

City of Vancouver

## Award Submission for the TAC 2005 Sustainable Urban Transportation Award



### Transportation Strategies for Vancouver's Model Sustainable Community

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# Transportation Strategies for Vancouver's Model Sustainable Community

## ***Innovation and Excellence***

In 1991, Vancouver City Council issued a mandate to plan South East False Creek (SEFC) as a model sustainable community. SEFC is envisioned to be a complete community in which people live, work, play and learn in an urban neighbourhood that will “protect and enhance the social and economic health of its community, as well as the health of local and global ecosystems” (SEFC Policy Statement). The SEFC lands comprise of approximately 80 acres in downtown Vancouver and will provide housing for 14,000 new residents at build-out. Currently, the waterfront site is an under-utilized industrial area.

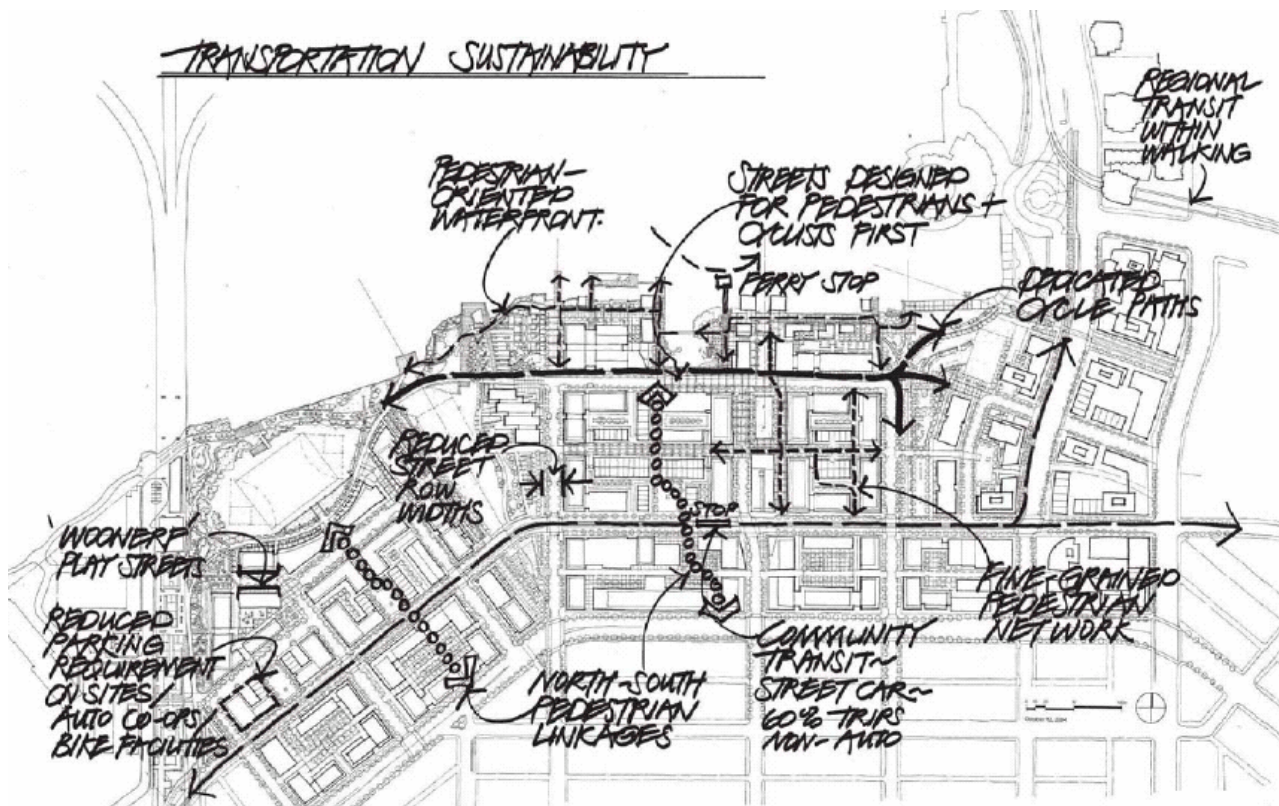
The SEFC Official Development Plan (ODP) planning process was initiated in 2003 and Council approved the SEFC ODP in early 2005. The street and infrastructure network has gone through public



consultation and detailed design and construction commenced in March 2006. The first phase of development, the central neighbourhood, including the infrastructure and buildings, will be completed in late 2009 and be home to the Athlete's Village for the 2010 Olympic and Paralympic Winter Games.

## Movement System

Access and mobility in SEFC provides for all modes of transportation, reflecting the city's transportation priorities in descending order of importance, of pedestrians, bicycles, transit, goods movement, and automobiles. When compared to any other neighbourhood, SEFC will have streets with the minimal amount of street space for private vehicles and a substantial amount of street space devoted to higher priority transportation modes for bicycle lanes, greenways, and tramways.



## Pedestrians and Bikeways/Greenways

SEFC will have a highly walkable street and block pattern and many pedestrian routes. Building height to street ratios will allow for street-level sunshine. The community design ensures daily services - community centre, elementary school, daycare, grocery store - will be located within walking distance from all points of the community. Attention to creating positive pedestrian experiences is reflected through features plazas, small pocket parks, landscaping, street trees and waterfront parks.

Off-street bicycle pathways and dedicated bicycle lanes will provide priority for bicycles and other non-motorized users and routes are to connect to city-wide cycling routes located outside of SEFC. Most of the City's current bikeways and greenways are developed as part of a City-wide network to meet the growing demand of pedestrian and cyclist usage. SEFC will likewise provide a network of multiple bikeway/greenway routing options within the community that responds to the anticipated high demand.

## **Transit**

A quality public transit system will support SEFC as a transit-oriented development, and decrease vehicular usage and automobile ownership. SEFC will significantly benefit from the two nearby regional rapid transit lines - the SkyTrain Expo Line to the east (Main Street station) and the Canada Line to the west (False Creek South station). The City will fund over \$20 million in capital costs for the Canada Line's False Creek rapid transit station to service the SEFC neighbourhood.

A key component of SEFC transit planning includes integrating a new transit service, the Downtown Streetcar, into the community. A new marine dock will also be constructed within SEFC to allow the current ferry operators to expand their operation. A new cross-town bus route has just been implemented; linking the community to the region's other rapid transit line, the Millennium Line. Additional local bus transit priority and pedestrian improvements will be completed along Main Street corridor as part of the Urban Transportation Showcase Program.

In summary, the wide range of transit options available to SEFC residents will include two rapid transit lines, a streetcar, local bus routes, and private ferries. Next to Downtown, no other area of Vancouver will have as broad array of transit service.

## **Proactive Provision of Car-Sharing and Parking**

Parking in SEFC will be the minimum required to serve all uses while encouraging sustainable transportation choices and trip reduction. The maximum parking provided

will not exceed the vehicle ownership of communities adjacent to SEFC. New to SEFC is the City's effort to promote the unbundling of parking from residential units to support housing affordability and even further reduced parking standards. Also, the provision of less than the minimum standard may be allowed subject to a site specific transportation demand management plan that restricts residents' car ownership.

Car-sharing is a proven method of reducing automobile ownership, usage, parking demand, and GHG emissions. SEFC offers the best potential market settings for successful car-sharing as a dense and mixed-use neighbourhood with scarce parking and where walking, biking, and transit are viable options. To date, developers have incorporated car-sharing into limited developments on a voluntary and site specific case-by-case basis as part of reduced parking demand management measures.

Given that the most common barriers for earlier implementation of car-sharing are a lack of start-up capital costs and convenient and accessible parking spaces, the City chose to take a proactive role in ensuring the provision of car-sharing vehicles in SEFC. Rather than simply supporting car-sharing from a policy viewpoint, staff saw the potential for significantly reduced parking requirements in SEFC if car-sharing vehicles and parking spaces were required with each development.

The most profound effect that proactive car-sharing will likely have in SEFC is the ability to prevent a significant portion of its residents from moving into the community with more than one vehicle. While it is anticipated that many who live in SEFC will own no vehicles, the majority of households will likely have at least one vehicle. SEFC is the first community in Canada, possibly in North America, where the City's development zoning bylaws require the proactive provision of car-sharing vehicles and parking spaces throughout an entire neighbourhood.



## ***Implementation, Results & Lessons Learned***

It is expected that SEFC will produce tremendous performance improvements over the current baseline of developing a new residential community including:

- ◆ A decrease in greenhouse gas (GHG) emissions and fuel consumption
- ◆ Less dedicated road space and less parking for private vehicles
- ◆ More dedicated space for pedestrians, cyclists, and transit
- ◆ A higher daily non-auto mode split by residents of the community
- ◆ Less daily kilometres traveled by residents in private vehicles

More residents will be able to go about their daily routines without the need of a privately owned vehicle which will save them the money to purchase, maintain, fuel and insure a vehicle. Their quality of life will be improved as they spend less time in often stressful driving conditions. Streets will be safer as there will be fewer cars on the road and vehicles that are will be moving slowly. With a school, community centre, and a grocery store all within the community, residents will walk and bike more and enjoy active and healthier lifestyles for both the young and old, regardless of income.

### **Greenhouse Gas Emission Reductions**

Using the Canadian Mortgage and Housing Corporation (CHMC) "Tool for Evaluating Neighbourhood Sustainability", the GHG emissions of the SEFC community were compared to other development scenarios. The CHMC tool models GHG emissions based on the specific neighbourhood, socioeconomic make-up, and locational variables and their effect on influencing travel behaviour.

When compared to the same urban neighbourhood, SEFC will be decreasing GHG emissions and automobile vehicle-kms per household by 25 to 50%. Low to medium suburban developments located away from the CBD produce about three to four times more GHG emissions and automobile vehicle kms per household than SEFC.

The following table shows the annual GHG performance and average weekday automobile travel per household of SEFC compared to other developments.

Urban Context	Neighbourhood Type	Annual Household Vehicle Emissions (kg CO2 equivalent)	Weekday Auto Vehicle-kms Traveled per Household (VKT/hh)
Inner Area	SEFC Community	3,200	26
	Medium Density	4,500	36
	Low Density	7,000	59
Outer Area	Medium Density	9,300	79
	Low Density	11,800	101

### **Identifying and Quantifying Applicable Sustainable Transportation Strategies for SEFC**

To truly develop SEFC as a model sustainable development, best practices in sustainable transportation were researched to identify the full range of strategies that could be implemented. Measures known to be effective at influencing travel behaviour to more sustainable modes were evaluated against the following criteria:

- ◆ Is the strategy applicable at the SEFC neighbourhood level?
- ◆ Is the strategy effective at minimizing the number of SEFC vehicle trips?

With implementation of the entire package of sustainable transportation strategies, the automobile mode share for SEFC would result in a daily non-auto mode share of approximately 62%. As part of the SEFC ODP, the City is working with a preliminary target of 60% for SEFC's daily non-auto mode split. Staff will report back on a detailed monitoring strategy at the sub-area rezoning stages of development.

### **Resident Transportation Surveys**

To further assess the anticipated effect the sustainable transportation strategies would have in reducing automobile mode share, current residents within the metropolitan core

were surveyed. Approximately 2,000 surveys were mailed out to SEFC's adjacent neighbourhoods. Over 300 completed surveys, or a response rate of approximately 15%, were returned and analyzed. More than 60% of respondents indicated that the proposed sustainable transportation strategies would be either moderately or highly effective in reducing car trips for the SEFC community.

### **Moving Beyond Parking Standards - Sustainable Transportation Credits**

While working on how to best achieve an innovative approach that aims to achieve an integrated package of sustainable transportation strategies, City staff created a new concept that they tested with local developers. As a condition of rezoning, developers would be required to demonstrate best practices in sustainable transportation in a manner similar to the LEED™ Green Building Rating System.

The main purpose of creating the "Sustainable Transportation Credit" concept was to ensure that the site developers embrace and commit to furthering the SEFC sustainable transportation goals building by building while providing them with some flexibility. A range of strategies would be available and "Sustainable Transportation Credits" would be awarded by meeting certain milestones or criteria. Developers would customize their preferred integrated package of sustainable transportation strategies as long as they meet the minimum number of credits required. This approach would be optimized with serious consideration of what the economic and marketability realities will be for developers (and their anticipated clients).

However, after much consultation with local developers representing private land owners within SEFC, staff heard that the developing community was willing and ready to do their part of providing sustainable transportation strategies but they preferred that the City more or less prescribe what measures are required similar to parking or bicycle storage standards. They wanted to know the full package of green building and transportation planning requirements together at the same time. As such, developing the "Sustainable Transportation Credit" concept was a valuable lesson learned by the City even though it was not incorporated into the SEFC ODP as policy.



The following page (page 9) demonstrates how the “Sustainable Transportation Credits” system might be structured with the requirement that a minimum of 12 credits be achieved. The example illustrates the developer’s flexibility in demonstrating sustainable transportation while meeting their site specific or marketability needs.

### ***Project Sustainability & Policy Framework***

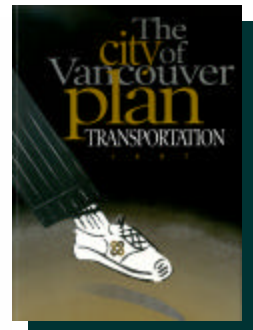
In 1999, Council approved developing the last remaining industrial waterfront site in its downtown area, approximately 80 acres, as a “sustainable community”. The general planning principles were identified as part of a comprehensive policy statement. The community will be predominantly residential with a diverse housing mix and a focus on families with children, supported by a neighbourhood-oriented commercial centre. SEFC has been planned as a model urban community that will create a new standard for sustainable development at a large scale.

In 2005, Vancouver City Council approved the Official Development Plan (ODP) for SEFC. The SEFC ODP objectives establish environmental, social, and economic sustainability strategies that will create SEFC as a complete community and serve as a learning experience for the application of such principles and strategies on a broader scale. It is anticipated that SEFC will house over 14,000 new residents and be built out by 2018.



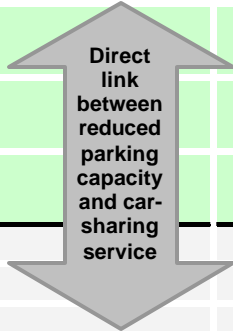
### **Southeast False Creek Policy Statement**

*Toward a Sustainable Urban Neighbourhood  
and a Major Park in Southeast False Creek*



**Proposed Sustainable Transportation Credit Strategy**

	Sustainable Transportation Strategy	Credits
Parking Capacity	Provide 100% of total # of parking stalls	0
	Provide 95% of total # of parking stalls	2
	Provide 90% of total # of parking stalls (Requires minimum car sharing of 5%)	3 (+3)
	Provide 85% of total # of parking stalls (Requires minimum car sharing of 10%)	4 (+5)
	Provide 80% of total # of parking stalls (Requires minimum car sharing of 15%)	5 (+7)
Car Sharing	Provide car sharing for 5% of occupants	3
	Provide car sharing for 10% of occupants	5
	Provide car sharing for 15% of occupants	7
Community Transit Pass	Provide 1 year of transit passes to 30% of building occupants	2
	Provide 2 years of transit service to 30% of building occupants	4
	Provide 3 years of transit service to 30% of building occupants	6
Green Transportation	Provide \$200 per unit	1
	Provide \$400 per unit	2
	Provide \$600 per unit	3
	Provide \$800 per unit	4
	Provide \$1,000 per unit	6
	Provide \$1,200 per unit	8



**Example: 20 storey apartment tower**

1.6 occupants/unit

Unit size ± 80 m2

The developer realizes that providing 100% of the parking capacity results in requiring just over 3.5 levels of expensive underground parking. By only providing 85% of the maximum (4 credits), only 3 levels would need to be constructed and a significant amount of cost savings would be realized. By reducing the parking supply, the developer is required to provide carsharing for 10% of the occupants but chooses to opt for providing 15% instead (7 credits). A contribution of \$200 per unit is also provided to achieve 12 credits.



## ***Communication/Partnerships***

In all aspects of the SEFC ODP, a collaborative and multi-disciplinary approach was used to arrive at policy directions. The City of Vancouver engaged a consultant team consisting of IBI Group, Ward Consulting, and the Boulevard Transportation Group who provided much of the technical work and background research on the key applicable sustainable transportation strategies.

A Staff Technical Team that meets on a weekly basis reviewed the work and contributed ideas. The Technical Team is comprised of City departments including Transportation, Water and other Engineering Divisions, Urban Design and Planning, the Park Board, Housing, Social Planning, Real Estate and Finance.

A comprehensive public consultation program was also implemented. This included 4 public open houses, multiple public workshops, and a public hearing. It included detailed discussions with a SEFC citizen advisory committee representing environmental, social, and economic sustainability interests (Stewardship Group), 20+ private landowners, Council Advisory Committees, and Adjacent Neighbourhood Community Groups, including Business Improvement Associations and Residential Associations.

The project issued newsletters before and after public consultation to reflect changes in response to public input, profiling approaches to sustainable transportation. The ODP, including the transportation plan, was presented to Council in Workshops (2), at Council meetings reporting on project updates, and when the ODP was referred for Public Hearing. In addition, the process was guided by the SEFC Steering Committee that was comprised of senior management level staff and two members of Council.