

## **The Assessment and Planning Project**

### **Literature Review**

# **Sustainability and Urban Regions**

**How sustainability criteria appear in urban sustainability literature, planning frameworks and specific initiatives**

**by**

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### The Assessment and Planning Project

Problems have arisen at the intersection of environmental assessment and land use planning in various jurisdictions in Canada for two main reasons. Established land use planning practices have failed to satisfy growing environmental concerns about individual undertakings and, more importantly, their cumulative effects. At the same time, environmental assessment, which has evolved into an approach to planning that requires greater environmental sensitivity, now both overlaps inefficiently with some land use planning decisions, and is in some ways attractive for broader application in planning decision making.

These two factors have led to two quite different, but perhaps ultimately complementary pressures for reform. The first is to apply environmental assessment requirements more broadly in land use planning decision making. The second is to provide for a more efficient rationalization of processes in the relatively small area where environmental assessment and land use planning requirements already overlap.

The Environmental Assessment and Planning Project, funded by the Social Sciences and Humanities Research Council of Canada for particular research initiatives in Ontario and British Columbia, has been developing a better understanding of the existing problems and the needs and options for reform. The work completed thus far includes case studies of major controversies and responses to these controversies. This literature review on *Sustainability and Urban Regions* is a contribution to the understanding underlying all these studies.

For other studies and publications of the project, see the project website <[www.fes.uwaterloo.ca/research/asmtplan](http://www.fes.uwaterloo.ca/research/asmtplan)> or contact the project coordinator and general editor of the report series, Dr. Robert Gibson, Department of Environment and Resource Studies, University of Waterloo.

### The Sustainability and Urban Regions Literature Review

This literature review examines how sustainability criteria appear in current urban sustainability literature, planning frameworks and specific initiatives. It was prepared by Selma Hassan, a graduate student in Environment and Resource Studies at the University of Waterloo who now works with EnviroTech Associates. In addition to its value for the present project, the literature review forms part of the basis for Ms Hassan's masters thesis, *Planning and implementing urban sustainability initiatives: from sustainability theory to urban and site level practice*.

# **Sustainability and Urban Regions**

## **How sustainability criteria appear in urban sustainability literature, planning frameworks and specific initiatives**

**Selma Hassan**

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Urban sustainability has received considerable attention in recent years. Since 1987 when the concept of sustainability was popularized by the World Commission on the Environment and Development (WCED), many authorities have examined long term urban challenges – both socio-economic and ecological – and have attempted to identify appropriately lasting solutions. As a result, there is now a sizable literature on urban sustainability and widespread use of the language of sustainability in urban deliberations and decision making. But it is not clear to what extent a coherent and comprehensive set of sustainability principles is actually being adopted and applied at the urban level.

This report examines the principles of urban sustainability and their application by selected experts and authorities. After a brief review of urban sustainability concerns, I identify the essential criteria for sustainability that are set out in the broader literature on sustainability, and then consider how well these criteria are incorporated in the urban sustainability literature, in planning for sustainability frameworks adopted by urban authorities, and in specific urban sustainability initiatives.

### **Sustainability Issues in Canadian Urban Regions**

Many recent assessments of urban conditions and trends have suggested that the predominant existing form of many North American urban environments is not sustainable, that current planning and development models are not adequately concerned with issues of sustainability, and that future patterns of urban development must address this problem (Goode 1990, Nozick 1992, Alexander and Tomalty 1994, Haughton and Hunter 1994, Roseland 1994, Hough 1995, Rees and Wackernagel 1996, Haughton 1997). Some authors believe that the prevailing urban planning strategies have changed little in the past 40 years and are increasingly failing to address concerns posed by changing environmental conditions, culture and social values (Hahn and Simonis 1991, Roseland 1992a and 1994, Hygeia Consulting Services and Reic Ltd. 1995, Newman 1996). William Perks and Davaid Van Vliet, for example, suggest that “the way in which cities and towns in Canada are planned, built and re-developed...has produced many unbidden and nefarious environmental consequences” (1993, 4). Local urban environments face problems of “mounting traffic congestion, increasingly unaffordable housing, receding open space, and stressful social patterns” (Calthorpe in Roseland 1992a, 164). Mark Roseland goes further to suggest that “the postwar pattern of Western urban development is not only ecologically unconscionable but economically inefficient and socially inequitable” (1992b, 25).

The unsustainability of Canadian cities is also seen to have global consequences. Perks and Van Vliet note that Canadian municipalities “are using an increasingly disproportionate share of the world’s energy and resources while continuing to produce increasing amounts of waste” (1993, 5). Many authors argue that cities must extend their notions of sustainability to include people and areas beyond their boundaries and must consider their impact on the global commons if they are to be truly sustainable (Roseland 1994, Rees and Wackernagel 1996, Alberti and Susskind 1996, Paterson and Connery 1997).

To address these concerns, urban authorities have begun to consider ecological, social and economic issues under the broader notion of sustainability. But whether this has done much to advance the creation of more sustainable cities is debatable. Some authors believe that things are getting better (D’Amour 1991). David D’Amour, for example, asserts that “by continually advancing the same critical dimensions of sustainable communities, the activities have already contributed significantly to the emergence of a general consensus among researchers and city officials concerning the parameters of sustainable cities and the criteria by which their sustainability would be evaluated” (1991, 11). However, other authors argue that vague statements recognizing the need for ecological and socio-economic improvements have done little to advance urban sustainability thinking or practice (Richardson 1989, Roseland 1992, Pivo 1996, Paterson and Connery 1997).

A decade ago, Nigel Richardson suggested that municipalities are still dominated by a desire for growth and that although cities may be “encouraging the recycling of aging low-density residential and obsolete industrial areas for more intensive use, their suburbs simultaneously encourage the spread of unbroken expanses of detached single-family houses, costly in land and services and dependent on private cars for transportation because they are uneconomical for public transit” (1989, 15). This form of “development” is still predominant and is widely recognized as socially and environmentally flawed. Nevertheless, Gary Pivo notes, “planners are projecting that the pattern of low density segregated land use will continue unless efforts are made to change direction” (1996, 342). He refers to a study of the Portland, Oregon, region which suggests that future patterns in this unusually progressive and sustainability-sensitive urban area will include continued low density and diffused development, a focus on single family housing, continued rural land conversion, increased daily vehicle miles of travel, and increased road congestion (Pivo 1996, 342).

Douglas Paterson and Kevin Connery criticize recently popular planning models such as Neotraditional Towns and Transit Oriented Development for their underlying adherence to mainstream planning ideas. They state that although the pre-automobile towns on which the new models are based “can offer valuable insights into preferable forms of community, many of the recent resurrections appear to reflect more of a nostalgic pining for the good old days and market appeal” than a “fundamental ecological restructuring of the city” (Paterson and Connery 1997, 328). They suggest that many of the new models fail to acknowledge the carrying capacity of local and regional ecosystems or needs to cut resource demands and waste generation: “rather than concerning themselves with notions of energy self-sufficiency, water and waste flows, food production, and ecosystem protection and enhancement, too often what seems important to these approaches is their image appeal” (Paterson and Connery 1997, 328).

Development patterns in core areas appear to be equally problematic. Graham Haughton and Colin Hunter write that “there has been a growing emphasis on prestige,

flagship, private sector-led developments...at the same time, much of the urban fabric has been left to deteriorate" (1994, 114). This emphasis has taken the focus away from both the possible and necessary social and ecological functions of the city core. The results have included serious damage to the quality of urban life, especially for marginalized individuals and neighbourhoods (Nozick, 1992).

These examples suggest that the dominant current thinking and practice in urban regions, even where the concept of sustainability is officially recognized, have not yet led to sustainable behaviour or even to adequately encouraging steps in that direction. It is worth considering whether the underlying weaknesses lie in the thinking about urban sustainability, in its translation into urban planning frameworks, or in the application of these frameworks in specific decisions. As a first step in addressing this issue, the following section considers the meaning and implications of sustainability, as set out in the broad literature.

## **Sustainability Criteria**

A wide range of interpretations of the meaning of sustainability is evident in the literature and in practice (Holmberg and Sandbrook 1992; Wackernagel and Rees 1996). As Maclaren notes, with considerable understatement, "the attempt to provide a universally acceptable definition is not without its difficulties" (Maclaren 1996a). Nevertheless a review of the broad literature on sustainability reveals wide agreement on the central issues.

On the initial matter of focus, some critics argue that "sustainability should be interpreted in terms of ecological sustainability alone" and hold that "economic, social, and cultural interpretations of sustainability have little to do with the basic environmental focus" (Maclaren 1996a, 5). The approach of the WCED and most other authorities, however, reflects the more holistic view that for practical applications ecological, social, and economic dimensions of sustainability are more or less equivalent and must be considered in an integrated manner (Daly 1996, Gardner in Maclaren 1993a, Nozick 1992, Rees and Wackernagel 1996, Roseland 1992b, Robinson et al 1990). Integration is critical as a means of recognizing and attempting to account for divergent, yet legitimate interests and concerns (Maclaren 1996a, Gurstein and Curry 1993, Nozick 1992, Robinson et al 1990). Commitment to integration makes it possible to bring different positions together in order to establish an encompassing framework for sustainability. Although the idea of integration is challengable, it is accepted here as a dominant position in sustainability literature and the most promising way forward (Maclaren 1996a, Gurstein and Curry, 1993, Nozick 1992, Richardson 1992, Robinson et al 1990).

For the broad literature on sustainability, it is also possible to identify a set of essential ecological, and socio-economic criteria that authors believe must be addressed in order to move towards sustainability. These criteria are presented below as sets of objectives and possible means of achieving them.

### ***Ecological Criteria***

#### ***Objectives***

- restored and maintained ecosystem resilience and capacity for self-organization/re-organization

- rehabilitated and maintained ecosystem carrying capacity (long term ability to provide resources, waste assimilation functions, and other life support services on a continuing basis)
- diverse ecological systems.

**Means**

- protect natural processes and functions
- maximize biodiversity
- recognize the need for precaution due to the uncertainty of human knowledge of natural systems
- enhance and rehabilitate degraded land
- maintain or enhance biological productivity
- preserve and protect resources
- minimize resource use and waste generation

***Socio-Economic Criteria***

**Objectives**

- equity and respect for diversity
- local economic resilience
- satisfaction of basic needs and reduction of poverty
- individual self-determination and participative community governance

**Means**

- build a diversified and adaptable local economy
- ensure long-term local economic development
- enhance opportunities for equitable employment and socially and personally fulfilling work
- ensure opportunities for self-governance and participation in decision making, recreation, and culture
- enhance opportunities for self-reliance
- increase local control of resources
- ensure efficiency in the use of natural capital
- ensure equity within and between countries
- ensure equitable use and distribution of natural resources and goods

Effective steps towards greater sustainability, require integrated application of these essential ecological and socio-economic criteria. The following section considers how well the essential sustainability criteria have been incorporated in the urban sustainability literature.

## **The Urban Sustainability Literature**

Despite general agreement on the need for an integrated approach to sustainability in urban areas, there nevertheless remain “different sets of values and judgments about environmental and urban development” and the meaning of urban sustainability (Haughton 1997, 190; Haughton and Hunter 1994, Blore 1998). A number of authors recognize the need for “encompassing” interpretations of urban sustainability that acknowledge the importance of integrated attention to social, ecological, and economic concerns (Roseland 1992 and 1994, Alexander and Tomalty 1994, Maclare 1996).

However, Virginia Maclaren notes that “the discussion of urban sustainability so far has referred to some, but by no means all of the characteristics of sustainability that are frequently espoused in the [broad] literature” (1996a, 2). According to Maclaren urban sustainability discussions generally do address equity, diversity, individual well-being, long-term economic development, minimal use of non-renewable resources, and minimal impact on the natural environment (1996a, 3). Evidently overlooked factors are broader ecological considerations – carrying capacity, resilience and the capacity for re-organization – and important socio-economic considerations including increased self-reliance, local economic resilience, and opportunities for self-determination and governance may also receive reduced attention.

Ray Tomalty, Sue Hendlar and Kim Flick identify two divergent positions on the nature of sustainable urban development. The first, which involves “essentially an environmental protection policy applied to urban areas” (1994, 45), focuses on the relatively narrow biophysical goals of protection and preservation as the primary focus for urban sustainability action. The second position reflects a more “holistic-conceptual approach” that includes concerns for the ecological, economic and social effects of urban development (1994, 45). However, even those who take this broader approach commonly argue for a specific focus to urban sustainability. Tomalty, Hendlar and Flick identify three separate planning movements – the “Healthy City”, the “Green City”, and the “Compact City” – each of which emphasizes a particular aspect of sustainability (1994) in ways that could limit prospects for successfully integrated efforts to address the full range of sustainability criteria.

The following section examines these “movements” favouring specific foci for urban sustainability. The ideas are initially presented, and then discussed together in a concluding subsection that considers what criteria may be neglected by authors moving from broad discussions of sustainability literature to a focus on urban sustainability. Neglect of essential criteria is significant because the literature on urban sustainability is often used as a basis to direct specific urban sustainability frameworks and initiatives.

### ***The Social Focus***

The various perspectives regarding the most important factors of urban sustainability include those of experts who focus on social concerns such as health, equity, community, participation, safety and security (Jacobs 1961, Whyte 1980, Gehl 1987, Davis 1990, Canadian Urban Institute and D.S.H. Ecologics 1991, Haughton and Hunter 1994, Roseland 1994). Tomalty, Hendlar, and Flick (1994) identify this concern for the social equity of urban sustainability as the “Healthy City” movement. Advocates of this position believe that a positive social climate is essential to sustainability. The position is human based and takes “human health as its starting point.” The city must meet the mental and physical health of its residents (Tomalty, Hendlar, and Flick 1994, 53). From this starting point the position “addresses the interrelationships between environment and social degradation” (Tomalty, Hendlar, and Flick 1994, 53). Many authors argue that the city, in its current form does not support the social needs of all its residents.

A number of authors argue that although cities can influence positive socialization, they are often designed chiefly to benefit the wealthy and/or powerful (Davis 1990, Canadian Urban Institute and D.S.H. 1991, Haughton and Hunter 1994). These authors suggest that cities increasingly marginalize and segregate individuals, creating barriers to equity and participation. Through separation, isolated functions and reduced accessibility, aspects of modern urban form serve to empower some and disempower

others. In particular, they marginalize the old, the young, the poor, and the disabled (Murrain 1993, Roseland 1994. Paterson and Connery 1997). Haughton and Hunter believe that this is particularly true of redeveloped city cores. They state “never was the urban environment more carefully controlled than when it was commodified, privatized, and sold as part of the spectacle of the revitalization of city centers” (1994, 115). This control is instituted to ensure that “undesirables” feel unwelcome and are denied access to the city core. The controls limit the possibilities for equity, democratic participation, and the choice that contributes to greater democracy in the city (Murrain 1993, Haughton and Hunter 1994, Roseland 1994, Alexander and Tomalty 1994). The controls also limit street presence and activity, both of which are seen by the critics as positive means of increasing safety and security in urban areas and contributing to community development (Jacobs 1961, Whyte 1980, Gehl 1987, Haughton and Hunter 1994). Advocates of this position argue that without attention to broad social concerns, the city cannot be sustainable.

### ***The Ecological Focus***

A second focus of sustainability rests on conviction that no city can be sustainable if it ignores the natural environment. The resulting discussions of urban sustainability focus on, or at least begin with, ecological concerns such as land reclamation, preservation and protection of natural areas and species, landscape rehabilitation, and respect for ecological carrying capacity (Goode 1990, Beavis 1993, Haughton and Hunter 1994, Hough 1995, Haughton 1997, Register 1987). The perspective looks beyond environmental protection policies as it seeks to understand, maintain, and ideally enhance ecosystem functions and integrity. Tomalty, Hendler, and Flick (1994) refer to this as the “Green City” position. It aims to ensure that urban areas are compatible with ecological principles, and that these principles are used as a basis for both redevelopment and new development. In comparison to the social position, advocates of the ecological focus argue that the environment has intrinsic value and that environmental issues must be addressed in tandem with, if not before, human interests.

Advocates stress that buildings and open spaces need to be designed with greater concern for ecology, energy consumption and waste reduction. They believe that the urban environment can make ecological gains by adopting technologies which reduce resource consumption (Rees 1989, Goode 1990, Haughton and Hunter 1994, Hough 1995, Haughton 1997). Richard Register and Marcia Nozick also stress the need for species biodiversity within the city and other authors add that a “Green City” must rely on a more systemic analysis regarding broad maintenance of ecosystem functions and integrity. In this view, ecology is seen as a necessary step that will lead to both social and economic sustainability (Register 1987).

### ***The Focus on City Form and Economic Concerns***

Tomalty, Hendler and Flick describe the view that built form and land use policy are the keys to urban sustainability as the “Compact City” position. This focus is evident in a significant portion of urban sustainability literature and is a broadly followed movement. Unlike those who argue that sustainability must begin with ecological initiatives, advocates of this position suggest that the built environment is the “glue” that links the other aspects of a sustainable environment (Alexander and Tomalty 1994). Accordingly, a compact city is seen as a means to ecological, social and economic ends. Haughton and Hunter explain this by stating that “many contributors and urban policy makers within the

sustainable urban development debate claim that the compact city solution helps to reduce the tendencies of peripheral urban sprawl and also stimulates urban dynamism and vibrancy" (1994, 81). Additionally, they note that "environmental arguments in favour of high-density urban living frequently stress that this option is more efficient than low-density sprawl in terms of lower rates of domestic consumption of energy" and lower infrastructure costs (1994, 84).

Advocates argue "that the structure of the built habitat is the foundation of environmental and social success or failure" and that "the basic patterns of land use...must be changed before our cities can be ecologically sensible settlements" (Register (1993) quoted in Alexander and Tomalty 1994, 1; E.P. Fowler (1991) quoted in Alexander and Tomalty 1994, 2). Some also feel that built form can lead to economic efficiency and environmental integrity (Tomalty, Hendler, and Flick 1994, 48). Tomalty, Hendler, and Flick note that the movement is based on a "three part package of interlinked concepts: a densely settled urban form; a mix of land use; and a public transit system connected to form and functions (1994, 48). Thus, densification, proximity planning, mixed-use development, and alternatives to the automobile are seen as means to address and achieve both social and ecological goals (Tomalty, Hendler, and Flick 1994, 48; Register 1987).

In the urban sustainability literature, economic concerns appear most strongly tied to the Compact City movement whose advocates argue that city form can contribute to economic stability through urban efficiency (Tomalty, Hendler, and Flick 1994, 47 and 61). Register believes that compact form can foster economic vitality and is compatible with community goals. He states "fortunately, a concentration of people also means a concentration of capital and real opportunity to invest imaginatively on their behalf in the economy and culture of downtown" (Register 1987, 31). Others emphasize that sustainable economics must be community based, "enhance the internal economy and cohesiveness of a place" and promote sustainable employment and economic demand management (Roseland 1992b, 215 - 217, Rees 1989, Nozick 1992).

These authors argue economic goals must favour development that improves the quality of people's lives rather than the quantity of material goods produced. Traditional economic viability, however, has been and continues to be a central focus for many municipalities and developers. Wackernagel and Rees explain that "municipalities today are under pressure to deliver more services with fewer resources" and that "in these circumstances, conventional economic development initiatives look the more attractive to all levels of government" (1996, 141). Many authors stress that it is essential to go beyond this in order to achieve economic sustainability.

### ***Sustainability Criteria and the Three Movements***

Each of the three "movements" addresses many of the essential criteria for sustainability. However, all of the positions suffer from their specialized focus on certain aspects of sustainability. For example, the social position "enhances the environment from a human user point of view" and "emphasizes the creation of community along the lines envisioned by its inhabitants which in no way assures ecological stability" but gives no assurances that there will be concern for other systems (Tomalty, Hendler, and Flick 1994, 62 and 66). In a similar manner, the ecological position gives diminished attention to social and economic considerations. The Compact City position "does not fully take into account the important relationship between the human user and the natural environment" (Tomalty, Hendler, and Flick 1994, 61) and thus fails to recognize that

although built form can affect sustainability, it cannot ensure the sustainability of urban areas.

The economic position does recognize local needs and the importance of improving the quality of lives. But it gives less attention to ensuring that pursuit of human goals does not compromise natural systems. While compact form may reduce land consumption, there is no guarantee that natural systems will be protected as a result. Thus, the economic position makes stronger connections to social development than it does to ecological protection and enhancement. In addition to their specialized focus, all of the positions suffer from limited reference to the global connections of urban sustainability.

Although all three movements are faulted for singular focus, Tomalty, Hendlar, and Flick note that the three together are necessary to achieve urban sustainability (1994, 61). This is consistent with the view that integration of essential criteria is necessary. Generally the goals of each of the movements are mutually supportive. For example, it is difficult to ensure human health when the surrounding environment is degraded and polluted. Thus, many ecological goals in fact support the “Healthy City” position.

Division of the literature on urban sustainability into movements may decrease the possibility of integrating their complementary elements. In order to address all ideas and increase urban sustainability, the movements must, somehow, be brought back together. One promising option is the creation of more comprehensive urban sustainability frameworks. Careful consideration of all positions should ensure that all criteria are given attention. Thus, urban sustainability frameworks should combine the different positions to produce more comprehensive and integrated ideas of sustainability.

## **Urban Sustainability Frameworks**

Urban sustainability frameworks are officially adopted plans to address or increase the sustainability of a region. The frameworks generally incorporate principles of sustainable urban development and often identify goals, measurable objectives, and tools that can be used to increase sustainability. In contrast to the general literature on urban sustainability, the frameworks often focus on the issues and concerns of a specific region. They can “provide information useful in a wide variety of planning activities, including the formulation of recommendations for new or improved policies or programs, and the measurement of changes in urban environmental, social and economic conditions” (Maclare 1996, iii).

The frameworks generally encompass broad criteria for sustainability. However, because they are focused on the needs of a particular region, and influenced by political realities there, they may neglect some sustainability criteria. In the discussion below, five frameworks are examined. The purpose here is to determine how far they deviate from the essential criteria for sustainability and from the insights offered in the urban sustainability literature presented in the previous section.

The five frameworks come largely from Canadian regions, though one particularly comprehensive American example is also included. Although other frameworks exist, the chosen frameworks have been well publicized and detailed information on each is available. The frameworks are generally accepted in the urban planning and sustainability literature as good or even excellent models. Three of the frameworks were created by a body of government. Two were initiated and developed by private organizations. The

frameworks represent the work of regions that claim to be concerned with maintaining sustainability and the high livability of their area.

### ***The British Columbia Round Table on the Environment and the Economy***

In 1990, the Province of British Columbia established a Round Table on the Environment and Economy in order “to develop a provincial strategy for sustainability that reflects the interdependence of our environment, our economy and our social system” (BC Round Table 1994, 7). Although the mandate statement suggests a comprehensive view of sustainability, many early Round Table documents focus heavily on the links between the environment and the economy. The documents state that “economic development is necessary to meet existing and future population needs but, that this development should make efficient use of our natural resources” (BC Round Table 1990, 5). The position is also illustrated in the statement “sustainable development is rooted in the concept that, over the long run, only a healthy environment allows us to have a healthy economy.”

Accordingly, the Round Table’s seven principles of sustainability (BC Round Table 1991, 6) are as follows:

- limit human impact and stay within carrying capacity
- preserve and protect the environment
- minimize the depletion of non-renewable resources
- encourage long-term economic development that does not damage environmental assets
- meet basic needs and ensure fair distribution of the costs and benefits of resource use and environmental protection
- provide a system for decision making and governance that is designed to address sustainability
- promote actions and values that support sustainability (BC Round Table 1992, 6)

The first four principles centre on links between ecological protection and the economy. The following three, although more social in nature, also focus on ecology-economy links. The principles appear not to cover the full range of sustainability criteria set out above. For example, the ecological principles focus on natural area protection in particular to ensure future economic prosperity. Although the principles address respect for ecological carrying capacity, this seems to be directed specifically to the carrying capacity of protected areas. The principles do not deal with precaution, uncertainty, or criteria related to enhancing resilience and capacity for re-organization. Ecological considerations such as biodiversity and rehabilitation are not addressed. Although the principles stress the need to minimize the depletion of non-renewables, they do not address the depletion of renewable resources. There is little indication that economic sustainability should focus on local economic resilience or serve human and ecological needs above goals of increased profit. Social concerns also receive limited attention; there is no indication of needs for participation, self-determination and community governance, equity, diversity, or the need to reduce poverty.

The Round Table also produced *State of Sustainability: Urban Sustainability and Containment*, a report identifying “urgent” topics that British Columbia must address in order to become more sustainable (BC Round Table 1994). The document focuses on urban issues and identifies “accommodating growth while maintaining livability and sustaining ecological systems” as the key challenge for urban sustainability (BC Round Table 1994, 25). The document recognizes the need to maintain environmental quality in

face of the problems associated with growth such as urban sprawl, energy and water use, waste management, transportation and automobile dependency, the urban economy, and urban health (BC Round Table 1994, 13). The document looks at the following main urban themes as important considerations in efforts to achieve greater sustainability:

- human settlements and population (population growth, urban sprawl, mobility);
- urban environment (natural habitats, resource use);
- urban economy (vibrancy, equity, diversity, cost of growth);
- social well-being (health and safety, education);
- governance and citizenship (process, participation and citizenship)

(BC Round Table 1994, 9-12)

Although the Round Table recognizes a broad set of issues, its proposed solutions focus on the use of city form to increase sustainability. Thus, it adopts approaches typical of the Compact City movement and focuses on goals of reduced sprawl, densification, reduced car use, mixed-use development, proximity planning, increased efficiency and reduced pollution. It identifies urban containment as the chief means of achieving sustainable growth in British Columbia. The *State of Sustainability* report suggests that addressing these issues will add “vibrancy” to the city and create “livable” communities (BC Round Table 1994, 30 and 45) and that social and ecological gains will follow from addressing city form. As noted previously, this single focus on achieving sustainability through a Compact City form approach may serve some of the essential criteria for sustainability better than others.

The Round Table's second main theme – urban environment – is apparently meant to reflect broad ecological concerns. The report, however, concentrates its attention on protection of natural areas. It states “the protection of forest lands on the urban fringe and the expansion of urban forests should be integral components of programs to achieve sustainability. As densification of compact communities progresses, the importance of urban greenery will increase” (BC Round Table 1994, 50). The document also advocates protection of urban streams, and the quality and supply of water (BC Round Table 1994). However, there is little focus on other criteria such as protection of natural resources, biological productivity, ecological resilience, biodiversity, or rehabilitation. More importantly the document does not recognize that ecological initiatives focused solely on identified natural areas may contribute minimally to increased urban sustainability if ecological damage in non-protected areas persists or worsens. There is also little evident appreciation of broad ecosystem requirements and the need to make overall cuts to consumption. Thus, although certain natural areas may receive protection, the overall contribution to sustainability may be far from sufficient.

Although the Round Table's framework does acknowledge social issues, they receive less attention. There is some focus on community self-reliance and equity as a part of social sustainability. However, much of the discussion of equity centres around the provision of housing for a wide range of people (BC Round Table 1994, 29 and 30). The essential criteria suggest that equity must extend beyond this. The document looks at participation as a component of social sustainability by focusing on voter turnout and public meetings. It also suggests the need for diversity, street life, and community involvement as contributing factors to personal and community safety (BC Round Table 1994, 98). The document identifies health and well-being as important for urban sustainability (BC Round Table 1994, 89). Although the document touches on various criteria for social sustainability, it fails to consider more encompassing meanings of participation, equity, and diversity.

The Round Table recognizes that sustainability must be examined on a number of scales and that local activities affect the global state of sustainability. However, it fails to connect these ideas to urban sustainability in BC (BC Round Table 1994, 20). Thus, the document reflects the usual problems of the Compact City position, namely a focus on form as the primary contributor to urban sustainability, with less attention to broad socio-economic and ecological goals.

### ***The Georgia Basin/Puget Sound Region***

The Georgia Basin/Puget Sound region “runs north-south along a coastal corridor” that “stretches from Campbell River and Powell River, in British Columbia in the north to Olympia, Washington in the south” (BC Round Table 1992b, 1). The BC Round Table on the Environment and the Economy examined this region as part of its mandate to develop a provincial strategy for sustainability. It is examined here as a separate initiative because the framework was developed specifically for this region. The Georgia Basin/Puget Sound Region is faced with problems of rapid growth and rising population, reduced air and water quality, increased pollution levels and waste management problems, all of which are seen as barriers to maintaining the desirable qualities of the region (BC Round Table 1992b, 1).

As part of the Round Table process, the Georgia Basin discussion was guided by the seven sustainability principles identified by the provincial initiative. The Round Table’s other framework paper *State of Sustainability: Urban Sustainability and Containment* was produced after the Georgia Basin discussion and, thus, had no influence on the Georgia Basin process. Given the provincial focus on the environment and economy, one would expect the Georgia Basin discussion to reflect similar concerns. However, through a public workshop residents identified primary concerns as the harmful effects of increased development, the problems of increased traffic congestion, and the need for stronger environmental protection. Urban containment and growth management policies such as densification, proximity planning, mixed-use development, and transportation links were identified as appropriate methods to address the concerns (BC Round Table 1993, 20). Although the dominant focus related strongly to city form, the public also identified concerns for social well-being and economic development, waste management and pollution prevention, protection of natural areas and natural resources, and provision of social services (BC Round Table 1993).

Although this appears broad, important sustainability considerations were not examined. For instance, there is little consideration of ecological criteria such as biological productivity, biodiversity, or ecosystem function. Again, there is lack of recognition that protection of a few bounded natural areas that are limited in scale may do little in the long term to ensure a carrying capacity and ecological resilience necessary to increase sustainability. From a socio-economic perspective, it similarly fails to recognize needs for resilience, local participative governance and long-term economic development.

A second sustainability framework initiative covering the Georgia Basin/Puget Sound region was undertaken by the International Centre for Sustainable Cities (ICSC). The ICSC is a Canadian organisation that carries out demonstration projects promoting sustainable development. In its Georgia Basin Sustainable Urbanization project, the Centre focused on “Mainstreet Cascadia” as the area most affected by changing regional conditions. Mainstreet Cascadia is identified as the “nearly continuous band of urban development along US Interstate Highway 5 in Oregon and Washington and through the

Lower Mainland and southern Vancouver Island of British Columbia" (Pivo 1996, 339). The primary concerns of the study were rapid population growth, land use and economic development in the ecologically sensitive and politically complex Cascadia region.

A 1994 ICSC report examined opportunities for achieving sustainability in Cascadia. Using this as a base Gary Pivo prepared a second ICSC report which considers "urbanization trends along Mainstreet Cascadia and looks at how urban growth affects the ability to follow principles of sustainability" (Pivo 1996, 339). Pivo identifies six principles of sustainability: "limiting environmental impacts, minimizing resource depletion, maintaining current stocks of resources, fairly distributing the benefits and burdens of resource use and protection, governing in ways that achieve these goals, and supporting human values that are consistent with sustainable development" (Pivo 1996, 340). These appear to emphasize environment and resource protection while giving lesser attention to social concerns or broader ecological goals. The report also lists six urban qualities that planners in the region "are pursuing to make cities more sustainable" (Pivo 1996, 334, 344-347):

- Compactness – urban containment and residential intensification
- Completeness – mixed-use development
- Conservation – protection of sensitive environmental areas and preservation of historic, visual, and cultural resources
- Comfort – creation of pedestrian friendly areas and reduced car dependence
- Coordination – linked planning and management activities
- Collaboration – participation by stakeholder groups

Pivo suggests that pursuit of these qualities will lead to more sustainable cities. However, it is not clear how the qualities relate to or address the ICSC's six principles of sustainability. The framework appears to focus on city form and process initiatives. For example, the social concerns identified are traffic congestion and driving time, with no mention of equity, diversity and participation concerns. Moreover, although Pivo identifies six desired qualities, he evaluates examples of "low impact cities" along Mainstreet Cascadia based only on the qualities of compactness and completeness (1996, 348). Effectively, then, this framework concentrates on how process and form may contribute to sustainability and gives little attention to substantive ecological, social or economic targets.

### ***The Greater Vancouver Regional District***

The Greater Vancouver Regional District (GVRD) is an upper-tier municipal government whose planning area includes "the 20 incorporated municipalities, three electoral districts, and Matsqui" (Tomalty 1996, 17). Although rapid population growth and land development in the area has significant regional scale implications, the GVRD only provides regional services. It has no "statutory planning power over member municipalities" (Tomalty 1996, 17). Recognizing that this could compromise the qualities of the area, the regional government in co-operation with its constituent municipalities, began to explore goals and values that would provide the foundation for its *Livable Region Strategy* (GVRD 1994, 11). Tomalty notes that the Region is recognized "as a very progressive jurisdiction in its growth management plans and policies" and "few other large metropolitan areas in North America can claim to have such a comprehensive planning vision" (2000, n.p.).

Using extensive public consultation and partnerships, The Region's *Creating our Future* process examined key issues and necessary steps to achieve a sustainable region.

It identified a vision and adopted livability goals for Greater Vancouver (GVRD 1994, 11). In brief, the vision statement focused on the ability of the Greater Vancouver to become a region that respects the environment as well as the diversity of residents and their needs (GVRD 1994, 12). Based on this, five main priorities were identified:

- maintaining a healthy environment
- conserving land resources
- serving a changing population
- maintaining the region's economic health
- managing the region (GVRD 1994, 12)

These priorities were then related to Livability Goals which similarly addressed regional ecological and social concerns. The broad priorities and goals were narrowed as a result of a public consultation process. The public expressed their primary concerns as environmental protection and the maintenance of the quality of life; aspirations that "could not be maintained by continuing with existing development patterns" (Tomalty 1996, 47). Thus, the process turned to place a heavy focus on growth management, land use and transportation planning - all issues of city form. The process worked to build a consensus among member municipalities and in 1995 the Livable Region Strategic Plan was adopted by the GVRD (Tomalty 2000, n.p.).

The GVRD established four strategies for a livable region. These strongly reflect the focus on city form.

- Protect the Green Zone

Focus is placed on preservation of areas with great social or ecological value.

This is achieved primarily by containing urban development. Protection is above all meant to address human health issues, to ensure the existence of clean and safe water, and to ensure proper waste management.

- Build Complete Communities

Complete communities generally refers to mixed-use development aimed at producing local jobs, providing local services, and reducing car dependence. Other key features include providing more diversified housing stock to increase affordability and to create greater land and energy efficiencies.

- Achieve a Compact Metropolitan Region

Greater density is encouraged in established and metropolitan regions in order to slow the rate of land consumption in the green zone and to reduce sprawl.

- Increase Transportation Choice

The creation of a high quality transit system and increased priority to mass transit, walking, and cycling are emphasized.

(GVRD 1994, 16 -19)

Once again, it appears that the framework is most closely related to principles of compact and efficient city form. There is limited direct attention to ecological criteria or to social possibilities and needs. As in the previous frameworks, ecological goals such as biodiversity, rehabilitation, resilience, and carrying capacity are not addressed. Instead, dense city form is seen to lead to ecological goals. Other ideas, such as an economy that emphasizes local community enhancement or increased participation and satisfaction of basic human needs, are not suggested. Although the framework suggests that ecological and social gains are expected to result from city form, they are not likely to do so automatically. Indeed, ecological and social losses are possible if, for example, densification compromises connections to land, undermines ecological function and disregards established neighbourhood culture. As with the previous frameworks, the

focus on sustainability through city form appears to have allowed a loss of attention to other critical issues.

### ***The Regional Municipality of Hamilton-Wentworth, Ontario***

In 1990 a regional task force on sustainable development was established in the Municipality of Hamilton-Wentworth. The task force was asked to examine the concept of sustainability and see how it could be applied to the Region in order to guide future development. The task force developed an initial draft vision statement – *Vision 2020* – which was released to the public for comment. Based on public response, the task force produced a final report representing “what the majority of the people participating in the programme [felt was] required to create a better Hamilton-Wentworth” (Regional Chairman’s Task Force 1993a, 2). Regional council adopted *Vision 2020* in 1992 “as a basis for regional decision making in Hamilton-Wentworth” (1993a, 32).

*Vision 2020* advocates the following principles of sustainable development:

- fulfillment of human needs
- maintenance of ecological integrity
- provision of self-determination
- achievement of equity

(Regional Chairman’s Task Force 1993b, Appendix A, 32)

The principles are detailed in *Vision 2020*’s five main topics of regional sustainable development:

- The Landscape

Primary attention is given to the protection of natural areas, habitat restoration, resource management (water and natural areas), pollution reduction and control (water and air), waste management, and energy efficiencies and reductions.

- Our Communities

Compact and diverse urban form is advocated to address land use issues in the urban area.

- Getting Around

Reduced car use and increased cycling, walking, public transit options, in part through land use, transportation, and proximity planning are encouraged.

- Quality of Life

Personal health and well-being, citizen participation, and community empowerment through the creation of local solutions are advocated.

- Livelihood

A trained labour force, a diversified and stable economy, and the ability of local business to compete, addresses the need for local economic development. In addition to an urban focus, agricultural and rural economic concerns are noted.

In comparison to other frameworks, *Vision 2020* is generally encompassing. In combination, the five topics appear to address and be consistent with *Vision 2020*’s principles of sustainable development. Although the first point stresses the typical concerns for environmental protection, it also gives more complete consideration of ecological criteria than in any of the frameworks previously identified. However, ecological concerns such as the need for biodiversity, resilience, carrying capacity, biological productivity are not dealt with. As with other frameworks, needs for precaution in light of limited understanding of natural systems are also not recognized. The second and third points emphasize city form as a contributor to sustainability. The pitfalls of this focus are perhaps avoided because “landscape” considerations cover the

ecological issues and “quality of life” considerations include a number of the social issues that are typically ignored by the city form position. The quality of life discussion, however, fails to mention the importance of diversity and equity as sustainability criteria. The final point, “livelihood”, deals with economic sustainability and addresses important issues such as local economic diversity and development. Integration of economic and environmental concerns is most strongly reflected in the focus on preserving agricultural productivity. Stronger links might be achieved by addressing the need to manage such land sustainably.

Overall, the Hamilton-Wentworth initiative indicates a closer reflection of the main criteria for sustainability. Although a few gaps remain, if the Region is able to apply its principles effectively in implementing the framework, Vision 2020 may be quite successful.

### ***The San Francisco Bay Area, California***

*Blueprint for a Sustainable Bay Area* is an action plan aimed at improving the sustainability of the San Francisco Bay Area. The Blueprint was created to address increasing pressures from population growth, accompanying development and related threats to the qualities that make the San Francisco Bay Area a desirable environment in which to live and work. The document stresses that the Bay Area is at a “pivotal point” facing increasing threats to its economic, environmental, and social qualities (Urban Ecology Inc. 1996, 10).

The *Blueprint* identifies social and ecological problems typical of many urban and urbanizing areas. These problems include increased land development and suburbanization, decreased quality of the city core, lack of affordable housing, loss of natural areas, increased car dependence and traffic congestion, loss of biodiversity, pollution, wasteful energy use, and loss of community (Urban Ecology Inc. 1996, 12). In response the document suggests that any strategy to improve the Bay Area must take a long-term view of sustainability and be devoted to improving both personal and regional prosperity “based on economic well-being, equal opportunity, good health, personal safety and a thriving environment” (Urban Ecology Inc. 1996, 13).

Unlike other frameworks considered here, the *Blueprint* stresses links between individual, community and regional scales of sustainability and recognizes the interdependence of economic, social and ecological issues within and among the scales (Urban Ecology Inc. 1996, 14). The document identifies seven principles of sustainable development. Each of the principles is considered and applied to topics at various scales of discussion – from individual and local neighbourhood, to the entire Bay Area. The seven principles are

- Choice – in housing, employment, recreation, transportation, social interaction, etc., should be available without compromising quality of life
- Accessibility – through compact and cohesive communities, proximity planning, mixed-use development, and transportation alternatives that connect the region
- Nature – should be protected, restored, and integrated into the lives of Bay Area residents
- Justice – the region must be socially, economically, and environmentally just for all residents – housing, jobs, transportation, services should be guaranteed
- Conservation – conservation and reuse of resources must exist: land, energy, water, etc.
- Context – the uniqueness and history of localities and region must be respected

- Community – should be created through sense of place, participation, public places and responsibility (Urban Ecology Inc. 1996, 16 - 17)

The *Blueprint* position rests on a belief that sustainability criteria are interconnected and cannot be achieved at the expense of one another. Thus, understanding the region – both its biological features and built-up areas – is necessary in order to contribute to a system where both natural and human made systems benefit (Urban Ecology Inc. 1996, 70). There is a strong focus not only on city form but also on ecological and economic concerns. It is not obvious that one focus predominates over the others. Rather they appear to work in tandem. For example the Blueprint suggests that “the basic principles of diversity and widespread innovation [can] be used to cultivate an even stronger economy that is more favorable to the ecosystem” (Urban Ecology Inc. 1996, 94). It suggests that quality of life, affordability, attractive business climate and resources, an educated workforce, and accessibility will work to satisfy this end, as well as attract and retain business in the Bay Area. As well, the *Blueprint* holds that sustainable industry will not only be an economic success but will also “become clean and green for efficiency and environmental responsibility, be diverse and adaptable to withstand recession, focus on fair and equitable opportunity for employees, commit to the Bay Area and its long-term health” (Urban Ecology Inc. 1996, 95).

The *Blueprint* does not limit ecological criteria to the protection and preservation of natural areas. It recognizes the importance of maintaining ecological resilience and carrying capacity throughout the urban environment. It advocates maximizing biological productivity and connects this idea to possibilities for increasing local employment and ensuring local economic resilience. Land rehabilitation is similarly emphasized and linked to economic considerations. The *Blueprint* recognizes that all members of society should have equal rights and opportunities. It stresses that diversity is an essential part of the social fabric. It also recognizes that basic needs for housing, food and medical facilities, etc., must be available to all. These ideas are equally linked to issues of affordability and healthy, fulfilling employment. The *Blueprint*'s greatest strength is its support for the idea that integration of all sustainability criteria is essential – both in theory and in practice.

### ***Sustainability Criteria and the Frameworks***

Although sustainability frameworks should integrate the essential criteria, in practice this seldom occurs. The frameworks examined all tend to focus on a particular aspect of sustainability. Most frameworks rely heavily on city form as a creator of, as opposed to a contributor to, sustainability. Within this focus, most frameworks further emphasize transportation initiatives, densification, and proximity planning as specific means to increase sustainability. As a secondary focus, frameworks generally give attention to natural area protection, in particular for human and economic benefit. The noted exceptions to this are the *Blueprint for a Sustainable Bay Area* and *Vision 2020*.

A second weakness of many of the frameworks is failure to link regional sustainability efforts with global sustainability. The most common but limited exception is realization that local air pollution can affect global climate change. This lack of global focus is significant to authors such as Mathis Wackernagel and William Rees who state that cities “appropriate the ecological output and life support functions of distant regions” (1996, 236). As such, cities allow consumption patterns to shift burdens from one location to another instead of stressing the need for a reduction in the total amount of resource consumption. Rees says that current sustainability initiatives make the “urban

environment more livable, but [don't] do anything at all to make it more sustainable" (Rees quoted in Blore 1998, 22). There is also limited realization of the implications for regional sustainability initiatives at the scale of neighbourhoods or individuals.

Recognition of the interdependence of criteria and scales of sustainability is, however, a strength of the *Blueprint for a Sustainable Bay Area*.

The weaknesses of most frameworks suggest that critical sustainability issues are neglected and that the prevailing views of sustainability tend to be unfortunately narrow. As models on which to base implementation of sustainability initiatives, most of the frameworks are weak. They, generally, concentrate on a specific focus and pay little or no attention to certain essential criteria. As such they provide inadequate direction for increasing urban sustainability.

## **Implementing Frameworks**

Although frameworks such as the ones discussed above may not represent encompassing views of sustainability, many are created to direct implementation of sustainability initiatives. The following section briefly examines sustainability initiatives that have been implemented at the regional or city level. The purpose is to determine whether principles identified in the frameworks are actually implemented on the ground.

Maclarens *Sustainable Urban Development in Canada: From Concept to Practice* details how a sampling of municipal officials interpret the concept of sustainable urban development (1993a). It also examines municipalities' "plans, policies and other tools...used to address the issues of sustainable urban development" (Maclarens 1993a, 2). The study reveals that working definitions of sustainable urban development are extremely variable. While many municipal initiatives revolve around the need to "minimize or eliminate the damage caused to the environment by development" (Maclarens 1993a, 7), there is little common understanding about how this should occur. Maclarens finds that, generally, the initiatives do not focus on the "social, economic, cultural or integrating function[s]" recognized as being important for sustainability (1993a, 32). Maclarens study indicates that there is a need to consider and integrate broader sustainability criteria. The following section examines two regions in order to illustrate the sustainability considerations that have made it from framework to implementation.

### ***Initiatives in the Greater Vancouver Regional District***

Tomalty has recently examined GVRD efforts to implement its sustainability plan in growth management, transportation, and "green zone" initiatives. He states that "while many reports and journal articles laud the region for its planning accomplishments...few have bothered to assess real performance on the ground" (Tomalty 2000, n.p.). He goes on to add that "the figures that are at hand suggest mixed performance with respect to achieving a sustainable region" (Tomalty 2000, n.p.).

With respect to growth issues Tomalty notes that the GVRD's *Livable Region* plan's definition of the Compact Region Scenario "was gradually watered down over the three years between the first elaboration and the final adoption of the plan" (Tomalty 2000, n.p.). He explains that although the City of Vancouver was supportive of the plan to increase densities in existing urban areas, many "municipalities were opposed to the growth management targets. Although they agreed in principle to regional growth

management, they rejected the region's call for them to intensify already settled areas and prevent growth in greenfield areas" (Tomalty 2000, n.p.). Tomalty notes that the resistance of a number of municipalities to the "draft plan led to a renegotiation of the plan targets. The revised plan, which was eventually adopted by the GVRD Board in 1995 permitted more development in the outer suburban areas while lowering the targets for the Growth Concentration area" (Tomalty 2000, n.p.). Thus, growth management was severely undermined and efforts to direct population growth were largely unsuccessful. In practice, Tomalty reports, there has been "more sprawl in exactly the direction that the plan attempted to avoid" (Tomalty 2000, n.p.). He suggests that "municipalities are largely following their own development paths, regardless of regional planning efforts" (Tomalty 2000, n.p.).

Tomalty's study finds that implementation of proposed transportation initiatives has been equally unsuccessful. A transportation plan, developed in parallel with the *Livable Region Strategic Plan*, aimed to reduce dependence on private vehicles and "to provide greater choice in the mode of transport through strategic expansion of public transit and creating walking- and bicycling-oriented opportunities" (Tomalty 2000, n.p.). Although the plan "called for the use of policy instruments to reduce automobile dependence," Tomalty notes that "no demand management tools have yet been put in place in the six years since Transport 2021 was adopted" (Tomalty 2000, n.p.). He adds that the quality of transport service in the region has declined over the 1990s and that the number of buses serving the region has not kept pace with population growth. At the same time, there has been continued heavy investment in road infrastructure which benefits car owners (Tomalty 2000, n.p.).

Green Zone initiatives were the most successfully implemented aspect of the regional sustainability plan. Tomalty states that "implementation of the concept appears to have proceeded with little dilution or distortion and the outcome is a faithful reflection of the original concept" (2000, n.p.). He notes that "from 1991 to 1999, the number of hectares of provincially-protected habitat within the Green Zone almost tripled" and that the Agricultural Land Reserve (ALR), used to protect the Green Zone, "has proved to be a stabilizing influence in the region and has undoubtedly helped to contain urbanization" (Tomalty 2000, n.p.). However, Tomalty also states that planners "admit that the Green Zone has not yet been tested. Because there is still enough room for greenfield development, developers and municipalities have not challenged the zone through political or legal campaigns. Real pressures on the Green Zone concept will come as easy development sites outside the zone are used up" (Tomalty 2000, n.p.). It is also critical to note that the Green Zone by itself has limited potential for preserving ecological integrity. Areas outside of the zone must also be considered for their ecological carrying capacity and resilience. However, there is little indication that Green Zone efforts are being effectively linked with ecological initiatives in these other areas.

In sum, these examples of initiatives in the GVRD suggest that there has been poor implementation of sustainability frameworks in practice. Although some of the ideas from the frameworks have been translated into practice, many have been neglected or omitted.

### ***Initiatives in Hamilton-Wentworth***

So far, no comprehensive examination and analysis of Hamilton-Wentworth's implementation of *Vision 2020* seems to have been undertaken. However, frequent articles in the local newspaper – The Hamilton *Spectator* – give some indication of the

issues that have been considered or omitted. The articles reveal few successes in efforts to implement *Vision 2020*. For example, a January 1998 article reports a “mixed record for a sustainable region” and explains that although 34 percent of the indicators for sustainability show a positive trend, 45 percent show mixed results or no clear trend and 21 percent show a negative trend away from the 1993 benchmark (Mixed record for sustainable region, A13).

A second article notes that a *Vision 2020* progress team “has tried to account for progress over the past five years” and has found that “success...has come most notably in the region's planning policies, the protection of natural areas and the establishment of an urban boundary” whereas “the least progress has come in transportation” (Hughes 1998, A9). Doubts about the positive aspects of this claim, however, are raised by other articles which report significant conflicts over land use planning. An article states that “mountain residents must 'fight' to keep access to a local park” (Mcguiness 2000, A14). The article describes a proposal to sell and tear down a community centre so that it can be replaced with fast food chains and retail services. The article notes that sale would result in lost pedestrian access to park areas, a direct contradiction of the *Vision 2020* plan. It states that although the “*Vision 2020* plan promised a continuous park-to-park trail across the Mountain...if the subject lands are zoned commercial and developed, the possibility of preserving a continuous link would be destroyed forever” (Mcguiness 2000, A14). Nevertheless, the article goes on to note that City and regional staff are recommending the rezoning and sale (Mcguiness 2000, A14).

A third article describes the push by developers to acquire mountain land for residential construction and expansion of the urban boundary. It reports that a proposal to expand into “240 hectares in lower Stoney Creek, which include the region's only lands designated for tender-fruit growing” is being considered by city staff (Hughes 2000, A06). The reporter notes that “any expansion of the areas where building is allowed to take place would be a blow to the region's *Vision 2020*...which calls for a firm urban boundary and the preservation of agricultural lands” (Hughes 2000, A06). The articles suggest that although the Region's *Vision 2020* takes a strong stand against urban expansion, regional officials' resolve is less firm when faced with the realities of development pressures.

Several *Spectator* articles indicate that sustainability efforts are being undermined by the proposed construction of the Red Hill Valley Expressway. The Expressway, to be built in a major urban greenspace, is widely criticized as detrimental to local and regional ecology, and appears to conflict both with the *Vision 2020* framework and with the regional Official Plan. The Official Plan states that “ecological functions and physical qualities of Hamilton-Wentworth's natural features should be used in such a way that they are protected, preserved and enhanced. Utilization should be carried out in a responsible manner, on the basis of sustainability” (McLean 1998, A11). The Region is nevertheless committed to the project. A leading critic of the project, says that because “the entire Red Hill Valley is designated ... as an environmentally significant area ... the expressway project is obviously completely incompatible with these protection policies” (1998, A11). He also criticizes the project's planning for lack of open process noting that “Friends of Red Hill Valley made both verbal and written requests to appear before the Vision 2020 Progress Team to make a presentation on the proposed Red Hill Valley Expressway project. These requests were not acceded to, which suggests that the team is not particularly committed to listening to the public” (McLean 1998, A11). Additionally, he comments on the unwillingness of the project team to “speak out clearly on the

implications for sustainability of the Red Hill Valley Expressway project” and on the fact that political representatives on the team were “specifically warned the team that it should not criticize this project” (McLean 1998, A11). These lack of an open process is in sharp contrast to the *Vision 2020* goals for community participation and empowerment.

Also concerning transportation planning, a *Spectator* article describes the reduction in regional transit services over the past decade (Haigh 1998, A11). Nancy Haigh argues that high costs of transit and a loss of financial support for the services have led to a loss of ridership. She states that this has done little to discourage car use and limited transportation options for individuals who can not afford car ownership. She notes that while there is reduced financial support for transit, the government seems willing to “borrow \$81 million...to construct an expressway that will primarily service the trucking industry and automobile owners who live in the suburbs. In other words, the expressway is designed primarily to permit further sprawl and more suburban development, all of which will only worsen transit system costs” (Haigh 1998, A11). Increased car use and decreased opportunities for public transit are seen as contrary to both ecological and social goals in the *Vision 2020* plan.

A final example notes the failure of the Region to address waste management goals. A 1999 article describes how regional plans to incinerate garbage conflict with the region's sustainability goals. The article suggest that the region “should be planning to close its garbage-burning plant” and “adopt a zero-waste philosophy” (Mcguinness 1999, A13). Instead, regional council has allowed local garbage incinerators to “increase the amount burned to 200,000 tonnes a year from 140,000 tonnes” which will “account for 94 percent of industrial dioxin emissions in Ontario” (Mcguinness 1999, A13). This is in sharp contrast to the *Vision 2020* goals of waste management and pollution reduction and control.

By 1999 there were reports that the Region was “considering a proposal to offload responsibility for promoting its ... *Vision 2020* plan ... to a private, non-profit corporation” (Hughes 1999, A2). Articles reported citizen concerns that “the move is a sign of the region's failure to lead the way and live up to the at times inconvenient ideals it set for itself” (Hughes 1999, A2). A member of the original Citizen's Task Force stated that *Vision 2020* requires government support because many of the initiatives are “beyond the scope of a non-profit corporation” (Hughes 1999, A2).

Clearly a more rigorous study of *Vision 2020* implementation is needed. Nevertheless, the newspaper stories suggest that there have been significant difficulties in implementing Hamilton-Wentworth's sustainability framework.

### ***Sustainability Framework Implementation***

So far there is limited documentation on the application of sustainability framework principles in urban decision-making practice. As noted above, Tomalty finds that few reports or articles have “bothered to assess real performance on the ground” (Tomalty 2000, n.p.). Certainly there is a need for more careful examination of sustainability implementation and the overall effectiveness of the sustainability frameworks now in place. However, the two cases considered here suggest that even municipalities with recognized sustainability frameworks limit progress towards sustainability by implementing only certain initiatives. This is illustrated, in particular, by the GVRD's attention to implementing Green Zone initiatives. A more thorough process would see integration of both a more complete set of criteria and more complete parts of the frameworks into urban decision making.

## Conclusions

If we accept that the essential criteria for sustainability must be considered and integrated in any successful overall efforts to increase urban sustainability, it is evident that progress so far has been limited. This study reveals that while some common criteria for sustainability receive attention, others are virtually ignored. This is true of the urban sustainability literature and the sustainability frameworks of progressive urban regions. Further gaps emerge in the actual decision making, even in urban regions with relatively strong sustainability frameworks.

Attention to city form as a contributor and generator of urban sustainability is widespread in the urban sustainability literature and popular in the regional frameworks. This literature focuses specifically on density, proximity planning, and transportation and traffic management. Although advocates argue that the city form initiatives address essential criteria, this is not always the case. Pivo's "Mainstreet Cascadia" model, for example, fails to link urban planning principles with a reasonably comprehensive range of sustainability principles.

Natural area protection and preservation also receive considerable attention. This focus appears as a strong theme in the literature and in many of the frameworks. But while natural area protection is an important sustainability consideration, it is by itself only part of what is needed for ecological sustainability.

Economic gains are addressed in the most general sense and often in conjunction with ideas of resource protection. There is little integration of these ideas with social criteria. The urban sustainability literature includes advocacy of participative planning and emphasis on community building. However, regional urban sustainability frameworks reveal at best limited understanding of the meaning and scope of participation and community initiatives for sustainability. At the implementation level, these ideas also appear to receive reduced attention. Finally, waste management and pollution reduction are also commonly recognized urban sustainability considerations that are less carefully addressed in urban planning practice than they should be.

Many essential criteria appear less frequently than the ideas presented above. This second group of criteria tends to be better represented in the urban sustainability literature than in the frameworks and practice. This category includes ecological criteria concerning rehabilitation, ecological resilience, carrying capacity and biological productivity, and social criteria concerning human health and individual well-being. Consideration of self-determination and governance, safety and security, satisfaction of basic needs, and reduction of poverty also weakens in the move from theory to framework and practice, as do economic gains that are mindful of social and ecological development.

A final group of sustainability criteria are poorly addressed at all levels. Generally, biodiversity receives little to no attention. Increased self reliance receives some mention in the literature but is rarely considered in practice. Attention to local economic interests and equity is not strongly addressed, with the possible exception of in the *Vision 2020* and *Blueprint for a Sustainable Bay Area* frameworks. At the theoretical level, some authors insist that it is inappropriate for cities to improve local conditions by placing demands on and exploiting other regions and some links are made between urban areas

and global sustainability, but there is little indication of this concern or an ability to address it at the regional or city level.

Clearly, broad theories of sustainability do have some influence on urban sustainability literature and this influence generally diminishes as theory is translated into practice. Indeed entire dimensions of sustainability are likely to be neglected at the implementation level. With a few exceptions, regional sustainability frameworks fail to recognize some sustainability basics and the limited survey of implemented initiatives here suggests that attention to sustainability criteria is even more limited in practice. These findings indicate little success so far in the consideration and integration of broad criteria for urban sustainability.

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