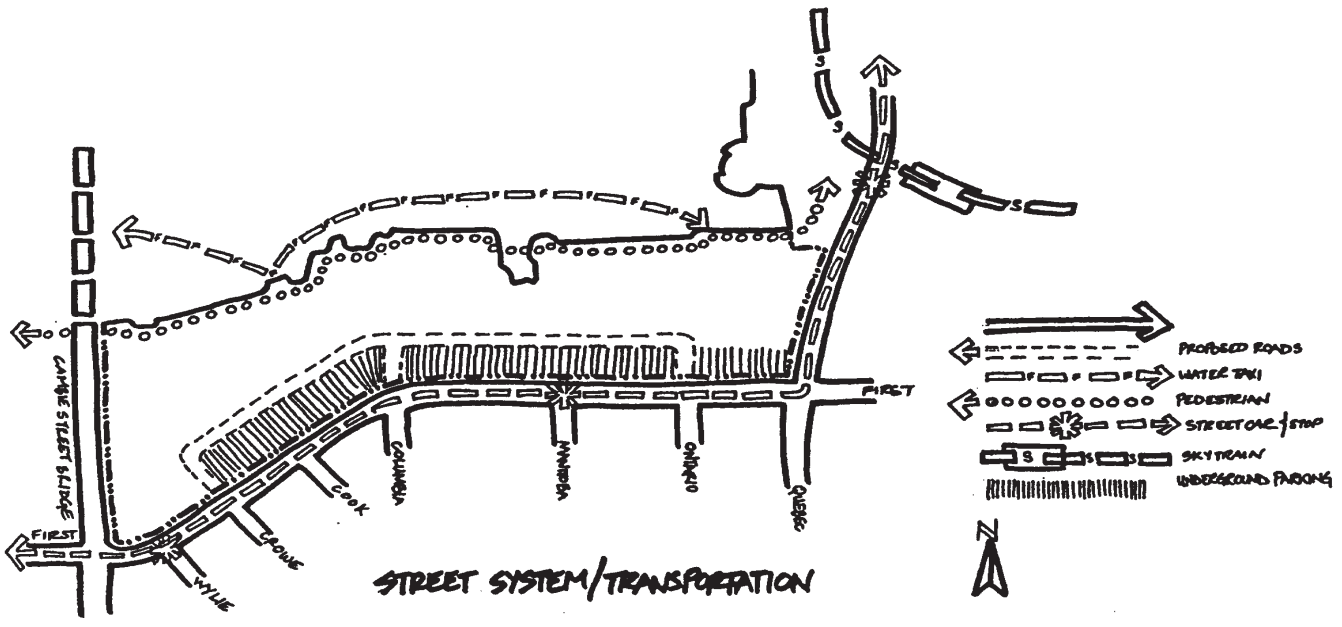
Community and Educational Facilities

A centrally located, abandoned historical structure, called the Domtar Building, was identified as the nerve centre of the site by all three teams. They saw it as being a multi-purpose community centre, providing a variety of programs and spaces for local groups. Two teams located a school within it, while the third proposed a free-standing school in an area adjoining a treatment marsh, giving rise to educational opportunities. All three had a child care centre associated with the Domtar Building, either placing it in the vicinity of or adjoining the building. One team located two other child care centres in other key areas of the site.

Street Design

All teams extended the existing street grid into the site to varying degrees. While they accommodated automobiles, they made cars secondary to pedestrian, bicycle and transit traffic. All streets were designed to collect and channel stormwater to collection and treatment areas. Most were to be planted with trees or shrubs to offer wildlife habitat and create social spaces.

Figure 3. Street System and Transportation System



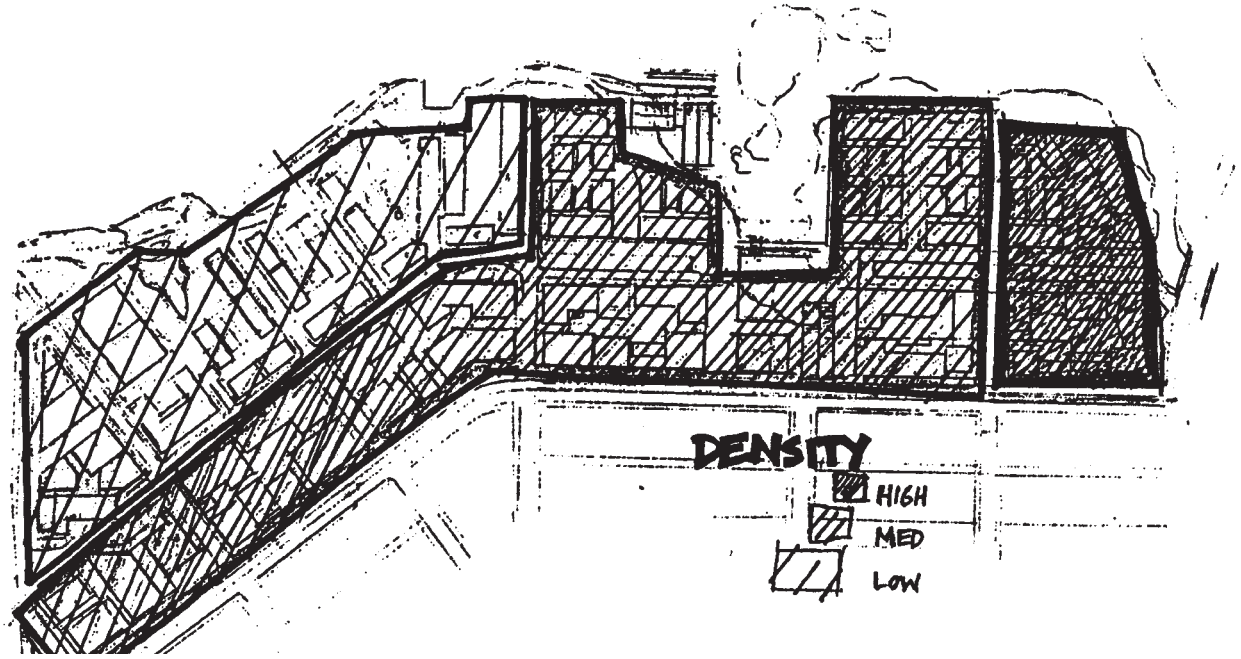
Parcel Size

Teams varied regarding parcel size. Their responses suggest support for a variety of sizes with a desire to encourage flexibility, diversity and smaller development.

Building Heights and Design

Treatment with respect to building height varied. One team favoured mostly low rise across the entire site, with a maximum of seven or eight storeys. In contrast, another proposed more varied height gradients ranging from two-storey townhouses in the west end to a maximum of 20- to 30-storey highrises in the east, where taller buildings currently exist. Buildings were also sited and designed for energy efficiency, ability to have green roofs, to take advantage of prevailing winds for natural ventilation and the sun for energy production heating and lighting. One of the plans also called for ground-source heat pumps for two- and three-storey buildings.

Figure 4. Density Diagram



Waste Management

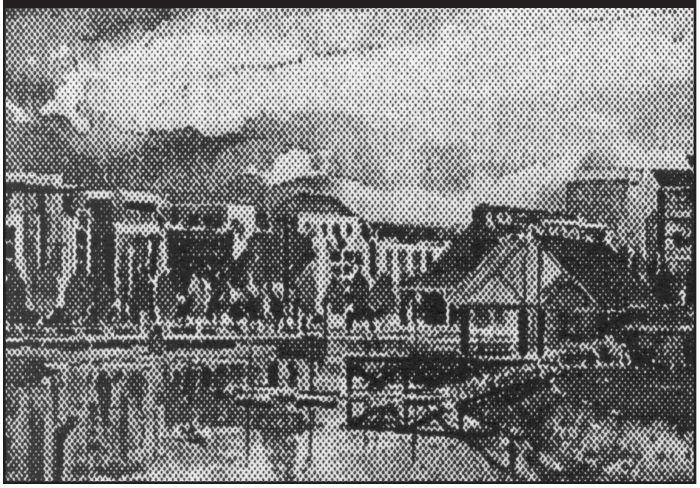
The extent to which a development can harvest and use water efficiently and repeatedly is a cornerstone of sustainable design. The teams proposed systems for capturing greywater for reuse in irrigation and toilets; bioremediation for processing wastewater, instead of chemicals; and wetland areas tied into wastewater processing. Household and green waste would be dealt with through source separation, wet garbage collection and on-site composting.

Conclusion

The SEFC design charrette demonstrated the viability of various design options for high-density sustainable urban community development, all of which enhanced, rather than compromised, a conventional development plan initially proposed for the site.

The designs produced by the charrette emphasized the importance of providing opportunities for the community to grow in a more serendipitous and organic manner, in order to take advantage of evolving technologies while spreading initial capital investments over time. The charrette itself underscored the notion that multidisciplinary design is both necessary and more productive in achieving a sustainable community plan. Above all, it illustrated the fact that sustainably planned neighbourhoods can be both more livable and more delightful.

Figure 5. View of Proposed Community Boat House- Team 1



Project Manager: Douglas Pollard

Research Consultants: City of Vancouver with its consultants the ORCAD Consulting Group and the 42 participating Designers

Housing Research at CMHC

Under Part IX of the *National Housing Act*, the Government of Canada provides funds to CMHC to conduct research into the social, economic and technical aspects of housing and related fields, and to undertake the publishing and distribution of the results of this research.

This fact sheet is one of a series intended to inform you of the nature and scope of CMHC's research.

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