This dissertation takes an ecologically-based view of sustainability to investigate the planning process and analyse the outcomes of planning for Vancouver’s model sustainable community, Southeast False Creek (SeFC). SeFC has achieved LEED-ND Platinum rating for environmental design and received a UN Livability Award (2010). Following Rees (1995) and Lombardi, Porter, Barber and Rogers (2011), I examine how central actors in the Southeast False Creek planning process conceived of and approached urban ‘sustainability’. I identify their influence on policy making, plan implementation and sustainability outcomes. I also assess the community using scientifically determined metrics of sustainability: per capita greenhouse gas emissions levels and ecological footprints.

Through in-depth interviews and detailed document analysis I found that central actors in the planning process approached urban sustainability from a perspective that resembled a ‘three pillars/status quo approach’, i.e., sustainability can be achieved through improvements to environmental performance and without significant changes to existing socio-economic systems, cultural beliefs or values. Southeast False Creek, rather than being a breakthrough response to global ecological change, was planned as an incremental improvement over existing local models of development.

Southeast False Creek makes limited progress toward sustainability when sustainability is defined through scientific metrics such as ecological footprint and greenhouse gas emissions. I find that achievement of the published goals and standards for the project could yield per capita ecological footprint reductions of approximately 5% and per capita greenhouse gas emissions reductions of 8% from the Vancouver average. Scientifically determined requirements are in the range of 75 – 80% respectively (WWF, 2007; Weaver et al., 2007).

Although Southeast False Creek does not model ecologically sustainable living, the City’s experience in planning this community may have yielded some bureaucratic, political, industry and public support for efforts toward that goal in future city developments.
PREFACE

This study was approved by the University of British Columbia Behavioural Research Ethics Board, Certificate number H10-00181.
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CHAPTER 1

Introduction

Southeast False Creek, Vancouver, British Columbia 2011

I think many people would now say we know we have to go way beyond any of these targets in the future if we are truly going to make human settlements sustainable. (Former Director of Planning, City of Vancouver)

That project should have died fifty deaths. There are angels looking after that project. That project was called into being out of some deep collective desire that we all have; something in the city, something in the water I don’t know what it is but it is, that project is way bigger than any person, or even the collective of all people involved. (Former Planner, City of Vancouver)

One of the things I want to emphasize is that it's all about practicing... it's more important that we just keep going. And because we have such an amazing sort of relationship with nature, governance situation, cultural context for sustainable values in a place where we can fairly nimbly invent urbanism and associated best practices and if we don't get it right quickly the rest of the world who come to us and look to us among other places... (Senior Urban Designer, City of Vancouver)

1.1 Introduction and Research Questions

In 1997, the City of Vancouver, Canada began the official planning for a neighbourhood to be built on City-owned land on the southeast side of Vancouver’s False Creek waterway. Billed as the last downtown waterfront development, the project was preceded by a series of major downtown developments that had contributed to Vancouver’s repeated ranking as one of the most livable cities in the world (Mercer, 2010). From those projects, the Vancouver model of tower-podium architecture had emerged, and the Vancouver planning system had garnered both academic attention (Ley, 1986; 1996; Punter, 2003; Olds, 2001; Sandercock, 2005) and professional emulation (Boddy, 2006; L. Beasley, personal communication, August 24, 2010;
Hein, personal communication, October 28, 2010). The projects have been lauded for their public-amenity provision and quality of public realm (Punter, 2003; Sandercock, 2005). In the mid-1990s, an era of increasing local and international attention to global ecological concerns including climate change, the mandate for the new Southeast False Creek neighbourhood demanded something more; the community was to be developed as a model of sustainability: a community in which people live, work, play and learn in a neighbourhood that has been designed to maintain and balance the highest possible levels of social equity, livability, ecological health and economic prosperity, so as to support their choices to live in a sustainable manner (City of Vancouver, 1999:7). A central goal for the project was that it should model sustainable practices and strategies that could be replicated throughout Vancouver and beyond (City of Vancouver, 2007).

By 2011, the first completed phase of Southeast False Creek had served as the Athletes’ Village for the 2010 Winter Olympic and Paralympic Games, and the development had been awarded the United Nations Best Built Project, 2010 Award for Livability. It had also achieved LEED ND Platinum, the highest rating from the North American sustainable community rating system, Leadership in Energy and Environmental Design for Neighbourhood Development (City of Vancouver, 2010). The former Olympic Village is frequently referred to by local officials and City staff as the “greenest neighbourhood in North America” (CITY 1; R. Bayley, personal communication, March 21, 2011). Based on the awards and ratings, Vancouver’s planning system has delivered another livable, public amenity-rich project, with the additional achievement of addressing local environmental performance. But is Southeast False Creek a model to be replicated in pursuit of the sustainable city?

This study evaluates Vancouver’s model sustainable community, Southeast False Creek, from the perspective in which sustainability is understood to require living within global biophysical means (Rees, 1988; 1996; 2010, 2012; White and Whitney, 1992; Roseland, 1992; Beatley and Manning, 1997; Prugh, Costanza and Daly, 2000: xi; Girardet, 2004; Low, Gleeson, Green and Radovic, 2005; Newman and Jennings, 2008; Rydin, 2010; Lombardi et.

---

1 Southeast False Creek was identified as an area for experimentation with energy efficient land use planning in the Clouds of Change (1990) report by the City of Vancouver Task Force on local responses to atmospheric change.
al. 2011). I take my cue from experts who argue that urban sustainability plans must be viewed as a response to mounting global ecological crisis (Roseland, 1992; Rees, 1995; Beatley and Manning, 1997; Low et al., 2005; Newman and Jennings, 2008; Lombardi et al., 2011). As urban planning theorists have long argued, policy development and plan implementation are value-laden, contextually bound processes (Sandercock, 1979; Flyvbjerg, 1998). In the case of sustainability-oriented policy and planning, theorists have posited that fundamental conceptualizations of sustainability will affect the way policies are developed and implemented (Rees, 1995; Owens and Cowell, 2002; Lombardi et al., 2011). At the local project scale, Lombardi et al. (2011) propose that the way actors in the planning process conceive of sustainability, the problems it must address and actions required will powerfully shape sustainability outcomes. In addition to evaluating the ecological sustainability of the Southeast False Creek project, the progress it makes toward living within global biophysical limits, I analyse the planning process to examine how the sustainability approaches of central actors influenced sustainability policy making and plan implementation. As part of this examination I take into account contextual factors of the case, local and extra-local, that influenced the project. To help evaluate the ecological sustainability of the project I compare the project targets for reductions in resource use and waste production against targets for globally sustainable ecological footprint and carbon dioxide emissions levels (measures of living within global biophysical limits).

My research pursues the following questions:

1. How did central actors in the Southeast False Creek planning process conceive of and approach urban ‘sustainability’?
2. How did the sustainability approaches of central actors influence the way sustainability was interpreted and applied in policy and plan-making for Southeast False Creek?
3. How ‘sustainable’ is Southeast False Creek when evaluated against measures for living within global biophysical limits: the human ecological footprint and global greenhouse gas emissions?
The *sustainable city* is a contested theoretical proposition (Marvin and Guy, 1997; Giddings, Hopwood, and O’Brien 2002; Rydin, Holman, Hands and Sommer, 2003; Le Heron, 2006; Bulkeley, 2006; Rees, 1995; 2010). Generally accepted to encompass goals for social, economic and ecological viability, at its most aspirational the sustainable city delivers social justice and an ecologically restorative economy through participatory, collaborative processes of governance (Roseland, 1992; Haughton and Hunter, 1994; Beatley and Manning, 1997; Register, 2000; Newman and Jennings, 2008; Sarkissian, Hofer, Shore, Vajda, and Wilkinson 2008; Rydin, 2010); at its least ambitious, the sustainable city replicates existing modes of economic and social development, addressing environmental concerns through technical and market mechanism solutions (Rees, 1996; 2002; 2006; Rydin, et al., 2003; Whitehead, 2003; Lombardi, et. al. 2011). Academic literature is rife with arguments on the merits of theorizing a sustainable city (Swyngedouw and Cook, 2010); a host of theories on qualities and characteristics that define a sustainable city and the paths to achieving them (Roseland, 1992; Haughton, 1997; Guy and Marvin, 1999; McGranahan and Satterthwaite, 2003; Moore, 2007; Newman and Jennings, 2008; Rees 2010; 2012), and competing views on whether and how to measure urban sustainability (Rees, 1995; 1996; Folke, Jansson, Larsson, and Costanza, 1997; Devuyst, Hens and De Lannoy, 2001; Portney, 2002; Moore, 2007). Despite these differences, a common perspective unites much sustainable cities research and theory: the view of the earth as a planet of finite biophysical capacity the limits of which the global human enterprise, urban or otherwise, must not exceed (Elkin and McLaren, 1991; Roseland, 1992; Rees, 1995, 2012; 2002; Beatley and Manning, 1997; Prugh, et al., 2000: xi; Girardet, 2004; Low et al., 2005; Newman and Jennings, 2008; Rydin, 2010; Lombardi et. al., 2011). Cities, through characteristics of physical form, their function as engines of resource-driven economic growth, and the consumption based values and habits of their residents, are identified as key drivers in the scientifically documented global degradation and over-exploitation of natural resources and ecosystems services including climate moderation; in short, breeching limits to biophysical capacity (Roseland, 1992; Beatley and Manning, 1997:3; Rees and Wackernagel, 1996; Rees, 1997, 2012; McGranahan and Satterthwaite, 2003; Low et al., 2005). For sustainable city theorists who take this approach, a necessary criterion of the sustainable city is that its form, function and the flourishing of its inhabitants respect the capacity limits of global ecological systems (Rees, 1995; 1997; Baccini, 1997; Beatley and Manning, 1997; Prugh, et al., 2000: xi; Girardet, 2004; Low et al., 2005;
Newman and Jennings, 2008; Rydin, 2010; Lombardi et. al., 2011). Few academic studies have applied this criterion to evaluate outcomes of sustainability-oriented urban development projects.

While exact limits of global ecological systems are not known, two available metrics are atmospheric carbon levels (IPCC 2007), and global resource demand and availability as determined through ecological footprint analysis (Rees, 1992, 2006; Rees and Wackernagel, 1994; Ewing, Moore, Goldfinger, Oursel, Reed and Wackernagel, 2010; WWF 2010). Both of these metrics have been proposed for determining the sustainability of a community (Rees, 1992; 1997, 2010; Alberti, 1996; Beatley and Manning, 1997:29; Roseland, 2005: 12; Newman and Jennings, 2008:80-90; Rydin, 2010:80), and both are in use in North America at various levels of policy (for example, British Columbia, 2010; City of Calgary, 2010; City of Vancouver, 2011).

Case-based research on sustainable urban development projects to date has been limited and has taken two approaches: examination of planning process and sustainability-oriented policy development (Irwin, 2004; Vaughan, 2008) and most commonly, investigation of how sustainability oriented policy is implemented (for example, Rydin, et al., 2003; Brown and Carpenter 2009; Bunce, 2009; Raco and Henderson, 2010; Lombardi et al., 2011). A central focus of research has been to determine whether sustainability policy is delivering transformative outcomes in urban land development projects: advancing a paradigmatic shift in human-nature relations in conjunction with socio-economic change toward equitable governance and access to resources, or whether it is reproducing existing unsustainable systems of social and economic production (Rydin, et al., 2003; Brown and Carpenter 2009; Bunce, 2009; Raco and Henderson, 2010; Lombardi et al., 2011). What has not been included in the research on outcomes is assessment of quantifiable progress toward biophysical sustainability. If global ecological change is occurring at the rapid pace documented in scientific studies (IPCC, 2001; 2007; MEA, 2005; WWF 2010; Ewing et al., 2010), and human activity contributes to that change, then quantifiable measures of resource use and waste production must form a central part of the assessment and evaluation of any sustainability-oriented urban development effort.
1.1.1 Theoretical Approaches to Sustainability

The concept of sustainability that entered mainstream discourse with the publication of the UN Commission Report *Our Common Future* (WCED, 1987) linked global resource depletion and pollution with patterns of over-consumption in the global North, and under-consumption in the global South. Thus the authors identified three spheres of concern that have come to be associated with sustainability: environment, economy and society (Lombardi et al., 2011). Twenty-five years after Brundtland (*Our Common Future*), the central idea of pursuing global social development through sustained economic activity while maintaining basic ecological systems remains. Critical divisions exist between interpretations of the problems of each sphere and how they should be addressed (Rees, 1995; 2006; Prugh et al., 2002; Low et al., 2005; Rydin 2010; Lombardi et al., 2011). A starting point for argument is the very assertion that human society and economy must conform within finite biophysical resources of the planet. This relationship, held by most natural scientists, is pitted against the neoclassical economic view of the human-nature relationship as being unconstrained (Ayres, 1993). The conflict is also described in terms of an *expansionist economic view* versus a *steady-state worldview* (see Rees (1995) for detailed comparison). Proponents of the two perspectives perceive a different set of problems; they describe different origins; and posit different solutions (Rees, 1995; Lombardi et al., 2011). In the neoclassical perspective, the human economy is a circular system of exchange that functions largely independently of natural systems (Prugh et al., 2000:17). Ecological conditions are not considered to be limiting factors for this economy largely due to the concept of substitution: scarce resources can be substituted with more abundant alternatives; factors of production can also be substituted, such as increasing fertilizer for nutrient depleted topsoil (Rees, 1995; Prugh et al., 2000:17). From this perspective, the current economic model of expansionist growth can continue indefinitely (Costanza et al., 1997). As resource scarcities or ecological degradation occur, society will marshal market mechanisms and technological innovations to find alternatives or develop strategies for remediation. Further, growth *should* continue as the means to deal with poverty and increase global material well-being. This view has been associated with a common visual graphic of sustainability: three linked and overlapping, but largely independent circles (Figure 1.1).
A concern about this view from social justice advocates and critical political economists is that no significant change to current socioeconomic systems is required to address global ecological concerns, or problems of material inequality among and within nations. Moreover, from the ecological economics or natural science perspective, the expansionist approach misrepresents the physical relationship between the human economy and nature (Daly and Cobb, 1994; Rees, 1995; Prugh et al., 2000). The biophysical or natural science view of this relationship posits a nested hierarchy of systems with the human social systems completely contained by and dependent upon functioning ecological systems and services (Figure 1.2). While global ecosystems can thrive without human society and its economic activities, human societies with their economic activity cannot exist without functioning ecosystems that regulate climate, replenish nutrients in soil; cycle fresh water; provide habitat for plants and animal life, etc. The biophysical perspective understands un-sustainability to be a consequence of fundamental incompatibilities between the existing expansionist global economic system and the ecosphere. As presently structured the global economy is already over exploiting renewable resources, irreversibly degrading ecosystems, and, at the same time, generating global social and material inequalities (Daly and Cobb, 1994; Rees, 1995; Prugh et al., 2002).
Figure 1.2 Nested hierarchy model of relationships between human and natural systems

Given the nested hierarchy model, global society and individual nations must re-shape socioeconomic systems to respect global biophysical limits. Global change science shows that the current economic system has already breeched important biophysical limits (resulting in, for example, fisheries collapses, atmospheric greenhouse gas accumulation; climate change and biodiversity loss). Due to the magnitude of the global economy, technical solutions such as substitution and efficiency improvements will not be achieved quickly enough or at a large enough scale to avoid continued degradation of global ecological systems. A paradigmatic or transformative socioeconomic shift is required so that biophysical systems can continue to provide global conditions conducive to human flourishing (White and Whitney, 1992; Rees, 1992; 2006; 2010; Daly and Cobb, 1994; Prugh et al., 2000; Low et al., 2005; Lombardi et al., 2011).

The distinction between these two views of human economy-nature relationships has been linked to other contrasting perspectives on sustainability, such as weak versus strong sustainability (a debate that centres around the amount of natural capital versus human-made capital that must be maintained for future generations), and a modernist versus sustainability-oriented paradigm (Lombardi et al., 2011). The difference in perception of solutions to global ecological problems as represented on a continuum from weak to strong sustainability has been categorized by Rees (1995):
- **Status Quo**: change can be achieved within current structures through technical fixes to external environmental problems.

- **Reform**: reform to economic systems is necessary: internalising costs for example, but without a full rupture of existing paradigms and social structures.

- **Transformation**: the roots of the problems are the beliefs, values and assumptions (the paradigmatic framing of) the very economic and power structures of society; a radical transformation is needed.

Lombardi et al. (2011) developed a range of sustainability perspectives comprising three positions: Status Quo; Reform; and Transformation (grounded in and expanding upon Rees, 1995; and corresponding to weak and strong sustainability positions²). Their rubric is presented (in adapted form) in Table 1.1.

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² Lombardi et al. reference Springett (2003) and Ward (2003) to extend the weak- strong sustainability definitions beyond natural capital stocks to include aspects of social sustainability.
Table 1.1 Sustainability: conceptions of problems and required actions

<table>
<thead>
<tr>
<th>Conception of Sustainable Development</th>
<th>Status Quo</th>
<th>Reform</th>
<th>Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>‘weak sustainability’</td>
<td>Reduce energy/carbon use; reuse materials; healthier ecologic</td>
<td>Transformation of society and human relations with environment</td>
</tr>
<tr>
<td></td>
<td>Technological solutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socioeconomic</td>
<td>Weak concern with poverty and lack of equity in political power</td>
<td>Sustainable, accountable and equitable forms of capitalism</td>
<td>Radical reform to socioeconomic structure; Strong commitment to social equity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social issues important; human needs, poverty, democratic revitalization</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Problems to be Addressed</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>Minor problem; pollution</td>
<td>Mounting problem of environmental degradation; global instability;</td>
<td>Mounting crisis; environmental degradation; possible future collapse</td>
</tr>
<tr>
<td>Socioeconomic</td>
<td>Minor problem: poverty</td>
<td>Mounting problems: inequality and poverty</td>
<td>Mounting crisis: poverty, lack of justice</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cause of problem (socioeconomic)</th>
<th>Lack of information, existing values</th>
<th>Failure to capture externalities</th>
<th>Existing socioeconomic power structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actions to redress the problem (socioeconomic)</td>
<td>Improve management techniques; new technologies; taxes and trading; generate and evolve consumer demand</td>
<td>Good science and information; modify markets through taxes and subsidies; role of technology; reform government; increase democracy and participation</td>
<td>Build alliances; mobilise coalitions and polity; radical reform to markets, taxes, and subsidies; inclusive social and political action within and outside existing structure</td>
</tr>
</tbody>
</table>

Adapted from Lombardi et al., 2011

For my research on Southeast False Creek I drew from the above descriptions (Rees, 1995 and Lombardi, et al., 2011) to identify sustainability approaches of central actors in the planning process, and determine how sustainability was interpreted in project planning, policy, and implementation. The approaches I used are described in Table 1.2 below. My
central focus was on ecological sustainability. To the ‘problems to be addressed’ I added “perceived urgency for action”. I did not include socioeconomic objectives of social justice as presented in Lombardi et al. (2011), Table 1.1, and included in by other researchers in assessments of sustainability oriented urban land development (for example, Bunce, 2009; Dale and Newman, 2009; Raco and Henderson, 2010). While improved social justice is a value position I support, from the ecologically-based, nested hierarchy perspective, social justice among the global human population is not a requirement for sustainable living. It may not be desirable to have societies that are socially and economically unjust, (and in fact, it has been argued that such societies cannot be sustained for long, see for example Marris, 1987;147; Rees, 1995) but it is biophysically feasible that societies with varying levels of social and economic inequality could function in an ecologically sustainable manner. In this vein, some researchers have demonstrated that democracy is not a requirement for ecologically-based sustainability policy and action (Moore, 2007; Kahn, 2010). The opposite is not the case. No society could survive in the absence of functional ecosystems and the essential life-support services they provide. Ecological (or biophysical) sustainability is prerequisite for socio-economic sustainability. The central requirement for ecologically based sustainability is that the human enterprise, in aggregate, functions on an on-going basis within the biophysical limits of the planet. Transformed social and economic systems will embody a paradigm shift to recognize these limits (Table 1.2) (Daly, 1992). In my study of SeFC, I look for evidence that actors in the planning process are aware of the biophysical limits paradigm, and that they are pursuing socioeconomic change toward it. Increased levels of social justice may accompany the paradigm shift, they might be key to achieving this shift, and they might be vital to maintaining the new paradigm (Rees, 1995). However, assessment of social justice outcomes in planning and development of Vancouver’s SeFC is outside the scope of inquiry for my research.
Table 1.2 Conceptions of sustainability: problems, cause, actions

<table>
<thead>
<tr>
<th>Problems and perceived urgency for action</th>
<th>Status Quo</th>
<th>Reform</th>
<th>Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Action can be taken as markets and technology allow.</td>
<td>Immediate action should be taken; market mechanisms and technological solution can be directed toward this goal.</td>
<td>Immediate action is required.</td>
</tr>
<tr>
<td>Cause of problem</td>
<td>Lack of information</td>
<td>Failure to capture environmental externalities in market economics</td>
<td>Existing socioeconomic structures and paradigm based on misrepresentation of the relationship between human and ecological systems</td>
</tr>
<tr>
<td>Actions to redress the problem</td>
<td>Technological solutions</td>
<td>Reduce energy/carbon use; reuse materials; healthier ecological systems Incentivize markets and technology toward solutions; change consumption behaviour</td>
<td>Radical reform to socioeconomic structure; to paradigm of relationships between human socioeconomic systems and ecological systems</td>
</tr>
<tr>
<td>Associated Models</td>
<td>Three pillars/components</td>
<td>Three pillars/components</td>
<td>Nested hierarchy</td>
</tr>
</tbody>
</table>

Adapted from Lombardi et al., 2011

I associated both status quo and reform positions with the three pillars/components model because neither of these positions requires changes in the way relationships between human socioeconomic and ecological systems are viewed; consequently they do not promote
transformation of existing socioeconomic systems. The *transformation* approach is associated with the nested hierarchy model of relationships between human and ecological systems. Sustainability requires a transformation in the beliefs, values and assumptions about the relationship between human and ecological systems, and in the economic and power structures of society (Rees, 1995). From the transformative approach, sustainability must be understood as a response to a mounting crisis of environmental degradation and possible future collapse.

### 1.2 Research Context and Theoretical Frame

#### 1.2.1 Global Ecological Change and the Case for Cities as Key Sites for Intervention

##### 1.2.1.1 Global ecological change

International scientific research provides increasingly compelling evidence that human activity is negatively impacting ecosystems that support life on Earth, and that the impacts result from the rate of human resource use (land, water, minerals, ores, petroleum, plant life) and waste production (air and water pollution; solid and liquid waste; greenhouse gas emissions) (Millennium Ecosystem Assessment, 2005; 2005a; 2005b; 2005c; 2005d; 2005e; Intergovernmental Panel on Climate Change, 1995; 2001; 2007; World Wildlife Fund, 2010). The interpretation of these data is that the global human enterprise, given current resource use and waste production rates, is not sustainable even in the foreseeable future (Rees and Wackernagel, 1994; Baumert, Herzog and Pershing, 2005; Hansen, et al., 2008; American Association for the Advancement of Science, 2009; World Wildlife Fund, 2010). Although some of the findings and policy implications have been contested, particularly by well-funded anti-science and climate change denialist organizations, evidence of accelerating change is accumulating from a broad range of scientific fields and from transdisciplinary collaboration from scientists from around the world.  

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3 The IPCC was established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP). It is a scientific body that reviews and assesses the most current scientific, technical and socio-economic information produced worldwide relevant to the understanding of climate change.
The United Nations Environmental Programme has published a series of reports from its Global Environment Outlook project (UNEP, 1997; 2000; 2002; 2007). The reports are based on coordinated scientific assessments that record and review the interactions between humans and the environment (UNEP, 2009). The most recent report, GEO-4 (2007), establishes the state and trends of the environment between 1987 and 2007 and examines the human dimensions of environmental change. The report highlights the following trends: the Earth’s surface is warming: global average air and ocean temperatures are rising; there is widespread melting of snow and ice; global average sea levels are rising. Impacts of warming experienced to date include changes in water availability, land degradation, food security, and loss of biodiversity. The hole in the stratospheric ozone layer over Antarctica has increased in size; assuming continued reductions in emissions of ozone depleting substances through compliance with the Montreal Protocol, the ozone layer is expected to recover by roughly 2060. Both climate change and unsustainable land use are leading to increasing land degradation: soil erosion, nutrient depletion, water scarcity, salinity, desertification and disruption of biological cycles. Global per capita supplies of freshwater are declining with serious negative impacts for people living in countries with water scarcity; aquatic systems and their services are being impacted by the decrease in quantity and quality of surface groundwater. Over-exploitation of aquatic ecosystems has led to significant, and in some cases irreversible, declines in capture fish stocks. Global biodiversity is decreasing.

The report’s authors argue that data trends suggest increasing risk that some biophysical systems are approaching tipping points: points at which abrupt, accelerating, and possibly irreversible changes can take place. The authors conclude that the observed changes to global ecosystems result from globally expanding flows of goods, services, capital, people, technologies and information which in aggregate require increasing throughput of resources and produce increasing volumes of waste.

The Synthesis Report of the Millennium Ecosystem Assessment⁴ (2005b) presents similar conclusions. It argues that in the last fifty years, human activity has resulted in changes to

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⁴ The Millennium Ecosystem Assessment (MEA) was initiated in 2001 in response to a call by the United Nations Secretary-General Kofi Annan. The objective of the MEA was “to assess the consequences of ecosystem change for human well-being and the scientific basis for action needed to enhance the conservation and sustainable use of those systems and their contribution to human well-being. The MEA has involved the
ecosystems such that over half of the ecosystem services studied (15 of 24) are being degraded or used unsustainably and that irreversible loss of biodiversity has occurred. Ecosystem services include fresh water, capture fisheries, air and water purification, and regulation of natural hazards, pests, and regional and local climate. In the MEA (2005c) *Scenarios Assessment* report the authors contend that pressures on these systems results from the rate of human resource use and waste production.

Reports of the Intergovernmental Panel on Climate Change (1990; 1995; 2000; 2001; 2007) argue that anthropogenic increases in global emissions of greenhouse gases are leading to warming of the Earth’s surface. The data in the IPCC’s 2007 report suggests that global reductions in greenhouse gas emissions of approximately 50% below 1990 levels must be achieved by 2050 if the worst consequences of global climate change are to be avoided (Hansen et al., 2008). Measured on a per capita basis, industrialized nations like the United States, Australia, Canada, Russia, Germany and Japan are among the largest contributors (International Energy Agency, 2009); they are also nations which arguably have economic, administrative, scientific and cultural capacities to pursue innovations in emissions reductions through resource conservation, technological efficiencies, development of renewable energy sources, changes to urban form and function, and changes in production and habits of consumption (Haughton and Hunter, 1994; Rees, 2002; Bulkeley and Betsill, 2003).

Scientists taking a global carrying capacity approach to the study of human-ecosystem interactions also report negative impacts of human activity over the last fifty years. In ecology, carrying capacity refers to the population of given species that can be supported indefinitely by a defined habitat. Researchers concerned with global human carrying capacity are interested in the reverse, what volume of resources is required to sustain the current human population and are enough resources available to sustain increasing numbers of people with increasing demands? (Rees, 1992) This reverse carrying capacity concept was first proposed by William Rees (1992) through his ecological footprint model. Ecological footprint analysis calculates the biologically productive land and sea required on a continuous basis to produce the renewable resources and assimilate the wastes of any given population (Wackernagel and Rees, 1996). Biologically productive land and sea are converted to a

work of more than 1,360 experts worldwide” (MEA, 2009). MEA findings are presented in five technical volumes and six synthesis reports.
standard measure called a global hectare which represents one hectare of land with average
global productivity (Wackernagel and Rees, 1996). The most recent data from the Global
Footprint Network (2010) indicates that the human demand for natural resources and
absorption of carbon emissions now exceeds the amount nature can provide by 50%. This
means it would take the Earth approximately 18 months to replenish the resources used and to
assimilate the wastes produced by global population in one year (Global Footprint Network,
2010). The consequences of the ecological deficit are not always immediately obvious;
catching fish at a faster rate than they are replaced, for example, can go on for many years
before stocks collapse, but if EFA calculations are correct, the human population is rapidly
depleting its stocks of natural capital and thus jeopardizing global ecosystems in the present
and the future (Wackernagel and Rees, 1996; Rees, 2006; Global Footprint Network, 2010;
WWF, 2010).

Even some social scientists concerned with human appropriation of global “natural capital”
described the human enterprise as being in ecological “overshoot” (Catton, 1982:298).
Vitousek, Ehrlich, Ehrlich and Matson (1986) found that humans were appropriating over
40% of terrestrial net primary production; Pauly and Christensen (1995) reported that humans
were using approximately 35% of the production of coastal aquatic systems.

If the interpretations of scientific data presented in the reports of Millennium Ecosystem
Assessment, the Intergovernmental Panel on Climate Change, The United Nations
Environmental Programme, and resulting from ecological footprint analysis are accepted, then
an urgent, global imperative for reductions to resource use of all kinds exists; this imperative
represents a serious challenge given that both population and per capita demands for
resources have in fact been increasing over the last five decades (IPCC, 2007; Rees, 2009;
WWF, 2010; Global Footprint Network, 2010).

1.2.1.2 Cities as sites for responding to global ecological change

Cities are home to over half of the human population on Earth (UN Department of Economic
and Social Affairs, 2010). Between urban residents and urban industry, cities concentrate the
majority of global resource demands and waste production (White and Whitney, 1992;
McGranahan and Satterthwaite 2003; Girardet, 2004; Rydin, 2010). The magnitude of resource demands, particularly from cities of the global North, results in negative ecological consequences at the scales of local and global ecosystems (Alberti, 1996; Rees, 1996; Haughton, 1997; Beatley and Manning, 1997:28; Low et al., 2005:16).

Research from both ecological footprint analysis (measure of human demand on global biophysical resources and services) and urban metabolism studies (measures of resource flows into a city and the associated production of wastes over a given time) reveals just how resource intensive urban centres of the industrialized world are (Rees and Wackernagel, 1996; Baccini, 1997; Folke et al., 1997; Decker et al., 2000; Warren-Rhodes and Koenig, 2001; Barrett et al., 2002; McGranahan and Satterthwaite, 2003; Lenzen et al., 2004; Collins, Flynn, Weidmann, and Barrett, 2006; Brunner, 2007; Kennedy, Cuddihy and Engel-Yan, 2007; Schultz 2007; Rees, 2012). Ecological footprint analysis shows that only 1.8 global hectares of biocapacity (biologically productive land and sea area) is available per capita while the per capita ecological footprints of many cities in the global north exceed 6.0 global hectares (Global Footprint Network, 2010). Metabolism studies from the last four decades indicate that urban resource demands have been steadily increasing despite claims from some economists that increased per capita wealth leads to improved ecological conditions (the environmental Kuznets curve hypothesis) (Warren-Rhodes and Koenig, 2001; Schulz 2007).

Because of intensive resource use, waste production and sprawling urban form that converts agricultural and un-managed natural lands to urban uses, cities are identified as key drivers of global ecological change including loss of biodiversity, disruptions of hydrological systems, soil depletion, and climate change (Haughton and Hunter, 1994; Roseland, 1992; Rees, 1992; 2012; Rees and Wackernagel, 1996; Baccini, 1997; Girardet, 2004; Low et al., 2005). Further, because cities rely on local and global hinterlands to meet their demands they affect both local and global environmental change (Alberti, 1996; Rees, 1997; Folke et al., 1997; Warren-Rhodes and Koenig, 2001; McGranahan and Satterthwaite, 2003; Rydin, 2010:1). Local and global impacts of urban centres are presented in Table 1.3.
Table 1.3 Local and global ecological impacts of urban activity

<table>
<thead>
<tr>
<th>Local Environment</th>
<th>Global Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Local rivers, streams and coastal zones overwhelmed</td>
<td>• Global climate change due to greenhouse gas emissions:</td>
</tr>
<tr>
<td>by organic, inorganic and toxic wastes</td>
<td>nitrous oxide; carbon dioxide; methane</td>
</tr>
<tr>
<td>• Local air, water, soil pollution</td>
<td>• Atmospheric pollution</td>
</tr>
<tr>
<td>including concentrations of heavy metals</td>
<td>• Biodiversity loss</td>
</tr>
<tr>
<td>• Local biodiversity loss due to habitat destruction</td>
<td>• Global resource depletion and degradation: 70-80%</td>
</tr>
<tr>
<td>and pollution</td>
<td>global resources consumed in cities of the global North</td>
</tr>
<tr>
<td>• Loss of agricultural land and</td>
<td>• Draw down on global water resources– many cities</td>
</tr>
<tr>
<td>agricultural production due to sprawl</td>
<td>import water</td>
</tr>
<tr>
<td>• Possible reduced agricultural production as aerosols</td>
<td>• Increased nitrogen levels in oceans</td>
</tr>
<tr>
<td>block photosynthetically available radiation</td>
<td>• Complex and unintended outcomes: e.g. road construction</td>
</tr>
<tr>
<td>• Changes to local hydrological cycles due to</td>
<td>to link cities in China is resulting in iron in the air</td>
</tr>
<tr>
<td>impervious surfaces (roofs, streets, parking lots etc.)</td>
<td>that will end up in North Pacific marine ecosystem which</td>
</tr>
<tr>
<td>: groundwater is not recharged as rain and storm water</td>
<td>doesn’t have much iron – impacts unknown</td>
</tr>
<tr>
<td>are channelled into sewers; heat island effect increases</td>
<td>• Disruption of hydrologic systems</td>
</tr>
<tr>
<td>evaporation and precipitation over urban areas</td>
<td>• Desertification</td>
</tr>
<tr>
<td>• Water loss –drawing down of local groundwater</td>
<td></td>
</tr>
<tr>
<td>sources</td>
<td></td>
</tr>
<tr>
<td>• Subsidence -land sinking due to depletion of</td>
<td></td>
</tr>
<tr>
<td>underground aquifer</td>
<td></td>
</tr>
</tbody>
</table>

Compiled from Baccini, 1997; Decker et al., 2000; McGranahan and Satterthwaite, 2003

Because they are viewed as drivers of globally unsustainable resource use and waste production, cities are prime targets for stimulating sustainability-oriented change. Some have argued in fact that unless urban settlements become sustainable, global goals for sustainable living (within global biocapacity) cannot be achieved (Baccini, 1997). Urban centres offer advantages of physical agglomeration and scale that can benefit reform efforts such as
viability of public transit and shared infrastructure services to reduce energy needs (Haughton and Hunter, 1995; Alberti, 1996; Roseland, 1992; Rees and Wackernagel, 1996; Newman and Kenworthy, 1999; Barton, 2000; Low et al., 2005; Brunner, 2007). Equally important, cities are centres for creativity, diversity, education and social movements all of which can be engaged in pursuit of a transition toward sustainable living: living equitably and well, within the capacity of the earth’s ecosystems (Roseland, 1992; Rees and Wackernagel, 1996; Haughton, 1997; Girardet, 2004; Nelson, 2007; Newman and Jennings, 2008; Rydin, 2010).

The case for cities as sites for change in global environmental efforts including resource reductions has been taken up in national and international policies and initiatives. Table 1.4 lists major international policies and initiatives as well as examples of recent Canadian initiatives.

**Table 1.4** Major international and recent Canadian policies and initiatives relating to urban resource reduction (Compiled from Whitehead, 2003; Bulkeley and Betsill, 2003)

<table>
<thead>
<tr>
<th>Events and initiatives</th>
<th>Year</th>
<th>Link to environmental concerns, resource use, waste reductions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitat I (Vancouver)</td>
<td>1976</td>
<td>Establish international programme to slow growth of urban areas</td>
</tr>
<tr>
<td>Establishment of UN Centre for Human Settlement</td>
<td>1978</td>
<td>Specific concern with more sustainable living: urban and rural areas</td>
</tr>
<tr>
<td>World Commission on Environment and Development</td>
<td>1987</td>
<td>Chapter 9 “The Urban Challenge” addressed the role of cities in sustainability including reducing environmental impacts</td>
</tr>
<tr>
<td>UN Sustainable Cities Programme</td>
<td>1990</td>
<td>Integration of the sustainable development goals of the UNCHS and the United Nations Environment Programme (UNEP)</td>
</tr>
<tr>
<td>International Council for Local Environmental Initiatives</td>
<td>1990</td>
<td>Over 1200 local governments committed to promotion of sustainable urban development initiatives through local actions</td>
</tr>
<tr>
<td>UN Conference: Environment and Development</td>
<td>1992</td>
<td>Agenda 21 – Chapter 2 “Promoting Sustainable Human Settlement Development”; Chapter 28 – identifies the role of local authorities in meeting global environmental goals</td>
</tr>
<tr>
<td>Canadian Federation of Municipalities</td>
<td>2000</td>
<td>Green Municipal Fund: support municipal research and pilot projects to improve environmental performance and reduce ghg emissions</td>
</tr>
<tr>
<td>World Summit on Sustainable Development (Johannesburg)</td>
<td>2002</td>
<td>Plan of Implementation – Chapter 3 “Changing unsustainable patterns of consumption and production”</td>
</tr>
<tr>
<td>Environment Canada</td>
<td>2002</td>
<td>Sustainable Community Indicators Program</td>
</tr>
<tr>
<td>National Research Council of Canada</td>
<td>2003</td>
<td>NRC Institute for Sustainable Infrastructure Research</td>
</tr>
</tbody>
</table>
1.2.2 Sustainable Cities

In defining the sustainable city, many theorists include the requirement that it function within global biophysical limits (Roseland, 1992; Rees, 1995, 2010, 2012; Prugh, et al., 2000: xi; Beatley and Manning, 1997; Girardet, 2004; Low et al., 2005; Newman and Jennings, 2008; Rydin, 2010; Lombardi et. al. 2011). Because cities and their inhabitants function within multi-scale political, social, cultural and economic networks it is challenging to conceive of ways that a city, on its own, can operate within biophysical limits. Rees (2009) has argued that a city could achieve quasi sustainability: meaning that the per capita resource consumption and waste production of city residents is at a level that could be extended to all human inhabitants on earth without exceeding global carrying capacity. To date no city in an industrialized nation has achieved quasi sustainability.

The criterion for a sustainable city and its inhabitants to flourish while remaining within global carrying capacity limits reflects definitions of the broader concept of sustainable development which entered public policy arenas in the late 1980s and early 1990s. For example, a definition from the Environmental White Paper of the Government of the United Kingdom (1990): “Sustainable development means living on the earth’s income rather than eroding its capital. It means keeping the consumption of renewable natural resources within the limits of their replenishment. It means handing down to successive generations not only man-made wealth, but also natural wealth, such as clean and adequate water supplies, good arable land, a wealth of wildlife and ample forests.” The European Commission on the Environment describes environmental protection as a key principle in its Declaration on Guiding Principles for Sustainable Development (2005) and provides the following definition: “Safeguard the earth’s capacity to support life in all its diversity, respect the limits of the planet’s natural resources and ensure a high level of protection and improvement of the quality of the environment. Prevent and reduce environmental pollution and promote sustainable production and consumption to break the link between economic growth and environmental degradation.” From the UN Environment Program, the World Conservation Union and the World Wildlife Fund (IUCN, UNEP, WWF, 1991:8) “Living sustainably depends on accepting a duty to seek harmony with other people and with nature...Humanity must take no more from nature than nature can replenish. This in turn means adopting lifestyles and development paths that respect and work within nature's limits. It can be done
without rejecting the many benefits that modern technology has brought, provided that
technology also works within those limits.”

Recognition of global biophysical limits has been expressed in locally and internationally
determined urban policy agendas for sustainability. For example, the Consensus Declaration
of the Charter of European Cities and Towns Toward Sustainability (1994) acknowledges
global carrying capacity limits and sustainable rates of resource consumption in their
description of sustainable urban settlements:

We, cities and towns, understand that the idea of sustainable development helps
us to base our standard of living on the carrying capacity of nature. We seek to
achieve social justice, sustainable economies, and environmental sustainability.
Social justice will necessarily have to be based on economic sustainability and
equity, which require environmental sustainability. Environmental sustainability
means maintaining the natural capital. It demands from us that the rate at which
we consume renewable material, water and energy resources does not exceed the
rate at which the natural systems can replenish them, and that the rate at which
we consume non-renewable resources does not exceed the rate at which
sustainable renewable resources are replaced. Environmental sustainability also
means that the rate of emitted pollutants does not exceed the capacity of the air,
water, and soil to absorb and process them.

1.2.3 Measuring Global Biophysical Limits and Urban Biophysical Demands

If there is a general acceptance in sustainability and sustainable cities literature that global
biophysical limits must be respected, there is no agreement on how best to measure those
limits, or even whether measurement should be a central focus of research (Haberl, Fischer-
Kowalski, Krausmann, Weisz, and Winiwater, 2004; Sorensen, Marcetullio and Grant, 2004).
Haberl et al. (2004) propose that, given present limitations to measurement systems, a more

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5. The full definitions from these documents encompass social and economic conditions of sustainability.
6. Charter of European Cities and Towns Towards Sustainability was adopted by participants at the European
Conference on Sustainable Cities and Towns in Aalborg, Denmark, 1994. The Charter outlined a campaign and
local action plans for engaging in Locla Agenda 21 Processes. The Charter was followed by the Aalborg +10
pressing research agenda is investigation of the socio-economic factors that drive current global production and consumption systems. Sorensen et al. (2004:4) propose a focus on developing strategies to reduce resource use and waste production rather than attempting to measure capacities and demands; their view reflects a concept of sustainability as a direction rather than a measurable destination. Others call for urban change toward living within limits but do not commit to any specific means of measurement (Brunner, 2007). Despite these concerns over discerning accurate biophysical thresholds and research priorities, two metrics for determining global biophysical limits have become dominant in academic literature and in urban policy: atmospheric carbon levels and the human ecological footprint.

1.2.4 Atmospheric Greenhouse Gases as a Measure of Living within Global Biophysical Means

The greenhouse effect describes the mechanism by which the earth’s atmosphere moderates its surface temperature. A measured increase in atmospheric carbon dioxide is understood to be the key factor in global climate change (Natural Resources Canada, 2011). Most atmospheric scientists believe that human activity such as combustion of fossil fuels is the major contributor to atmospheric increases in carbon dioxide (Intergovernmental Panel on Climate Change, 2007; Solomon et al., 2008; Environment Canada, 2011). The human contribution to climate change was recognized internationally through the UN Convention Framework on Climate Change, (Kyoto Protocol) (UNCFCC, 1998).

Many atmospheric scientists argue for an absolute limit of carbon dioxide in the atmosphere (measured in parts per million\(^7\)) to limit global warming to 2 degrees Celsius. Beyond a 2 Celsius degree increase, these scientists contend, severe, unpredictable and likely irreversible effects of climate change will occur (IPCC, 2007). Data from the Fourth Assessment Report, Climate Change 2007,\(^8\) (IPCC, 2007) suggests that global carbon dioxide emissions must be

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\(^7\) The Intergovernmental Panel on Climate Change determined 450ppm as a maximum atmospheric level of carbon dioxide in order to keep global warming to 2 degrees Celsius (IPCC, 2007); some scientists contend that 350 ppm is a safer target (Solomon et al., 2011).

\(^8\) Since it was established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP), the Intergovernmental Panel on Climate Change (IPCC) has been reviewing and assessing internationally produced scientific, technical and socio-economic information relevant to the understanding of climate change. The IPCC has published four assessment reports (in 1990; 1995; 2001; 2007).
reduced to 50% below 1990 levels by 2050 if global warming is to be limited to 2 degree Celsius. In developed countries the required emission reduction is approximately 80% below 1990 levels (Weaver, Zickfeld, Montenegro and Eby, 2007). Reductions within this range have been endorsed at various levels of government. The G8 nations agreed in 2009 that their collective emissions should be reduced 80% by 2050 (baseline year was not determined) (Wintour and Elliott, 2009). The European Commission has developed a plan toward a long range goal of European Union emissions reductions of 80-95% below 1990 levels by 2050 (European Commission, 2012). The 2008 Climate Change Act of government of the United Kingdom calls for 80% reductions from 2008 levels by 2050. In British Columbia, the provincial government committed the province to emission reductions of at least 80% below 2007 levels by 2050 (British Columbia, 2007). The City of Vancouver, British Columbia adopted a target of 80% reduction below 1990 levels by 2050 (City of Vancouver, 2010a).

Despite the challenge in forecasting the precise relationship between a specific parts per million target for carbon dioxide and a global temperature increase, it is widely accepted that a greenhouse gas limit exists beyond which potentially catastrophic climate events will occur (IPCC, 2001; 2007; Hansen, et al., 2008). Living within global biophysical means, in the case of atmospheric carbon dioxide, requires not exceeding that limit.

City-level initiatives to support greenhouse gas emissions reductions include: Cities for Climate Protection Campaign (CCP) of the International Council for Local Environmental Initiatives (ICLEI) established in 1993 to facilitate local efforts at emissions reductions. According to its website, in 2009, over a thousand local governments from around the globe are participating (ICLEI, 2011). The Canadian component of CCP is a network of municipalities called Partners for Climate Protection which had two hundred and sixteen member municipalities as of July 2011 (Federation of Canadian Municipalities, 2011). In the United States, the US Conference of Mayors Climate Protection Agreement, established in 2005, commits signatories to meet the US Kyoto reduction target of 7% below 1990 levels by 2012. Over 500 mayors have signed the Agreement (United States Conference of Mayors, 2011).

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all providing data to support the position that atmospheric greenhouse gas concentrations have a threshold beyond which severe, adverse climate conditions are expected.

9 In all cases, the targets are for reductions in carbon dioxide equivalents (CO₂e) to encompass other gases like methane and nitrous oxide which have global warming effects.
1.2.5 The Ecological Footprint as a Measure of Living within Global Biophysical Means

The ecological footprint is a measure of human demand on ecosystems. It is a calculation of the biologically productive land and sea required to provide the renewable resources and assimilate the wastes (mostly CO$_2$) of any given population: of a city, a nation, or the entire global population on a continuous basis (Rees, 1992, 1996; 2006; Wackernagel and Rees, 1996). From an ecological footprint perspective, humanity would be in a sustainable state if the global human population used renewable resources and produced wastes at a rate equivalent to the earth’s capacity to reproduce the resources and absorb the wastes. Ecological footprint calculations reveal that between 1961 and 2005 human demand on the biosphere has more than doubled (WWF, 2008). In terms of ecological footprint analysis the global human population is now living in part, off the earth’s natural capital, while living within global biophysical means requires living off nature’s interest. On a per capita basis, sustainable resource use can be determined as globally available biocapacity in gha/yr divided by the global population; the result of this calculation is called the fair Earth-share by Wackernagel and Rees (1996). Regardless of whether one accepts the position that global resources should be shared equitably among the human population, ecological footprint analysis identifies the approximate limits to global biocapacity and determines that the human population is exceeding those limits. In 2007 the human ecological footprint on earth was 2.7 gha per person while only 1.8 gha is actually ‘available’ for each human inhabitant of Earth (Global Footprint Network, 2010).

The per capita ecological footprints of developed nations are significantly larger than those of poor nations. For example, Canada’s per capita ecological footprint has been calculated at 7.6 global hectares. This means that on average, Canadians must reduce their renewable resource demands and waste production by approximately 78% (WWF, 2007) to reach their fair Earth-share. If all the residents of Canada were using only their fair Earth-share of global biocapacity a state of ‘quasi-sustainability’ would be in effect: that level of economic activity and energy/material consumption per capita which, if extended to the entire system, would result in global sustainability (Rees, 2009).

The ecological footprint has been challenged for the accuracy of its method (Van den Bergh and Verbruggen, 1999; McManus, 2005) but since its inception, ecological footprint
calculation methods have been continually revised and data availability and accuracy improved. The ecological footprint is being used in academic research and in national and local policy to measure ‘sustainability’ from a global renewable resource perspective (Aall and Norland, 2005; Hammond, 2006; Moos, Whitfield, Johnson and Andrey, 2006; Brown, Kruger and Subler, 2008). Ecological footprint analysis has been used by national governments including the United Kingdom; United Arab Emirates; Japan; Switzerland; Wales; and Belgium; it has been adopted by the European Union as a key indicator of sustainability (Global Footprint Network, 2011) and it was included as the 4\textsuperscript{th} of 10 Melbourne Principles for Sustainable Cities adopted as part of the Local Agenda 21 program, at the Local Government Session of the Earth Summit 2002 in Johannesburg.\textsuperscript{10} The City of London, England commissioned a comprehensive footprint analysis in 2002 (Barrett, Valleck, Jones and Haq, 2002). At least two Canadian cities have recently set goals for reductions in the ecological footprints of their residents: the City of Calgary plans to reduce its average per capita footprint by approximately 36\% per capita (City of Calgary, 2009) and the City of Vancouver announced as part of its Greenest City initiative, a long term target (2050) for a “one planet ecological footprint” equivalent to a fair Earth-share of 1.8 gha per capita \textsuperscript{11}(City of Vancouver, 2009b:8). The ecological footprint has been adopted as part of a holistic sustainability design framework, One Planet Living, developed by the UK organization BioRegional and promoted by the World Wildlife Fund as a resource for planning and evaluation of urban land development projects (WWF One Planet Living).

Despite methodological and data challenges, greenhouse gas emissions inventories and ecological footprint accounting are two scientifically grounded tools for measuring global biophysical limits and for determining whether or not the global human enterprise, or a specific city, is functioning sustainably within them.

\textsuperscript{10} Melbourne Principle #4: Enable communities to minimize their ecological footprint. (ICLEI, 2011)
\textsuperscript{11} Because the target is long term, the available per capita biocapacity could be less than 1.8 gha; therefore the target is set at ‘one planet’.
1.2.6 Planning Sustainable Urban Land Projects: Influence of Sustainability Approaches

Researchers have suggested that the outcomes of sustainability policies at the level of urban land development projects have largely fallen into the category of weak sustainability, status quo (as per Rees, 1995), also known as ‘business as usual’ (Irwin, 2004; Rydin, et al., 2003; Brown and Carpenter, 2009). Lombardi et al. suggest that outcomes at the land development level will be strongly influenced by the perceptions of actors involved in the planning process (Lombardi et al., 2011). How these actors conceive of sustainable development, the problems it should address and the avenues available for solutions will significantly influence the way sustainability policies are interpreted and applied. Lombardi et al. (2011) tested this hypothesis in a case of urban brownfield regeneration in Birmingham, UK. They found that despite transformative conceptions of sustainability among some planning actors and in some policy documents, in general, business as usual outcomes prevailed. The authors posit that in Birmingham and beyond, the dominant ‘growth-first ethic’ in urban regeneration discourse must be displaced by transformative conceptions of sustainability if innovative, holistic outcomes are to be achieved.

1.2.7 Reforming Cities: Toward Reconciliation with Global Biophysical Limits

The goal for cities to function within global biophysical limits, or at least to reduce resource use and waste production, has been supported by some sustainable cities researchers and theorists through promotion of strategies to restructure city forms, spaces, functions and flows (Table 1.5 below). Proposed physical characteristics include: compact form; increased density; mixed-use zoning; prioritizing mobility options such as walking, bicycling and public transit; and energy efficient building design. Socioeconomic characteristics require changes to economic structure and activity, personal and cultural behaviour and values, and more participatory, local forms of governance (Register, 1987; Roseland, 1992; Haughton and Hunter, 1994; Satterthwaite, 1997; Prugh et al., 2000; Girardet, 2004; Newman and Jennings, 2008; Rydin, 2010).
### Table 1.5 Proposed characteristics of sustainable cities

<table>
<thead>
<tr>
<th>Characteristic Proposed from Literature on Urban Sustainability</th>
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<tbody>
<tr>
<td><strong>Urban Form/Land Use</strong></td>
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<tr>
<td>Mixed-use; compact; high density; transit-oriented; pedestrian and bicycle oriented design; brownfield redevelopment</td>
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<tr>
<td><strong>Transportation Systems</strong></td>
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<tr>
<td>Prioritize public transit systems; prioritize non-auto modes of transportation; support electric vehicles; reduced parking for private automobiles; encourage car-pool; car share programs</td>
</tr>
<tr>
<td><strong>Energy Systems</strong></td>
</tr>
<tr>
<td>District energy systems; on site renewable energy technologies such as solar, wind and geothermal</td>
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<tr>
<td><strong>Built Form</strong></td>
</tr>
<tr>
<td>Energy efficient building design and layout including passive design; flexible design so buildings can be adapted to user needs over time</td>
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<tr>
<td><strong>Water Use</strong></td>
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<tr>
<td>Conservation technology such as low flow faucets; re-use of gray water; naturalized storm water management systems; limited impervious surface area to replenish surface and groundwater</td>
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<tr>
<td><strong>Waste – solid, liquid and atmospheric</strong></td>
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<tr>
<td>Composting of organics (on site to reduce transportation); diversion of waste from landfill through increased recycling and re-purposing centres and pick up; re-design of products for recycling and re-use; methane capture at landfill; air emissions standards</td>
</tr>
<tr>
<td><strong>Urban Agriculture</strong></td>
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<tr>
<td>Reduce ‘food miles’ distance from food production location to consumption site; urban community and demonstration gardens for local food production, education and aesthetics</td>
</tr>
<tr>
<td><strong>Urban Green Space</strong></td>
</tr>
<tr>
<td>Retain wildlife habitat; use native species for planting where possible; walking distance access to green space for residents, local employees and visitors</td>
</tr>
<tr>
<td><strong>Wildlife Habitat</strong></td>
</tr>
<tr>
<td>Encourage reductions in consumption of resource intensive products and services through education; changing cultural values</td>
</tr>
<tr>
<td><strong>Personal Consumption</strong></td>
</tr>
<tr>
<td>Increase local legal and regulatory jurisdiction; increase participatory and stakeholder-based planning and decision-making</td>
</tr>
<tr>
<td><strong>Economy</strong></td>
</tr>
<tr>
<td>Localized restorative economies: provide more local control over local resources; meet local needs from local sources; closed loop production systems; local eco-industrial networking; encourage local stewardship ethic</td>
</tr>
</tbody>
</table>

The sustainable city characteristics listed in Table 1.5 are not uncontested. Which characteristics and strategies should be most ardently pursued is a point of debate among theorists (Evans and Jones, 2008). The physical changes, when promoted independently of socioeconomic changes, can be conceived as operating within the sustainability paradigm promoting technical and market solutions to environmental problems (the independent spheres approach). Guy and Marvin (1999) caution against defining the sustainable city in physical terms alone, arguing that political tendencies to apply technical solutions to complex social challenges will eclipse opportunities for more holistic change. Political economists warn that technical aspects of sustainability can be co-opted into the existing neoliberal agenda of economic growth through privatization and commoditization of the city while progressive agendas for economic and social sustainability reform are sidelined (Whitehead, 2003; Krueger and Savage, 2007). They argue for investigation of the socioeconomic systems that reproduce ecological and social un-sustainability. Others argue that promotion of a common set of physical measures is conceptually unsound; the sustainable city is not “a generic, planned object” (Whitehead, 2003: 1202), but a contextually developed and implemented construct. Further, efficacy of physical changes (individually or in combination) is to date uncertain and remains the subject of academic debate (Crane, 1996; Handy, 2005).

Despite these varied positions on sustainability strategies, the set of characteristics in Table 1.5 remains the dominant set promoted in academic literature. In planning practice and policy, the physical characteristics are most commonly pursued, although concepts like food security have led to increased policy work on local control over and access to agricultural production (Mendes, 2008).

Among sustainable city theorists, some argue against quantitative measurement of sustainability and data collection. They argue that quantification reinforces the status quo approach to sustainability (see Table 1.1 and Table 1.2) in which problems of un-sustainability can be solved if enough of the right data is collected to inform technological and market solutions (Guy and Marvin, 1999; Whitehead, 2003). These theorists argue that it is more urgent to interrogate the socioeconomic structures that have led to and continue to deepen un-sustainability. I propose that identification of quantifiable measures of sustainable human living and investigation of the socioeconomic structures that produce unsustainable
forms of human living are not in opposition; both must be pursued. Without a quantifiable measure of sustainability, it is not possible to determine whether policy directions, be they governance changes, economic changes, or technological changes are actually leading toward patterns of human living that respect global biophysical capacity, and so avoid potential unanticipated, catastrophic environmental changes.

1.3 Literature on Sustainable Urban Land Development Projects: Policy, Plans and Implementation

Published research on sustainability-oriented urban development projects falls into three types: 1) descriptive: cataloguing sustainability strategies and technologies implemented, sometimes including comment on successes and challenges to implementation; 2) evaluative: applying sustainability frameworks or indicator checklists to projects; and 3) exploratory: studies on how sustainability policy is perceived, interpreted and implemented; factors that influence implementation and outcomes.

Among the first group, studies range from reviews of individual sustainability strategies such as water technologies, (for example, Shirly-Smith and Butler (2008) on innovations in water technology for Beddington Zero, UK; Novotny (2010) on energy efficiencies in Masdar, UAE), to inventories of strategies implemented in various projects, such as Ceretta and Salzano (2009) comparing eight neighbourhood level cases in Europe, and Beatley’s and Newman’s (2000) catalogue of sustainability initiatives in Australia. Two central contributions can be drawn from this literature: first, the research helps to establish a much needed inventory of strategies that have been attempted; second, examples of actually existing sustainability strategies (Krueger and Agyeman, 2005) may help to promote cultural interest and confidence in the possibilities for a sustainable future. A critique of this literature is its lack of attention to the multi-scale contexts and local conditions that first give rise to and then support implementation of sustainability policy and strategy.

A small number of studies have applied sustainability frameworks to urban development projects, evaluating project plans and outcomes against sustainability criteria determined from the literature. Examples include Kim’s (2002) evaluation of four communities, two in Asia,
one in the UK and Vancouver’s Southeast False Creek; Irwin’s (2004)\textsuperscript{12} analysis of sustainability outcomes in Vancouver’s Southeast False Creek Policy Statement; and Deakin’s (2003) examination of sustainable community settlement plans outside of Edinburgh, UK. Both Kim and Irwin evaluate urban development projects against criteria ‘toward’ sustainability without including an absolute measure of sustainability such as ecological footprint or carbon emissions limits. Irwin’s criteria for ecological sustainability, for example, are “efficient and ecologically sensitive land use in urban areas; and minimizing the use of natural resources, and the reduction or elimination of pollution” (2004:74). Minimization and reduction are not criteria for ecological sustainability. The criteria for ecological sustainability are that resource use and pollution production levels remain within global carrying capacity (Baccini, 1997; Newman and Jennings, 2008; Rees, 2009).

Deakin (2003) attempts to measure what he calls the ‘ecological sustainability’ of plans for developments in Edinburgh’s South East Wedge. He finds that despite inclusion of current ‘best practice’ characteristics like high density, compact, mixed use development and energy-conscious transportation infrastructure, there is no formal assessment of the settlements’ ecological footprints, biodiversity or natural capital. Deakin (2003:44) argues that a model without such measures cannot be a model for sustainability at all; design solutions should be required to demonstrate their ecological viability in light of these measures. Deakin is one of the few to apply criteria based on living within global biophysical means. Given the broad acceptance within sustainability literature and theory of global biophysical limits, the low profile of such a measure marks an important research gap in analysis and evaluation of sustainable urban development plans and projects. It also highlights the challenge of bridging diverse academic discourses such as ecological and environmental science with theories of planning and place-making, policy development and urban political economy.

A third body of literature examines planning processes, policy development and implementation in sustainable urban development projects. This research focuses largely on the aspirations for transformative change that will lead to greater social and political equity. The research literature finds little evidence that application of sustainability policy has had

\textsuperscript{12} Irwin’s analysis is one component of research which has as a central focus, an investigation of the effectiveness and contribution of collaborative planning processes to sustainability outcomes in urban development projects.
significant impact on urban land development projects to date. It also reports that economic interests can fairly nimbly adopt elements of sustainability policy such as technical requirements into business as usual development (Raco and Henderson, 2010; Lombardi et al., 2011). A number of researchers have investigated brownfield regeneration projects in the UK, which have since the early 2000s been influenced by state and local level policies on sustainable development (Whitehead 2003; Rydin et al., 2003; Porter and Hunt 2005; Evans and Jones, 2008; Brown and Carpenter, 2009; Raco and Henderson, 2010; Lombardi et al., 2011). Several hypotheses emerge about implementation of sustainability policy: without support from comprehensive sustainability policy at other levels of government, local sustainable development policy will be limited in its effectiveness at delivering social, economic and ecological outcomes; if brownfield redevelopment is commodified, uneven outcomes among objectives are likely (Raco and Henderson, 2010). The sustainable city cannot be ‘rolled out’ as a uniform set of technical reforms, checklists and benchmarks. Rather, policy implementation will be influenced by local actors and networks of actors (Rydin et al., 2003; Whitehead, 2003; Evans and Jones, 2008; Lombardi et al., 2011). Research attention must focus on local governance structures and how they can be reformed to serve the values and goals of sustainability (Rydin et al., 2003; Brown and Carpenter, 2009). The ambiguity of the sustainability concept makes sustainability policy vulnerable to being co-opted by business as usual development interests, but at the same time, under collaborative processes of policy implementation ambiguity allows for creative problem solving and innovation (Evans and Jones, 2008). The ambiguity of the concept can be viewed as useful in making visible the political and value-laden nature of planning policy (Lombardi et al., 2011).

Lombardi et al. (2011) conducted research on policy implementation in an urban regeneration project in Birmingham, UK. Their hypothesis was that sustainability policy for the project would be interpreted and mediated by actors in the planning process and therefore, the way actors conceived of sustainability should powerfully influence how the policy was implemented. Lombardi et al. interviewed planning actors and analysed planning policy documents, ranking them on a scale of interpretation from status quo: no real changes required in development projects or personal lifestyle; technical changes toward energy efficiency within current market systems will suffice to address environmental problems; to
reform: immediate action within existing socio-economic systems is required to address mounting ecological problems; to transformative: radical change to existing socioeconomic systems and paradigms is required to avoid problems of mounting global ecological crisis. They found that although several actors in the process expressed transformative views of sustainability, the dominant conception was a growth ethic, business as usual model. For the most part, the project delivered technical strategies for energy efficiency and resource use reduction. The researchers found no evidence of transformative change such as values or behaviour change, increased participation in governance or planning processes, or local economic development.

Two studies on implementation of sustainability policy in the North American context associate sustainability-oriented projects with processes of gentrification. In the case of Toronto’s West Don Lands, Bunce (2009) argues that local government sustainability policy as delivered by the private sector development industry is an example of both “policy-led gentrification” and “third wave gentrification”. She argues that the institutional arrangements and associations between the public policy-makers and large private development companies will result in socially and economically exclusive communities rather than the more socially equitable communities envisioned from the social justice perspective on sustainability. Dale and Newman (2009) contend from their investigation of Kensington Market, Toronto; Dockside Green, Victoria and Gastown and Yaletown in Vancouver, that development of sustainability-oriented communities (sustainability-oriented activities in the case of Kensington Market) have contributed to local processes of gentrification. They argue that sustainable communities to date are livable communities for a well to do middle class and that future efforts must be more focused on social inclusion and diversity.

The planning of Vancouver’s Southeast False Creek has attracted some academic attention. Irwin’s (2004) doctoral research investigated the planning phase that resulted in the official Southeast False Creek Policy Statement. He evaluated the planning process against criteria for communicative planning; and evaluated the outcome of that process, the Policy Statement document, against criteria of strong sustainability which he derived from literature13. Irwin’s

13 Irwin describes the weak / strong sustainability dimensions in terms of natural and human-made capital: from a strong sustainability perspective natural and human made capital are complements not full substitutes; the means of production must not be depleted. Weak sustainability allows for substitution of natural capital by
research goal was to determine whether communicative planning processes improve sustainability outcomes and in the case of Vancouver, whether the process advanced sustainability in the city. He found that the Southeast False Creek process met literature-based criteria for communicative planning. He assessed the Policy Statement as generally representative of weak sustainability (after O’Riordan and Voisey, 1998) characterised by: “environmental policy: new institutional structures to implement formal integrated policy; economic policy: substantial restructuring to encourage use of economic instruments, significant amount of financial investment for sustainability goals; public awareness: broader public education and partnerships between educational institutions and local community; public participation: interested party groups and local Council surveillance”.

The characteristics of strong sustainability policy and practice (derived from O’Riordan and Voisey, 1998) which Irwin found to be lacking in the Southeast False Creek Policy Statement are: “legally binding policy integration, sustainability policy with indicators; economic policy: full cost and green accounting practiced; widely accepted measures of community capacity; public awareness: curriculum integration which delivers educational initiative with intent of improving local community; regular media coverage of sustainability issues: communicative participation: widespread and on-going community involvement, and strong local council support for sustainability initiatives.”

Irwin also argues that the process had an impact on general knowledge and promotion of sustainability within the city at large.

Irwin approached the research from multiple theoretical frames including a political economy perspective. As such Irwin’s investigation considered the influence of the local political economic context, and the actions of individuals and groups representing various political and economic interests in the city. Irwin found that political and economic powers were exerted in the process and in some instances compromised the collaborative nature of the process.

The study was carried out in two parts: an action research component; and a set of structured interviews with planning participants. The communicative nature of the process and the human made capital when measuring overall capital to be conserved. For purposes of his research, Irwin adapts concepts of strong and weak sustainability from O’Riordan and Voisey (1998) as quoted in the text.
sustainability (weak-strong) of the Policy Statement, were evaluated in both components of
the research.

Vaughan (2008) examined the planning process for Southeast False Creek to investigate the
potential for collaborative planning to advance social, economic and ecological imperatives of
sustainability. She references Robinson and Tinker (1997) to describe sustainability as the
“simultaneous reconciliation of three imperatives: the ecological imperative to stay within the
biophysical carrying capacity of the planet; economic: provide adequate standard of living for
all; social: systems of governance that propagate the values people want to live by” (Vaughan,
2008:4). A former member of the Southeast False Creek Stewardship Group, (an advisory
group to the City of Vancouver) Vaughan examined the nature of collaboration between the
advisory group, City Staff, City Council and finally the Olympic Village developer.
Vaughan adapted a theory of “policy windows” from Kingdon (1995) to identify points in the
process at which opportunities existed to influence policy. She employed a narrative
approach, presenting a chronology of planning events punctuated by policy windows through
which various planning directions and strategies were negotiated.

Vaughan found that the collaborative process was most effective at promoting all three
During both these phases Vaughan found that the advisory group had opportunities to
influence sustainability goals and initiatives through their work with City staff and their
relationships with Council. From her perspective the Stewardship Group helped to promote a
holistic, integrated approach to sustainability. However, Vaughan does not offer evidence of
specific progress toward the ecological imperative of living within global carrying capacity
limits. Vaughan found that at the project implementation stage for the Southeast False Creek
Olympic Athletes’ Village the collaborative planning approach was diminished and social
sustainability goals were sidelined. Unlike technical and environmental design solutions, the
costs of social sustainability strategies in particular could not easily be integrated into the
financing scheme of the project which was operating under a conventional market economic
paradigm. Vaughan does not identify specific conceptions of sustainability but points out that
the “trade-off model” of sustainability pursued during the implementation phase could not
reconcile economic, social and ecological goals (2008:41). Vaughan does not propose a
definition for sustainability but argues that the lack of a concrete definition of the concept allowed for the devaluation of social sustainability goals.

Vaughan argues that collaborative processes can be effective at promoting integrated goals for sustainability, but that groups involved in the collaboration must be flexible enough to adapt to the pace, demands and micro-politics of the implementation phase of a project. She asserts that in the case of Southeast False Creek, civil society actors did not adapt sufficiently to maintain a presence in the final stages of the process. They could have formed new coalitions and identified new allies from outside of the City process to help challenge the imposition of trade-offs and expert-oriented planning that dominated the implementation phase.

Both Irwin and Vaughan examined the Southeast False Creek case to add to theory about the potential for more participatory processes, collaborative and communicative, to advance transformational/integrated goals of sustainability. Both researchers assert that more progress was made toward ecological sustainability than toward social or economic sustainability. Irwin based this conclusion on the number of objectives for environmental performance included in the Policy Statement compared to those targeting social and economic reforms. Vaughan’s assessment reflected measures such as provisions for energy efficient buildings; urban agriculture; investigation of a district energy system; natural stormwater management systems and shoreline habitat restoration. Neither of the studies attempted to evaluate project outcomes against a quantitative measure of sustainability, or to reflect on how far the project’s ecologically oriented outcomes lead toward a defined concept of ecological sustainability.

Kear (2007) took an urban political ecology approach in his study of Southeast False Creek. He argued that sustainability planning for Southeast False Creek was an example of efforts to find ‘fixes’ for the social, ecological and economic crisis tendencies of local accumulation regimes. He further asserted that the Southeast False Creek process employed the language of sustainability but was actually a contest to define the appropriate economic future for Vancouver as one that continues to integrate with global markets rather than some more localized alternative. Kear investigated definitions of sustainability only for the purpose of showing the malleability of the terms, and how these were manipulated by specific actors to promote business as usual strategies.
Kim (2002) developed a conceptual model of sustainable urban development to evaluate four examples of ‘international best practices’ (:98) in sustainable community design: Shinjung, Korea; Southeast False Creek; Greenwich Millennium Village, UK, and Nagamine, Japan. For Southeast False Creek, Kim compared a concept proposal for the site prepared by Stanley Kwok in 1997, to the Policy Statement that was ultimately adopted by the City Council in 1999. In Kim’s study, the Policy Statement was found to make marked progress toward sustainability compared to the Kwok proposal.

Kim’s evaluation tool includes the most commonly identified areas for concern in sustainable urban design and urban form: land use and transportation; energy; air; water; soil; flora and fauna; built form; solid waste/waste recycling; people and community. However, no measurable targets representing a state of sustainability are included, and no measurable targets are set for any of the planning areas. Goals are expressed in terms of movement toward sustainability (undefined in measurable terms). For example, transportation goal: “increase choice of transport mode for trips outside the neighbourhood” (2002:86). The corresponding objectives are: “increase pedestrian, bicycle and transit amenities within the neighbourhood; increase accessibility and safety of public transportation;” the indicators are, “percentage of street area dedicated to non-car use within neighbourhood; and number of public transport routes to local centre within 10-minute journey” (2002:87). Such indicators may help to show progress away from current practices, but they are not tied to resource use/carrying capacity measures, and give no insight into how close we might be coming to achieving the necessary target: a state of sustainability. In its lack of a measure for sustainable resource use, Kim’s evaluation tool is consistent with most other sets of criteria and targets found in the literature. A significant gap exists between current concepts and biophysically meaningful criteria.

Progress toward sustainability is critical. Achievement of sustainability must be the target. Without at least an estimated, quantifiable measure of that target, urban planning researchers are left evaluating progress toward a set of values, defined variously, and easily contested. Global ecological change is occurring at a rapid pace (Millennium Ecosystem Assessment, 2005; IPCC, 2001; 2007). A measure of sustainable resource use and waste production must serve as a target toward which all policy efforts and strategies can be directed, against which progress can be measured and to which decision-makers can be held account. Understanding
how planning actors develop their perspectives on sustainability and promote those perspectives in urban land use policy and plan-making may yield insight into avenues for encouraging transformative conceptions of sustainability.

1.4 Structure of the Dissertation

The structure of this dissertation proceeds as follows. In Chapter 2 I describe my research strategy and methods. Chapter 3 provides background on the case including a physical description of the Southeast False Creek site, a history of False Creek development, and a review of the literature on planning and development in Vancouver. The findings from my interview data and document analysis are presented in Chapters 4, 5 and 6 in a chronological narrative of the planning process. In Chapter 4 I identify and discuss the sustainability approaches found in the Southeast False Creek Policy Statement. I then examine how central planning actors developed personal perspectives on sustainability, and how they pursued those perspectives through policy development. Chapter 5 presents my analysis of sustainability approaches embedded in a series of environmental plans that were developed for the Southeast False Creek Official Development Plan. I also trace the City’s process of developing a green building strategy for Southeast False Creek, and identify the shortcomings of that strategy from a transformative perspective on sustainability. Chapter 6 is the last of the narrative chapters. I describe and analyse three planning and development decisions that underscore the dominance of the status quo-reform approach among key actors at the City of Vancouver. This chapter also concludes the saga of proposals for performance targets and monitoring in Southeast False Creek. In Chapter 7 I evaluate the sustainability of Southeast False Creek by comparing its performance targets and strategies to externally derived targets for sustainability in terms of per capita ecological footprints and per capita greenhouse gas emissions. Chapter 8 comprises a summary discussion, final conclusions, implications from the research for theory, practice, and further research. Chapter 8 is followed by a brief Epilogue, an account of planning events that have transpired since the development of the first phase of Southeast False Creek, and that intimate a local legacy of sustainability learning.
CHAPTER 2

Research Methods

2.1 Research Strategy

2.1.1 Case Study of Vancouver’s Southeast False Creek Neighbourhood

The central focus of my research is to evaluate the progress of a ‘sustainable’ urban development project toward ecologically defined sustainability and to investigate how actor views of sustainability influenced that progress. The case study approach is appropriate for this research: according to Yin (2009:18) “A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.” Planning processes for sustainable urban projects are contemporary phenomena; planning processes in general, are understood to be embedded in socio-cultural, institutional, economic and political contexts (Sandercock, 1977; Ley, 1996; Flyvbjerg, 1998; Fainstein, 2001; Olds, 2001; Hutton, 2004; Healey, 2007).

In-depth investigation of one case for the purposes of exploration, theory development and practice insights is a method with a rich history in planning research. Examples of single case research include Meyerson’s and Banfield’s (1955) study of public housing policy in Chicago; Flyvbjerg’s (1998) case study of Aalborg, Denmark theorizing the relationship between power and rationality in planning; and Healey’s (2007) case study of planning in Newcastle, UK which tests her framework for analysis of institutional change. In the Vancouver context Hutton’s (1998) monograph examines urban economic development trends in Vancouver and his (2004) article employs Vancouver as a case for re-theorization of the 21st century city. Siemiatycki (2005) investigated transportation decision-making in the Vancouver Metropolitan Region through a case study of one megaproject. The planning for Vancouver’s Southeast False Creek has been the subject of one doctoral dissertation (Irwin, 2004) which evaluated the collaborative nature of the planning process, and the links between collaboration and sustainability outcomes. In terms of research on the nexus between urban
sustainability policy, planning, implementation and outcomes, a small number of studies have been conducted to date and in the main, have focused on single cases (for example Rydin et al., 2003; Evans and Jones, 2008; Bunce, 2009; Raco and Henderson, 2010; Lombardi et al., 2011). Given that research on sustainable urban planning for land use projects is relatively new, continued exploration is warranted. The single case study is well suited to that research task.

I considered the merits of a comparative case study for my investigation of planning for ecologically sustainable urban developments. Although there have been few North American efforts at sustainable community/neighbourhood development at the scale of Southeast False Creek, one very nearby development might serve as a good comparison: Dockside Green in Victoria, British Columbia. This project set similar sustainability goals to Southeast False Creek and planning for the project occurred within a similar regulatory system. A comparison of the planning for Dockside Green with that of Southeast False Creek would have entailed identification of comparative planning elements, sustainability targets, and investigation of the ways structural, economic, and political differences between the projects might have affected outcomes. I felt that such a comparison, while feasible, might constrain the research to only comparable elements, as well as to those elements I could conceive of at the outset of the research. Given the limited research on urban sustainable development projects to date, I determined that a single case, with its opportunities for exploration of unanticipated themes, could yield significant, useful hypotheses and propositions which might then be tested in other cases, or used for comparative studies.

Stake (1995:4) asserts that the first criterion for selecting a case is that it should “maximize” opportunities for gaining new insights, assumptions and understandings. Flyvbjerg (2001:177) calls for selection of critical cases, those with strategic importance. Vancouver’s first effort at planning a sustainable community could maximize learning because Southeast False Creek is one of the few urban development projects in North America to have sustainability as a guiding principle, and to employ a full range of urban land use, infrastructure and design strategies as found in the academic and practice literature on sustainable city development. Southeast False Creek may also be a case with strategic importance. Vancouver is a city whose planning both inspires and invites professional emulation (Punter, 2003; L. Beasley, personal communication, August 24, 2010). The
manner in which Vancouver addresses sustainability in its first sustainability-oriented community will likely influence future local development, and has the potential to influence sustainable urban development policy and strategies in other North American cities and beyond.

A central aim of this case study was to determine the progress of Southeast False Creek toward scientifically determined measures of sustainability (living within limits of global biophysical capacity). To this end, the sustainability performance targets set for Southeast False Creek were evaluated for their measurable contributions toward achieving sustainable per capita ecological footprints and CO₂ emissions levels for future Southeast False Creek residents.

2.2 Data Collection Procedures

2.2.1 Evaluating Progress Toward Sustainability

My objective was to assess the performance targets set for Southeast False Creek: what overall reduction in per capita greenhouse gas emissions and ecological footprint would be realized if all performance targets were achieved? It was not feasible to determine actual performance because the community was not fully occupied at the time of the study and performance data were not available. I used published documents from the City of Vancouver’s official website to identify Southeast False Creek performance targets. The documents are:

1. *Southeast False Creek Official Development Plan* (City of Vancouver, 2007)
2. *Southeast False Creek Green Building Strategy* (City of Vancouver, 2008)
3. *Sustainability Indicators, Target, Stewardship and Monitoring for South East False Creek* (City of Vancouver, 2005)

To calculate greenhouse gas emissions reductions associated with each target or standard, I used data from the City of Vancouver publication, *2008 Greenhouse Gas Emissions Inventory Summary and Methodologies* (City of Vancouver, 2009).
To calculate ecological footprint reductions associated with each target or standard I used data from a study of Vancouver’s ecological footprint by Moore, (2011).


### 2.2.2 Sustainable Ecological Footprint and CO₂ Emissions Measures

The measure of a sustainable per capita ecological footprint was sourced from calculations by the Global Footprint Network (2010) published in the World Wildlife Fund *Living Planet Report* WWF, 2010). Sustainable per capita CO₂e emissions (in tonnes CO₂/capita per year) were derived from the IPCC (2007) based target of 80% reductions below 1990 levels for industrialized nations (City of Vancouver, 2010a; European Commission 2012) and CO₂e emissions data from Environment Canada (2012).

### 2.2.3 Impact of Actor Perceptions and Contextual Factors in Sustainability Outcomes

To conduct the research on the ways that actor perceptions of sustainability and contextual factors of the case influenced sustainability outcomes for Southeast False Creek I relied upon two key sources of data: written documents and interviews. The written documents provided the chronological narrative of the planning process; they revealed the sustainability vision, principles and targets for the project; insights into explorations of designing a ‘sustainable’ community (for example, the consultants’ reports on possibilities for reductions in energy and water use); and details of economic and other considerations presented to Council. The documents also gave insight into the sustainability perspectives of various planning actors: City Staff and Management; consultants to the City; members of Advisory Groups. The interviews yielded data on actor perspectives of sustainability, and personal observations from
key individuals on the ways various actors and factors influenced the sustainability vision, targets and achievements of the project.

2.2.4 Current and Historical Documents

The first official reference to Southeast False Creek as the site for an energy efficient community is in the 1990 Clouds of Change report of the City of Vancouver Task Force on Atmospheric Change. In 1996 the official planning for Southeast False Creek began with the decision to hire a development consultant to conduct an economic feasibility study for the site. Since then a large set of policy and planning documents has been produced. I collected documents that span the years from 1990 to 2010 when the first phase of the development was completed to house the athletes for the 2010 Winter Olympics. Key documents for the research included:

- The Policy Statement for Southeast False Creek (City of Vancouver, 1999)
- The Official Development Plan for Southeast False Creek (City of Vancouver, 2007)
- Staff Reports to Council (1996-2010)
- City Council Meeting Minutes (1996-2010)
- Site Rezoning Documents (2006-2008)
- Consultants’ Reports on Urban Sustainability Goals and Targets for Southeast False Creek (1998-2007)

The City of Vancouver maintains a detailed on-line archive of planning documents, including Staff reports to Council, consultant reports on projects, and Council meeting minutes. Most of the documents used in this research were accessed on-line at the City’s official website. Other documents, for example specific consultants’ reports, were accessed through the library at the University of British Columbia, and in some cases were provided by interview subjects. This comprehensive collection of documents provided the data from which I constructed the broad narrative, and identified critical details and complexities of efforts to plan and develop a sustainable community in Southeast False Creek.
Two additional sources of written documents are news media pertaining to Southeast False Creek (accessed on-line), and *The Challenge Series*, a narrative of the planning and development of the Southeast False Creek Olympic Village prepared by Millennium Water Development team (also available on-line). *The Challenge Series* was helpful for identifying key actors involved in the planning and development of the Olympic Village and for a history of planning events which I compared to the narrative I had constructed from planning documents. While I reviewed a wide range of local media news articles on Southeast False Creek, these served mainly to support the observations of interviewees and in some cases provide details I had not encountered in City documents or through interviews.

### 2.2.5 Interviews

I conducted interviews with twenty-four individuals who had direct, personal experience with the planning and development of Southeast False Creek as related to sustainability visions, principles, targets and plan implementation. Given my research purpose to understand how planning actors’ conceptions of sustainability influenced the ecological sustainability of Southeast False Creek, and to understand the impact of contextual factors, it was critical for me to interview actors who were at the centre of the planning process between the years 1995 (inception of the project) to 2010 (completion of the first phase of development). I developed a list of interviewees from a thorough review of policy and planning documents. The list comprised individuals who held the following roles (the dates indicated in brackets reflect years during which individuals held their titles):

1. City of Vancouver Planners: Co-Directors of Planning (1996- 2006); Senior Planner for Southeast False Creek (1997- 2009) and Manager of Project Development, Southeast False Creek Project Office (2009); junior planners for Southeast False Creek (1999- 2002); planning intern (1997-1999)
2. City of Vancouver, Manager of Development, Southeast False Creek Project Office
When conducting interviews, I routinely asked to whom else I might speak for further insight into the planning process. In all but four cases, the suggested individuals were already on my list, confirming that I had developed a robust catalogue of the actors central to the Southeast False Creek planning and implementation processes between 1995 and 2010.

I developed a semi-standardized interview schedule with questions reflecting the lines of inquiry for the research. In all instances interviewees were asked to describe their role in the project, to express their understanding or view of sustainability as it pertains to Southeast False Creek, and to comment on successes and failures of Southeast False Creek as a model sustainable development. In case study research it is common for interviewees to have unique experiences and roles (Stake, 1995:65); this was true of my interviewees. Consequently, I tailored interview schedules to elicit information relating to the interviewees’ areas of expertise and involvement with the project. The interview questions were open-ended so that interviewees could describe experiences and events through their own framing and perspectives. As a researcher, I was able to prompt interviewees for more information when it appeared that novel insights or themes might arise. A sample schedule is provided in Appendix A (primary questions and examples of prompts used to elicit further information).

Interviews were held in locations selected by the interviewee. In most cases it was the interviewee’s place of work, in five instances a coffee shop and three interviews were conducted via telephone. The interviews lasted between 1.0 and 1.5 hours. All interviews were audio recorded with permission of the interviewees and later transcribed.

Many interviewees expressed a wish to have their interview comments attributed to them. These interviewees are identified by name throughout the dissertation. Those interviewees
who preferred not to be named have been identified by a code. Appendix B describes the codes and provides a list of interview dates.

2.3 Data Analysis Procedures

2.3.1 Southeast False Creek: Anticipated Ecological Footprint and Carbon Dioxide Emissions Reductions

2.3.1.1 Sustainable per capita ecological footprints and CO$_2$e emissions

In order to compare the targets set for Southeast False Creek to ‘sustainable’ targets as determined through ecological footprint accounts and CO$_2$e inventories, I had to identify sustainable targets.

I used the sustainable ecological footprint figure calculated by the Global Footprint Network (WWF, 2010). It is 1.8 global hectares per capita, the amount that can be used by each person on the planet on a continuous basis.

The scientifically determined reduction targets for greenhouse gas emissions are commonly prescribed at the national level based on data from the IPCC (2007). The reduction target for industrialized nations has been in the range of 80% below 1990 levels by 2050 (Weaver et al., 2007; United Kingdom, 2008), in some cases higher (European Commission, 2012). I determined a sustainable level of CO$_2$e emissions for the average Canadian using the following:

\[
\begin{align*}
\text{Canada’s total emissions, 1990:} & \quad 589.0 \text{ MtCO}_2\text{e} \quad \text{(Environment Canada, 2012)} \\
80\% \text{ below 1990:} & \quad 117.8 \text{ MtCO}_2\text{e} \\
\text{Canada’s total emissions, 2010:} & \quad 692.0 \text{ MtCO}_2\text{e} \\
\text{Emission Reduction Required:} & \quad 574.2 \text{ MtCO}_2\text{e} \\
\text{Percent Reduction from 2010:} & \quad 83\% 
\end{align*}
\]
Assigning the emissions reduction requirements to the existing Canadian population of 34,088,669 people (2010 data [Environment Canada, 2012]), Canada’s sustainable per capita emissions target is 3.46 tCO$_2$e (117.8 MtCO$_2$e Canadian target/ 34,088,669 Canadian population).

The scientifically determined sustainable ecological footprint and per capita greenhouse gas emissions targets are as follows:

- Sustainable ecological footprint: **1.8 global hectares per capita**
- Sustainable Canadian greenhouse gas emissions: **3.46 tCO$_2$e per capita**

### 2.3.1.2 Vancouver’s per capita ecological footprint and CO$_2$e emissions

A central difference between the ecological footprint accounting and CO$_2$e emissions inventories is that the former accounts for the ecological impacts of consumption, while the latter records emissions from production. The ecological footprint is designed to account for the total bioproductive land area necessary to fulfil consumption demands of a given population on an on-going basis. Canada’s ecological footprint represents the impact of the total of all resources, including food, consumed within the country for a given period. A per capita ecological footprint assigns responsibility to individuals for the ecological impacts of their consumption choices: the foods they eat, the transportation modes they use, the shelter in which they live. It also assigns them a portion of the ecological impacts of material and energy consumption by senior governments that deliver services and functions (for example, the military) from which individuals benefit.

Greenhouse gas emissions inventories, on the other hand, account for the greenhouse gases produced and emitted within the boundaries of a specific jurisdiction: nation, province, state, or city. Canada’s greenhouse gas inventory records all reported emissions produced within the country’s boundaries from various activities including industry (see Table 2.1 for a list of included sectors). British Columbia’s greenhouse gas inventory accounts for all reported emissions produced within its boundaries including those from generation of electricity, mining, industrial processes, transportation, and buildings. The City of Vancouver reports
emissions only from: buildings; road transportation (light and heavy duty vehicles) and solid waste management (City of Vancouver, 2009). Canada’s national greenhouse gas emissions inventory when converted to a per capita figure, assigns each Canadian responsibility for a portion of national emissions, even those produced in another province – for example, all Canadians accept a share of emissions produced in the Alberta tar sands, and from Ontario coal-fired energy generation. What green house gas emissions inventories do not do, is account for the emissions related to personal consumption choices: for example, the emissions produced in China during the manufacture of my new Apple iPad are not attributed to me, but to the Chinese population. This raises the question of whether ghg emissions should be allocated at the point of production or consumption.

2.3.1.3 Vancouver’s average per capita ecological footprint

I determined the average Vancouver ecological footprint from Moore (2011), and the Global Footprint Network, (WWF, 2007) to be 6.76 global hectares.

Moore’s study uses local data to calculate the ecological footprint of key consumption activities (bottom-up component method). She finds that the per capita ecological footprint for the average Vancouver resident is 4.38 global hectares (gha) comprising:

1. Food 2.13 gha
2. Transportation 0.81 gha
3. Consumables and waste 0.78 gha
4. Buildings 0.66 gha
5. Water 0.00 gha
6. Total 4.38 gha.

Moore’s data do not capture the ecological load associated with consumption at other levels of government, for example Canadian military and senior government operations, from which Vancouverites benefit and for which they should be accountable. To capture more fully the per capita ecological footprint, I combine the local consumption footprint of 4.38gha with a Canadian average footprint of 2.38gha/capita for senior government services and operations. The 2.38gha value was calculated by the Global Footprint Network (2003) and is based on
national level data. The total per capita ecological footprint I use for Vancouver is 6.76gha.
This number is in the range of other ecological footprint calculations for Vancouver, 7.71
gha/per capita (Wilson and Anielski, 2005), and the Canadian average of 7.6gha/capita
(WWF, 2007). Wilson and Anielski rely on national level data scaled to the city. Moore’s
(2011) study is the first to use local level data and that makes it most appropriate to use for
evaluating Southeast False Creek.

Figure 2.1 shows the relative proportions of components of the ecological footprint for
Vancouver.

Figure 2.1 Components of Vancouver’s per capita ecological footprint (GFN, 2003; Moore,
2011)
2.3.1.4 Vancouver’s average per capita greenhouse gas emissions

I determined average per capita CO$_2$e emissions for Vancouver to be 18.03 tCO$_2$e based on Canadian data adjusted for Vancouver specific data on emissions from: buildings; road transportation; and solid waste disposal. See Table 2.1. By adjusting for local data I was able to compare SeFC emissions targets to existing emissions from local buildings, transportation and solid waste, the areas over which local policy makers have some influence. Further, some of the Southeast False Creek performance targets were described in terms of improvement on existing local performance. For example, the district energy system is anticipated to produce 60% fewer emissions than local conventional sources of energy used in buildings.

Despite the adjustment, the magnitude of the overall per capita ghg emissions reduction required to achieve a sustainable level of 3.46 tCO$_2$e, remains similar: from the Canadian average, a reduction of 83% and from the average adjusted for Vancouver, 81%.

**Table 2.1** Average Canadian per capita CO$_2$e emissions adjusted for Vancouver

<table>
<thead>
<tr>
<th>Emissions Sources</th>
<th>Canada (2010) per capita emissions (tCO$_2$e)</th>
<th>Vancouver (2008) per capita emissions (tCO$_2$e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Transport</td>
<td>3.93</td>
<td>1.69</td>
</tr>
<tr>
<td>Building Operation</td>
<td>2.03</td>
<td>2.54</td>
</tr>
<tr>
<td>Solid Waste</td>
<td>0.64</td>
<td>0.37</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mining; Oil and Gas exploration</td>
<td>13.70</td>
<td>13.43</td>
</tr>
<tr>
<td>Electricity and Heat Generation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture; Forestry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Processes: Solvent use</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20.3</strong></td>
<td><strong>18.03</strong></td>
</tr>
</tbody>
</table>

Sources: City of Vancouver (2009); Environment Canada (2012)
2.3.2 Documents and Interview Transcripts

My approach to document and interview analysis was to use three coding systems associated with content analysis. Hsieh and Shannon (2005:1278) describe content analysis as “a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns.” Analysis can be impressionistic, intuitive and interpretive or strictly systematic (for example counting common responses or occurrences of words and phrases) (Rosengren, 1981). Three common approaches to content analysis are open coding, directive coding and summative coding (Hsieh and Shannon, 2005). In open coding, initial categories of analysis are derived from a first reading of the text data. A more selective coding, using core concepts from the open coding, often follows. In the directive approach to coding, the researcher determines an initial set of categories from theory or research findings. Directed coding is useful for analysis that tests theory or research propositions. For the summative approach a researcher counts and compares key words or content. This is also known as manifest content analysis which is generally used in a quantitative manner. Summative analysis includes a second step which is latent analysis: analysis of the underlying meanings of the words or content. How the initial codes are assigned is not dictated.

I used all three approaches to analyse my interview transcripts and documents. First I coded the texts using a small directive set of codes drawn from my research proposition that various actor perceptions of sustainability and specific contextual factors of the case would influence ecological performance targets and outcomes, and from my theoretical perspective on sustainability as a measurable state. Examples of the directive codes are balance; holistic; individual influence; ecological footprint; climate change. Through open and selective coding I developed a comprehensive, data-derived set of categories. Categories included: replicability; economic viability; learning opportunity; City-owned land; build on existing Vancouver planning tradition. These categories represented factors and perceptions that appeared to have some bearing on how the project as a whole was conceived and executed. Through manifest analysis of data I counted the number of times a specific actor or factor was identified as having influence on the process. While I did not report these counts, in some cases the frequency of the response and the range of interviewees who identified it helped to strengthen the validity of the finding. In other cases, a unique interpretation offered
important, otherwise overlooked insights and planning details. I used latent analysis to interpret the meaning of textual content. For example, one interviewee characterized Southeast False Creek as “Vancouverism 4.0”; I interpreted this description as support for my evolving hypothesis that several key planning actors viewed sustainability as an incremental improvement on existing planning achievements in Vancouver rather than a critical response to global ecological change.

I interpreted the language used in policy documents to see what it revealed about the official perspective or model of sustainability invoked to guide the planning and development of the site. In all cases where I present such interpretations in the dissertation, they are accompanied by the corresponding interview/document text so that the reader may assess for herself the soundness of the interpretation.

To assist with coding and analysis I used Atlas ti. software designed for use in qualitative research and analysis.

2.4 Validation of Findings

2.4.1 Triangulation

In case study research findings are commonly validated through different forms of triangulation (Yin, 2003:98; Stake, 1995:114). Patton asserts that the goal of triangulation is not to show that different sources of data or forms of inquiry lead to the same results. Rather, the objective of triangulation is to test for such consistency. Some inconsistencies are likely to be found because, for example, different types of data can reflect different aspects of real world phenomena. Such inconsistencies do not jeopardize the integrity of the research; instead they may offer additional insights. In my research I have used methodological or data source triangulation (Stake 1995:114): collecting data on the same phenomenon through interviews and from documents. My research design included interviews with participants from four key groups involved with the planning and development of Southeast False Creek; interviewing across a range also contributes to credibility of findings (Patton, 1999).
2.5 Limits of the Method

The case study has been criticized by researchers who seek predictive theories, causal relationships between phenomena, or statistically valid inferences about a phenomenon or population (Small, 2009; Flyvbjerg, 2012). These criticisms arise from the heavily contextual nature of case study research which limits the generalizability of findings across a class or category. The critiques also arise from common case study data collection and analysis procedures that include personal interviews (purposeful rather than representative sampling), document analysis, and direct or participant observation. While these procedures are well suited for exploration of a phenomenon or process, they lack the controlled conditions associated with many quantitative methods used to test hypotheses and generate predictive theories. The limitation to generalizability applies to my case study of Southeast False Creek. Investigation and analysis of how actors and factors influenced the sustainability outcomes of Southeast False Creek has resulted in a rich but unique set of findings about the case. From these findings I may hypothesize about the opportunities for individual actors to influence change, or about specific factors that influence whether or not performance targets will be adopted. Such hypotheses could be tested in other cases.

Both the ecological footprint method and greenhouse gas inventory accounting methods have inherent data limitations of accuracy and completeness, but they also suffer from incompatible reporting and allocation protocols between jurisdictions (Van den Bergh and Verbruggen, 1999; McManus, 2005; Best et al., 2008; Satterthwaite, 2008). In my study, calculations and findings based on these methods must be understood to contain their limitations. The findings and calculations are approximations based upon the best available published data and methods to date, but they are likely to change as data collection, reporting and methods continue to evolve and harmonize. An example of different jurisdictions using different protocols is in Canadian greenhouse gas inventories. To develop a measure of per capita ghg emissions for Vancouver I combined emissions data from the City of Vancouver, which used the Local Governments for Sustainability (ICLEI) protocols, with data from Environment Canada which was calculated following the protocols of the United Nations Framework Convention on Climate Change.
2.6 Summary

In this chapter I have described my research strategy of conducting a single, in-depth case study. I have explained that Southeast False Creek is an appropriate case for the study of efforts at sustainable urban land use planning and development. Vancouver has an international reputation for progressive planning. It has also been identified as one of the most livable cities in the world, in part because of previous downtown and False Creek community developments. These attributes make southeast False Creek an important case to analyse in terms of planning process and sustainability outcomes. In this chapter I have described my method of evaluating the outcomes: I compare the project’s sustainability performance targets to scientifically determined targets for sustainable resource use and waste production.

This chapter provides details of my data collection and data analysis procedures. Data collection is primarily through in-depth, semi-structured interviews with individuals who were directly involved in the planning of Southeast False Creek, and from document review (reports to Council; official planning documents; consultants’ reports; Council Meeting Minutes). I conduct content analysis, applying directive, open and selective coding to data from interview transcripts and document review. Findings are verified through triangulation of source data. Data on ecological footprints and carbon dioxide emissions (local and international) are collected from municipal, provincial and federal documents as well as published scientific research studies. I use these data to calculate a Canadian average sustainable per capita greenhouse gas emissions level, and to calculate the resource use reductions associated with Southeast False Creek performance targets. The study methodology is limited in its ability to generate predictive and explanatory theory; this is a limitation that applies to my study. However, case study research is useful for exploring a phenomenon in its context, generating hypotheses, and gaining practical knowledge about a specific case and its contexts.

In the next chapter I describe the physical dimensions of the Southeast False Creek site. I present the planning context for the project through a review of the existing literature on Vancouver’s planning and development history.
CHAPTER 3

Context of the Case

The Southeast False Creek community is being developed on Vancouver’s False Creek waterfront, near to the city’s downtown core. The physical location and ownership details of the land, in conjunction with the project’s place in the development history of the city are critical factors in how the project was conceived and how it is being implemented. The history of planning and development in Vancouver, and the roles of individual actors and groups of actors in that history form the background and context within which this case must be understood. In this chapter I describe the physical characteristics of the Southeast False Creek site; provide a history of planning and development in Vancouver and False Creek; and review the literature on Vancouver planning and development.

3.1 Southeast False Creek Statistics and Background

Southeast False Creek is an area of former industrial land situated on Vancouver’s False Creek waterfront. The site is approximately 36 hectares comprising both publicly and privately owned land. As shown in Figure 3.1 Southeast False Creek is near to Vancouver’s downtown. It is bounded on the west by the South False Creek community; the City Gate community to the northeast; the False Creek Flats industrial area to the east, and the Mount Pleasant industrial area to the south. Across the creek is the community of False Creek North.
At the time planning began in 1995, Southeast False Creek was the last large area of undeveloped industrial land on False Creek. The City-owned lands comprised approximately 23 hectares and were held as part of the City’s Property Endowment Fund, a fund with current (2010) land holdings worth over 1.5 billion dollars. The Property Endowment Fund was established in the early 1970s to consolidate city-owned lands that were not destined for near term use (for example as park space or non-market housing). The Fund’s holdings are managed on a market basis by the City’s Real Estate Services Division which has a mandate to achieve a ‘reasonable financial return’ (City of Vancouver, 2005a) on the portfolio. The Property Endowment Fund contributes between 7 million and 12 million dollars annually to the City’s operating budget (B. Maitland, personal communication, May 7, 2010).
credit rating as determined by external rating agencies reflects the value and management of
the Fund. The Board of Directors of the Property Endowment Fund comprises five voting
members: the mayor, the chairs of the Standing Committees of Finance, and Environment and
Planning (Council members), the City Manager, and the City’s Director of Finance (B.
Maitland, personal communication, May 7, 2010).

When the City Council decided to pursue development of the City’s Southeast False Creek
lands, the Manager of the City’s Real Estate Services Division led the process on behalf of the
Property Endowment Fund. In terms of the planning process, the City was both the land
owner-developer and the planning regulator.

3.1.1 False Creek

The history of False Creek is tied to the history of the city of Vancouver. Like all of the land
in modern day Vancouver, the False Creek area was traditionally used by Coast Salish
peoples: the Musqueam, Squamish and Tsleil- waututh. Evidence of their occupation of the
lands surrounding False Creek dates back 3000 years (Roger Bayley Inc., 2009:1). Europeans
who arrived in British Columbia in the late 1800s pursued logging and fishing throughout the
province. Vancouver was formally incorporated in 1886 and came to serve as a processing
and distribution centre for those industries (Gutstein, 1975). False Creek saw a succession of
industrial uses, beginning in 1900 with saw and shingle mills. Later ship building and metal
works including Western Bridge Steel Fabricating, lumber companies including Sauder
Lumber and Ruskin Cedar products, as well as the Vancouver Salt Company were located on
the waterfront (Roger Bayley Inc., 2009:1). In the 1950s the City’s major Works Yard was
established there. Industrial activity on False Creek began to decline in the 1960s and in the
early 1970s much of False Creek was rezoned to accommodate future housing and parks. The
first residential community was South False Creek, developed in the 1970s and 80s, followed
by False Creek North in the 1980s and 90s. The development and planning for each of these
False Creek communities reflected changing political (local and extra-local) and planning
contexts from the 1970s through to the 1990s (Ley, 1987; 1996; Punter, 2003; Hutton 2004).
Vancouver’s downtown and False Creek planning and development have been the subject of academic and mainstream literature. They have garnered both accolades and criticisms for various project outcomes. In the next paragraphs I provide a brief history of development and planning in Vancouver. I then discuss in greater detail the Vancouver experience of developing the False Creek South and North False Creek communities. That experience laid the planning and urban design groundwork from which successive downtown and near downtown projects, including Southeast False Creek, proceeded.

3.1.2 Planning and Development History of Vancouver

The history of Vancouver planning and development is recounted extensively by Donald Gutstein (1975; 1983). He traces the political and economic development of the city from its origins as the logging town, Granville, to its evolution as the province’s resource processing and distribution centre. Gutstein’s is the story of a town that was from the outset governed by and developed in the interests of private business. The town’s first mayor, elected in 1886, was land speculator Malcolm Maclean (Gutstein 1975:189). The first economic interests were the Canadian Pacific Railway which had its western terminal in Vancouver, saw mills and land speculators (Gutstein, 1983: 191). The rail terminal made Vancouver a major rail and ocean shipping site on the west coast of Canada.

The Canadian Pacific Railway heavily influenced the early form of residential and commercial development. It set out plans for roads, the rail station, the company head office and wharf, and neighbourhoods for CPR elite (Gutstein, 1983:192). A group of businessmen from Victoria challenged the initial hegemony of the CPR, buying up large amounts of land east of the town-site and selling small lots and houses to the labourers from the mills and wharves. Thus a development pattern dividing the city between the elite west and the working class east was established (Gutstein, 1983: 192-3).

In municipal politics, the Non Partisan Association (NPA) was formed in 1937 with the stated intention of keeping party politics out of municipal governance (Gutstein, 1975: 139). Members of the party came from the city’s business, financial and real estate communities (Ley, 1980:239). The NPA dominated Vancouver government for three decades from 1937
until 1972. During its reign the NPA left the day to day work of managing the city to civic bureaucrats, while the mayor and councillors supported growth initiatives. According to Gutstein, they held the view that what was “good for developers was good for the city of Vancouver” (Gutstein, 1975: 152).

David Ley describes the early history of Vancouver’s urban development as having “followed the categories of purposive, rational action, of the engineering mind” (1980:246). He states that the business dominated councils from 1937 to 1968 applied scientific management to city governance. He ascribes to them a tradition of corporate rather than representative governance that privileged engineering and economic efficiency over aesthetic and public concerns. He describes the influence of the business elite, arguing that “planning achieved little more than the coordination of the desires and development policies of private interests” (1980: 247) until the late 1960s and the emergence of two new civic parties, The Electors Action Movement (TEAM) and the Coalition of Progressive Electors (COPE).

Hutton (1998) asserts that Vancouver followed a fairly typical Canadian urban development trajectory: a close connection to resource hinterlands that influenced urban growth through demands for transportation, processing and administration of resource industries. Hutton’s (2004) description of Vancouver during its industrial phase (1900 to 1960s) identifies it as a classic regional centre displaying some characteristics of the industrial city. Its central area included a combination of commercial, industrial and residential uses, but Vancouver did not have traditional large scale Fordist industries - manufacturing jobs consisted of staples processing and production for local consumption. By the 1950s the city’s service economy was the leader in labour force growth. Hutton argues that in the 1970s, following the election of the TEAM mayor and council, Vancouver moved into an era of post industrial planning and development.

3.1.2.1 From pro-growth to livability

Under the Non Partisan Association (NPA) city governance and planning lacked public scrutiny and participation (Gutstein, 1983:207; Punter, 2003:18). In the 1960s, however, residents began to express their displeasure with urban growth and urban renewal schemes.
Of particular concern were plans for a freeway system that would send eight lanes of traffic through Chinatown and then through downtown to a third crossing of Burrard Inlet. The plans would have displaced six hundred Chinatown residences and businesses (Gutstein, 1975:154-155). Citizens organized in protest. In 1968 both the Coalition of Progressive Electors (COPE) and The Electors Action Movement (TEAM) were formed to challenge the NPA. COPE represented the interests of a range of organizations including rate payer groups, trade unions, students groups and tenants’ rights organizations. TEAM candidates for office, although still connected to business and real estate interests, included university professors, middle managers and white collar professionals (Thomas, 1995: 121). It billed itself as a reform party dedicated to controlled growth and to public participation in civic decision-making (Vogel, 2003: 57-59). COPE found little success at the polls, but TEAM took control of city council and mayoralty in 1972 winning eight council seats and majorities on both the School and Park Boards (Vogel, 2003: 57).

3.1.2.2 The Electors Action Movement: visions of a post-industrial city

The TEAM era (1972-1978) is recognized in the history of the city as turning point, a time of reform in governance and planning processes (Ley, 1980; Hutton, 2004; Punter, 2003:17; reflecting the broader public ethos of the day (Ley, 1980). TEAM stopped the freeway plans, organized neighbourhood councils, and reorganized the city bureaucracy so that council and the public would have greater input into land use planning and decision-making (Punter, 2003: 26-33). During this era a progressive, human centred urban planning system evolved; it would resonate throughout subsequent downtown major projects (Punter 2003:380-81; Sandercock, 2005).

Two chapters in Punter’s (2003) book *The Vancouver Achievement* are devoted to detailing the changes to planning processes and practices, and to highlighting the roles of individual actors, such as Alderman Walter Hardwick and Director of Planning Ray Spaxman, in promoting and implementing change. Punter argues that the planning and urban design policies put in place between 1972 and 1975 have been adhered to by successive city councils and have contributed significantly to the broad success of the city’s urban design (Punter, 2003:136). This perspective is shared by Sandercock (2005) who highlights two specific
changes to city planning: the establishment of a Development Permit Board chaired by the Director of Planning which increased transparency in decision-making; and the creation of the Urban Design Advisory Panel\textsuperscript{14} which Sandercock argues has “created a forum for social learning for urban professionals” (2005:45).

David Ley (1996) has theorized the rise of TEAM as the political expression of a new middle class of professionals who had post-industrial, postmodern ideas about urban living: the interests of people over capital; more open, participatory forms of government; expanded public space; the idea of multiple publics. He argues that this group of people and their social and political views played a key role in the development trajectory of the city. He also notes that the Vancouver experience reflected a period of national social liberalism: the Trudeau era in Ottawa and urban reform movements occurring in Toronto and Montreal. But unlike Toronto and Montreal, the Vancouver reforms are viewed as having permanently established an open, participatory form of urban planning and governance (Punter, 2003: 382; Sandercock, 2005; Hutton, 2004; Brunet-Jailly, 2008).

\subsection{3.1.2.3 False Creek South}

The South False Creek community, planned and developed in the early 1970s has been described as an exemplar of the progressive, postmodern liberal reform ideology that defined the TEAM years in municipal office (Ley, 1996; Punter, 2003:34). The False Creek waterfront at that time ran for approximately eight kilometres along the perimeter of the city’s downtown (Hutton, 2004). Many of the waterfront industries were obsolete, and unpopular with residents owing to pollution and blight (Hutton, 2004). The City had purchased much of the land from the province of British Columbia in 1968, and assembled the rest through land swaps with the province (Ley, 1987). TEAM Alderman and Geography Professor, Walter Hardwick, is credited by many for encouraging a new vision for False Creek from industrial to livable residential (Punter, 2003: 34; A. McAfee, personal communication, September 22, 2010; G. Price, personal communication, September 10, 2010). In 1965, Hardwick and a colleague from the University of British Columbia, Wolfgang Gerson, had initiated a student

\textsuperscript{14}The Urban Design Advisory Panel is comprised of local architects and urban designers to advise the Director of Planning. Panel members are selected by their peers.
project on False Creek which determined how it could be transformed from an underutilized industrial site into a mixed use residential community Punter, 2003:37). The proposal to create a mixed use community on the False Creek waterfront became part of the TEAM campaign platform for the 1972 election (Ley, 1987). Post-election, once TEAM had a majority on Council, planning work ensued. In 1974 official development plan guidelines had been adopted for the site (Punter, 2003: 34). The guidelines required a component of family oriented housing, and aimed for a social mix that reflected the economic and social composition of the city at large, a goal which Ley (1987) asserts was achieved by the time of the 1981 Census at least in terms of reported income.

The City determined to recover only the financial costs of obtaining and servicing the land. Land was leased to owners rather than sold (Ley, 1987). Ley (1987) argues that the City realized decreased property tax revenues through this action which reflected their priority to gain use value over exchange value on the land.

The project outcome was a neighbourhood of mixed-income, medium density, medium-rise housing that featured public amenities such as parks, a sea wall walk and a community centre. One third of the housing was reserved for low income occupants and a mix of housing tenures included co-ops and subsidized rental housing and market condominiums. The development encouraged a mix of families, couples and singles. It also included 275,000 square feet of commercial space. False Creek South received (and continues to receive) acclaim for the quality of its built environment and its social mix. An important factor in the development of mixed tenure housing was the availability of provincial and federal funding in support of affordable housing in the 1970s (Ley, 1987; City of Vancouver, 2004; A. McAfee, personal communication, September 22, 2010). Such funding was not available to local government during the development of either False Creek North in the 1980s or Southeast False Creek in the late 1990s.

South False Creek Statistics:

- Area: 30 hectares
- Population: 4900 (in 2006)
- Housing Units: 2811
Hutton (2004) concurs that the 1970s were a progressive phase in the city’s development. However, he also argues that TEAM era post-industrial urban policies, including the redevelopment of South False Creek, contributed to social and economic dislocation, gentrification and loss of traditional working-class neighbourhoods in East Vancouver and the city’s core. The dislocations from gentrification are carefully detailed in Ley’s (1996) *The new middle class and the remaking of the central city*. Ley (1996) argues that during the 1970s Vancouver renters suffered a serious loss of housing options because rental properties, often in good shape, were converted to condominiums marketed to the emerging middle class of service sector professionals. He claims that development of South False Creek was partly responsible for the gentrification of nearby Fairview Slopes. The loss of affordable housing and displacement of poor and working class residents of the downtown and surrounding neighbourhoods is viewed perhaps not as a failure but a negative and persistent consequence of City policies and visions established during the 1970s.

Hutton (2004) is less sanguine than some scholars about the loss of industrial employment in the city. He points out that concerns about gentrification and the disappearance of industrial land and jobs entered public and policy debate in the mid-1970s. He also identifies a 1977 City planning report calling for industrial preservation in the city as a repudiation of TEAM’s post-industrial goals. The fate of the city’s industrial lands, employment and working class residential neighbourhoods received increased attention under the mayorality of Michael Harcourt who was elected in 1980 with strong support from unionized labour and the city’s working class East side. The City initiated a growth management process (the CorePlan), in part to investigate industrial options for the city, but the economic recession of the early 1980s convinced City officials and planners to encourage the city’s economically viable services sector over struggling traditional industries. With the de-industrialization of a second False Creek industrial precinct in the 1980s, first for the 1986 World Exposition and subsequently for the False Creek North neighbourhood, the post-industrial trajectory of the city was set.
3.1.2.4 False Creek North

The South False Creek form of medium density, low-medium height, and of mixed-income residents has not been recreated in subsequent Vancouver major development projects. The political economics of the neoliberal era that ensued in the early 1980s (locally, provincially and federally) mediated against re-creation of the one third affordable housing mix demonstrated in False Creek South. Privately developed projects such as Coal Harbour, City Gate and False Creek North, operated on market principles where exchange value dominated; increased densities and building heights were pursued in those projects.

Despite increased densities, building heights, and smaller allocations for non-market housing (20%) Vancouver’s downtown projects have received many favourable reviews from academics and from mainstream media commentators. The projects are commended for the quality of urban and public realm design; quantity and quality of public amenities including allocation and integration of affordable housing units, and their contribution to the revitalization of Vancouver’s downtown (Punter, 2003; Boddy, 2005; Sandercock, 2005). They have been cast by some as evidence of an on-going civic commitment to livability and the public interest by successive centrist and forward looking local councils; of responsive, participatory processes of planning and urban design; of committed, innovative city planners and Directors of Planning; and of informed, active citizens (Punter, 2003; Hutton, 2004; Sandercock, 2005). Vancouver’s downtown major development projects are credited with achieving the goal of making downtown attractive for residents, including families. They are also viewed as a contributing factor in Vancouver’s repeated ranking as one of the most livable cities in the world. Design elements have been emulated in various cities, including Dubai and San Diego (Boddy, 2006).

Vancouver’s downtown megaproject planning has also been challenged by scholars who argue that among other things, the city has become a resort community for the wealthy; aesthetically pleasing but over-designed; and characterized by decreasing affordability of housing (Hasson and Ley, 1994; Ley, 1996; Blomley, 2004; Hutton, 2004). In February 2012, a survey conducted by The Economist ranked Vancouver as North America’s most expensive city in which to live (relative to incomes) (Meiszner, 2012).
The second False Creek waterfront to be developed was False Creek North (see Figure 3.1). The land was originally owned by Marathon, the real estate division of the Canadian Pacific Railway. In the late 1960s Marathon had plans to develop the land, initially as a set of high rise towers along the waterfront, but after several years of negotiations with the City, as a set of four distinct neighbourhoods. By 1974 Marathon had achieved rezoning for its first parcels (Punter, 2003: 187). The City’s demand that 1/3 of residential units be allocated to low income residents kept the project on hold until the Province decided to purchase the land as a site for the 1986 World Exposition (Punter, 2003: 187).

The Social Credit provincial government initiated the drive for the World Exposition in Vancouver, a decision originally opposed by the city (Hutton, 2004: 1961). Vancouver’s economy was in a slump and the Social Credit Party was looking to win over urban voters (Hutton, 2004; Punter, 2003: 187). Local boosters and growth enthusiasts saw opportunity in the Exposition. It was agreed that the industrial North False Creek lands being assembled for the event would not be returned to industrial use once the Exposition was over. Instead, they would become a site for future investment and development (Hutton, 2004: 1961). Following the 1986 World Exposition, the province sold the Expo lands to Hong Kong developer Li Ka Shing. Some speculate that the provincial government made the sale as a purposeful way to increase Hong Kong investment in Vancouver (Punter, 2003: 193), a scenario which came to pass in part because of Li Ka Shing (Olds, 2001), and also because of the looming 1997 British hand-over of Hong Kong to China, and Canada’s establishment of a business investor class for immigrants.

It was during the years of planning that preceded and followed the Expo 86 event, that many of Vancouver’s megaproject development guidelines and protocols were established. Local architect Stanley Kwok, first appointed project manager for the development of BC Place Stadium (see Figure 3.1), and later hired by Hong Kong developer Li Ka Shing to lead the Concord Pacific Project (Concord Pacific was the company set up to develop the former Expo lands) was instrumental in developing a collaborative process for working with the City, and a participatory public process (Punter, 2003: 237; Kwok, personal communication, 2011).

During the late 1980s the City was establishing its development cost levy system for major projects, as well as a structure for determining community amenity contributions. Punter
sets out the following set of planning and development protocols that evolved from the work on False Creek North.

**Megaproject Development**

- Developers pay all costs of city planning and regulatory work; this includes a team of staff comprised of planners, engineers, park board members, housing officers, social planners, cultural affairs to work with the developers and their consultants.
- Collaboration between City staff and developer team to work through design and development rather than a conventional process of developer submission and staff response.
- The public amenity requirements set out for False Creek North eventually became the Major Project Public Amenity Requirements applied to all major projects in the city. The requirements included: land for schools, a public library, daycare facilities, and a community centre; public art; public walkways and seawall access; 20% housing core needs; 25% family housing; a park space ratio of 1.1 hectare per 1000 people.

**False Creek North Statistics** (Roger Bayley Inc., 1: 12, 2009):

- Area: 67 hectares
- Population: 13000 (in 2006)
- Housing Units: 9180
- Units per hectare: 137
- Parks and Open Space: 17 hectares

Punter (2003: 191-212) has carefully chronicled the development of the urban design guidelines for the neighbourhoods developed on the north side of False Creek. From False Creek North emerged the tower-podium architecture (townhouse blocks from which rise setback slim towers) which has become associated with downtown Vancouver. Slim, pointed towers help to protect view corridors toward the city’s ocean and mountain scenery and
increase solar penetration into streets and townhouse courtyards. Townhouse blocks provide street orientation and animation. The public realm has been designed with multiple pocket parks, with installations of public art, public access to the seawall, and attention to details of material quality and aesthetic (for example paver selection for public walkways). Punter argues that North False Creek is widely viewed as one of the most successful waterfront redevelopments in North America (2003:232). False Creek North with its street oriented townhouse blocks, and the tower-podium form embody what has come to be known in urban design as “Vancouverism” (Sharp and Boddy, 2008). Vancouver’s planning and development is widely viewed as progressive, innovative and people centred. Planners and municipal politicians from countries as diverse as China, Dubai and the United States have come to Vancouver to learn the secrets of its planning success (L. Beasley, personal communication, August 24, 2010).

A somewhat less congratulatory view of the development of False Creek North is presented by Kris Olds who chronicles the project in Globalization and Urban Change: Capital, Culture and Pacific Rim Mega-Projects (2001). Olds investigates the impacts of globalization and transnationalism on local urban change. He presents an account of individual development professionals like Stanley Kwok of Concord Pacific Developments Ltd., local politicians including provincial premier Bill Vander Zalm, and family ambitions (the Li family of Hong Kong who bought and developed the North False Creek lands) to illustrate the human scale of globalization and transnationalism.

Olds concurs with other academics that the North False Creek development transformed downtown Vancouver and established a collaborative (City-developer) system of planning for mega-projects. He suggests however, that the collaborative planning process works better for developers than for local residents, particularly marginalized and low income residents. Olds reports his personal disappointment at the City vote to accept the Official Development Plan for North False Creek at a public hearing in 1989. He and other activists were concerned about the negative impacts this development could have on surrounding neighbourhoods. Olds contends that while City planners and officials expressed concern about possible negative impacts at the

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15 Protection of street and residential view corridors are long established values among residents, going back to neighbourhood development guidelines determined in conjunction with neighbourhood groups in the 1970s (Punter, 2003: 26). They also increase market value for developers.
hearing, the City did not conduct a social impact assessment of the mega-project at any stage of the long development planning process. In contrast, Olds states, much time and effort, including public consultation, were spent on issues of design aesthetics.

Olds contends that officials in Vancouver and British Columbia knew little about the Li family before entering into negotiations for the sale and development of the North False Creek lands. He argues that if they had understood the importance of this development to Hong Kong’s “highest profile family firm” (2001:247), considerably more community benefit could have been gained throughout various stages of the development process.

Another investigation of Vancouver’s development and planning is found in Hutton’s (2004) re-theorization of the 21st century city. Hutton focuses on Vancouver’s downtown, but his analysis of urban development is broader than planning for livability. Hutton analyses the social, economic and spatial changes to Vancouver’s core in the 1990s and finds that they do not conform to the characteristics commonly identified in the modernist, post-industrial city of the mid-1960s to 1990. Based on the Vancouver experience, he proposes characteristics of the 21st century city core in five categories: development trajectory; urban structure; urban form; divisions of labour; and urban social class.

The development trajectory shows that office industries no longer comprise a downtown ‘monocultural’ economy (:1977), rather they share space with a new cultural economy centred on creative, high technology industries. The cultural economy brings with it new spatial, social and technical divisions of labour. Urban structure of the core is reconfigured through increased development in the Central Business District fringe and inner city; land uses are more diverse and characterized by regeneration through, for example, residential and mixed-use mega-projects, reconstructed production sites, and new spaces for amenity and consumption. Urban form comprises a somewhat constrained high rise Central Business District corporate complex plus the mixed-use, residential, new industry and amenity land uses of the CBD fringe and inner city. Where division of labour in the office economy of the post-industrial period was characterized by a hierarchical occupational structure, the new technology and cultural/creative economies display dynamic labour cohorts of varied social and technical divisions. Hutton argues that dominant social class groups in the 21st century city core are the social and labour groups associated with intellectual knowledge as defined by
the post-industrial thesis. However, he identifies concurrent processes of urban social reformation such as the creative class (as per Florida, 2002 for example), a growing immigrant entrepreneurial and professional class, and a burgeoning underclass of poor, homeless and marginalized residents.

In his analysis of Vancouver’s downtown development Hutton argues that planning values and public policy implementation played an instrumental role. Reflecting on the period between the 1970s and 1990s he identifies the outcomes of specific planning policies. He notes that the City supported the 1970s-80s expansion of the downtown office complex and the high rise residential development of the West End, reconfiguring the central area in a way that met the residential and work requirements of Vancouver’s growing services class. In the late 1980s the City embarked upon a planning exercise for the downtown core which was adopted as the Central Area Plan in 1991. This plan responded to local and external forces of the late 80s including continued industrial restructuring; reduction in Vancouver’s head office function resulting from corporate mergers and acquisitions; and impacts of globalization that included increased investment and immigration from the Asia-Pacific, and increased international attention following the 1986 World Exposition. Vancouver was also experiencing a surge in economic growth.

Key elements of the Central Area Plan were to reduce the size of the Central Business District while opening up space around the CBD in the downtown core for housing. An effort was underway to encourage downtown living in a vibrant core that comprised an office complex, new production spaces for emerging technology and creative industries, and mixed-use high rise residential neighbourhoods complete with quality public and consumption amenities. Hutton asserts that the Central Area Plan represented a post-modern image for the city in its plans for social, economic, industrial and spatial diversity.

Without detracting from the successes of the Central Area Plan, Hutton hints at a counter storyline to the dominant story of Vancouver’s exceptional public process and celebrated efforts at socio-economic residential integration. He asserts that the Central Area Plan process did not engage the public widely, but held meetings with key stakeholder groups in a fairly traditional, expert-oriented fashion, looking for feedback on City proposals rather than soliciting ideas from stakeholders. Further, he argues that the Central Area Plan privileged
the service industry elite, entrepreneurs and creative and knowledge industry workers in terms of residential development and the employment opportunities that may have resulted from a doubling of 1991 levels of office floor space. The city’s marginalized population and its growing contingent workforce of retail service employees, janitors and other unskilled labourers have benefitted little from the downtown restructuring. Hutton concludes that although broader public interests were achieved in tandem with private development interests through the City’s collaborative and public planning process, “overall the City has endorsed majoritarian interests in the reproduction of the core, by privileging the future over the present, ascendant ‘new class’ interests over those of declining occupations and social groups, and imperatives of development over preservation” (2004:1975).

Such are the substantive details and theoretical interpretations of the planning, politics and development of Vancouver’s downtown and False Creek neighbourhoods prior to planning for Southeast False Creek. The history of Vancouver’s downtown major development projects is a history of building up public and private knowledge from one major project to the next while accommodating and reflecting changing local and extra-local political economic contexts. Southeast False Creek must be investigated in its Vancouver context as one in this series of downtown major projects.

Former City Planners and a former City Council member concur with the planning and development history described by academic researchers and theorists. For the most part, these interviewees identify the same individuals and local contexts as central to the city’s planning achievements from the 1970s until the early 2000s. They clearly identify a history of on-going learning, leading up to and informing the planning for Southeast False Creek. A sample of their views is presented below.

Former City Council Member, Gordon Price reflects on the history of Vancouver’s False Creek and downtown development from the 1970s to the 2000s.

If I went back to the beginning I would really give credit to the father of residential False Creek, Walter Hardwick. He has to be acknowledged as the historic figure who had the vision and the skills to see the possibility of taking what was then really an industrial sewer and heavy industrial operations and imagining it as a place where people would live; that was a pretty radical idea.
Particularly the idea of having people raise families with children; a mixed use community; incorporating many of the ideas that are now evident on the South shore of False Creek. He helped to establish the policy principles that resonate throughout the basin. I like to note these days that you can look at a half century of urban experimentation going from the West End in the 50s and 60s, the South shore of False Creek in the 70s, the North shore in the 80s and 90s, the Olympic Village in the 2000s. That's an amazing sweep of urban development, internationally but particularly in the context of North America. You can follow the ideas that percolated back in the 70s, the principles that were established; and then see how they were articulated for the Olympic Village as a residential and high density, mixed use community. (G. Price, personal communication, September 10, 2010)

Former Co-Director of Planning, Ann McAfee describes how planning guidelines developed for South and North False Creek eventually informed the planning for Southeast False Creek. She also recalls the introduction of development cost levies for major projects.

*Basically in the late 1960s City Council made a decision that they were going to add more housing close to downtown jobs to minimize commuting into downtown. And the way to do it was seen to be transforming all of the False Creek area eventually into housing.*

*In 1973 there was a huge debate going on as to how much of False Creek should be park and how much should be housing, particularly affordable housing. And in 1970 a lot of North American discussions were around helping people in need and providing more public amenities, more public space. So, in 1973, the City set up two citizens' advisory panels on False Creek; one was on affordable housing, and I was part of that committee and the other one was on parks. And in late '73 early '74 the decision was made that it would be primarily housing and would have a mix of incomes - primarily housing rather than a lot of jobs because you already had jobs in the inner city area. The income mix tried to replicate the*
broader city mix of incomes rather than an elite high income area. Those decisions were all made in the early 1970s and they formed the guidelines.

Among the decisions that were important at that time were the decisions from the parks advisory panel that the waterfront remain open to everybody. Now this is quite different from what happened in Toronto for example where developers were allowed to build right out to the water along Lake Ontario...Some of the guidelines that were part of Southeast False Creek you actually have to go back to the initial False Creek guidelines, the mix of incomes, the public open space, the public access to water; affordable housing. All of those decisions long pre-dated any discussions about Southeast False Creek specifically. ...It was in 1978 Council came up with the guidelines for housing families with children at higher densities. It was during the 70s early 80s when Council approved a variety of development cost charges based on area so that new development paid for quite a wide range of services not just sewer and water which had traditionally been what the developer pays for. The developer also had to pay for park space and community centres, school space and other uses that weren’t typically part of a developer's requirements before they could get approval to build. (A. McAfee, personal communication, September 22, 2010)

The Senior Urban Designer for City of Vancouver reflects on the local conditions that contribute to perceived on-going success and innovation in urban place-making in Vancouver.

There's just this sort of perfect storm that's been occurring here [Vancouver] for several decades and it's a cycle of a governance model in our case via our Charter\textsuperscript{16}, that sets up our autonomy that allows us to essentially, with political support and a high level of administrative support, use what is a very discretionary, historically discretionary, regulatory framework laden with incentives for floor area and height towards view and value in exchange for best

\textsuperscript{16} The Vancouver Charter was granted in 1953 by the British Columbia provincial government. It gives Vancouver greater autonomy for local decision-making than available to most municipalities which are governed by the province’s \textit{Municipalities Act}. 
practices. So best practices is an evolving moving target sort of thing and that's great because in being a little bit more nimble we continue to shape and refine and hone and discover what we mean by best practices...If you think about that idea of Charter, governance, regulatory framework, discretion, informed by best practices you can see how we're an interesting place to work. You’ve got a high quality industry of design professionals and developers who get it and are committed to it. Given that constituencies and owners want green buildings for example, want good urbanism, you get on-the-ground achievements that we can look at to inform future innovation. Creative people continue to want to move here; they continue to pepper our creative capacities and that just has a compounding effect as we continue to learn.

A former Assistant Director of Central Area Planning asserts that Vancouver, at the time of planning for Southeast False Creek, had gained sophistication in its approach to development through experiences with prior downtown developments.

The key fact about Southeast False Creek is that it is City owned land and the City hadn't really done any planning for a major piece of City owned land since probably the South shore of False Creek. However in the 80s and 90s there had been a lot of major planning processes for large brownfield sites like Coal Harbour and the North Shore of False Creek. In many ways the internal processes for doing that kind of large planning and the kinds of standards in terms of roads and buildings, how to deal with urban design, park space provisions all the other kinds of community amenities, a lot of those had been worked out in the context of those other major projects so when the planning for Southeast False Creek started the City was in many ways more sophisticated than it had been in the seventies. (T. French, Personal communication, December 15, 2010)
3.2 Summary and Discussion

This chapter has presented contextual information on the Southeast False Creek case. I have established the physical characteristics and location of the development site on the False Creek waterfront near to Vancouver’s downtown core. I have described the history of Vancouver land use planning and argued that Southeast False Creek must be understood as one in the succession of major downtown Vancouver and False Creek development projects. Planning policies, priorities, and processes established through the 1970s, 80s and early 90s were the foundation for planning in Southeast False Creek.

A central contextual detail is that the majority of the Southeast False Creek site was owned by the City at the time planning began in the mid-1990s. This meant the City was both development applicant and planning regulator. The same situation had existed in False Creek South, which was developed in the 1970s and 80s. That project set a high bar for mix of housing affordability and tenures; family-oriented density; green space allocation; and public access to the waterfront sea walk. The City had achieved these outcomes in part through federal and provincial funding but also by foregoing standard expectations for developer profit. Political and economic conditions had changed by the time planning for Southeast False Creek got underway. Reduced levels of senior government funding for housing and a more conservative, market-driven ethos in local government, as well as the financial mandate of the Property Endowment Fund, meant that planning for Southeast False Creek would be approached from a more market-oriented perspective than its predecessor.

Key themes from my review of the literature on Vancouver’s planning and development history underpin my contention that the case of planning for Southeast False Creek is an important one. The Vancouver planning system (since the 1970s) has been widely acknowledged by planning practitioners and in academic literature as progressive, participatory, and successful in creating ‘livable’ outcomes (quality and quantity of public amenities; quality of public realm and urban design; provision for family-oriented and affordable housing17). Elements of Vancouver’s downtown and waterfront developments

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17 Vancouver major projects are required to set aside 20% of developable residential units for affordable housing. They are not required to fund the building and operation of the housing; that responsibility lies with the provincial government. Housing affordability in Vancouver is an on-going problem for the city, due to a combination of local and extra-local factors. The internationalisation of the real estate market post Exposition
have been emulated in international locations. Vancouver’s effort to develop a sustainable community on the False Creek waterfront is likely to be observed by policy-makers and planners in other cities. It may also serve as a model.

Vancouver is increasingly an international city with dynamic post-industrial, post-modern socio-economic characteristics. From a transformative perspective of sustainability, planning a model sustainable community would mean confronting the ecological impacts inherent in being a globalized, transnational, consumption-oriented city.

The review of literature on planning and development in Vancouver highlights the roles of individual actors in Vancouver’s planning history. Planners and local politicians are identified as having influenced planning and development priorities and processes in the City bureaucracy, and in the city at large. In my examination of planning for Southeast False Creek, I find that individual actors continue to exert significant influence on sustainability policy development and implementation. Their roles and influence are chronicled throughout Chapters 4, 5 and 6.

The literature on Vancouver’s planning and development lacks attention to ecological concerns. The natural environment is generally described as something of an amenity to which residents and politicians are committed: views of the ocean and mountains; clean air; green space; sea wall access; urban tree preservation (Punter, 2003: 380; Kear, 2007). This lack of attention reflects a divide for academics and practitioners between traditionally urban concerns, and global and local ecological concerns. Vancouver has achieved accolades for its *livability*. My research unites the urban and ecological agendas to investigate how well Vancouver has succeeded in its efforts to create a model of *sustainability*.

In Chapter 4 I present an analysis of the sustainability approaches reflected in the official Southeast False Creek Policy Statement. Through a chronological narrative of the planning process, I examine how central City of Vancouver actors developed their personal approaches to sustainability, and how they, among other actors, influenced the planning process and content of the Policy Statement.

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86 contributed significantly. In the early 2010s Vancouver’s transnational population continues to influence an upward trend in housing prices (Hutton, personal communication, 2012).
CHAPTER 4

Creating an Official Policy Statement for Southeast False Creek

Southeast False Creek came up in Clouds of Change and then it just sat as False Creek North developed. Eventually technology started to change, and everything else on False Creek had been developed; we would not be competing with the private market. Ok, time to get Southeast False Creek going. That started Southeast False Creek on its up and down course from theory to practice.

(Former Co-Director of Planning, City of Vancouver)

An environmentally-oriented future for Southeast False Creek was first posited in a City of Vancouver Task Force report on municipal responses to atmospheric change (City of Vancouver, 1990). Among a series of suggested strategies, strategies now commonly prescribed for urban reform toward sustainability, the report authors proposed Southeast False Creek as a site for experimentation with energy efficient land use planning. It was recommended that an international design competition be held to develop and model best practices (City of Vancouver, 1990: 46-47). The Clouds of Change report comprised thirty-five recommendations for actions to reduce the urban contribution to atmospheric change, and to increase local resilience and adaptability to effects of that change. By including it in the report, the Task Force authors identified land use planning for Southeast False Creek as an opportunity to respond to growing challenges of global ecological change. The report was adopted by Council, committing the City, in principle, to pursuing its recommendations (City of Vancouver, 1995).

Nine years after Clouds of Change, the official Policy Statement for development of Southeast False Creek was adopted by the Vancouver City Council (City of Vancouver, 1999). The Policy Statement culminated three years of work by City staff, consultants and public volunteers. It established the foundational principles and approaches to sustainability for Southeast False Creek. In this chapter I present two analyses: first is identification of the sustainability approaches embedded in the Policy Statement; second is how central City actors
developed their approaches to sustainability and influenced Southeast False Creek planning and policy development from these perspectives. I show that the Policy Statement includes examples of both transformative and status-quo/reform approaches to sustainability. I demonstrate that City Staff and Management had limited knowledge of urban sustainability principles when planning for Southeast False Creek began. Individuals within the City pursued sustainability information, and Staff, Management and Council learned from local experts, sustainability activists, consultants and advisory groups. I identify and discuss three contextual factors that influenced how various City actors came to understand and interpret the concept of sustainability for Southeast False Creek.

4.1. The Southeast False Creek Policy Statement: Approaches to Sustainability

The opening pages of the Southeast False Creek Policy Statement orient the reader to concepts of sustainable development and sustainable neighbourhoods in sections titled: What Does Sustainable Development Mean? and What is a Sustainable Neighbourhood? (City of Vancouver, 1999:4). Also presented are the guiding principles for the project and the vision for Southeast False Creek as a sustainable community (City of Vancouver, 1999:5-6). Within these sections of the Policy Statement, two theoretical approaches to sustainability are invoked: one identifies sustainable development as a response to global ecological conditions requiring reform toward living within global biophysical means; the other sets ecological considerations among a group of social goals to be balanced.

In the section, What is Sustainable Development? the Policy Statement authors describe resource constraints:

...if we continue to develop with current practices, the earth will not be able to supply enough resources or absorb the waste and pollution for a population this size [future global population of 10 billion]. Global warming and climate change, energy and resource shortages, food shortages, and economic and social instability are the predicted results of not changing development and consumption patterns to a form which could be sustained into the foreseeable future. (City of Vancouver, 1999:4)
In the same section the authors include the Brundtland Commission definition of sustainability. It presents an inter-generational view of development and equitable access to earth’s resources:

...development which meets the needs of the present without compromising the ability of future generations to meet their own needs. (WCED, 1987)

The authors also acknowledge a role for Southeast False Creek in addressing global ecological change. They identify reductions in resource throughput as part of this role.

...a neighbourhood planned to reduce consumption of energy and resources and production of waste; protecting and enhancing the social and economic health of its community as well as the health of local and global ecosystems. (City of Vancouver, 1999:4)

The Policy Statement includes four guiding principles for development (Figure 4.2). The second principle, Stewardship of Ecosystem Health, highlights global and inter-generational dimensions of ecological stewardship, echoing the Brundtland definition of sustainability:

2) Stewardship of Ecosystem Health – The development of Southeast False Creek should improve the ecological health of the False Creek Basin. It should recognize the need for conservation, restoration and management of local, regional, and global ecosystems. Therefore, resource conservation and waste reduction measures should be implemented to a level that will meet the needs of present and future generations. (City of Vancouver, 1999:5)

These excerpts from the opening pages of the Policy Statement clearly frame sustainable urban development in the context of, and linked to, global ecological conditions and biophysical capacities. The framing is consistent with the transformative perspective of sustainability in which a necessary criterion of sustainability is “living within global biophysical limits”. No specific metric, an ecological footprint for example, is offered as a measure of sustainable living. In contrast, other guiding elements of the Policy Statement promote a conception of sustainability as a balance between distinct spheres of concern.
The vision for Southeast False Creek is one such element:

Southeast False Creek is envisioned as a community in which people live, work, play and learn in a neighbourhood that has been designed to maintain and balance the highest possible levels of social equity, livability, ecological health and economic prosperity, so as to support their choices to live in a sustainable manner. (City of Vancouver, 1999:7-8)

The goal of maintaining the highest possible levels of social equity, ecological health, livability and economic prosperity reflects the aspirations of much literature on sustainable urban development. However, a balance between the four components is inconsistent with an ecologically based approach to sustainability. From the ecological, nested hierarchy view of relationships between spheres of concern, the appropriate wording for the vision would be to maintain the highest levels of social equity, livability, economic prosperity as possible within the limits of global biophysical capacity. In this way, the socioeconomic goals would be identified as dependent upon the continued maintenance of global ecological systems and services. As written, the Southeast False Creek vision conforms to a theory of sustainability where social, economic and ecological components are overlapping, but discreet; they can be pursued at varying rates and can be traded off against one another. The two theoretical approaches expressed in the Policy Statement can be depicted as variations of the common sustainability graphics in Figure 4.1 below. (Full description of these two approaches and graphics is in Chapter 1, pages 9-11).
The key difference between the overlapping versus nested model is that the overlapping components are viewed as independent and equal; progress is ideally pursued in all areas equally, but since there is no hierarchy, progress in any one component is relatively as good as progress in any other area (Giddings et al., 2002). In the nested hierarchy model, where ecological health is represented by the largest circle, social and economic goals are depicted as wholly dependent upon functioning global ecological systems. Decisions made in these dependent spheres must always be accounted for in terms of their impact on global ecological health.

Although the vision for Southeast False Creek as presented in the Policy Statement employs the concept of an equitable balance, “balance the highest possible levels of social equity, livability, ecological health and economic prosperity”, (1999:7-8) the third guiding principle of the Policy Statement, *Economic Viability and Vitality* (Figure 4.2, Principle 3 in italics), appears to skew the balance in favour of the economic prosperity component.
The requirement for Southeast False Creek to be developed without subsidy effectively limits actions towards goals for social equity, ecological health and livability to the economic parameters of standard market practices for development. A further statement on economic viability clarifies this constraint:

... it is the developer’s responsibility to challenge conventional thinking by progressing toward as many of the social and environmental objectives identified as reasonable within the limits of economic viability. (City of Vancouver, 1999:5)
An appropriate graphic for this sustainability approach might be:

![Graphic of sustainability model]

**Figure 4.3** The economic viability model of sustainability for Southeast False Creek (graphic by the author)

Invocation of the nested hierarchy model in this instance might have resulted in the following alternative instructions to developers *to challenge conventional thinking by progressing toward the social and economic objectives identified as reasonable within the limits of ecological viability*. Such a directive would, at a minimum, focus attention on identifying measures of ecological viability such as ecological footprint or CO₂ emissions levels, and possibly promote goals and targets employing these measures. From a hierarchy perspective of sustainability, developers should be called on to challenge conventional thinking about economic objectives rather than being constrained by them. Adherence to the hierarchy model as the central sustainability approach for Southeast False Creek would require all proposed goals, plans and actions be evaluated for their impacts on global ecosystems with a view to maintenance and restoration of global resource stocks, ecosystem services and waste sinks.¹⁸

¹⁸ Beddington Zero in the UK is an example of a community that was designed with the hierarchy model in mind. All plans were evaluated for their contribution to overall greenhouse gas emissions for the project and for ecological footprint contributions among other social goals (Hodge and Haltrecht, 2009).
The vision for Southeast False Creek as written in the Policy Statement clearly presents a model of sustainability that sets out to balance sustainability goals; the guiding principle of *Economic Viability and Vitality* compromises the balance by prioritizing the goal of economic prosperity. In contrast, the guiding principle *Stewardship of Ecological Health* and definitions of sustainable urban development and sustainable neighbourhoods reflect an approach consistent with the nested hierarchy model. Why does the Policy Statement include contrasting and contradictory views of sustainability? Who contributed to development of the Policy Statement and what approaches did they bring?

Irwin (2004) examined the communicative and collaborative nature of the planning process that led to creation of the Southeast False Creek Policy Statement. He focused on the work of the Southeast False Creek Advisory Group, a volunteer group established by the City in 1997, but he also reviewed the roles, influence and contributions of other actors. Irwin asserts that many sustainability gains in the Policy Statement can be attributed to the work of the Advisory Group. He finds, however, that the influence of Advisory Group members was not equal to that of City planners who wrote the final versions of the document which included changes to content vetted by the Advisory Group (2004: 186). He further argues that private development and real estate interests had greater access to City planners than Advisory Group members which may also have meant greater influence. Irwin’s assessment of the Policy Statement is based on a framework of weak and strong sustainability (previously described in Chapter 1). He finds that the document represents *weak* sustainability, but does not link this finding to the sustainability approaches of individual actors or groups of actors.

My research reveals that the theories of sustainability represented in the Policy Statement and subsequent planning and development of Southeast False Creek reflect the views of some key actors in the planning process. In the remainder of this chapter I use a chronological narrative to reveal how central actors in the City Planning Department and City Senior Management acquired specific perspectives on sustainability as a concept, and how they interpreted sustainability for policy development and plan implementation in Southeast False Creek.
4.2 Central Actors: Developing Approaches to Sustainability at the City of Vancouver

Ken Dobell was the City Manager and Bruce Maitland was the head of Real Estate. I recall when they hired Stanley Kwok to be the consultant on Southeast False Creek. It was very much seen by Real Estate and the City Manager’s Office that they wanted to do what had been done on the North Shore of False Creek (Former Assistant Director of Central Area Planning, City of Vancouver).

Key actors who participated in and influenced the development of the Southeast False Creek Policy Statement were:

1. The Director of Real Estate Services, City of Vancouver, Representative of the City Property Endowment Fund
2. The Property Endowment Fund Board
3. Co-Director of Planning for the City of Vancouver
4. City Planning Staff
5. City Council and Mayor
6. Public/Expert volunteers: Southeast False Creek Working Group; Southeast False Creek Advisory Group
7. Professional Consultants

The central actors in the development of the Southeast False Creek Policy Statement held a range of perspectives on sustainability and on the role of Southeast False Creek as a model sustainable community. They had varying levels of influence and opportunities for promoting their perspectives during the years of planning that led to the creation of the Policy Statement (see also Irwin, 2004). While some actors, mostly from the sustainability community of academics, consultants, and interested public believed that a model sustainable development should respond to global ecological concerns like climate change, several influential actors among City Staff and Council had limited knowledge of global ecological changes and of sustainability when Southeast False Creek planning began. These actors developed their perspectives on sustainability as the planning proceeded. Among people with the most
decision-making power (City Council, City Manager, Director of Planning, and the Director of Real Estate Services), Southeast False Creek was never conceived of as a response to global ecological change. It was viewed as an opportunity to either replicate or improve upon the City’s downtown planning achievements of the late 1980s and early 1990s. In particular, when the planning for Southeast False Creek began, False Creek North served as a reference and model for members of the Property Endowment Fund Board and for some City Planners (Punter, 2003; Irwin, 2004; I. Smith, personal communication, January 26, 2010; L. Beasley, personal communication, August 24, 2010; A. McAfee, personal communication, September 22, 2010). Research data shows that considerations such as living within global carrying capacity or ecological footprint limits did not penetrate the milieu of these actors.

The perspectives of the actors reflect three contextual factors of planning for Southeast False Creek: the nascent state of urban sustainability planning in North America in the mid-1990s; the local experience of Vancouver planners and policy makers with downtown development in the 1980s and early 90s; and the fact that most of the land in Southeast False Creek was owned by the City.

In the mid-1990s when planning for Southeast False Creek began, sustainability was a relatively new concept19 and sustainability for an urban development project was largely unknown in North America (L. Beasley, personal communication, August 24, 2010; M. Holland, personal communication, July 22, 2010; B. Maitland, personal communication, May 7, 2010; Houghton and Hunter, 1994). City of Vancouver Staff, Council and local developers had to learn about sustainability and the concept had to be translated into principles for local urban development (M. Holland, personal communication, July 22, 2010; B. Maitland, personal communication, May 7, 2010; S. Moffatt, personal communication, July 20, 2010). As part of this exercise, conflicting views emerged among key actors about how sustainability should be applied in Southeast False Creek, and what kind of model the project should be: one that could operate within market principles without subsidy so that private developers could easily replicate it, or one that was experimental, modelling the most innovative practices and discerning which could be replicated in the private sector.

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19 The Brundtland Commission report, *Our Common Future*, published in 1987 first popularized the word and concept. The UN Commission on Sustainable Development was created in 1992. The first European Conference on Sustainable Cities and Towns was held in Aalborg, in 1994.
As described in Chapter 3, the North Shore of False Creek was redeveloped in the late 1980s and 1990s by a private development corporation, Concord Pacific. Despite fiscal restraint from all levels of government, the City of Vancouver had worked out a planning and development system that resulted in public realm improvements, parks, a school, daycare and community centre facilities, an allocation for affordable housing and family-oriented housing. False Creek North had produced results which many at the City identified as successful (I. Smith, personal communication, January 26, 2010; B. Maitland, personal communication, May 7, 2010; L. Beasley, personal communication, August 24, 2010; A. McAfee, personal communication, September 22, 2010). When the planning for Southeast False Creek began and sustainability was still a poorly defined concept at the City, City Planners and Engineers, many Council members, and the land owner, the City’s Property Endowment Fund, referenced False Creek North as a strong starting point for planning. Radically different ideas about a model sustainable community such as design principles based on ecological systems, limiting energy to renewable sources, and altering residents’ consumption habits were only introduced into the planning discussions through efforts by local sustainability experts, consultants and activists (Irwin, 2004).

The fact that the City owned much of the land on the Southeast False Creek waterfront had three consequences for the planning process: first, the City did not have to maximize return on investment and so City Council had flexibility to be innovative, for example, funding the district energy utility (L. Beasley, personal communication, August 24, 2010; G. Price, personal communication, September 10, 2010; T. French, personal communication, December 15, 2010). Second, it raised the expectations of an interested public who referenced the City’s 1970s redevelopment of public lands, False Creek South, as a starting point for planning Southeast False Creek (I. Hood, personal communication, July 5, 2010; City of Vancouver, 1997). Finally, City ownership of the land led to challenges for the Planning Department and the Real Estate Services Department as to who would ultimately direct the planning and project development (L. Beasley, personal communication, August 24, 2010; M. Holland, personal communication, July 22, 2010; I. Smith, personal communication, January 26, 2010; B. Maitland, personal communication, May 7, 2010). The City’s Director of Real Estate

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20False Creek North also received academic accolades for its urban design and public amenities, and for the innovative collaborative planning process developed between the City and developer. See Punter, 2003; Sandercock 2005.
Services, on behalf of the City’s Property Endowment Fund, was the owner-developer while the Planning Department was the regulator. Initially, the Real Estate Services Division took the lead in the planning and development process (I. Smith, personal communication, January 26, 2010; B. Maitland, personal communication, May 7, 2010; M. Holland, personal communication, July 22, 2010; City of Vancouver, 1995). As the research data shows, the Real Estate Services Division was not amenable to innovations in policy or plans that could reduce or jeopardize a ‘reasonable return’ on investment. Some City planners and sustainability advocates had different views about reasonable return and how it might be achieved.

4.2.1 Actor Influence on Sustainability Thinking at the City of Vancouver

In December 1994 when Vancouver City Council directed Staff to explore Southeast False Creek as a possible model for sustainable development (City of Vancouver, 1995), knowledge about sustainability among Vancouver City Staff and Council was limited.

We started the development of Southeast False Creek and the Council mandate was sustainability. Turns out Council didn't know what it meant. Gordon Price [City Councillor in 1994] had a bit of an idea. But nobody had even figured out the three stools of sustainability or anything yet. (B. Maitland, personal communication, May 7, 2010).

The first ambience of the whole thing was just a curiosity; the second was a kind of religious feeling that this was something we had to do. But if you really sat anyone down, any politician, anyone at City Hall I knew and said, all right, tell me exactly what you are talking about, no one really knew. (L. Beasley, personal communication, August 24, 2010)

In the mid-1990s when we started working on applications of sustainability to high density cities, there frankly was very little they [City Staff] could do to educate themselves. The internet was new and there were few resources. One had to go and study at university under someone like Bill [Rees] to learn. There were simply very few NGOs offering green building seminars like they do now.
None of that existed so the capacity level in the City when we started, the overall capacity level for sustainability in the City was very low. (M. Holland, personal communication, July 22, 2010)

Vancouver City Council had determined that Southeast False Creek should be explored as a model of sustainable urban land development (City of Vancouver, 1995), yet the property owner and the Planning Department Staff who were charged with regulation, planning and development had limited knowledge of sustainability. Learning had to occur within the City. One of the key actors in the planning for Southeast False Creek was then Co-Director of Planning, Larry Beasley. As Co-Director, Beasley was in a position to influence other City Staff and Council informally through conversations and private meetings, and more formally through presentations, reports and recommendations (S. Moffatt, personal communication, July 20, 2010; L. Beasley, personal communication, August 24, 2010; R. Petri, personal communication, July 21, 2010). He is described by some interviewees as a champion of the project (M. Holland, personal communication, July 22, 2010). Given his professional strategic position, the way Beasley came to understand sustainability and the approach to which he committed, influenced how the project goals were framed within the City bureaucracy, and with Council. His personal level of interest in sustainability and the way he engaged his professional networks were factors in how the concept of sustainability was first introduced to the City Planning department.

Beasley reports that in the 1990s, even before planning for Southeast False Creek had started, he was motivated to learn about sustainability, in particular ‘the science of it’.

*The conversation was starting to happen within the profession and within the City.... I do remember the story line that we were starting to see climate change...and I just felt an imperative from a planning point of view to start adding that into the agenda... So the first thing I did was to start convening breakfasts. I had about ten of them and I invited people around the city who knew more about sustainability, about, the science, of it.* (L. Beasley, personal communication, August 24, 2010)
While he recalls a vibrant exchange of information and ideas during the informal breakfast salons, Beasley found that none of the people to whom he had access at that time could offer a satisfactory interpretation of sustainability for urban planning.

... it turns out a lot of people were ignorant about the science of it. I didn't find one person who I would had all of it in their mind.

The only thing I recall in those days and I think this was by the mid-90s, was the Capers project down on Fourth Avenue that Harold Kalke had done. In fact, Harold was one of the people I remember being involved in these unfolding discussions and breakfasts because he was obviously into something that others hadn't thought about.

When did Bill [Rees\textsuperscript{21}] and his student do the piece on the environmental footprint? You know, around City Hall no one was connected to all that people like Bill were doing; not in my experience. (L. Beasley, personal communication, August 24, 2010)

In these passages, Beasley recalls a link between sustainability and climate change but also that he did not gain much insight into this link through his professional networks. Beasley’s recollections lead me to observe that the depth and composition of key actors’ professional networks can influence the interpretation and penetration of new planning ideas in a city bureaucracy. In Beasley’s case, contact with Dr. William Rees, creator of the ecological footprint concept and professor at the University of British Columbia, would have exposed him to the ecological footprint as a concept for cities. From that perspective, the sustainability of a model community is judged by its overall renewable resource consumption and waste production, and is clearly pursued in response to global ecological concerns (Rees, 1992; 1995). As it was, members of Beasley’s network had more to offer on the theme of social sustainability; the science of sustainability, living within global biophysical limits for example, remained peripheral to Beasley’s exploration at that time. Although Beasley recalls

\footnote{Rees had developed the science based ecological footprint concept which took a carrying capacity approach to assessing the resource consumption demands of cities. It had been used as early as 1994 to evaluate the renewable resource demands of Greater Vancouver. Rees was a faculty member at the University Of British Columbia School Of Community and Regional Planning located in Vancouver. Rees had been a member of the City’s Atmospheric Task Force on Climate Change that produced the \textit{Clouds of Change} report and identified Southeast False Creek as a site for energy efficient land use planning.}
that environmental performance was an important new area of focus, he explains that his original motivation for exploring sustainability for Southeast False Creek was not ecologically based.

...what drove me on, first, is what I learned from Ray Spaxman and a few other planners that were mentors to me: every time we did work we needed to do it at the very cutting edge of our understanding of city building. If we weren't doing that we weren't really doing our job.

I wasn't then, doing it as a crusade. I didn't find myself out in the public saying that humanity is in danger. I found myself out in the public saying, it's just socially responsible; it's just human responsibility to try to get our community in line with a better environmental performance. Probably in the last few years I've pushed these issues in more of a crusade-like manner because the urgency has become more and more evident to me. (L. Beasley, personal communication, August 24, 2010)

In his recollection, the former Co-Director of Planning set out to learn about sustainable urban planning and promoted it personally within the City because he saw it as the cutting edge of city building. Plans for a sustainable community would not necessarily be a response to urgent global ecological concerns, but would take the City beyond its previous innovations and successes in downtown planning by pursuing improved environmental performance:

There's been a very proud history of being at the cutting edge. You've got to realize that by the time we started dealing with Southeast False Creek we had gone through the new Central Area Plan, False Creek North, Coal Harbour, Downtown South, Triangle West,...we folded the downtown transportation plan into all of that and by the time we got into the conversation about Southeast False Creek it just seemed to me fairly intuitive that we were going to do everything we had done before in principle, but that we really had to model much better environmental performance. By that time we had learned so much about the philosophy of it, not the science of it, that to have proceeded forward without doing it would have simply been doing a c-minus job.
4.2.2 Real Estate Services: Another Approach to Sustainability

The Co-Director of Planning looked to the City’s previous downtown developments as a starting point for developing cutting edge innovations in Southeast False Creek. The Director of Real Estate Services in conjunction with the Property Endowment Fund Board looked to False Creek North less as a starting point than a model to replicate. In May of 1995 the Director of Real Estate Services recommended to Council a planning process based on that of False Creek North. With endorsement from the Property Endowment Fund Board he also recommended Council appoint the False Creek North developer, Stanley Kwok of Stanley Kwok Consultants Inc., as the development consultant for the City’s lands in Southeast False Creek. The development consultant’s task over 2.5 years would be to produce an economic feasibility study for the project lands, and to develop a policy framework and a public consultation process (City of Vancouver, 1995a). Although direct appointments were not common City policy the Director of Real Estate Services pointed out that direct appointments had been made in the previous developments of Riverside, Champlain Heights and Southwest False Creek. Stanley Kwok was recommended as:

...the best choice for this project...given his experience as the development manager for Concord Pacific in planning False Creek North and his role as development manager for B.C. Place in planning North Park. ... Given that Mr. Kwok would in all likelihood be our choice under a proposal call as well, I believe that it is legitimate to appoint Mr. Kwok now and thereby save staff and the development community time and money preparing and responding to a proposal call. (City of Vancouver, 1995a)

The recommendation to appoint Kwok and the comments about saving staff and the development community time reveal that the Property Endowment Fund Board and Real Estate Services did not intend to consult local sustainability experts, or take time to consider how a model sustainable community might be different from False Creek North before embarking on the initial planning process.
Former Director of Real Estate Services and Manager of the Property Endowment Fund, Bruce Maitland (personal communication, May 7, 2010) describes Kwok’s relationship with the City Manager in the mid-1990s and how Kwok came to be considered for development of the model sustainable community:

> Stanley Kwok had done Concord [False Creek North]. He was well known at the City. Ken Dobell was City Manager at the time, and on the PEF Board. I was CEO. I think Ken thought Stanley would be the best one. We said, we’ve got to do another development at False Creek; he did a good job with Concord, let’s get him.

The passage above reveals that in the early planning phase at least, the Property Endowment Fund Board and Real Estate Services approached Southeast False Creek as simply the next in a series of False Creek development project rather than a cutting edge model of sustainability that might require new ideas and innovations in planning, economics and design.

The proposed steps for planning as included in the report by the Director of Real Estate Services (City of Vancouver, 1995a) did not include the term “sustainability” rather, the language of ‘energy efficiency’ from the *Clouds of Change* report (1990) was employed. The report author recognized a need for new policies on developing an energy efficient community. However, environmental concerns and energy efficiencies, rather than being established as priorities, were presented in a list of competing project objectives to be considered.

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22 The City’s Real Estate department manages the acquisition, sale, leasing and management of land and buildings for all City departments. It develops and manages a large real estate investment portfolio for the Property Endowment Fund and provides professional advice on all aspects of real estate to Council, Boards and Departments. (http://vancouver.ca/bps/realestate/index.htm)
Proposed Steps for the Planning of Southeast False Creek (City of Vancouver, 1995a)

**Step 1:** Creation of a policy framework for the area.
**Step 2:** Preparation of urban design concepts which propose potential arrangements of private and public use, open space, and circulation patterns.
**Step 3:** Preparation of an Official Development Plan which would confirm the location for utilities, public facilities, open space, neighbourhoods and transportation systems and development guidelines (eg. False Creek North).

There is no comprehensive policy framework for the development of a new residential community on this site. Policies will need to be developed in a number of areas, to address previous Council direction to house a higher proportion of families with children and to create an energy efficient community, as well as key aspects of neighbourliness, views, built form and amenity targets. There will be substantial pre-development costs (including consultant fees and infrastructure expenditures), competing interests for use of the lands, and many other issues which might include, for instance:

- environmental conditions;
- future of industrial tenants and the Cambie WorksYards;
- potential retention of existing buildings;
- land ownership and assembly options;
- extent of the planning boundaries;
- type and form of residential use;
- parks and open space;
- community facilities and services;
- rail line opportunities;
- shoreline and seawall treatment;
- waterbody access and uses;
- energy efficient design; and
- financial return.
The 1995 proposal for planning Southeast False Creek relied heavily on the City’s previous downtown planning experience, in particular with False Creek North. The report noted that significant public interest had been expressed in the project and that extensive public consultation would be required\(^{23}\) (City of Vancouver, 1995a).

The proposed appointment of Stanley Kwok as development consultant was not approved by City Council (City of Vancouver, 1995b). Council minutes report two submissions to Council, one from Downtown Eastside Residents Association and one from the Tenants’ Rights Action Coalition opposing the appointment. Social justice advocates did not view favourably the outcomes of False Creek North in terms of provision of affordable housing; they were also critical of Kwok and the City for what they viewed as inadequate public participation (Olds, 2001; Irwin, 2004). For some observers and sustainability activists False Creek North was a model to be avoided; False Creek South with its low and mid-rise buildings, its original mixed housing tenure, and its generous green space seemed to offer a more sustainable reference point (Irwin, 2004; I. Hood, personal communication, July 5, 2010; F. Crofton, personal communication, October 12, 2010).

At the May 30\(^{th}\) 1995 Council meeting Staff was directed to prepare and tender the contract for a Southeast False Creek development consultant (City of Vancouver, 1995b). That process took approximately one year to complete. In the meantime, City Planning Staff prepared and recommended to Council a comprehensive planning process. Again, it was “similar to that undertaken for False Creek North and Coal Harbour” (City of Vancouver, 1995), but now recommended hiring a consultancy to identify policy options for achieving environmental sustainability. It also proposed that the Official Development Plan should “include concepts for a transit-oriented, environmentally sustainable neighbourhood and for energy efficiency” (City of Vancouver, 1995). The report included a draft list of principles for a model sustainable community, developed from a Staff meeting with a group of professionals, academics and developers. The term *sustainability* entered the language of City reports. Key headings for draft sustainability principles were:

1. *Managing our land consumption*
2. *Managing our energy consumption*

\(^{23}\) For descriptions of public interest in Southeast False Creek up to 1995 see Irwin (2004) and Alexander (2000).
3. Managing our water consumption
4. Managing our waste
5. Managing our landscaping
6. Creating a liveable community
7. Fostering ecological learning

The same October, 1995 report to Council endorsed by Senior City Staff included a list of project objectives central to the Policy Statement. The objective of sustainability was not mentioned.

_The formulation of the Overall Policy Statement will involve addressing a complex set of objectives and responding to community input. Land use, built form, financial, environmental and amenity objectives will have to be balanced._ (City of Vancouver, 1995)

Further:

_Southeast Shore of False Creek provides the opportunity for housing oriented to families and a mix of household incomes, public facilities, park development, development of a streetcar line, and the completion of the last link in the False Creek seawall. It also offers the opportunity to be a showcase for innovative environmental planning._ (City of Vancouver, 1995)

Rather than an imperative for the project, innovative environmental planning was presented as a possible outcome; rather than a critical response to global climate change for example, Southeast False Creek had the potential to _showcase innovative environmental planning_. A specific approach to sustainability was evolving.

Larry Beasley:

_And we had been lucky out of Expo 86 and then into False Creek North and Coal Harbour to be able to model best planning practice of that day which had to do

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24 Report was submitted by the Director of Central Planning in consultation with the Director of Real Estate Services, the General Manager of Engineering, the General Manager of Corporate Services, the General Manager of Human Resources Services, the General Manager of Parks, and the Manager of the Housing Centre (City of Vancouver, 1995).
with density and livability and neighbourliness. ...We had an obligation for social housing; we had family housing, but on the environmental side and particularly on the infrastructure side we didn’t have much of anything. (L. Beasley, personal communication, August 24, 2010)

Beasley’s description reflects the three components approach to sustainability: objectives for social, economic and environmental progress could be pursued independently. Further it reveals the perspective that social and economic sustainability had been achieved in previous downtown developments. The perspective that Southeast False Creek would model sustainability by adding a component of improved environmental performance to the planning policies that had been developed for False Creek South and False Creek North were echoed by other senior City Planning Staff. In interviews one Senior Staff Member described the goal for Southeast False Creek as “adding an environmental layer”; another identified Southeast False Creek as Vancouverism 4.0: the latest iteration of Vancouver style major development project. When the October Staff report (City of Vancouver, 1995) went to Council, meeting minutes show that one local expert in the evolving field of sustainable development, Moura Quayle of the University of British Columbia’s Department of Landscape Architecture, suggested the City not rely on its existing planning processes but take time to examine the options for a model sustainable community. She offered four recommendations:

1. Staff should prepare a preliminary public realm plan and ecological management plan
2. Audit existing City standards and by-laws to see how they impede sustainable development
3. Bring urban design to the forefront as an analysis tool
4. Study alternate models of planning and implementation for urban sustainability. (City of Vancouver 1995c)

These recommendations underscored the idea that sustainability might be something more than adding environmental performance to existing planning policies; perhaps another approach could be considered. Quayle’s recommendations were included in a motion by
Councillor Jennie Kwan, the sole COPE\textsuperscript{25} Council member. The motion was defeated. Council approved the planning process as outlined in the Staff report. Planning proceeded based on existing planning processes, and accommodated sustainability as the term and principles were more thoroughly examined and interpreted at the City.

4.2.3 Capacity for Sustainable Urban Planning Builds Slowly at the City

In 1996 the City’s Co-Director of Planning continued to pursue information on sustainability, this time for direct application to Southeast False Creek. Drawing again on his professional network Beasley hired a student intern from the University of British Columbia, School of Community and Regional Planning, a program in which Beasley taught as an adjunct professor. The intern’s task was to prepare a report on sustainable urban development principles for Southeast False Creek. The former intern, Mark Holland described the state of the literature in the mid 1990s, his own background in environmental sustainability, and the challenge of writing a report on sustainable urban development:

\begin{quote}
At the time we started applying sustainability to Vancouver we had little to work from. There was the Bruntland definition [of sustainability]; McDonough had just published the Hannover principles; Calthorpe had published his Transit Oriented Development ideas; Andres Duany was popularizing new urbanism and neo traditional ideas...and environmental sensitivity concepts were rooted in regional planning ideas from McHarg including the idea to conserve land... In this context, as city planners, we looked at it [literature] and thought, well we don't know what to do in the middle of downtown Vancouver. We needed density. Green at that time was all about not having people and what we were doing in the city was exactly the reverse.
\end{quote}

\textsuperscript{25} COPE: the Coalition of Progressive Electors is Vancouver’s left leaning municipal party and has dominated City Council only once during the city's history from 2002-2005. The Non-Partisan Association, a municipal party largely representing local business and land owning interests has been the majority ruler since its inception in 1937. While generally considered a centrist party, the NPA’s fiscal policies are conservative. The NPA held a majority of seats on Council throughout the 1990s when the planning and development of Southeast False Creek got underway.
In the mid-90s, the internet was just emerging... the ability to Google large resources of sustainable design ideas did not exist. I had been part of the Eco-Design Resource Society for quite a while and it was probably the first green building ngo in BC. It had started in the late 80s and I was on its board. We had a library of many publications at the time, lots of sustainability work and I had acquired some at school so I pulled together this great big stack of books and reports and relevant stuff and read through it all and tried to come up with a framework that would work for our urban project. (M. Holland, personal communication, July 22, 2010)

Beasley identifies Holland’s report, A Planning Framework for an Ecologically Sustainable Development Project: A discussion paper on policies and precedents, (1996) as the first real sustainability learning tool for the City bureaucracy. Other interviewees confirm that Holland’s work was the seminal basis from which to develop principles of sustainability for Southeast False Creek (I. Hood, personal communication, July 5, 2010; I. Smith, personal communication, January 26, 2010). It is important to note how local links between individuals influenced the development of sustainability perspectives at the City of Vancouver. Although Larry Beasley taught in the same program as Dr. William Rees at the University of British Columbia’s School of Community and Regional Planning, Beasley did not include the originator of the ecological footprint in his early sustainability breakfast meetings. However, when he hired UBC planning student Mark Holland, Beasley gained access to Rees’s ecological perspective on sustainability: Holland had been a student of Rees and had been influenced by his thinking (M. Holland, personal communication, July 22, 2010). The ecological perspective underpinned Holland’s framework for sustainable urban development in Southeast False Creek.

While I have noted that planning processes can be influenced by the professional networks of strategic actors, research interviews also show the importance of particular personalities. Not only did Beasley have access to planning students who might do exploratory work for the City free of charge (as was the case with Holland’s first report [M. Holland, personal communication, July 22, 2010]); according to Holland, Beasley’s charisma played a role in Holland’s interest and subsequent participation with the Southeast False Creek project:
Holland:

*Larry Beasley taught a short course at the University of British Columbia and I was so impressed by that course that I thought I have to be a City planner and he has to be my first boss. So I focused all my work toward that goal. I did directed studies, I did work for free, I did anything I could to work with Larry on it [Southeast False Creek].* (M. Holland, personal communication, July 22, 2010)

4.2.4 Stanley Kwok Consultants Inc. Hired as Development Consultant

In the same year that Mark Holland was recruited to develop framework principles for environmental sustainability, the City completed its tender process for a development consultant. In June of 1996, Stanley Kwok Consultants Inc. was contracted (City of Vancouver, 1996) to complete an economic feasibility study for development of Southeast False Creek, and then to prepare preliminary policy for site development. According to the City’s selection committee, of five short-listed applicants Stanley Kwok Consultants Inc. was most experienced in large, complex development projects, and Stanley Kwok himself had a strong record of working cooperatively with the City (City of Vancouver, 1996). There was no mention of credentials relating to sustainability. According to the terms of the contract, Kwok would report directly to the Property Endowment Fund Steering Committee.

The terms of reference for the first phase of Kwok’s work identifies “sustainable development requirements” among a series of studies or reviews that could be undertaken by the consultant. In 1996, in the pre-planning stage of the process, sustainability measures remained buried within a list of possible considerations of economic feasibility for the project.

*Terms of Reference*

*The Consultant shall conduct a study of the City Lands for the purposes of:*

1. Identifying economically feasible development options for the Lands; and
2. Advising the Property Endowment Fund Steering Committee as to whether redevelopment of the Lands is appropriate and economically viable.

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26 The selection committee consisted of two Council members and two City Staff who had not been involved with the original recommendation to appoint Stanley Kwok Consultants Inc.
The Consultant shall conduct inquiries, studies, tests or reviews as is, in the opinion of the Committee and the Consultant, necessary to achieve the foregoing objectives. This may include the following:

- Holding meetings with private owners of the Lands and adjoining lands
- Retaining and managing subconsultants
- Conducting geotechnical, survey and soils review work
- Reviewing archaeological issues
- Preparing preliminary cost estimates of environmental remediation, sustainable development requirements and infrastructure and servicing
- Preparing preliminary land residual proforma to determine whether redevelopment is economically feasible; and
- Considering existing federal, provincial and municipal laws, regulations, by-laws, policies, working papers and recommendations within the current economic climate and including the following site specific and context issues:
  - Proposal of street car on the C.P. Rail right of way
  - Retention of a "B" listed heritage building (85 West 1st Avenue) as a community centre
  - Shoreline treatment and waterfront walkway
  - Provision of park
  - Provision of social housing
  - Retention of view access along First Avenue to Science Centre
  - Cambie Bridgehead
  - Access to the water and water transportation
  - Height gradient, potentially decreasing to False Creek basin
  - Existing higher density at east end of False Creek
  - Existing arterial and ALRT Station; and
  - False Creek Policy Broadsheets which establish density guidelines.

For this purpose, the Consultant shall create preliminary development concepts for the Lands sufficiently developed to permit the Consultant and the Committee to assess the feasibility and economic viability of development of the Lands (Creekside Landing, 1997).

More appropriate terms of reference for the feasibility study of a model sustainable community could have centred on defining, developing and costing out sustainable development options rather than using standard market calculations of land uses and...
The City’s selection committee might also have privileged other qualities in a development consultant than his previous downtown development experience. Bruce Maitland, former Director of Real Estate Services:

*When we got him [Stanley Kwok], we didn't really put the sustainability piece up front which we probably regret in some ways now. Looking back, we should have been going for somebody who had some sustainability background or something* (B. Maitland, personal communication, May 7, 2010).

### 4.2.5 An Interested Public Responds to Creekside Landing Plan

Around the time Kwok was awarded the development contract, a group calling itself the Southeast False Creek Working Group emerged. The group was a self-generated initiative of local citizens interested in sustainability, many of whom had been part of the local EcoCity Network, a group of activists who wanted to inform the public about sustainability initiatives and options for cities (Irwin, 2004: 117). The Southeast False Creek Working Group membership included local groups, social justice and ecological non-governmental organizations. The Group’s mission statement was, “to create equitable and sustainable urban communities in Southeast False Creek and surrounding neighbourhoods through education, communication and advocacy” (Vaughan, 2008:25). The City’s selection of Stanley Kwok Consultants Inc. as development consultant for Southeast False Creek was a source of concern for members of the Southeast False Creek Working Group. Where the City valued Kwok’s work on False Creek North as an asset, members of the Southeast False Creek Working Group saw it as a recipe for more of what they found un-sustainable: limited housing affordability; limited connection to public transit; lack of attention to energy efficient design for buildings (Irwin, 2004:134). Some members of the group were particularly concerned with potential gentrification of neighbourhoods surrounding Southeast False Creek (Kong, 1997). Southeast False Creek Working Group members were not

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27 A sustainability centred approach to studying the economics of the site was proposed a year later by Sheltair sustainability consultants as part of their work developing a vision and guiding sustainability principles for the site.

28 The Canada Line rapid transit system was not built until 2009. The site was served by bus and False Creek ferry stops until that point.
confident that Kwok was knowledgeable about or sufficiently interested in sustainability. They feared he would propose for Southeast False Creek not an innovative model for socially mixed, low ecological impact living, but another consumption-oriented community complete with Urban Fare grocery, fitness clubs and cafes for the transnational and local creative class that were beginning to inhabit False Creek North (Irwin, 2004: 134). Their misgivings were borne out in early 1997 when Kwok produced a concept plan for Southeast False Creek, Creekside Landing as part of his report on the economic feasibility of developing the land.

4.2.5.1 The Creekside Landing report

Stanley Kwok Consultants Inc. completed their economic feasibility study of Southeast False Creek in January 1997. The study had taken seven months to complete and Kwok noted in his report that throughout the work phase he had been in on-going discussion with City Manager Ken Dobell, the City Representative for the Southeast False Creek Steering Committee29. This relationship is important because it reveals that the City Manager was knowledgeable about Kwok’s work as it progressed and that Kwok’s lack of attention to sustainability innovations was accepted by the City Manager. Kwok’s recommendation for Southeast False Creek was a residential neighbourhood to house approximately 6,500 people. His analysis indicated such a project could be achieved with a ‘modest’ return. Kwok quoted an independent opinion on the land value at $51 million; the cost of remediating the site’s extensive contamination from years of industrial use was placed at $27 million. In an interview for this research, Kwok stressed that he had been instructed to respect the financial mandate of the Property Endowment Fund to achieve a reasonable rate of return on its projects (S. Kwok, personal communication, October 18, 2010).

Kwok had investigated a number of development options including an industrial park, a mixed industrial/residential development and various residential schemes. The options were explored with “experienced and knowledgeable persons in the property and development industry, including a private workshop with a number of respected persons in the industry”

29 The Steering Committee was comprised of the City Manager; two City Councillors; the General Managers of Engineering, Community Services, and the Park Board; the Directors of Planning; Real Estate Services, the Housing Ctr., Finance and the Deputy City Manager.
architects, developers, planners) (Stanley Kwok Consultants Inc., 1997). Of these options, according to Kwok, only one met the City’s objectives; his team had developed this option into a concept plan called Creekside Landing, Kwok’s ultimate recommendation for the site.

For the Creekside Landing scheme Kwok’s report identified sustainability as a key principle. The report highlighted characteristics of mixed-use, walkability, and integration into the City’s utility and transit infrastructure. Council requirements for housing mix and community facilities would contribute to social sustainability. The report identified accessibility to daily needs as an important principle, and pointed to the streetcar right of way and ferry stop near the proposed village square as examples of such access. Walking was envisaged as the primary mode of surface transportation with mews instead of standard City streets to carry service and emergency vehicles. The public realm was to be enhanced by parks and a public seawall walkway. The City’s standard requirements for major developments including social housing, daycare, park and public art and library would be accommodated (Stanley Kwok Consultants Inc., 1997). The report included a statement that Creekside Landing represented academic and professional concepts of sustainable urban development:

...there is a consensus from the literature and planning practice on the subject that Creekside Landing’s vision embodies the goals for sustainable urban development (Stanley Kwok Consultants Inc., 1997).

No evidence was provided for that claim of consensus. However the plan did address some key physical characteristics now commonly associated with sustainable urban development such as density, mixed-use, and transit access.

In a section of the report titled Sustainable Development, Kwok included something of a contradiction to his assertion of consensus on sustainable urban development goals. He wrote that despite discussion with individuals from City Planning, the Vancouver Planning Commission, the Special Office for the Environment and a workshop with development professionals, a meaningful definition for sustainable development had not been determined. Given that Larry Beasley’s student intern was still developing his sustainability principles and best practices precedent study in 1996, and given the state of sustainable urban development in North America in the mid 1990s, Kwok’s statement may have reflected both his own
perspective on sustainability as something of a future adaptation (see Kwok’s comments in paragraphs below), and the level of knowledge at the City. The statement proved provocative with the local sustainability activist community who felt Kwok could have tapped into local expertise to develop a more robust definition and application of sustainability principles (Irwin, 2004; City of Vancouver, 1997a).

Kwok’s report revealed a perspective on sustainability innovation as something to be investigated within the context of known economic parameters, rather than an integral requirement for the design of a model sustainable community:

Suitable planning and design, not only involving compact, mixed-use, transit supportive development but also advanced applications in the management of energy, waste and natural ecological systems, including water and landscapes should be looked into, taking into account costs and benefits. (Stanley Kwok Consultants Inc., 1997)

Sustainability initiatives related to environmental goals would be evaluated through a consultant study on short and long term financial costs, and would have to be accepted by the market place before being considered for Southeast False Creek:

...when available and with their acceptance by the market place, will be taken into consideration in the Southeast False Creek development. (Stanley Kwok Consultants Inc., 1997)

As Kwok’s comments in my research interview illustrate, his perspective on urban sustainability was and continues to be one that is circumscribed by market place economics; his vision of urban design is also more urban than ecology-based.

...as with any development you have to make money. You cannot have an airy fairy plan. My feeling is always that you should plan in such a way that if and when technology catches up you can add all the technological goodies. So if one day solar energy is so cheap it can compete with hydro, fine, put it on the rooftop. That happens at the point when you design the building and put it together. In the planning stage you have to consider technology, but it’s not the be all and end all issue.
...At the time the planners all talked about wet lands...they were talking about the land right by the water, letting it flood and get marshy. I don’t believe in a city situation that is warranted, especially when you have hundreds of acres of marshland along the coastline. It’s an urban setting and you have to create it on an urban basis is really what I am saying.

Those things, every one of those little things costs money. If you don’t have money, don’t do it. (S. Kwok, personal communication, October 18, 2010)

The development consultant, hired by the City as the most qualified applicant to undertake the first planning studies for Southeast False Creek, held a perspective of sustainability which was firmly rooted in his experience as a market-based developer. Sustainability strategies were viewed primarily as environmental technologies to be applied when available and economically feasible. Kwok’s skills and knowledge had helped to deliver the publicly and professionally lauded False Creek North community, but his repertoire did not extend to a transformative approach to sustainability for Southeast False Creek. Kwok’s concept for Creekside Landing looked much like an extension of False Creek North in terms of built form; his recommendation was for a mix of townhouses and high rise towers. Kwok justified the urban form using economic rationale and comparison to one alternative scheme, a uniform series of twelve-storey towers:

Generally speaking, in order for the Creekside Landing concept to be economically viable, approximately 530 useable floor plates of 6,000 sq.ft. on 44 building parcels, plus the village commercial space will be required. Using an average site coverage of 6,000 sq.ft. per parcel, the necessary floor space could be accommodated in an even plateau of 12 storey towers. Such a rigid uniformity is not consistent with Vancouver’s tradition of urban form and would not readily suit the needs and expectations of the varied socio-economic groups who are envisaged to be making this a socially and economically sustainable community. The plateau concept would have a diminished appeal to the private market, resulting in significant lower selling values. (Stanley Kwok Consultants Inc., 1997)
Kwok released his report and concept plan in January of 1997. The public who had been following the pre-planning for the site were not satisfied (Irwin, 2004; City of Vancouver, 1997a). There had been no engagement with the public and yet a concept looking much like False Creek North was being presented and recommended. In April of 1997, just weeks before the report went to Council for review the Vancouver Planning Commission, in conjunction with Langara College, hosted a public conference called *Cents and Sustainability*. Approximately three hundred people attended, including representatives of the Southeast False Creek Working Group and several Council members (Alexander, 2000). As reported by Alexander, this conference was an opportunity for activists to organize and to rally broad support for attendance at the up-coming City Council meeting where they planned to call for increased attention to sustainability issues and an inclusive public process for Southeast False Creek.

Former Senior City Planner and Manager of Project Development for Southeast False Creek, Ian Smith reports that the conference was also important in helping to convince Councillors to move beyond Vancouver’s recent downtown development schemes towards a more innovative model of sustainability for Southeast False Creek.

*And they [Vancouver Planning Commission] put on a conference downtown. About four or five different Councillors went and we were worried actually- we were going to Council in about a week after this particular event, and we were worried that we may not get support for doing something that was different. There was a real school of thought in the City of Vancouver that what we had done around the downtown with Concord, Coal Harbour and the Bayshore and all those neighbourhoods, which I worked on actually, was very sustainable: high density housing, close to the downtown, complete communities, more efficient building design, all that kind of stuff. And there was almost, I wouldn’t say it was a war, but certainly two different viewpoints about how Southeast False Creek should be developed. One really the City Manager and Real Estate thinking more of what we had already done was the perfect answer and the other was a lot of people in the city, professionals, academics and the public being a lot, maybe more enlightened in terms of where we could go. And Council was kind of teetering. We didn't know which way they were going to fall. And that particular*
conference I think, actually pushed in the right direction, and basically got us the ability to move forward with a model for urban sustainability. (I. Smith, personal communication, January 26, 2010)

A policy report supporting the Kwok study was prepared by the City Manager on behalf of the Property Endowment Fund and went before Council on April 24th (City of Vancouver, 1997). The report recommended that the Creekside Landing study be accepted for information; that the next phase of Kwok’s contract commence (planning for rezoning and overall policy); and that the Planning Department report back on a Council-approved Sustainability Consultancy within two months. The report highlighted the economic priorities of the Property Endowment Fund, and a caution to Council that the development of Southeast False Creek might jeopardize the Property Endowment Fund’s mandated reasonable return on investment. The content of the report supports Smith’s contention that the Property Endowment Fund Board and the City Manager were not in favour of sustainability oriented innovations at that time (I. Smith, personal communication, January 26, 2010); the report in fact argues that even before sustainability goals were factored in, development of the site based on standard market practices would not be sufficiently profitable for the City.

Based on real estate investment return considerations, a reasonable return would not be achieved by the Consultant’s preliminary concept. Based on the estimated rezoning, consultant, infrastructure, remediation and land costs and land of approximately $125 million, a return of $8 million is not considered adequate compensation for the risk involved in this development. Alternate strategies, based only on return considerations, would include selling the Lands or to pursuing interim holding uses and redeveloping in a more favourable environmental and/or economic climate.

The Consultant found it impossible to meet a number of existing City policies fully, even at this marginal level of financial return. A relatively high density and high rise form were also required, challenging Council’s objectives for family-oriented housing and a conventional view of a sustainable development. In the development of these Lands, the City is facing a situation similar to those that existed in Joyce-Vanness and Arbutus Village, where significant relaxations
of the full spectrum of requirements were necessary to create a viable development. The Consultant's analysis and economic viability was based on freehold ownership. Leasehold tenure would likely further reduce the already marginal returns, especially given the availability of similar freehold product on the North Shore of False Creek. (City of Vancouver, 1997)

The City Manager writes that Council must “confront conflicting objectives for cost recovery and very high levels of amenity before confirming expectations based on existing policies and expectations.” While the development may bring significant benefits to Vancouver and to new residents of Southeast False Creek, “these amenities cannot be provided at the levels required by present City policy without a very major City subsidy.” The City Manager, on behalf of the Property Endowment Fund, was making a strong argument for relaxation of existing City policies on amenity to achieve what was deemed to be a reasonable return on investment. The City Manager pointed out that potential costs for innovative sustainability initiatives had not been factored into the cost analysis, and recommended that Council instruct the Planning Department to report back on a Sustainable Development Consultancy so that costs could be analysed.

The City Manager addressed the broader economic context of the mid 1990s, acknowledging the public success of the 1970s development of False Creek South, and outlining the differences between developing land in the 1970s and the 1990s:

In part, the example of the successful City redevelopment of the False Creek Lands to the west of Cambie Bridge provided motivation for these [land] acquisitions. However, the environment for development has changed significantly since that time. In particular, new environmental requirements have increased the cost of redevelopment of industrial lands significantly. And, Council has established stringent standards for park space, development of walkways, and level of public amenities in general, and specific objectives to provide a model of a sustainable community and housing for families and children in south east False Creek.

The financial climate has also changed. City budgets are more difficult. Provincial funding to local governments has been reduced, housing programs
have been curtailed significantly, and support for senior government infrastructure investments is more limited. Taxpayers have made it clear that they require a high level of fiscal accountability from governments. (City of Vancouver, 1997)

In the final line of the passage the City Manager invoked local taxpayers to underscore the message to Council that fiscal restraint and economic considerations should be central in planning decisions for Southeast False Creek.

Local sustainability advocates attended the April 24th Council meeting in force. Thirty-one people were registered to speak at the meeting, including two members of the Southeast False Creek Working Group and representatives of the Vancouver Planning Commission, Designers for Social Responsibility, the Ecodesign Resource Society, the Environmental Youth Alliance and the Simon Fraser School of Resource & Environmental Management. Five written briefs were filed (City of Vancouver, 1997a). The speakers supported redevelopment of the Southeast False Creek site but raised concerns and expressed expectations about how sustainability should be addressed in the next phase of the planning process:

- The planning process for the site must be more comprehensive and look at both the short and long term benefits associated with the development of the site;
- Undertake a thorough examination of the social profile of the existing and proposed communities (both for the site and adjoining areas);
- Sustainability should be treated as an integral part of the planning process, not just an add-on;
- Need to develop a Vancouver Understanding of sustainability principles that would apply to the redevelopment of the site;
- The costs of soil remediation should not be used as an argument against sustainability;
- There are many benefits to developing a model sustainable community that other parts of the City (and region) can emulate;
- Resources and time allocated to a sustainable development consultancy is inadequate;
- Planning process should involve extensive public consultation; be broad based, both in terms of people and their backgrounds, as well as surrounding residents and owners;

- City should draw upon the expertise and talents of the many groups and individuals available in the community;

- Do not support relaxing Council policies if important public amenities are not to be jeopardized (e.g. Social Housing);

- Affordable housing needs to be an integral part of the development;

- Should look at other models of providing social housing.

Many of the foregoing speakers, either on their own or on behalf of the group represented, offered to work with the City in developing a greater understanding of sustainable development and developing a concept for the redevelopment of the site. (City of Vancouver, 1997a)

The April 24th Council meeting was carried over to May 8, so that one remaining speaker could be heard and discussion of the planning for Southeast False Creek could continue. According to meeting Minutes, several clarifications were made by City Staff. Larry Beasley, Co-Director of Planning emphasized that the Kwok concept plan was a starting point only; he outlined the planning process for the next phase including full public participation. Bruce Maitland, Director of Real Estate Services clarified that staff would attempt to work out a different cost analysis from the classical model, for example, emphasizing factors like long term cost savings. City Manager, Ken Dobell clarified that sustainability analysis would not be restricted to a cost benefit analysis but rather analysis of who would pay for initiatives. He advised that integrating sustainability would be a learning experience for City Staff. The Co-Director of Planning provided the example that Staff would consider capital and operating costs together to develop a complete picture of costs.

Because the City is both owner of the land and the regulating government, it is hoped a model of sustainable development will result, with both environmental and economic viability. (City of Vancouver, 1997b)
The minutes concluded with,

*Council was prepared to vary existing City policies to achieve the desired result...Council was hopeful this would result in a model environmentally sound community.* (City of Vancouver, 1997b)

From these meeting Minutes, three insights are clear: first is the experimental nature of sustainability planning for the City of Vancouver in the mid to late 1990s. Council, Staff and the Property Endowment Fund were working with policy and economic analysis that had to be adjusted to accommodate the untried and somewhat undefined development concept of sustainability. Second, the concept of sustainability adopted at this point by Senior City Management and Council was not based on concerns over responding to global ecological change; there was no sense of urgency or imperative to achieve environmental sustainability, simply the hope for a sound environmental community (whatever that might be). Third, the public interest in sustainable development for Southeast False Creek played a key role in how the planning process for Southeast False Creek moved forward. Public interest was acknowledged in the City Manager’s Policy Report to the Standing Committee on Planning and Environment (April 2, 1997). Public concerns expressed in writing and in person at the April 24th 1997 Council meeting were addressed orally by Staff and most importantly in the amended recommendations adopted by Council on May 8th 1997. Among the recommendations were new directives on sustainability:

- The *Creekside Landing* report was accepted for information.
- The City Manager was instructed to proceed with Phase II of the Kwok development contract with “special emphasis on sustainable development including life cycle analysis and long-term cost benefit economic analysis” (City of Vancouver, 1997b).
- The Co-Director of Planning was instructed to proceed with the Council-approved planning process (from 1995 report) with the consultancy on sustainable development.
- Existing City policies, guidelines, standards, by-laws etc. would be considered only as a starting point for planning a sustainable and economically viable community.

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30 Also identified in Irwin 2004.
Council would consider variations to existing policies, standards, etc. in the development of area specific guidelines to ensure that the overall development provided appropriate community benefits with a sustainable and economic framework.

Consideration of the characteristics of a sustainable development in Southeast False Creek should reflect its urban context.

(City of Vancouver, 1997b)

The Council instructions from the May 8th meeting were carried out. In October of 1997 a local environmental consulting firm, Sheltair Scientific Ltd. was hired to prepare a set of sustainability principles and targets for Southeast False Creek. Their work included a model for full cost accounting of plans and policies. Full cost accounting is a method whereby social and ecological costs of actions are accounted for on an equal footing with economic costs. For sustainability theorists, full cost accounting must replace simple economic cost benefit analysis. Also that fall, the City Planning Department took up the offer of public volunteers, inviting a group of interested local sustainability advocates, experts and other stakeholders to join an advisory group. The Southeast False Creek Advisory Group met first with Sheltair consultants during their visioning and target setting exercise, and then worked with the City on development of the Southeast False Creek Policy Statement, a process that spanned two years and countless hours of volunteer time on behalf of the Advisory Group members.

31 Ecological footprint accounting can be viewed as a method of full cost accounting because it measures the ecological requirements for maintaining a certain level of lifestyle (consumption) acquired at a certain financial price.
4.3 Visions, Tools and Targets: Defining Sustainability for Southeast False Creek

The outcome of the May 8th Council meeting helped to set something of a new course for planning in Southeast False Creek. The original planning structure promoted by the Property Endowment Fund was to fast track the appointment of Stanley Kwok who would develop an economically feasible concept plan based on his experience with Concord Pacific. Kwok would employ the 3-stage planning process developed for False Creek North to move from concept to policy development to Official Development Plan and to rezoning within four years (City of Vancouver, 1995a). In that process, as Kwok’s report and the City Manager’s report to Council (City of Vancouver, 1997) made clear, sustainability innovations beyond characteristics of density, walkability and transit access would be implemented if and when economically feasible, and without subsidy. The mechanisms for public participation in the Creekside plan were limited to traditional workshops and information sessions rather than any form of co-creation of goals and visions for a sustainable community. With the resolutions of the May 8th 1997 Council meeting, sustainability gained a more prominent role in the planning, and some members of the public, including activists and experts had the opportunity to contribute directly to the development of the Policy Statement and its guiding sustainability approach through membership in the Southeast False Creek Advisory Group.

City Staff prepared a Terms of Reference document for a Southeast False Creek sustainability consultant. The Terms comprised: a definition of sustainability for Southeast False Creek; a list and definition of parameters of sustainable urban development for Southeast False Creek’s urban setting; a set of achievable performance targets for those parameters; a list of precedents where similar targets had been met; and a framework and methodology for full-cost accounting for the development project (City of Vancouver, 1997c). The terms were developed in consultation with relevant City department Staff, and then released to the public for comment. The City held a public workshop on June 25th to gather additional public input.

Sheltair Scientific Ltd. was selected as the sustainability consultant from among ten applicants. The Sheltair team included a number of local consultants and academics who had been observing and commenting on the Southeast False Creek development (I. Hood,
personal communication, July 5, 2010). Sheltair’s Innes Hood describes drawing on local sustainability thinkers, including the local academic community to help develop the concept of sustainability for Southeast False Creek:

*It was really a cast of thousands; we had Freda Pagani who was head of Sustainability at UBC for a while and there was Mark Roseland and Ray Spaxman...I think what we tried to do was we pulled together the leading edge practitioners of sustainability in the Lower Mainland and really canvassed them for ideas.* (I. Hood, personal communication, July 5, 2010)

The following sub-consultants were listed on the Sheltair bid:

- Sustainability Ventures Group Inc. - David Van Seters
- Spaxman Consulting Group Ltd. - Ray Spaxman
- Location Planners Inc. - Lothar Wiwjorra
- Gartner Lee Ltd. - David Osmond
- Trust for Sustainable Development Inc. - David Butterfield
- Dr. Mark Roseland, Simon Fraser University
- Dr. Penny Gurstein, University of British Columbia
- Freda Pagani, University of British Columbia

When Sheltair Scientific Ltd. was awarded the contract for developing a definition for sustainability and a set of development principles for Southeast False Creek in 1997, sustainable urban development was still an evolving idea at the planning level in North America (Roseland, 1998). Data on environmental impacts of various urban characteristics was limited (Newman and Kenworthy, 1999). Former Manager of the Real Estate Department, Bruce Maitland, recalls that it was necessary to figure out a system of targets and measurement for sustainability.

*At that time there was a whole bunch of definitions and we kind of ended up, I think everybody in the world kind of ended up with the three legs: social, environmental and economic. So we got that piece and said, what do we do now? One of the things that is becoming obvious is targets. We’ve got to measure this*
thing. So we hired Sheltair who came up with a bunch of different targets. (B. Maitland, personal communication, May 7, 2010).

According to former planning assistant Mark Holland (personal communication, July 22, 2010), Sheltair played a key role in re-framing sustainability for Southeast False Creek as more than simply a dense, walkable downtown community.

*They [Sheltair] came in as a consultant and really helped to shape the story of sustainability in Southeast False Creek... Sheltair played a big role in the intellectual framework of getting started, the “what does sustainability mean?”*

Vancouver City Council’s response to the public concerns about lack of participation and the lack of a robust, holistic approach to sustainability had opened the door to a rigorous investigation of sustainability principles and targets for Southeast False Creek. In 1997 there were few examples of ‘sustainable’ urban communities on which to draw. The Consultants, Advisory Group members and City Planning Staff were challenged to develop principles, strategies and measures for a sustainable Southeast False Creek. Equally challenging, they had to convince the City bureaucracy, Council members, the Property Endowment Fund and private land owners to support these innovations despite potential unknown costs and outcomes (I. Smith, personal communication, January 26, 2010; M. Holland, personal communication, July 22, 2010; I. Hood, personal communication, July 5, 2010).

### 4.3.1 Sustainability Targets: what about living within global biophysical means?

From the transformative perspective on sustainability which recognizes global biophysical limits, inclusion of targets and measures for ecological performance (in particular overall resource use and waste production) is critical to planning for a sustainable community (Rees, 1995; Alberti, 1999; Newman and Jennings, 2008). However, in the early target setting for Southeast False Creek, concepts like global carrying capacity and the ecological footprint were not incorporated. Despite the fact that Southeast False Creek had originally been identified in the City Task Force report on local actions to respond to climate change, *Clouds of Change* (1990), an overall target to limit CO₂ emissions from the community was not established. In large part, according to interviewees, the omissions resulted from limited
precedents and experience with application of ecological footprint analysis or greenhouse gas emissions targets at the neighbourhood scale. Further, no direction was provided by the City or Council to pursue such targets. Adaptation of some sustainability concepts to a neighbourhood scale would have constituted an innovation for which neither the time nor budget had allowed (S. Moffatt, personal communication, July 20, 2010; I. Hood, personal communication, July 5, 2010).

The Sheltair consultants were familiar with ecological footprinting and climate change concerns. Sheltair Principal, Sebastian Moffatt, and Sheltair’s energy modelling specialist, Innes Hood, were recent graduates of environmentally-oriented programs at the University of British Columbia. They brought the ecological perspective they had gained there to the work on urban sustainability for Southeast False Creek (S. Moffatt, personal communication, July 20, 2010; I. Hood, personal communication, July 5, 2010). The original framework on urban sustainability principles prepared by Mark Holland referenced global resource depletion and climate change concerns (1996:23). That report served as the starting point for the Sheltair consultants tasked with developing principles and targets for Southeast False Creek. When asked about applying over-arching resource use targets to the site, Innes Hood recalled the challenge of working at the neighbourhood scale:

*Seb and I had just recently finished our degrees at UBC around environmental management and I know Seb was a big advocate of the ecological footprint concept. It was not seen as an appropriate tool for a neighbourhood scale development and so the idea of using that as a benchmarking tool, I think we kind of nixed right off the front. We couldn't really talk about closed loop systems in a practical way in the scale of development that was occurring on the site, so we never really talked about constraining energy use to the amount equivalent to whatever sun hits that site. It was all framed in the context of: let's do the best we can given the context of the technology we've got rather than saying, each individual can only use 10 litres of water a day or something.*

What we did do was say we want a full cost accounting basis: these are the types of improvements that we can justify being environmentally responsible and economically viable. (I. Hood, personal communication, July 5, 2010)
Sebastian Moffatt describes efforts to develop a more ecologically based (he calls it “hard-edged”) concept of sustainability for Southeast False Creek, beginning with foundations laid by local academics. In his description Moffatt reveals how various concepts and dimensions of sustainability were evolving in the mainstream and in academic theory.

And then there was of course the university factor with Bill Rees and Ray Cole and all who had laid the groundwork introducing the concept of ecological economics and the sort of hard edge to the sustainability concept. Sustainability to most people at that time was really an equity issue, by stretching time horizons you realized we were being unfair to future generations who weren't at the table. We were still in that very difficult transition Bill Rees so well described moving from viewing environmental issues in terms of resources running out and peak oil to understanding that so much of our critical infrastructure is dependent upon ecological services that are renewable and that are being eroded so quickly that it's the loss of the ecology not the resource that threatens the quality of survival of species. That transition was not well understood at the time and there were all these divergent paths going into healthy communities, smart communities, and people taking a social perspective so at the time the three stools and understanding that integration this was incredibly powerful. (S. Moffatt, personal communication, July 20, 2010)

The interview quotes above are important because they reveal that the people charged with developing sustainability performance targets for Southeast False Creek were knowledgeable about global ecological change and the perspective that cities should play a central role in reducing global resource throughput. Despite Moffatt’s efforts, hard edge metrics about overall resource consumption or waste production were not applied in Southeast False Creek. Targets were developed for individual categories such as building energy use, starting from conventional best practices. Innes Hood describes targets for building energy use:

... if we take the example of buildings: we kind of knew what performance level buildings were achieving and probably at the time what was seen to be leading edge was the old C-2000 Program which is the commercial building strategy developed by Nils Larson to achieve kind of 50% below the Model National
Energy Code for Buildings and I think that's what formed the basis for those energy targets on the building side....

Hood’s comments reflect the challenge, identified by Holland and others, of working with a relatively new planning concept. He goes on to describe development of performance targets,

At the end of the day it was probably seat of the pants... it was largely based on identifying precedents of things that we thought were practical, maybe pushing the limits of cost effectiveness but that were clearly, technically feasible and achievable. And that's kind of the approach we took to developing all of those indicators and targets. (I. Hood, personal communication, July 5, 2010)

The team encountered methodological challenges to target setting because of the lack of industry, academic and professional benchmarking data on conventional urban land development projects. The lack of benchmarking data is a problem which persists in the early 2010s (CNSLT 1; CNSLT 2):

We don't really even have sense of how buildings perform and so making sure that the targets were quantifiable and relevant at the design stage was a second challenge, but also creating targets that make sense. I mean mobility, I seem to recall us having all sorts of conversations around how to have transportation targets that were meaningful; talking about street connectivity and mode share and all those things but no single target seemed to address the multiple issues inherent in encouraging accessibility by means other than cars. So there were just some methodological challenges in the development of some of the targets particularly the transportation ones.

Moffatt concurs that research on sustainability in the late 1990s suffered from lack of data and precedents but also from the inaccessibility of information in a pre-Google era.

And then we had a brainstorming process and we’d just meet all the time, and kind of ballpark things a lot...we would do searches but the internet was not like it is now so it took a lot more work and you were kind of working in a fog a lot of the time. You really didn't know what was possible. There were just stories and reports and literature often years old you were working with so we had to use a
The Sheltair consultants had personal commitments to sustainability, having been educated in environmental sustainability at the University of British Columbia, but they were unable to integrate a biophysical limits approach into target setting for Southeast False Creek. They lacked precedent cases for the application of the ecological footprint to a neighbourhood scale and they were tasked with presenting financial costs for their recommendations. Thus the first set of environmental targets and indicators for Southeast False Creek did not begin from a position of what was ecologically necessary, but rather what was deemed technically and economically feasible at the time. While that may have been the most effective way to move forward, I argue that adding a future target, even an estimated and changeable target, of what sustainable performance would entail, would put the short term targets into the context of incremental steps toward ecologically necessary change. Without that target for sustainable performance, what provides the backstop to keep politicians or bureaucrats or the public from scaling back short term targets? How can politicians justify costs of meeting short term targets without being able to reference the longer term target for sustainability? An estimate of ecologically sustainable performance allows all stakeholders to commit to the goal and to participate in innovation toward achieving it.

The environmental performance targets developed by Sheltair, and relating specifically to resource and waste consumption are presented in Table 4.1.
Table 4.1 Proposed targets for environmental performance in Southeast False Creek, 1998

<table>
<thead>
<tr>
<th>Goal Area</th>
<th>Target</th>
<th>Vancouver: Existing Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solid Waste</strong></td>
<td>Max 200 kg/person/year solid waste sent to disposal</td>
<td>580 kg/person/year (1996)</td>
</tr>
<tr>
<td></td>
<td>80 kg/person/year organic waste produced by Southeast False Creek households is processed on site</td>
<td>5300 tonnes collected and composted at City facilities (1994)</td>
</tr>
<tr>
<td></td>
<td>No leaves or organic debris transported off site</td>
<td></td>
</tr>
<tr>
<td><strong>Transportation and Accessibility</strong></td>
<td>100% dwelling units within 350 m of basic shopping needs and personal services</td>
<td>Vancouver West End 90%</td>
</tr>
<tr>
<td></td>
<td>Min 60% of streets dedicated to walking, cycling and transit use</td>
<td>Greater Vancouver subdivision 20%</td>
</tr>
<tr>
<td></td>
<td>100% dwelling units located within 350 m of transit service</td>
<td>Vancouver West End* 32%; Canada ave. 20% 20%</td>
</tr>
<tr>
<td></td>
<td>30% of dwelling units affordable to population segment relative in income distribution and family size to those working in the downtown core and along the Broadway Corridor</td>
<td></td>
</tr>
<tr>
<td><strong>Energy Use</strong></td>
<td>Multi unit residential max 288 kilowatt hours per year/m² floor area from non-renewable sources</td>
<td>524 kWh/yr/m² floor area (electric heat) 384 kWh/yr/m² floor area (gas heat)</td>
</tr>
<tr>
<td></td>
<td>Office Max 284 kilowatt hours/yr/m² floor area from non-renewable resources</td>
<td>517 kWh/yr/m²</td>
</tr>
<tr>
<td></td>
<td>Minimum 5% energy consumption in Southeast False Creek from renewable sources generated on site</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>90% of all buildings in Southeast False Creek are connected to a district heating system</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>All buildings have a maximum peak electrical demand of 33 watts per m²</td>
<td>90 watts per m² floor area</td>
</tr>
<tr>
<td><strong>Air Emissions</strong></td>
<td>Residents travel no more than 3,392 km per year for daily shopping and commuting</td>
<td>6938 km per year (Greater Vancouver Regional District) 3392 km per year Vancouver West End*</td>
</tr>
<tr>
<td></td>
<td>Max 1498 kg CO₂/person/year emitted from</td>
<td>1500 kg</td>
</tr>
</tbody>
</table>
## Goal Area

<table>
<thead>
<tr>
<th><strong>Target</strong></th>
<th><strong>Vancouver: Existing Performance</strong></th>
</tr>
</thead>
</table>
| transportation-related activity in Southeast False Creek | CO₂/person/year  
Vancouver West End;  
3063 kg  
CO₂/person/year Greater Vancouver Regional District (1991) |

### Water Targets

<table>
<thead>
<tr>
<th><strong>Target</strong></th>
<th><strong>Performance</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum 100 litres of potable water consumed per person per day</td>
<td>315 litres per person per day</td>
</tr>
<tr>
<td>Maximum 54% of site covered in impervious material</td>
<td>85% Vancouver multi-family residential</td>
</tr>
<tr>
<td>25% Sewage treated on site</td>
<td></td>
</tr>
</tbody>
</table>

### Open Space/Urban Agriculture Targets

<table>
<thead>
<tr>
<th><strong>Target</strong></th>
<th><strong>Performance</strong></th>
</tr>
</thead>
</table>
| 25% of roof area designed to carry plant life | David Lam Park False Creek North: 0%  
Vancouver’s Stanley Park: 80% |
| 80% of foreshore has habitat value | |
| 60% of open space had significant habitat value | |
| 12.5% of the produce consumed by Southeast False Creek residents is grown on site | 5% average active Canadian gardener |

### Building Targets

<table>
<thead>
<tr>
<th><strong>Target</strong></th>
<th><strong>Performance</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>75% units and commercial spaces have good solar orientation</td>
<td></td>
</tr>
<tr>
<td>30% of materials used in Southeast False Creek buildings are salvaged, reused or have recycled material and components in them.</td>
<td></td>
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</tbody>
</table>

Source: Adapted from The Sheltair Group Inc. 1998  * Vancouver’s West End is a dense downtown residential community of low, mid and high rise buildings.*

The Sheltair targets represented the best efforts of the Sheltair team to develop aggressive, yet achievable goals for ecological performance in Southeast False Creek (I. Hood, personal communication, July 5, 2010; S. Moffatt, personal communication, July 20, 2010). This set of targets was not adopted as policy but in subsequent target setting exercises it was used as a base reference (City of Vancouver, 2001; reSource ReThinking Building Inc., 2003). Although no aggregate sustainability target was set (such as per capita ghg lifestyle emissions or ecological footprint target), the Sheltair report set some measurable reduction targets for resource use and waste production. For example, the authors proposed an air emissions target
of 1498 kg CO$_2$ /person/year emitted from transportation-related activity in Southeast False Creek$^{32}$; they set maximum limits for non-renewable energy use in residential and commercial buildings in kilowatt hours per year/m$^2$ floor area. Achievement of these targets would contribute to the ability to measure aggregate per capita resource use and waste production. As I illustrate in Chapter 6, of the targets and strategies officially adopted for Southeast False Creek only a few include measureable reductions in resource use and waste production.

### 4.3.2 Contested Perspectives on Sustainability for Southeast False Creek

As I have shown throughout this chapter, sustainability was a new planning concept for the City of Vancouver, for City Council and for the City’s Property Endowment Fund. Definitions, principles and targets were developed with the help of interns, local volunteers, experts and consultants. The Council directive of May 1997 to employ a sustainability consultant had shifted some of the planning focus toward a more robust exploration of Southeast False Creek as a model sustainable community. The degree to which the emerging concepts would be implemented had to be negotiated among key actors in the planning process. According to interviewees, the representatives of the Property Endowment Fund and the development consultant, Stanley Kwok, were resistant to sustainability initiatives beyond those described in Kwok’s Creekside Landing plan (M. Holland, personal communication, July 22, 2010; I. Smith, personal communication, January 26, 2010; J. Moore, personal communication, December 2, 2010). The Director of Real Estate Services and the Property Endowment Fund Board were committed to their interpretation of a reasonable rate of return on the City’s investment based upon standard market calculations of land values and holding costs.

Stanley Kwok, former Development Consultant for Southeast False Creek discusses what happens to the value of City land that is not developed.

> If you do nothing what happens? Is it a choice? It costs you money to wait. If you change it [City-owned land] into money, that money will grow. Would the land

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$^{32}$ The limitation of a per capita target is that as the population increases so do the aggregate emissions. A target should be set to limit aggregate emissions from transportation.
grow as fast as your money? (S. Kwok, personal communication, October 18, 2010).

Based on Kwok’s financial assessment in the Creekside Landing report, if the City chose not to develop its Southeast False Creek land holdings, the full equity value of the land would be lost within sixteen years. The calculation was based on short term soil remediation requirements, low industrial rental rates and on-going land carrying costs (Stanley Kwok Consultants Inc., 1997).

Mark Holland, former Planning Assistant recalls that Kwok used his financial analysis as a negotiating tool to argue against a protracted process of investigating sustainability for the site:

The City’s Real Estate Department had hired a highly respected developer [Stanley Kwok] to come in at the very beginning of Southeast False Creek planning and he did some financial analysis and said the land would be worth nothing after seven years if you do nothing with it. However, the City had owned the land for many decades, just as part of the Property Endowment Fund, so it was a hypothetical imagining to say the land is worth 50 million dollars and the amortization rate of the debt makes it valueless after X years, because the City still owns the land and every year the land is worth more so how can you say it's worth nothing? But that was Stanley Kwok's initial argument for not going through all this complex planning process and trying to scare City Hall into action. So that was the Real Estate Department’s position the first couple of years of the project. (M. Holland, personal communication, July 22, 2010)33

Sebastian Moffatt of the Sheltair Group describes his effort to gain support from Real Estate Services for an economic pro forma of the sustainability scenario Sheltair was developing for Southeast False Creek.

So, I tried to in my naive fashion and I was extremely naive at that time, invite them [Real Estate Services] to our brainstorming session; I wanted a specific

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33 For a detailed analysis of the limitations of Kwok’s economic pro forma for not developing the Southeast False Creek lands, see Irwin, 2004:176.
session on economics with them and I asked for fifteen thousand additional dollars to do the economics of our vision and to show a back of the envelope rushed pro forma that we could actually justify this economically. Ian Smith listened to it; make it so, he said to his staff. They went forward for the $15,000 - vetoed by Real Estate. They wouldn’t let me do it. Because it would undermine their capacity to say it was uneconomic. They didn’t want an economic argument cause that was their strong point. Then when I asked them to come and sit down to at least discuss that, you know what they said to me? We can’t do that. I said why not? Well that would undermine our ability to be critics of what you produce.

I made fun of Stanley Kwok’s economic arguments, I just said, you can’t be more wrong than these guys. Well I don’t think that was politically savvy. (S. Moffatt, personal communication, July 20, 2010)

Moffat’s comments suggest that Sheltair’s efforts to bring their more ecologically based sustainability approach forward were blocked by Real Estate Services, who continued to champion their own approach to urban sustainability as something of a technological add-on to an existing project planning style they perceived as appropriate for replication. Former planning intern Mark Holland concurs that the Director of Real Estate Services promoted a highly economically focused perspective on sustainability plans and describes an on-going contest among Senior Staff to have their own perspectives resonate with Council.

_The Planning Department was only equal to the Real Estate department at City Hall and the Real Estate Department at first wasn’t interested in this [sustainability]. We were their colleagues but in this case we kind of ended up being their combatants because they were playing the role of the developer but we all had equal access to Council and the City Manger. And that’s why Larry [Beasley] made the thing happen because he championed the vision while they [Real Estate] were throwing spreadsheets in front of Council and saying it was the stupidest thing ever. Ultimately, the Real Estate group saw the wave of sustainability-driven thinking and developing occurring across North America_
and began to support cautious and pragmatic application of sustainability ideas.
(M. Holland, personal communication, July 22, 2010)

In April of 1998 Sheltair released its report, Visions Tools and Targets: Environmentally Sustainable Development Guidelines for Southeast False Creek. Sheltair principal, Sebastian Moffatt, recounted his experience presenting the report to City Council. In his version of events, individual actors played significant roles in how the report’s content and approach to sustainability was presented to and received by Council. He recalls that Real Estate Services remained an oppositional force. City Councillor Gordon Price championed the report and Moffat credits Co-Director of Planning, Larry Beasley, with political acumen.

When this report [Visions Tools and Targets] finally went to Council, I learned a lot from Larry Beasley. He made sure that any dissent within his Planning Department was resolved and finished before it went to Council so it was a unanimous recommendation. He said Sebastian, your slide show, I want it to have no title and the same background as mine. Of course! I'm not a consultant, I'm part of the team and it's an extension of the unanimous recommendation to Council approach. He knew exactly who he was managing. He was managing a bunch of very busy, short term interest Councillors. His job was to make it easy for them to say yes...

Gordon Price. He stood up and defended me in front of Council. I couldn't defend myself against the forces that were the Real Estate Department that would have loved to kill the whole project and they really hated me and everything I represented. I was like a gladiator thrown out there and I had no weapons. And then Gordon Price stood up and said, “Now wait a minute here Sebastian is there anything in this document that is really impossible, uneconomic?” and I said, “The water targets are really demanding, other than that, no problem at all...”
(S. Moffatt, personal communication, July 20, 2010)

The quotes above also reveal that the Sheltair perspective for Southeast False Creek, informed by ecological concerns, had to be presented as conforming to the dominant paradigm, which was economic feasibility.
Former Council member Gordon Price describes a bureaucratic filter that limited direct access of Council members to controversies or uncertainties within the bureaucracy, including views on sustainability for Southeast False Creek.

We lived in a very rarefied atmosphere and the way Staff maintains their degree of autonomy and control is to filter the information through the City Manager's Offices to what is on our agendas, what reports we get, and above all who we don't get to talk to. (G. Price, personal communication, September 10, 2010)

Price’s comments support the idea that individual City Staff such as Co-Director of Planning Larry Beasley and Director of Real Estate Services Bruce Maitland had significant influence in how sustainability was conceived and pursued for Southeast False Creek at the highest City levels.

The Sheltair report was presented to Council on April 30, 1998. It was a key reference document in the on-going development of the Southeast False Creek Policy Statement (City of Vancouver, 1999a; I. Smith, personal communication, January 26, 2010). From the Visions, Tools and Targets report, the vision and some tools were carried forward to the Policy Statement while other tools and the performance targets for Southeast False Creek were not. The contest over what sustainability would mean for Southeast False Creek continued through the policy development phase and beyond (M. Holland, personal communication, July 22, 2010; I. Smith, personal communication, January 26, 2010; F. Crofton, personal communication, October 12, 2010; T. Osdoba, personal communication, November 15, 2010).

**4.3.3 Developing a Viable Policy Statement: The Advisory Group and the City**

The consciousness of this [sustainability] among citizens was just exploding. So that when that Advisory Committee finally got together, you know that was a hotbed. But it wasn't like everyone likes to present it as though they were in almost a revolution. (L. Beasley, personal communication, August 24, 2010)
Advisory Group

Public interest in the redevelopment of has been building for a number of years, especially since the 1995 Council Report. While the City was considering economic feasibility for Southeast False Creek in 1995-97, a great deal of work was completed by groups interested in the site. To draw these people into the process and to benefit from the work already done, an advisory group was set up. Their role was to assist staff in the evaluation of the sustainable development consultancy and in the preparation of the draft Policy Statement. This broad-based group brought together youth advocates, students, professionals, academics and representatives of the development community... The group donated a great deal of their time to the process and continues to act in an advisory capacity. (City of Vancouver, 1999a)

As recorded in the passage from the City Policy Report above, the Advisory Group was comprised of people with diverse interests in the fate of Southeast False Creek. Some were land holders, others were neighbours of the site and still others were sustainability experts and advocates, including two members of the Southeast False Creek Working Group which was still meeting outside of the City process. (See Appendix C for a list of Southeast False Creek Advisory Group participants). Members of the group worked with Sheltair establishing a vision for the site and contributing to research on sustainability targets (J. Moore, personal communication, December 2, 2010; I. Hood, personal communication, July 5, 2010; F. Crofton, personal communication, October 12, 2010). The Advisory Group met monthly with City Planning Staff, Senior Planner Ian Smith and Assistant Planner Mark Holland, for over a year and a half until the Policy Statement was adopted by Council in 1999 (J. Moore, personal communication, December 2, 2010). They contributed expertise on sustainability, engaged in research and reviewed reports (J. Moore, personal communication, December 2, 2010; Irwin, 2004). The formal work of the Advisory Group volunteers resulted in a robust and thorough investigation of sustainability which the City did not undertake internally. Fiona Crofton, a consultant hired to facilitate the group, describes the contributions of the Group:

"...a group that was incredibly dedicated and put in an enormous number of hours for free. That was expert knowledge they were bringing in, expert. They had..."
access to passionate devoted experts that the City couldn't or wouldn't pay for and the work they did was amazing. It fed into the whole document...predominantly done by Sheltair and this advisory group did a lot of work on that front. They covered areas that got dropped out of the Sheltair work which should have been included so they went off and tried to do that work. They were really in so many ways the holders of the interested public voice and had their threads of knowing into that multi-verse community. (F. Crofton, personal communication, October 12, 2010)

Importantly, the diverse Group members along with the two City Planning representatives developed a shared understanding of sustainability for Southeast False Creek to which they were committed, and which they promoted and defended (in various degrees depending on their positions) as the project moved forward (J. Moore, personal communication, December 2, 2010; Irwin, 2004:171).

Former Planning Assistant Mark Holland recalls the challenges of bringing the diverse group of actors in the Advisory Group together around the concept of sustainability, and the need for an outside facilitator to keep the group functioning.

_We nearly lost control of the planning process in the first two years several times. And the debates were intense over sustainability; no one knew what it meant. It was flaky stuff. Radical activists were everywhere - we had one fellow on our advisory committee whose business card said 'urban warrior' and on the other hand we had Stanley Kwok who built other neighbourhoods in False Creek, and everybody in between. It was that multi-stakeholder group of strong and opposed feelings that we struggled to keep control of and we were fortunate that Fiona [Crofton, facilitator] had the skills to keep it on the rails._ (M. Holland, personal communication, July 22, 2010)

Advisory Group Member Jennie Moore comments on the hiring of facilitator Fiona Crofton to help the Advisory Group members find common ground. She recalls two dominant, competing positions:

_Definitely it resonates with me that she was brought in to help the group gel and_
break some impasses. To the best of my recollection there was a strong division of interest around what the land owners wanted and more the financier interests and then what the community or sustainability people wanted. There was: this is a model sustainable community, the opportunity to do something really special, and then there were the people who said, this is my land and I still need to make it viable. (J. Moore, personal communication, December 2, 2010)

Facilitator Fiona Crofton describes how Advisory Group members began to move from entrenched positions of personal interest to considerations of shared goals for Southeast False Creek.

My translation would be that people were coming to their seats in positions. So, what was going on was that the individual stakeholder positions were on the table and they appeared to be stuck because they hadn't recognized their shared interests...it was really, what's core for you individually; never mind your role positions, put them aside. What do you want to ensure is on this site for sustainability. We started there and we looked at all the things that got put on the table and everybody took a big breath and went wow! We all want the same thing. (F. Crofton, personal communication, October 12, 2010)

The experience of the Southeast False Creek Advisory Group members arriving at a common vision for Southeast False Creek was not replicated among City departments or Council members (S. Moffatt, personal communication, July 20, 2010; I. Smith, personal communication, January 26, 2010). When it came time to support challenging measures for the Policy Statement, there was limited institutional support (I. Smith, personal communication, January 26, 2010; Punter, 2003: 231). For example, the Advisory Group had developed a set of 10 Guiding Principles for Sustainability and promoted inclusion of the Sheltair performance targets in the Policy Statement (J. Moore, personal communication, December 2, 2010). Planners Smith and Holland met with resistance to the draft Policy Statement from City departments that had either chosen not to participate fully in the Advisory Group process, or had not been invited. Although the final Policy Statement reflected in general the vision and goals of the Advisory Group, it was moderated by the Planners as they sought buy-in from the City bureaucracy and Council.
Group’s ten sustainability principles were re-written as four principles (Figure 4.2 and the Sheltair Scientific Ltd. performance targets were not included in the document as policy.

Former Senior Planner Ian Smith describes the challenge of trying to have the Policy Statement, including performance targets, accepted by the City bureaucracy, particularly by department heads and managers who had had limited or no involvement in the development of the vision and targets even though they would be responsible for implementation of strategies to achieve them.

*The Policy Statement, while it was accepted by the public and by everybody that was involved with it in the Advisory Group, some of the things associated with the Policy Statement including the indicators and targets, we ran into a fair bit of difficulty when we brought it back to the City and tried to get it through the civic bureaucracy...*

*... the problem was, although we'd had all sorts of learning events, we'd brought in speakers, we had workshops with the public, we put on an international charrette, a lot of the department heads and general managers hadn't really been involved in that discussion and so there was a fair bit of fear; and I don't know if it was helped in any way by the Real Estate Department who really saw any kind of regulation or any additional requirements on the land as taking down the land value... So we actually spent about six months negotiating the Policy Statement through the City. Which, I think to their credit and to our credit really didn't result in much change. (I. Smith, personal communication, January 26, 2010)*

Mark Holland describes how the Engineering department influenced the re-writing of some of the content of the Policy Statement and deferred some actions for future work:

*We had one scare right at the end, the engineer that was on our technical team, representing Engineering just kept nodding going yup, ok. Over two years we 'd built the plans, the visions and we had strategies and all kinds of things in the policy statement and he went to his boss and said, when am I supposed to start pushing back on these guys? And she just, "what have you been doing all this time?" So she sat down with him and said, well we can't do that, we don't know*
that, you don’t know the answer to that...she wasn’t against it, she just said we can’t commit to that. Trust me; you don’t want to commit to that yet. So there was this last minute circle, I mean it was last minute, we were in the last few months at the time, and we circled back and all the stuff we said we’d committed to in green buildings and a few other infrastructure areas we had to step one back, and the list of things we said we were going to do just became a list of things we agreed to address in subsequent studies and work. (M. Holland, personal communication, July 22, 2010)

J. Moore (personal communication, December 2, 2010):

If you read the book that Sebastian’s group [Sheltair Scientific Ltd.] produced, most of those targets aren’t in the Policy Statement. That’s not to detract from the Policy Statement, but I know that the Advisory Group wanted those metrics to be in the Policy Statement. Those metrics came out as the policy was nearing completion. So there was a sense of disappointment that a lot of those hard metrics were not carried forward in the policy.

John Irwin (2004), a member of the Southeast False Creek Advisory Group and Chair of the Southeast False Creek Working Group, argues that some powerful actors were missing from the Southeast False Creek Advisory Group. No Council member participated; City administration was represented by Planners; and economic power, according to Irwin, was represented through the development consultant (2004:174). Irwin identifies the lack of participation by these groups one of the largest shortcomings of the first phase of the planning process. The inference to be drawn is that greater progress might have been made with the involvement of City Council and Senior City Management.

4.3.4 Performance Targets Appended

When the Policy Statement was adopted in 1999, it did not include the performance targets developed by Sheltair Scientific Ltd. as part of the policy itself; instead the targets were appended to the document for future reference. Sheltair and members of the Advisory Group were proponents of including performance targets as a way to hold planners and politicians
accountable for pursuing advanced performance on the site (J. Moore, personal communication, December 2, 2010; I. Hood, personal communication, July 5, 2010).

An excerpt from the Sheltair report stresses the need for targets:

*If the City of Vancouver can establish clear targets for the new neighbourhood, it then becomes possible for people to focus effectively on finding the best way to achieve those targets. The better we set our sights now, the easier it will become for everyone to focus their personal efforts and contribute to making Southeast False Creek an outstanding example of sustainable urban development.* (The Sheltair Group Inc. 1998:5)

Several actors offered thoughts on why the targets were not included, ranging from practical concerns over implementation to political reticence.

Innes Hood of Sheltair (personal communication, July 5, 2010) recalls being surprised that more of the *Visions, Tools and Targets* document was not included in the Policy Statement. He also suggests that some actors, such as the Director of Real Estate Services did not want to be bound by targets that could impact economic return on investment; that engineering and other City departments raised concerns about changing existing standards; and that Sheltair’s recommendations may have been viewed as less than robust:

*The whole process was so extremely political and there was a number of detractors within the City who I think wanted as much wiggle room as they could get. I think a case in point was the Real Estate Division at the City of Vancouver who just wanted to sell this at the highest price possible...*

*I recall that there were just some issues that departments within the City of Vancouver were totally unsupportive of because they would be contravening department by-laws or constraining the ability to get the highest purchase price. I seem to recall a meeting where some of the Staff were completely opposed to alternative road rights of way because you couldn't drive two fire trucks going in the opposite direction at 60 miles an hour on such a narrow road. So there was a fair amount of entrenched, historic engineering standards that we were trying to*
change through that target setting process and I think it met with some opposition at the City of Vancouver.

I guess if I was 100% honest I think there was also the perception that we were a bunch of woolley-headed environmentalists who didn’t know how the real world worked and so they [City Staff and Management] couldn’t really fully endorse that set of targets until they'd been fully vetted by industry. And so we never gained their trust to the extent they were willing to accept our recommendations. I think that is an underlying challenge there too.

I suppose an additional reason why those targets became voluntary was that there was a strong and vocal minority of environmentalists who were really pushing for this to be a wholly sustainable community on one side, and then you had business-minded individuals who wanted to make as much money as possible on the other side. So I can see how not adopting the targets in the document itself said the right things at some level without committing the City to something that they perceived to be folly.

The City is curious in that we did not have any knowledge of how the final development plan would look and there were a lot of surprises; I seem to recall that they didn't really use our Vision Tools and Targets document to its fullest extent. They kind of took some parts and then just discarded the rest.

Former Senior Planner Ian Smith (personal communication, January 26, 2010) also recollects a desire on the part of the City, including planners, to postpone target setting until further, more detailed studies could be completed.

The Policy Statement opened so many doors, and we didn't really know where that was eventually going to lead us. We wanted to do more detailed planning... an energy plan, a water and waste management plan, an urban agriculture plan... before we really started committing to targets because they might be too stringent or they might be too lax. We thought that it would be much better if we were going to adopt those to do it later on in the process when we had more information and detail.
Mark Holland, the assistant planner who developed the first sustainability brief for the City in 1996, recalls that he was the one to suggest targets should be kept out of the Policy Statement. It was his experience that tremendous effort was expended just to keep the concepts of sustainability alive in the document; he feared that pushing for untested targets with the Director of Real Estate and with City departments like Engineering could have jeopardized the green agenda altogether.

Targets presume a level of accountability that will only be adopted by organizations when they understand the implications of meeting the targets. And we had no idea what the implications were for any of the targets and as such we so many times in those early years we lost minor battles to win the war. As much as we wanted to drive forward it was all of our Spidey senses of us in the Planning core team and I was advising them saying, "Oh, don't push that' because I can't tell you what's involved and even if I could, Real Estate won't believe ME and nobody knows... we've got to win this whole Policy Statement first before we actually derail, because it was so fragile so much of the time that any one thing out of line could derail the whole project. So we didn't drive the targets home. Today in my practice I push people for targets a lot more but then it was the right thing to do not to push them. We in the Policy process were not able to match that level of commitment as we worked through the challenges of getting this policy vision approved, meeting after meeting, piece by piece continuing to lay ground and hold ground on it.

...So I was the one kind of going, keep it there, target for reference but don't adopt it...Not like BedZed34 or some of the other things that were going on at the same time that set these big, sustainability targets and then did their damndest to meet them. No, that was not so much what happened here. (M. Holland, personal communication, July 22, 2010)

34 Beddington Zero is a development project in the United Kingdom that established per capita ecological footprint reduction targets and CO₂ emissions reduction targets for its future residents. The project targets are monitored and publicly reported with information about how targets have been met, and on factors that have contributed to underperformance.
Former Co-Director of Planning Larry Beasley concurs there was no appetite at the City for adopting targets that had unknown consequences economically or otherwise.

*It was a very deliberate thing and the reason was that when you determine targets, no one wants to put that into public policy as a target until they are pretty sure how much it is going to cost; is it technically possible? No one wants to later say, I adopted a policy that costs too much or is impossible. “*(L. Beasley, personal communication, August 24, 2010)

A sustainability consultant on the Southeast False Creek project reports that political discomfort with target setting is common, and while there is a political risk in failing to meet targets, setting them leads to clarity of objectives and sometimes to increased creativity in problem solving to meet targets.

*I've seen that hesitancy in a lot of projects, to establish targets especially in a political, in a very high profile area. If you fail to meet those targets then there's fall-out ...And this was an early project so there is lots of risk that you are not going to meet that target.

...And yet, in the integrated design world, that's the first thing you want to do. Set a target. You say these are the goals of this project and they need metrics attached to them. That's what we would do in our own building projects. And sometimes you fail to meet those targets... [Without targets] you wouldn't dig deep enough to say, this is actually what is important to us, energy reduction or a local food system is important to us, where you might establish that goal or target. So it's getting clarity about what's really important and then actually you risk not meeting that target if you don't set it... sometimes you actually exceed your target because you are very clear that this is where you want to go and you have to get creative... and maybe the solution you come up with is way better than you could have ever imagined; it's not like that happens all the time, but sometimes you do end up far exceeding your target or creating something new and innovative that you wouldn't have created without that target so I think it can fuel innovation...You know, if you just get in your car and say I'm going for a drive
versus I'm going to Hope\textsuperscript{35} today, then the results will be different. I'm an advocate for targets for sure. (CNSLT 1)

Sebastian Moffatt of Sheltair Scientific Ltd. reflects that Council members should have been part of the visioning process for Southeast False Creek so they too would have been personally invested in the goals and outcomes of the project.

Where we failed in the visioning process was getting much more explicit buy in and commitment from everybody involved around those targets. It went in as a report to be ok'd and accepted but it should have been a much more interactive process with the decision-makers where they really signed in blood because when their feet get held to the fire they back up...so I would have had to go to much more trouble than I had the capacity to do at that time to create a strength of community support for the targets that would have forced the Council to stick with them. We needed to do a workshop with them and I guess what I would call eco-fluency has been a perpetual problem because councils change so quickly and a lot of them are fighting it. That eco-fluency is not in the mandates; it's not in the budgets; establishing fluency with the basics with the leaders takes some time, but you never get that time...People don't realize how much time it takes and how incredibly exhausting it is and so if we'd done a proper job on Southeast False Creek it would have taken vast amounts more money and capacity. (S. Moffatt, personal communication, July 20, 2010)

Moffatt’s observations suggest that greater engagement of City department managers and other bureaucrats with the sustainability process might have reduced initial bureaucratic resistance to the draft Policy Statement. This perspective on the value of process for establishing stakeholder commitment to goals and targets is reflected in literature on local implementation of sustainability policy tools such as sustainability indicators. Researchers have argued that successful implementation requires thorough involvement of local stakeholders in the development of a consensual working definition of sustainability, sustainability goals, and the indicators that will be used to measure progress (Innes and Booher, 2000). The concept must become integrated as part of the cultural norm of local

\textsuperscript{35} Hope is the name of a town 150 km outside of Vancouver.
institutions through workshops, conferences and other engagement (Rydin et al., 2003). Rydin et al. (2003) argue that the process of developing the concept and indicators is more important to the success of implementation than the exact nature of the indicators themselves. Stakeholders who have been engaged accept the importance of the goals and commit to their implementation.

The interviewees’ comments on why targets were not included in the Southeast False Creek Policy Statement present a central challenge to target setting: local politicians and bureaucracies resist committing to performance targets whose financial and technical costs are not fully known or quantified. In the case of cutting edge planning work where few precedents exist, it is not possible to determine the financial costs of target achievement. The inference from the interviewee data is that if political will to adopt untested targets cannot be achieved, then pioneering projects will not include performance targets. The City of Vancouver did have experience with adopting untested targets: for example, in 1995, Vancouver was one of only a handful of municipalities to commit, in principle, to a 20% reduction in greenhouse gas emissions even though the route to achieving such a goal was entirely unclear (J. Moore, personal communication, December 2, 2010). This set Vancouver on a leadership path and added to its progressive reputation nationally, but also internally. City reports commonly reference this early commitment when recounting Vancouver’s leadership on climate change issues (for example, City of Vancouver, 2007a).

The interviewee data also reinforces the theme that development of sustainability policy and principles for Southeast False Creek faced exceptional challenges because sustainability was a new pursuit for planning in Vancouver in the late 1990s. Experienced local planners and consultants had limited knowledge of sustainable development concepts and principles. Mark Holland, Sebastian Moffatt, Innes Hood, and the sustainability consultant quoted above were all recent university graduates starting their careers at the time of the Southeast False Creek project. They were learning about sustainability planning and how to move it through the civic bureaucracy. In the interview excerpts above, each of the interviewees stated that in their professional practice today, they advocate target setting. Their lack of experience, including the pioneering nature of the concept may have contributed to targets not being adopted in policy. One of the Sheltair consultants, when asked who was championing the project within the City replied: Well I think that Mark Holland was certainly trying to do that but he was so
junior.

The comment implies that a more senior, strategically experienced Staff member might have been able to promote more far-reaching progress. Moffatt identifies impacts of his professional limitations in developing eco-fluency among stakeholders at the time of the Southeast False Creek visioning:

We would have had to know how to do that back then; how to create at each level, the community, mid-management and senior political level, the level of comfort and commitment required to actually do what we were talking about. (S. Moffatt, personal communication, July 20, 2010)

The ability to influence discourse and decision-making within the City is viewed by interviewees as something that individuals can establish over time. Former Co-Director of Planning Larry Beasley, in discussing a later event in the planning process refers to consolidating and increasing his own power in the City bureaucracy.

I was consolidating my own power in those years so I was able to do more in those years than I had been able to do before in the City; just as a broker, an influential broker in the City.

He also asserts that the political skills of individuals are more important than an individual’s position in a bureaucracy:

In any bureaucracy I can tell you it’s the prowess of the individual not the power of the position. You can find seemingly powerful positions where the individual has not got the prowess, and they are somewhat marginalized by others who would seem to hold lower positions but who do have the prowess. They know how to work the system. (L. Beasley, personal communication, August 24, 2010).

Some interviewees concurred with both of Beasley’s assertions, and in fact use Beasley as the example:

He [Beasley] had ways of influencing a process by using whatever means were available to him and if there were things he didn’t like, I would see him take them to a Major Projects Steering Committee and he would raise issues there that
weren’t really his to raise. But people let him because he just did what he wanted to do with such confidence that no one would question it. (Former Southeast False Creek Project Engineer, Robin Petri, personal communication, July 21, 2010)

So when the departments were jostling with each other it was an interesting jostle because they were all very powerful but they didn’t have power over each other and they all knew that. So it was a real chess game that was going on between equals. And that’s why I really take my hat off to Larry Beasley because this thing would not have become what it was without his commitment to the chess game and to win it. If at any point he’d stepped aside, stepped back on the pressure...

(CITY 2)

While it cannot be determined from the research data, it is possible that if the more experienced planners or senior City bureaucrats had taken up the cause of target inclusion, targets might have been adopted in the Policy Statement.

As part of the investigation of the influence of individual actors and their approaches to sustainability in development of the Policy Statement, it is worth observing the moderating influence on-going bureaucratic experience had on planning intern turned assistant planner, Mark Holland. Holland (personal communication, July 22, 2010) describes ‘maturing as a young planner’ and how that influenced the positions he would take on policy proposals:

I was learning the realities of what could and couldn’t be done; of who was actually going to end up paying for ideas and what the unintended consequences were. I was maturing as a young planner and so I mellowed a lot and was able to let go of some of the radical proposals. I didn’t have to hold onto radical ideas and positions as much and I could find a middle ground with them and those I worked with. It was an educational experience for all involved.

In this interview excerpt Holland identifies a disconnect between what he and others could envision for the future and what was deemed immediately achievable by bureaucrats, politicians and developers in terms of existing planning, development and financing systems.

He describes his general role in the project as one of mediator in the effort to achieve policy that would be acceptable to the sustainability advocates and city bureaucracy when it went
before Council:

*I had to play, as a young guy, this management role where I had to help pull my City colleagues forward, inspire them, and be an insider with the radicals but then at the same time I had to constantly manage the radicals’ expectations so that it didn’t become a problem later. In the end we had to take something to Council that people would speak in favour of.* (M. Holland, personal communication, July 22, 2010)

Holland’s recollection of his transformation from supporter and promoter of ‘radical’ positions on ecological sustainability to pursuing a middle ground speaks to the challenge for the activist working for change from within the civic bureaucracy\(^\text{36}\) (Clavel, 1986; Krumholz and Forester, 1990). Holland finds he was most effective once he “let go of some of the stakes way out there,” and he believes that moderation was necessary to keep the central goal of sustainability alive in the project. If Holland’s interpretation of his role is accurate, it highlights the importance of having change agents within the civic bureaucracy. Without a planner who was personally committed and had some knowledge of sustainability advocating for ecological sustainability, would even the middle ground positions have been sacrificed in bureaucratic negotiations? The former Co-Director of Planning discussed the danger that innovative policy goals can be eroded at the implementation stage of a planning process:

*For example, when you look at Battery Park in New York, they’ll tell you they lost a lot of their more forward policy initiatives when it came down to implementation because the crusty old implementers just talked everyone out of it; usually by raising concerns over money and safety.* (L. Beasley, personal communication, August 24, 2010)

One of the Sheltair consultants recalls that former Senior Planner Ian Smith seemed to have a different role from Holland’s, as a supporter, but not necessarily an activist voice for sustainability within the City:

*Ian Smith was supportive at some level but he still needed to work in the City from*

\(^{36}\) Holland can be viewed as an example of the kind of planner identified in Clavel (1990): one who chooses deliberately to work for a progressive leader.
within their organization so I think he was constrained in his ability to be an advocate for what we were doing. (I. Hood, personal interview, July 5, 2010)

Insider and sustainability advocate Mark Holland left the City shortly after the Southeast False Creek Policy Statement was adopted. He established his own sustainability-oriented planning consultancy. Ian Smith remained on the Southeast False Creek project for thirteen years until his retirement in 2010, eventually serving as the Manager of Development at the City’s Southeast False Creek Project Office.

4.4 A Model of Sustainable Practices or Economically Viable Practices?

As I have detailed in this chapter, throughout the Southeast False Creek planning process from 1995 onward, sustainability was a concept being investigated and interpreted by City planners, project consultants, and Advisory Group members, and slowly being integrated within the City bureaucracy. Perspectives on how sustainability should be implemented in Southeast False Creek specifically were also evolving. The idea that Southeast False Creek should model sustainable practices that could be replicated throughout the city was easily accepted by most actors who were directly involved in the planning (J. Moore, personal communication, December 2, 2010; L. Beasley, personal communication, August 24, 2010; M. Holland, personal communication, July 22, 2010; B. Maitland, personal communication, May 7, 2010). The hope was that sustainable practices would proliferate throughout the city and be replicated by private developers (City of Vancouver, 2007). The dominant perspective within the City was of sustainability as a set of strategies, mainly technical and physical, to be accommodated within existing social, political and economic systems. A difference in views did arise among City actors around the issue of economic replicability. Some believed the City should fund innovations in sustainability practices and others believed the project’s strategies had to be economically viable without subsidy. The latter view maps most stringently to a perspective of sustainability as a technical, physical fix to environmental problems which are linked to, but external to human society and economics. Not only should sustainability strategies be pursued within existing socio-economic structures and market
conditions, but they must not impact standard, anticipated levels of financial profit. The Director of Real Estate Services, Bruce Maitland was a proponent of the latter view that the project should be replicable by the private sector, under existing market conditions:

"The whole thing about this exercise was to take all this stuff and take it across the city. I had a lot of arguments with some of the more ecologically minded people because I said demonstrating something which is not economic doesn't get us anywhere. We can throw money at this and come up with something that's really wild but we can't replicate this because we haven't demonstrated." (B. Maitland, personal communication, May 7, 2010)

Ian Smith endorsed the view that economic viability would be critical for achieving private market up-take of sustainability oriented development.

"And to the extent that we actually make this thing work economically, which has been a challenge with the recession and everything else, then it is something that will be embraced by the private sector and by the development community. If all it is, is an exercise in how government can cost things differently and subsidize things differently, then it's not very effective in terms of turning the market." (I. Smith, personal communication, January 26, 2010)

Former Co-Director of Planning Larry Beasley offered a different perspective on how the market might be encouraged to replicate Southeast False Creek innovations. His focus is on the consumer rather than the private developer, but still reveals a view of sustainability as operating within market parameters.

"A lot of people felt it couldn't be sustainable unless it was absolutely replicable. I think that's asking a lot in the evolution of a new way of doing things. To me, whether it could be replicated was simply not all that important...

... if it's done well, which is why it had to be done well, the public will demand it. So I think whether it makes money or not, it might lose a fortune for the City, the next one we do is going to have all these same features cause the consumer is...

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37 This view was made clear by the City manager in several reports to Council that argued against City subsidies on the basis of market reactions, in particular, credit rating agencies (CoV, 1995; CoV 1996)
going to say I’m not living in a community if you don’t do that. And then the next one, and the next one, and the next one. So replicability from the point of view of an economic theme didn’t matter to me but modeling mattered to me a lot.

In the ultimate I knew that it didn't have to maximize profit. I knew it had to be economic but you know economic is this, this or this... To me, you do a new thing and the first time it isn't necessarily replicable but it is inspirational enough that the second time it is, or the third time or the fourth time. (L. Beasley, personal communication, August 24, 2010)

Former Council member Gordon Price described advantages the City has over private developers that make it possible for the City to be innovative while still modeling practices for private developers:

The City can do things because it isn’t bound by the same constraints as the private sector. The City doesn't have to have a return on investment of the same order; its economic pro formas doesn't have to be dictated by the cost of borrowing money. It doesn't have to complete the project on the time frame that a private developer might have to meet... it can be exceptional, but it has to do something that will still be quote, practical, in the real world, or replicable by the private sector. (G. Price, personal communication, September 10, 2010)

Former Co-Director of Planning for the City of Vancouver, Ann McAfee, offered a similar perspective in her recollection of how City planners approached sustainability for Southeast False Creek. She added that the City can test a range of strategies to discover what can be prescribed for the private sector.

Our notion was much like South False Creek: the City could illustrate something that works and then we could as a City require the development community to do some of these things because we had tested them and knew what was feasible and what wasn’t. (A. McAfee, personal communication, September 22, 2010)

The descriptions by McAfee, Price and Beasley reflect Beasley’s earlier assertion that City planners and successive Councils had a history of being at the cutting edge of city building. Their comments signify a belief in a local culture of experimentation and innovation, made
easier to sustain because of the Vancouver Charter, which provides increased power to the local government.

The goal of replicability in Southeast False Creek had a different connotation for Advisory Group member Jennie Moore. She recalls that although replicability seemed like a sensible goal, the requirement for economic feasibility was a factor in the exclusion of some performance metrics from the Policy Statement.

*I don’t think that people felt entirely against replicability having had a history of one-off demonstrations that never got replicated. One of the criteria was to create something that could be a model for the rest of the city so really it was to serve as a catalyst for change. I definitely recall that it had to be cost effective because it would not be replicable if it wasn’t. So a lot of the sustainability metrics which were considered too big of a stretch came out of the Policy Statement on the basis of those arguments.* (J. Moore, personal communication, December 2, 2010)

Mark Holland was the City Planning Assistant who, along with Senior Planner Ian Smith, worked with the Advisory Group through the development of the Policy Statement, and who ultimately wrote the first document drafts. Holland recalls that the concept of replicability was helpful in navigating the Policy Statement through the various stakeholders.

*We all used it partly to put the brakes on the radical energy that was moving around the project all of the time. Not because we didn’t want it to be radical but because, ‘it has to be replicable’ rang true with everyone because replicable meant common sense to the pragmatic stakeholders and replicable meant we could do it everywhere. For the radicals replicability was seen as good because then we’d get more of them [sustainable projects].* (M. Holland, personal communication, July 22, 2010)

As identified in the first section of this chapter, the guiding principle for Southeast False Creek, *Economic Viability and Vitality*, reflected the Real Estate Manager’s view on the need for a project that could be achieved without subsidy.
3) Economic Viability and Vitality- Development in Southeast False Creek should ensure economic viability without subsidy so the knowledge gained will be relevant to other development projects. (City of Vancouver, 1999:5)

The Southeast False Creek Advisory Group had prepared different wording for the principle of Economic Viability and Vitality in their original set of ten guiding principles for Southeast False Creek:

3) Economic Viability and Vitality - Seek ways to achieve economic viability in developing Southeast False Creek so that knowledge gained can be transferred to other developments (1999:80).

To seek ways to achieve economic viability is different than to ensure economic viability without subsidy (1999:5). The former leaves open the possibility for experimentation and innovation that may or may not require subsidy. It also implies that there may be priorities equal to or greater than replicability within current market practices. The latter version implies that knowledge cannot be transferred from subsidized to market projects, a view that precludes the kind of experimentation and testing required of innovation. It also excludes the possibility that a novel form of subsidy could be developed for the private sector in future developments to promote desired outcomes. A principle that restricts project economics to existing market logic and market tested strategies seems incongruous with a goal of leading edge planning and achieving the highest possible levels of social equity, livability, ecological health and economic prosperity (City of Vancouver, 1999: 7).

The final wording of the principle of Economic Viability and Vitality may have been the outcome of the bureaucratic negotiations around the Policy Statement described earlier by Holland and Smith. It likely also resonated with fiscal conservatives on the Non Partisan Association dominated City Council; this was the municipal party that had overseen the development of False Creek North and steady increases in the value of the Property Endowment Fund since its inception in the early 1970s. In a Senior Staff report to City Council recommending adoption of the Southeast False Creek Policy Statement, the authors take pains to highlight the economic viability of the sustainability plans:
Staff Technical Analysis

The Policy Statement has been scrutinized in detail by technical staff from all departments to ensure its recommendations are economically and technically realistic and consistent with other successful neighbourhood development policy. There has also been careful analysis of how sustainability-oriented infrastructure initiatives fit with existing City infrastructure arrangements and programs. The proposed policies have been determined by all City Departments to be compatible with City programs and financially viable in all respects. (City of Vancouver, 1999a)

The authors outline economic considerations of current and future land values for the development, and of using a system of full cost accounting to identify potential economic advantages of sustainability initiatives:

The Economic Analysis

It is important to note that while we are taking a step forward in Southeast False Creek toward making the city more sustainable, a close eye has been kept on the realities of development, both short and long term, to ensure the economic viability of Southeast False Creek. This analysis has indicated that initiatives undertaken with sustainability objectives in mind may have little effect on the economic viability of the project, if the developers and the public are prepared to pay more for sustainability features in the short run, for long term economic and environmental gain.

The primary economic issue in Southeast False Creek is land value within the current market. In today's depressed real estate market the project is not economical, as the total infrastructure costs (including rezoning), when deducted from the land sales, result in a value less than the present zoned land value. With the projected increase in land values, the return on the large infrastructure costs are still minimal relative to the risk (cost) involved. Environmental costs (soils) have not been factored into the analysis as they are the landowner's responsibility, whether the development proceeds or not.
Nevertheless, it is economically prudent to proceed to the next step in the planning process, to ensure an expedient response to future market conditions. The expectation would be not to market the site until market conditions are optimal. There may also be alternative sources of funds, in and beyond the City, identifiable during development planning, for any extra costs associated with sustainability measures. Moreover, we can likely generate mechanisms to capture further cost savings from environmental efficiencies through full cost accounting. All such measures will contribute to the project’s economic viability. (City of Vancouver, 1999a)

Despite the wording of the economic viability principle for Southeast False Creek, interviewees from the City and Real Estate Services agreed that over the course of project development, Southeast False Creek did receive subsidies for some of its sustainability efforts, including the Net Zero seniors’ building, the LEED Platinum rated community centre, and development of the District Energy Utility (B. Maitland, personal communication, May 7, 2010; I. Smith, personal communication, January 26, 2010; L. Beasley, personal communication, August 24, 2010). It seems that the individuals pursuing leading edge city building were also shrewd bureaucratic negotiators.

When the numbers hit the ground, we knew that politically, if they didn't quite work, we could bring huge constituencies in. To transform the idea of just a market based profit venture into a model project that the City would invest in was not a hard political transformation. And secondly because it was City land, investing civic money into City land was pretty attractive to most citizens. (L. Beasley, personal communication, August 24, 2010)
4.5. Summary and Discussion

In the first part of this chapter I identified and discussed the theoretical approaches to sustainability embedded in the Policy Statement. I found that both the transformative and status quo-reform approaches to sustainability were present in the Policy Statement. The transformative view is reflected in the broader conceptual parts of the document that define sustainability and sustainable neighbourhoods. In these statements, the development of a model sustainable community is understood to be a response to global ecological concerns, resource throughput concerns and issues of equitable access to resources. The balanced components model associated with the status quo – reform approach is invoked in the specific, grounded, principles and vision that were meant to guide development in Southeast False Creek. According to these principles and the vision, components of ecological, social, economic health and livability are to be pursued simultaneously, and as dictated by the 3rd guiding principle, without financial subsidy.

Through document and interview analysis I have found that, although the Policy Statement includes two incompatible theoretical approaches to sustainability, key actors in the planning process adopted the balanced components model. These actors included senior City Staff, such as the Co-Director of Planning and the Director of Real Estate Services.

People who had knowledge of and promoted a holistic view of sustainability were among the consultants to the City, Southeast False Creek Advisory Group and local sustainability community who attended public meetings. It is their approach that is reflected in the definitions and concepts of sustainability that recognize the limits to global biophysical resources and that identify a role for cities in responding to global ecological challenges through sustainability-oriented planning.

I have determined that the various perspectives of planning actors reflected and were influenced by three contextual factors: the nascent state of urban sustainability planning in North America in the mid-1990s; the local experience of Vancouver planners and policy makers with downtown development in the 1980s and early 90s; and the fact that most of the land in Southeast False Creek was owned by the City.

Through interview and document analysis, I have shown that key actors within the City like
the Co-Director of Planning and the Director of Real Estate Services had little knowledge of sustainability when the project started; their perspectives on how Southeast False Creek should develop were based on their experiences with previous downtown Vancouver development projects. As a result, the initial planning process for Southeast False Creek did not incorporate sustainability in a robust way. I argue that specific individuals, in particular Co-Director of Planning, Larry Beasley, played an important role in initiating learning about sustainability within the City. Beasley hired a student intern who had an ecological sustainability background to develop an initial sustainability framework for Southeast False Creek; he furthered his own knowledge through breakfast meetings with people in his local networks. The research data also shows that pressure from the local sustainability community was central to City Council’s decision to move beyond the sustainability parameters of Stanley Kwok’s *Creekside Landing* report, endorsed by the Property Endowment Fund to pursue a more thorough and innovative investigation of sustainability and greater public participation in the process.

Another finding from this chapter is that central planning actors did not agree on how the ‘model’ aspect of Southeast False Creek should function: either as a model of practices that could be adopted directly by the private sector because the practices were economically viable within existing industry and market conditions, or a model of demonstration and pilot projects to inspire emulation and spur market demand while also identifying appropriate new regulations for private development. The official Policy Statement principle for economic viability and vitality endorses the former view.

Although appended for reference, performance metrics prepared by Sheltair Scientific Ltd. and endorsed by the Southeast False Creek Advisory Group were not adopted as policy. In part this was due to resistance from City Departments that had not been involved or had chosen not to participate in the development of the goals and targets. In addition, interviewees expressed a common view that politicians are unwilling to adopt untested targets for fear of political repercussions should the targets prove unmanageable. As suggested by interviewees in this chapter, gaining commitment to targets from a wide range of stakeholders including community, bureaucracy and elected officials could provide an antidote to political reticence toward ambitious targets. Stakeholders who are fully engaged in the process of target development may be more likely to commit to those targets; participate in the pursuit of
those targets; and possibly accept that legitimate challenges may arise that are beyond the capacity of locally elected officials to mediate. In this way, adopting ambitious targets could be less of a political risk.

As a researcher with a bias toward sustainability as an ecologically determined condition, I argue that a sustainable community can only be achieved if its impact upon global ecological conditions is monitored. Measures like the ecological footprint and a consumption based inventory of carbon emissions are currently available metrics; they were novel but available at the time targets were being developed for Southeast False Creek. Although sustainability consultants to the City were proponents of such measures, they did not have the experience, the access to precedents or the Council directive to establish over-arching ecological targets. This finding speaks to two challenges for urban sustainability planning that likely applies to implementation of any new planning concept in a civic bureaucracy: cities commonly rely on precedent examples from other cities or jurisdictions when developing and implementing new policy (I. Smith, personal communication, January 26, 2010; J. Moore, personal communication, December 2, 2010; Bulkeley, 2006), and pioneering projects always lack precedents. Where precedents are lacking, local bureaucracies and elected officials charged with prudent use of public funds may be hesitant to embrace relatively untested standards, methods and measures. The second challenge for innovative planning and policy is the incongruity of timelines between those required for research and development of theory, methods and strategies for new policy directions and the timeline within which planning actors must work. The first can require years while the latter is compressed to meet local political and budget cycles (While et al., 2004) (in Vancouver municipal elections are held every three years). The sustainability consultants who wrote the Visions Tools and Target report (Sheltair Group Inc. 1998) for the City could not engage City Council members in the way they believed might have achieved deep commitment to and understanding of sustainability, largely due to a lack of time and resources. Likewise, for sustainability targets: the Sheltair report was prepared within a little over six months. More time would have allowed the consultants to conduct more research, research which was particularly time consuming in the mid 1990s at the dawn of the internet era. With extra time, they might have been able to arrive at targets that had been more thoroughly investigated and vetted, and possibly modelled financially.
In the case of developing the Policy Statement for Southeast False Creek, I find that individual actors had significant roles to play in navigating the norms of the civic bureaucracy and local government (for example, Planning Intern/Planner Mark Holland, Co-Director of Planning Larry Beasley, and former Senior Planner, Ian Smith).

In this chapter I have identified the sustainability perspectives of actors who were central to the planning process that culminated in the development of the Policy Statement (1999) for Southeast False Creek. It is clear from policy reports, documents and interviewee accounts that senior bureaucratic actors within the City of Vancouver did not take an ecologically centred approach to sustainability for Southeast False Creek; instead they approached the project as a means to either repeat or improve incrementally upon previous downtown development projects. In Chapter Five I examine the City’s efforts to add the environmental component of sustainability to Southeast False Creek. I provide an analysis of five environmental reports prepared for the City and demonstrate that they included some transformation-oriented approaches to sustainability. In Chapter Five I also describe and analyse the City’s process for developing a green building strategy for Southeast False Creek.
CHAPTER 5

The Official Development Plan: Adding an Environmental ‘Layer’:

In Chapter 4 I showed that sustainability planning was a new concept at the City of Vancouver when the planning for Southeast False Creek began. I then demonstrated that the three components approach to sustainability was adopted by key City actors during the Policy Statement stage of planning. In Chapter 5 I continue the planning narrative to demonstrate how specific individuals contributed their sustainability perspectives to the Official Development Plan process. In particular, I analyse the sustainability approaches promoted in a series of environmental plans commissioned by the City and I examine the City’s process for developing a green building strategy.

Analysis of five environmental plans prepared for Southeast False Creek shows that some local consultants conceived of sustainability from a transformative perspective. In their environmental plans, they included concepts and strategies aimed toward living within global biophysical means. Examination of how City Staff developed the Southeast False Creek Green Building Strategy reveals the challenges to City Staff and decision-makers in promoting any approach to sustainability with the development industry. It also reveals why a non-performance based rating system (Leadership in Energy and Environmental Design) was selected as the foundation for the Strategy.

5.1 Sustainability: Adding the Environmental ‘Layer’ in Southeast False Creek

The Southeast False Creek Policy Statement was adopted in October, 1999. The next phase of planning was the creation of an Official Development Plan (ODP). An Official Development Plan translates the principles and policies of the Policy Statement into details of parcel configuration, location of parks, site densities and massing, public amenities, and road rights of way. These provisions are enacted as Official Development Plan by-laws. For Southeast False Creek, developing the ODP spanned the years 2000 to 2005. Throughout these five years the sustainability approach of central City actors continued to guide the
process. Some of these actors, for example the Co-Director of Planning and the Director of Real Estate Services held the view that Vancouver had modeled the social and economic components of sustainability in previous downtown development projects like Coal Harbour and North False Creek. The main task in planning Southeast False Creek from their view was to add the third component, environmental performance. In the first years of the Official Development Plan process, Real Estate Services and the City Planning Department struggled to accommodate somewhat divergent views on how the environmental component should be conceived and implemented. Real Estate Services resisted regulations or innovations that could impact the PEF’s mandate to achieve reasonable financial returns on City property deals, while the Planning Department was more concerned with achieving improved environmental performance.

In February of 2000 the Director of Real Estate Services applied to the City on behalf of the Property Endowment Fund for approval to begin the Official Development Plan process. The ODP process involved negotiations between the Client (the City’s Property Endowment Fund) and their development consultants on one side and a team of City staff comprised of planners, engineers, and representatives from Parks and Housing as regulators, on the other. First steps in the process included reconvening the Southeast False Creek Advisory Group as the Southeast False Creek Stewardship Group as per Council direction; post-occupancy surveys of recent downtown development projects to ascertain successes and challenges; a ‘White paper” on community amenities for Southeast False Creek and adjacent neighbourhoods; initial investigation of a green building strategy; a basic site plan (location of roads, park and development sites as well as distribution of building massing and heights); and commissioning of environmental studies for the project (City of Vancouver, 2001).

5.1.1 Five Environmental Plans for Southeast False Creek

In 2001 the City commissioned four environmental reports to inform the evolving ODP. The report authors were tasked with developing plans for water and waste management, energy use, air quality, and urban agriculture in Southeast False Creek. Funding for the waste and water plans was requested in a report to Council in mid-2001 (City of Vancouver, 2001). The
report compared the Southeast False Creek ODP to ODPs of previous downtown projects identifying its unique requirement for environmental plans.

_This ODP goes further than previous ODPs in False Creek North and Coal Harbour in embracing environmental sustainability. As a result, as part of its preparation, the adopted Policy Statement requires that various plans inform the process. These include, Waste and Water Management Plans; an Urban Agriculture Plan; an Energy Plan; and an Air Quality Plan._ (City of Vancouver, 2001)

Coordination of the plans would be carried out by the Planning Department, and several City departments would be involved in their development. Once the environmental plans were completed they would be integrated with the structure and massing which had been determined for the site, and shortly thereafter submission of an ODP could be anticipated (City of Vancouver, 2001).

I include excerpts from the request for proposals (RFP) for these environmental plans to reveal the kind of information the City deemed necessary for pursuit of environmental sustainability. The RFP requests full cost accounting and consideration of neighbourhood life cycle. Both of these strategies are important from a global ecological perspective on sustainability; their inclusion reveals a willingness by the City to innovate beyond conventional economic modeling. At the same time, consultants are encouraged to offer solutions that are ‘practical and affordable’. Of great significance from the standpoint of ecological sustainability is the failure of the RFP to require identification of sustainable levels of resources use or waste production. Without this requirement, plan authors were left to propose targets and strategies that improved performance over business as usual but not by any predetermined amount, and not as an increment toward future achievement of biophysically sustainable levels.

The request for proposals outlined general considerations for the plans. They were to be:

- Supportive of the objectives of creating a sustainable community by being visible and educational
- Innovative and responsive to new technologies
• Practical and affordable
• Reflective of how they would interact with each other, with other environmental plans and design responsibilities of the development (City of Vancouver, 2001).

More specific requirements included:

• Full cost accounting: the plans should apply to the full life of the development from construction to demolition and the years of operation and maintenance in between.

• Locally relevant precedents should be examined and presented (City of Vancouver, 2001).

The requirement for ‘practical and affordable’ strategies (requirements that are appropriate for a local government not responding to an impending ecological crisis) does not invite innovations that might require significant changes to existing systems of operation, and/or costs.

The following list of objectives was to be met by the waste management plan. The list illustrates the language used to determine the scale of resource use and waste reductions to be pursued.

• To plan for a significant reduction in the amount of solid waste generated in Southeast False Creek, during the entire life cycle of the neighbourhood.

• To divert as much of Southeast False Creek’s waste as possible from landfills or incinerators, into recycling and re-use systems.

• To divert from landfills as much demolition and construction waste as possible during redevelopment of Southeast False Creek.

• To minimize the amount of transportation needed to deal with solid waste and recyclable products from Southeast False Creek, and to maximize the local economic opportunities connected to dealing with Southeast False Creek.
Consultants were exhorted to achieve *significant* reduction in the amount of solid waste; divert from landfills *as much* demolition and construction waste *as possible*; and to *minimize* the amount of transportation. Nowhere were they instructed to identify sustainable levels of resource use and waste production.

The four environmental plans were presented to the City in November 2002. The studies were:


2. *Southeast False Creek Transportation Study*, by IBI Group in association with Ward Consulting Group, The Boulevard Group;


Each of the studies addressed relevant objectives from the Policy Statement; considered strategies for achieving those objectives; included examples of best practices from North America; and reviewed the environmental performance targets developed by Sheltair for the Policy Statement. The content of the consultants’ reports reveals both thorough investigation of existing local conditions and consideration of far-reaching, innovative opportunities for leadership in Southeast False Creek’s environmental performance. While the reports are largely grounded in market realities and available technologies, some teams indulged in a small measure of, as one interviewee described it, “blue sky thinking” about urban sustainability. The review of Sheltair targets and alternative target recommendations are presented in Table 5.1. A discussion of the sustainability framing of reports and some examples of “blue sky thinking” (which I identify as transformation-oriented strategies) follow.
Table 5.1 Proposed environmental performance targets for SeFC, 1998 and 2002

<table>
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<tbody>
<tr>
<td><strong>Solid Waste</strong></td>
<td>Max 200kg/person/year solid waste sent to disposal</td>
<td>150 kg/capita/year solid waste to be disposed</td>
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<tr>
<td></td>
<td>Max 80 kg/person/year organic waste produced by SeFC households; 100% organic waste processed within site</td>
<td>Optimum: 56 kg/cap/yr organic waste diverted from waste stream</td>
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<tr>
<td></td>
<td>No leaves or organic debris transported off site</td>
<td>Moderate: 88 kg/cap/yr organic waste diverted</td>
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<tr>
<td><strong>Transportation and Accessibility</strong></td>
<td>100% dwelling units within 350 m of basic shopping needs, personal services; 100% dwelling units located within 350 m of transit service</td>
<td>100% of streets designed to encourage walking, cycling and transit use above vehicle use</td>
</tr>
<tr>
<td></td>
<td>Min 60% street dedicated to walking, cycling and transit use</td>
<td>100% of streets designed to encourage walking, cycling and transit use above vehicle use</td>
</tr>
<tr>
<td><strong>Energy</strong></td>
<td>Multi unit residential: max 288 kilowatt hours per year/m² from non-renewable sources</td>
<td>Accept Sheltair target = 10-25% less energy than ASHRAE 90.1 (1999); achievable with small cost</td>
</tr>
<tr>
<td></td>
<td>Office max: 284 kilowatt hours/yr/m² floor area from non-renewable resources</td>
<td>Accept Sheltair target = 40-50% less energy than ASHRAE 90.1 (1999); achievable with current technologies and little incremental cost</td>
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<td></td>
<td>Minimum 5% energy consumption from renewable sources generated on site</td>
<td>Accept Sheltair target; most viable are ground source; ocean source heat pumps</td>
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<td></td>
<td>90% of all buildings connected to a district heating system</td>
<td>Sheltair target requires further study; alternative: district energy zone within the site based on target densities, mix of uses; proximity to other waste energy sources.</td>
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<tr>
<td></td>
<td>All buildings have a maximum peak electrical demand of 33 watts per m²</td>
<td>Sheltair target technically feasible; lack of useful benchmarks for evaluating this indicator. Meet target through creative</td>
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38 This target was expressed by the Sheltair Group Inc. in Visions Tools and Targets (1998) as 80 kg of organic waste per person per year produced and processed within the neighbourhood. The aim of the target was to reduce the amount of solid waste to the landfill and to create a local resource through composting (Sheltair Group Inc. 1998:67). It was not set to restrict the total amount of organic waste that would have been produced by residents of the site as implied by the target in Table 5.0. The wording of targets as they appear in the Policy Statement Appendix was the responsibility of City Planning Staff.
<table>
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<tbody>
<tr>
<td>Waste and Emissions</td>
<td>heat storage systems, automated load management technologies</td>
<td>Transportation Related Air Emissions</td>
</tr>
<tr>
<td></td>
<td>Residents travel no more than 3,392 km/yr for daily shopping and commuting</td>
<td>Strategies proposed to increase non-auto mode share; modeled outcome: 38% trips auto; 43% transit; 3% marine (ferry); 6% bike; 9% walk</td>
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<tr>
<td></td>
<td>Max 1498 kg/year CO\textsubscript{2} emitted from transportation-related activity in Southeast False Creek</td>
<td>Water</td>
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<td></td>
<td>Maximum 100 litres of potable water consumed per person per day</td>
<td>Current best practices for water fixtures plus sub-metering – would reduce water use to 167 l/c/d. Approx. 50% below Greater Vancouver Regional District 2001 Aggressive target: 43% effective impervious area (EIA) Moderate: 23% EIA</td>
</tr>
<tr>
<td></td>
<td>Maximum 54% of site covered in impervious material</td>
<td>Treat in a centralized facility; demonstration projects like composting toilets, living machine, solar aquatics</td>
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<td></td>
<td>25 % Sewage treated on site</td>
<td>Urban Agriculture</td>
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<tr>
<td></td>
<td>25% of roof area designed to carry plant life</td>
<td>No numeric targets: encourage roof design to support food production Language: increase capacity for on-site food production</td>
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<tr>
<td></td>
<td>12.5 % of produce consumed by residents is grown on site</td>
<td>Building</td>
</tr>
<tr>
<td></td>
<td>75% units and commercial spaces have good solar orientation</td>
<td>More detailed modeling of site required to assess technical feasibility; target constrained by street orientation, open space widths, and general site structure; improved solar orientation involves trade-offs with views Recycle 75% construction waste (commercial &amp; residential) Recycle 90% demolition waste from concrete structure (commercial) Recycle 70% waste from demolition of wood structure (commercial) Recycle 25% of waste from demolition of wood structure (residential) Recycle 100% concrete and asphalt generated during initial site development</td>
</tr>
<tr>
<td></td>
<td>30% of materials used in Southeast False Creek buildings are salvaged, reused or have recycled material and components in them</td>
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Data from City of Vancouver, 1999; Compass Resource Management Ltd. et al., 2002; Holland Barrs Planning Group et al., 2002; IBI Group et al., 2002; Keen Engineering Co. Ltd. et al., 2002.
Review of Table 5.1 reveals that some targets proposed by Sheltair in 1998 were accepted as feasible by the authors of the 2002 reports, while others were replaced with less demanding targets. For example, Sheltair suggested a limit of 100l of potable water per capita per day. The water plan of 2002 set a target based on implementation of existing best practices at 167 l per capita per day. In several instances Sheltair’s quantified targets were replaced with non-quantified targets. For example, the Sheltair report sets a goal for 12.5% of produce consumed by residents to be locally grown. The review report only calls for increased capacity. Sheltair has a measurable target for auto free streets: a minimum 60% of streets dedicated to walking and cycling and transit use. The review report changes the target to one of encouraging a hierarchy of transportation modes: 100% of streets in Southeast will encourage walking, cycling and transit use above vehicle use. How can achievement of this target be evaluated? What metrics assess encouragement? If measurable change toward an identified final target for sustainability is to be achieved, then incremental targets toward that goal must be clear and quantifiable. Sheltair set a maximum amount of per capita CO₂ emissions from transportation. The 2002 report did not include an absolute target. From a transformative perspective on sustainability in which global biophysical capacity is understood to be finite, absolute limits on resource use and waste are the most appropriate targets. If a project is to be used as a model and learning tool, then assessment of its performance must be measurable.

A distinction between the 1998 and 2002 reports is that the latter were responding to a draft site plan for Southeast False Creek which included the proposed massing and street grid. Thus the report authors could identify potential constraints on targets posed by the emerging site plan. One potentially constrained target was good solar orientation for buildings and units. The Energy Options report identified proposed high density to the south of the site, existing street grids, and aesthetic goals such as mountain views as likely barriers. The authors did not, however, suggest changes to the draft site plan as a means to achieve more ambitious performance targets.
5.1.2 Approaches to Sustainability in the Environmental Plans

In Chapter 4 I have shown that among City staff connected to the planning of Southeast False Creek (Planning, Engineering, Real Estate Division) and among local politicians, familiarity with the concept of sustainability was limited. Planning a sustainable Southeast False Creek was perceived more as ‘the right thing to do’ (L. Beasley, personal communication, August 24, 2010) in pursuit of leading edge city building, than it was perceived as a model local response to global ecological crisis. In contrast, some of the consultants’ reports situated the planning for Southeast False Creek squarely in the context of global biophysical limits and addressed the challenges of bringing this perspective to bear on development plans. The *Water and Waste Management* report for example includes a diagram of nested scales (Figure 5.1).

![Diagram of nested scales](image-url)

1. Planet
2. Continental
3. Bioregional
4. Provincial/State
5. Regional
6. Metropolitan area
7. City
8. Community
9. Neighbourhood
10. Site
11. Building
12. Technology
13. Activity

**Figure 5.1** Nested scales of impact from Southeast False Creek water and waste management study (Keen Engineering Co. Ltd. et al., 2002: A-5)

The report authors identify the planetary scale as the “largest and most fundamental.” They describe the relationship between scales: “Each scale of initiative must take into account its impact on larger scales – the ultimate perspective for sustainability: the impact of any action or site on the global commons” (Keen Engineering Co. Ltd. et al., 2002: A-5). The report authors note the limitations of jurisdiction at various scales, citing that Southeast False Creek
as a neighbourhood nested within larger systems can address some issues of resource use through design and technology, but that local urban development projects and local governments are limited in their ability to influence “international corporate governance structures and agreements and pricing mechanisms that currently support the worldwide proliferation of non-renewable material usage and waste production” (Keen, 2002: A-5). Not only do the consultants offer a nested hierarchy view of sustainability grounded in global carrying capacity limits, they identify the international market economic system as a driver of resource over-exploitation and as a target for change. These views are consistent with the paradigm shift characteristic of a transformative approach to sustainability (Daly and Cobb, 1994; Rees, 1995; Prugh et al., 2001; Robert, 2002; Lombardi et al., 2011)

The report authors identify a direct role for cities in addressing global sustainability:

Urban development is a key aspect of global sustainability, in particular high density urban development such as that proposed for Southeast False Creek...the design of urban settlements, infrastructure and buildings greatly affects the relative sustainability of the planet...this recognition lies at the core of the water and waste management strategies proposed for Southeast False Creek. (Keen Engineering Co. Ltd. et al., 2002: A-6)

The report definition for a “sustainable development” highlights the challenge of making change within a market system. In this definition, the existing market paradigm is accepted and in fact defines the sustainability of a development:

A key characteristic of a true sustainable development is that it in fact can be built – what cannot be built, cannot be sustained and suggestions for overly radical solutions to achieve perceived sustainable levels of performance that cost far too much will result in little progress being made in any project....sustainable urban development projects work within their current market conditions and address sustainability issues to the full extent they can within those conditions.

The authors then acknowledge that only more innovative projects, likely those not constrained by the market, will demonstrate the level of change required to achieve sustainable ecological footprints for local residents.
That being said, recognizing significant strides forward are required to bring the ecological footprint\textsuperscript{39} of Vancouver citizens within the carrying capacity of the planet, some bold and visionary gestures and pilot projects are in order. (Keen, 2002: A-6)

I highlight the sustainability framing of the Water and Waste Management Plan to reveal the perspectives and advice on sustainability planning that City Staff and Council were receiving from some members of the local professional community. Further examples of transformative perspectives are from the Southeast False Creek Transportation Study (:36) in a statement on the urban contribution to global ecological stress:

\textit{Population growth, decreasing rates of public transit use, and increasing levels of urban sprawl and automobile dependence are intensifying stress on the global environment and contributing to global climate change.} (IBI Group et al., 2002:36)

The authors provide definitions of sustainable transportation from various associations, including the OECD and the Ottawa based National Round Table on the Environment and Economy:

\textit{Use of renewable resources at below their rates of regeneration and (b) use of non-renewable resources at below the rates of development of renewable substitutes. In other words, a sustainable transportation system would reduce and/or eliminate air, water, and land pollution, as well as minimize resource consumption.} (IBI Group et al., 2002:37)

The Transportation Association of Canada definition included in the report goes further suggesting that emissions and wastes from a transportation system should be absorbed/recycled/cleaned within the urban area itself (IBI Group et al., 2002:38).

\textsuperscript{39} Although the ecological footprint concept was not suggested as a metric for target setting, it was invoked by the authors of this document, revealing that the concept was familiar to and being used by local consultants in the early 2000s.
Authors of the *Southeast False Creek Water and Waste Management Plan* proposed that Southeast False Creek should mandate achievement of multiple sustainability objectives in all development decisions:

*The future of sustainable urban infrastructure systems lies in the direction of multiple objectives and interlocking systems. The foundation of sustainable development is built on the need to achieve social, economic and environmental objectives with every development gesture or initiative...For example, this report outlines many options for the way to manage runoff, but does not examine the many public art or educational opportunities runoff can offer. Another example might include the many educational opportunities that possibly await a youth skills training program by picking up damaged furniture and rebuilding and selling it. The City should include the mandate of multiple objectives in all its development in Southeast False Creek.* (Keen Engineering Co. Ltd. et al., 2002:A-7)

Although tasked with providing plans that were “practical and affordable” (City of Vancouver, 2001: Appendix A), consultants of all four reports (air quality; urban agriculture; community energy and water and waste management) took the opportunity to investigate and in some cases propose strategies that speak to the broader ecological concern of global overconsumption of resources. Report authors outlined initiatives aimed at changing personal and community consumption habits, at educating residents and visitors about sustainability as a means to change behaviour and values. They focused on ideas for living in place and building a community of residents to steward the site. Many of these ideas represent small steps toward a new paradigm of human-nature relations based on the nested hierarchy model of sustainability. In the following section I list some of the strategies that target behaviour change, sustainability education, and resource consumption. Also included are some comments from the reports on funding opportunities for innovations, and challenges to implementation. I have purposely included detailed description to demonstrate the depth of exploration by report authors. One strategy from this list has been adopted in Southeast False Creek to date: guided tours of the neighbourhood and of the district energy system.
Southeast False Creek Water and Waste Management Plan (Keen Engineering Co. Ltd. et al., 2002):

**A Waste Utility for Southeast False Creek Collection Services**

A ‘one stop shop’ for waste management collection services for garbage, recyclable, organic waste and a location for technical assistance for residents building managers and businesses located in Southeast False Creek; utility would contract garbage collection to a company that will take it to the landfill; monitor progress toward waste reduction goals; respond to community specific needs; staff familiar with the whole waste management system better able to respond to site specific problems.

A significant benefit is seen to arise from centralization of information and data and ability to monitor progress toward Southeast False Creek waste reduction targets. Tracking waste data will allow decision-makers, community planners and development community to assess effectiveness of the system and policies in place and determine if these components are transferable to other areas of the City.

**Organic Waste Options**

**Off-site:** involves transportation costs and emissions; existing off site facilities will not take everything eg. pig farmers will take only clean food waste; someone else will take only food and not yard waste.

**On or Near Site:** can design in-vessel so it will manage all organics at one facility.

Drawback is capital cost; on site, can’t expand to compost waste from adjacent neighbourhoods. Options considered: large scale vermin-composting; open windrow composting; multiple composting units per building; in-vessel composting at central location on site.

**On-site:** residents can use the compost; educational opportunity; demonstration project aspect.
On-site challenges include space; fear of odour and rodents and insects; if it doesn’t expand to compost organics from surrounding neighbourhood then the unit price stays quite high. Sell the compost at market price so revenues can offset operating costs.

**Sustainability Centre (C-4)**

As part of community centre, a staffed sustainability centre as a sustainability demonstration and educational facility showcasing Southeast False Creeks sustainable design and lifestyle.

- Equipment ‘library’
- Bottle depot
- Product care depot for household hazardous wastes
- Reuse store
- Barter board
- Repair centre
- Education/visitors room
- Courses on sustainability related issues
- Demonstration projects such as backyard composting
- Office for proposed Southeast False Creek Solid Waste Utility
- Close relationship to schools; train interested youth in ‘green’ careers

**Challenges of developing new waste management systems for dense neighbourhoods (C-3):**

- Little outdoor space for conventional composting
- Space inside and outside building is at a premium, need space efficient solutions
- Failures will likely affect many residents and businesses
- Already have existing infrastructures for waste management in the City as well as business relationships so creating new systems is challenging
- Complex network of waste related regulations and agencies with a range of jurisdictions

Some density-related solutions were investigated but not proposed:

*Possible solutions to space limitations for garbage pick-up in a dense neighbourhood:*  
  – garbage collection via bicycles with carts; electric vehicles
pulling carts linked like a train; pedestrian accessed drop-off depots for collection of garbage and recyclables.

Separate plumbing infrastructure for the collection of food waste connected to in-suite garbeurators

(C-21) Garbeurator for all food waste collection is not recommended because Greater Vancouver Regional District sewage treatment system not sized or designed to accept food waste; garbeurators increase water use – inconsistent with sustainability goals to reduce water use

**Southeast False Creek Sustainability Manual (C-38)**

Educational Tool that describes Southeast False Creek sustainability goals, objectives and features; policies and programs

To be supplied to all residents and businesses; provide contact information for residents about how to become involved in Southeast False Creek sustainability programs

Educational Tools to Support Behavior Change to Reduce waste production

- Community newsletters
- Stickers, posters, door hangers
- Manuals and guides
- Workshops
- Tours
- Telephone hotlines

From the *Energy Plan* (Compass Resource Management Ltd. 2002:11)

(11) recommend an overall energy budget for the development, allocate this budget among parcels and then allow for some trading – would remove need to develop targets for different types of construction and possibly lower overall costs of achieving outcomes
Eg. Trading: target of 288kWh/m²/yr and one building of 10,000m² reaches 268kWh/m²/yr, they have 10,000 credits for 20kWh/m² to sell to an equivalent area elsewhere.

Urban Agriculture Study (Holland Barrs Planning Group, 2002)

Recommended

- Aquaculture/bioponics: intensive fish culture as a demonstration project; report notes that fish requirements for future community could be met on 0.5 acres of land (91)
- Micro Livestock: Bee keeping for honey production and to assist with pollination
- Shared Commercial Kitchen: to encourage micro-food processors; locate in appropriate commercial space
- Food training facility
- Small scale commercial greenhouse
- Farmers market

The environmental reports represent a significant amount of work by the contributors. They not only contemplate a plethora of innovative ideas but interrogate details of the potential for implementation. The reports range from 120 to over 250 pages in length. Each represents collaboration between a minimum of two local consulting firms and numerous individual advisors. The Urban Agriculture plan was informed by attendees of three workshops: a developers’ workshop; green roofs workshop; and stakeholder workshop (Holland Barrs Planning Group, 2002). In Chapter 6 I analyse the achievement of Southeast False Creek in making measurable progress toward sustainable living and find that progress to be limited. A finding from the data in this Chapter is that the limited progress did not result from want of effort, enthusiasm or creative ideas.

The examples above are not to suggest that the City was receiving a consistent message from consultants about the need to create a community that responds to global ecological change. The signals from the consulting reports were a mix of broad framing such as the nested
hierarchy model alongside language of balances and trade-offs. Examples from the energy plan by Compass Resource Management Ltd.:

*All energy must ultimately be renewable to be truly sustainable.*

*In the short term there may be valid reasons for exploiting non-renewable resources if these are significantly cheaper, freeing resources to address other more pressing economic, social or environmental issues, provided social or environmental impacts can be reduced to acceptable levels.* (Compass Resource Management Ltd., 2002: 5-6)

The second paragraph illustrates a lack of urgency in regard to global climate change, and it illustrates how “components” thinking lends itself to trading off action in one area for progress in another. From a nested hierarchy perspective, global ecological conditions including levels of atmospheric CO\(_2\) should be integrated into all decision-making; pressing social, economic and local environmental issues should be addressed within the parameters of ecological conditions such as global resource constraints, climate change, and ecosystems services capacities (White and Whitney, 1992; Rees, 2006; Low, et al., 2005, p. 18-39.).

### 5.1.3 Target Setting and Monitoring Strategies in the Environmental Plans

All four environmental plans included discussions on the importance of setting sustainability targets, and of monitoring and reporting on progress toward those targets. The importance of targets, monitoring and reporting had been a constant theme from the outset of Southeast False Creek planning, first highlighted in the Sheltair report (1998) and then included as a new policy requirement in the Southeast False Creek Policy Statement (City of Vancouver, 1999:78). Southeast False Creek was consistently described in City documents as a model for learning. To fulfil this role, performance targets, monitoring, and reporting were in order (CITY 1; City of Vancouver, 2005).

The *Southeast False Creek Transportation Study* devoted a full chapter to performance monitoring and evaluation, providing the following steps for the process:
1. Define goals/objectives
2. Determine indicators
3. Set targets
4. Monitor and evaluate
5. Report to public

The study authors suggest a Southeast False Creek community association to oversee the monitoring and evaluation. They propose the group could work with City Staff and receive a monitoring allowance (labour and materials costs to research secondary survey information and direct survey costs); an education budget (awareness campaigns, information kiosks; newsletters, public engagements); and advocacy and assistance funds to support residents and businesses in Southeast False Creek to implement supportive programs and facilities (IBI Group et al., 2002:112).

Excerpts from the Energy Options Study assert that post-development monitoring is required to determine on-going performance; and accountability must be established for pursuing and meeting targets.

*Targets must extend beyond the design phase. Commissioning and operating practices can have an equal or larger impact on actual performance than simple design. Explicit mechanisms are required (eg performance bonds) to carry performance targets throughout all phases of development, not just during the design phase.*

*Specific applications of targets should include explicit consideration of who will be responsible for meeting the target, how compliance will be measured and verified and how responsible parties will be held accountable for the target.* (Compass Resource Management Ltd., 2002: 5-6)

The insistence on target setting, monitoring, and reporting are important to highlight here as part of the history of Southeast False Creek planning and development. Despite repeated calls for targets and monitoring from consultants and Advisory Group members, over the course of development of the Southeast False Creek Official Development Plan, comprehensive targets, indicators and monitoring were at first excluded, then mandated by the COPE dominated...
Council in 2005, but never adopted as policy. While performance targets for some individual sustainability objectives were determined, no comprehensive set of performance targets for sustainability objectives in Southeast False Creek was ever established. At the time of completion of this research, June 2011, no comprehensive monitoring or reporting system is in place. The details of how comprehensive target setting and monitoring was pursued and then abandoned are provided in Chapter 6 as part of the chronology of planning events that influenced sustainability outcomes for the site.

The four environmental reports also reveal that within Vancouver, among some local professionals Southeast False Creek was strongly identified with its sustainability mandate. There was an expectation that people would choose to live in this neighbourhood because they appreciated its sustainability orientation and would willingly participate in achieving those goals. Residents of this community might live differently than residents of other downtown neighbourhoods. From the Water and Waste Management Plan,

Assumptions:

_The mind set of Southeast False Creek’s residents is expected to be more “green” than other communities due to the planned sustainability model it has adopted, Southeast False Creek’s residents and businesses are expected to be subject to more program promotion and education than a typical community._ (Keen Engineering Co. Ltd. et al., 2002: C-13)

This view was echoed in interview data. One former City planner and one consultant reported their own interest in living in Vancouver’s model sustainable community. Each expressed a desire to participate in a low impact community; to experiment with new ideas for sustainability action; and they imagined a community of like-minded people (CITY 1; CNSLT 2).

As evidenced by the large number of contributing authors, the four environmental studies engaged many local consultants. One consultant reflected that the City’s commissioning of the reports served to energize and engage the local professional community in the aspirations for a sustainable Southeast False Creek.
I think there was in some ways a huge amount of value in doing that [consultant studies] because it allowed people to dream and it got such a broad range of consultants involved so there were a lot of really great ideas.

The consultant also noted the process may have raised expectations that would not be fulfilled:

In doing so though I think it set expectations way higher than potentially there was any possibility of meeting; I think there is a large part of the consultant community that felt a little disappointed in the outcomes. I think in part with going through this kind of blue sky dreaming process, everybody thought, wow it's just going be this Nirvana. Well there's just no way anyone could deliver on that...What was possible, is not necessarily what we dreamed of in our consultancy reports. (CSLT 2)

A final environmental study was commissioned by the City in 2003. According to former Southeast False Creek Project Engineer, Robin Petri, the first four environmental plans provided too much information to be effectively integrated into the ODP. Further, some elements of the plans worked at cross purposes to each other. The Merge Consultancy Report (reSource Rethinking Building Inc., 2003) represented a review and consolidation of the four environmental plans. The purpose of the report was to identify synergies between strategies from different reports; to identify economically and technically feasible strategies; to organize the strategies for implementation in a succession of project stages from ODP to post-occupancy (reSource Rethinking Building Inc., 2003). The Merge Consultancy Report became the working environmental framework for Southeast False Creek (R. Petri, personal communication, July 21, 2010).

The Merge Report was prepared through a collaboration of local developers, architects, and engineers: Resource Rethinking Building Inc., Harris Consulting, Keen Engineering Co. Ltd., Hotson Bakker Architects, and Thornley BKG Consultants. The Merge authors consulted with stakeholder groups including Southeast False Creek landowners, City staff, and members of the SeFC Stewardship Group. They also attended three integrated design workshops with

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40 The limits to possibility were circumscribed by the challenge that all innovative policy faces: existing budgets; existing bureaucratic procedures and regulations, political and market systems.
City Planning, Engineering Staff, Via Architecture (developing the draft ODP on behalf of the Property Endowment Fund), planning and design consulting teams (reSource Rethinking Building Inc., 2003).

The recommendations from the four environmental reports were reviewed and then categorized by Merge authors into three groups: recommendations moving forward; demonstration projects; and recommendations sidelined for future consideration. The recommendations were organized to meet relevant objectives of the Southeast False Creek Policy Statement under the headings: transportation and circulation; energy; water management, supply and sewer; waste, recycling and composting; air quality; urban agriculture; and stewardship. Thornley BKG Consultants estimated the cost of each of the environmental recommendations. The sidelined recommendations were those determined through City Staff and stakeholder consultation to be technically or financially infeasible at the ODP stage (reSource Rethinking Building Inc., 2003).

A contributor to the Merge report recalled how strategies from the four reports were evaluated for inclusion in the categories “recommendations moving forward” and “sidelined”.

*I think it was really technical feasibility. If it was easy and would have no impact elsewhere then that would be a go; if it was technically reasonable, whatever reasonable would be and would have multiple benefits, that was viewed in a positive light. Technically difficult without providing multiple benefits, I think those were the items that tended to get dropped.* (CNSLT 1)

The Merge authors sidelined three strategies completely due to financial costs. They proposed that the following not be required outright of developers: 1) planters, pots and irrigation systems for balconies and window boxes (estimated $750 per unit); 2) purchase of green off-sets of green energy certificates (estimated at $75,000 per year per high rise building); 3) individual water metering for residential units (estimated to cost $500/suite) (reSource Rethinking Building Inc., 2003). They sidelined 14 strategies for future review including some that addressed overall consumption and waste production such as banking and trading of performance improvements among sites within Southeast False Creek. That strategy could have been tied to a target that limits overall emissions, for example, from the site. They retained emphasis on opportunities for public education on sustainability,
stewardship, and target setting and monitoring, as prescribed by the Policy Statement. For example, the report states that public education on water conservation “will be part of a comprehensive education and stewardship program for SEFC. It will include demonstration programs and research and monitoring of performance in SEFC” (reSource Rethinking Building Inc., 2003:18). The authors endorse the creation of a Sustainability Centre, as proposed in the Waste and Water Management Plan (Keen Engineering Co. Ltd. et al., 2002) and provide suggestions for programming. They devote a full section of the report to demonstration projects (section 4.0) and one to stewardship (section 6.7). The Merge Report, as did the four environmental plans, ranged between transformative concepts aimed at education toward living a low ecological impact lifestyle, and the status quo-reform constraints of perceived technical and financial feasibility – a perspective that was dictated in the terms of the authors’ contracts with the City.

Included in the Merge Report was an assessment of the feasibility of the performance targets included in the environmental reports. These were revisions of the Sheltair targets. The Merge assessment is presented in Table 5.2.

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<tr>
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<tbody>
<tr>
<td>Waste and Emissions</td>
<td>Solid Waste</td>
<td>Max 200kg/person/year solid waste sent to disposal</td>
<td>150 kg/person/year solid waste to be disposal (not including construction and demolition waste)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Max 80 kg/person/year organic waste produced by Southeast False Creek households; 100% organic waste processed within site</td>
<td>Divert 65gk/person/year from waste stream (moderate) 88kg/person/year (optimum)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No leaves or organic debris transported off site</td>
<td>All leaves, yard waste, managed within or near site</td>
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Table 5.2 Comparison of proposed environmental performance targets for SeFC
<table>
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<tbody>
<tr>
<td><strong>Transportation and Accessibility</strong></td>
<td>100% dwelling units within 350 m of basic shopping needs and personal services 100% dwelling units located within 350 m of transit service Min 60% street dedicated to walking and cycling and transit use</td>
<td>100% of streets in Southeast False Creek designed to encourage walking, cycling and transit use above vehicle use</td>
<td>Likely</td>
</tr>
<tr>
<td><strong>Energy</strong></td>
<td>Multi unit residential max 288 kilowatt hours per year/m² floor area from non-renewable sources Office Max 284 kilowatt hours/yr/m² floor area from non-renewable resources Minimum 5% energy consumption from renewable sources generated on site. 90% of all buildings connected to a district heating system All buildings have a maximum peak electrical demand of 33 watts per m²</td>
<td>Sheltair target = 10-25% less energy than ASHRAE 90.1 (1999); achievable with small cost; would achieve LEED points. Sheltair target = 40-50% less energy than ASHRAE 90.1 (1999); achievable with current technologies Change target to cost based rather than physical target to be consistent with LEED. Sheltair target too narrowly focused on electrical peak demand</td>
<td>Sheltair target = 54% reduction in ASHRAE 90.1 (1989) current requirement using electric heat. Significant capital costs to achieve. Sheltair target is achievable with additional costs. Unknown</td>
</tr>
<tr>
<td><strong>Transportation Related Air Emissions</strong></td>
<td>Residents travel no more than 3,392 km per year for daily shopping and commuting Max 1498 kg/year CO₂ emitted from transportation-related activity in Southeast False Creek</td>
<td>Strategies proposed to increase non-auto mode share; modeled outcome: 38% trips auto; 43% transit; 3% marine (ferry); 6% bike; 9% walk</td>
<td>Unknown Target assumes automobile use consistent with West End. Largely dependent on facilities provided in community and non-auto options available Unknown Direct relation to previous target. Both should be measured when there is a community in place.</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td>Maximum 100 litres of potable water consumed per person per day</td>
<td>Current best practices for water fixtures plus sub-metering – would reduce</td>
<td>Not likely</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>--------------------------------------------------</td>
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<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Maximum 54% of site covered in impervious material</td>
<td>water use to 167 l/cap/day. Approx. 50% below GVRD average.</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td>25 % Sewage Treated on site</td>
<td>Aggressive target: 43% EIA Moderate: 23% EIA</td>
<td>Not Likely Energy and financial requirements too high for a separate system to serve the whole site.</td>
</tr>
<tr>
<td>Urban Agriculture</td>
<td>25% of roof area designed to carry plant life</td>
<td>12.5 % of produce consumed by SeFC residents is grown on site</td>
<td>Unknown Need decision regarding mandating green roofs</td>
</tr>
<tr>
<td></td>
<td>12.5 % of produce consumed by SeFC residents is grown on site</td>
<td></td>
<td>Likely</td>
</tr>
<tr>
<td>Building Energy and Materials</td>
<td>75% units and commercial spaces have good solar orientation</td>
<td>More detailed site modeling required to assess technical feasibility; target constrained by street orientation, open space widths, general site structure; improved solar orientation involves trade offs with views</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td>30% of materials used in Southeast False Creek buildings are salvaged, reused or have recycled material and components in them.</td>
<td>This goal may better be achieved by using LEED™ standards Recycle 75% construction waste (commercial &amp; residential) Recycle 90% demolition waste from concrete structure (commercial) Recycle 70% waste from demolition of wood structure (commercial) Recycle 25% of waste from demolition of wood structure (residential) Recycle 100% concrete and asphalt generated during initial site development</td>
<td>Likely</td>
</tr>
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Data from City of Vancouver, 1999; reSource Rethinking Building Inc., 2003.
Table 5.2 reveals that the *Merge* authors identified 30% of the targets (6/20) as *likely* to be achieved in Southeast False Creek. The high proportion of *unknowns* assigned by the *Merge* team underscores the lack of local experience with innovative technologies such as renewable energy sources for buildings and green roofs. The explanations for labeling some strategies *not likely* to be achieved reflect the conditions of the contract for the *Merge Report* to identify technically and financially feasible targets and strategies. On or near-site composting of organic waste, for example, is deemed unlikely because of potential odour and land use conflicts. In the report the *Merge* authors assert that appropriate, odour free composting technology is not available.

As described in Chapter 4, the Sheltair performance targets were sourced from available precedents and best estimates, and tried to exceed conventional performance as far as possible within technical and economic feasibility. The subsequent environmental and *Merge* reports were required to pursue this same strategy (City of Vancouver, 2001; reSource Rethinking Building Inc., 2003). There was no direction from Council to establish a measurable target for the ultimate goal toward which the Southeast False Creek project aspired: sustainability. Establishing targets to increase efficiency or reduce waste may be steps toward sustainable living, but what size steps and how many steps are being taken? Without at least an estimate of what constitutes sustainable living from a global carrying capacity perspective (ie. ecological footprint; CO$_2$ emissions; or other) it is not possible to determine progress toward the goal.  

Of note in this examination of the City’s efforts to establish sustainability performance targets for Southeast False Creek is the perception held by some consultants that appropriate funds (in line with market value) were not committed for the research (CNSLT 1; CNSLT 2; S. Moffat, personal communication, July 20, 2010). Three interviewees, all former consultants to the City on Southeast False Creek performance reports identified some frustration at the minimal funds offered for consultant work on sustainability visions, strategies and targets.

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41 In 2002 both ecological footprint measures and estimates of atmospheric CO$_2$ limits were available measures of sustainability in terms of global biophysical capacity and could have been invoked as long term goals. It should also be mentioned that the creator of the ecological footprint concept was local University of British Columbia professor, Dr. W.E. Rees, teaching at the School of Community and Regional Planning. He had contributed his expertise to the City task force that produced the *Clouds of Change* report on local responses to climate change, the report that identified Southeast False Creek as an area for energy efficient land use planning. In 2002 Rees would have been within easy reach to provide expert advice on ecological footprint measures.
The commissioned work required innovation and exploration of emerging sustainability concepts. One consultant described how the small budget for one of the Southeast False Creek performance reports constrained the work:

*The budget for this was ridiculously small... there was no budget for us to go to any meetings. There was no budget for us to kind of broaden this out. I remember having a number of meetings of our little group where we were looking at a number of matrices of all the various initiatives and trying to work through all the prioritizations, it was very much an exercise in essentially scoring.*

(CONSLT 1)

From the interviewee’s comment it is possible to infer that limited funds for research could restrict the scope and thoroughness of investigation, and possibly curtail innovation. An exercise in scoring is quite different from an exercise of exploration, discussion, and innovation.

Three consultants interviewed for this research reported that the amount of time they could commit to various aspects of their contract was curtailed by budget limits.

Another consultant recalls:

*There was a stipulated maximum from the City and for both the consultancy reports and the Merge report that was almost a joke; like $30,000 for the Merge report and I remember hearing through the grapevine a couple of folks who were sick of the City having multiple reports where the budget was just so small, had bid 200,000 to the 30,000 maximum... On the initial reports everyone ended up doing it for glory and not fees.* (CONSLT 2)

A former City of Vancouver Planner commented on the fees for Sheltair’s work:

*You know Sheltair lost probably twice as much money as they got paid to do the work they did. I can’t believe they stuck with it.* (M. Holland, personal communication, July 22, 2010)

Sheltair’s Sebastian Moffatt offered insight into why Sheltair accepted a contract that offered sub-market fees:
Some of my friends and competitors laughed at me saying this was a money loser and I said of course this is a money loser this isn't about money. Sustainability is exploding and this is going to be a huge opportunity; we saw it not as a consulting project but as a real learning opportunity. (S. Moffatt, personal communication, July 20, 2010)

Another consultant mused over the City’s low budget allocations for sustainability research:

*I'm not sure whether they [City of Vancouver] really thought the dollar amounts they were putting out were fair, or whether they just didn't understand what the value they were getting represented or whether they just didn't have any more budget and were hoping the consultant community would just step up and suck it up and do it which is what happened. (CONSLT 1)*

Why the City committed funds that some consultants report as below market rate could not be determined from my research data. The consultants’ comments reveal an appetite among local consultants to be involved in sustainability innovation even if it meant accepting sub-standard fees. In this way, the City of Vancouver had support from the local consulting community for its foray into new planning territory. For the City of Vancouver, offering low pay for consulting contracts may not have resulted in reduced consultant interest, although it may have resulted in less thorough exploration of novel concepts and strategies. If sustainability is to be taken seriously at the urban development scale, then funds appropriate to the magnitude of the challenge (innovation to deal with complex local and global ecological and socioeconomic interactions) and to attract the best consultants should be mandated.

5.2 Developing a Green Building Strategy for Southeast False Creek

In early 2000 City of Vancouver Planning Staff began to explore the concept of ‘green buildings’; appropriate guidelines or assessment systems, economic implications (City of Vancouver, 2001a). In this section I document the process undertaken by the City to explore green buildings and to develop a green building strategy for both Southeast False Creek and
the City. I record the process in some detail because I will argue in Chapter 6 that the green building assessment system has severe short-comings as a measure of ecological performance. The research data in this chapter reveals why the City selected the Leadership in Energy and Environmental Design (LEED) as the basis for its green building strategy. Further the data highlight the challenges City planners faced from the development community. The process also reveals the nature of planning practice and policy-making as something less than a logical, structured pursuit and something more unpredictable, value laden, and requiring a measure of tactical and political acumen.

Reports to Council from 2001 outline the process undertaken by Staff to establish a green building strategy for Southeast False Creek and possibly for the city at large (City of Vancouver, 2001a). The process, which included partnering with other levels of government (the Province and the Region) and industry representatives, was described to Council as a formal response to Council direction and as a progression of planning steps:

In adopting the Southeast False Creek Policy Statement, Council directed staff to explore and develop green building strategies for Southeast False Creek. For instance, the Policy Statement raised the issue of creating and implementing guidelines for green buildings, and also pondered the economic implications of green buildings. To further this goal, staff from the Southeast False Creek planning team met with staff from the Greater Vancouver Regional District (GVRD), the BC Buildings Corporation (BCBC), and the Province of BC’s Green Buildings Program. (City of Vancouver, 2001a)

Two former City planners describe a somewhat more spontaneous process of initiating green building investigation and later working collaboratively with other levels of government and interested parties. When asked to describe the planning process that led to initiation of a green building strategy, a former City planner recalled,

There was no process; no process at all. Community interest and engagement.

42 In general terms a green building uses fewer resources and produces fewer wastes than conventional buildings over the course of its life cycle from construction to operation, demolition and disposal.
Southeast False Creek - what is a sustainable community? That should include green buildings well what are green buildings? ...It became a few of us in Planning who took an interest, to start researching what it meant and what it meant from a policy perspective, what it meant from a construction perspective and so that became a side of the desk project for a while. And then it became moderately formalized in that the Planning Director at the time, Larry Beasley, also seeing many rezoning applications and Councillors asking about green building saying well let's make this a bigger thing and let's start talking to our constituent groups which for him was largely the development community.

(CITY 1)

The quote above extends the ‘sustainability learning’ narrative introduced in Chapter 4. Green building, like sustainability planning, was an emerging concept in North America in the early 2000s. Individual City staff volunteered to learn about green building in response to increased public, industry and Council interest.

Former Senior Planner, Ian Smith, describes how City planners came to collaborate with other governments on developing a strategy to promote green building throughout the city and beyond. Rather than a deliberately planned outcome, the collaboration resulted from coincidental meetings between people who recognized an opportunity for synergized action.

I ended up running into Martine Dubois from the Province and Thomas Mueller from the GVRD [Greater Vancouver Regional District] out at UBC and we were all talking about doing the same sort of thing [green building assessment] but not knowing how to do it. You know the Province had the idea of pilots for schools and other provincial buildings and Thomas Mueller was trying to make everything green but with limited ability to do so because the Greater Vancouver Regional District really doesn't have any power. And then we had this big development [Southeast False Creek] that needed to be green, and we needed to figure out a way to do that. So we all combined forces and money, and formed the LEED BC Steering Committee. We hired Ray Cole to look at all building rating systems. And we brought in Hydro and Terasen, because we thought it would be good to include the energy providers.
Ray had actually had been involved in BREEAM so we were a little bit surprised when he recommended LEED. He recommended LEED mainly because of the way it was taking over in North America. (I. Smith, personal communication, January 26, 2010)

Dr. Ray Cole of the University of British Columbia evaluated four international building assessment systems: Building Research Establishment Environmental Assessment Method – Canada (BREEAM Canada); Building Research Establishment Environmental Assessment Method-Green Leaf (BREEAM/Green Leaf); Leadership in Energy and Environmental Design (LEED); and Green Building Challenge Tool (GBTool) (City of Vancouver, 2001a). Cole recommended the City, Province and Region pursue a local version of the U. S. Green Building Council’s Leadership in Energy and Environmental Design (LEED) system (City of Vancouver, 2001a). LEED is a system that sets building performance criteria in the following areas: sustainable sites; water efficiency; energy and atmosphere; materials and resources and indoor environmental quality. Four levels of achievement are possible ranging from Certified to Platinum depending upon total performance design credits achieved. (See further discussion of efficacy of LEED in measuring absolute reductions in resource use in Chapter 6). The LEED system was recommended as the system that could be most easily and readily adopted: it was already gaining traction in the US and could be adapted with relative ease to the Canadian context (City of Vancouver, 2001a).

*It [LEED] was built in the United States with American standards which can more or less be adopted as North American standards... a lot of the verification tools were tools that engineers could understand like ASHRAE for energy...Equivalencies were developed to bring them into Canadian terms so ASHRAE was brought into a level that matched the Model National Energy Code...It was an accessible tool in North America. (CITY 1)*

A former planner at the Greater Vancouver Regional District recalls that LEED was promoted by the City, Region and Province as the system that could be most cost effectively implemented:

*We reviewed all of these rating systems and while LEED wasn't necessarily the most comprehensive or effective, it was the easiest in terms of transaction costs.*
The development community was suspicious in terms of transaction costs. We said it wouldn't have to cost more if you knew what you are doing. But there is a learning curve and some costs involved, perhaps a three per cent increase. So there was push back. (J. Moore, personal communication, December 2, 2010)

For City Planning Staff who were spear-heading the green building work, LEED became the preferred tool (I. Smith, personal communication, January 26, 2010). They sought support from Council to return to the broader stakeholder community (engineers, architects, developers, and academics, environmental activists) to present the case for LEED, first in Southeast False Creek, and then for broader application to private development throughout the city (City of Vancouver, 2001a). Interviewees recall a strategy for gaining Council support in pursuing LEED: they played on the desires of local politicians to maintain Vancouver’s reputation as a planning vanguard, and also on the ever-present competition for ranking among North American cities. In a report to Council, Planning Staff identified Council’s recent commitments to green building research as decisions that placed the City at the forefront of Canadian innovation:

The City of Vancouver has positioned itself in a key leadership role regarding green building initiatives in Canada by actively participating in this process and in the funding of the consultant’s [Ray Cole] study. (City of Vancouver, 2001a)

Former Senior Planner, Ian Smith, reported:

Part of the way that we actually sold Council on all of this is almost the competitive nature of you know, Vancouver competing with Seattle and Portland and other cities in North America and if you can't really compare yourself... if they're all using it [LEED] and we're not, it’s really difficult to say where you're at.... in Victoria, Dockside was well in the public eye at that time adopting LEED as their standard. The City and Council wanted us to pursue LEED as a tool for Vancouver.
5.2.1 Gaining Acceptance for LEED from the Development Community

Former Senior Planner Ian Smith argues that the Planning department was well suited to lead the green building initiative, and offers insight into the reason for pursuing a consultative process with developers:

Planning was the perfect place for it to start because there was a huge public process around it and controversy... just getting things through and accepted by the development community so that when we have a green building strategy that goes before Council we don't have every developer in the city standing up saying “Absolutely not!” There was a certain amount of stick handling and management that had to happen. (I. Smith, personal communication, January 26, 2010)

The Staff request to proceed with LEED was approved by Council in 2001. A series of workshops and consultative processes began in October of that year (City of Vancouver, 2002). A planner involved in this second round of discussions with stakeholder groups recalls that LEED was quite readily accepted in principle because its lowest level could be achieved with few cost or design implications. LEED offers points from which designers are free to choose a combination that best suits their projects. The interviewee reports that many sites in Vancouver are endowed with a set of LEED credits by virtue of existing city infrastructure. The interviewee explains:

Vancouver has good planning especially in its urban core. Anywhere where major rezonings were happening it was typically more dense, typically well served by transit, typically well served by schools, parks, etc. so you could look at any sold building project in Vancouver and it would almost hit a LEED Certified level...just purchasing a site in the middle of all that amenity we’ve almost got you to Certified...so some smart thinking and nominal costs and you can get a certified building...

Certainly for the commercial and office players it wasn’t a stretch at all. Bentall weren’t using LEED, but they were well down the green path because they understood from occupant performance, better leasing rates, and lower operating costs that green building made sense. So the commercial operators weren’t that
challenging. Unfortunately there weren't a lot of rezonings for commercial office because Vancouver was in the doldrums there; so it was all about residential property. So it was, I would say, a comfortable conversation with the development community and with the architectural institute; and we went to the PIBC and all of those folks about moving to a LEED certified kind of approach. (CITY 1)

For developers of residential lands, marginal cost increases of achieving green buildings were not justified if there was no market demand for the product. The interviewee’s comments below underscore a challenge to regulators promoting changes in a real estate system where developers build and sell their products rather than building to own: developers will resist regulation that could increase up-front costs, even if these can be recovered over the life of the building, for example through reduced life time energy use or long lasting materials. The builder will not realize long-term financial pay back and the market (prospective purchaser) may not pay an increased up-front price for the unit. Residential buyers may not own the unit long enough to recover the increased up-front costs either. One former City planner involved in discussions with the real estate and development industries recalls entrenched views on green building strategies for residential development:

This was the, “well you can’t do green residential buildings. Commercial buildings, those are owner occupied so all those extra costs you put into the building those are all paid out in ten or fifteen years; we’re just selling our product so there's no benefit to us.” Exactly what you think everyone's opinion would be, that's what they were. A few champions here or there but generally that was the opinion. (CITY 1)

City Staff completed their consultative process and in 2004, proposed a draft Green Building Strategy to Council. The Strategy called for application of LEED Silver standard including specified points for energy efficiency to all municipal buildings greater than 500 square meters; and application of LEED Certified standard (without requiring certification) for the first sub area rezoning of Southeast False Creek. By 2004 LEED™ BC had been established and a LEED Adaptation Guide for British Columbia had been approved by the U.S. green Building Council (approved in June 2003) (City of Vancouver, 2004a). Also in 2004 the
Canada Green Building Council was formed to administer LEED autonomously in Canada (City of Vancouver, 2004a). LEED was gaining momentum. The 2004 draft Green Building Strategy report to Council stated that 30 LEED projects were registered in British Columbia. The Greater Vancouver Regional District was pursuing LEED for its new buildings; the cities of Victoria, British Columbia and Calgary, Alberta were pursuing LEED standards for municipal buildings; and the Federal Government of Canada Department of Public Works and Government Services had adopted LEED Gold as the minimum standard for all new projects less than 10 million dollars. At the City of Vancouver, Council had engaged in its own LEED pilot projects: two buildings in the City’s Works Yard were anticipating final certification at the LEED Gold level (City of Vancouver, 2004a).

Since 2001 City Staff had been observing the development of the Works Yard buildings as well as other LEED projects in the City. It became clear that the point system for LEED was not effective at meeting energy reductions the City desired (CITY 1). Staff recommended adding requirements for a specific number of Energy and Atmosphere LEED points to the Green Building Strategy. According to one interviewee the conversation with the development community which had been ‘comfortable’ during discussions of LEED minimums became more challenging when LEED Silver was introduced, and even more so when additional energy points were to be specified.

*There were certainly more intense conversations when the City tried to discuss LEED Silver...to achieve Silver the developers have to either add on a bunch of trinkets, buy points as people say, which is one of the negatives of LEED, or rethink their model. Residential building developers have a model. They have a floor plate, this many units per floor plate; they have a core, all their water services run up it; they bang them out. The outside architecture changes but what is inside the building they just fabricate over and over. So it's cost effective. In order to get them into a LEED Silver or Gold, they have to either spend more or rethink their building system.*

*The core principle of the City’s green building group was originally LEED Certified possibly Silver, which you can do without hitting any energy efficiency! So now you go back to the Council and developers and say we want to add*
minimum energy efficiency to this rezoning policy. And now you get your developers in a knot because they have to start changing their mechanical systems and their building envelope. Now you are asking them to change. (CITY 1)

The City had commissioned an audit on LEED projects to identify potential cost implications of adopting a LEED based system in Vancouver. The report author found that LEED Silver, the mid-range rating level, would increase building cost between 0.89% and 1.94% without accounting for possible long term payback (TKBG, 2003:5). Despite the relatively incremental costs reported to accompany LEED Silver, City Planners met with resistance from developers. Former Senior Planner Ian Smith recalled meetings during which City Staff worked to gain industry acceptance of the proposal for LEED Silver standard.

LEED Silver wasn't' going to cost that much more...it should be almost revenue neutral. And over and over again we gave examples; there weren't a lot of residential examples, which was part of our biggest problem in those days. The LEED buildings that were residential seemed to be expensive because they used technology instead of simple building design to get to where they wanted to go. So we had a lot of meetings where we were just trying to reduce the fear level and finally got buy-in for LEED Silver because they started to appreciate that it wasn’t going to cost that much more and hey there might be some advantages in marketing. (I. Smith, personal communication, January 26, 2010)

While he suggested there could be a marketing advantage, Smith also pointed out that Vancouver was in a residential real estate boom in the early 2000s. There seemed to be no market demand for greener products and landowners in Southeast False Creek were reticent to accept a strategy that could increase their development costs:

Part of the problem with Vancouver in those days was that buildings sold out in a day. People lined up around the block to buy. Had it been a difficult marketplace where if you do something better you are going to sell ... but when granite counter tops are the most important part of selling or maybe a view, developers don’t really turn their attention to doing things that might cost money. So a lot of the land owners who’d had industrial or office uses on the site, all they saw was
regulation. Asking the developers to do more was asking them to get less from their land. (I. Smith, personal communication, January 26, 2010)

The draft proposal for the Southeast False Creek and city-wide green building strategies reveals the City’s responsiveness to concerns from the development and real estate communities about potential implications of adopting the LEED system with specified points. The authors identify overarching concerns for sustainability as the impetus for green buildings but suggest that in the short term, a strategy that ‘works for developers’, specifically referring to their concerns over uncertain financial costs, should be pursued.

The environmental, social and full cost economics of green buildings should lead the push for a green building policy for the City of Vancouver. However, it must be recognized that the ‘hard economics’ of building green (construction and development) remains an important factor in promoting green buildings within both the public and private sector...While the hard costs of building green continue to drop as materials and techniques become more mainstream, an undetermined premium still remains that is dependent on a combination of material costs, supply, and strategies for specifically by the design team. With this reality, it may be timely for the City to pursue a green building strategy that will work for the local development community and meets key sustainability objectives...Nonetheless, the more holistic goals of sustainability should be the primary argument in the City’s support for green buildings. (City of Vancouver, 2004a:6)

City Staff pursued a tactic of incremental adjustments as a way to gain industry support for the new policy direction of green building (I. Smith, personal communication, January 26, 2010).

Another report to Council on the Green Building Strategy revealed a perspective that sustainability was a direction toward which the City could travel at its own locally determined pace, in response to local priorities of aesthetics, building conventions or market signals. Scientifically determined targets and dates for achievement, such as CO2 emissions reduction
targets had been acknowledged by the City’s Cool Vancouver Task Force\(^4\) (City of Vancouver, 2005b), but these did not dictate the pace of change. In 2004 the City’s Chief Building Officer had been directed by Council to update the Energy Utilization By-law for large buildings on the recommendation of the City’s Cool Vancouver Task Force (City of Vancouver, 2005b). In the report Staff point out that the goal of developing regulations is to achieve efficiencies in building design and energy use, but not at the expense of Vancouver’s existing urban design aesthetic: residential towers with large surfaces of window glass. The Urban Design Institute and development industry had raised concerns with City Staff over the cost of improving the efficiency of glass through increased glazing. They argued that buyers in the Vancouver market were accustomed to and demanded Vancouver style high rise buildings with maximum glass for views and light. In an already expensive housing market, high efficiency glazing would make residential units even less affordable (City of Vancouver, 2004b). In the report, Staff responded to those concerns:

> **Staff stress the intent is not to make the energy utilization regulations so restrictive that it is economically not feasible to propose specific designs, nor to change the urban design of the city by limiting the amount of glass allowed in a building façade.** (City of Vancouver, 2004b)

The text from the report above prioritizes the City’s established architectural design preferences over improved energy efficiency. From the perspective of a mounting global ecological crisis caused by over-exploitation of resource use and waste production, the priorities expressed in this City document are incongruous with sustainability-oriented planning. The un-affordability of the local housing market must be challenged not accepted as a limiting factor for sustainability-oriented change. The market must not be allowed to dictate glass content and glazing levels if these factors have a direct effect on aggregate resource use and waste emissions.

The planners’ efforts to gain stakeholder acceptance of the LEED system as the basis for its green building strategies were successful. In July of 2004, Council adopted a “working green building strategy” for Southeast False Creek (City of Vancouver, 2005b). In 2005, Council

\(^4\) The Cool Vancouver Task Force was created by Council in 2003 to help the City achieve its CO\(_2\) emissions reduction target of 20% below 1990 levels. The target was adopted on March 25, 2003 (CoV 2005).
approved continued work on the LEED-based city-wide green building strategy (City of Vancouver, 2005b). A former City planner recalled that when the first sub-area rezonings occurred in Southeast False Creek in 2006, in negotiations with developers and land owners City Staff could readily counter challenges to the strategy requirements:

It was certainly more, I would say adversarial. The rezoning one was always a tough battle for developers because we were in a boom time for residential development and rezoning [from industrial to residential] equals uplift in land value. If we could prove that you could do LEED Silver and a minimum, I think it was 2 energy points in LEED, for 2 or 2.5 percent project cost increment, we were able to prove that the uplift in their land value was going to cover for that. So it was a tough conversation for them. (CITY 1)

The same interviewee reported that the City’s Real Estate Services Department also had concerns about the green building strategy and engaged in discussion with the Planners:

The City's industrial Endowment lands, including Southeast False Creek would get this up-lift from rezoning and fall under this new policy. Real Estate Services was very concerned. We had a lot of discussions with Michael Flannigan and Bruce Maitland... Michael Flannigan was quite receptive to it...he understood construction costs and the reality of the market very well... I'm not a numbers kind of guy; for me the green building strategy was the right thing to do with a certain amount of research behind it; Michael Flannigan always said, this is what the numbers tell us. (CITY 1)

From this research data, it appears that “numbers” figured prominently for developers and land owners, including the City’s Real Estate Services Department, when considering the City’s green building strategy. The strategy was perceived as a regulatory burden that might adversely affect profit margins, particularly when there was limited market demand for green buildings among residential buyers. As well, the green building strategy would require some changes to established models of building design and development. Those changes would involve the building and construction trades and design and engineering professions. Despite these concerns, one interviewee (a Vancouver developer) viewed the City’s choice of a LEED
based system as a useful one for developers: LEED presented a relatively simple, packaged definition of ‘green building’ for a local industry that had limited exposure to the concept:

*I think there is a gain for the developers in terms of establishing a baseline rather than leaving the concept of green buildings undefined... It [LEED] creates a common understanding for the developers... most of whom didn’t understand green building all that well at the time.* (CNSLT 1)

The interview and document data also identify the difficulty in pursuing change within a market-based system; if consumer demand for sustainability innovations is weak, the development industry may not voluntarily move toward sustainability. Regulation and incentives are required.

In terms of the process for developing a green building strategy, the interview data reveals specific characteristics and skills were required from individual planners: the interest and initiative to investigate green buildings before an official directive or process was established; recognizing and taking advantage of serendipitous opportunities to partner with other levels of government and with agencies to leverage resources toward a common goal. Once an official strategy was requested, the planners had to ‘stick handle’ (I. Smith, personal communication, January 26, 2010) communications and consultation with stakeholders and with the City Council to gain support for their preferred green building assessment system. Inter-urban competition can be useful in promoting wide-spread adoption of a new strategy or policy; for example, Vancouver keeping up with other cities that were pursuing LEED in the early 2000s. Also a city that strives to be a leader is also likely to take some risks and pursue innovation. However, inter-urban competition is only good for sustainability goals if truly effective strategies are promoted. If not, then a city commits resources to a path because it is the standard through which cities are competing, not because it is the path that leads most directly and accountably toward sustainability.

The central requirements of the Southeast False Creek Green Building Strategy (2004) are presented in Table 5.3. The strategy applied to all medium and high density residential (over 4 stories), mixed-use, commercial, institutional and industrial developments in Southeast False Creek. It was based on the 69 point LEED rating system. The strategy did not require LEED certification but set a minimum requirement of 26 LEED points (Certification level), all
LEED prerequisites and City specific requirements (minimum energy efficiency ASHREA 90.1 2001). At the first rezoning, in 2006, the requirements for energy were changed to 20% better than ASHRAE 90.1.

**Table 5.3 Southeast False Creek Green Building Strategy 2004**

<table>
<thead>
<tr>
<th>Target Area</th>
<th>Performance Standard/Design Specification</th>
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| Energy          | • Minimum energy efficiency ASHRAE 90.1 2001  
|                 |   • Energy Star rated appliance and/or gas appliances except for laundry dryer  
|                 |   • Specify energy efficient appliances; energy efficient lighting to follow ASHRAE 90.1 2001  
|                 |   • Specify fireplaces listed as heating appliance with a minimum combustion efficiency to meet or exceed ASHRAE/IESNA Standard 90.1 2001. No continuous pilot lights; interrupted power ignition is preferred. Electric fireplaces must be 100 percent efficient and offer heat/no heat modes.  
|                 |   • Domestic hot water: high efficient boilers minimum efficiency 87%  
| Waste Management| • Composting for on-site gardens and or landscaping  
|                 |   • 3 streams of waste collection (provide on-site infrastructure for future implementation if no organic pick-up available at time of development)  
|                 |   • Management of construction and demolition waste ensuring a minimum of 50% diversion through construction process  
| Water           | • Dual flush toilets  
|                 |   • Low flow faucets and showerheads to meet current best practices  
|                 |   • High efficiency irrigation system, drip irrigation, storm water re-use for landscape irrigation or no permanent irrigation  

Source: City of Vancouver, 2004a

The intent of Southeast False Creek Green Building Strategy was to reduce resource use and waste production at the site level. However, the strategy requirements were not tied to any set of performance targets. Anticipated resource and emissions reductions from energy efficiency and plumbing specifications for example, are not provided as part of the Strategy, nor in an accompanying set of performance targets. Performance targets, such as those proposed by Sheltair, by the four environmental reports and the Merge report, were not linked to the Southeast False Creek Green Building Strategy. When a new set of preliminary performance targets was developed for the project in 2005, City Staff used the SeFC Green Building Strategy as the basis for determining targets (City of Vancouver, 2005). For
example, they set a target of per capita use at 190l/cap/day based on implementation of low flow plumbing fixtures, and high efficiency irrigation as prescribed in the SeFC Green Building Strategy. Rather than setting targets based on scientifically determined levels of sustainable resource use, the ‘targets’ were merely statements of the resource reductions anticipated to accrue from the Green Building Strategy. As described in this chapter, the Green Building Strategy was built around existing industry practices and standards rather than measures of sustainable resource use.

In the preceding pages I have detailed the process through which City Staff became familiar with green building rating systems and then developed and promoted a strategy adapted from the American LEED rating system. The process spanned three years (2001 – 2004) and involved on-going stakeholder consultation and negotiation. According to at least one interviewee, development of this strategy has provided a common language around green building for the development, architectural and construction industries which previously had limited knowledge or interest in the concept. Unfortunately, from a sustainability perspective, a LEED-based system lacks the critical dimension of verified performance. In section 5.1.4 I explain the limitations of LEED as a building performance rating system.

5.2.2 Short-comings of the LEED Building Rating System

LEED is a point-based system in which an applicant can choose among points to achieve Certified, Silver, Gold or Platinum rating. For its green building strategy the City of Vancouver required two specific points in the ‘Energy and Atmosphere’ section of LEED: achieve reductions in design modeled energy cost relative to either,

1. Model National Energy Code for Buildings (MNECB) (-29%) or
2. ASHRAE standard 90.1-1999 (-20%)

Both MNECB and ASHRAE are commonly used standards in Canada. They establish parameters for modeling energy costs for buildings, but no specific performance targets, like for example, a maximum energy target in GJ/m²/year. Many sources, including interviewees for this research, indicate that modeled energy cost and actual energy performance cannot be equated (see discussion below). Further, the modeling system has inherent biases that can be
advantageous to inefficiently designed buildings. When a building design aims to achieve a 20% lower energy cost than ASHRAE 90.1 1999, the designer models energy costs for her proposed building and compares these against energy costs modeled for an identical, non-energy efficient reference building. Geoff McDonnell of Vancouver’s Cobalt Engineering describes the limitations of this system:

The ASHRAE 90.1 rules laid out in the Appendix G section that covers how the energy modelling comparison is to be made, requires the Reference Building to be exactly the same geometry and physical characteristics as the Proposed Design Building, but use the standard prescriptive minimum values that ASHRAE requires to meet the minimum prescriptive energy use requirements. Then ASHRAE assigns default systems to the Reference Building to simulate the “business as usual” building HVAC and Lighting systems, while the design team assigns its proposed building systems and operational parameters to their Proposed Design Building Model. Hey, wait a minute!! This means that if the Proposed Design Model has already incorporated best solar orientation, external sun shading, and an articulated façade to reduce the building heating, cooling, and lighting loads based on passive design approaches, the Reference Building must also include the same basic configurations. So let’s get this straight – if we do the proper integrated design team approach to incorporate as much [sic] passive design approaches as possible before we even think about what kind of energy efficiency systems we want to apply, we don’t get much, if any credit for that !! So what IS the baseline “business as usual” building energy efficiency we are trying to compare our Proposed Design to? Well, there isn’t one!

One way to describe how this works is the following analogy: You can take a Humvee that gets 15 miles per gallon in stock form, then tune it up and improve its performance so it gets 20 miles per gallon – that’s a 30% energy efficiency improvement – so assign 4 LEED Energy Credits for that accomplishment. OK, let’s start with a Toyota Yaris that gets 35 MPG in stock form, and tune it up and improve its performance so it now gets 45.5 MPG, a 30% improvement in energy efficiency. Guess what – 4 LEED EA credits for that, too! (McDonell, 2010)
The US Environmental Protection Agency’s Energy Star program, in a report titled, *When Good Intentions Go Bad: Bridging the Energy Gap Between Design and Building Performance* provides the following caution about conflating design standards with performance:

*A commonly used metric, such as "percent better than code," is an index, not an estimate of the intended energy use in the building, making it difficult to confirm energy savings. It's also a misconception that a building designed to be "30 percent better than code" will automatically perform in the top 25 percent of all buildings... “Percent better than code" is based on a reference building determined by design project parameters and not the actual operating performance of a building. The code only addresses "regulated" energy in a building; it does not consider right-sizing equipment or integrated system designs. Further, the projected energy use from code calculations is difficult to verify in the completed building.* (US EPA, n.d.)

A post occupancy review of LEED buildings was completed for the US Green Building Council in 2008. The study found that measured energy performance (as opposed to modeled performance) of LEED buildings varied widely (Turner and Frankel, 2008). Over one quarter of the LEED buildings in the study, including Gold and Platinum buildings, used more energy than the average for comparable building stock. Approximately half of the LEED buildings achieved US EPA Energy Star Certification level (requires buildings to perform better than 75% of comparable buildings). The overall average for LEED buildings in the study (taking into account wide variations from poor to high performance) was 20-30% greater energy efficiency than comparable buildings. The report authors note the difference between modeled energy performance and the actual performance as determined through their study. They argue that better feedback on actual performance must be available to designers. Further, they suggest the reference benchmark for LEED, ASHRAE 90.1, is not aggressive enough and too variable in results.

The limitation of a LEED-based system from the perspective of transformative sustainability is that it sets modeling requirements instead of performance targets. If sustainability requires absolute per capita resource use and waste reductions, then the Green Building Strategy must
include targets for maximum energy use (e.g. kWh/yr or GJ/M²/yr) and must require verified performance. The details of the development and implementation of the Green Building Strategy for Southeast False Creek reveal that significant Staff effort and resources were expended to achieve a strategy that was acceptable to the development community. However, that strategy is ineffective for mandating sustainability-oriented performance outcomes.

5.3 Summary and Discussion

Central actors at the City of Vancouver held a three pillars/status quo-reform approach to sustainability. Through examination and analysis of the Southeast False Creek environmental plans I have shown that some consultants to the City proposed transformation-oriented strategies and framing for Vancouver’s model sustainable community. In the *Water and Waste Management Study* (Keen Engineering Co. Ltd. et al., 2002) for example, Southeast False Creek was identified as having a role to play in modeling globally sustainable resource use. Personal consumption habits were targeted for change through proposals that included a Sustainability Centre, education programs and sustainability classes, demonstration and pilot projects. The contents of the plans reveal that some local consultants envisioned Southeast False Creek as a community of residents who would embrace the project’s sustainability aspirations and participate in pursuing its goals. One of the plans proposes that a future residents’ association will collaborate with the City to monitor and report on the community’s performance.

All of the environmental plans highlighted the importance of target setting and monitoring for Southeast False Creek. The Sheltair targets were revised first in the four discreet environmental plans, and then in the *Merge Report* (2003). With each iteration, and as the planning process moved closer to implementation and detailed costing, the targets moved further away from quantified measures. The *Merge* report endorsed strategies toward non-quantified objectives such as *increasing* non-auto mode share. None of the reports suggested a quantified measure of sustainability.

My analysis of the City’s development of the Southeast False Creek Green Building Strategy reveals an on-going learning process at the City. Like urban sustainability principles that had
to be developed for the Southeast False Creek Policy Statement, green building principles and rating systems had to be explored by City Staff in early 2000. Green buildings were novel in North America at that time. It was through the initiative of individual City planners in collaboration with other levels of government, that the US green building rating system, LEED, was brought to Canada, and formed the basis of the Southeast False Creek Green Building Strategy.

The analysis of the Southeast False Creek Green Building Strategy process highlights the challenges to making regulatory changes with the local building and development industry. Representatives of this industry are sensitive to standards that could have implications for their financial bottom lines. Southeast False Creek land owners, including the Real Estate Services Department expressed concern that new standards could increase the cost of development. Confronting the existing market economic system with even the smallest of changes is a significant challenge to policy-makers.

In this chapter I have also demonstrated that the LEED rating system was chosen as the basis for the Southeast False Creek Green Building Strategy because it was perceived as easiest to implement. I have also detailed the reasons LEED cannot be used to measure progress toward sustainability: it is a system based on modeled energy costs, rather than on verified performance. Further, the energy modeling for buildings is not tied to a baseline minimum energy use. Some interviewees argued that the priority was to establish a definition and standard for green building that could be agreed upon by industry and regulators, and identified by the public and the real estate industry. Thereafter, standards could be modified. In 2011, the City of Vancouver is examining performance-based ratings for new buildings (CITY 2).

In the next chapter I conclude the planning narrative with an examination of three Council decisions that had significant impacts on the outcomes of the Southeast False Creek project. Each of these decisions underscores the dominance of the three pillars/status quo-reform approach.
CHAPTER 6
Three Decisions

In previous Chapters, beginning with Chapter 4, I have given a chronological account of the Southeast False Creek planning process and identified the central approach to sustainability adopted by key actors at the City of Vancouver. I have examined how the dominant three pillars/status quo-reform approach influenced the planning process. Chapter 6 is the last chapter in which I present a narrative of Southeast False Creek planning events. I examine three planning decisions taken by Vancouver City Council during the years of Official Development Plan preparation (2000 – 2005) and the first site rezoning in 2006. These decisions were taken under both COPE and NPA dominated Councils and reveal that despite some differences in focus on specific pillars, the three pillars/status quo-reform approach was ubiquitous. The decisions I examine are: first, the decision to review building heights for the project late in the ODP process; second, Council’s pursuit of increased affordable housing and a comprehensive target setting and monitoring framework; third, the inclusion of Southeast False Creek as an Olympic venue in Vancouver’s bid for the 2010 Winter Olympic and Paralympic Games and the subsequent selection of Millennium Development Corporation Ltd. as the developer for the first phase of Southeast False Creek, the Olympic Athletes’ Village.

Each of the three decisions yields specific planning insights. The decision to review building heights for the site at a time when revisions would cost the City additional time and money reveals the power of individual bureaucratic actors to initiate significant change in a planning process. The Council directive to pursue more affordable housing allocations for Southeast False Creek as well as a comprehensive targets, indicators and monitoring strategy were challenges to business as usual development planning, but neither of these directives was fully enacted. Even these smallest efforts towards a more transformative sustainability did not succeed. The City’s decision to use the first phase of Southeast False Creek for an Olympic Athletes’ Village highlights the impact of an external force like an international event on a local development project, and also the role of Senior Management in decision-making. The selection of Millennium Development Co. Ltd. to build the Olympic Village reveals the
challenges of developing a rigorous selection process that will deliver the most suitable candidate for building a model sustainable community.

6.1 Revisiting Building Heights for Southeast False Creek

In 2004, almost four years into the process of preparing an Official Development Plan for Southeast False Creek, one individual, working from within the bureaucracy, was able to marshal resources and professional networks to bring about a significant change to the plan. This event is important because it ascribes agency to individual actors in the planning process. In the case of Southeast False Creek, the ODP changes had urban design and financial implications for the project, but few for ecological sustainability.

Much like the first concept plan for Southeast False Creek prepared by Stanley Kwok during the Policy Statement phase, the first draft of the Official Development Plan for Southeast False Creek met with considerable opposition when it was presented to the public in 2003. In the case of Creekside Landing (Kwok’s original concept plan) informed sections of the public had raised concerns about the limited investigation of and attention to sustainable development concepts. While similar concerns were voiced by sustainability advocates about the draft Official Development Plan (Vaughan, 2008), my research shows that it was the proposed building heights that motivated the Co-Director of Planning to pursue a re-working of the urban form plans for the Southeast False Creek ODP.

Shortly after the Council adopted the Southeast False Creek Policy Statement in 1999, Real Estate Services relieved Stanley Kwok from further work on Southeast False Creek. The Director of Real Estate Services took over as project manager working with and at the same time opposite the City Planning Department on developing an Official Development Plan. Former development consultant to the Property Endowment Fund, Stanley Kwok (personal communication, October 18, 2010), recalls that his plans for Southeast False Creek and his influence at the City were diminished when the City Manager, Ken Dobell, left the City in 1999:

Ken Dobell left the City and went to the Province. So I didn’t have a champion on the [Property Endowment Fund] Board. And this happens everywhere. If you
don't have somebody enthusiastic about it, the thing gradually falls off. I was just waiting for them to say ok, we've cleaned the contamination on the site, now let's get on with it. But they never asked me back. I'm not privy to the politics. All of the buildings got pushed down so the Planners got their way.

Kwok’s last comment, that ‘planners got their way’ is a reference to the building height review that triggered a revision of the draft Official Development Plan late in the ODP process. Prior to revisions, the plan had been based largely on Kwok’s pro forma for building heights and densities.

Bruce Maitland, former Director of Real Estate Services, describes managing the Southeast False Creek project from the development side, while working with and opposite the City Planning department. He recalls urging fiscal restraint and re-iterates the perspective that expensive innovations in Southeast False Creek would not be replicated throughout the city.

So we let Stanley [Kwok] go. I took over as project manager with Ann Bancroft Jones. She was Deputy Director. I was Director. And we worked with the architects [VIA Architecture] we had on board... At the same time we were working with the Planning Department on the whole thing. Real Estate was the owner-developer. We had to go through planning just like everybody else. However, on this type of project we were working together on the sustainability issues because we were saying no, that doesn't make any economic sense, but we can do this. And they'd say ok, then, because they wanted to be able to go to another developer you see and say, ok you've got to do this because we just did it.

Maitland describes how he employed the Property Endowment Fund Board, some of whom were also Council members, to support his position when necessary. He identifies members of the Board and Council as Non Partisan Association members, implying that by virtue of their political affiliation they would support fiscal restraint.

So there was Ian Smith on the Planning Department side working for Larry [Beasley], and then Ann Bancroft Jones and I were on the other side. We had the Property Endowment Fund Board which was the Mayor and heads of two committees of the City, Environment and Planning, and the Finance Committee.
George Puil was always the head of the Finance Committee and then the City Manager and the Director of Finance. So that was the five voting members, and then I was the CEO and they were my Board of Directors. So if we’re getting pressure from Planning about something, I could go to the Board and say ok, this is what I think. And if we really wanted to make it a showdown, we’d take it to Council. But once I got the Board on side, if I got Philip [Owen, Mayor], George on board, Jennifer on board, I had six votes. Because we had NPA [Non Partisan Association] majority, we only had two COPE people on Council. And so all I needed was six votes and I usually had eight. So if I got those three on board and they agreed, they’d go back to their caucus, tell them what’s going on, and we’d go and have an in camera meeting and we’d fight it out. Quite often Planning didn’t want to hear about the economics part. They wanted to be the heroes of the world of course. I mean, they were saying, if we were going to lead in sustainability we were going to be doing this stuff right, and I was saying no, no, no you can’t. We can’t do that. (B. Maitland, personal communication, May 7, 2010)

Maitland’s description of the relationship between Planning and Real Estate Services highlights a difference in focus between the two forces: planners pushing for deeper sustainability and Real Estate Services maintaining watch over the economics of the project from a developer’s perspective. It also reveals the power dynamics within the bureaucracy. The Director of Real Estate Services at that time relied on support from his Board, and on their influence with Council. Other people involved in the process recall a similar experience of the relationship between Real Estate and other City departments. Former Senior Planner Ian Smith describes it as somewhat less collegial than relationships between City departments and private sector developers on other projects:

When it came to dealing with Southeast False Creek, in the beginning at least, the Real Estate Department felt because they were part of the City it was up to them what they were going to tell their consultants to do and what they were going to share with the Planning Department and the rest of the departments that were reviewing it. So it really didn’t lend itself to the same sort of relationship that we had with the private sector, strangely enough. (I. Smith, personal communication, January 26, 2010)
A former employee of VIA Architecture, the consultant hired by Real Estate Services to develop the Official Development Plan, describes the consultant’s efforts to respect the requirements of its client, Real Estate Services, while also pursuing the sustainability agenda as it was being promoted by the City Planning Department.

*There are stories about how Real Estate Services was paying VIA's bill to develop this master plan, and Real Estate Services had said, you are no longer allowed to talk to Planning about this without us in the room.*

*_And there was this famous meeting where Graham McGarva, our boss, the partner at VIA, had a secret one day workshop on the weekend with the Planning Staff at the risk of all of them getting fired to sort of make sure that a lot of the sustainability stuff was being integrated. I think that shows their [VIA’s] commitment to making it as green as possible.*  (CNSLT 3)

Ian Smith describes how the various City departments worked with the architects hired by Real Estate Services on an Official Development Plan concept which was ready by mid-May of 2003. His comments underscore the difference in priorities for Southeast False Creek between Planning and Real Estate Services.

*... with the architects that were hired by the Real Estate, VIA, we prepared a three dimensional plan with the kind of heights that, well, some of them were kind of a compromise because Real Estate would have had all 30 story towers if it had been up to them. And so we tried to get in more mid-rise and more lower rise buildings and we always, even with the other major projects, tried to keep the height down near the waterfront and around the park edges. And so we came up with a plan; the best that we could do with the Planning Department pushing as hard as it possibly could. And that all ended up in a huge debate about built form, that surfaced in about 2003 and 2004. From Real Estate's perspective it was all about value.*  (I. Smith, personal communication, January 26, 2010)

The debate about built form is reported by various interviewees and bears review because it provides an example of how a plan can be changed even when it appears to have significant momentum. One strategically minded and strategically situated individual employed his
professional networks and took advantage of changing local contexts (the 2002 election of a COPE dominated Council) to help bring about a revision of building heights for the final Official Development Plan.

City documents report that concerns about built form were initially raised by the public and by design professionals when the first draft ODP was circulated in 2003 (City of Vancouver, 2004). One round of revisions was completed and re-circulated to the public, stakeholders and the urban design community in February 2004. Concerns remained over housing affordability, heritage, urban form, park location, waterfront animation, cycling infrastructure, integrations of public and private lands and size of parcels on public lands. The Urban Design Panel suggested that the sustainability design standard was insufficient. The Vancouver Planning Commission, in a written submission to Council, asserted that economic viability must not over-ride other sustainability considerations in the development of the community. The Stewardship Group recommended an increase in the provision of affordable housing beyond the City’s standard 20% on City lands; development of a full sized community centre; development of sustainability indicators and targets as part of the ODP; increased support for social sustainability through emphasis on urban agriculture (City of Vancouver, 2004). City Council responded to the public and professional concerns, as well as bringing forward suggestions of their own. They required Staff to prepare a report reviewing options for the ODP that reflected various social and environmental priorities (City of Vancouver, 2004). The issue of building heights is one of a set of concerns raised about the initial ODP and its first revision. Interviewees give a more detailed account of how building heights came to be reviewed. In their recollection the actions of one strategic and influential individual within the City played a central role.

*That's an interesting sub-story too. It's more around built form ideology. I went on leave in the fall of 2003...we had a draft OPD. We had an illustrated plan and when I left, I remember thinking oh, this will imminently be passed. One of the last meetings I went to was the one where Larry Beasley made a compelling argument to the City Management Team to have funds allocated to take another look at the built form because he didn't feel that the tower podium form that was*

44 Council’s response to these concerns is discussed in Chapter 6 where I describe the COPE decision to increase affordable housing allocation from 20% to 33%.
proposed was the right thing to do. He wanted to look at more of a New Urbanist form - same density, but he'd take the tower, squish it down and push it out to the side. He wanted to investigate that. I think at the time he thought it would cost so much and only take six weeks or something but when I came back in 2004, we were at the same point, almost everything the same but different built form. And that's what was passed as the ODP. That was a year really of rethinking the way the density played out on the site. (R. Petri, personal communication, July 21, 2010)

Former City Planner Mark Holland (personal communication, July 22, 2010) recalls his reaction at a meeting in which Beasley made the case for reducing building heights in Southeast False Creek. For Holland, the proposed building heights represented hard fought compromises with Real Estate in which profits from increased heights corresponded to more opportunities for innovation and experimentation with sustainability objectives.

For many years the model of Vancouver downtown development was assumed to be what we’d used in False Creek North – towers and street edge podiums. Later, after I was managing the City’s Sustainability Office, Larry Beasley and others decided to explore a mid-range (up to 16 stories) solution for the site.... I became quite concerned because at the time I was sure we needed the height. I was really convinced that we needed to trade off height and density for money to spend on...at one point earlier in the project the senior planner, Ian Smith and I went to the Real Estate staff and said, ok, how high does this need to be? We can possibly add height to increase profit to cover costs for these innovative directions we want to pursue. And then a couple of year later the ODP process unfolds in a conversation against height and results in a massive reduction in overall building height – up to half in some cases what was originally considered. This made me very concerned that we might risk losing a lot of the green agenda. And that is what was going through my mind when I chose to stand up at the workshop where height was really being winched down and confront this concern. I remember these were challenging conversations and left us with some sense that the only way we could ensure we could pay for the green innovations was to have the extra storeys; you sell units at, 27 stories at $2000/square foot instead of less than half
that at lower levels that don’t have good views. The question in my mind was why should a little bit of height, that's not blocking anybody's view get in the way of sustainability? I won't tolerate, I won’t sit by and let you do that without saying something. My challenge didn’t go over well with the Director of Planning as there was a big sense of momentum to try a more European (as they called it) form of development.

Former Co-Director of Planning Larry Beasley describes his role in initiating a building height review:

...at the beginning when Graham McGarva and others were presenting concepts like the tower podium I didn’t jump up and down and scream. We were just off of a very attractive project [False Creek North], that was just beginning to show itself very nicely in the inner city. But it dawned on me maybe 30% into the process that we really shouldn't pursue that form... It was like Pandora's Box had opened and everyone thought to solve every problem we should do higher density and higher buildings... Our guys in the end, I don't think were strong enough in that first round. Our guys being the Planning team who were engaging with him [consultant] on a day to day basis. They weren’t pushing hard enough. But as the plans emerged I came to this profound conclusion that we needed a different vision, that a) we needed it for urban design reasons and b) we needed it for the balance of the sustainability reasons.

I did two things: one of them good and one of them mischievous. The good thing is that I went to the City Manager who was a very close ally of mine for many projects, many circumstances, and many dramas. And I said to her, you know I'm about to have to do something really bad; I'm about to have to go to Council and say I don't recommend the project as proposed and then probably come in to your office right after that and resign. And she said, wait a minute what's that all about? So I explained that I felt this was not going the right way and I said, I need some money and some mandate to conjure up an alternative. She was a little reticent, for obvious reasons.
Then the mischievous thing I did was - I knew there was an emerging opposition to the scheme by the more informed design community; some citizens, some environmental people but primarily it was the more informed design community. So I made some phone calls and I urged them to become very political. When they understood that I wasn't on board with the height, they started working with me and asking, what can we do? And I said guys what you have to do is to get all the powerful influential designers you know, write a letter that says the proposed heights are problematic. It was a very pivotal letter they wrote. As that letter was being written, I started a political process in City Hall among politicians to take the idea of a review forward. As it happens there was a new Council and the gods were with us. It was that simple.

The City Manager got messages from politicians that said “we don’t like the way this is coming out; we don’t like the controversy, fix it.” She had heard my view that we should hire someone to develop an alternative to the tower podium...In the middle of all that arrived this letter from the influential design community. It gave her a very good excuse to pursue the alternative, not just for as a response to me, but in response to the public. She gave me the money. I hired Norm Hotson who devised the alternative scheme which became the foundational scheme endorsed by Council. And I breathed a sigh of relief to be honest.

It was fairly late in the game when all of this took place and there were a few people crying foul that the Planning Department seemed to be going a different direction than where others had been going. But by that time, in the bureaucracy, in the Real Estate Office, and in the Engineering Department, Parks and various places, many people saw it as maybe an opportunity to get a better fix. And so we backed down from the brink of what could have happened which was Real Estate could have pushed forward with the existing scheme and I probably would have been the only one standing at Council saying it was not right and probably would have lost.

But I will always be very thankful to the design community and a number of the environmental people who stood up and basically said this is not working.
Because I think they really caused the politicians to start looking at it carefully and then we had Raymond Louie and Jim Green [newly elected municipal COPE Councillors] on the scene by that time and we got another chance. (L. Beasley, personal communication, August 24, 2010)

Beasley’s account is echoed by another former senior City Planner who identifies the Council change (which occurred in November 2002) as an opportunity for City Staff to pursue revisions to the heights being proposed in the Real Estate Services plan. The interviewee also comments on the potential conflict for the City in operating as both developer and regulator:

Graham McGarva was working on it as the major consultant up until the Council when Larry Campbell became mayor. That change in Council led to another big re-evaluation of certain key aspects of what was then evolving as the plan.

By that time they had to some degree narrowed down what aspects of sustainability they wanted to promote but it was still effectively, despite many of Larry's, Larry [Beasley] is a very tenacious guy, ...it was still more of what was on the North shore. I know Larry had a design charette which to most peoples' disappointment didn't seem to have much influence but then when Council changed I think there was much more open mindedness to reconsider some of the basic premises. There was an exercise done that provided certain choices in key areas and Council made some decisions about affordable housing and built form and park spaces and so forth that effectively set off another round of planning revisions which is what then eventually became the Official Development Plan. So it was a fraught process not only from the perspective of trying to figure out what did sustainability mean because I think the City had no real clue... so that was one big challenge and a lot of varied expectations from different stakeholders. Then the other part that was fraught was really this relationship between the City as the owner and developer, and the City as the planner and envisioner and trying to have that relationship be sort of practical and productive. Because in some ways there can be an inherent conflict there. (Former Assistant Director of Central Area Planning, personal communication, June 2010)
Beasley and the Former Assistant Director of Central Area Planning both identify the newly elected, COPE dominated Council as a factor in supporting a revision of the draft ODP. The revision went beyond building heights to include the location and size of the community centre, the location of park space and other elements of the plan. Former Senior Planner Ian Smith suggests that an NPA dominated Council might have been swayed by the public and professional calls for the review:

Had the same thing happened with a Council that had more NPA on it, they may have reacted exactly the same way. I mean generally councils like to think that they have the support of the public when they are moving forward with a major rezoning and that they have the support of the professional community. Would they have been as sensitive to the concerns as the COPE Council, I don't know. What I do know is that the COPE Council was very concerned. And they were prepared to do, maybe some things from a social perspective that the NPA might not have seen as equally important.

In terms of the goal to create a lower built form, better articulated with the neighbouring Mt. Pleasant community, Smith recalls that Real Estate Services raised concern over the higher up-front costs of lower buildings.

Real Estate presented the fact that it was going to be more expensive to build; that mid-rise buildings are less efficient; not only more expensive but they are less efficient because you have more corridors and dual or triple cores. Whereas a high rise tower has one core. In mid-rise you are not building a repetitive floor where one is exactly the same as the next like a tower. There is variety; that costs money. And that was pointed out and it certainly was the case. Apart from LEED Gold and everything else, the form itself is just more costly to build.

Despite increased costs, Smith points out opportunities for achieving greater social interaction and community cohesion with lower buildings – goals for sustainability included in the Policy Statement.

The lower form really responded to the social aspects as much as design can. With lower buildings there are more ground oriented-units, more interesting
pathways and public places where people can meet. The roof areas are larger so there are more opportunities for rooftop gardening. There are more opportunities for people to meet their neighbours in plazas or on rooftops when they are gardening. (I. Smith, personal communication, January 26, 2010)

Another City Staff member, a current member of the Sustainability Group, suggests that some resource reduction benefits may accrue from lower heights.

Moving to the perimeter block typology we’ve adopted does allow for single loaded corridors which allow for cross ventilation. It allows for cooling ponds in the middle of the building which can also help to cool the whole project from a passive design perspective. The scale is low enough that using the stairs and manual circulation are more possible. So from an energy efficiency perspective, those are the advantages. It also provides a better roof to floor area ratio than if you just build towers. You are not jamming as many people under a small tower footprint so you have more opportunities for solar thermal and possibly more programmed green roof space. (CITY 3)

The potential merits of low and mid-rise buildings from a resource use and social perspective are echoed by the City’s Senior Urban Designer, Scott Hein:

...low to mid rise buildings can be more expensive given greater building envelope area and a larger percentage of overall floor area allocated to circulation while being the proper choice for appropriate contextual scale, effective passive design, opportunities for communal rooftop use including urban agriculture, and a more interesting, vibrant architectural expression than more typical tower form. (S. Hein, personal communication, October 28, 2010)

The data show that a change in building heights was pursued by a number of groups and individuals, but in particular by members of the local design and architecture community and the Co-Director of Planning. Although interviewees were able to identify potential resource use reductions, the motivation for reducing building heights was largely aesthetic and urban design based. The Director of Central Area Planning was not moved to action by a desire to achieve higher ecological sustainability outcomes or by the potential energy savings from
passive solar design opportunities. While it is not clear exactly how much influence the Co-Director of Planning had in the decision to revisit building heights, it is evident from the interview data that City Staff who witnessed Beasley at work, interpret his role as central. In his own account, Beasley highlights the strong professional relationship he had with the City Manager, and he recounts his actions as both strategic and targeted. For planning researchers and practitioners Beasley’s individual power to effect change, to in fact initiate the reversal of a planning direction and delay the process by almost a year, is significant. It supports the view that planners working from within the bureaucratic system can effect change, particularly when they are supported by progressive local government (Sandercock, 1977; Clavel, 1986; Krumholz and Forester, 1990; Healey, 2007).

Beasley was concerned with urban design and livability issues in Southeast False Creek when he pushed for a revision of the building heights and he had the support of an influential local design community and the City Manager. He also had the good fortune of a recently elected, left-leaning City Council that was interested in deepening sustainability goals for the site (Vaughan, 2008). It follows that had Beasley sought greater ecological sustainability outcomes for the ODP, he might have rallied local sustainability experts, the Stewardship Group, the City Manager and the new Council to that purpose.

6.2 COPE Council in Office: Strengthening Sustainability Goals

The new City Council, identified in Section 6.1 as helpful in Beasley’s efforts to gain a review of Southeast False Creek building heights, was dominated by members of the Coalition of Progressive Electors (COPE). They had been elected in November of 2002. COPE was connected to local grassroots organizations; it had a long standing commitment to social equity, and took a hands-on approach to local governance when compared to their NPA counterparts, who had ruled for most the of City’s municipal history through a more technocratic, fiscally conservative approach (Ley, 1986; Vogel, 2001). It was during the COPE tenure that the only official set of targets and indicators for Southeast False Creek was adopted (City of Vancouver, 2005). Also during the brief COPE reign, the City committed to increasing the affordable housing allocation for the project.
Few interviewees for this research placed much emphasis on the influence of various municipal councils in the planning and outcomes of Southeast False Creek (the majority of my interview subjects were City staff and consultants). Most interviewees reported that all Councils supported the project goal of sustainability. Differences were identified only in regard to the financial return each Council sought for the Property Endowment Fund. My research finds that the overall approach to sustainability was not different between Councils. Decision-making aligned with the three pillars/status quo reform perspective. However, the COPE-dominated Council did look beyond business as usual pro formas and funding options for development of the community. They prioritized a goal to achieve a socio-economically diverse community in Southeast False Creek. They also adopted a policy to commit funding to a strategy for targets, indicators and monitoring that would help Southeast False Creek fulfill its roles as model sustainable community, and as a model from which to learn about sustainability.

The COPE Council made significant changes to the evolving ODP at a public meeting on July 20, 2004. In response to concerns raised by the public, by advisory groups and by Council members themselves, Staff were instructed to carry out the following: change the mix of housing to 1/3 non-market, 1/3 modest market, and 1/3 market; reduce the form of development from high rise to mid-rise; increase the community centre to full size; change the distribution of park space; narrow street rights of way; increase the number of child care facilities (City of Vancouver, 2004d). The financial implications of these changes meant that the Property Endowment Fund would forego any profit from the development; it might also forego recovery of the land value (in present terms) (City of Vancouver, 2004d). In making these decisions the COPE dominated Council was pursuing a development path similar to that of South False Creek, the project from the 1970s in which the City had opted to invest financial returns into public amenities rather than accruing profit (City of Vancouver, 2004). However, unlike the South False Creek era, funding for affordable or non-market housing was no longer available from the federal government. The 1/3; 1/3; 1/3 housing mix could not be achieved from project revenues. It would require heavy lobbying of senior governments, cooperation from the private sector and identification of innovative funding strategies (City of Vancouver, 2005a).
The Council decision to pursue greater levels of affordable housing and other public amenities was applauded by the Stewardship Group (Vaughan, 2008), and reflected the principles of the Policy Statement to create an inclusive, diverse community. Non Partisan Association members on Council derided the move as damaging to the “principle of sustainability to [for] the Property Endowment Fund” (Kear, 2007:332) and as soon as they regained control over Council in November 2005 (six-five NPA-COPE), they reversed the decision. The City’s standard 20% allocation for affordable units in major developments would apply (City of Vancouver, 2006).45 Ironically, from the perspective of ecological sustainability, the NPA Councillors, along with Senior City management (Director of Finance, City Manager) and the Property Endowment Fund Board, had a firm grasp on the sustainability concepts of maintaining capital stock and living off productive interest when it came to money. In several Staff reports to Council where the financing of Southeast False Creek was discussed, both the City Manager and the Director of Finance pointed out that deviations from business as usual profit for the Property Endowment Fund were risky for the long term financial viability of the City (City of Vancouver, 2004:3; City of Vancouver, 2005a). In a 2005 report to Council the Director of Finance highlighted the importance of maintaining and increasing the capital holdings of the Property Endowment Fund for the benefit of both current and future residents of the city.

The Fund is to be treated as an endowment for the current and future residents of the City and the objective is to protect and increase the value of the fund. The objective of the PEF is to earn a reasonable return on its investments and, where this objective can be met, to contribute to the City’s public policy objectives. Net income of the PEF is shared between current residents, through direct support to the Operating Budget, and future residents through strategic investment in income producing assets. (City of Vancouver, 2005a)

From the perspective of ecological sustainability and in light of scientific findings that reveal a year over year draw-down of global natural resources and systems services (WWF 2007), applying the principles outlined by the Director of Finance for financial capital stocks to

45 Kear, 2007 argues that the NPA capitalized on the malleability of the concept “sustainable” to define it in purely economic terms. He suggests that the ambiguity of the concept is problematic. I assert that the NPA’s move reflects a problem of approach: a trade-off between three pillars of sustainability.
natural capital stocks is a necessary course of action (Daly and Cobb, 1994; Rees 1995; Costanza et al., 1997; Ekins, Folke and DeGroot, 2003).

### 6.2.1 Performance Targets, Indicators and Monitoring

In July of 2004, the COPE dominated Council approved a new policy for Southeast False Creek: “THAT the SEFC ODP include specific sustainability goals, targets and indicators and require tracking/monitoring of performance with regular report out – for example, energy consumption and material consumption per capita – and commit necessary funding to do this” (City of Vancouver, 2005:2). From the perspective of living within biophysical limits, target setting and monitoring of per capita resource use are indispensible. In practice, the commitment to fund the target setting and monitoring work is critical. The policy, prepared by City Planners and adopted by the COPE Council, was a step toward actual measures of sustainability for Southeast False Creek. It fulfilled target setting and monitoring aspirations that had been expressed by sustainability advocates and consultants since the late 1990s.

Prior to approval of the policy, Council received a Staff report that included a list of possible pros and cons related to adopting targets for Southeast False Creek. The content of this report reveals that Senior City Management and City Planning Staff continued to advise Council from a three pillars perspective on sustainability. The pros and cons of target setting are presented as:

**Pros**

- Focusing on targets would further clarify the sustainability goals of Southeast False Creek
- Developing a process for regular sustainability evaluation would improve the credibility for the public related to civic performance on sustainability.

**Cons:**

- Indicators and targets are more appropriate for the rezoning or development permit stage.
- Setting targets now could limit our flexibility to respond to changing technology which could change our perception on sustainability.
- We have included targets where we have considered them definable and measurable within the mandate of City programs, setting targets outside of this would create uncertainty and pose administrative challenge. (City of Vancouver, 2004)

The list of cons reveals a view of sustainability as a localized goal with flexible targets rather than as steps toward achieving a state of ecologically sustainable living at a pace that responds to scientifically documented rates of global ecological change. The appropriate stage for determining targets is at the outset of the project. A long range goal for sustainable living must be established, for example a one planet per capita ecological footprint, in conjunction with short term, measurable targets toward that ultimate goal. Setting targets does not require specification of how to achieve the target. A firm target, rather than limiting flexibility, should allow maximum flexibility in strategies to achieve the targets. The third ‘con’ challenges all cities but must not be avoided. Action for change at other levels of government is necessary and city officials should engage and collaborate with senior governments, as well as working cooperatively with local groups to promote change at various levels.46

The Council directed City Staff to develop a set of performance targets relating to environmental, economic and social sustainability objectives of the Policy Statement. The Staff was also directed to hire a consultant to develop an advanced public investment model. This model would examine the long range benefits of developing Southeast False Creek as a sustainable community (City of Vancouver, 2004e). An advanced public investment model (for example full cost accounting) had been recommended as early as the 1997 public hearing at which the Director of Real Estate Services had assured the public that full cost accounting would be undertaken (City of Vancouver, 1997b). The Sheltair Group had included a model for full cost accounting in their report Visions, Tools and Targets presented to the City in 1998. Full cost accounting was also identified in the Southeast False Creek Policy Statement (City of Vancouver, 1999:76). However by 2004, with the draft ODP already twice revised, such an analysis had not been undertaken.

The purpose of an advanced public investment model is to evaluate long term ecological, social and financial benefits of investment decisions rather than the standard cost benefit

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46 See Epilogue, for examples of how the City of Vancouver is pursuing this strategy as part of its Greenest City initiative and One Planet footprint goal.
focus on financial returns (City of Vancouver, 2007:19). A form of accounting that values the ecological and social benefits of investment decisions is central to sustainability theory (Daly and Cobb, 2004). Unfortunately, triple bottom line and full cost accounting (two potential study options) were too ambitious given the timeline (the consultant had only a few months to prepare the report before it was to go to a public hearing in February of 2005) and the lack of available data for monetizing social and ecological outcomes (City of Vancouver, 2005c; ADV 1). Lack of precedents and data is a problem that surfaced throughout the planning process for Southeast False Creek (see Chapter 4 discussion of developing sustainability principles; targets and indicators) and it is a constant challenge for innovation in planning.

The consultants (Eric Vance & Associates and The Sheltair Group Inc.) prepared a Multiple Accounts Evaluation which identified the anticipated benefits of environmental, social and economic policy objectives for Southeast False Creek as specified in the draft ODP, and as compared to a range of previous major development projects in Vancouver (Coal Harbour; Bayshore; North False Creek; Downtown South; Collingwood; Arbutus Lands; CityGate). For each policy objective, the report identified qualitative benefits and suggested possible indicators for measuring the success of the policy. Estimates of financial savings were included for a limited number of objectives, for the most part relating to cost savings from resource use reductions such as aggregate reductions in water use; carbon emission reductions from fewer private automobiles (City of Vancouver, 2005c). For social policy objectives whose up-front financial investments could not easily be monetized as long term financial benefits, (for example, creating a diverse community through mix of affordable, modest market and market housing and provision of 35% family housing on public lands), the report offered research to show that vulnerable children raised in economically diverse communities fare better than their counterparts in economically homogenous communities, and also argued that economically mixed communities are better able to support a range of local businesses and services (City of Vancouver, 2005c).

The summary section of the report states that the Multiple Accounts Evaluation “is the first step in what will be an on-going evaluation process. As further data and information become available over time, additional analysis will be undertaken for monitoring purposes” (City of Vancouver, 2005c:8). I highlight this statement because at the time of this research in 2011,
the Multiple Accounts Evaluation has not been up-dated, nor is there a formal, on-going evaluation process based on this document (CITY 2).

The Multiple Accounts Evaluation was combined with the effort to develop a set of performance targets and indicators, and an on-going monitoring strategy. The list of indicators along with the stewardship and monitoring strategy were presented to Council in a report, *Sustainability Indicators, Targets, Stewardship and Monitoring for South East False Creek* (City of Vancouver, 2005). Members of the SeFC Stewardship Group had worked with the City on the targets and monitoring strategy; a review panel of local experts had also commented, but the report and its preliminary targets and indicators list were written by City Staff (City of Vancouver, 2005). The report addressed twenty-four ODP policy objectives for environmental, social and economic outcomes in Southeast False Creek. It presented targets and indicators for all of the environmental objectives: building energy; water use; storm water management; solid waste and recycling; urban agriculture; green building; transportation but for only a few of the social and economic targets. Many of these were left “to be developed” (City of Vancouver, 2005). In the preamble of the report, the authors explain that targets were based on ODP policy and by-laws where possible and on strategies like the Southeast False Creek Green Building Strategy. They state that in some cases targets for social and economic objectives could not be determined.

A member of the review panel for the report recalls that the preliminary targets and indicators list did not address a central objective for Southeast False Creek: its role as a vehicle for promoting socio-cultural change toward sustainability:

*The language around Southeast False Creek has always included this idea about a model community, and that one of the primary purposes is to inform and get people thinking and create a demand for the next cycle of development with this kind of excellence. We [review panel] felt there wasn’t enough thinking about how to ensure this learning was actually going to happen. The report was sort of a grab bag of indicators and ideas. It wasn’t being thought of in terms of informing people and the learning factor.* (ADV 1)

The preliminary targets that relate to resource use and waste production are presented in Table 6.1 along with my estimates of associated resource and waste reductions as compared to
business as usual. No such estimates were included in the Staff report. Appendix D presents the full list of objectives, targets and indicators.

### Table 6.1 Council resolution targets related to resource use and waste production (2005)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Council Resolution 2005 (City of Vancouver, 2005)</th>
<th>Estimated Reduction in Resource Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Annual Building Energy Consumption</td>
<td>0.79GJ/m² Commercial and Institutional Buildings</td>
<td>49.4% reduction from BC average of 1.56 GJ/m² (Natural Resources Canada, 2007)</td>
</tr>
<tr>
<td></td>
<td>0.44 GJ/m² Townhouse</td>
<td>49% reduction from BC average of 0.86 GJ/m² (Statistics Canada, 2007)</td>
</tr>
<tr>
<td></td>
<td>0.31 GJ/sq m² Multi Unit Residential</td>
<td>53% reduction from BC average of 0.66 GJ/m² (Statistics Canada, 2007)</td>
</tr>
<tr>
<td>Solid waste (residential and commercial) Kg/capita/year disposed off site</td>
<td>200kg/cap/yr maximum</td>
<td>60% reduction from Vancouver average of 510 kg/cap/year (City of Vancouver, 2009a)</td>
</tr>
<tr>
<td>Transportation Residents’ trips % non auto</td>
<td>60% all daily trips by non-auto modes</td>
<td>Actual reduction in emissions cannot be determined from this target. See discussion below.</td>
</tr>
<tr>
<td>Potable Water Use</td>
<td>190 l/capita/day</td>
<td>47% reduction over 2009 (City of Vancouver, 2009)</td>
</tr>
</tbody>
</table>

Data from City of Vancouver, 2005; Natural Resources Canada, 2007; City of Vancouver 2009; 2009a

The authors of the 2005 report describe indicators and targets as “critical tools for promoting sustainability. They help to establish a clear vision of what is to be achieved, provide focus for all involved in the design process, and create a framework for managing performance after the development is complete” (City of Vancouver, 2005:3). They describe the

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47 Statistics Canada, 2007 does not use townhouse or multi-unit as categories; I have used their 1000-1500 sq ft category for townhouse and their 600-1000 sq ft for category multi-unit.
importance of on-going monitoring of Southeast False Creek performance and acknowledge that site performance will require commitment from the City, land owners, and future residents and business operators. The report also describes the possible role for the Stewardship Group as development proceeds.

- **Responsibility for achieving targets must rest with individuals or organizations that have the necessary level of control to achieve a target.** Similarly, explicit monitoring, reporting and enforcement mechanisms are required to hold those entities to account. The City will play a key role in achieving certain types of targets through overall site structure and infrastructure design. Land owner and developers will play a role in achieving site and building-specific performance targets. Future SEFC residents, business owners, employees and visitors will play a critical role in on-going performance of the area.

- **The Southeast False Creek Stewardship Group should continue its oversight role during the rezoning phase; eventually the Stewardship Group should be replaced by a community association of residents who will establish a Council-resident connection.** One of the roles of this community would be to provide feedback to City staff for on-going monitoring, performance evaluation, and suggestion of measures to improve the neighbourhood.

- **A detailed monitoring strategy for the next stages of SEFC development will be designed and it is proposed that it be presented to Council at the sub-area rezoning stage.** The monitoring strategy will include a process for collecting data, a timeline for reporting results and adding responsibility for the various monitoring tasks.

- **Sustainability education should be the role of the Stewardship Group and neighbourhood association in conjunction with on site demonstration projects like a neighbourhood energy utility.**

- **Achievement of targets will depend on the level of impact educational programs have on changing peoples’ behaviour; identify role residents and employees will play in achieving sustainability through their choices and how they use the infrastructure, buildings etc.** (City of Vancouver, 2005: 4-5)
The information included in both the Multiple Accounts Evaluation and the targets and indicators report reveal that in late 2004 and early 2005, Southeast False Creek was being envisioned by at least some members of Council, City Staff, consultants and Stewardship Group members as more than a typical Vancouver major development project with the addition of an environmental ‘layer’. It was being perceived as an opportunity to create a socio-economically diverse community of residents who would be interested in the sustainability goals of the project. The Multiple Accounts Evaluation report includes discussion of ‘aging in place’\textsuperscript{48}, to be made possible by a variety of housing types and affordability. The targets and indicators report discusses the importance of sustainability education for residents and the public. The authors suggest that “once the community is inhabited, it is likely that an engaged community will want to track more specific and numerous indicators”, (City of Vancouver, 2005: 3) revealing the perception of some (identified earlier in this chapter) that future residents of Southeast False Creek would be different than residents of previous downtown major developments – they would be conscious of and willing to participate in the sustainability aspirations of the community. As the development of Southeast False Creek got underway, events transpired to result in a development that appears anything but socio-economically diverse and has traded the goal of a community of sustainability-oriented residents for a high end, market development built around technical engineering and design solutions to reducing resource use.

Both the Multiple Accounts Evaluation and the targets and indicators reports were presented to Council at a public hearing on February 1\textsuperscript{st} 2005. They were both incomplete and would require on-going up-dating and development.

6.2.2 Official Development Plan By-law Adopted (2005)

After five years and three revisions, the Official Development Plan for Southeast False Creek was adopted on March 1, 2005. The Official Development Plan set out urban design principles, sustainability principles, and environmental, social and economic sustainability

\textsuperscript{48} A concept important to some sustainability theorists who argue that people ‘living in place’ will better recognize their dependence upon local ecosystem services and will make an effort to steward local resources more thoughtfully (eg. Thayer, 2003).
strategies. The document highlighted the role of Southeast False Creek as a learning experience for the City in developing such principles for application in other development projects (City of Vancouver, 2007).

The preliminary targets and indicators were not included in the ODP by-laws. Instead, they were adopted as a Council resolution on the grounds that updates would be forthcoming at the first parcel rezoning of Southeast False Creek. To update a resolution is simpler in bureaucratic terms than amending Official Development Plan by-laws. Once again, performance targets were left out of the official policy documents.

The *Official Development Plan* identified target setting as a priority for the development stage of the project (see Table 6.2). It also set an ambitious goal to develop a greenhouse gas neutral neighbourhood (see 3.11 in Table 6.2). In Table 6.2, I present *Official Development Plan* priorities and objectives related to target setting and monitoring, sustainability education, and resource use and waste reduction. Comments on the level of implementation are included.

**Table 6.2** Official Development Plan By-laws relating to target setting, monitoring, education and environmental performance

<table>
<thead>
<tr>
<th>Official Development Plan (City of Vancouver, 2007)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2.4 Priorities</td>
<td>The preliminary targets adopted by Council resolution were not updated or referenced during project development.</td>
</tr>
<tr>
<td>Priorities include setting social and environmental performance targets at the beginning of the development process, with the intent of finding ways to meet such targets in an economically viable fashion.</td>
<td></td>
</tr>
<tr>
<td>2.2.8 Education</td>
<td>Some public education is offered: a green building walking tour; public viewing portals, tours of the district energy system; vent stacks from the district energy system can provide visual information about energy use. Missing is education for residents and visitors; eg. from consultants’ reports: a sustainability centre; tool sharing libraries; etc.</td>
</tr>
<tr>
<td>Southeast False Creek is to encourage awareness and understanding of the principles of sustainability, and how their implementation can occur.</td>
<td></td>
</tr>
</tbody>
</table>
2.2.10 Accountability
Development is to include implementing a process to promote accountability for decisions and actions by monitoring impacts and outcomes using post occupancy studies and community consultation.

Comments
No system of accountability has been determined at the time of this research (2011).

3.1.1 Energy
Energy efficiency is to be a key design consideration for all buildings. Energy requirements are to meet the minimum standards necessary to satisfy the recommendations identified in the Green Building Strategy. The goal is to establish an energy efficient green house gas neutral neighbourhood based on renewable resources. The basic strategy for meeting that goal is to consist of three inter-related design approaches including:

(a) conservation strategies such as efficient building envelope, green roofs, building orientation and configuration, unit energy metering, user controls, manual ventilation, and daylighting;

(b) core system strategies such as heat pumps, green hydro-electric, hydronic slab heating systems, thermal storage, and building mass; and

(c) heat source and system strategies such as horizontal ground-source loop, district heating, sanitary sewer heat recovery, waste hot water heat recovery, solar hot water, and passive solar gain. These strategies or other similar energy concepts are to form baseline efficiency for the green building strategy. Another goal is to further identify energy supply and utilization concepts as development of infrastructure progresses.

Buildings are being designed to meet the requirements of the Green Building Strategy.

A greenhouse gas neutral neighbourhood has not yet been realized although the strategies listed have been employed. In 2006 the City approved development of the district energy system (City of Vancouver, 2006a). The system selected was sewer heat recovery, with natural gas back-up.

3.1.4 Solid Waste and Recycling
Each CD-1 re-zoning to include requirements regarding separation, collection, and storage of garbage, organics, and recyclable materials; on-site organic composting for landscaping needs; management of construction and demolition waste for minimum of 50% landfill diversion.

3.1.9 Green Buildings
All buildings to achieve minimum baseline environmental performance in all facets of building design and construction, and comply with the Green Building Strategy

Data from City of Vancouver, 2007

49 Dockside Green, the sustainability-oriented project in Victoria British Columbia is required by the City of Victoria as part of its Master Development Agreement to conduct and publish annual and 5-year performance reports for 20 years (The Sheltair Group Inc., 2007).
The ODP also includes section 3.3.1 which requires development of an alternative financial model.

3.3.1 A different financial approach in this community: Development of a model which values social and environmental measures, and considers the long term economic viability of the community, is to inform the financial approach that is to support economic sustainability.

The official Meeting Minutes from March 1st, 2005 when the ODP was adopted include the requirement for full cost accounting on an on-going basis in conjunction with annual monitoring including sustainability indicators and targets:

F. THAT full cost accounting of the South East False Creek development be undertaken on an ongoing basis according to the financial model required by Clause 3.3.1 of the Official Development Plan, using emerging best practices.

AND THAT, because full cost and revenue accounting is to be used as a tool to assist in decision making, the results be reported to Council at appropriate intervals, including an annual monitoring report that includes sustainability indicators and targets, and including at the time of each sub-area rezoning, and be used when and if policy choices for financial reasons are made from time to time. (City of Vancouver, 2005d)

Section 3.1.1 of the ODP remained unchanged once the NPA regained a majority Council in November of 2005. It is unclear the extent to which anything other than standard financial accounts have driven the development of the project since then. In particular when the City selected the developer for the first phase of development, research data shows that appetite for financial gain overshadowed ecological or social considerations.
6.3 From Local Model of Sustainability to International Event Site

In the midst of the work to create an Official Development Plan for Southeast False Creek, Vancouver won its bid to become the host city for the 2010 Winter Olympics. As part of the Vancouver Bid, the City offered Southeast False Creek as the site for the Olympic Athletes’ Village. The City would sell its land to a developer who would deliver the Athletes’ Village in time for the international event, and would refurbish the units for sale once it was over. (See Figure 6.1 for development parcels). The idea to locate the Athletes Village at Southeast False Creek came from the City Manager (J. Rogers, personal communication, March 4, 2011). Council’s decision to support this idea had significant consequences for planning, development and outcomes of the project. Once the City had signed the agreement with the International Olympic Committee, it was bound to produce an Olympic Village by November of 2009. Timelines for rezoning, permitting and development were condensed (T. French, personal communication, December 15, 2010; R. Petri, personal communication, July 21, 2010). The flexibility to make changes, to explore sustainability innovations and reconsider options was lost. The collaborative, public process that had characterized the Policy Statement (Irwin, 2004) and Official Development Plan (Vaughan 2008) phases of development was sidelined in the rush to meet Olympic deadlines (Vaughan, 2008; T. Osdoba, personal communication, November 15, 2010; R. Petri, personal communication, July 21, 2010). There were also changes to the bureaucratic structure of project planning and management when the City established the Southeast False Creek and Olympic Village Project Office in 2005.

The decision to develop the first phase of Southeast False Creek as an Olympic Athletes’ Village cast a new light on the project. For some, focus shifted from the development of a model sustainable community for Vancouver, to development of a sustainable Athletes’ Village for display at an international event and to be marketed to those who would pay top dollar for a share in the Olympic legacy.

The former City Manager, Judy Rogers (personal communication, March 4, 2011), reports that as a member of the Board of the Vancouver Olympic Committee, she proposed Southeast False Creek as the site for the Athletes’ Village. She thought it might be a way to leverage federal funds to help with the very expensive remediation of contaminated waterfront lands in
Southeast False Creek, given that the federal government was supporting Vancouver in its Olympic efforts. Rogers recalled presenting the idea to the Property Endowment Fund Board, then to the Director of Real Estates Services and finally to Council in 2001. The former Co-Director of Planning, and the former Director of Real Estate Services, Bruce Maitland, both report being involved in discussions. The International Olympic Committee had made sustainability a criterion of its selection process. Bruce Maitland made presentations to the IOC.

*I appeared before the IOC, and the Village was one of the selling points for Vancouver because it was green, and we were not making it green for the Olympics, we were doing it anyway. They loved that. Everywhere else they'd go everyone would say sure, we'll do this to meet the Olympic requirements. In a lot of ways that was the selling point because we only won by one or two votes.*

The original plan was to have the athletes stay at UBC in some dorms. City politicians stepped in and said, look we want the Athlete’s Village in Vancouver. Don't forget, between the senior people in the City, and Gordon Campbell [provincial premier] and Ken Dobell of the Province, there is a real close link. So, things happen. And it was a joint venture for the City and the Province.

(B. Maitland, personal communication, May 7, 2010)

For Senior City Management and politicians, Southeast False Creek and the Olympics seemed a good fit. Both projects were guided by the three pillars/status quo-reform approach to sustainability: “greening” business as usual projects and events, and working for diverse social benefits in business as usual projects. My interview data gave no evidence that consideration was given to the potential impacts of the decision on Southeast False Creek project planning, development or outcomes.

Because of its commitment to the IOC, the City lost its ability to react to market forces in terms of pace of development and delivery of product onto the market post Olympics. The project which had been carefully and slowly conceived over the years of the Policy Statement and the ODP was thrust into the crucible of one of Vancouver’s most competitive construction markets, a market fuelled in large part by multiple Olympic-related projects: the
Canada Line rapid transit line from the Vancouver International Airport to downtown Vancouver; the Sea to Sky highway expansion from Vancouver to Whistler Ski resort where several Olympic events would be held; and a series of local Olympic venues such as the Richmond Skating Oval. Unbeknownst to the City, the decision to develop SeFC as the Olympic Athletes’ Village, and to select the specific developer it did to deliver the project, would eventually lead to a set of dire financial circumstances which cost one City Council its office and left the City’s Property Endowment Fund with a large inventory of unsold condominiums.

6.3.1 The City Selects a Developer for the Olympic Village

To develop the Olympic Village, the City determined to have only one developer for the site. Prior to Vancouver winning the Olympic bid, Real Estate Services had planned to sell the City-owned land in small parcels so that smaller developers could compete for projects, and also as a means to create diversity and interest in terms of architecture and design.

We were going to sell off all these lots [City owned land in Southeast False Creek] individually. To allow developers who were too small in Vancouver to do a big project, because what happened before, Concord had all the north shore, Bosa had the back end, had bought all that property up, and so a lot of the other developers who weren't that big had no chance to get in on False Creek. Then the politicians decided, let's make this the Olympic Village. That's where it all went off the rails because once we did that, we had to have one developer we could control. (B. Maitland, personal communication, May 7, 2010)

The intent in opting for a single developer was to streamline the development process and help to ensure project completion in time for the Olympics (B. Maitland, personal communication, May 7, 2010). The City’s selection of a developer for the Olympic Village marked a critical decision: the developer would be bringing to market the first phase of Southeast False Creek and thus would set the tone for sustainability. Certainly the City was providing the infrastructure and had set the sustainability parameters for the site through the Official Development Plan, but the developer would determine what kinds of units would be
The developer would recruit the first residents of Vancouver’s model sustainable community. The City had an opportunity, and from a sustainability perspective a responsibility, to select a developer who was committed to the sustainability philosophy and aspirations embedded in the ODP through years of thoughtful process.

The City selected Millennium Development Corporation. Many interviewees expressed the view that in recommending Millennium to Council, Senior City Managers had prioritized the developer’s financial bid for the land over expertise and commitment to sustainable building. Millennium had limited experience with green building, and had limited experience with projects at the scale of the Olympic Village (CITY 1). Of the three development applicant finalists, Millennium offered the highest price for the land (City of Vancouver, 2006b). A high price for land could bring benefits to the city in the form of money for additional public amenities.

**Figure 6.1** Sub Area 2-A of Southeast False Creek. The parcels with bold numbers are the developable parcels for the Olympic Village; these parcels were included in the request for proposals (RFP) for development (City of Vancouver, 2006c).
Some interviewees asked whether the City really had an alternative to accepting the Millennium offer. Former Councillor Gordon Price:

*Millennium paid too much for the land; they boosted all of the expectations for that land. And brought down the City Council with them.*\(^{50}\) ...*but that was definitely the critical in-camera decision: would you accept Millennium’s offer, or would you accept a lower bid? What criteria do you have to accept the second lowest bid? They are all going to have to meet the City’s requirements as part of the conditions of sale. They had to meet the deadline for the Olympic Village.*

*With the Olympic Village the developer was going to sell something that would resonate with the spirit of the Games. You can’t put a number on it but it’s very substantial...it seemed to justify the expansive thinking of Millennium and hence when the City got way more than they would have expected earlier in the process, how could they say no?* (G. Price, personal communication, September 10, 2010)

From a standard development perspective, and from the three pillars/status quo-form approach to sustainability, selecting the developer who offered the highest price might be appropriate. However, from a transformative perspective, demonstrated commitment and experience with sustainability would be the most important priority. The high price offered by Millennium should have signaled the developer’s intention, in fact need, to sell the units at high prices to recoup costs. As explained by one local developer, high priced units would have to be sold at least in part, to international buyers because the local market for luxury units is limited (*CNSLT 1*). What concept of a model sustainable community would be fulfilled by the development of expensive residential units marketed to part-time residents?

Roger Bayley, who led the development team for Millennium, agreed that the price paid for the land would be recouped through increases in the sale price of residential units. Bayley was a partner at Merrick Architects when Merrick agreed to join the Millennium team on the bid to develop the Olympic Village. Bayley recommended a maximum bid of $130/sq ft for

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\(^{50}\) Millennium was selected in 2006 by the NPA-dominated Council that had been elected in November 2005. By the next election, Millennium had defaulted on its payments to the American hedge fund from which it had obtained financing. City Council had voted in-camera to guarantee Millennium’s loan, making the City fully responsible for the loan should Millennium default. The public reacted negatively to a perceived lack of transparency in this action and the financing problems befalling Southeast False Creek in general (*Mason, 2009*). In November 2008 the NPA lost all but one seat on Council.
the project. Although this was already the highest price for Vancouver waterfront, the owner of the development company was keen to win the bid and pushed the price to $150/sq ft:

Now the price is actually $90/sq ft higher than if you had just been building a regular project. You say to yourself, where is the $90 going to come from? So you tack it onto the sale price of the project. (R. Bayley, personal communication, March 21, 2011)

In addition to price, Senior Staff and Management who evaluated the applications could have looked to Millennium’s previous development experience and the team Millennium had assembled for evidence of their suitability as developers of Vancouver’s model sustainable community. Millennium was known to be a successful developer of smaller, high end luxury projects (CITY 1; T. French, personal communication, December 15, 2010). Its architecture and engineering partners were less distinguished for their sustainability experience than some of the members on other teams (Concord and Wall) that included local sustainability experts like Mark Holland; green architect Peter Busby; and professionals who had been involved with earlier stages of the planning for Southeast False Creek (CITY 1; M. Holland, personal communication, July 22, 2010). The former Manager of the City’s Sustainability Group, Tom Osdoba argues that the City did not choose the most progressive development partner in terms of sustainability.

I would characterize it that the City spent an unprecedented amount of money on infrastructure to ensure high performance in terms of sustainability and in choosing the development partner we chose the one that had probably the least capacity to deliver on leading edge sustainable development at the time. (T. Osdoba, personal communication, November 15, 2010)

Millennium did in fact have a luxury market of international buyers in mind. Vaughan (2008) reports that a Millennium spokesperson told members of the Stewardship Group that the target market for Southeast False Creek were people who would likely reside in the community for three to four months of the year, and who would require a minimum of two parking spaces. Senior City Designer Scot Hein described Millennium’s marketing as “in-flight magazine marketing” (S. Hein, personal communication, October 28, 2010).
A luxury development was perhaps a successful development concept, but as I have shown earlier in this chapter through analysis of the consultant reports and the Official Development Plan, the hope and expectation among contributors to the planning of Southeast False Creek was that at least some Southeast False Creek residents would be sustainability minded individuals who would embrace and pursue the sustainability aspirations of the model project. One former City Planner recalls:

To me a sustainable Southeast False Creek is what is in the ODP; that's why it took so many years to come up with. It was an inclusive community for Vancouver. It was the last piece of the waterfront, great waterfront, and if I remember it was supposed to be the waterfront for all and really embrace the diversity of Vancouver, in income and ethnicity and things like that. We talked about visions like the Salt building for example becoming like an eco-trust facility or sustainability hub and all of those kinds of things that continue to perpetuate the story; they weren't meant to be solely market driven deals... The Olympics certainly had a big impact on it... I doubt it’s ever going to come down to $500/sq ft which is where it’s got to go to be an affordable story; to make it an affordable community to call home, not a bedroom community of the rich. (CITY 1)

When I asked Bayley whether the City could have stipulated in the RFP that the housing should be affordable to a range of buyers including the local market, he described the workings of the marketplace from a developer’s perspective:

The ODP had come out; there was a set of green building principles that were not by-laws, they were principles; there were a number of criteria for the project, energy performance for example, you had to get 2 LEED energy points - there were instructions about potable water - so there was a number of criteria in the document but there was nothing there that said the sale value or property has to do this, that was really the City who began with the 1/3 1/3 1/3 and then the NPA Council came in and said, excuse me a moment where is the money coming from to fund? Where is the developer going to get his value from? He's only going to get his value from what he can sell. And I guess somebody could have said build it all out of wood frame and build shit boxes because we want to sell it to people
who can afford it but, developers don’t think like that. They look at their product and they look at the market and here you are building on one of the most prime pieces of real estate in the city. You are building in an environment that is pretty extraordinary in terms of the City's contribution to the infrastructure and you are competing against other buildings in the city at a very high end. Plus you've got this international exposure working for you so what are you going to do? Build a bunch of crap? No. You're going to build whatever you can at whatever you consider to be the highest possible return on your investment and the City is going to subsidize putting in 250 units of social housing. And the developer is going to be generous enough at his cost, because it costs the developer money to put in the rental housing so, everyone was being pretty constructive I think and you may in retrospect think, well we built too many high end suites, and that's probably true.

A consultant who contributed to the ODP studies, and to one of the applicant teams for the Olympic Village suggests there are alternatives to conventional development that increase affordability and adaptability of market housing. These measures work for local buyers, but less well with international owners and part-time residents.

When you are working with a conventional developer; they have a product they are delivering to the market and they need to deliver by a certain point. I think if you want to get interesting in terms of adaptability I think you do things like the flex suites at SFU. But instead, the market the developer established for Southeast False Creek was a higher end market. There are a lot of larger, expensive units probably sold to an international market who don't want or typically need a secondary suite.

The City had developed an evaluation matrix as a central part of the process for selecting the successful development applicant. A former City Planner who was involved in the development of the matrix asserted that the matrix should have prevented the City from selecting a developer based on the price offered for the land, and who would design and build for a largely high end, luxury market.

The matrix should have done that. The evaluation matrix and the thoughtfulness of how phasing of build out was going to be approached by some of the other
teams was quite strong.

He went on to describe why the evaluation matrix was not successful.

*Real Estate Service let us, the Planning Department, draft the Request For Proposals with their support. They ultimately took it over and put all the legal and financial terms in but we wrote all of the policy parts of it and all of the goals and objectives parts of it. We also wrote the evaluation matrix which was a comprehensive, multi-page evaluation matrix based very much on the Dockside concept...the matrix went out with the RFP. The first draft of that matrix had to be provided with the developer's submission and then if they were short listed, then they had to do a comprehensive version. I was fortunate enough to be able to sit in on all of the evaluation meetings because I created the matrix. I wasn't on the committee, it was just Senior Management on the evaluation committee but I was there to answer any questions on sustainability in the proposals.*

*There was also a roundtable of us that were involved closely in the project; we were allowed to comment on each of the proposals from our perspective and we also filled out the matrix even though we weren't voting members. There were two of us from Planning; Tom Osdoba of the Sustainability Group; a couple of folks from engineering...and what we got to see was, and I don’t know how you would do it any differently to tell you the truth, but, what we saw was a very well-orchestrated way to defeat a matrix. To defeat an evaluation tool.*

*Two applicants spent a lot of time, did really thoughtful assessments in their submittal based on how it would meet the requirements. Probably spent some significant dollars on pre-design to make sure they could deliver the form, the massing and meet the parameters. So those can score fairly well. When you’ve put a lot of thought into something you can show how you clearly plan to meet as many of the principles as you can. But it also means you’ve thought about things you are going to be challenged in achieving. So those applications can also be scored negatively on components that are challenges for them to address in their model at this particular price to deliver this level of amenity. And so two of those were very thorough; and then another one comes in with an appealing price and*
an evaluation matrix that in all other categories basically says 'yes'. How do you score a yes? Under sustainable buildings there are I don't remember five or six sections - yes, yes, yes, yes, yes. Not how they would do it, just yes. So it’s hard to score it negatively and hard to score it positively but then weighted with the dollar value, it kept the application at least on a playing field with everyone else so the discussion could then work around dollars.

It was felt that this one submission was worthwhile enough to have on-going discussion with them to see how they intended to meet those principles and, not the whole team was privy to those conversations.

I don't believe they were ever asked to fully flesh out those parameters. It moved on to negotiation of business terms and then I would call it more simple commitments. So part of their proposal was, the zoning requires LEED Silver for all multi-family residential buildings and LEED Gold for all public buildings, they offered LEED Gold for all multi-family and would try to reach Platinum for the community facilities.

A lot of the media has misconstrued that as the City bumped up that request at the eleventh hour but that was offered. Millennium very smartly realized that the City and the people making the selection would love to have the kudos of a LEED Gold neighbourhood and LEED Platinum public buildings as a priority over other elements plus the price which was significantly higher than the other competing bids. It became pretty compelling to those who made the final decision and to Council who ultimately approved it. (CITY 1)

Roger Bayley confirmed that Millennium offered the higher LEED levels for the buildings (R. Bayley, personal communication, March 21, 2011). He also concurred that the Millennium application likely did not score highest in all aspects of the evaluation criteria and suggested that some people at the City had wanted a different design team.

There were three parts to the bid: the price the developer would pay for the development rights on the site in dollars per square foot; a percentage fee for doing the design and management of the City component - the community centre
and affordable housing; and then the Team. Because you were on the shortlist your team was already acceptable although there were many people at many levels in the City who would have preferred to have judged the award by the team rather than by the price. Millennium's price was some $20 per sq foot higher than the next guy and the next two teams had some funny conditional statements in there about partnering and various things that were going on so I think the City at that time actually wanted a different design team involved, but 20 million $ is 20 Million $.

I think what they [City] did is published a set of criteria as to how you would be evaluated, but I don't recall them publishing how many points you got on each thing, what the weightings were. They probably did award points for the various different things. I don't think our design team or our development team scored first, probably third or something...and the reason I raise that is because very early on in the project there was a lot of flak about the calibre of the design team, in fact the head of the Sustainability Group at the City of Vancouver got fired over his public comments about the capacity of our group as sustainable designers.

In an interview for this research, former Sustainability Group Manager, Thomas Osdoba, did not link his public comments on the Millennium design team with his eventual dismissal by the City Manager in 2007. He did say that Senior Management at the City and the Southeast False Creek Project Office were not pleased that his critiques of the developer’s limited green credentials had been published in a local newspaper. He asserted that Sustainability Group influence was subsequently reduced.

And this became a constant refrain: the Sustainability Office would put together a set of recommendations and offer advice to the City Manager but we were never in the room when those issues were discussed or decisions made. It mattered because at that time the people who were in the room didn’t fully understand what leadership around the sustainability side of it meant. Therefore they were perfectly comfortable getting an agreement for LEED Gold as they were negotiating with the developer. They thought LEED Gold for everything was a real win and when they came back I said, you already had that; you actually
didn't get anything because the infrastructure and everything the City was providing meant the developer didn’t have to do much to reach LEED Gold (T. Osdoba, personal communication, November 15, 2010).

Osdoba, also reported that the high price Millennium had offered for land was understood to be problematic by Senior Management. He suggests that City Council members could have been more involved in the selection process:

_In the selection committee process there was a lot of conversation even from the people on the City Finance Department that they [Millennium] were paying too much money. The problem was, we didn't do anything about it...the reality was because of the structure of the City, the strong City Manager, the degree to which the recommendation was shaped before Council got a chance to see it, Council never got a chance to chew on the differences between the development teams. And the decision was really made internally._

There is some evidence from research data to support the view that the Millennium development team did not embrace sustainability. Tom Osdoba, Former Manager of the Sustainability Group reported having to push Millennium on several fronts, in particular on green building and on options for housing affordability (T. Osdoba, personal communication, November 15, 2010). Another member of the City’s Sustainability Group described disagreements with Millennium over the need for air conditioning, and Millennium’s determination to include specific interior finishes and appliance styles that did not mesh easily with energy rating requirements (CITY 2). The Millennium team’s Roger Bayley expressed the view that in some cases the Sustainability Group took positions that were based on value judgments rather than sound policy. His comments highlight some conflicting imperatives between developing a model ‘sustainable’ community and selling high end residential units on an open market.

_The Sustainability Police, when they began, were very idealistic and so it was deemed to be morally unethical to have cooling. If you are sustainable you don’t do that. I don’t know where this kind of moral conviction comes from. You are allowed to spend 90% of the energy on staying warm but not allowed 10% of the energy on staying cool. So how does somebody make that moral judgement as to_
what is sustainable and what isn't? In their planning they had not included a gas distribution system because having gas fired fireplaces, that's also immoral, right?

A series of sustainable positions that had been taken through that planning process in essence turned out to be pretty questionable. For example, you can't sell a high end suite for the value you want unless you have a gas cooking surface but the sustainability world, they are not thinking about that. They are thinking about carbon footprint or whatever. If you are going to realize the value that you need to realize in order to provide all these other things that you are going to do, you've got to provide a product that somebody wants for god's sake. If you are not going to put cooling into the units then you've got another problem: you are competing against Shangri La or the Fairmont Place down on the waterfront or the other high end places and you're paying top dollar for your real estate and you're going to tell people they can't have air conditioning because they are living in a sustainable environment? (R. Bayley, personal communication, March 21, 2011)

The fact that the developer would refer to the City group that was promoting ambitious sustainability achievements as the sustainability ‘police’ suggests that Bayley’s interpretation of sustainability was not the same as that of the City Sustainability Group. After ten years of policy work to establish principles of sustainability and strategies for implementation in Southeast False Creek, there was disagreement over what constituted sustainability on the ground. Bayley’s assertion that Southeast False Creek was in competition with other high end Vancouver waterfront properties suggests that Millennium viewed its product more in conventional terms than as a model that would distinguish itself because of its sustainability-orientation.

In terms of developing the Olympic Village for a diverse socio-economic mix, and building for a community of residents to steward the community and further its sustainability goals, Bayley suggests there is a limit to the responsibility that can be placed on a market project:

Is a diverse community part of a sustainable environment? We set out to do an 80/20 split, most people seem pretty satisfied with 80/20; an affordable
environment is very difficult in Vancouver because it’s just one of the places people want to be. We can ask a moral question - do central governments have a responsibility yes they do; will the province step up?... I don’t know occupancy numbers but very high in terms of Asian investment so what are those people going to do with it? Bring families here? Probably not. Mom and families might be here and dad might be in Hong Kong; is it sustainable if he flies back every week? How much of the burden of the universe are we going to take on?

In terms of embracing the vision of sustainability and expressing it through their development, some people involved in the process recall tension between some of the original ideas for Southeast False Creek and plan implementation.

The siting of the garden and the size of it became very contentious and the food folk were up in arms and lobbying and protesting, legitimately in my view, what was going on with that and finally they agreed to a compromise even though they didn't like it, said ok right if you can give us this assurance that the light will fall in these ways that there will be this number of hours of light and so on and that had to do with the siting of a couple of buildings. Millennium was pretty adamant that none of their clients would want to look down on a messy food garden so that was an issue already, mindset kind of stuff. (F. Crofton, personal communication, October 12, 2010)

For Bayley, in 2011:

Well there is a large plot of land set aside for the urban agricultural garden and it’s just sitting there so I don’t know whether the City wants to do something with it or is going to do something with it - or it just became another one of somebody's ideas from way back and it just disappears into neverland; things like the farmers market suffer; the complexity of negotiating with the grocery store, why would they come into the Olympic Village and find themselves competing with a farmer's market? It’s sort of idealism meeting reality and through this process there's been lots of idealism and now there is lots of reality. (R. Bayley, personal communication, March 21, 2011)
I have provided data to suggest that Millennium was committed to developing a high end market project for sale to the international market. I have also argued that Millennium had fewer sustainability credentials than other applicants and this fact may have affected the project. However, whether either of the other two finalist applicants would have designed residences targeted to a broader range of income groups or sought innovative ways to keep prices from climbing, cannot be known. Any developer would have had to contend with the inflated labour and materials costs of the booming construction industry, costs associated with short timelines and the market impacts of the international financial crisis that began in 2008. As well, Southeast False Creek land commanded a premium due to its waterfront location and the success of previous False Creek developments. One former consultant to the City mused that perhaps the location and high profile of Southeast False Creek made it a poor location for a model sustainable development; as a market based project, unlike False Creek South which had significant public funding for housing, perhaps it was destined to become an expensive enclave (CSLT 2). A developer who was truly committed to building a model sustainable community might have been motivated to look for ways to increase affordability of housing, and might not have pursued high cost amenities such as air cooling which Millennium felt its chosen target market would demand (CITY 3).

The City’s decision to offer the first phase of Southeast False Creek development as athletes’ residences for the 2010 Winter Olympic Games had significant influence on project planning and development. Planning and development schedules could not be controlled by the City in response to local concerns or in pursuit of local goals. External timelines dictated the pace of development. As reported by former Councillor Gordon Price, the aura of the Olympics imbued Southeast False Creek with a marketing opportunity that inflated expectations of land value beyond its already high waterfront price. The City’s selection of the developer who offered the highest price for the land but scored lowest on sustainability criteria, reveals that either the City’s evaluation matrix was ineffective at identifying the most well rounded applicant, or Senior Management did not use the matrix as it was intended. A high offer for land in the case of Southeast False Creek meant that residential units would have to be sold at luxury prices, and built to the expectations of luxury buyers. From a transformative perspective of sustainability, conventional expressions of luxury, such as air conditioning in a West Coast climate and allocation of more than one parking stall per residential unit, cannot
be viewed as contributions toward sustainable living. More broadly, dedicating the first phase of a model sustainable community to the service of an international consumption event like the Olympics is clearly at odds with a transformative sustainability approach.

### 6.3.2 Olympic Post-Script

An unexpected consequence of the City’s decision to use Southeast False Creek as the Olympic Village was the financial difficulty in which the City found itself as the project unfolded. Former Director of Real Estate Services, Bruce Maitland describes how the City became financially entangled with the project developer as a result of its commitment to the IOC.

> When the Village came along, the City had to sign an agreement with the International Olympic Committee that this Olympic Village would be built, period. So the City ended up signing that agreement but wasn't the builder. We were going to go out and get a developer, sell the property off, and basically step in if we had to and finish it. The law department said well, then it's got to go to court, we don't know how long it's going to take if you have to step in; why don't we just lease land to the builder over that period of time, and therefore we will still own the land; have a development contract with them, because they're going to build all this stuff and then we're going to turn over the land to them when they pay us at the end, and then they sell off the condos. So that made the City a partner in the development which is one thing I'd always said never do because politically if it goes sideways, it's a disaster. The developer goes broke, all right, but the City is not going to go broke it's just going to have a terrible political problem which is what happened. The market went sideways. (B. Maitland, personal communication, May 7, 2010)

As Maitland explained, the City was advised by its law department to retain ownership over the Southeast False Creek lands as the best way to ensure completion of the project in time for the Olympics. Retaining ownership had several unforeseen consequences: first, the developer, Millennium Properties Ltd., could not secure financing from Canadian financial
institutions because it did not have title to the land. Millennium went to an American hedge fund and borrowed at close to twice the Canadian rate of 5 to 5.5% (R. Bayley, personal communication, March 21, 2011). Borrowing from an international lender not only increased costs for the developer, but in 2007 when Millennium began to encounter financial difficulties, that lender, Fortress Investment Group, required the City to guarantee $200 million of the $683 million Millennium had borrowed (Mason, 2008). Eventually, Millennium defaulted. Because of its Olympic commitment, the City had to take over the outstanding debt and complete construction of the Athletes’ Village. In late 2011, the City of Vancouver owns all of the Olympic Village development and is attempting to recoup the cost of developing the units through sale of the condominiums – a challenging prospect given the high price of the units and weak real international real estate market.

6.3.3 The Southeast False Creek and Olympic Village Project Office (2005)

In June of 2005 the Southeast False Creek and Olympic Village Project Office was established to lead the development of the Olympic Village and infrastructure for the entire Southeast False Creek ODP area (City of Vancouver, 2006b). The Athletes’ Village had to be delivered to the International Olympic Committee (IOC) by the end of 2009. With the creation of the Southeast False Creek Project Office, a dedicated City team of planners and engineers could move swiftly (R. Petri, personal communication, July 21, 2010). According to interviewees, the Project Office also represented a shift in the relative influence of City departments. The Planning Department took a greater leadership role. Until the creation of the Southeast False Creek Project Office, the Director of Real Estate Services, Bruce Maitland, had been managing the project on behalf of the Property Endowment Fund. The Southeast False Creek Project Office was established just prior to his retirement with a City Engineer, Jody Andrews, as its manager. In Maitland’s view, the new arrangement meant a loss of some of the economic oversight provided by Real Estate Services.

Real Estate then stepped back. When I left, they [the Project Office] took it over and ran it. Jody became the Project Manager. He was in the City Manager’s Office at the time. And then they put a planner in - Ian Smith came in as Manager on the Site Management Plan under Jody... the whole thing was being run out of
the City Manager's office... then what happened was that a lot of stuff got built that probably didn't make any economic sense... when it got out of Real Estate, I don't think there were the same checks and balances. (B. Maitland, personal communication, May 7, 2010)

Former Co-Director of Planning Larry Beasley views the establishment of the Project Office as a resolution to impasses over how the project should move forward. He concurs with Maitland that the Planning Department took on a more dominant role at this stage.

I would say the focal point of creativity shifted over. Real Estate was still responsible for the land but once we moved to an alternative form the focal point of creativity shifted over to us. But you’ve got to realize the Project Office wasn’t under Planning or Real Estate. It was under the City Manager. Now, what we do when we have arguments, is we put things under the higher authority. But what we did, because of my relationship with the Manager I think among other things, is that we [Planning Department] staffed the Project Office with Ian Smith and others. With the exception of Jody and the team he brought together, we staffed it. (L. Beasley, personal communication, August 24, 2010)

City Engineer, Robin Petri was hired into the Project Office in 2005. She had been involved with Southeast False Creek since 2001. At the Project Office her role changed from City regulator to project developer.

Jody Andrews and myself and Ian [Smith] and Kirsten from Planning came there. We became the development wing of the City so we acted as developers at that point which is very different from the regulatory role of the City.

Petri recalls that the Project Office was created to meet the Olympic deadlines; it was staffed by people from the City who had experience with the project, and who could easily draw on the resources of the City.

We were set up as a group that reported to the City Manager’s Office...everyone understood that the Olympic Village needed to be done in a fairly tight timeline. The best way to do it would be to set up a stand-alone entity that would be able to
move as quickly as possible yet still leverage all of the knowledge, passion, and expertise that people had in the City.

She described the working relationship between the Project Office and the City Staff working as regulators.

Typically in a major project you have an external development group that does a lot of work on their own, with their consultants, and then they come into the City regulator and say, we think this is a great idea, what do you think? And the City says, give us two weeks and we'll write you some comments. They write some comments that say we like this, we don't like this. The developer’s team goes away and works on its own and comes back... but for the Olympic Village, because we were all from the same entity there was a stronger relationship and trust. So we sat in meetings together, we hashed out all the issues like a team should. So in a way it was a beautiful model for the way things should be... I think people were more willing to just put everything out on the table because we all came from the same mothership. (R. Petri, personal communication, July 21, 2010)

Former Co-Director Larry Beasley identifies the leadership of Jody Andrews in his position as Manager for Southeast False Creek and the Olympic Village Project Office as central to achievements of technical and design aspects of sustainability. Beasley emphasizes the time pressures of meeting Olympic deadlines in the first phase of development and the importance of personal commitment to sustainability goals for the project.

I give him probably the most credit of anyone for staying with more of the bread and butter utility dimensions of this and the infrastructure dimensions. You've got to realize Jody had the shortest amount of time on the planet to develop this project. It would have been much easier for him to say forget all that, I mean literally forget it. I'm just going to build a project because I have to build it in 20 minutes. A lot of what he did didn’t have to do with a legal imperative, it was a policy imperative. He could have gone to Council at any time and got out of most of those policy imperatives. No one quite realizes that unless you live that bureaucracy - policy is very fragile. Zoning is law and that's a bigger stick but
policy is very fragile and most of what he was doing was policy so, I really worried during that period because around that time was when I retired. I worried that we were going to lose all of it when it came down to the crunch. (L. Beasley, personal communication, August 24, 2010)

Robin Petri offers her thoughts on the ways specific individuals on the project team influenced project outcomes.

Personalities, influence, leadership and management style - they played into the outcome of this project. I see that now having moved to a different project. You can pull together a team of a landscape architect, lighting designer, civil engineer, and the City people, you can pull those people together but you won't get the same product. Outcomes depend on each team member's creativity and the strength of their voice. You might get a stronger lighting design or someone who loves street trees or curbless streets... In Southeast False Creek I can walk through the site and I can point out now the things that are there because of certain people. It wasn’t their role as much as their personality and still staying within the framework of what was in the plan. (R. Petri, personal communication, July 21, 2010)

The Southeast False Creek and Olympic Village Project Office was created to respond to Olympic commitments and timelines. Planners and engineers who had participated in creation of the Policy Statement, the environmental plans and the Official Development Plan process were enlisted as project developers. According to interviewees, establishment of the Project Office also represented a shift in departmental influence, and increased flexibility in terms of financial details and development focus. Individuals are credited with retaining the vision for the project and pursuing its implementation while working to a short deadline. The short deadline of November 2009 for delivery of the Olympic Village, however, left the Project Office team with limited time for collaboration with the Stewardship Group. Public engagement suffered (Vaughan, 2008).
6.3.4 The Stewardship Group Loses Influence

Robin Petri of the Southeast False Creek and Olympic Village Project Office reflects on reduced involvement of the Stewardship Group once the Project Office began to work in earnest on rezoning for the Olympic Village:

And it was over maybe a six month period where we tried to meet with them [Stewardship Group], and then it was May 2005 and the Olympics were happening in February 2010, which is essentially the end of 2009. The rubber just hit the road and we needed, there was a feeling too that we didn’t want our staff group to be a huge group either, we wanted to be a lean machine. But that’s why it fell apart, workload, timing, and the Stewardship group wasn’t meeting at that point either. (R. Petri, personal communication, July 21, 2010)

The former Manager of the City’s Sustainability Group, Tom Osdoba recalls that once the Project Office team began to work toward meeting Olympic deadlines, the pace of action made the existing relationship structure and role of the Stewardship Group untenable:

They [Stewardship Group] were pretty effectively sidelined by the Project Office and the City Manager’s Office and it was done for pragmatic reasons not reasons of principle. The problem was that the relationship was established five years before the Project Office started, as one that was very formalistic, very prescribed. That made it very difficult when the City had to ramp up the timeline and start to move quickly. It was simply untenable to engage that group in the way they were used to being engaged. And they were frankly not willing to change the way they operated with the City. I don’t say that as a criticism, I think it was just the nature of that dynamic. I think there was some relationship fatigue along with a very rapid timeline that made it a very difficult process to keep. And so they reached a flashpoint at which they had to let it go and they let it go. (T. Osdoba, personal communication, November 15, 2010)

Vaughan (2008) concurs that in late 2005, the Stewardship Group members, while they had influence with the COPE Council and good relations with Planning staff, found their role diminished, their opportunities for involvement decreased. Although their role had been
reiterated and confirmed in the ODP adopted in March 2005, once the Project Office had been established and plans for the rezoning were underway, the collaborative process that had characterized the previous eight years of planning came to an end. Vaughan argues that planners reverted to a traditional, expert based approach when they had to work out technical details on a tight timeline, and when financial implications of decisions would have immediate consequences. Further, when the NPA regained control over City Council in November of 2005, the Stewardship Group lost some of its political allies in office. Vaughan suggests that at the stage of plan implementation the Stewardship Group needed a new role: rather than continuing to operate as a group representing broad, diverse perspectives, they ought to have partnered with other local advocacy groups to leverage political support for the goals of affordable housing and other social and ecological sustainability outcomes.

6.3.5 The Fate of the 2005 Council Resolution Performance Targets

Former City Engineer and Manager of the Southeast False Creek Project Office, Robin Petri commented on the fate of the targets and indicators that had been adopted as a Council resolution in 2005:

As part of the Official Development Plan, Ian [Smith] and I wrote that report about the targets and indicators... We wanted to keep bringing that theme through that you need to figure out what you can measure, pick indicators, measure them and monitor them. But I have to say that during the implementation phase we didn't carry that through as well as we would have liked to. Hopefully the City can pick that up now and go back to them in the next phases of Southeast False Creek and develop a good monitoring program. That way we can find out how well things are really working because we don't know that now. We only know what we can see and observe but there is no measurement that I know of on the buildings or on the public spaces for example...(R. Petri, personal communication, July 21, 2010)

Former Manager of the Sustainability Group, Tom Osdoba recalls that efforts to implement monitoring fell by the wayside as project implementation got under way:
We put a lot of effort into indicators at first but didn’t follow through as the process moved forward – this is common with governments and business performance and so not something we should be surprised at...

It really became a matter of process taking over everything else and by that I mean the development had to occur under a very constrained timeline. And so it became a deadline driven project and I think that made it very difficult to ensure that you could continue to work through questions, issues around the performance management aspirations without sort of running into roadblocks due to time constraints and other things.

I think for what is supposed to be an example and a model, monitoring is essential. There was never any investment in the capacity to do monitoring well; good monitoring could still be done but it’s completely unclear to me to see where the resources are going to come from to do that. (T. Osdoba, personal communication, November 15, 2010)

The 2005 targets and preliminary monitoring framework have never been up-dated but according to a former Assistant Director of Central Area Planning, they are not entirely forgotten.

There is supposed to be a report back to Council about targets and monitoring and when I left a planner in Central Area had started working on setting up a framework to do that. I don’t think he’s been able to pursue it much because there was the hiring freeze and peoples’ work programs got juggled around. I would imagine because of that, until Southeast False Creek is occupied, there is not going to be a whole lot of monitoring. It would be nice if there was somebody with some institutional memory, to have the actual monitoring framework set up by somebody who’s got some connection to the project...

Frankly because there is so much change at the City right now, there is likely a lot of stuff falling off the table and people are forgetting. The only thing maybe, the City Clerk’s Office maintains something called the report tracking system and any reports due back to Council as a result of council resolutions or requests or
whatever, they get entered into this giant data base and the assistant directors every couple of months have to look at the list. In theory if it's a report that's due it ought to be in the report tracking. Now whether by the time they get around to it anyone will remember what it was - I don't think it's in danger of being completely lost but I don’t know. (Former Assistant Director of Central Area Planning, personal communication, June 2010)

6.4 Rezoning of the Olympic Village Site (2006)

At the time of the first rezoning for Southeast False Creek, Sub Area 2A, the Olympic Village, principles, guidelines and policies for most of the Southeast False Creek infrastructure were in place. The City was pursuing a district energy system; street grids and transportation infrastructure were planned; requirements for habitat restoration, naturalized stormwater management and park space had been established. Requirements for affordable housing allocation had been set. At the rezoning stage, specifics of building design, including height and other parcel-based considerations could be negotiated. The rezoning for the Olympic Village brought into force the first application of the Southeast False Creek Green Building Strategy. Without an up-dated list of sustainability targets and indicators, the elements of the Southeast False Creek Green Building Strategy became the de facto set of performance targets (T. Osdoba, personal communication, November 15, 2010).

The central components of the SeFC Green Building Strategy and the efficacy of the Strategy in delivering measurable reductions in resource use are analysed in Chapter 7. The 2005 preliminary targets and indicators list prepared by City Staff (City of Vancouver, 2005) had considered economic and social sustainability goals (albeit leaving targets and indicators for most to be developed at a later date). The Southeast False Creek Green Building Strategy addressed only technical goals: energy efficiency; water use; quality of materials etc. From a transformative position on sustainability, achieving social and economic paradigm shifts toward living within biophysical limits is paramount. To limit sustainability performance to a Green Building Strategy and to infrastructure design (mobility; stormwater management; district energy system) is not only to remain in a status quo-reform conception of sustainability, but to neglect the social pillar. One former City planner had this comment:
The focus ended up on buildings over and above all other sustainability components. The story of green buildings to sell it as the most sustainable community is false. It’s one of the greenest building communities but is it going to be a truly sustainable community? That we’ll have to see. (CITY 1)

As described in Chapter 5, the Southeast False Creek Green Building Strategy was based on the LEED rating system, which has limited use as a measure of progress toward sustainability. Some interviewees commented on consequences of using a LEED-based system for the Olympic Village development.

It certainly had significant drawbacks that played out in several ways: there was sort of this inherent reductivism that went on, and performance became essentially a construct of LEED versus the more broad metrics of sustainability. (T. Osdoba, Former Manager of Sustainability Group, 2010)

The problem is if you go LEED Platinum you’ve gone past what makes economic sense because for the last points you are spending untold amounts of money. The Gold is very high tech and it’s all the good stuff, the energy stuff. Platinum gets you using certain types of materials but it’s not the big hits. All the big hits are in the Gold....All that pollution got us big points for LEED. If you take a brownfield site you get tons of points. LEED standard, oh point there, point there; we got a whole bunch for a brownfield site so that was a very big help to get us up to Gold. (B. Maitland, Former Director of Real Estate Services Department, 2010)

LEED will never get us to one planet living. (CITY 1)

The downside is that LEED is an amorphous animal; now it’s 100 points you can get and its anything from pollutants at your door to renewable energy so, LEED doesn't actually mean that much. Unless you are specific which now the City is in its new green building code ...and that was one of the things we talked about with the City: you can require LEED but you have to be very specific about the things you want otherwise the propensity for the developer is to go for the lowest points...so I think it’s a bit of a double edged sword; I don't think it's a perfect system, I don't think anybody thinks it’s a perfect system. (CSLT 1)
6.5 Summary and Discussion

In this chapter I have examined three decisions by the City that yield insights into both the particularities of the Southeast False Creek case, and the experience of urban sustainability planning in general. The late-in the-game revision of the Official Development Plan demonstrates the ability of a strategic bureaucratic actor to instigate and possibly even bring about dramatic change to a plan that is already well under way. The decision to increase affordable housing allocations and to mandate target setting and monitoring is evidence of one Council’s willingness to challenge business as usual development models. The fact that these directives were not pursued by subsequent Councils highlights the difficulties in confronting status quo development. The City’s decision to inject an international event into a local planning process had consequences for the nature of the process and for project outcomes. Selection of Millennium Development Corporation Ltd. to build and sell the first phase of Vancouver’s model sustainable community demonstrated that Senior Management maintained a sustainability perspective that prioritized the economic pillar of the status quo-reform approach.

The events that led to a revision of Southeast False Creek building heights during the Official Development Plan phase represent the efforts of an experienced bureaucratic actor, engaging in strategic bureaucratic, political and professional action. Former Co-Director of Planning, Larry Beasley, used his professional relationship with the City Manager, his network of design industry professionals, and the circumstance of a recently elected City Council to disrupt the planning process and change plans that members of his own department had worked on for years. In Beasley’s own words, the reasons for pursuing the change were largely aesthetic. Given the momentum of the planning process at the time of Beasley’s campaign, the change in urban form from high rise towers to mid and low-rise buildings must be viewed as a significant accomplishment. Beasley’s accomplishment highlights the tremendous influence one individual inside the City bureaucracy can have on the trajectory and outcomes of a major development planning process. Several interviewees concurred that an individual’s influence is commensurate with her/his skill and experience rather than bureaucratic title. In this chapter Robin Petri ascribed specific project outcomes to influential individuals, and Larry Beasley credited the Manager of the Southeast False Creek and
Olympic Village Project Office with maintaining sustainability strategies throughout project implementation. This chapter also includes the example of a bureaucratic actor who was not wholly successful in efforts to influence project sustainability. The former Manager of the Sustainability Group, Tom Osdoba, reported that his voice was stifled by Senior Management following media publication of his critical views on Millennium’s green building qualifications. Osdoba’s bureaucratic experience, professional networks and strategic skills at that time may not have been sufficient to achieve the influence he sought.

Although Beasley did not act from motivation to improve sustainability outcomes for Southeast False Creek, his success at obtaining a building height review and changes to the Official Development Plan suggest it would be possible for a strategic bureaucratic actor with transformative aspirations for sustainability to bring about change toward that goal.

In this chapter I described decisions taken by the COPE-dominated Council to increase affordable housing allocations in Southeast False Creek in exchange for reduced return on investment to the Property Endowment Fund. The Council made this decision even though on-going funding for the housing remained to be secured. The same Council mandated performance targets, indicators and monitoring for Southeast False Creek, and a full cost accounting of sustainability objectives. These mandates represented an effort to distribute the balance of sustainability more evenly between the economic, social and ecological pillars. However, these attempts to confront the Vancouver status quo of development did not succeed. The housing mandate was reversed in late 2005 when the NPA regained control on Council. The comprehensive strategy for targets, indicators and monitoring was never completed. The model sustainable community was built without established targets for sustainability. Without requirements for monitoring and reporting, the role of Southeast False Creek as a model from which to learn is seriously compromised.

Southeast False Creek has been envisioned from the outset as a sustainability-oriented community. Its official vision, as included in the Policy Statement and the Official Development Plan, suggests that residents will make choices to live in a sustainable manner (City of Vancouver, 1999:7-8). In Chapters 4 and 5 I have shown that throughout the years of day to day planning for the project, many individuals (some planners, advisory group members, interested public, sustainability activists, and local consultants) embraced this
vision of the neighbourhood. When Senior City Management and politicians included Southeast False Creek in the City’s bid for the 2010 Winter Olympics, they brought an international event, with all of its history, its pageantry and its influence to bear on the project. Some Olympic Village development applicants perceived a waterfront village filled with athletes and the sheen of Olympic medals as a marketable product. Vancouver’s model sustainable community could be sold to international buyers, perhaps even buyers who had visited the Olympics, as a piece of the Olympic legacy. Whether the lifestyles of such buyers would align with the principles and aspirations of a sustainable community was not the developer’s concern. Millennium Development Corp. bid a high price for the right to develop and sell the first phase of Southeast False Creek. Senior City Management, operating from a bias toward the economic pillar of their sustainability view, recommended Millennium over applicants who had more experience with green building, and team members with more history on the Southeast False Creek project.

An important consequence of committing the first phase of Southeast False Creek to the Olympic Athletes’ Village was that the City lost its ability to control timelines and respond to changes in the local construction market (heavily impacted by the Olympics) and changes in the international financial and real estate markets.

In order to meet Olympic timelines the City established the Southeast False Creek and Olympic Village Project Office. Direct influence of the Real Estate Services Department on day to day development issues receded. Planners and engineers who had been project regulators became project developers. Some, like Ian Smith, had been on the project since planning began in the mid-1990s. They had long standing relationships with Stewardship Group members and had participated in the collaborative planning for both the Policy Statement and the ODP. But as project developers on a tight deadline, they found collaborative public processes untenable. The Stewardship Group which had been tasked by City Council in 2005 with monitoring the implementation process, disbanded.

In Chapters 4, 5, and 6, I have presented a narrative of the Southeast False Creek planning process. Through the narrative I have shown 1) the sustainability approaches adopted by central actors 2) how specific actors influenced the way sustainability was interpreted and operationalized in policy and plan implementation and 3) that a three pillars/status quo-reform
approach to sustainability dominated the planning. An outcome of the Southeast False Creek planning process is that no comprehensive performance targets were set for the project. No long range measure of sustainability was determined. From a transformative perspective on sustainability, measures of progress and of sustainability are critical. In Chapter 7 I calculate the potential per capita ecological footprint and greenhouse gas emissions that could accrue from Southeast False Creek as it has been planned and developed to date. I also present an assessment of how well Southeast False Creek achieved the central sustainability objectives of the Official Development Plan.
CHAPTER 7

Toward Sustainability: Measuring progress in Southeast False Creek

In Chapters 4, 5 and 6, I analysed the ways that central actors in the planning of Southeast False Creek developed perspectives on sustainability and how they influenced the project from those perspectives. As part of that examination I traced the efforts of individuals and groups to establish comprehensive performance targets and a monitoring and reporting protocol for the project. I found that while some actors conceived of ecological performance targets in the context of scientific measures of global resource and waste sink limits, targets were not developed to meet those measures. Instead targets reflected local estimates of financially and technically feasible improvements over business as usual. No targets were established for per capita or aggregate resource use or greenhouse gas emissions reductions. Such targets would have required implementation of strategies addressing personal consumption habits and social consumption values.

As described in Chapter 5, only a preliminary set of performance targets was officially adopted for the project, but it has not been referenced or applied to the project to date. The only performance target applied to the project is a goal in the *Official Development Plan* (City of Vancouver, 2007) to achieve a greenhouse gas neutral neighbourhood in terms of emissions from buildings. The Southeast False Creek Green Building Strategy is not a target setting document, but it does include a set of building development requirements intended to reduce resource use and waste emissions. In this chapter I examine the requirements of the Southeast False Creek Green Building Strategy, the rezoning requirements for the Olympic Village and the goal for greenhouse gas neutral buildings to address my third research question: how sustainable is Southeast False Creek when evaluated against measures for living within global biophysical limits: the human ecological footprint and global greenhouse gas emissions? I begin by presenting the results of that evaluation, followed by a discussion of the preliminary targets (2005) that have not been applied. In this chapter I also present the findings from my evaluation of how well Southeast False Creek achieved its central sustainability objectives as stated in the *Official Development Plan* (2005).
7.1 Per Capita Ecological Footprint and Greenhouse Gas Emissions

In Chapter 2, I used the ecological footprint and greenhouse gas emissions metrics to identify measures of sustainable living. I established a sustainable Canadian per capita ghg emissions level of 3.46 tCO$_2$e, and identified a sustainable per capita ecological footprint of 1.8 global hectares. When these figures are compared to the existing Vancouver average per capita greenhouse gas emissions, 18.03 tCO$_2$e, and ecological footprint, 6.76 gha, reductions in the order of 81% and 73% respectively are required. (See Chapter 2 for details on how Vancouver averages were determined). As described in Chapter 6, per capita greenhouse gas emissions and ecological footprint targets were not established for Southeast False Creek. However, potential greenhouse gas emissions reductions can be identified from some of the project’s goals and standards, and potential ecological footprint reductions can be estimated. Table 7.4 presents the requirements of the Olympic Village rezoning and Southeast False Creek Green Building Strategy from which the reductions have been determined. The estimated reductions are presented in Tables 7.1 and 7.2. Explanations and calculations for reductions are presented below each table. All calculated reductions are anticipated or potential reductions based on modelled energy use and emissions. Verified performance data was not available for Southeast False Creek at the time of this study. Verified performance data is not a requirement of the Southeast False Creek Green Building Strategy.

Table 7.1 Potential ghg emissions reductions from Southeast False Creek Strategies (tCO$_2$e/cap)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Transport</td>
<td>1.69</td>
<td></td>
<td></td>
<td>1.69</td>
</tr>
<tr>
<td>Building Operating</td>
<td>2.54</td>
<td>-0.51</td>
<td>-0.95</td>
<td>1.08</td>
</tr>
<tr>
<td>Solid Waste</td>
<td>0.37</td>
<td></td>
<td></td>
<td>0.37</td>
</tr>
<tr>
<td>Other</td>
<td>13.43</td>
<td></td>
<td></td>
<td>13.43</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18.03</strong></td>
<td></td>
<td></td>
<td><strong>16.57</strong></td>
</tr>
</tbody>
</table>

Data from City of Vancouver, 2006; 2009
The requirement of the Southeast False Creek Green Building Strategy (City of Vancouver, 2006c) to exceed ASHRAE 90.1 2001 by 20% is intended to yield a 20% reduction in building energy use over conventional buildings. The City of Vancouver reports that emissions from buildings (operating energy) in Vancouver are on average 2.54 tonnes per capita. If a 20% reduction in energy use is achieved, then a corresponding reduction in emissions can be expected: 2.54 tCO2e * 0.20 = 0.51 tCO2e fewer emissions from buildings that perform at the SeFC GBS standard.

The Manager of the Southeast False Creek Neighbourhood Energy Utility reports that emissions from the district energy system which combines energy from sewer heat recovery and natural gas will produce approximately 60% fewer emissions than energy from conventional sources (C. Baber, personal communication, August 2011). The district energy system will provide energy for space and hot water heating in all Southeast False Creek buildings. Energy for other building needs such as lighting and appliances will come from conventional sources. In Vancouver lighting, appliances etc. are commonly powered with hydro electric energy. A study by Senbel, et al. (2012) found that emissions from space and water heating in three building types in the Vancouver area were 73%, 78%, and 84%. An average of the three yields approximately 78%. Applying the characteristics of the district energy system to the calculation of potential emissions reductions in Southeast False Creek is as follows:

- Building emissions are 2.03 tCO2e/cap (after 20% reduction from energy efficient building design as per SeFC GBS)
- Assume 78% of emissions are from space and water heating (Senbel et al., 2012)
  - 2.03 tCO2e * 0.78 = 1.58 tCO2e from space and water heating
- Reduce emissions by 60% for district energy system
  - 1.58 tCO2e * 0.60 = reduction of 0.95 tCO2e from energy to heat space and hot water.

In total, the strategies and standards applied to Southeast False Creek could yield a reduction of 1.46 tCO2e/capita, or 8%. Given that the sustainable target requires per capita emissions reductions of 14.57 tCO2e or 81%, Southeast False Creek appears to make limited progress. It must be noted that the City has direct regulatory and policy-making influence on only three
of the four ghg emissions sources listed in Table 7.2: road transportation; buildings and solid waste. The emissions from ‘other’ are produced outside of the City boundaries; reductions in these areas would require action at different regulatory levels (see Chapter 2 for more detail). Emissions from transportation, buildings and solid waste combine to a total of 4.6 tCO₂e/capita (25.5% of the per capita total). The Southeast False Creek reduction of 1.46 tCO₂e/capita represents a reduction of 32% in the emissions from sources which local regulators and policy-makers can influence directly. If regulators at all levels could achieve reductions of 81% in the areas they can influence, an overall 81% reduction could be realised. While this might not be immediately feasible, recognition of the magnitude of required reduction is important to policy-making, regulation, and to achieving public support.

**Table 7.2 Potential ecological footprint reductions from Southeast False Creek Strategies (gha/cap)**

<table>
<thead>
<tr>
<th>Per Capita EF (gha)</th>
<th>Vancouver (2006)</th>
<th>SeFC Green Building Strategy 2006</th>
<th>SeFC District Energy System</th>
<th>SeFC Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>0.81</td>
<td></td>
<td></td>
<td>0.81</td>
</tr>
<tr>
<td>Building Operating</td>
<td>0.53</td>
<td>-0.11</td>
<td>- 0.20</td>
<td>0.22</td>
</tr>
<tr>
<td>Building Embodied</td>
<td>0.13</td>
<td></td>
<td></td>
<td>0.13</td>
</tr>
<tr>
<td>Solid and liquid waste</td>
<td>0.02</td>
<td></td>
<td></td>
<td>0.02</td>
</tr>
<tr>
<td>Consumables</td>
<td>0.76</td>
<td></td>
<td></td>
<td>0.76</td>
</tr>
<tr>
<td>Food</td>
<td>2.13</td>
<td></td>
<td></td>
<td>2.13</td>
</tr>
<tr>
<td>Senior Government Services</td>
<td>2.38</td>
<td></td>
<td></td>
<td>2.38</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6.76</strong></td>
<td></td>
<td></td>
<td><strong>6.45</strong></td>
</tr>
</tbody>
</table>

Data from GFN (2003); Moore (2011)

The calculation procedures for potential reductions in per capita ecological footprint are the same as those for ghg emissions reductions.

A reduction of 0.11 gha/capita may be achieved as a result of the Southeast False Creek Green Building Strategy requirement that buildings be designed to use 20% less energy than
conventional. Assume that buildings using 20% less energy produce 20% fewer emissions. Since the ecological footprint of emissions from fossil fuel energy is almost entirely derived from the land area required to sequester emissions, it is possible to assume a 20% reduction in per capita ecological footprint.

Reduction: 20% of 0.53 gha/cap (building operating energy) = 0.11 gha/cap.

The Southeast False Creek District Energy System should result in 60% fewer ghg emissions than conventional energy sources used for space and water heating. Assume space and water heating are 78% of emissions from buildings (Senbel et al., 2012).

0.42 gha/cap (building operating energy after 20% reduction from building design)

* 78% = 0.33 gha/cap from space and water heating for buildings.

Reduce per capita ecological footprint from space and water heating for buildings by 60% for district energy system.

60% of 0.33 gha/cap = 0.20 gha/cap reduction.

The total reduction in per capita ecological footprint that can be calculated from strategies and requirements for Southeast False Creek is 0.31 gha/6.76 or 4.6%. As with greenhouse gas emissions reductions, the potential contribution from Southeast False Creek to sustainable living as defined through ecological footprint accounting is small. The scientifically determined, globally relevant reduction target for Vancouver is 73%. In terms of traditional policy levers and regulatory powers, cities can influence the ecological footprints of buildings, transportation, and waste management which make up 1.49 /6.76 gha/cap or 22%. Southeast False Creek achieves a modelled reduction of 21% (0.31/1.49 gha/cap) for these components. Local governments must look beyond their traditional policy arenas and find ways to influence local consumption habits which, including food, make up 43% of the total per capita ecological footprint (2.89/6.76 gha/cap).

How sustainable is SeFC when compared to measures of sustainable living? Table 7.3 compares per capita ecological footprint and ghg emissions reductions I have determined for Southeast False Creek to the reductions required for sustainability.
Table 7.3 Comparison of Southeast False Creek and sustainability requirements: ghg emissions and ecological footprint

<table>
<thead>
<tr>
<th>Required for Sustainability</th>
<th>Southeast False Creek</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecological footprint reduction</td>
<td>73%</td>
</tr>
<tr>
<td>Ghg emissions reduction</td>
<td>81%</td>
</tr>
</tbody>
</table>

Compiled by Author

The fact that the City has direct influence on only 25.5% of per capita ghg production emissions and 21% of the per capita ecological footprint brings into question the very notion that a City can plan and develop a “sustainable” community. If the central bureaucratic actors at the City of Vancouver had understood sustainability in terms of these metrics, how might it have influenced their view on performance goals for the projects? Would their model have included the kinds of public education, demonstration, and community and political engagement proposed by advisory group members, sustainability advocates, consultants and even some planners?

Table 7.4 presents the performance targets and standards that have been adopted for Southeast False Creek. As shown above, estimates of per capita ecological footprint and greenhouse gas emissions reductions have been calculated only for the strategies that have been applied to the project – the rezoning and Southeast False Creek Green Building Strategy requirements, and the Official Development Plan goal for greenhouse gas neutral building operations (space and water heating). Because the rezoning and the Southeast False Creek Green Building Strategy do not set performance targets, I include the preliminary targets adopted by Council resolution (2005) for discussion. Of the preliminary targets, only the building energy targets are useful in measuring progress toward sustainability.
Table 7.4 Estimated Resource use and waste reductions: resolution targets and Olympic Village Rezoning

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Total Annual Building Energy Consumption</td>
<td>0.79 GJ/m² Commercial and Institutional Buildings</td>
<td>49.4% reduction from BC average of 1.56 GJ/m² (Natural Resources Canada, 2007)</td>
<td>LEED Gold (Public lands)/Silver (Private lands)</td>
<td>20% reduction in energy use.</td>
</tr>
<tr>
<td></td>
<td>0.44 GJ/m² Townhouse</td>
<td>49% reduction from BC average of 0.86 GJ/m² (Statistics Canada, 2007)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.31 GJ/sq m² Multi Unit Residential</td>
<td>53% reduction from BC average of 0.66 GJ/m² (Statistics Canada, 2007)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy Source</td>
<td></td>
<td>Design for connection to future district energy system</td>
<td>Provision for 3 stream pick-up</td>
<td>Estimated 60% fewer building emissions than conventional (C. Baber, personal communication, 2011)</td>
</tr>
<tr>
<td>Solid waste (residential and commercial) Kg/capita/year disposed off site</td>
<td>200kg/cap/yr maximum</td>
<td>60% reduction from Vancouver average of 510 kg/cap/year (City of Vancouver, 2009a)</td>
<td>Provision for 3 stream pick-up</td>
<td>Requires measures of amount kept from landfill; and from existing commercial composting facilities</td>
</tr>
<tr>
<td>Transportation Residents’ trips % non-auto</td>
<td>60% all daily trips by non-auto modes</td>
<td>Actual reduction in emissions cannot be determined from this target. See discussion below.</td>
<td>On-site composting for landscape and gardening</td>
<td></td>
</tr>
<tr>
<td>Potable Water Use</td>
<td>190 l/capita/day</td>
<td>16% reduction over 2005 average for major projects multi-residential (City of Vancouver, 2005c)</td>
<td>Specify low flow plumbing fixtures</td>
<td></td>
</tr>
</tbody>
</table>

Compiled by the Author

All of the target areas included in Table 7.4 relate to resource use but in terms of carbon dioxide emissions and ecological footprint accounting, the applicable areas are building energy, transportation and solid waste. Water use is an important ecological consideration but is not accounted for in ecological footprint analysis, and makes negligible contributions to

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51 Statistics Canada, 2005 does not use townhouse or multi-unit as categories; I have used their 1000-1500 sq ft category for townhouse and their 600-1000 sq ft for category multi-unit.
carbon dioxide emissions reduction. The only 2005 Resolution target for which absolute limits are set on resource use, is the building energy target. The targets for waste and transportation do not set such limits.

Solid Waste:

The solid waste target is 60% below Vancouver’s current per capita solid waste disposal weight of 510 kg per year (defined as weight of solid waste disposed at landfill or incinerated) (City of Vancouver, 2009a). A target to reduce per capita waste disposed at the landfill only yields information about corresponding emissions reductions from landfill operations. Without information on the fate of diverted materials, no accounting of the emissions balance can be achieved. What volume of materials is recycled and what volume is reused? What emissions are associated with recycling specific materials?

Collection of organics for composting is important for reducing methane emissions produced by organics that decompose in a landfill. Composting can also produce methane and nitrous oxide, but under certain management conditions, these emissions can be limited (Brown et al., 2008). Further emissions result from transportation of organic waste to composting facilities and from mechanical turning of compost (US EPA, 2005) but are small in comparison to the methane emissions from organics in landfill (Brown et al., 2008). The Keen Engineering (2002) plan for Southeast False Creek water and waste management recommended a City owned composting utility located either in or near Southeast False Creek (possibly in the industrial area to the east) as the best option for achieving optimum composting which they calculated at 88/98kg organic waste per capita/year.

Neighbourhood scale composting programs have benefits of fewer pick up vehicles and distances travelled, and local accessibility to compost material by community members. One of the larger social learning benefits of neighbourhood scale composting is that residents are confronted with the

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52 Water use do have energy impacts, as presented in the Southeast False Creek Water and Waste Management Plan (2002), for example, reduced water use in suites means less energy is needed to heat water; storm water managed on site through natural systems reduces the amount of mechanical energy required for sump pumps. All energy reductions are important however, for this study the reductions associated with water and storm water management are anticipated to be very small and have not been calculated.

53 The Keen (2002) report recommended a near-site composting facility over an on-site facility for a City-owned utility; due to capital costs for the start-up of such a utility, it would be most economical if the utility could also compost wastes for adjacent neighbourhoods. An on-site utility would be limited by space and could not accommodate organics waste from nearby neighbourhoods.
magnitude of the waste they produce and the physical processes required in disposing of it. The fact that consumers do not have to concern themselves with the ecological impacts of either the production or disposal related to their consumption habits has been cited as a barrier to encouraging sustainable consumption in developed nations (Kissinger, 2009). If the City had committed its model sustainable community to 100% organic composting, it would have been forced into creative problem solving to deal with the challenges of such a system, and possibly achieved a demonstration with potential for replication throughout the City. Over a decade later, Vancouver is working on a large scale city organic collection program. In 2010, the City of Vancouver launched the first phase of a food scraps collection program for single family dwellings; since Southeast False Creek has no single family dwellings, food scrap collection is not yet available.

The merits of waste diversion notwithstanding, in terms of ecological footprint accounting, the necessary imperative is an absolute reduction in consumption of resource and emissions intensive goods. The Water and Waste Management Plan for Southeast False Creek prepared by Keen Engineering in 2002 recognized this imperative, referencing it as the first objective for Waste Management in the Southeast False Creek Policy Statement (Keen Engineering Co. Ltd. et al., 2002). The plan acknowledges the hierarchy of waste management: reduce, re-use, and recycle. A target to divert waste from the landfill does not address the trend of overall increases in volume of goods consumed (Warren-Rhodes and Koenig, 2001; Lenzen et al., 2004; Kennedy et al., 2007). Absolute targets on waste disposal should be accompanied by strategies such as those proposed in the Water and Waste Management Study (Keen Engineering Co. Ltd. et al., 2002) (see Chapter 5) including community infrastructure for neighbourhood exchange depots (household goods; small appliances); shared community tool sheds (and tools); community wood working, metal or repair shops; reuse centres; waste education programs for residents and businesses delivered through the proposed Southeast False Creek Sustainability Centre. The targets related to personal consumption could still be adopted, and many of the strategies proposed in the 2002 Water and Waste Management report can still be implemented. As discussed in Chapter 5, a question remains whether the new residents of Southeast False Creek will be enthusiastic participants in the experiment of sustainable living.
Transportation:

The transportation target is a target to shift transportation mode share. Given a constant number of overall trips and trip length, a shift in mode share from fossil-fuelled auto to non-auto would result in a reduction of fossil fuel use and associated greenhouse gas emissions. However, without data on the length and number of trips, it is not possible to determine the actual reductions that would result from a mode shift. The authors of the targets and indicators report to Council acknowledge that the mode share indicator is not as effective as automobile kilometres/person/year for determining environmental impacts; they explain that the indicator was selected based on availability of credible data (City of Vancouver, 2005:7).

The most appropriate target would be a reduction in overall emissions from transportation. As a starting point, a goal for a specified reduction in fossil fuelled automobile kilometres travelled (vkt) per person per year would be helpful. A target limiting per capita vehicle kilometers travelled per year was proposed in the targets developed for the Southeast False Creek Policy Statement by The Sheltair Group Inc. The target would require baseline data on current vkt for the average Vancouverite. The omission of such a target reveals an important, on-going lack of local government data collection on activities relevant to greenhouse gas emissions and resource use. In 2011, the City of Vancouver adopted a goal to reduce average distance travelled by automobile, per capita, by 20% below 2007 levels. In the plan which sets out the goal, authors acknowledge that necessary baseline data is unavailable. The City commits to working with other agencies to develop data collection and sharing protocols (City of Vancouver, 2012:30). Had the City adopted a vehicle kilometres travelled target for its model sustainable community of Southeast False Creek in 1999 when the Policy Statement was approved54, it would have had to establish appropriate data collection protocols and would now be much further along the road to useful, measurable reduction targets for the City as a whole.

The Resolution targets remain on the City Clerk’s report, and therefore, should one day be revised as part of an indicator and monitoring strategy report to Council. Interview data

54 A Policy Statement is a framework of principles to guide development and it is not common to include targets, but Sheltair Environmental had developed targets for Southeast False Creek as part of their scope of work for the City. The Sheltair targets for ghg emissions were: residents of Southeast False Creek travel no more than 3,392 km per year for daily shopping and community; no more than 1,498 kg per year of carbon dioxide are emitted from transportation-related activity in Southeast False Creek (City of Vancouver, 1999:82).
suggests that various City departments will be collecting data on transportation, energy and solid waste as part of their city-wide data collection procedures. How this information will be collated, synthesized and reported to the public to fulfill the promise of Southeast False Creek as a learning model and as a replicable model, has not been established.

7.2 Olympic Village Re-zoning

Although Tables 7.1 and 7.2 demonstrate that requirements of the Olympic Village rezoning and the Southeast False Creek Green Building Strategy yield limited measurable progress toward sustainability, the rezoning documents do include innovations over previous development standards. In Table 7.5 I present excerpts from the Rezoning of Sub Area 2A (2006), the Olympic Village.

The Olympic Village rezoning takes a critical step toward addressing the lack of baseline data for target setting and monitoring of building performance by requiring roughed-in capacity for future individual suite metering for energy and water use (Table 7.5 Environmental Sustainability, Energy, lxxv). This is not a requirement of the Southeast False Creek Green Building strategy, but was a specific rezoning requirement for the Olympic Village site and for some adjacent privately held parcels. In the former Olympic Village all residential units (1100 units) have in-suite monitoring and residents will receive a bi-monthly invoice of their use. A local company, EnerPro Systems Corp acts as the billing services provider for the strata corporations. Each suite is metered for:

- Heating energy (kWh)
- Cooling energy (kWh)
- Domestic Hot Water consumption (litres)
- Domestic Cold Water consumption (litres)
- Electricity (kWh) monitoring only, (billing by British Columbia Hydro).

The units also have in-suite display meters for real time viewing by occupants; at any time they can view their approximate consumption of heating energy, cooling energy, hot and cold water. For electricity, both consumption and the estimated cost in kWh are displayed. A consumption light indicator displays three levels of energy consumption:
Green light = below average consumption
Yellow light = average consumption
Red light= above average consumption

(EnerPro Systems Corp. 2011)

According to the EnerPro website energy savings are expected to result from occupant awareness (EnerPro Systems Corp. 2011b). Research shows that feedback mechanisms like personal meter invoicing can reduce consumption rates by 5% to 10% (Wilhite and Ling, 1995; Darby 2006; Mountain, 2006). The City is collecting consumption data on some buildings and will review it over time to learn about the performance of the buildings although to date, specific protocols and accountability for data collection, analysis, review and reporting out to Council and the public are not in place (CITY 3). In a model sustainable community, specifically designed for learning, such protocols are of critical value (T. Osdoba, personal communication, November 15, 2010; City of Vancouver, 2005; 2007).

Table 7.5 Highlights of the Olympic Village Rezoning (City of Vancouver, 2006c)

<table>
<thead>
<tr>
<th>Rezoning of Sub-Area 2A (Olympic Village)</th>
<th>Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape Design</td>
<td>Note to Applicant: written submission should include a summary reference “Handbook for Maintenance and Stewardship of Sustainable Systems” which could assist various stakeholders with routine monitoring and upkeep of landscape systems and any special requirements of sustainable technologies and sustainable systems: on-site storm water management, green roof, urban agriculture, soil quality (mulching), compost, pruning, edible food harvesting, successional plant/tree management, habitat and Integrated Pest Management.Documents should include brand specifications, where applicable (for example, cistern and rainwater harvesting manufacturer specifications).</td>
</tr>
<tr>
<td>Green Roofs</td>
<td>(lii) 50% roofscape area to be surfaced in growing medium and appropriate vegetation. Roofscapes should be highly programmed, useable and accessible. Urban agriculture, intensive and extensive green roofs are encouraged and should respond to functional needs, particularly microclimate conditions. Note to Applicant: Where green roof cover is prohibitive due to</td>
</tr>
</tbody>
</table>

55 The capital cost of installing the monitoring system was passed on to unit owners in the form of a monthly levy in strata fees. When the Olympic Village properties went into receivership the Receiver bought out the lease on the capital cost as a way to reduce monthly strata fees. Challenges of creating innovation without subsidy; and of a market project that sought a specific profit margin.
<table>
<thead>
<tr>
<th>Rezoning of Sub-Area 2A (Olympic Village)</th>
<th>Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>architectural constraints, roofing material should be high reflective following the EPA Energy Star roofing requirements.</td>
</tr>
<tr>
<td>Water Efficiency and Stormwater Management</td>
<td>(liv) Best current practices for managing water conservation including high efficiency irrigation, moisture sensing, special soils, aspects of xeriscaping including drought-tolerant plant selection and mulching;</td>
</tr>
<tr>
<td></td>
<td>(lv) Design development to meet the LEED™ Canada 1.0 stormwater management credits (Sustainable Sites Credits 6.1 and 6.2). Stormwater treatment/storage facilities should be integral to the open space design, detailed technical drawings to be submitted at time of development permit application;</td>
</tr>
<tr>
<td>Environmental Sustainability Energy</td>
<td>(lxxi) Provide energy efficient design and modelling results to meet or exceed the CBIP (Commercial Buildings Incentive Program) standard for energy efficiency (25% more energy efficient than Model National Energy Code for Buildings).</td>
</tr>
<tr>
<td></td>
<td>(lxxii) provide full building design to meet ASHRAE 90.1 2004 in its entirety (with the exception of outright energy efficiency, which is covered under provision “lxxi”, above, including:</td>
</tr>
<tr>
<td></td>
<td>• improved envelope options such as “continuous insulation”, increased r values, and thermal breaks for balconies and slab extensions; energy efficient lighting;</td>
</tr>
<tr>
<td></td>
<td>• air exchange effectiveness;</td>
</tr>
<tr>
<td></td>
<td>• full best practice building systems commissioning; daylighting; and provision of vestibules where necessary;</td>
</tr>
<tr>
<td></td>
<td>(lxxiii) provide compatible, energy efficient design and details of the in-building heating and domestic hot water for the referenced connection to the False Creek Neighbourhood Energy Utility proposed for the area;</td>
</tr>
<tr>
<td></td>
<td>(lxxiv) Provide vertical glazing to a maximum of 40 percent or provide additional thermal measure such as low-e glass to compensate for the additional heat loss;</td>
</tr>
<tr>
<td></td>
<td>(lxxv) provide roughed-in capacity for future individual suite metering for energy and water use;</td>
</tr>
<tr>
<td></td>
<td>(lxxvii) No natural gas fireplaces are to be installed within dwelling units. Ornamental non-combustion fireplaces are permitted if they are not heat producing.</td>
</tr>
</tbody>
</table>
### Rezoning of Sub-Area 2A (Olympic Village)

#### Highlights

**In-Building Water Efficiency**

(lxxxii) Provide low-water-use plumbing fixtures at or below 1.8 gpm for faucets and showerheads and 6L/3L dual flush toilets. Specify in-suite water conserving appliances and building equipment (meet Energy Star requirements).

**Urban Agriculture**

(lxxxiii) Design development to provide wheelchair accessible garden plots for use by people with disabilities, where possible.

(lxxxiv) Design development for the larger rooftop gardens that have designated garden plot sections to provide a small adjacent indoor amenity area with a fully accessible washroom.

(lxxxv) Design development to provide a small children’s play area and/or specifically designated children’s gardens within sight range of any rooftop garden plots so that adults may engage in their own activities while supervising their children’s play for a maximum synergy of uses, where possible.

(lxxxvi) Design development to incorporate the objectives of urban agriculture including provision of garden plots of an adequate size and number to be productive and viable. Locate gardening plots to maximize sunlight and respond to programming requirements such as providing an area for composting, non-potable water/irrigation systems, and suitable soil volumes.

**Agreements, Engineering Co-op vehicles**

(i) make arrangements to the satisfaction of the General Manager of Engineering Services and the Director of Legal Services, in consultation with the Director of Planning, for:

- a. provision, operation, and maintenance of co-operative vehicles and provision and maintenance of parking spaces for use exclusively by such co-operative vehicles, with such parking spaces to be in addition to the minimum required by the Parking By-law and;
- b. designation of visitor or surplus parking spaces which are publicly accessible for future use by co-operative vehicles

<table>
<thead>
<tr>
<th>Dwelling Units</th>
<th>Co-op Vehicle</th>
<th>Co-op Parking space</th>
<th>Future Converted co-op parking space</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-49</td>
<td>None</td>
<td>None</td>
<td>1</td>
</tr>
<tr>
<td>50-149</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>150-249</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>250-349</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Additional 100 units or portion thereof</td>
<td>+0</td>
<td>+0</td>
<td>+1</td>
</tr>
</tbody>
</table>

From City of Vancouver, 2006c
Southeast False Creek has been designed on principles associated with sustainable urban land development such as mixed uses, mid to high density, and walking and bicycling infrastructure. Table 7.6 shows the full range of strategies Southeast False Creek has employed based on these principles. Targets for associated, measurable reductions in resource use and emissions were not established. As I have shown in previous chapters, lack of benchmark data, lack of resources, lack of commitment to target setting and monitoring, and the dominance of a three pillars/status quo reform approach to sustainability all contributed. The Southeast False Creek case shows that the commonly advocated best practice strategies are not yet supported in practice with appropriate benchmark data and data collection protocols.

Table 7.6 Southeast False Creek strategies: resource use and waste reductions

<table>
<thead>
<tr>
<th>Target For Change</th>
<th>Changes Proposed in Urban Sustainability Literature</th>
<th>SeFC</th>
<th>SeFC Documents Stating the Goal and/or Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Form/ Land Use</td>
<td>Compact; high density</td>
<td>✓</td>
<td>ODP (4.3.1 to 4.3.5) Density was increased beyond ODP floor space ratios in several parcels during rezoning</td>
</tr>
<tr>
<td></td>
<td>Mixed-use</td>
<td>✓</td>
<td>ODP (4.3.1 to 4.3.5) Predominantly residential; focus on families with children; also retail; services; recreational; office</td>
</tr>
<tr>
<td></td>
<td>Transit-oriented</td>
<td>✓</td>
<td>All residences are within ten minute walk of transit; located close to downtown, retail and employment</td>
</tr>
<tr>
<td></td>
<td>Pedestrian and bicycle oriented design</td>
<td>✓</td>
<td>ODP Figures 12, and 14 show bicycle, pedestrian and transit routes;</td>
</tr>
<tr>
<td></td>
<td>Brownfield redevelopment</td>
<td>✓</td>
<td>ODP (4.1) Former industrial site</td>
</tr>
<tr>
<td>Transportation Systems</td>
<td>Encourage car-pool; car share programs</td>
<td>✓</td>
<td>Rezoning for OV 2006 (see Table 7.5 for car share provisions)</td>
</tr>
<tr>
<td></td>
<td>Support electric vehicles</td>
<td>X</td>
<td>Not included in rezoning up to 2011. Vancouver Building By Law as of April 2011 requires 20% parking spaces in new multi-unit residential</td>
</tr>
<tr>
<td>Target For Change</td>
<td>Changes Proposed in Urban Sustainability Literature</td>
<td>SeFC</td>
<td>SeFC Documents Stating the Goal and/or Strategies</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------</td>
<td>------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Public transit systems</td>
<td>√</td>
<td>to accommodate electric vehicle charging equipment</td>
</tr>
<tr>
<td></td>
<td>Reduced parking for private automobiles</td>
<td>√</td>
<td>Required at Rezoning</td>
</tr>
<tr>
<td>Energy Systems</td>
<td>District energy systems</td>
<td>√</td>
<td>All buildings must connect to Neighbourhood Energy Utility</td>
</tr>
<tr>
<td></td>
<td>On site renewable energy technologies such as solar, wind and geothermal</td>
<td>√</td>
<td>Use of solar energy in some buildings; heat capture for Net Zero building</td>
</tr>
<tr>
<td>Sustainability Education Through Design</td>
<td>Design for learning about energy systems; ecological systems</td>
<td>√</td>
<td>Neighbourhood Energy Utility has public viewing portals; light display can be broadcast energy use into night sky; park designed to reveal natural systems</td>
</tr>
<tr>
<td>Built Form</td>
<td>Energy efficient building design and layout including passive design Flexible design so buildings can be adapted to user needs over time</td>
<td>√</td>
<td>ODP; Green Building Strategy</td>
</tr>
<tr>
<td>Water Use</td>
<td>Conservation technology such as low flow faucets</td>
<td>√</td>
<td>Specified in Green Building Strategy</td>
</tr>
<tr>
<td></td>
<td>Re-use of gray water</td>
<td>√</td>
<td>Included in Green Building Strategy</td>
</tr>
<tr>
<td></td>
<td>Naturalized storm water management systems and reduce impervious surface area to replenish surface and groundwater</td>
<td>√</td>
<td>Included in Green Building Strategy</td>
</tr>
<tr>
<td>Waste – solid, liquid and atmospheric</td>
<td>On-site Composting of all organics</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diversion of waste from landfill through increased recycling and re-purposing centres</td>
<td>√</td>
<td>Recycling No re-purposing centre</td>
</tr>
<tr>
<td></td>
<td>Re-design of products for recycling and re-use</td>
<td>•</td>
<td>Outside of City jurisdiction</td>
</tr>
<tr>
<td></td>
<td>Methane capture at landfill</td>
<td>√</td>
<td>City of Vancouver</td>
</tr>
<tr>
<td>Target For Change</td>
<td>Changes Proposed in Urban Sustainability Literature</td>
<td>SeFC</td>
<td>SeFC Documents Stating the Goal and/or Strategies</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------------------</td>
<td>------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Air emissions standards</td>
<td>●</td>
<td>Metro Vancouver jurisdiction; SeFC GBS wood burning fire places eliminated</td>
</tr>
<tr>
<td>Urban Agriculture</td>
<td>Reduce ‘food miles’ distance: production to consumption site</td>
<td>x</td>
<td>No target for on site production yield</td>
</tr>
<tr>
<td></td>
<td>Community and demonstration gardens: food production, education and aesthetics</td>
<td>✓</td>
<td>SeFC Green Building Strategy</td>
</tr>
<tr>
<td>Urban Green Space Wildlife Habitat</td>
<td>Retain wildlife habitat; native species planted where possible</td>
<td>✓</td>
<td>Foreshore plan; creation of habitat island;</td>
</tr>
<tr>
<td></td>
<td>Walking distance access to green space for residents, local employees and visitors</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Personal Consumption</td>
<td>Encourage reductions in consumption of resource intensive products and services</td>
<td>x</td>
<td>No programmatic effort undertaken to date (May 2011)</td>
</tr>
<tr>
<td>Governance</td>
<td>Increase local legal and regulatory jurisdiction</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increase participatory and stakeholder-based planning and decision-making</td>
<td>x/✓</td>
<td>Vancouver is recognized as having a fairly open, participatory planning process compared to many North American cities. Southeast False Creek has had a significant amount of input from the SeFC Advisory and Stewardship Committee</td>
</tr>
</tbody>
</table>
| Economy | Localized restorative economies:  
• Provide more local control over local resources; meet local needs from local sources  
• Recycling and re-use facilities Encourage local stewardship ethic  
• Local eco-industrial networking | | Employment and training programs for Downtown East Side residents during construction; preferred businesses for City owned lands are local and have ecological or sustainability commitment eg. eco-friendly brew pub in Salt Heritage Building |

7.3 Evaluation of Achievements: Southeast False Creek Sustainability Objectives

In my analysis of Southeast False Creek, I applied a theoretical frame in which sustainability requires living within global biophysical limits. The results presented in sections 7.0 and 7.1 of this chapter show that Southeast False Creek is far from sustainable by that criterion and its overall progress toward sustainability cannot readily be determined given the lack of comprehensive, measurable performance targets. Research findings presented in Chapters 4 and 5 reveal that key decision makers in the planning process did not adopt a biophysical limits approach to the Southeast False Creek project and no targets or goals were established with such an approach in mind. Instead, a three pillars approach dominated—the central sustainability objectives of the project, as stated in the Official Development Plan (City of Vancouver, 2007:4) were to:

- **Establish a foundation of urban design principles, sustainability principles, and environmental, social and economic sustainability strategies to enable the development of Southeast False Creek as a complete community, and to serve as a learning experience for application of such principles and strategies on a broader scale**

- **Develop a mixed use neighbourhood focussing on a diversity of residential uses to accommodate all incomes, with family housing as a priority, where people live, work, play and learn in a neighbourhood designed to maintain and balance the highest possible levels of social equity, liveability, ecological health and economic prosperity so as to support their choices to live in a sustainable manner.**

To what extent did Southeast False Creek achieve these objectives?

The second objective includes a set of characteristics, none of which is defined in a way that allows for detailed evaluation. I address each characteristic in order: Southeast False Creek does have a mix of uses. It does include a diversity of residential forms: townhouses, condominiums, and live-work studios. The project is planned to accommodate residents with a range of incomes by including non-market housing, market rental and luxury residences. Does it *focus* on accommodating all incomes? What does focusing mean? Family housing is
included, but at 25% allocation (achieved through provision of 2-bedroom residential units) is it a priority? Whether people who live in the community also work, play and learn in the community has not yet been determined. Because there is no monitoring strategy, it is unknown whether these data will ever be collected. Has the neighbourhood been designed to maintain and balance the highest possible levels of social equity, liveability, ecological health and economic prosperity? Without definitions of the highest possible levels of social equity, liveability, ecological health and economic prosperity, it is not possible to determine whether this goal has been achieved. How would the appropriate balance between the four features be determined? Does the neighbourhood design support residents’ choices to live in a sustainable manner? This question could only be answered if a definition of sustainable living had been provided and post-occupancy monitoring been part of the plan.

Interviewees for this research did provide assessments of the project that relate to the first objective of the ODP: the project developed sustainability strategies and principles that could be applied on a broader scale and it served as a learning experience for local professionals, the City, the public, and the development industry. One interviewee claimed the project ...became a sandbox for every company in Vancouver: design, architecture, landscape architecture and engineering...everybody was involved at some point; the project became the think piece for the entire profession (M. Holland, personal communication, July 22, 2010). Individual interviewees identified a number of principles, strategies and regulations developed for Southeast False Creek that could be applied to other projects or the city as a whole. These strategies were also identified as project successes, as innovations on previous major planning projects in Vancouver: the Southeast False Creek Green Building Strategy was the basis for the community wide green building strategy; sub-metering water and energy use in buildings is being contemplated for the 2011 city-wide building by-law; district energy systems are being explored for other parts of the city. Habitat restoration in the East Fraserlands project was described as having ‘moved beyond’ Southeast False Creek. Green roof technology was advanced locally; urban agriculture was more thoughtfully contemplated than it had been previously; experimentation with a “net zero” energy building offered a learning and demonstration opportunity. Southeast False Creek demonstrated that

56 Irwin (2004) reports that preparation of the Southeast False Creek Policy Statement increased local knowledge about sustainability, and influenced subsequent development projects in the City to include sustainability–oriented considerations.
condominiums could be sold with only one dedicated parking space. Engineers accepted narrower than standard 66 foot street widths and also curbless streets with water draining in the street centre, both unique for Vancouver. The naturalized storm water management system was also commonly identified as a successful innovation. The extent to which these and other strategies will be applied in future projects will be determined in coming years.

Interviewees also identified aspects of the project they felt did not much exceed performance of previous major projects. A list of these aspects is provided below with some interviewee comments. Urban agriculture and parking space restrictions were identified by other interviewees as exemplars of innovation.

1. Transportation
2. Urban Agriculture
3. Parking
4. Water use reductions
5. Energy Efficiency Targets for buildings

I still look at those buildings and think, boy, how can you call a building green when it's got 80% glass? There's just a physical, it doesn't pass the sniff test. We couldn't realistically have made it a net zero energy site; there weren't enough sources of local energy and I'm not a big advocate at this time of putting solar voltaics on everything. We could've probably got another 20-30% reduction in energy use if we had done it well. (Sheltair Energy Specialist)

6. LEED Gold and Platinum Buildings

I would hate for anyone to walk around the Village and think that that's the only way to do LEED Gold or LEED Platinum because there are other ways to do it. And it could cost less and it could be less of a high tech solution. (Former City Engineer)

Three interviewees offered the opinion that Southeast False Creek will influence sustainability-oriented planning at a broader level beyond Vancouver. Former Senior Planner and Manager of Development, Southeast False Creek Project Office, Ian Smith:

I think Southeast False Creek has already influenced Dockside and some aspects of Dockside may influence other buildings in BC, and that means that maybe in
Richmond which is already starting to move in a green direction and Burnaby, which you know, a lot of the learning around Southeast False Creek is already made its way out and the competitive nature of municipalities too.

And I think that now that the Olympics have put Southeast False Creek on the international stage, and it was already happening, but we've had delegations from all over the world learning and wanting to see what we're doing here. And I think it will influence, in its own way, you know obviously there's been more green roofs in Berlin, and more water saving in Tucson, but you know, it will influence in its own way, other developments all around the world. (I. Smith, personal communication, January 26, 2010)

All of the comments above relate to environmental sustainability. In terms of social and economic sustainability strategies interviewees offered fewer details in their assessments. Social sustainability was largely assessed in terms of family-oriented and affordable housing allocations. The requirements for Southeast False Creek match those of False Creek North and Coal Harbour at 20% affordable housing, and 25% family appropriate (determined by unit size and orientation to ground level). Approximately two thirds of interviewees, including City Staff, one former Council member, and consultants expressed disappointment that a higher level of non-market housing had not been mandated. They expressed concern that the high cost of residential units undermines the social sustainability associated with socio-economic diversity.

Other comments on social sustainability related to public amenities and public realm design: provision of the community centre; heritage preservation; park space; sea wall access; community gardens; public art; public plaza. Achievements toward these attributes were viewed favourably. Three interviewees addressed building design as an aspect of social sustainability, citing rooftop and balcony gardening provisions as opportunities for neighbours to socialize.

Among interviewees who commented on economic sustainability, all addressed it in terms of the project’s overall market success. They expressed concern that Southeast False Creek’s financial troubles (financial default by the developer of the Olympic village in 2010 leaving the City as sole owner of unsold residential units; weak sales of high end units in the
depressed international housing market) were obscuring the innovations and successes of the project, and undermining its value as a model for replication.

Wait and see what the data show as to how successful it is... everybody wants to wait and see how it goes but there's a lot of sceptics out there for whom the fact that it hasn't been a financial success are using that as an excuse to say see, not so good is it?

Unfortunately its shooting municipal policy making in the foot because any time anyone is master planning a community and they are going to be asked to build LEED Gold they are going to go: look at that thing in Vancouver, unfortunately.(CNSLT 2)

None of the interviewees discussed economic sustainability in terms of progress toward low-growth, no-growth, dematerialization or ‘greening’ of economic activity. Economic sustainability as determined in the Southeast False Creek approach meant viability under standard market conditions (see Chapter 4). I have chronicled the internal City debate over economic viability and replicability of the Southeast False Creek project in Chapters 4 and 5. The City’s Director of Finance, successive City Managers, the Director of Real Estate Services, and the NPA majority Councils were determined to develop the project without major public subsidy. That debate arose most strongly in relation to the allotment of affordable housing, and expectation of financial returns to the Property Endowment Fund, but also to the cost of public buildings and infrastructure. The COPE dominated Council and other individuals like the two former Co-Directors of Central Area Planning viewed Southeast False Creek as an opportunity for experimentation with a range of pilots, demonstrations and innovations; some would be inspirational but not immediately replicable, while others would be practical and transferrable. Interviewees for this research had mixed feelings about specific demonstration projects.

Commonly cited as non-replicable in the private market were the LEED Platinum-rated community centre and seniors’ residence. The seniors’ residence was designed to be ‘net zero’ meaning it must produce as much energy as it consumes averaged over the course of a
Comments from two interviewees highlight the concern that high cost reduces market up-take:

*I mean, you've got a social housing project which is Platinum. The project cost is such that you can never build another social housing project like that. Single loaded corridors and stuff which is all great but it costs way above what you can ever justify... We tried to make this community centre Platinum, so we put all this glass on the community centre in the gym because they had to have all this natural light. You had to get the [LEED] points you know. Well it was extremely expensive—completely a waste of money and it didn't make any sense. We've got a platinum gym or we've got this -well that's fine except we've lost all the ability to have a demonstration. (Former Director of Real Estate Services)*

The Net Zero building has ended up seeming to be layer upon layer of technology that I think ended up costing a lot more than many comparable buildings and so I think people won’t necessarily see that as something they can easily do. For me a model has to be easily replicated in the general community and that building is not something people are currently looking to replicate. (Engineering Consultant to the City)

A contrasting view on the expensive LEED Platinum community centre is offered by Ian Smith (personal communication, January 26, 2010):

*Well the community centre - we decided to make it a LEED Platinum building and we decided to make it a building with a superior architectural form. And we knew it was going to cost more when we did that. It's on the waterfront in False Creek in an area where there are already some architectural jewels and we wanted it to be a public building. As a community centre the public will be able to experience that building on a day to day basis and I think it was a wise choice. And it wasn’t as expensive as the net zero building. Platinum is not as expensive as net zero.*

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57 This building is designed to use solar energy, waste heat energy from a neighbouring building, and must return an equal amount of energy to the energy grid, as it takes from the district energy system over the course of a year (CoV, 2010b).
Smith’s comments reflect an on-going City planning priority for investment in high quality public amenity, a priority that first emerged in the 1970s with the reform era local government and the South False Creek neighbourhood (Ley, 1986). Despite the more fiscally conservative approach of NPA councils in Vancouver, since the 1970s, successive Councils have supported high quality public amenities and public realm treatment (Punter, 2003; Sandercock, 2005).

Interviewees also commented on Southeast False Creek as a wholesale, replicable model of sustainable development. The two limitations cited most often were the unique characteristics of the project, and the challenge of transferring Southeast False Creek applications to the rest of the city, most of which is already built up and requires sustainability retrofitting:

_I think a lot of the things that were able to be done in the Olympic Village, the exact same solutions are not going to be transferrable to a city that’s already built up._ (Former Assistant Director, Central Area Planning)

_I would say no. God knows I love the idea of replicability but each project is so unique. The drivers are often different. The politics are different. The opportunities are different. Simon Fraser University is great at water management because it needs to be; it needs to protect salmon bearing streams. So I think there are a few things we can learn from Southeast False Creek but a replicable model? When will you have the convergence of 80 acres of land owned by a city on a waterfront with old industrial and an Olympic opportunity?_ (CNSLT 1)

Other interviewees pointed out that the first phase of development in Southeast False Creek was not intended to be completely replicable, and that subsequent developments in the community will build upon its successes.

_And the whole thing about Southeast False Creek, the second part of that is that we were meant to learn and build incrementally and so, on City-owned lands we built less than half the density, one fifth of the density of the overall site. So, if we can do better, when we start doing the planning in a year or two we will raise the bar higher because of what we learned on the neighbourhood that we've already_
done. (Former Senior Planner and Manager of the Southeast False Creek Project Office)

There is a lot of good stuff in there for the bones of it, we definitely are using again. But are we going to build the other two neighbourhoods that the city owns exactly the same as that one, no we won’t; just because I think that any prototype, you can always improve your second version (CITY 3).

I asked interviewees to comment on whether or not Southeast False Creek had achieved its goal to be a model sustainable community. Of the twenty-four interviewees, nineteen responded in terms of individual components—economic, environmental and social—as described in the quotes above. They evaluated the success of the project at meeting its own objectives in these three areas. Only five answered the question from a holistic, transformation oriented view of what sustainability would require. The response from the majority of interviewees suggests that fifteen years after sustainability planning and investigation started for Southeast False Creek, sustainable urban land development is largely viewed from the three pillars perspective, somewhere on a continuum between status quo and reform. Sustainability is seen as a local effort to improve upon existing planning models through enhanced environmental performance, not as an urgent response to mounting global ecological crisis. Sample interviewee responses to the question “Is Southeast False Creek a model sustainable community?” are included below.

Two interviewees through that Southeast False Creek was a successful model. Former Senior Planner and Southeast False Creek Project Manager, Ian Smith described it in the following manner.

And I think in Vancouver we’ve had a wonderful opportunity to be able to really move sustainable thinking further in Southeast False Creek. It takes all aspects of sustainability. It wasn't just the economic or the environmental, it also included social aspects of sustainability and I think that Southeast False Creek even in 10 or 20 years because there are other phases and because it will evolve, will still be one of the leaders in terms of sustainable thinking.
The other interviewee to describe Southeast False Creek as a successful model of sustainability was the Former Director of Real Estate Services.

*We did a complete community; we’d done that before but we did it on a sustainable basis; we did a large sustainable project which overall, I think is fine.*

Two interviewees described Southeast False Creek as insufficient in meeting sustainability challenges. Higher performance targets and greater innovation will be required:

*Southeast False Creek provides, like the name of the park itself, the hinge; the hinge between the way we did it in the 20th century and the models that Vancouver produced that make us exceptional, and what will truly have to be exceptional in what's coming. But the Olympic Village isn't it. Not yet... what I mean is it doesn't represent as big a leap as we will now have to make. If it had been done in the 90s it would have been visionary for the time; and done it the way the Advisory group wanted it and COPE.* (G. Price, Former City Councilor)

*To me what was more important was do the best model we could do...I don't think it's the best model. .. I think many people would now say we know we have to go way beyond any of these targets in the future if we are truly going to make human settlements sustainable.* (L. Beasley, Former Co-Director of Planning)

Two others identified what they thought was missing from Southeast False Creek:

*It’s a long way from leading edge; a good example of careful engineering. It doesn’t understand our role. It thinks that we want to do 50% better than we’re doing. What we really need is urban ecology where you can’t even see the infrastructure and where it’s self-organizing and just like a living ecology and where it’s based on all sorts of intelligent networking and flows that are two way and varying by time of day and, a real learning society and a growing self-organized network with so much more functionality at the local level and the nodes in between.* (S. Moffatt, Sheltair Scientific Ltd.)

*I think any community development that doesn’t hold water and food and social housing at its core is going to be less than it should be.* (F. Crofton, Consultant)
Finally,

*It's not a model of an ecologically sustainable community. It’s not even a model of a socially just sustainable community. But it is a model of what was able to be achieved within the reality of the political economic context of the time.*

(J. Moore, Southeast False Creek Advisory Group Member)

### 7.4 Summary and Discussion

As shown in previous chapters (Chapters 4, 5, and 6) a three pillars/status quo-reform approach to sustainability dominated the planning for Southeast False Creek. From this approach, a sustainable urban land development project does not have a role to play in responding to global ecological challenges; it does not have to address the challenges of global resource and waste sink constraints. Some actors in the planning held a transformative perspective on sustainability (for example Sheltair consultants), but they were unable bring measures of sustainable resource use (ecological footprint and emissions) to the neighbourhood scale at the time of project development. As a consequence of the three pillars/status quo-reform approach, Southeast False Creek was developed without a quantifiable metric for sustainability such as a maximum per capita ecological footprint or maximum per capita greenhouse emissions. Although a number of studies proposed performance targets for Southeast False Creek, none set targets to limit greenhouse gas emissions or ecological footprints. One goal in the Official Development Plan targeted greenhouse gas neutral operations for buildings. In this chapter I calculated the potential per capita greenhouse emissions and ecological footprint reductions that could accrue from Southeast False Creek as it has been planned and developed to date. I used details from the requirements of the Olympic Village rezoning in 2006 and the Southeast False Creek Green Building Strategy to estimate these reductions. I compared the potential reductions from the project to externally derived measures of sustainable per capita ecological footprint and greenhouse gas emissions.

I found that achievement of the published goals and standards for Southeast False Creek could yield per capita ecological footprint reductions of 4.6% and per capita greenhouse gas emissions.
emissions reductions of 8% from the Vancouver average. Compared to the required reductions of 73% and 81% respectively, Southeast False Creek, makes limited progress toward sustainability.

A critical observation is that no reduction targets were set for personal consumption. Ecological footprint studies show that personal consumption choices including food, can represent over 40% of per capita ecological footprint (GN, 2003; Moore, 2011). Although municipal authorities have few policy tools in the arena of personal consumption choices, strategies such as those proposed in the Water and Waste Management Study (Keen Engineering Co. Ltd. et al., 2002) are first steps.

A central observation is that Southeast False Creek was planned as a model sustainable community but set no targets toward any measurable state. The strategies and initiatives employed on the project may well yield per capita resource and waste reductions compared to the average Vancouver resident, but they have not been conceived to measure or to communicate those reductions. If measurable reduction targets are to be set, appropriate benchmark data and monitoring protocols would have to be determined.
Chapter 8
Discussion and Conclusions

The case of Southeast False Creek reveals how approaches to sustainability for a model sustainable community project evolved within a City bureaucracy and influenced the implementation of the project. As noted, among key actors for Southeast False Creek, sustainability embodied a three pillars/status quo-reform approach as follows:

Three Pillars/Status Quo-Reform Approach

1. Ecological, human-social and economic systems represent three more or less equal pillars in this model of system relationships (Rees, 2010; Schneider and Kay, 1994). Sustainability must deal with perceived minor problems of pollution and mounting problems of local environmental degradation; global instability is not really considered.
2. Action can be taken only as markets and technology allow—immediate actions should reflect direct market mechanisms and cost-effective technological solutions.
3. Environmental problems are due to lack of information such as the failure of markets to capture environmental externalities.
4. Environmental problems can be solved with technological and market solutions, and changes in consumption behaviour.

Contrast this with a Nested Hierarchy/Transformative Approach:

1. Ecological, human-social and economic sub-systems exist within a nested hierarchy of system relationships; the ecosphere contains society and the economy and the existence of the latter are dependent on the integrity of the former.
2. Planning should reflect the growing crisis of global ecological degradation and possible future systems collapse.
3. Forceful immediate action is required that will require intervention in the marketplace.
4. Un-sustainability results from socioeconomic structures rooted in a paradigm that misrepresents the relationship between human and ecological systems.
5. Sustainability requires radical change to existing socioeconomic structures, i.e., to the paradigmatic beliefs, values and assumption that reflect the relationships among human socioeconomic systems and ecological systems.

I have argued that planning for a truly ‘sustainable’ urban development project must ultimately assume the nested hierarchy/transformative approach. Scientific indicators such as
anthropogenic greenhouse gas emissions concentrations and the human ecological footprint must be used to determine approximations of ecological “sustainability”, of living within global biophysical means. I applied both of these metrics to assess the sustainability of Vancouver’s Southeast False Creek development. I traced in detail how sustainability approaches were developed within the City bureaucracy and adopted by central decision-makers. Because the dominant approach for Southeast False Creek resembled a three pillars model, principles were developed in pursuit of locally derived objectives for social mix and public amenity; for economic feasibility within existing market system and conditions; and for efficiencies in resource use and waste production, habitat restoration, and urban agriculture. No measurable target for sustainable living within globally-relevant constraints was determined. Ways to influence residents’ personal consumption habits and broader social and economic changes toward sustainability were considered, and some were reflected in policy. However no targets and few strategies were implemented toward this end. The overall contribution of Southeast False Creek toward living within global biophysical limits can only be estimated as I have done in Chapter 7, based on modelled and anticipated performance. Further data collection and analysis on performance can be carried out once the community is fully occupied (at the time of writing approximately two thirds of the residential units are inhabited and less than half of the commercial space is occupied). However, establishing data collection and reporting protocols with residents after the fact is more difficult than carrying out a program built into the project from the beginning (CITY 1). The research reveals that Southeast False Creek, despite being identified in the Clouds of Change (1990) report among a number of potential local responses to global atmospheric change, was not conceived by central decision makers as a response to a mounting global ecological crisis.

My research makes a significant contribution to the sustainable cities literature. Researchers investigating sustainability-oriented land development projects have taken a range of approaches to assessment. Some have applied checklists and frameworks of sustainability-oriented characteristics (Kim, 2002; Portney, 2002; Irwin, 2004); some have interrogated the social justice outcomes of projects (Bunce, 2009; Dale and Newman, 2009; Raco and Henderson, 2009); others have investigated how local actors and local governance structures influence sustainability policy making and planning in urban regeneration projects (Rydin et al., 2003; Porter and Hunt, 2005). Scholars have also proposed that the nested
hierarchy/transformative approach to sustainability must be adopted at the local planning level (Rees, 1995; Lombardi et al., 2011). Although a biophysical limits perspective is widely accepted among sustainable cities researchers (Haughton and Hunter, 1994; Rees, 1995; Beatley and Manning, 1997; Roseland, 1998; Newman and Jennings, 2008; Lombardi et al., 2011) globally relevant, scientifically determined metrics for living within global biophysical means have rarely been applied to assessments of ‘sustainable’ land developments. My research is unique in providing both a detailed examination of how sustainability approaches were developed and implemented over fifteen years of a planning process, and application of scientifically determined, external sustainability measures: ghg emissions and ecological footprint. I propose that application of these or similar metrics should be de rigueur for any land development project that aims toward a goal of sustainability, and also for researchers assessing project outcomes. Without the quantification of progress toward living within global biophysical limits, using scientifically credible criteria and bench-marks, it is not possible to chart the contribution of a project toward ecologically based sustainability. The Southeast False Creek case can serve as a basis for studies of other land development projects.

A distinctive contribution of this research is the in-depth analysis of the planning process and politics that shaped Southeast False Creek trajectories and outcomes. The analysis reveals the influence of sustainability perspectives, professional motivations, and behaviours of individual actors and groups of actors; it also identifies the impacts of local and extra-local contexts such as local planning conventions and experience, changes in municipal government, international economic conditions and the role of the 2010 Winter Olympics. The findings of this study make an original contribution to existing literature on Vancouver planning and development, to case analysis of sustainability-oriented urban land development projects, and to the literature on urban planning processes and outcomes in general.

8.1 Discussion and Implications for Policy

How should an urban land development project be conceived and planned if it is to respond to the mounting global ecological crisis of un-sustainable resource use and waste production? The interview subjects for this research provided insights on limits of target setting in the Southeast False Creek planning process, and I have identified further gaps in target setting
and implementation. These gaps must be addressed in future planning for sustainable urban land development projects and also in any generalized urban sustainability plans. First, the process should be guided by the theoretical frame I have outlined above (or some similar science-grounded approach); second, it should include the following strategies for target development, setting and implementation.

8.1.1 Development of Performance Targets

1. **Engage the individuals and organizations who will be responsible for implementing and achieving the targets.**

   Interviewees identified insufficient use of this strategy in the SeFC process in terms of engaging the heads of various City departments (I. Smith, personal communication, January 26, 2010; M. Holland, personal communication, July 22, 2010; I. Hood, personal communication, July 5, 2010).

2. **Engage elected officials deeply to gain commitment.**

   Moffatt (personal communication, July 20, 2010) and Holland, (personal communication, July 22, 2010) asserted this strategy was not used in Southeast False Creek due to financial and time constraints of the project mandate and inexperience on the part of the Sheltair to initiate and carry out that work.

3. **Engage the public to garner support for the long and short term targets and to develop the strategies to achieve the targets.**

   Globally relevant targets like a sustainable ecological footprint or sustainable CO₂ emissions levels are not determined locally but must be agreed to locally. Local planners can establish only incremental, short term targets and strategies that contribute toward global sustainability. Targets to reduce CO₂ emissions and average ecological footprints, for example, require civic action and commitment to address personal consumption habits, production technologies, and economic systems.
Municipalities can support behaviour changes through provision of bike paths and transit stops, through parking restrictions, recycling requirements, levies on solid waste disposal etc., but they cannot directly force necessary changes in personal consumption choices and habits, or the cultural values reflected in specific patterns and choices in consumption. Municipal governments can run promotion campaigns, organize workshops and learning events, but these must be supplemented by and carried out in conjunction with private sector and civic projects and organizations. Municipalities that engage heavily in promotion and education campaigns risk accusation of social engineering so collaboration with local civic partners is essential (CITY 1). (We will ignore for the moment the fact that the “denizens of modern consumer societies already constitute the most socially-engineered generation of humans ever to walk the earth” [see Rees, 2010].) An engaged, committed public will take ownership over the goals and hold elected officials and bureaucrats accountable for progress even as new Councils are elected over time. This is why it is important that the public feel the plans are ‘their’ plans, and not the plans of a mayor and Council or bureaucrats (A. McAfee, personal communication, September 22, 2010).

8.1.2 Steps Toward Performance Targets

1. Acknowledge an overall target for sustainability that approximates living within biophysical means. For example limit total CO₂ emissions or establish an aggregate ecological footprint target.

Target(s) for sustainable living based on available science must be adopted even if there are no immediate paths to achieving them. Human ingenuity, recognizing the nested hierarchy model of the human-nature relationship, must be brought to bear on the final goal. Ingenuity must be directed toward both technical solutions for meeting resources needs with global bio-capacity limits, and toward creating adaptive social mechanisms for achieving that goal.

In adopting targets consistent with global sustainability, planners and elected officials acknowledge a need to work outside of conventional planning/municipal jurisdiction
in the realms of social behaviour and cultural values. Overall targets for sustainability require changes in production systems, consumption habits, lifestyles, and economic structures. Planners and local officials in many cities are experienced in encouraging changes in public behaviour—for example, in promoting public transit use, product recycling, and water saving. Some planners and elected officials have long engaged in social justice issues others would argue are outside the bounds of their elected office or professional purview, such as affordable housing, child care and community centre services. Following this lead, municipal elected officials and planning professionals must actively promote sustainability across public and private jurisdictions, and with other levels of government.

2. *Set short term targets as increments toward ultimate goals. For example, allow 10 years to achieve an average ecological footprint reduction of 20%, within a 50 year target of achieving a globally sustainable footprint (one-planet living) for the city.*

Interim targets must be set even if the final target is an approximation and subject to change over time as a result of human activity, ecosystems changes, and data availability. A sustainable per capita ecological footprint for example, is likely to decrease in size as the global population increases, given current technology, production and consumption systems and trends. The difficulty of pursuing a dynamic target must not be an excuse for abandoning the effort.

3. *Develop sector specific targets that have quantifiable measures.*

For example, transportation targets: set an overall emissions target and a means to allocate this among transportation modes.

4. *Establish and implement a framework for monitoring and reporting progress toward short and long term targets. Establish on-going funding for this work at the outset of the project.*

A framework for monitoring and reporting is essential. Without it, there is no way to gauge the progress (or lack of progress) toward the goal of sustainable living; no way
to determine the efficacy of policies and strategies. In the case of Southeast False Creek, the lack of dedicated, on-going funding for a monitoring and reporting strategy contributed to the failure to create and implement such (T. Osdoba, personal communication, November 15, 2010). The original targets, indicators and monitoring framework (City of Vancouver, 2005) were prepared on a short time frame and with insufficient funds to achieve a full list of targets and indicators, or a full cost accounting of plans (S. Moffatt, personal interview, July 20, 2010; ADV 1). When department funding became tight, the mandated up-dates to the preliminary targets and indicators framework was a low priority for planning Staff; the only up-date was attempted by a graduate student who worked for course credit (N. Hofer, personal interview, July 22, 2010).

5. Assign accountability for plan implementation, for target achievement, for monitoring and reporting.

In Southeast False Creek, agency accountability for the targets, indicators and monitoring strategy has yet to be established and therefore updates to the preliminary 2005 targets have not been produced. Goals for performance in specific areas of the SeFC project, compliance with the Green Building Strategy, and performance of the district energy system for example, are being monitored by individual departments but no overall strategy for reporting or accountability has been published. The Dockside Green urban land development project in Victoria, B.C. is required, as part of its Master Development Agreement with the City of Victoria, to conduct and publish annual and 5-year performance reports (Sheltair Group Inc., 2007). In planning sustainability-oriented housing at Simon Fraser University in Burnaby, B.C. a project budget was established for post-occupancy surveys to determine occupant satisfaction; to learn about vehicle ownership and driving habits; and use of community amenities (CITY 1).

For Southeast False Creek, it is too late to plan with a specified ecological footprint reduction or community-based CO₂ emissions reduction in mind, but it is not too late to pursue initiatives towards such targets. Residents of the community can still be engaged in sustainability education and lifestyle. SeFC consultant and planning reports identified
personal consumption habits as important factors in the overall sustainability of the community, and academic studies reveal that personal consumption choices make up a larger share of per capita resource use than infrastructure and buildings (Lenzen, 2004; Moore, 2011). In 2009, staff in the City’s Sustainability Group engaged the UK-based consulting firm BioRegional in discussions for an evaluation of Southeast False Creek to measure its progress toward a one-planet ecological footprint. This analysis would propose targets, strategies and monitoring toward the one-planet ecological footprint goal. Further discussions ensued about a community sustainability education program aimed at Southeast False Creek. The program would target personal consumption and community-wide consumption habits and alert residents to sustainability oriented design and initiatives in Southeast False Creek. Also discussed was a pilot ‘eco-concierge’ program to train the manager of a Southeast False Creek residential building in resource efficient building management and social sustainability so that she/he can support interested residents in living more ‘sustainably’ (CITY 3). The work program remained at a discussion and proposal stage but could be pursued at a later date.

It is also too late to set performance targets in some areas such as energy efficiency in buildings, but it is not too late to set up a comprehensive monitoring and reporting protocol and to assign responsibility for carrying it out. Targets for personal consumption and residential resource use could still be set in conjunction with or by a residents’ association; education programs, demonstration programs, establishment of community tool sheds, many of the ideas from the consultant reports of 2002-03 could still be instituted. Given the high ecological impact of personal consumption choices (Lenzen, 2004; Moore, 2011), these initiatives must be pursued if Southeast False Creek is to make some true progress toward being a ‘sustainable’ community.

In terms of the plan implementation for Southeast False Creek, my assessment, as explicated in Chapters 4, 5 and 6, is that the project reflects the status quo-reform perspective of the central decision-makers in the planning process. Although climate change and atmospheric carbon dioxide emissions were the focus of the report in which Southeast False Creek was first identified for experimentation with energy efficient land use planning, Southeast False Creek was not explicitly planned or developed as a response to mounting global ecological crisis. Actors in the process viewed environmental performance for the site as a local
incremental improvement upon existing performance. They saw Southeast False Creek as the next in a series of Vancouver developments that had already modeled social and economic sustainability. For most key actors and decision-makers at the City, sustainability did not represent a challenge to existing political, economic or social systems.

That said, some key participants did view the project from a more transformative perspective, for example Sheltair consultants, some SeFC Advisory and Stewardship Group members, other consultants to the City. But the consultants and advisory group members were challenged enough with proposing a politically feasible vision of sustainability for the project, a first attempt at sustainability that would gain Staff and Council approval. My study suggests that a more radical approach would not have been accepted. Even the sustainability-oriented strategies that were pursued almost invariably faced opposition from one group or another: the development community resisted elements of the Green Building Strategy; bureaucrats expressed discomfort with aspects of the Policy Statement including performance targets; City Councils (except the COPE dominated Council) did not agree to an increased non-market housing requirement.

Data from policy documents and interview transcripts identify a general planning ambition among City of Vancouver actors (bureaucrats and elected officials) for Southeast False Creek to build upon the planning processes and perceived successes of South and North False Creek among other major downtown projects. As identified by more than one senior City planning staff, Southeast False Creek would improve upon those projects by adding a component of improved environmental performance. An overview of project characteristics comparing False Creek South, North and Southeast illustrates the addition of an environmental layer to Southeast False Creek (Table 8.1).
Table 8.1 Comparison of project characteristics: False Creek North, South and Southeast

<table>
<thead>
<tr>
<th></th>
<th>South False Creek (1970s)</th>
<th>North False Creek (1980-90s)</th>
<th>Southeast False Creek (1995-2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Built Form</strong></td>
<td>Low and medium height;</td>
<td>High rise; tower and podium townhouse;</td>
<td>Medium height;</td>
</tr>
<tr>
<td></td>
<td>76 acres Pop: 4900</td>
<td>166 acres Pop: 13,000</td>
<td></td>
</tr>
<tr>
<td><strong>Mandated non-market housing</strong></td>
<td>Reflected city income distribution 33% non-market; 33% modest market; 33% market</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Family oriented housing</strong></td>
<td>35%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Public amenities</strong></td>
<td>School; daycare; community centre; sea wall walk</td>
<td>School; day care; community centre; public library; sea wall walk</td>
<td>School; daycare; community centre; sea wall walk; non-motorised boating facility</td>
</tr>
<tr>
<td><strong>Park/open space</strong></td>
<td>26 acres</td>
<td>42 acres</td>
<td>20 acres</td>
</tr>
<tr>
<td><strong>Pedestrian and bicycle infrastructure</strong></td>
<td>Bicycle and walking paths; cars at periphery of residential developments</td>
<td>Bicycle and walking paths; links to city greenways and bike routes</td>
<td>Bicycle and walking paths; links to city greenways and bike routes</td>
</tr>
<tr>
<td><strong>Access to public transit</strong></td>
<td>City bus; False Creek ferry</td>
<td>City bus; ferry stop; rapid transit line</td>
<td>City bus; ferry stop; rapid transit line</td>
</tr>
<tr>
<td><strong>Urban agriculture</strong></td>
<td>Not mandated</td>
<td>Not mandated</td>
<td>Green roof requirements; community gardens</td>
</tr>
<tr>
<td><strong>Habitat restoration</strong></td>
<td>Not mandated</td>
<td>Not mandated</td>
<td>Habitat island; some foreshore restoration</td>
</tr>
<tr>
<td><strong>Stormwater management</strong></td>
<td>Conventional</td>
<td>Conventional</td>
<td>Naturalized; bio swales; permeable pavers</td>
</tr>
<tr>
<td><strong>Water use</strong></td>
<td>Regulated through City by-law</td>
<td>Regulated through City by-law</td>
<td>Specified in SeFC Green Building strategy</td>
</tr>
<tr>
<td><strong>Energy Efficiency of Buildings</strong></td>
<td>As per City Energy Utilization By-law; BC building code</td>
<td>As per City Energy Utilization By-law; BC building code</td>
<td>LEED rating system as per Green Building Strategy</td>
</tr>
<tr>
<td><strong>Energy Source</strong></td>
<td>Hydro electric and natural gas</td>
<td>Hydro electric and natural gas</td>
<td>District energy utility - sewer heat recovery system</td>
</tr>
</tbody>
</table>

Compiled from City of Vancouver documents
My analysis reveals that the addition of an environmental layer/component to planning for Southeast False Creek (urban agriculture; habitat restoration; storm water management; water use; energy efficiency of buildings; energy source) yielded only small progress toward living within global biocapacity limits. Missing are programs and goals aimed at personal consumption habits; at community-based resource reductions such as community tool and appliance libraries; promoting interrogation of quality of life versus quantity of goods; considering the materially based nature of production systems and how these might be altered. An improved model sustainability-oriented community would engage with the larger question of how social and economic systems can encourage human flourishing but remain within ecosystems bounds; it would adopt the perspective of the nested hierarchy relationship between human socioeconomic and local and global ecological systems.

8.2 Answering the Research Questions

**Question 1:** How did central actors in the Southeast False Creek planning process conceive of and approach urban ‘sustainability’?

For this analysis, I interviewed twenty-four people who were involved in plan development and implementation for Southeast False Creek. The interviewees comprised five City of Vancouver planners and one intern; the Co-directors of Central Area Planning; the Director of Real Estate Services; the City’s Senior Urban Designer; the City Manager; two Sustainability Group members; the Manager of Engineering for Southeast False Creek Project Office; one City Councillor; two advisory group/review panel members; six consultants; and the Design Manager for Millennium Water Olympic Village. The interviewees well represented the groups and individuals who were involved throughout the planning process. The views of some of these actors are further represented in documents such as reports to Council, Council meeting minutes, and consultancy reports which I analysed. I did not interview the Director of Finance, but his views are expressed in reports to Council included in my analysis. Among interviewees, and including the Director of Finance, eleven expressed views on sustainability that reflect a transformational approach, and fourteen reflected a three pillars approach (Table 8.2 below). Table 8.2 reveals that a significant number of people involved in the planning process (44%) held transformation-oriented perspectives on sustainability. However, the
participants with the greatest influence on the project, Senior City Management, Staff and planners involved in day to day planning work, were overwhelmingly associated with the three pillars approach.

Table 8.2  Sustainability Approaches of Interviewees

<table>
<thead>
<tr>
<th>Interviewees</th>
<th>Transformational (11)</th>
<th>Three Pillars (14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Staff and Managers</td>
<td>Junior Planners (2) Planning Intern (1) Sustainability Group (2)</td>
<td>Co-Directors of Planning (2) Planners (3) Director of Real Estate Services (1) City Manager (1) Director of Finance (1) Manager of Engineering SeFC Project Office (1) Senior Urban Designer (1)</td>
</tr>
<tr>
<td>City Council</td>
<td>City Councillor (1)</td>
<td></td>
</tr>
<tr>
<td>Consultants</td>
<td>Sustainability Consultants (3) Development Consultant (1) Planning Consultants (2)</td>
<td></td>
</tr>
<tr>
<td>Advisory</td>
<td>Advisory Group/ Review Panel (2)</td>
<td></td>
</tr>
<tr>
<td>Millennium Waters Olympic Village Development</td>
<td></td>
<td>Design Manager, Millennium Olympic Village (1)</td>
</tr>
</tbody>
</table>

Source: Dissertation research data

The breakdown between interviewees with a transformative view versus a three pillars approach falls roughly into two categories: among those with a transformative view were consultants, some advisors to the City, and junior planners; the three pillars perspective was taken by Senior City Management and Staff, some planners, and development consultants. I associate the composition of these two groups with a key contextual factor in the story of sustainability planning for SeFC: sustainability was a relatively new concept at the urban planning scale in the mid-1990s. When planning for Southeast False Creek began there were few North American examples of sustainability-oriented communities.
My research reveals that Senior City Management and Staff members, among others listed in the three pillars group, had limited knowledge about sustainability when the planning for Southeast False Creek began. This group of professionals, Senior Managers and development consultants (for example, Stanley Kwok), had been involved with previous downtown major projects including North False Creek and Coal Harbour. Those projects were brownfield redevelopments; they were mixed-use, walkable, and dense. However, their focus had been on creating a livable downtown, attractive to individuals and families. Sustainability was not considered. Research data reveal that influential City actors drew upon their experience and knowledge with these projects when planning for Southeast False Creek got under way.

None of the experienced City Staff or Management interviewed were advocates for a more transformative sustainability so the City had virtually no capacity in terms of true sustainability planning when Southeast False Creek began. Most transformation-oriented actors involved at the outset of planning were either recent university graduates with some background in environmental studies and ecologically-based planning (this applies to two consultants; one advisory group member; and one junior planner), or individuals who had been involved with environmental and sustainability initiatives and public education for a number of years prior to being involved with Southeast False Creek (City Councillor, Gordon Price; consultant Fiona Crofton). These actors were responsible for bringing sustainability knowledge to the City, and to the planning process for Southeast False Creek. They did so through their roles as advisors and consultants to the City, and as junior planning staff. Former City Councillor Gordon Price was identified by interviewees as the only Council member, prior to Southeast False Creek planning and at the outset of the project, to have some knowledge about sustainability issues. He is credited with co-initiating the City’s Task Force on Atmospheric Change that wrote the Clouds of Change (1990) report on local responses to increasing atmospheric carbon dioxide. However, in terms of influence on the SeFC project, Price reports that Council members were at arm’s length from day to day planning, receiving only information that the City Manager and Staff had vetted and approved. Decision-making was based largely on information that had first been filtered through the civic bureaucracy. For Southeast False Creek, there was no mandate from Council to pursue a specific
sustainability approach. Council members (other than Price), like City Staff and Management had to learn about sustainability.

In Chapter 4 I traced some of the ways City actors pursued learning about sustainability, for example, through professional networks, workshops, and hiring a summer intern to compile a set of sustainable urban development principles. Throughout the planning process, key City actors were exposed to transformative concepts of sustainability in public presentations, planning workshops and consultant reports. Through the same avenues, they received information and ideas consistent with the three pillars approach to sustainability. The data show that senior City Management and Staff approached Southeast False Creek with the view that Vancouver had a successful major projects planning system in place. That system had been tested and fine tuned in previous downtown projects. Therefore when Council mandated exploration of Southeast False Creek as a model sustainable community, City Management and Senior Staff were prepared to build on the existing ways of doing things, but not to re-imagine city building from an entirely new paradigm. When the three pillars approach was elucidated for this group, they determined that previous major projects had, for the most part, modeled social and economic sustainability. Southeast False Creek would add the third pillar of environmental sustainability (interpreted as improved environmental performance over conventional practices). This view was promoted in day to day planning work. In terms-of-reference documents for reports and plans on sustainability, parameters were most often set for practical, affordable strategies that could be achieved within existing market conditions and current technical feasibility. Despite having access to some transformative ideas for Southeast False Creek, at the most influential levels at the City, the notion of a radical change to planning major projects in Vancouver was never entertained.

I also note that in the mid-1990s, the three pillars approach was the dominant mainstream and academic interpretation of sustainability, having arisen from the Brundtland Commission report (WCED, 1987). As City Staff, local consultants and the Advisory Group members grappled with sustainability concepts for the project, the most common concept they likely would have encountered in literature was the three pillars model. I found that messages about sustainability to the City were conflicting at times. For example, in at least one consultant’s report on sustainability plans, both three pillars and transformative concepts and language were employed. Interviews show that among consultants with transformative views, there
was some difficulty in applying transformational strategies, such as ecological footprint measures and aggregate carbon dioxide emissions at the neighbourhood scale due to lack of precedents and lack of time and resources to innovate with these ideas. Sustainability consultants interviewed for this research reported that more time and resources, and more experience on their own parts, would have been required to engage local politicians and the local bureaucracy in developing a more transformative view of sustainability: the global ecological problems it must address; the socioeconomic structures and systems that must be reformed toward that end; and the role cities must play in that transformation. The lack of experience with sustainability planning at the urban scale in Vancouver, and in North America in general played a part in limiting the progress toward transformative sustainability in Southeast False Creek. Former Co-Director of Planning, Larry Beasley reports that in the late 2000s, his view on sustainability is informed by an urgency to deal with global climate change and ecological crisis, urgency he did not identify at the time of planning Southeast False Creek. Former City Councillor Gordon Price reports that in hindsight, he should have pushed harder for greater progress toward more transformative change (G. Price, personal communication, September 10, 2010).

**Question 2:** How did the sustainability approaches of central actors influence the way sustainability was interpreted and applied in policy and plan-making for Southeast False Creek?

Actors who took a transformational approach influenced the policy and plan-making in two important ways: first, they injected transformation oriented views into the planning process at public meetings and workshops; at Council meetings; policy development meetings and in reports to Council. Second, they succeeded in having those views reflected in policy documents. The Southeast False Creek Policy Statement includes principles and statements concerning global resource constraints and ecosystems overload, and a need to reconsider existing socioeconomic systems. The Official Development Plan (City of Vancouver, 2007) includes commitments to ‘an ecological economy’ (2007:19) supporting businesses that reduce resource use such as recycling and retooling enterprises; promoting local self reliance
with strategies like urban agriculture and a local farmer’s market; and a financial approach that ‘values social and environmental measures’ (City of Vancouver, 2007:19).

The inclusion of transformative language in policy documents, particularly in the form of principles and strategies, plays a potentially important consciousness-raising role. Interviewees pointed out that policy documents can also be referenced to compel bureaucratic departments to action. In the case of Southeast False Creek, advocates of transformative sustainability contributed to policy development but policy documents were written by City planners, and approved by Senior City Managers such as the Co-Director of Planning and the Manager of Engineering Services (City of Vancouver, 1999a). The difference in approaches between actors who contributed to policy development and those who wrote and approved policy resulted in policy documents that include both transformative concepts and language associated with the three pillars approach.

Despite the inclusion of ‘radical’ concepts in some policy documents, there is little evidence of transformative sustainability in project outcomes. Nonetheless, Southeast False Creek provided an opportunity for local professionals, activists and the public to explore sustainability concepts, initiatives, and strategies. The official policy documents, numerous consultants’ reports and plans, and public submissions to Council serve as a public record of the sustainability thinking and strategizing that occurred during the planning of the Southeast False Creek Project. The groundbreaking is over. Future sustainability work at the City will not have to begin with a student intern compiling sparse data into a first volume of sustainable urban land development principles.

The most powerful bureaucratic actors in the planning process adopted a three pillars/status quo-reform approach to sustainability. The influence of this perspective pervaded policy and plan-making. From the Policy Statement, to selection of a developer for the first phase of the project, the influence of the three pillars/status quo-reform approach is evident. In the Policy Statement, the balance of sustainability was skewed toward the economic pillar through a principle requiring economic viability without subsidy (1999: 5). The Sheltair performance targets were not included as part of the official policy. When environmental plans were prepared for the ODP in 2002 and 2003, consultants developed a wide range of strategies, including some aimed at personal behaviour change, reduced personal and community
consumption, and sustainability education. Few of these strategies were implemented in the project. The Green Building Strategy developed for Southeast False Creek is an example of a strategy that could be adopted under a three pillars/status quo-reform approach but not from a transformative approach; it provides no measure of actual performance. Because of the three pillars/status quo-reform approach, sustainability for Southeast False Creek was defined in local terms. Central decision makers conceived that sustainability would be achieved primarily through improvements to environmental performance, and that social and economic sustainability had already been achieved in previous developments. The reversal of the non-market housing allocation from 33% to the standard Vancouver major projects requirement of 20% could be accepted without withdrawing the ‘sustainable’ label from the project. Likewise, the City could nominate the site as a venue for the Olympics, and sell the development rights to the highest bidder, while still conceiving of the project as sustainable.

Those actors who took a more transformative view of sustainability for Southeast False Creek, made it clear in interviews that while they advocated deeper, more holistic progress on the projects, they recognized practical political and economic limits to how much change could be achieved in one project. In large measure they concurred that the project would have to be economically viable with limited subsidy if practices and principles were to be replicated in subsequent projects, especially by the private sector. Three interviewees commented on the City’s experience with highly subsidized projects that were never replicated by the private or public sectors, and they stated a wish that Southeast False Creek should avoid that fate. The goal for most actors interviewed was to see a project that could be replicated, even if it did not make as much progress toward sustainable living as they sought.

One aspect of the SeFC project on which my research provides little insight is why there was limited follow-through on the project goals of setting comprehensive sustainability performance targets and implementing a monitoring and reporting strategy. Some interviewees cited political reticence to be held to account. From a transformative perspective in which sustainability is understood to require living within global biophysical means, measuring progress toward that goal would be critical. From a three pillars/status quo-reform approach such measures are unnecessary because biophysical capacity is not viewed as a limiting factor for human economic activity. Nonetheless, SeFC was explicitly envisioned and described in policy documents as a learning project for Vancouver. Learning requires

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performance targets, monitoring and reporting. While the City is collecting data on energy and water use in some buildings, and also on the performance of the neighbourhood energy utility, there is no overall monitoring strategy that includes social and economic indicators, nor personal consumption indicators. There is no official plan at this time for a regular reporting out of sustainability performance in Southeast False Creek. I can only surmise that if the dominant approach to the project among influential actors had been one of responding to impending global ecological crisis through immediate radical reductions in resource use and waste production, then target setting, monitoring and reporting would have been prioritized.

In the case of SeFC, analysis suggests that local and extra-local contextual factors contributed to the dominance of the three pillars/status quo-reform approach. The significant extra-local factor was the relative newness of the sustainability concept in general, and the paucity of its application at the urban land development scale in particular, when planning for SeFC began in the mid 1990s. In the local context, the City’s experience with planning downtown major projects in the 1970s, 80s and 90s, led City Management, Senior Staff and City Council to believe that Vancouver had a successful system for achieving exceptional outcomes balancing public benefits and a livable downtown with profits for project developers. This experience prejudiced City actors toward the view that they needed only to incorporate a dimension of improved environmental performance to achieve sustainability. In addition, the central City actors were senior members of the civic bureaucracy who were not knowledgeable about sustainability. Taking a step to include environmental performance was consistent with much literature on sustainability at the time, and could be adopted by senior City Management and Staff as the next feasible iteration of leading edge planning.

**Question 3:** How “sustainable” is Southeast False Creek when evaluated against measures for living within global biophysical limits: the human ecological footprint and global greenhouse gas emissions?

My calculations, based on the sustainability goals and standards and regulations applied to Southeast False Creek show Southeast False Creek was not planned to achieve significant,
overall per capita reductions in resource use and emissions production. As noted, such reductions are not required as part of a status quo-reform approach to sustainability.

The per capita ecological footprint and greenhouse gas emissions reductions I was able to calculate are as follows. (See Tables 7.0 and 7.1 for details.)

<table>
<thead>
<tr>
<th></th>
<th>Southeast False Creek</th>
<th>Required for Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ecological footprint reduction</strong></td>
<td>4.6%</td>
<td>73%</td>
</tr>
<tr>
<td><strong>Ghg emissions reduction</strong></td>
<td>8.0%</td>
<td>81%</td>
</tr>
</tbody>
</table>

Both of these reductions are derived from requirements related to building operating energy. The Southeast False Creek Green Building Strategy requires buildings to meet LEED ratings including specific points for energy efficiency. The modeled reduction in energy cost to meet the LEED requirement is designed to improve energy efficiency by 20% over conventional Vancouver buildings. The district energy utility will provide energy for space and water heating. It uses heat pumps to recover sewer heat, combined with natural gas. This system is anticipated to produce 60% fewer greenhouse gas emissions than conventional building energy sources used in the city. Although environmental plans were conducted on water and waste management systems, urban agriculture, energy, and transportation, targets and strategies in these areas did not establish measurable resource or emissions reductions. No further per capita ecological footprint or greenhouse gas emissions reductions can be determined.

The per capita greenhouse emissions the city can influence are from transportation, buildings and solid waste. They comprise 4.6 tCO$_2$e/capita out of a total 18.03 tCO$_2$e/capita. The Southeast False Creek reduction of 1.46 tCO$_2$e/capita represents a reduction of 32% from sources local regulators and policy-makers can influence directly. If regulators at all levels could achieve the necessary per capita reduction of 81% in the areas they can influence, sustainable per capita emissions levels could be realised.
The total reduction in per capita ecological footprint that can be estimated from strategies and requirements for Southeast False Creek is 0.31 gha out of a total 6.76 gha. In terms of traditional policy levers and regulatory powers, cities can influence the ecological footprints of buildings, transportation, and waste management. These components make up 1.49 gha/cap. The 0.31 gha/cap reduction represents a 21% reduction in the areas that can be influenced at least by some degree, through City policies, regulations and strategies. Local governments must look beyond their traditional policy arenas and find ways to influence local consumption habits which, including food, make up 43% of the total per capita ecological footprint (2.89/6.76 gha/cap).

8.3 Implications for Theory Development and Contributions to the Field

8.3.1 Contributions to the Field

My evaluation of Southeast False Creek using two metrics of living within global biophysical means (the human ecological footprint and carbon dioxide emission levels) is a unique contribution to research on the outcomes of sustainability-oriented urban land development projects. Most studies to date have assessed project outcomes in terms of descriptive characteristics of sustainability rather than quantifiable ones. Some have employed criteria-based evaluation frameworks (Kim, 2002; Irwin, 2004). These frameworks rely on directional measures of progress such as reducing CO₂ emissions, and increasing access to public transit (Kim, 2002); or criteria like legal strength of policy; presence or absence of indictors; and inclusion of full cost accounting (Irwin, 2004). These evaluations can provide insight into the breadth and depth of sustainability aspects addressed in a project. They can also identify specific elements of sustainability in which directional progress is being made. My research adds a critical focus on measures that quantify progress toward living sustainably, living within global biophysical limits. With the exception of Barrett et al. (2006) reporting on the ecological footprint outcomes of the Beddington Zero UK project, and Deakin’s (2003) assessment of Edinburgh’s South East Wedge as lacking in appropriate biocapacity measures, researchers have not generally applied biophysical metrics of sustainability to sustainable community projects.
Ecological footprint analysis and measures of atmospheric carbon dioxide are far from exact measurement tools; however, they provide the best available metrics to date of determining limits to global biocapacity. The magnitudes of necessary global reductions they imply make their inclusion in any sustainability-oriented project vital. These, or other similar metrics, should continually be improved and updated to reflect new data and changing ecological conditions. Local sustainability projects and plans should incorporate similar quantifiable metrics for determining incremental steps toward sustainable living. I argue that any evaluation of project progress toward sustainability must include a measure of its progress toward a defined, quantified state of sustainability even while admitting that this is a moving target. Global human activity has observable, quantifiable biophysical impacts on the planet. Sustainable living means making sure these impacts do not stress ecological systems to tipping points that could lead to global ecological and biophysical conditions to which humans are not adapted.

My study also contributes to a growing body of research on the potential for sustainability oriented projects to achieve transformational outcomes. Previous studies have found that sustainability-oriented land development projects have business-as-usual outcomes when it comes to challenging existing social and economic structures. Sustainability strategies are most often implemented as technical and design solutions to environmental performance while social and economic sustainability goals are marginalized (Rydin et al., 2003; Porter and Hunt, 2005; Lombardi et al., 2011). In the case of Southeast False Creek, Irwin (2004) articulated similar findings for the planning work that led to the Policy Statement. He found that technical strategies for improved environmental performance were more thoroughly addressed than strategies toward social and economic sustainability goals. Irwin was hopeful that social sustainability goals at least, would receive attention during the implementation phase under the watchful eye of the Southeast False Creek Stewardship Group. Vaughn (2008) chronicled the fate of social sustainability goals during the Official Development Plan phase and the first phase of project implementation, the Olympic Athletes’ Village. She found that as the Stewardship Group was sidelined in the late planning and early implementation phases, social sustainability goals were also neglected. I show that throughout the first implementation phase, the Olympic Village, there were no signs of strategies toward economic sustainability from a transformative perspective, nor anything
other than standard social objectives for affordable housing allocation. Considerations for socio-cultural behaviour and values change toward reduced material consumption have not been addressed. I have argued that limited progress in SeFC resulted in part from the lack of knowledge about sustainability at the urban scale in Vancouver in the mid 1990s and the commitment of influential local actors to an existing way of planning downtown major projects. In addition, there was no consistent local political or public mandate to challenge existing economic systems or socio-cultural values. Case studies of future sustainability-oriented land development projects, including in Vancouver, should investigate further reasons for limited progress, and identify cases that achieve, or at least attempt transformative progress.

Lombardi et al. (2011) find that technical sustainability strategies such as energy efficiency technologies are more commonly implemented than more challenging social and economic change. The case of Southeast False Creek supports this finding. While et al. (2004) hypothesize that politicians are reticence to address difficult issues. Southeast False Creek data both support and refute this hypothesis. Politicians and bureaucrats in Southeast False Creek were wary of adopting policy or performance targets whose consequences or paths to achievement were not established. Yet they also endorsed full cost accounting, and funded a Multiple Accounts Evaluation. The COPE Council increased the non-market housing allocation and committed to pursuing innovative funding sources to achieve the allocation. These examples, although neither was successful, show that some local governments do take on the difficult task of pursuing social and economic change.

The case of Southeast False Creek points less to agency capture by neoliberal principles and market efficiencies (Evans and Jones, 2008) and more to the incremental nature of progress toward transformative social change (Marris, 1987). Overall, individuals involved in the project were proud of their involvement with Southeast False Creek. Despite short-comings it represents the best of their efforts to develop a project based on a set of locally developed sustainability principles. The transformative perspective of sustainability, although it was expressed in some documents and a small number of strategies were proposed, was simply too far to shift in one project, in the contexts of Vancouver planning and politics, and North American experience with sustainable urban planning in the late 1990s and 2000s.
8.3.2 Contributions to Literature on Planning and Development in Vancouver

My research contributes to the existing literature on planning and development in Vancouver by chronicling and assessing the last major False Creek waterfront development project. In terms of planning systems and practice, Southeast False Creek mirrors in many ways the earlier downtown developments of Coal Harbour and North False Creek. It also builds on the experience of developing City owned land in South False Creek in the 1970s. Researchers have identified Vancouver’s planning system since the 1970s as progressive, achieving public benefits and adopting participatory planning processes (Ley, 1996; Punter 2003; Hutton, 2004; Sandercock, 2005). In False Creek North and other major downtown development projects, Vancouver succeeded in its aim to create a livable downtown. My research on Southeast False Creek reveals a desire on behalf of some influential actors, in particular the Co-Director of Planning to remain at the forefront of progressive planning. In the North American context, Vancouver’s planning for Southeast False Creek can be viewed as progressive because it adhered to the processes established during previous downtown development projects including public participation, collaborative city-developer planning, negotiated community amenity contributions, development cost levies, and comprehensive urban design guidelines. The effort to develop Southeast False Creek as a sustainable community, beginning in 1995, was in itself progressive because few cities or communities were undertaking the goal at that time. From a transformative perspective of sustainability, one that recognizes a need for a radical shift in the way humans interpret the relationships between socioeconomic and global ecological systems, the Vancouver systems cannot be said to have achieved cutting edge planning outcomes.

The existing literature on planning and development in Vancouver includes limited attention to the ecological dimensions of planning projects. Vancouver has been interrogated for its efforts to achieve planning outcomes related to *livability*. My research contributes by assesses the manner in which Vancouver has pursued planning for *sustainability*. By defining and applying a transformative perspective to the project, I link this local case to the broader debate on sustainability and sustainable cities.
8.3.3 Theory of the Sustainable City

Theory of the sustainable city remains contested. There is disagreement over the concept of sustainability; over the characteristics of a sustainable city; over how progress toward the sustainable city is determined; over priorities among sustainability goals. Researchers also disagree about the appropriate focus for research and theory: should it be interrogation of the political economic systems that reproduce un-sustainable patterns of consumption (Whitehead, 2003; LeHeron, 2006)? Or should it be biophysical measures of un-sustainability (Rees, 1992; 1995; 2009; 2012; Alberti, 1996; Beatley and Manning, 1997:2003; Rydin, 2010:239)? Some have expressed concern that the focus on measurement supports the ‘information deficit model’ (Rydin, 2010: 139), which is linked to the paradigm of technical and economic solutions to environmental problems. I argue that theory of the sustainable city must adopt the nested hierarchy model of human social and economic dependence on global ecological systems. Adhering to this model, it becomes clear that research and theorizing is required on both improved measurement of biophysical limits, and on appropriate social, political and economic structures to support sustainable human flourishing within those limits. The nested hierarchy highlights the biophysical bounds that make continued expansion of our current economic system, given existing technologies and modes of production and consumption, untenable. Quantitative data are required to determine sustainable resource use and waste production within urban centres. My evaluation of Southeast False Creek shows that when the nested hierarchy model is not the guiding approach to sustainability, a sustainability-oriented project can be developed without targets toward living within biophysical limits, and without measures appropriate to determining progress, if any, toward that state. It also confirms that priorities such as economic viability within current market practices can take precedence over all other goals (Rydin et al., 2003; Kear, 2007; Vaughan, 2008; Lombardi et al., 2011). The nested hierarchy, while recognizing that some trade-offs between goals will always be made at the project level, demands that all strategies be evaluated for their impact on the ecological systems, resources and services that support the whole.

My findings suggest a need for those who accept the nested hierarchy approach to theorize more deeply how changes to the economic paradigm can be addressed at the local level in sustainability planning. If the existing globalizing, market economic system is at the heart of
unsustainable human resource use and waste production, how will transformation of this system begin? Can it begin at the local project level and if so how? In the case of Southeast False Creek, some document and interview data referred to the need for social and economic change in terms of global resource consumption and waste production. Full cost accounting was proposed, and strategies targeting consumer behaviour such as demonstration and education programs were envisioned. However, few of these strategies were implemented. Lombardi et al. (2011) suggest that until a transformative view of sustainability is widely accepted in planning practice and land development, business as usual development with some technical and design solutions aimed at improving environmental performance will continue to be billed as ‘sustainable.’ Vaughan (2008) hypothesized in the case of Southeast False Creek that oversight of the implementation phase by a citizen’s advisory group might have led to inclusion of more of the transformation-oriented strategies proposed for that project. Clearly, further theorizing and research is necessary regarding the ways in which transformative approaches will be more widely adopted at the local level, and how transformative strategies can be achieved at the project level.

The transformative approach to sustainability also demands theorization of how cities can act as catalysts for change at other levels of jurisdiction. What kinds of alliances can be formed? What kind of modelling can be achieved? What kinds of collaboration and encouragement of change to senior government policy might be pursued?

A further contribution to the theory of the sustainable city is to reinforce the perspective that a sustainable project is one that results in absolute reductions in energy and material throughput per capita. If we accept the scientific data showing global ecological overload, then a move toward sustainability requires a reduction in that overload. Any additional loading only increases the problem and adds to overall un-sustainability. Thus a project or community must be measured in terms of overall per capita throughput of energy and materials, and production of waste.
8.3.4 Contributions to Planning Theory

Findings from my study of Southeast False Creek suggest that investigations of sustainability-oriented urban land development projects should explore further the role and influence of individual planners on outcomes. Planning researchers have identified agency for planners in planning processes (Clavel, 1986; Krumholz and Forester, 1990; Flyvbjerg, 1998; Healey, 2007), and have endorsed active pursuit of desired changes within norms of planning institutions (Healey, 2007) and toward sustainability outcomes (Rees, 1995, 2012; Beatley and Manning, 1997:229). The Southeast False Creek example of former Co-Director of Planning, Larry Beasley, interrupting the progress of creating the Official Development Plan at significant cost to the City in terms of time and resources, suggests he had a particular kind of influence and ability to exercise it.

Broad structural relations of power are important to understand in any development project, but the Southeast False Creek case highlights the significance of strategic skills of individual planning actors. More than one interviewee commented on the finesse of the former Co-Director of Planning at pursuing aspects of the project that were of interest to him but not necessarily within his purview as Co-Director. One interviewee insisted the project would not have survived without Beasley’s oversight and personal commitment (M. Holland, personal communication, July 22, 2010). Beasley himself describes consolidating his personal convictions about planning and his ability to influence planning during his years at the City. Beasley cites planning mentors such as his predecessor, Ray Spaxman, as inspiring him to pursue leading edge city building, however, each individual’s combination of skill and personality are unique. Other actors at the City played similar roles to Beasley’s in the planning outcomes for Southeast False Creek. Former Director of Real Estate Services Bruce Maitland reported his successful strategy of rallying the Property Endowment Fund Board to counter sustainability-oriented demands from the Planning Department which he found excessive. The evidence from Southeast False Creek suggests that closer interrogation of the roles and skills of individuals in the planning process is required. Their actions, linked with the approaches they adopt, and the local contexts of the projects are critical to outcomes. If individuals can gain significant influence in planning institutions and processes, then a challenge arises for those who seek to promote a common set of changes, or a specific view of sustainability. How can the strategic, influential actors be convinced to adopt a
transformative view? How is a program of changes implemented when individuals can change the course of a process?

The Southeast False Creek case confirms the theory that, in planning processes and outcomes, context matters (Flyvbjerg, 1998; Healey, 2007). I have argued that the history of planning in Vancouver’s downtown, and the timing of the project in the mid-1990s were significant factors in the approach to sustainability that was adopted for the project, and the outcomes it produced.

8.4 Future Research

The Southeast False Creek community, now that its first phase of development is occupied, offers opportunities for further research into sustainability performance outcomes. Ecological and carbon footprint studies could be conducted with residents of the community for comparison against the average footprints of Vancouverites. Given that Southeast False Creek was explicitly developed to promote and support sustainable living, how close do residents of the community come to that goal when it is defined as living within global biophysical such as a fair Earth-share sized ecological footprint? If ecological footprint analysis was also conducted with residents of False Creek North, the two False Creek projects could be compared: one planned for livability, the other for sustainability. How great are the differences, if there are differences, and to what can the differences be attributed?

The average ecological footprint of Southeast False Creek residents could also be compared to the ecological footprints of residents of the UK’s Beddington Zero which was planned with the explicit goal of reducing per capita ecological footprints.

The initial ecological footprint analysis could provide benchmark data for experimentation with behaviour change campaigns, and sustainability education and demonstration as envisioned during the planning for the Southeast False Creek. A follow-up ecological footprint could then be conducted to assess the impact of behaviour change efforts. Monitoring of Beddington Zero has shown that despite an on-going sustainable behaviour change campaign with residents, personal lifestyle changes (consumption habits and choices) have been the most difficult aspect of the project to achieve (Hodge and Haltrecht, 2009).
Southeast False Creek was planned to be a replicable model of sustainability, or at least a community that modeled replicable sustainability-oriented strategies. The project was meant to increase mainstream knowledge and practices of sustainable urban land development. Future research could identify which strategies modeled in Southeast False Creek are being replicated in other land development projects in the city. In what ways, if any, are the next generation of major projects in Vancouver building on Southeast False Creek?

The planning process and outcomes of Southeast False Creek should be compared to other sustainability-oriented projects in a similar jurisdiction. Comparative analysis with Dockside Green in Victoria, British Columbia could yield useful insights into local contextual factors affecting sustainability approaches and outcomes. Dockside Green was planned and developed in roughly the same time frame as Southeast False Creek (1997-2010) but was privately owned and developed by one developer who had a strong commitment to sustainability. What are the differences in planning process, sustainability approach and outcomes?

8.5 Final Conclusions

In my opening pages, I asked whether Southeast False Creek is a model to replicate in pursuit of sustainable human settlements. My findings make clear that Southeast False Creek, as planned and implemented to date, is not this model. The additional environmental ‘layer’ was too conceptually and practically thin. Southeast False Creek is not a response to mounting global ecological crisis. It is a status quo-reform-oriented project.

Southeast False Creek was a learning model, a first time trial, and as I have detailed, the learning came in fits and starts. Only one approach to sustainability was really adopted by central City actors who were entirely new to the concept of sustainability, the three pillars, status quo-reform approach. In the Epilogue I review on-going sustainability-oriented action at the City of Vancouver in 2011 and suggest that Southeast False Creek may have played a role as the first incremental step on the path to truly transformative sustainability in the City/city. In the early 2010s, a new cadre of City Planners and Engineers has entered the ranks of Vancouver’s bureaucracy, young professionals who have been educated in
sustainability concepts, and have been exposed to over twenty years of climate change
dialogue at local, national and international levels. Perhaps they will implement the next step. Whether incremental change toward transformation will happen quickly enough to avoid the worst consequences of the unfolding ecological crisis at hand cannot be foreseen. The case of planning for Southeast False Creek in a city with a reputation for progressive planning, with interested civic and professional communities, and with a Co-Director of Planning who was committed to ‘leading edge planning’ suggests that incremental change is the most likely kind of change a local planning system will make.
EPILOGUE

Vancouver: Greenest City

In 2008 voters in Vancouver overwhelmingly endorsed Vision Vancouver (a 2004 off-shoot of COPE) in their municipal election, giving Vision candidates all but one Council seat. Vision had campaigned on a strong ‘green’ mandate. Gregor Robertson, the successful candidate for mayor, is a former organic farmer and founder of the Happy Planet organic juice company (he is also a former New Democratic Party Member of the Legislative Assembly). One issue that had dogged the incumbent NPA majority Council prior to the election was its decision to underwrite the financing for Millennium Development Corporation, developers of the Olympic Athletes’ Village. The public felt the financial support had been arranged in secrecy, and had placed the City and taxpayers in a precarious financial position should Millennium default (Mason, 2008). The NPA, who had won the 2005 election vowing to restore fiscal ‘sustainability’ to Southeast False Creek by reducing public benefits like affordable housing allocation (Kear, 2007), were undone in 2008 partly because of the financial problems encountered by Millennium. When Millennium defaulted on its loan payments to Fortress in 2010, the City of Vancouver was left to finance the completion of the Olympic Village. The City was also left holding a stock of expensive waterfront condominiums. The market for these luxury units had largely evaporated during the international financial crisis that began in 2008. In 2011, potential financial losses for the City are being variously claimed and denied in the mainstream media (Mason, 2011). Prioritization of economic sustainability in the Policy Statement and throughout the planning process, did not inoculate the project against local and external market challenges.

Despite setbacks with the ‘greenest neighbourhood’ of Southeast False Creek, the green agenda in Vancouver was not derailed. One of Mayor Robertson’s first initiatives was to convene an ‘action team’ of local experts to plan for making Vancouver the greenest city in the world by 2020 (City of Vancouver, 2009b). Interviewees for this research argue that the experience with Southeast False Creek allowed for a smoother bureaucratic integration and acceptance of the 2008 Council’s Greenest City agenda.
I mean try to imagine Vision coming in and wanting to have the ‘greenest city’ without having had the experience of Southeast False Creek? I think we’d be much less far along. Somehow the whole business of having had the experience on the ground in trying to write the documents, in trying to make the economics work and trying to make the choices. (T. French, personal communication, December 15, 2010)

The Greenest City concept was spearheaded by the Mayor but the original target document, A Bright Green Future, was developed by a team of local environmental experts working outside of the City. City Staff was then tasked with determining how the targets could be met and developing plans for their implementation in the various, appropriate departments. The plan comprises a set of ten target areas under three headings: green economy, green jobs; greener communities; and human health.

2020 Targets

1. Green Economy, Green Jobs
   a. Green Economy Capital
   b. Climate Change leadership
   c. Green Buildings

2. Greener Communities
   a. Green Mobility
   b. Zero Waste
   c. Easy Access to nature
   d. Lighter Footprint

3. Human Health
   a. Clean Water
   b. Clean Air
   c. Local Food

(City of Vancouver, 2009b).

As a flagship project proposed and initiated by the Mayor and Vision Council members, the Greenest City plan is different from SeFC which was identified for energy innovations by the
Task Force on Atmospheric Change in 1990, and then brought forward for consideration in late 1994 and early 1995 when other developments on False Creek were well under way. What I wish to highlight is that the Greenest City Action Plan, its development, content and implementation, addresses many of the gaps I have identified from the Southeast False Creek case for ecologically based sustainability planning:

Performance Targets

1. **Acknowledge an overall target for sustainability that approximates living within biophysical means, for example overall CO\textsubscript{2} emissions or aggregate ecological footprint target.**

   The Greenest City Action Plan includes long term targets to 1) eliminate dependence on fossil fuels; and 2) achieve a one-planet ecological footprint (ie. a sustainable footprint). These targets have been adopted even though the strategies to achieving them have not yet been determined.

2. **Set short term targets as increments toward this ultimate goal, for example, a 10 year target to achieve an aggregate ecological footprint reduction of 20%, with a 50 year target of achieving an aggregate sustainable footprint for the city.**

   Short term targets (2020) toward the long term targets for sustainability have been set: 1) to reduce community based emissions by 33% from 2007 levels; and 2) to reduce Vancouver’s ecological footprint by 33% from 2006 levels (City of Vancouver, 2012).

3. **Develop sector specific targets that have quantifiable measures.**

   Not all of the targets for the Greenest City plans give measures that translate directly into resource reductions and waste emissions, but several do. For example, unlike the LEED green building targets for Southeast False Creek, the Green Buildings targets are performance based: 1) all buildings constructed from 2020 onward to be carbon neutral in operations; reduce energy use and greenhouse gas emissions in existing buildings by 20% over 2007 levels (City of Vancouver, 2012:23).
4. Establish and implement a framework for monitoring and reporting progress toward short and long term targets. Establish on-going funding for this work at the outset of the project.

5. Assign accountability.

Each of the ten target areas has an action plan that includes a measureable target; a set of strategies; indicators; and a monitoring and reporting protocol. Each target area identifies a person or department that will be held accountable. For example, the target area Climate Leadership has a goal to eliminate dependence on fossil fuels. It has a 2020 target to reduce community-based greenhouse gas emissions by 33% from 2007 levels. Accountability for the target is assigned to the City’s Climate Protection Program Manager, Sustainability Group (City of Vancouver, 2011).

Funding allocation: implementation of the Greenest City Action Plan is budgeted in operating and capital costs (City of Vancouver, 2011).

Development of Performance Targets

1. Engage the individuals and organizations who will be responsible for implementing and achieving the targets in planning and target setting.

Internal City advisory groups were established for each of the ten target areas. The groups were comprised of individuals who would be responsible for implementation of strategies toward the targets and were open to any interested staff. The advisory groups were involved in reviewing the draft targets, determining their feasibility, and developing strategies for achieving the targets.

2. Engage elected officials deeply to gain commitment.

In the case of the greenest city, the initiative originated with the elected officials so a strong base of support is in place.
3. *Engage the public to garner support for the long and short term targets and to develop the strategies to achieve the targets.*

In addition to traditional City engagement processes, Greenest City planning staff set up a moderated web-based forum for community dialogue on the sustainability goals, targets and strategies. Of particular note is the City’s collaboration with existing community groups to leverage existing organizational support, creativity and interest in furthering community sustainability. The ecological footprint goal cannot be realized without community and individual action. The City has identified means to collaborate with, encourage and support community organizations, local businesses, and individuals to take initiative toward this goal.

Does this review of the Greenest City process and plans suggest a Southeast False Creek legacy of sustainability-oriented planning at the City of Vancouver? As quoted above, some interviewees think it does. Although the project was initiated by a first-time mayor, and core Greenest City staff (including the Greenest City Planner who coordinated all of the plans) were hired from outside the City; and although many of the Staff who had been involved with SeFC no longer work at the City, it is possible that Southeast False Creek laid the groundwork for bureaucratic support of greenest city initiatives, for measures-oriented targets, and for a planning process that includes accountability. Perhaps it also primed the bureaucracy to support targets like the ecological footprint that require social behaviour change from mobilized communities as well as individual commitment. Not evident in the Greenest City Action Plan is a direct challenge to the current economic paradigm. The target area *Green Economy*, has a goal to secure Vancouver’s international reputation as a centre for green enterprise. One of its 2020 targets is to “double the number of companies that are actively engaged in greening their operations over 2011 levels, by 2020” (City of Vancouver, 2012:11). Greening existing operations falls well into the category of status quo-reform conceptions of sustainability.
The 2010 Winter Olympics were hailed by many, even local detractors, as a cultural success; unifying the city and bringing about a spirit of civic pride often viewed as uncharacteristic for Canadians. The Olympic Athletes’ Village, envisioned by some local officials as an opportunity to showcase Vancouver’s green technology and sustainability planning innovation, was sealed off behind a vast security perimeter. Neither the local public nor international visitors had access to Vancouver’s model sustainable development: its energy efficient technologies, its naturalized storm water management system, or its carefully designed public realm.

By the summer of 2010, the Olympic goodwill had faded and the Southeast False Creek Olympic Village became a political hot potato. Millennium Development had filed for bankruptcy and the international financial meltdown left two thirds of residential units unsold. The Olympic Village was described as a “ghost town” (CNSLT 2), its empty units now entered in red on the City’s ledger of real estate inventory. Retail anchor stores postponed their plans to open, awaiting the arrival of a resident customer base. Some of the first residents were experiencing problems with the energy efficiency technology in their units; others complained about the high price of energy from the district energy system. At a public forum on the challenges of SeFC (Planning Institute of British Columbia, 2011), some members of the audience suggested that SeFC tried to be too green, suggesting that green technologies had inflated the cost of residential units.

Vancouver’s model sustainable community, far from being a showcase in 2010, became a political and financial headache. Regardless of its current status in public and political eyes, several interviewees for this research spoke of their involvement in Southeast False Creek with pride; they expressed personal enthusiasm and commitment to the project, and recall it as a time of creativity, collaboration and energy. In the words of one interviewee when asked to evaluate the outcomes of the project:
I’m just so chuffed that it survived, that it came out even half as good as it did. It’s brilliant. I think it’s a brilliant project, so I’m not the right guy to say what could have been done better. (CITY 2)

Many are convinced that once the neighbourhood is fully inhabited, it will become a vibrant community. Will the future residents of the project be aware of and embrace its sustainability aspirations? Will a future local residents’ association pursue target setting and monitoring as once imagined in a consultant’s report and as promoted by SeFC advisory groups? Or will Southeast False Creek be a wealthy residential enclave which the public and visitors will frequent for the quality of its public spaces? Will Southeast False Creek attract transnational and non-resident investors who are not likely to participate in local community building and sustainability learning? The answers to these questions are tied to the global market economic system in which Vancouver is enmeshed.

Southeast False Creek has achieved what the key city builders at the City of Vancouver envisioned: Vancouverism 4.0, that is, Vancouver major project planning with strategies aimed at improvement of environmental performance. In the trajectory of planning and development in Vancouver since the late 1960s, Southeast False Creek, despite its limitations from a transformative perspective, is evidence that Vancouver remains a leader in city planning. By embracing the emerging concept of sustainability in the mid-1990s, Vancouver planners moved beyond the local growth management strategies that defined North American planning in the 1970 and 80s (Janssen-Jansen and Hutton, 2011). With its first sustainability-oriented community under development and its greenest city aspirations endorsed for a second time in November 2011, Vancouver appears set to continue on a progressive path.


City of Vancouver. (1999). Planning Department. Southeast False Creek Policy Statement: Toward a sustainable urban neighbourhood and a major park in Southeast False Creek. Vancouver, BC.


City of Vancouver. (2006c). Special Council meeting minutes. Public hearing minutes, Tuesday, October 17, 2006. Vancouver, BC.


APPENDIX A: SAMPLE INTERVIEW QUESTIONS

Interviewee’s Role in the Southeast False Creek Planning Process

1. Can you provide me with some background on your involvement in the Southeast False Creek planning process?
   a. When did you become involved and in what capacity?
   b. What were your tasks and duties? (for City Staff)
   c. How long were you involved in the project?

Sustainability Models

2. What did you know about the concept of sustainability when you became involved in the project?
   a. Can you describe what you thought sustainability would mean in the context of Southeast False Creek?
   b. Did others involved in the process share a similar perspective on sustainability? If not, what other perspectives were being promoted? Can you give examples or describe events where that perspective was being promoted?
   c. What would you characterize as the dominant view of sustainability for Southeast False Creek among people who were involved in the planning process?

Exclusion of Sustainability Targets from Policy Statement

3. In 1998 the City commissioned a report by Sheltair Scientific on potential sustainability indicators and targets for Southeast False Creek. Members of the Advisory Group recommended inclusion of these targets. When the Policy Statement was written, however, the targets and indicators were appended to the report for reference, but not included as project mandates.
   a. Why were the targets and indicators excluded from the Policy Statement?
   b. Was there anyone in particular promoting exclusion? How did they do so?
   c. Did you read the Sheltair report and the list of indicators and targets? Did you think they were important to include? Why or why not?
Other Decisions

4. I have asked you about a specific decision on target setting for Southeast False Creek. Are there any other decisions you are aware of that may have had an impact on expected ecological performance of the site?
   a. Can you tell me about them?

Role of Cities/Southeast False Creek/Planning in Urban Sustainability

5. In thinking about sustainability at the global level; are you aware of the level of resource reductions scientists are calling for, for example the IPCC reductions to fossil fuel emissions? Or ecological footprint reductions?
   a. If I told you that the IPCC is calling for 80% overall reductions in global fossil fuel use, what do you think are the possibilities for cities in helping to meet those goals?
   b. What role will SeFC play in meeting that goal? What kinds of contributions? Can you give examples?

6. Have measures of natural capital and ecological footprint (or some other measure of accounting) been incorporated into the plans for SeFC? Why or why not?

Personal Perceptions of SeFC’s Ecological Sustainability

7. Based on your knowledge and field of expertise, is this project at the leading edge of sustainability planning?
   a. Can you give examples of how it is/is not at the leading edge?
   b. Why do you think this technology/strategy/initiative was not taken?
   c. What were the challenges in getting this technology/strategy/initiative adopted?

2. Is Southeast False Creek a model sustainable community?
   a. In what ways has it succeeded?
   b. In what ways has it failed?

3. Is Southeast False Creek a replicable model of sustainability?
   a. In what ways can it be replicated?
APPENDIX B: LIST OF INTERVIEWS AND EXPLANATION OF INTERVIEW CODES

City of Vancouver Staff

CITY 1: a former, mid-level planner with the City of Vancouver involved with development of the City’s green building strategy for Southeast False Creek and also the evaluation matrix for selection of a developer for the OV.
  - June 10, 2010

CITY 2: a former mid-level planner with the City of Vancouver involved with the development of the SeFC Policy Statement
  - July 22, 2010

CITY 3: a senior planner at the City of Vancouver, Sustainability Group involved with Southeast False Creek Green Building Strategy compliance for the Olympic Village.
  - November 15, 2010

CITY 4: a senior planner at the City of Vancouver formerly responsible for up-date of targets, indicators and monitoring for SeFC.
  - July 24, 2010

Consultants to the City

CNSLT 1: a Vancouver based sustainability consultant who contributed to two environmental studies commissioned by the City for Southeast False Creek (2002 and 2003). Also a member of one Olympic Village development team applicant.
  - November 24, 2010

CNSLT 2: a professional engineer who worked on two of the environmental reports that informed the Southeast False Creek Official Development Plan.
  - January 19, 2011

CNSLT 3: a former employee of VIA Architecture involved in development of the 2003 Official Development Plan
  - November 19, 2010
Advisors to the City

ADV 1: a member of a panel of experts that reviewed the Multiple Accounts Evaluation prepared for SeFC (2004) and also the targets and indicators list prepared by the City in 2005.

- October 20, 2010
APPENDIX C: List of Southeast False Creek Advisory Group Members

**Participant**

Ron Bain          Ecodesign Resource Society
Dr. Fiona Crofton Facilitator of the Advisory Group: The ORCAD Group Inc.
Ed Ferrara        Coldwell Banker
Jeanette Frost    Keen Engineering
Rob Gritten       Avison Young
Jeff Herold       Urban Development Institute
John Irwin        Southeast False Creek Working Group
Bob Laurie        Finning International
Barbara Lindsay   Vancouver City Planning Commission
Patrick Mooney    UBC Landscape Architecture
Jennie Moore      EcoCity Network/ Regional Air and Energy Advisor
David Osborne     False Creek South Community
Mike Overholt     SEFC Property Owners
Eva Riccius       Mt. Pleasant Community Association
Alice Sundberg    BC Non-profit Housing Association
Joe Winkler       SeFC Property Owners
Tana Worcester    Urban Youth Alliance

**City Staff Participants**

Tilo Driesen   Planner Vancouver Parks Board
Mark Holland   Planning Analyst
Ian Smith      Senior Planner

Source: City of Vancouver, 1999a
APPENDIX D: Preliminary List of SeFC Sustainability Indicators and Targets (2005)

ENERGY
**Indicator** – Total annual building energy consumption (residential and commercial), GJ/sqm gross floor area

**Target** - 0.79 GJ/sq m average for commercial and institutional buildings; 0.44 GJ/sq m for townhouses; 0.31 GJ/sq m for multi unit residential buildings. This is based on the assumption that privately developed residential and commercial buildings achieve LEED Silver performance and all civic buildings achieve LEED Gold performance. All wood frame low rise (4 storey and below) buildings are assumed to be built to R2000 standards and concrete construction, including high rise apartments and commercial buildings are assumed to be built to Commercial Building Incentive Program (CBIP) standards.

WATER
**Indicator** – Water Consumption (residential), litres/capita/day

**Target** – 190 lpcd based on projected reductions in water use resulting from the measures of the SEFC Green Building Strategy: dual flush toilets, low flow fixtures, drought tolerant landscaping, and high efficiency irrigation systems at the building level.

STORMWATER
**Indicator** – Effective impervious area (EIA), as % of total site area. EIA is the percentage of drainage area that is directly connected to a storm drainage system. It therefore allows for impervious surfaces that are used to collect rainwater for alternate uses such as irrigation, or for biotreatment and infiltration.

**Target** – 40% EIA based on Keen Engineering’s “SEFC Water & Waste Management Plan”, Option 1 which assumed underground parking, effective on-street parking to reduce roadway widths, and rainfall capture by green roofs, parks and open spaces.

SOLID WASTE & RECYCLING
**Indicator** – Municipal Solid Waste (residential and commercial), kg/capita/year disposed off-site

**Target** – 200 kg/cap/yr based on diversion through aggressive recycling, and 3-stream waste separation with limited on-site composting for local gardens. Assumes 90% residential floor space, 10% commercial. This does not include demolition waste.

URBAN AGRICULTURE
**Indicators** - Area of community demonstration garden; inclusion of a farmers market; % of buildings with green roofs

**Target** - 26,000 sq ft for a community demonstration garden; farmers market included in ODP by-law; % of buildings with green roofs TBD

TRANSPORTATION
**Indicator** – Transportation – by residents % trips non-auto. This is an initial indicator, which captures most sustainable transportation modes, such as walking, cycling, all forms of transit, etc. Although less useful for estimating environmental impacts than specific data such as automobile km/person/yr., mode split data is available for the City and some specific neighbourhoods, whereas auto usage is not.

**Target** – 60% of all daily trips by non-auto modes based on reduced parking requirements, greater support for car-sharing and co-op vehicles, and increased support for alternative transportation modes such as cycling and public transit.

**SEFC GREEN BUILDINGS**

**Indicator** – Overall Environmental Performance of Buildings (LEED points). LEED points represent a cumulative total of credits for building performance with regard to site impacts, energy efficiency, transportation & parking management, water management (drinking water & storm water), and indoor air quality.

**Target** – 33 points per building or better, based on Council’s policy direction that all non-Municipal buildings in SEFC should achieve at least LEED Silver. LEED Gold status is required for all civic buildings.

**SOCIAL**

**APPROPRIATE, AFFORDABLE HOUSING** with flexibility to meet changing needs

**Indicators** - Percentage of units in the City Lands in each of the three (low, middle, and market) income categories and percentage of units for families by income categories. **Targets** - Income Mix: 33.3% affordable housing, 33.3% modest market housing with the thirds defined by regional income profiles. This is based on ensuring a balanced community with a broad social mix and access to housing by all income groups. Household Mix: 35% families within the City Lands and 25% families within the Private Lands.

**APPROPRIATE, AFFORDABLE HEALTH CARE** available in the community

**Indicator** - number of doctors in SEFC providing local health care services/total population.

**Target** - TBD

**LOCALLY PRODUCED, NUTRITIOUS FOOD**

see Urban Agriculture indicator and target above

**SAFE COMMUNITY**

**Indicator** - real and perceived crime rates and activity; vehicle/pedestrian accidents

**Target** - TBD

**QUALITY, AFFORDABLE CHILDCARE**

**Indicator** - % of childcare demand, as calculated from City policy.

**Target** – 100%

Enhancing Human Capacity:

**LOCAL EMPLOYMENT OPPORTUNITIES**

**Indicator** (under development) – Examples: % of jobs created in SEFC that are filled by local residents, or conversely, % of residents (in the labour force) who need to commute to their
jobs outside the community; % of residents who walk or cycle to work; childcare spaces filled by children whose working parents live in SEFC

CREATIVITY AND ARTISTIC EXPRESSION
**Indicators:** arts and cultural “vibrancy index” based on a number of indicators, to be developed.

LIFE LONG LEARNING
**Indicators:** % of children living in SEFC attending the school; participation rate in local adult learning programs

RECREATION, LEISURE AND CULTURAL FACILITIES
**Indicators:** the total area (acres) per capita of public open space and parks; the total area (sq ft) of the community/boat centre facility

**Targets:** 2.75 acres/1000 people of public open space and parks; 30,000 sq ft community/boat centre facility

Enhancing Social Capacity

COMMUNITY ECONOMIC DEVELOPMENT
**Indicators:** % of local businesses created through a CED process

COMMUNITY IDENTITY
**Indicators:** degree of resident agreement on the character/nature of the community they live in

INVOLVEMENT IN PUBLIC PROCESSES
**Indicators:** to be developed

SOCIAL INTERACTION
**Indicators:** the proportion of public open and built space that is amenable to social interactions, and then the # of people actually using these spaces; the number of residents involved in local community garden activities;

COMMUNITY NETWORKS AND ORGANIZATIONS
**Indicators:** the number of residents active in local organizations such as sports teams, business groups, the community centre association, strata councils, the school’s Parent Advisory Committee, etc.

ECONOMIC

ECONOMIC SECURITY
**Indicators:** # of jobs – number of jobs per 1,000 sq. ft. of commercial development (e.g. businesses) and community centre, school, childcare facilities; also the number of jobs created for inner-city residents during the construction of the Olympic Village; Affordable housing responding to the need to provide housing for those in service and other lowpaying occupations. The provision of quality childcare will make it easier for parents to hold full time employment.
**Target** – 5-8 jobs per 1000 sq ft of commercial development; 193 jobs as a result of the childcare facilities, community centre and school

**LOCAL SELF-RELIANCE**

**Indicator:** Complete Community Design – Range of services available in the community to meet daily needs.

**ECOLOGICAL ECONOMY**

**Indicator:** to be developed

**ECONOMIC ADVANTAGE**

**Indicator:** to be developed

Source: City of Vancouver, 2005.