

# **Implementing Sustainable Development Policies at the Municipal Level:**

*Identification of Strategies for Overcoming Barriers*

**By**

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A practicum prepared in partial fulfillment of the requirements for the  
Degree of Master of City Planning

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**THE UNIVERSITY OF MANITOBA**  
**FACULTY OF GRADUATE STUDIES**  
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**Derek Eno**

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of  
Manitoba in partial fulfillment of the requirement of the degree  
Master Of City Planning**

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## **Abstract**

It is widely recognized that patterns of human manipulation and exploitation of natural resources coupled with mass consumption of energy, has resulted in serious damage to the natural environment and have reduced the capacity for this planet to support human life. It is hypothesized that the implementation of sustainable development policies, at the municipal level of government, is an effective approach to reducing human consumption of energy and natural resources, and protecting the natural environment. Unfortunately there is little evidence yet to suggest that municipal policies, in the area of energy reduction, and practices relating to sustainable development, have been implemented in any consistent manner in the City of Chilliwack, British Columbia. In order to determine the barriers that limit the implementation of energy reduction (an indicator of sustainable development) policies, and the role of the planner in addressing the barriers, the research involved individual interviews with municipal planners, engineers, Directors, Chief Administrative Officer's (CAO), and municipal politicians from the Lower Mainland region of British Columbia. The results of the research identified a variety of barriers to implementing sustainable development policy within the municipal context, and that there is opportunity for the municipal planner to take an active role in addressing these barriers. Based on the results of the research findings, seventeen suggestions for future action are recommended, and are organized into two major sections: General Recommendations, and Municipal Recommendations. These recommendations offer the City of Chilliwack a starting point to implementing sustainable development and improving quality of life for the generations of today and tomorrow.

## **Acknowledgments**

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## 1.0 Introduction

The state of the natural environment is in decline due in large part to human influence. Patterns of human manipulation, exploitation and over consumption of natural resources to improve human quality of life has resulted in serious damage to the natural environment, and the reduced capacity for this planet to support human life.

[I]n the past thirty years the scale of environmental problems has shifted upward, from local and temporary to global and chronic. Atmospheric change, wobbly climate, and ozone depletion – the stuff of daily headlines – affect people everywhere. Land degradation, falling water tables, acid rain, and accelerating species losses are occurring on virtually every continent. Humankind is now the major force changing the face of the earth and few serious observers feel we have the capacity to control the direction of change (Rees, 1998, 4).

In addition, the world population is expected to double between the years 1993 and 2050 (Badami, et al., 1994, 1). This increase in population will result in a concomitant increase in energy consumption to support human life. Some theorists (Rees 1998, Badami et al. 1994, and Orr 1992) suggest that global sustainability will be seriously compromised given the rapid increase in population and corresponding increase in consumption. Furthermore,

...the resource appropriation which has supported the recent growth in the world economy and in living standards has resulted in accumulating ecological degradation. If such growth patterns are allowed to continue, the result will be the destruction of the natural world and the life support systems which it provides for all species on Earth – including human beings (Badami et al., 1994, 1)

From an urban planning perspective, the question that arises is whether or not the profession of planning has a role to play in attempting to rectify this seemingly unavoidable destruction of the natural world. Rees (1995) observes that the trend

“...supported by expansionist beliefs, is to continue as at present with planners acting as little more than developmental traffic cops” (Rees, 1995, 357). However Badami (et al., 1994) does not support this “do-nothing” approach, but instead argues that the planning profession has a significant role to play: “[O]ur common future as professional planners will be to develop and facilitate processes which lead to declines in per capita resource consumption and a more equitable distribution of resources” (Badami et al 1994, 1). One approach to reducing human consumption, distributing resources in a more equitable manner, and protecting the natural environment, is through the implementation of municipal policies, which effectively demonstrate the concept of sustainable development.

### **1.1 Problem**

Sustainable development has become a popular topic, and the application of its principles offer an approach to reducing environmental degradation. However the successful implementation of sustainable development policies has been limited for a number of reasons that merit further research in a planning context.

### **1.2 Purpose**

The purpose of this research is to identify existing municipal policies, in the area of energy reduction, and practices relating to sustainable development, identify the barriers that exist to implementing policies relating to sustainable development, and to identify the role of the planner in addressing those barriers.

The major questions driving this research are:

- What are some of the existing policies at the municipal level aimed at implementing sustainable development principles/goals?
- What are the barriers to implementing sustainable development policy?
- How can these barriers be addressed?

- What is the role of the planner in addressing the barriers to implementing sustainable development policy?

### **1.3 Methods**

In order to address the above questions, the research engaged municipal planners, engineers, Directors, Chief Administrative Officer's (CAO), and municipal politicians. Individual interviews were conducted in order to determine the barriers to implementing energy reduction (an indicator of sustainable development) policy; how these barriers can be addressed successfully; and the role of the planner in addressing the barriers. Details of the research methods and results are found in Chapter Four.

### **1.4 Organization of the Practicum**

The practicum is organized into five chapters.

- *Chapter One* provides an introduction to the problem, purpose and a description of the research methods.
- *Chapter Two* reports on a literature review, which presents the origin of sustainable development, various approaches to sustainable development, outlines the barriers to implementing sustainable development policy (which forms the basis of the empirical research), and introduces the topic of energy reduction (an indicator of sustainable development).
- *Chapter Three* presents the case study of the City of Chilliwack. In order to keep the research manageable, the case study reviews energy reduction policies, as an indicator of sustainable development, and compares those policies to other Lower Mainland municipal policies, as well as ideas emerging from the literature review.
- *Chapter Four* describes the methods used in the empirical research and analyses the interview results.
- *Chapter Five* provides a summary of the research findings. This is followed by recommendations for future actions, both for the City of Chilliwack and in more general recommendations.

## **1.5 Assumptions**

I take the position in this research that the quality of the natural environment and natural resources is in a situation of dire straits. Furthermore I assume that this serious environmental circumstance can be improved through the implementation of sustainable development policies.

I consider that planners have a responsibility in influencing policies, initiatives, regulations, and legislation, in order to change the manner in which urban development occurs in order to reduce negative environmental impacts. This line of thinking exists, and is accepted widely within the community of professional and academic planners. Support for this position is evident within the Canadian Institute of Planners' (CIP) *Statement of Values*, which outlines several points (specifically values 1, 3 and 5), that suggest planners have both a role and a responsibility in environmental protection. (Appendix A)

## **1.6 Limitations**

The first limitation is the selected geo-political area of study. Municipal legislation and policy relating to sustainable development will be analyzed from a selected area. The geo-political boundary of this research will be confined to the Lower Mainland in the Province of British Columbia, and more specifically, the City of Chilliwack. Relevant examples of municipal policy and legislation may exist in other Canadian provinces. However legislation and policy relating to municipalities is a provincial responsibility, thus the legislation differs somewhat from province to province. One province has been selected in order to keep policy and legislation comparisons consistent. Similarly, policy and legislation from countries other than Canada will not be considered. The topic of sustainable development is applicable in a global context, to both developed and less-developed countries. However, for the purposes of this study, theoretical and empirical research will address the Canadian context.

## **2.0 Literature Review**

This chapter reviews literature from the field of planning and environmental studies, which will inform the direction of the empirical research. First, the origin of the term sustainable development and its associated principles is presented. This is followed by an analysis of the various approaches and definitions of sustainable development including the economic approach, the technological approach, the environmental approach, and finally a more contemporary version of sustainable development named the ecological approach. The final section of this chapter outlines the barriers to implementing sustainable development policy within the municipal context, and introduces the topic of energy reduction as an issue of importance at the municipal level of government.

### **2.1 Sustainable Development Background and Origins**

This section traces the historical roots of the term sustainable development. This is followed by a discussion of the different approaches to sustainable development which have emerged within the literature. Leitmann (1999) traces the theoretical origins of applying ecological principles to city planning to Robert E. Park's 1916 paper entitled *The City: Suggestions for the investigation of human behavior in the urban environment* (Leitmann 1999, 33). Leitmann (1999) proposes that the roots of sustainable development can be traced as far back as the 1962 United Nations declaration on natural resources and economic development and the 1974 United Nations Conference on Trade and Development, which produced the Cocoyoc Declaration. The Cocoyoc Declaration was the formal declaration produced from the conference, which outlined the concerns of meeting human needs with activities that disrupt the natural environment.

In addition to the preceding United Nations (UN) events there were three other major UN events that brought environmental and urban development issues to the forefront: the 1972 United Nations Conference on the Human Environment; the 1984 World Commission on Environment and Development; and the 1992 United Nations

Conference on Environment and Development in Rio de Janeiro. While all of these UN events played a part in bringing environmental issues to the forefront, urban environmental issues became popularized with the publication of the World Commission on Environment and Development (Brundtland Commission) report *Our Common Future* (Leitmann 1999, 41). The following is a summary of the events that formed the foundation of sustainable development.

### **1972-United Nations Conference on the Human Environment (UNCHE or the Stockholm Conference)**

McDonald (1996) proposes that the 1972 United Nations Conference on the Human Environment (UNCHE, also known as the Stockholm Conference) was the beginning of United Nations concern on the subject of environment and development. The Stockholm Conference raised the hope that development could be directed in a more environmentally sound manner; however, this proved not to be the case during the 1970s and 1980s (McDonald, 1996, 227). Because of increasing debt in developing countries as well as increased global environmental degradation and resource depletion during the 70's and 80's, "[T]he General Assembly of the UN decided in 1983 to establish an independent commission, the World Commission on Environment and Development (WCED), to take a fresh look at environmental and development issues" (McDonald 1996, 227).

### **1987-World Commission on Environment and Development (Brundtland Commission)**

In 1987 the World Commission on Environment and Development (WCED) produced a report entitled *Our Common Future*, also known as the Brundtland Report, named after its chairperson, Gro Harlem Brundtland. McDonald (1996) asserts that the Brundtland Report not only documented the "...gloomy facts of world development since the Stockholm Conference" (McDonald, 1996, 227) and urged greater action, but also changed the debate on sustainable development (SD) by recognizing the need to broaden the term (sustainable development) from just an environmental perspective, to an interconnected system which includes social, economic, political, and ecological systems. McDonald (1996) further asserts that the Brundtland Report "...refocused the debate on

SD and was a launching pad for the Earth Summit, scheduled to be held 20 years after the Stockholm Conference” (McDonald, 1996, 227).

### **1992-United Nations Conference on Environment and Development in Rio de Janeiro (UNCED or Earth Summit)**

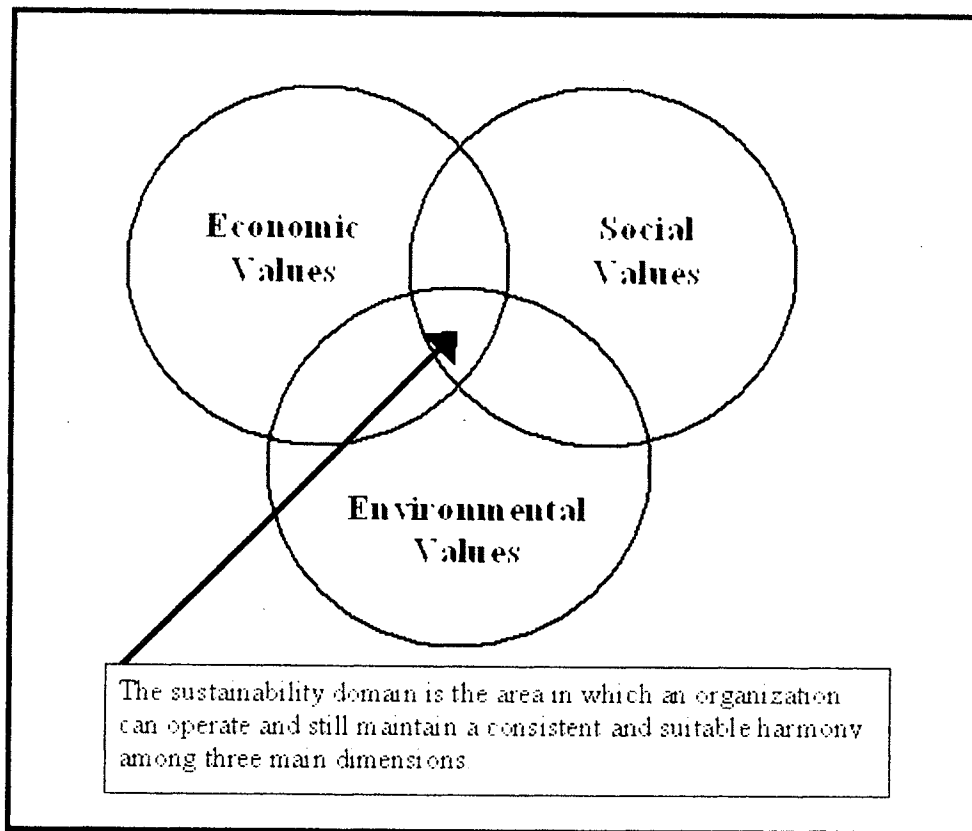
In 1992 the United Nations Conference on Environment and Development (UNCED) (commonly referred to as the Earth Summit) was held in Rio de Janeiro and resulted in the *Earth Summit's Agenda for Change*, commonly known as Agenda 21. Agenda 21 was a program of action containing recommendations for moving countries towards sustainable development in the twenty-first century (Leitmann 1999, 42). Quarrie (1992) states that Agenda 21 was designed to achieve “...the fulfillment of basic needs, improving living standards for all, better protected and managed ecosystems, and a safer, more prosperous future” (Quarrie, 1992, 47).

The following section will outline three approaches to sustainable development: economic, technological, and environmental.

#### **2.1.1 Economic Approach**

The first approach to sustainable development can be described as economic. The Brundtland Commission, which popularized urban environmental issues, defines sustainable development as that “...which meets the needs of the present without compromising the ability of future generations to meet their own needs” (WECD 1987, 7). The common understanding of sustainable development, which stems from the Brundtland definition, has also been described as the sustainability triad or the overlapping of three common interests: environment, economy and society (see figure 1).

**Figure 1: Sustainable Development Triad (Adapted from Herremans and Reid, 2002)**



However, Roseland (1998) states that the term sustainable development has been used to mean either environmental protection, or sustained economic growth to pay for environmental protection. The latter is what the Brundtland version of SD advocates. Supporting this interpretation Jepson (2001) states that the Brundtland Report strongly supports sustainability, but in doing so it "...advocates growth as the solution to global problems" (Jepson, 2001, 504) and further, "[E]ven the Brundtland Commission accepted the need for a five- to 10-fold increase in world industrial output as essential for sustainable development" (Roseland, 1998, 4).

The conclusion of the Brundtland Report suggests that "If large parts of the developing world are to avert economic, social, and environmental catastrophes, it is essential that global economic growth be revitalized" (World Commission on Environment and Development, 1987). This demonstrates how the Brundtland version of sustainable development takes a strong economic approach. Using an economic

approach, Campbell (1996) suggests that the best way to achieve social and environmental equity is to increase the economy. By increasing the economy, wealth can (theoretically) be distributed more fairly because there would be more to distribute, and environmental protection could be achieved because there would be "...more money with which to buy environmental protection" (Campbell, 1996, 300).

In addition to the above, a draft discussion paper, sponsored by the Canadian Institute of Planners on sustainability and planning, suggested that from the economic perspective of sustainable development, we have to eradicate poverty in order to fix the environment, and the cure for poverty is to increase growth in the economy (Badami et al 1994, 2). It is suggested that "...this argument states that the problems caused by the continued rapid and dramatic expansion of human activities can only be solved by the further rapid and dramatic expansion of these same activities" (Badami et al 1994, 2). However Campbell (1996) suggests that if environmental protection requires a reduction in economic growth, on a global scale this may result in slowed economic growth and an increased gap between rich and poor nations. From Campbell's (1996) view, essentially this means that the "...developed nations would be asking the poorer nations to forego rapid development to save the world from the greenhouse effect and other global emergencies" (Campbell 1996, 299). So, is economic growth essential in order to achieve sustainable development?

This contrast between economic growth and economic development is a key distinction in the sustainable development literature. Some authors argue that economic growth is not essential to achieving sustainable development (Roseland 1998; Nozick 1992). More importantly these authors (Roseland, 1998; Nozick, 1992) argue that economic growth will not result in sustainable development. Roseland (1998) and Nozick (1992) advocate economic *development* and argue that it will contribute to a sustainable community, because it places importance on people and environment, not just on money and wealth.

Economic growth can be characterized as being focused on growth, global trade, and making money in any manner possible. Roseland (1998) suggests that economic growth is concerned with "...an economy focused on growth rather than development, on global trade and currency rather than people and ecosystems" (Roseland, 1998, 160).

Moreover, an economic approach, which implies a pro-growth strategy, suggests that economic growth is an essential element to a sustainable economy (Zovanyi 1998), but achieving a sustainable economy, with a pro-growth strategy, often results in little to no social or environmental equity. Similarly Nozick (1992) suggests that economic growth is concerned with "...profit for the sake of profit" (Nozick, 1992, 6). In a society that encourages economic growth, economics and a thriving economy is more important than people. Nozick (1992) goes so far as to suggest that economic growth implies that "...people and places are expendable objects..." (Nozick, 1992, xi). Responding to economic growth Nozick (1992) suggests:

...there needs to be an alternative vision to the global economy (which is being promoted by the powers-that-be as the only economic reality) – an alternative development strategy which has as its main purpose and goal, the preservation and revitalization of community "for the sake of community", as opposed to "profit for the sake of profit". (Nozick 1992, 6)

The alternative vision to the global economy that Nozick (1992) speaks of is found within the concept of economic development.

Both Nozick (1992) and Roseland (1998) refer to the concept of economic development in their own terms. Nozick (1992) refers to economic development as Sustainable Community Development (SCD) while Roseland (1998) calls it sustainable Community Economic Development (CED). Like economic growth, economic development is also concerned with generating wealth (money). However unlike economic growth, economic development more importantly places "...greater emphasis on sustainability, including social equity and environmental responsibility..." (Roseland 1998, 160). Roseland (1998) suggests that the main goal of economic development is to create "...community self-reliance..." (Roseland, 1998, 160) and to use "...economic activity to help improve the quality of life for citizens" (Roseland, 1998, 161).

Roseland's (1998) version of economic development, which he calls community economic development (CED), is defined by the Community Economic Development Center at Simon Fraser University as:

“...a process by which communities can initiate and generate their own solutions to their common economic problems and thereby build long-term community capacity and foster the integration of economic, social, and environmental objectives” (Roseland 1998, 160).

Nozick (1992) suggests that sustainable community development (a version of economic development) has two goals:

- (1) *build communities which are more self-supporting and which can sustain and regenerate themselves through economic self-reliance, community control and environmentally sound development.*
- (2) *build communities which will be worth preserving because they are grounded in the life experiences of people who live in them and in the natural histories of specific regions. This calls for building local culture and meeting the full range of people's needs.*  
(Nozick 1992, 7)

As demonstrated through these different interpretations of economic development, the common theme or underlying principle of economic development is to create long-term self-sustaining communities through local economic approaches, rather than global ones, that seek “...to satisfy our economic needs without requiring endless growth” (Roseland 1998, 174) or un-sound overuse of natural resources which leads to permanent environmental degradation.

Rees (1995) discredits an economic growth model by stating that the goals of Agenda 21 (which suggests an economic approach to sustainable development) reflect the contradiction in the term sustainable development. The contradiction is this: how do we produce growth that improves living standards and at the same time protects the ecosystem “...when historic patterns of material growth seem responsible for present unsustainable levels of ecological disintegration?” (Rees, 1995, 344).

Roseland (1998) further discredits an economic growth model by emphasizing that economic growth with an ecological deficit is anti-economic, in that it makes us poorer rather than richer in the long term. Wealth created through economic growth is the acquisition and exploitation of natural capital (natural resources). Natural capital is

described as "...any stock of natural assets that yields a flow of valuable goods and services into the future" (Roseland, 1998, 5). For example a forest can provide a crop that can be maintained for years to come. The forest is the natural capital. Consequently if we expend our natural capital, which creates an "ecological deficit", we will not be able to either produce goods for ourselves or for sale on the world market. Thus we will become poorer because our expenses (acquiring essential goods for survival) will be greater than our income (sale of commodities on the world market). Roseland (1998) is suggesting that we should reduce or minimize our consumption of natural capital. Sustainable development therefore requires that we minimize our consumption of essential natural capital.

### **2.1.2 Technological Approach**

The second approach to sustainable development can be categorized as technological. The technological approach suggests that humankind does not necessarily need to change their manner of living, and that technological advances will in fact reduce the human induced strain on the ecosphere.

From an economic perspective, Rees (1995) states that the easiest way to achieve sustainability is to "stay our present course". This is leading with the idea that through the economy we can find technological substitutes for particular resources. Similarly, the International Forum On Globalization (IFOG) proposes "...most of the technology needed for a complete transformation of our energy infrastructure is already available" (IFOG, 2002, 157). Additionally, the IFOG suggests that humankind can increase energy efficiency and meet remaining energy needs with a mix of renewable resources and, moreover, the 'alternative' technologies needed to accomplish this are not difficult to develop and are in fact already in use in many places (IFOG 2002, 157). Essentially the technological approach suggests that to every (environmental) problem there is a technological solution. Furthermore, a technological approach encourages continued economic growth, with associated environmental degradation, because a technological perspective suggests that economic growth may continue and any associated environmental problems will be solved with technology.

From a technological perspective, it is believed that unsustainable actions are a result of poor technology, and further, that through technological advances humans can become sustainable and control the environment. However, Rees (1995) suggests that from an ecological perspective "...despite our technological wizardry, human society remains in a state of obligate dependence on the ecosphere for both the production of usable energy and matter, and for waste assimilation and other life-support services" (Rees, 1995, 348). Likewise, in a draft discussion paper prepared by the Canadian Institute of Planners (CIP), it is recommended that technological advances alone are not enough to sustain human life because, despite our technological advances, "...humankind remains a creature of the ecosphere, and exists in a state of obligated dependency on many products and processes of nature" (Badami et al. 1994, 2). Additionally, within the same CIP discussion paper, it was stated that natural processes couldn't be replaced, and further that "[W]hile we must continue to pursue environmentally-sound technologies, we cannot use this as an excuse to avoid questions of distribution and over consumption" (Badami, et .al, 1994, 4).

Technologies, which may reduce the amount of energy or resources needed to fuel our current lifestyle, may also reduce the impact we as humans place on the environment. However, technological advances are merely 'Band-Aid' solutions to the larger problem of over consumption and over extraction of natural resources, and subsequently its over production of waste.

### **2.1.3 Environmental Approach**

The third approach to sustainable development is described as environmental. Environmental sustainability is a subject that has been given attention by various authors. As a result there are different understandings of the term. McDonald (1996) notes that "[M] any scientists – especially ecologists, biologists, and other natural scientists, but increasingly economists and social scientists" (McDonald, 1996, 225) associate environmentally sustainable development as being concerned with natural resource limits and global carrying capacity. Similarly, Badami et al. (1994) suggests that environmental sustainability requires a reduction in our ecological footprint.

### *Carrying Capacity:*

Leitmann (1999) states that carrying capacity is the ability of the natural environment to regenerate resources and absorb waste. Likewise, Jepson (2001) proposes that carrying capacity is "...the inherent and natural capacity of a system to absorb the resource extractions and waste disposal stresses that accompany productive activity to support the activities of its constituent life forms" (Jepson, 2001, 500). However defined, in simpler terms, carrying capacity is seen as the ability of the environment to support a given species of flora or fauna (Fodor, 1999 133).

### *Natural Resource Limits:*

A natural resource limit is the "...finite capacity of natural systems to produce "renewable resources" such as crops, forestry products, and water supplies – which are renewable only if the natural systems from which they are drawn are not overexploited" (Roseland 1998, 5).

### *Ecological Footprint:*

Developed by Wackernagel and Rees (1996), the ecological footprint is a concept for calculating the estimated amount of land required to support a typical North American person's lifestyle (Burch, 2000, 78). Roseland (1998) states that the ecological footprint is a tool to estimate "...the land area required by any human activity, both directly – the land occupied by buildings or infrastructure – and indirectly – including the land needed to grow crops and assimilate pollutants" (Roseland, 1998, 199). Similarly Fodor (1999) suggests that "[A]n ecological footprint measures our consumption of food, housing, transportation, consumer goods, and services and then calculates the equivalent amount of land area required to provide them" (Fodor, 1999, 134).

Environmental sustainability has been viewed as the constant struggle of living systems to acquire the use of energy, for productive and reproductive purposes, and its disposal (Jepson, 2001, 500). In terms of species composition, biomass and productivity, ecological sustainability is referred to as the maintenance of an ecosystems' integrity

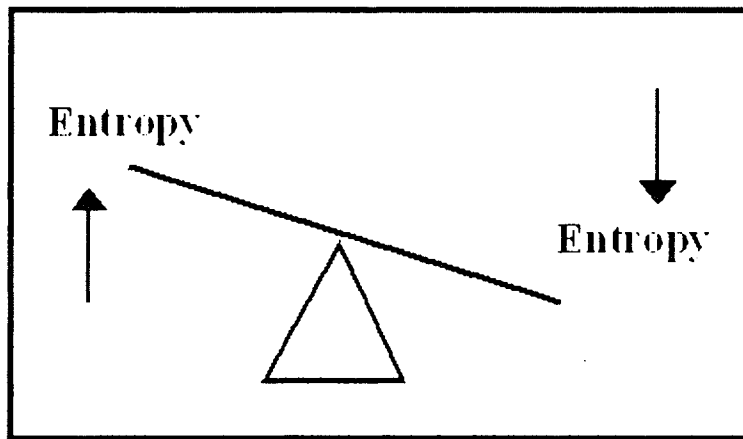
(Moore, 1994, 1). However defined, environmental sustainability involves the struggle to achieve equilibrium of the ecosystem.

In order to fully explain the relationship of environmental sustainability to the achievement of equilibrium in the ecosystem, an explanation of thermodynamics, specifically the second law of thermodynamics, is necessary. The second law of thermodynamics states that energy is in two states; free (available), and bound (unavailable), and that all productive processes result in a decrease in the amount of free energy and an increase in the amount of bound energy (Jepson, 2001, 500; Rees, 1995, 348).

A living system depends on survival through the process of using up free energy and discarding bound energy. Bound energy cannot be used for productive purposes because free energy cannot be extracted. This is why bound energy is commonly referred to as waste. Further, since bound energy is waste, and is not useful for productive purposes, it accumulates within the ecosystem from which it was formed.

A closed living system can potentially destroy itself (Jepson, 2001, 500). This can occur if a system uses up all the free energy and increases the amount of bound energy (waste). Only in an open system can a living system import additional free energy and export bound energy, thus controlling its level of entropy (disorder) and sustain itself (Jepson, 2001, 500). However, in an open system this means that other parts of the larger system must suffer. This is because, as stated by the second law of thermodynamics, a reduction in the amount of entropy in one part of the system can only be achieved if there is an equal increase in entropy in another part of the system. Like a teeter-totter at a playground, if a reduction occurs at one end of the 'system', an equal increase will occur at the other end (see Figure 2).

**Figure 2: Entropy Distribution in an Open-System**



Rees (1995) suggests that

[M]odern formulations of the second law of thermodynamics suggest that all highly ordered complex systems develop and grow (increase their internal order) “at the expense of increasing the disorder at higher levels in the system’s hierarchy” (Schneider and Kay 1994, 2). In other words, complex systems maintain their internal order and remain in a dynamic nonequilibrium state through the continuous dissipation of available energy and matter extracted from their host environments. The reduced entropy of the local system is achieved at the cost of increased entropy of the global system within which the local system is embedded. (Rees, 1995, 349)

Rees (1995) further suggests that the economy is a “...highly ordered, dynamic, far-from-equilibrium dissipative structure” (Rees, 1995, 349). And because the economy is an open (growing) subsystem of the closed (non-growing) ecosphere, at a certain point the increased order (negentropy) of the economy can be acquired only by increasing the disorder (entropy) of the ecosphere (Rees, 1995, 349). One question that arises with respect to environmental sustainability is “[A]t what point does the erosion of the ecosystems and the entropic “disordering” of the ecosphere begin to interfere with its capacity for self-production?” (Rees, 1995, 349).

The environmental approach implies that people cannot continue living in the same manner to which they may be accustomed. Environmental sustainability directly implies that humans must radically adjust their personal value sets, and change the way

they live by reducing their consumption in order to ensure the survival of the ecosystem. However, because of the immense importance that both individuals and nations place on the economy, both from a local and global perspective, this adjustment of human values will not be easily achieved.

Growth of the economy depends on the amount of resources it can appropriate to itself, but its survival requires that it not appropriate more resources than can be supplied or replaced. McDonald (1996) suggests that from an economic viewpoint, environmental sustainability requires two conditions. First, an input condition concerning the rate at which humans use resources. Second, an output condition concerning the use of the natural environment for waste assimilation. In addition, Moore (1994) suggests that "[T]he larger the economy grows, the greater the strain it places on the ecosphere which must support it through the provision of nourishment and the removal of wastes" (Moore, 1994, 1). Thus "[I]f the planet is to support generations to come, it is vital that an alternative economic system be built that is rooted in the principles of ecological sustainability." (The International Forum On Globalization, 2002, 62). What both McDonald (1996) and Moore (1994) are suggesting is that the current rate of population growth, as well as the rate at which humans use resources, cannot continue without continued environmental degradation and a reduction in carrying capacity.

The preceding approaches to sustainable development all have some value, however research suggests that a newer approach offers more promise. Therefore the following section will discuss a contemporary approach to sustainable development, referred to as the ecological.

## ***2.2 Ecological Approach to Sustainable Development***

The preceding section outlined three distinct approaches to sustainable development. This section presents a new approach to or vision of sustainable development which attempts to bring together the strengths of previous approaches.

There are various suggested ways to achieve sustainability: social change, technological improvements, and economic growth. Advocates of economic growth may suggest that the best way to achieve sustainability is through an economic version of

sustainable development (grow the world economy to save us). However there are others who doubt that an economic solution will work. Jepson (2001) is one of the doubters of an economic approach, and instead suggests that there is an alternative approach to addressing environmental issues; an approach that is not based on economic growth. Furthermore it is suggested that "[E]conomic globalization is intrinsically harmful to the environment because it is based on ever increasing consumption, exploitation of resources, and waste disposal" (International Forum On Globalization, 2002, 61). Others such as Rees (1995) question just how we can produce economic growth while protecting the environment. Likewise, the possibility of a technological solution resulting in sustainability is doubtful, because this approach allows for people to continue life as usual without reducing their consumption of natural resources. A technological approach may provide a solution for the short term; however, it doesn't offer a solution in the long term when all the natural resources are depleted. Also, while an environmental solution may result in the reduced depletion of natural resources and the restored balance of the ecosystem, an environmental solution isn't concerned with creating a positive impact in human quality of life. From these growing doubts that an economic, technological or environmental solution can achieve sustainability, a new version or new vision of sustainable development (SD) has developed, the ecological approach.

Ecological sustainable development suggests that the economic and technological approach to sustainable development both have an anthropocentric bias (Zovanyi 1998, 157). In other terms, these two approaches place major importance on the human species and achieving human values, despite the consequences to other species or ecosystems. Therefore the ecological approach recognizes that a purely economic approach, such as that suggested in the Brundtland Commission report, will be unsuccessful in achieving sustainability. This is because the economic approach to sustainable development doesn't acknowledge that the economy and the environment are interconnected and, further, that the success of the economy relies on the maintenance of the environment.

[T]he key element of sustainable development is the recognition that economic and environmental goals are inextricably linked. Long term growth depends on a sound environment, and resources to protect the environment will be forthcoming only from a strong economy. Both goals are intended to protect quality of life of individuals, communities and society. To the extent that either environmental or economic policy impoverishes the quality of life, it has failed. (National Commission on Environment 1993, 2, in McDonald 1996, 229)

A misconception of the ecological approach is that, like environmental sustainability, it is mostly concerned with environmental protection. While this is one of the goals of SD, it is not the only one. Moore (1994) makes the distinction between environmental sustainability and ecological sustainability (sustainable development) by stating that while environmental sustainability refers to the maintenance of an ecosystem, ecological "[S]ustainable development refers to the improvement of the human lot without jeopardizing ecological sustainability" (Moore, 1994, 1). In other words ecological SD is concerned with an improved quality of life. As a holistic concept, Shaw and Kidd (1996) suggest that sustainable development includes not just issues related to the natural environment "...but also more difficult questions of equity and social justice" (Shaw & Kidd 1996, 238). Additionally, Spain (1995) suggests that sustainable development,

...implies enhancing a community's quality of life while minimizing the impact of development on the environment. Sustainability emphasizes livability through the creation of cities designed for safety, equity in areas like affordable housing and access to public service (e.g., education, health care, and transportation), and protection of the ecological balance. Among the goals of sustainable communities are the minimization of land consumption, the promotion of compact development through infill building and adaptive reuse, and a clear demarcation between urban and rural landscapes. (Spain, 1995, 364)

Zovanyi (1998) identifies that various definitions of the ecological sustainability all recognize a close relationship, and dependence of all aspects of the ecosystem, including

the human species. Furthermore, these various definitions of ecological sustainability express a concern beyond just maintaining human survival, to maintaining biodiversity and the integrity of ecosystems. This is because a decrease in biodiversity and integrity of the ecosystems "...threatens the life-support systems upon which all life depends" (Zovanyi, 1998, 158), which results in a decline in human quality of life. Orr (1992) also recognizes that we are not outside of the ecology that we are trying to save, and notes that there is an interrelatedness between all species within the ecosystem and their quality of life. Reduction in quality of life would result because "...the human economy and civilization itself are utterly dependent on the life-support services provided by sound ecosystems" (Zovanyi, 1998, 161).

Advocates of an ecological approach sustainable development suggest that a result of its implementation is an improved quality of life that transcends generations. McDonald (1996) states that ecological sustainable development is "...an ethical principle for intergenerational equity and determination of what natural capital should be left for future generations" (McDonald, 1996, 229). Building upon the connection between ethics and intergenerational equity, Harte (1993, 27) insists that the principles of intergenerational equity suggest that it is unethical for a generation to either leave future generations a reduced amount of natural capital, or leave a future generation with a reduced capacity to achieve sustainable development. With a slightly different view, Spain (1995) states that ecological SD is the "...equitable distribution of resources within communities and between generations" (Spain 1995, 362). Spain's (1995) social equity concept is somewhat different than McDonalds (1996), in that it goes beyond addressing just future generations which are usually connected (e.g. parents – children), but also addresses other generations, future or present, that may not be connected to one another (e.g. neighbor – neighbor). This concept is intra-generational equity. With respect to the equity dimension of SD, Jepson (2001) states that there tends to be focus only on the inter-generational perspective. The challenge of equity also arises with intra-generational equity. Inter-generational equity requires resource conservation and environmental protection for future generations (i.e. children, grandchildren). However, intra-generational equity may require "...a diminution of one's personal standard of living or transfer of one's wealth to benefit others who are here and now and who are unrelated"

(Jepson 2001, 503). In other terms, inter-generational equity is asking that we consider our present actions because they will have an effect on our children and grandchildren (future generations), intra-generational equity is asking that we consider our present actions because they will have an effect on our neighbors (present generation).

The concept of ecological sustainable development itself has been criticized as a limitation for its lack of recommended action. Shaw & Kidd (1996) contend that ecological (sustainable development) is a "...holistic term which represents a way of thinking, and as such it is not particularly amenable to precise and rigorous definition or clearly prescribed action on the ground" (Shaw & Kidd, 1996, 237). Likewise, Jepson (2001) states that the definition of sustainable development tends to be "...imprecise and descriptive rather than prescriptive" (Jepson, 2001, 501). While both Jepson (2001) and Shaw & Kidd (1996) may be correct in suggesting that there are few measures to direct us to ecological sustainability; however, measuring unsustainable actions is simple enough. Therefore if the contemporary definitions of an ecological approach suggest that preserving biodiversity and the integrity of ecosystems is essential for achieving ecological sustainability, then also, by definition, all activities that threaten to reduce biodiversity and the integrity of ecosystems is unsustainable. Arguably, despite the specific approach to SD, determining what is unsustainable should be clear. Even from an anthropocentric biased approach, any action that reduces ecological integrity can be easily "...condemned because they reduce prospects for utilizing other species to meet human needs" (Zovanyi, 1998, 159). Despite the lack of precise direction for obtaining ecological sustainability, Badami et al. (1994) suggests that, from an urban planning perspective, ecological sustainability requires that "[T]he planning profession must take a leadership role in advocating solutions that simultaneously address issues of ecological sustainability and social well-being" (Badami et al., 1994, 1). Campbell (1996) states that from an urban planners' perspective, ecological sustainable development requires that not two but three interests must be settled. These interests are to "...grow the economy, distribute this growth fairly, and in the process not degrade the ecosystem" (Campbell 1996, 297).

Jepson (2001) sums up the new vision of SD, the ecological approach, by declaring that "[I]n essence, the emerging sustainability doctrine holds that the natural

environment can be protected, the economy developed, and equity achieved all at the same time and that the extent to which we are successful in this simultaneous achievement is the extent to which we will achieve sustainability" (Jepson, 2001, 503).

While not the scope or focus of this research, it should be noted that some authors (Rees, 1995; Jepson, 2001; Suzuki, 2002; Roseland, 1998; Bookchin, 1992; International Forum on Globalization, 2002; Badami et al., 1994; Burch, 2000; Fodor, 1999, and Orr, 1992) suggest that in order to achieve ecological sustainability our societal values and behaviors must undergo radical change. These societal values and behaviors must be altered in order to reflect an "ecological society" (Bookchin, 1992; Roseland, 1998) that considers "...environmental health to be as important as the health of people and communities" (International Forum on Globalization, 2002, 62), a society which is "...in harmony with nature" (Roseland, 1998, 9).

The preceding section has outlined an approach to sustainable development that attempts to combine economic, technological, and environmental approaches to sustainable development. These approaches have become reflected in various urban planning policies that are aimed at promoting sustainable development. However, barriers to implementing sustainable development policy are significant. The following section will identify barriers to implementing sustainable development policies and practices.

### ***2.3 Barriers to Implementing Sustainable Development***

The barriers to implementing sustainable development are considerable. In order to take progressive steps towards developing solutions to overcoming these barriers, von Hausen suggests first defining the barriers, and then determining who is responsible for them (von Hausen, 2002a, 26). The following section outlines barriers to implementing sustainable development, which are found throughout the literature. The barriers are divided into three categories: Perceptual / Behavioral Barriers, Institutional / Structural Barriers, Economic / Financial Barriers. These categories have been adapted from Moore (1994), who has carried out research examining the barriers to implementing the recommendations outlined in the *Clouds of Change* report within the City of Vancouver, British Columbia.

## Perceptual / Behavioral Barriers

Perception is the recognition and interpretation of a set of circumstances. Perception usually leads to a behaviour, which is defined as the aggregate of observable responses of an organism to internal or external stimuli. (Moore, 1994, 19)

## Institutional / Structural Barriers

The term institutional pertains to organized societies. It denotes an organization or an establishment devoted to the promotion of a particular objective, usually of public concern. Institutions are characterized by established laws and customs, which form a structure within which behaviour occurs. The types of barriers identified under this category also deal with decision-making and information management structures of institutions. (Moore, 1994, 22)

## Economic / Financial Barriers

Economics is concerned with the production, distribution and use of income, wealth and commodities. The term financial refers to the management of funds and revenues. Barriers under this category shall also consider monetary or resource constraints that prevent or limit desired activities. (Moore, 1994, 24)

### 2.3.1 Perceptual / Behavioral

This section discusses the perceptual / behavioral barriers of: Acceptance of the Status Quo; Lack of Understanding; Attention Pressure; Competing Issues; Lack of Empowerment; and Mass Media's Presentation of Information.

The first type of perceptual / behavioral barrier is *acceptance of the status quo* (Moore 1994). One topic that western society has been determined about upholding is the status quo, while unwilling to alter housing; more specifically, upholding their preference

for single-detached dwellings. Skelton (1995) states that "[O]ne variant of predominant theory argues that consumers control the market through the expression of their preferences as homebuyers" (Skelton, 1995, 10). That preference, as identified by Chamberland (1994), is that "...the majority of Canadian households continue to rank the single-detached dwelling as the preferred housing option and to associate it with good quality of life" (Chamberland, 1994, 137). Moreover Chamberland (1994) notes that Canadians think that anything less than the single-detached house represents an inferior quality of life. Similarly Shivji (1998) identifies that "[C]onsumers are accustomed to conventional development standards, and downward changes might be perceived as inferior, lowering the quality of life and the value of property investment currently enjoyed by urban residents" (Shivji, 1998, 33). Thus the single-family home becomes accepted as the status quo.

Moore (1994) notes that acceptance of the status quo or "...the acceptance of ideas such as consumer sovereignty, the right to drive automobiles and enjoy the good life are directly conflicting with the efforts to move in a sustainable direction" (Moore, 1994, 21). Therefore Chamberland (1994) suggests that future city planning will need to "...improve the environmental, economic and social sustainability of new and existing Canadian communities while at the same time responding to the quality-of-life aspirations of Canadian consumers" (Chamberland, 1994, 140). While Skelton (1995) recommends that from "...this perspective focus on consumer acceptance and attempt either to modify consumer preferences or to identify possible innovations that consumers would find acceptable under existing preference patterns" (Skelton, 1995, 10).

Chamberland (1994) notes that

"[C]anadian homebuyers continue, however, to prefer overwhelmingly single-detached housing in spite of increasing concern over the environment. Although consumers have embraced composting and blue-box programs, they have not necessarily made a link with the more fundamental environmental consequences of their housing choices" (Chamberland, 1994, 138).

The above quote outlines how Canadian society has not fully grasped the concept that some of our basic lifestyle choices may result in a cost to the environment. An example of this is the lifestyle choice of driving an automobile as the primary mode of transportation, which results in the increased consumption of resources and the increased production of pollution. Thus it can be determined that society does not fully understand all the issues, which leads us to the second perceptual / behavioral barrier.

The second type of perceptual / behavioral barrier is lack of understanding. *Lack of understanding* about an issue or situation can also be characterized as an unawareness of the consequences of decisions and actions. Moore (1995) suggests that while an unawareness of the consequences is a barrier, more often the case is being aware of the consequences but not being forced to take responsibility for those consequences. This lapse in taking responsibility for a consequence exist because those consequences do not either have an immediate result, or the results are not proportionate to the individuals' behavior. Lack of understanding about an issue can be a result of an issue being too complex to grasp. This can become a barrier because if an issue is complex, with many variables, and difficult to understand then "[O]ften, the complexity of an issue is so overwhelming, that people avoid dealing with it" (Moore, 1994, 20), or if there is uncertainty about how an issue should be properly dealt with then often, as a result, society will revert back to what they are familiar with, the status quo (Moore, 1994). This uncertainty or possible lack of information or lack of understanding an issue may explain why most Canadian households continue to prefer the single-detached dwelling to other housing options as noted by Chamberland (1995). While Moore's (1994) suggestion of reverting back to the status quo if an issue is too complex may be an option taken by many decision-makers, this cannot be the only available option, especially for those decision-makers who want to make a progressive attempt at resolving an issue. Lindblom (in Gregory 1989) suggest that, in a political setting, our problem solving capabilities may be limited, due to a lack of information and subsequent lack of complete understanding of an issue. As such, Tindal and Tindal (1984) suggest that instead of attempting to fully comprehend every possible aspect and complexity of an issue, including all courses of action and the outcomes of those actions, decision-makers will instead consider "...alternatives that represent only small or incremental changes from

existing policies” (Tindal and Tindal, 1984, 190). This is because small, or incremental changes are more easily rectified than drastic changes with irreversible effects (Gregory, 1989, 141). Despite any uncertainty or lack of understanding, Tyler (2000) suggests that having more information does not necessarily result in better decision-making. Even with more information available, poor decision-making can still occur for a number of reasons. Information produced for decision-maker(s) may be presented with a certain bias. Thus a decision-maker may be making a decision based on information that has been biased for an ulterior motive. Or, the decision-maker may have been simply presented with the wrong information.

The third type of perceptual / behavioral barrier is *attention pressure* (Moore 1994). McDonald (1996) identifies that “[T]hink globally, act locally is an essential means of achieving sustainable development...” (McDonald 1996, 230) but laments that many communities are “...parochial in outlook, that think locally and act locally” (McDonald, 1996, 230). Similarly Jepson (2001) argues that there are “...inherent behavioral and psychological characteristics of human beings that have been proposed to have the effect of impeding the development of sustainable policies” (Jepson, 2001, 502). One of these characteristics is that we tend not to “...extend our sphere of concern temporally or spatially” (Jepson, 2001, 502). In other terms, Jepson (2002) is suggesting that we tend not to give too much concern to issues that either extend beyond our current generation, or are outside of our personal interests (friends and/or family). Moore (1994) categorizes this behavior and/or decision-making as Attention Pressure.

Government shows the tendency to feel the pressures of local interests more keenly than those that are more broadly based. Attention pressure is also witnessed by the tendency to be more sensitive to short-term interests than those of long-term duration, where the results will only be realized many years in the future. When two interests compete directly, those of local concern and immediate results win more often than not. (Moore, 1994, 21)

The fourth type of perceptual / behavioral barrier is *competing issues* (Moore, 1994). Some issues seemingly always take precedence over others. Likewise the allocation of resources favor those issues that take precedence over others. As such, new

issues (like sustainable development) may be in competition for resources and or support. Competing issues can become a barrier because "...competing issues can create conflicting goals within an institution..." (Moore, 1994, 20). Therefore competing issues can make it increasingly difficult to implement specific policy aimed at addressing a specific issue (Ley, 1983, 394). This is especially true for an issue that is perceived as being less important, or having a lower priority. However, establishing the priority for a particular issue is a matter of perception. To clarify this thought, one person may have the perception that the condition of the natural environment is in dire straits, while another person may perceive that the condition of the natural environment isn't all that bad. As Moore (1994) notes, this creates a conflict (a barrier) in reaching an "...agreement about what action, if any, should be taken in the interest of sustainability" (Moore, 1994, 20).

The fifth type of perceptual / behavioral barrier is *lack of empowerment* (Moore 1994). The lack of empowerment barrier can be described as a situation where an issue will not be addressed because the situation surrounding that issue may appear to be completely overwhelming to a particular person. Moore (1994) described this as a situation where "...one's own actions will produce little consequence in improving sustainability, one readily asks the question, why should I bother to put in an effort?..." (Moore 1994, 21). Similarly, Roseland (1992) identifies that this lack of empowerment is present among many urban planners and policy makers because they feel that "...our bureaucratic nation-state system cannot be changed in any basic sense" (Roseland, 1992, 336).

The final type of perceptual / behavioral barrier is the *mass media's presentation of information* (Moore, 1994). This is described as a barrier that is created from the mass media through their, sometimes biased, presentation of information. Moore (1994) suggests that the media can create "...tremendous barriers to the implementation of policies" (Moore, 1994, 22). This is because the media plays a significant role in shaping public perception. Presentation of incomplete information can bias those who are reading, listening or viewing the information and, likewise, issues that are left out have a lower chance of becoming part of the public perception (Rees and Wackernagel, 1992).

### 2.3.2 Institutional / Structural

While some barriers are identified as perceptual or behavioral, and associated with individuals, the literature also suggests that our institutions (primarily local municipal government) present barriers that limit the implementation of sustainable development projects. Therefore, the second category of barriers is Institutional / Structural. This section discusses the institutional / structural barriers of: Structural Framework of Municipal Government; Political Term in Office; Unequal Balance of Power.

The first type of institutional / structural barrier is the *structural framework of municipal government*. Tomalty and Hendler (1991) suggest that one explanation for slow progress on sustainable development is the "...sheer inertia of city bureaucracies" (Tomalty & Hendler, 1992, 30).

As in all large organizations, certain procedures are ingrained in city administrations and changes such as those recommended by the Brundtland Commission would disrupt familiar routines, departmental relationships, and implicitly agreed-upon assumptions about planning and policy-making. Thus, the lack of SD policy outputs may reflect resistance to changes in the policy process rather than resistance to the policies themselves" (Tomalty and Hendler, 1991, 30).

Skelton (1995) identifies that the planning process within municipal governments is an obstacle to innovation: "[Z]oning, the planning act, the approvals process and differing standards among places severely limit the capacity of actors to transform development patterns" (Skelton, 1995, 12). Likewise Chamberland suggests that the "...day-to-day realities of development control, zoning by-laws and other regulatory process – many of which often act to hinder or block innovation" (Chamberland, 1994, 142). Similarly Shivji (1998) states that "...inhibitive, exaggerated municipal government regulations and development standards..." (Shivji, 1998, 42) contribute to sustainable land development.

Moore (1997) suggests that the structural framework of municipal governments can be a barrier to sustainability, in that they are inappropriate and even "...ill suited to the task at hand..." (Moore 1994, 23), meaning that the "...fragmented structure of municipal departments does not match the highly interconnected nature of the community/city and its problems" (Moore, 1994, 23). Simply stated, sustainable development, or a sustainable community is achieved through a holistic interdisciplinary approach. However, the basic structure of municipal government is about compartmentalization, where issues of concern are assigned to one municipal department, which will in turn produce a compartmentalized solution. Similarly, Roseland (1992) notes that "[S]ustainable communities cannot be achieved through the kind of fragmented and bureaucratized administration that characterizes senior government" (Roseland, 1992, 295), and further adds that "...conventional municipal administration is itself an environmental problem and that we need a new form of "environmental administration" which is non-compartmentalized, open, decentralized, anti-technocratic, and flexible" (Roseland, 1992, 319).

The second type of institutional / structural barrier is the *political term in office*. Moore (1994) states that

[T]his barrier applies specifically to the length of political office for council members which is perhaps too short to give initiative to politicians to embark on the long process of implementing actions that support sustainability. (Moore, 1994, 23).

Additionally Filion (1997) suggests that a further barrier of the government structural framework is the "...electoral imperative..." (Filion, 1997, 12) which involves giving serious attention to public opinions in order to be elected or re-elected. Thus any decision, or unwillingness to make a firm decision on a policy, project or action which is contrary to public opinion may be put aside in order to retain another term in office, even if at the expense of sustainability (Argyris, 1993, 22).

Desire for promotion or re-election can become a barrier to action-taking if segments of the constituency are averse to the adoption of such action. Such fear produces an attitude among political figures which is best summarized by the phrase "not in my term of office". This saying represents the tendency of council members not to introduce radical changes while in office for fear of losing public support at the next election. (Moore, 1994, 24).

This desire for election or re-election, as Filion (1997) has identified, may also result in the political representation acting in a 'business as usual' manner, or in other respects upholding the political status quo, which may also foster a status quo attitude among civic employees. Teeple (2000) suggests that this status quo attitude is a result of civic employees' and local politicians' desire to retain their own employment.

Many professionals, quasi- and paraprofessionals, scientific and technocratic strata, skilled workers, and vast numbers of public servants, all part of the working class, have found a certain interest in maintaining the status quo, if only because their occupational existence has been defined in part by the stratification. (Teeple, 2000, 27).

This 'status quo' thinking acts as a barrier because any innovative government system restructuring, or project that may require restructuring, has the potential to have a negative effect on the employment status of a public servant. Additionally, Ley (1983) argues that the fundamental goal of an organization, public or private, is that of survival. Consequently, in order to ensure its own survival, or employment, an organization will be cautious in own decision-making, which may result in nothing innovative being attempted or approved.

The third type of institutional / structural barrier is the *unequal balance of power*. Birkeland (1996) has identified a reason why our municipal government system does not support sustainability. First, power is obtained "... through the acquisition of, and competition for (social and natural) resources" (Birkeland, 1996, 23). Thus the powerful are those who have acquired a considerable amount of (natural) resources and used them to create wealth. Second, the government is a system for distributing resources (Birkeland 1996, 23), which in turn creates wealth. As such "[T]he decision-making system will

therefore, almost inevitably, develop an inherent bias in favor of the powerful” (Birkeland, 1996, 22). This resource allocation decision-making can be labeled as *corporatism* (Birkeland, 1996). Corporatism is defined as “...where governments negotiate policies and their implementation with peak business and industry organizations that represent particular interests” (Birkeland, 1996, 23). Birkeland (1996) further notes that the environment has rarely been represented during these negotiations with business or industry because “...parties – unions, industry, statutory authorities, and the Cabinet – all have a direct interest in wealth creation (via resource consumption) for their political survival” (Birkeland, 1996, 24). So if we want a political system that supports sustainability, “...we need a system of environmental governance (not just ad hoc environmental laws) that prevents the control of resources falling into the hands of the powerful special interests” (Birkeland, 1996, 22).

In order to develop a sustainable community, Badami et al (1994) states that decision makers must ask and answer two questions when testing the sustainability impact on a technology, project, program or policy:

1. Will this decision or activity reduce people’s ecological footprint?; and
2. Will this decision or activity improve our quality of life?

Further to this suggestion by Badami et al. (1994), McDonald (1996) suggests that development, which is sustainable, must be supported by society, and a (political) system must be available which supports such development. This idea is also supported by Birkeland (1996) who argues, “[I]f we want to save the planet, we need not only a sustainable culture, but appropriate systems of governance...” (Birkeland, 1996, 28).

### **2.3.3 Economic / Financial**

The third category of barriers is described as Economic / Financial. This section discusses the economic / financial barriers of: Desire for Financial Gain; Insufficient Funds; Financial Risk.

The first type of economic / financial barrier is the *desire for financial gain*. Moore (1994) suggests that the “[D]esire for financial gains can become a barrier to adopting actions that support sustainability” (Moore, 1994, 24). Further to this, Moore (1994, 24) suggests that when faced with a choice between sustainability and a wealth generating activity, society will inevitably choose the short-term economic gains. Moore (1994) labels this as *Marginal Pricing and Economic Valuation*.

Because we live in a global system where the agreed upon exchange medium of value is money, government and society feel the pressure to preserve money generating activities more strongly than the pressure to preserve life sustaining networks. This confused perception of importance and its consequent pressures on decision-makers to protect short-term economic interests over long-term sustainability interests represents a major barrier to the adoption of sustainability oriented action. (Moore, 1994, 24)

The second type of economic / financial barrier is *insufficient funds*. This barrier implies that there may not be enough funds available to implement sustainable development initiatives: “[I]nadequate Funds to support the implementation of environmental initiatives can prevent their realization” (Moore, 1994, 25). Adding to this, existing funds may be earmarked for other projects, initiatives or programs. “[O]nce funds are committed to a project, their re-allocation becomes difficult” (Moore, 1994, 25). Adding to this, Fillion (1997) suggests that,

A final point of relevance is the risk-averse nature of public-sector agencies, which tend to avoid unproven development formulas because of their potential negative fiscal impacts, such as waste of a given site’s tax revenue potential due to a failed development – not to mention resulting blight and infrastructure underuse. Many municipal officials find it unwise to take risks with the public purse, particularly in present difficult economic times. (Fillion, 1997, 13)

The third type of economic / financial barrier is *financial risk*. Adding to Fillion’s (1997) barrier of governments’ unwillingness to take risks with the “public purse”,

developers can also present their own unwillingness to risk the expenses of attempting an alternative form of development. Also, von Hausen (2002b) suggests there are few financial incentives available to developers to offset the cost and risk of using alternative development standards. As a result, the developer may revert back, or stay consistent with developing in a manner and form that has proven to be successful in the past. Skelton (1995) notes that barriers to innovation (within the realm of urban development) include "...developers' negative perceptions of certain innovations and the risks and costs associated with trying something new" (Skelton, 1995, 12). Likewise, Shivji (1998, 42) comments that a barrier to sustainable land development is the "...high risk and costs associated with innovations and demonstration projects..." (Shivji, 1998, 42). In addition to developers' reluctance to try something new, due to the potential risks and costs of unproven innovations, von Hausen (2002b) notes that municipal governments may also be reluctant to approve alternative development standards. This is because when approving a new untried technique, the municipality assumes the risk and liability, as the associated cost, if that new development technique fails.

The preceding section has identified the barriers to implementing sustainable development policies and practices, which were found throughout the literature. Building upon the previous sections, the following will introduce the topic of energy reduction, an indicator of sustainable development, in the municipal context.

## **2.4 Energy Reduction**

The preceding sections have introduced various approaches to sustainable development as well as barriers to implementing sustainable development. This section will introduce the topic of energy reduction as an issue of importance at the municipal level of government, and outline some of the financial initiatives that are available for energy reduction projects. The topic of energy reduction will be used as an indicator of sustainable development in chapters three and four of this research.

As noted by Hodge (2003, 147; 1998, 185) the concept of municipal energy reduction, or the *energy-efficient community*, was an idea that became popular during the energy shortage crisis of the 1980s. During this time of reduced energy supply, Hodge

(2003) notes that opportunities to reduce or conserve energy were identified. These opportunities to conserve energy were found at varying scales in the built urban form, such as through efficient street and transportation design, or mixing of traditional land uses (e.g. residential combined with commercial). Today the concept of energy conservation is present in the initiative of *Smart Growth*<sup>1</sup>, and in other British Columbia initiatives such as *Power Smart*<sup>2</sup>, and in recent energy discussion documents prepared by the David Suzuki Foundation, and *Energy For Our Future: A Plan For BC* released by the Government of British Columbia in the fall of 2002.

Energy reduction is a topic of growing concern to municipalities because it is a major factor in both maintaining quality of life and in achieving a sustainable city (Mortimer, Kellett, Grant, 1997). The National Roundtable on the Environment and the Economy (NRTEE) suggests that energy use "...has the most significant impact on environmental quality both within and beyond a city's borders" (NRTEE 2003, 17). A significant portion of British Columbians' energy use (35%) is attributed to transportation. Correspondingly a significant amount of British Columbians' air pollution production (53%) comes from uses related to transportation (Greater Vancouver Regional District website, 2004). In addition, energy reduction is a topic of growing concern in British Columbia, because currently B.C. is barely producing enough energy to support its consumption needs. In total, B.C. produces 11.6 percent of Canada's energy stocks, however B.C. consumes 11.4 percent of Canada's energy stocks (Foley, Hertzog and Scott, 2001, 6).

Energy reduction, and consumption, is also gaining attention by municipal governments because within our cities there are many opportunities to address energy consumption and increase energy efficiency; at the building scale with improved building orientation, design and installation of energy reduction technologies and appliances; at the transportation scale with improved and efficient transportation modes, opportunities and paths; and at the energy production scale with the incorporation of renewable energy sources such as solar, wind, and geothermal (Mortimer, Kellett and Grant, 1997, 139).

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<sup>1</sup> "[S]mart Growth is a collection of urban development strategies to sprawl that are fiscally, environmentally and socially responsible". (Smart Growth BC, 2004)

<sup>2</sup> Power Smart is an initiative introduced by BC Hydro that aims to reduce energy consumption. (Power Smart, 2004)

Further to this Mortimer, Kellett and Grant (1997) propose that local (municipal) governments have a significant role to play in influencing the development of renewable energy systems and energy reduction. This is because municipal government is associated directly with, and in fact creates the delivery system for, urban development, land uses, and infrastructure which all consume energy. Therefore a municipal government can have a significant role in encouraging energy reduction through building regulations and the "...integration of planning, waste management, and transportation policies" (Mortimer, Kellett and Grant, 1997, 148), as well as within the subdivision review and approval process (Hodge, 2003). In addition, Foley, Hertzog and Scott (2001) stress the need to develop and implement energy reduction policies which positively affect quality of life and reduce environmental impacts.

Building upon the growing concern with energy reduction, some organizations, including private sector, government, and non-government organizations (NGO's), have developed programs to help reduce energy consumption and increase energy efficiency within British Columbia.

An example of a program offered at the national level is the Green Municipal Funds offered by the Federation of Canadian Municipalities. The Green Municipal Fund is a \$250-million endowment granted from the federal government intended for use by municipalities to reduce the financial barriers, or perceived risk, for infrastructure projects that: reduce greenhouse gas emissions; improve air, water or soil quality; and promote energy conservation and the use of renewable energy. Another example of a program offered at the national level is through the Department of Natural Resources Canada, which offers incentive programs for developing both commercial and industrial energy efficient buildings. This funding is offered through the Commercial Building Incentive Program (CBIP) and the Industrial Building Incentive Program (IBIP). The CBIP offers a financial incentive of up to \$60,000 to building owners who meet the program requirements. An eligible building must demonstrate at least a 25% energy reduction, when compared to the *Model National Energy Code for Buildings*. In addition, the IBIP offers an incentive of up to \$80,000 for industrial buildings that results in an energy savings.

The two above-mentioned program examples are intended to offset the costs for large energy reduction projects in the form of infrastructure or buildings. However, funding is also available to homeowners who wish to incorporate energy reduction measures at a smaller project scale. For potential home owners who wish to purchase an energy-efficient home, or renovate an existing house with energy efficient techniques, the Canadian Mortgage and Housing Corporation (CMHC) offers mortgage programs to assist homeowners in the financing of home improvements. In addition, funding that reduces energy consumption is also available to homeowners through the BC Hydro Power Smart initiative. To those who qualify, the BC Hydro Power Smart initiative offers rebates for some renovations, to existing homes, which increases energy efficiency by reducing heat loss. In addition BC Hydro also offers lighting rebates and coupons for the purchase of new energy efficient lighting products.

This chapter has presented the origins of the term sustainable development, as well as an analysis of various approaches to sustainable development the economic, technological, environmental, and ecological versions of sustainable development. In addition this chapter has outlined the barriers to implementing sustainable development policy within the municipal context. These barriers will be referenced to inform the empirical research section of this research. Moreover, this chapter has also introduced the topic of energy reduction, to be considered as an indicator of sustainable development. The following chapter looks at municipal energy reduction (an indicator of sustainable development) policies found within the City of Chilliwack Official Community Plan, and evaluates them in contrast to other Lower Mainland municipal Official Community Plan (OCP) energy reduction policies. These municipal policies will be viewed through the lens of the economic, technological, environmental and ecological approaches to sustainable development.

### **3.0 Evaluation of the City of Chilliwack's Official Community Plan**

The preceding literature review provides a foundation for informing the development of municipal policies related to sustainable development. In order to give the theory some context, this chapter will provide an overview of sustainable development policy found within the Official Community Plan for the City of Chilliwack. The *City of Chilliwack Official Community Plan* (OCP) will be analyzed and evaluated in relation to concepts emerging from the literature review as well in relation to other Lower Mainland municipal policies. The Lower Mainland is located in the southwest corner of British Columbia (See Appendix B) and includes two major districts, the Greater Vancouver Regional District (GVRD) and the Fraser Valley Regional District (FVRD). The GVRD is located at the western end of the Lower Mainland, comprises over 22 municipalities, including the major urban municipalities of Vancouver, Burnaby, Surrey and Richmond, and has a population of over two million people (G.V.R.D., 2004)). The FVRD is located in the eastern end of the Lower mainland, comprises six municipalities, including Chilliwack, and has a population of 250,000 people (F.V.R.D., 2005). A city's OCP is its foremost policy, intended to shape the direction for the creation of all other city policies and bylaws. For this reason, only the City of Chilliwack OCP will be reviewed.

The topic of sustainable development, as well as its application, is extensive and can be achieved in a number of manners. Therefore, in order to keep this overview and evaluation both manageable and comparable, this chapter reviews policies specifically relating to energy reduction, which will be used as an indicator of sustainable development.

The topic of energy reduction has been chosen as an indicator because it can be implemented in a variety of ways, and at different scales. For example, energy reduction can be implemented at the site-specific scale (e.g. energy reduction materials, technologies); the neighborhood scale (e.g. pedestrian-oriented design, mixed-use development); the municipal scale (e.g. mass-transit, carpool lanes, bike lane networks);

and the regional scale (e.g. inter-municipal mass-transit such as the West Coast Express/skytrain/seabus).

The City of Chilliwack is located 100km east of Vancouver, and has an urbanized centre with a population of 70,000 people (Chilliwack, 2005). Physical features that present challenges for both development and urban planning surround the City of Chilliwack. These physical features include over 17,000 hectares (42,000 acres) of farmland, which is protected by provincial legislation from urban development; over 300km (City of Chilliwack, 2003) of fish bearing watercourses that have associated Stream Protection and Enhancement Areas (SPEA) to protect riparian habitat from development; and hillside development that requires geo-technical assessments to address slope stability and servicing concerns. The City of Chilliwack municipal government is organized into eight major departments. These departments include: Municipal Administration Office, which provides administrative support to Council, committees of Council and department operations; Corporate Services, which is responsible for the City Clerk function and works closely with all other municipal departments to provide public relations programs for the citizens of Chilliwack; Engineering and Operations, which is responsible for the construction and maintenance of all City infrastructure; Finance, which is responsible for the financial management of the City, including the coordination of the City's budgeting process; Parks and Recreations, which is responsible for the coordination and delivery of leisure services; Municipal Development, which is responsible for current and long-term municipal land use planning. This department also includes the permitting and inspection of residential, commercial, and industrial buildings, and the licensing of businesses; Fire Department, which is primarily responsible for fire response and the implementation of fire prevention programs; and Police Services, which are provided, under contract, by the Royal Canadian Mounted Police (RCMP).

### **3.1 City of Chilliwack Official Community Plan**

The Province of British Columbia, through the *Local Government Act*<sup>3</sup>, requires municipalities to establish an OCP and to have it adopted by City Council as a city by-law. Once adopted, all other municipal policies and by-laws are expected to be consistent with the OCP. It should be noted that the act of adopting an OCP does not commit the municipality to complete the items listed within the plan.

The City of Chilliwack Official Community Plan (OCP) acts as the primary policy guideline for the City of Chilliwack Council to follow when considering both short and long-term land use and development decisions. Additionally, the OCP acts as a guide for Council when making decisions associated with social, economic, and environmental issues.

The City of Chilliwack OCP is organized into ten major sections (Appendix C). Section one provides the *Context* to the OCP, which includes some background to the city, identifies key issues, and presents the long-term vision for the city. Section two outlines the *Guiding Principles* that serve as the foundation to the OCP. Section three presents the City's *Vision Statement*. Section four is the main policy portion of the OCP, and outlines the *Goals* of the City. Section five illustrates the City of Chilliwack's *Comprehensive Development* approach to planning. Section six defines the *Development Permit Areas*. Section seven describes *Temporary Use Permits*. Section eight is devoted to the *Eastern Hillside Comprehensive Development Plan*. Section nine outlines the Glossary of Terms. And, finally, section ten summarizes the *Administration* of the Official Community Plan.

The main policy portion of the OCP (Section 4 – Goals) will be reviewed for energy reduction related policies. This policy section of the OCP is divided into five main categories:

1. Community Development
2. Economic Development

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<sup>3</sup> In January 2004 the Legislative Assembly of British Columbia adopted the British Columbia Community Charter, which replaces sections of the BC Local Government Act.

3. Environmental and Natural Resources
4. Land Use and Transportation
5. Implementation and Monitoring

Each category has a number of sub-sections, in total there are thirty-nine subsections. Each of these subsections set forth both *Objectives* and *Policies* relating to the subsection. For example, within section 4.3.8 *Tree Protection Policies* of the *City of Chilliwack Official Community Plan*, the City states the objectives:

- To identify significant tree species
- To protect significant tree species

Correspondingly these objectives are followed by city policies, which are intended to achieve the stated objective. The corresponding policies in this example are:

1. Require tree inventories for development sites as part of the development review process.
2. Collaborate with other agencies, including the University College of the Fraser Valley, to complete tree inventories in the City.

The preceding section has provided a simplified overview of the structure of the City of Chilliwack Official Community Plan. The following section evaluates the energy reduction policy content of the City of Chilliwack OCP in relation to other Lower Mainland municipalities, as well as to concepts that have emerged throughout the literature review (Chapter 2).

### **3.2 Evaluation**

The literature review provided four approaches to sustainable development: an economic, a technological, an environmental, and finally an ecological approach to sustainable development. These approaches will be discussed in relation to energy reduction policy found within the City of Chilliwack OCP, in the following sub-sections.

### **3.2.1 Economic Approach to Energy Reduction**

The most significant point to mention is that the City of Chilliwack OCP has a major focus on urban development and urban growth. Urban development and growth both contribute to economic growth. As such, some of the policies that address energy reduction take the economic approach. The literature review (Section 2.1.1) outlines that an economic approach to sustainable development can be characterized as an approach which advocates growth as the solution to global/environmental problems (Jepson 2001, 504). The following City of Chilliwack policies will highlight an economic approach to energy reduction.

Section 4.4.1 of the City of Chilliwack OCP outlines the *Growth Management Policies*, some of which demonstrate the economic approach to energy reduction. One method by which to reduce energy consumption is through densification. Densification allows for destinations to be located closer together, which results in less energy required for transportation purposes. Also, densification results in a reduced amount of infrastructure (e.g. community roads, water and sewer pipes), which in turn results in less energy required to deliver community services. The Chilliwack OCP identifies the importance of containing urban growth in a dense area. Furthermore the OCP identifies that the City wishes to establish an urban containment boundary. However, policy 4.4.1 (1) suggests that this containment boundary will be established to direct future growth, not necessarily to contain it. This demonstrates an economic approach because it involves urban growth, an economic generator, at the expense of the environment in one location, in order to “save” the environment in other locations. Similarly, policy 4.4.3 (1) advocates increasing density by increasing urban growth throughout the City, which would include new construction over undeveloped land.

### **3.2.2 Technological Approach to Energy Reduction**

Chapter Two identified that by incorporating a technological approach, humankind does not need to change their actions. This is because a technological approach assumes that technological advances will reduce human impact on the natural environment, and even solve human-produced problems. This section will outline City of

Chilliwack energy reduction policies that can be categorized as taking a technological approach.

Section 4.3.11 *Technology Policies* of the City of Chilliwack OCP demonstrates a purely technological approach to sustainability. This section of the OCP suggests that the City of Chilliwack should "...promote alternative sustainable energy sources..." and promote "...the use of innovative environmentally-friendly new technology such as wastewater treatment, solid waste management and energy efficiency" (City of Chilliwack, 1998, 49). The corresponding policies relating to these suggestions are:

4.3.11 (1) Use new technology for waste treatment and solid waste management, where appropriate and feasible.

4.3.11 (2) Promote energy conservation in planning and building design.

These suggestions and policies represent the technological approach to energy reduction in that they attempt to reduce human impact on the environment through implementing emerging technological advances. Furthermore these policies represent the technological approach because they allow a "business as usual" attitude, and don't require any change in lifestyle, with respect to human consumption and waste production.

Other policies found throughout the OCP, in other sections, which also reflect a technological approach, tend to reiterate the aforementioned policies within the *Technology Policies* section of the OCP. Examples of this can be found in the policy sections on *Waste Management*; *Infrastructure*; and *Air Quality*.

Within Section 4.3.9 *Waste Management* and Section 4.4.9 *Infrastructure* of the OCP the City identifies the objectives to "[I]dentify and promote alternative forms of waste management. Continue to monitor and explore new waste management technology" (City of Chilliwack, 1998a, 47), plus "[T]o examine viable alternative systems. Monitor new processes, including technological innovation, to sewage treatment and disposal" (City of Chilliwack, 1998a, 74). In supporting these objectives the City outlines policy 4.3.9 (1), which suggests promoting alternative forms of waste management that can reduce the amount of waste volume. This can be defined as the technological approach to energy reduction because the City is favoring alternative

systems and/or technologies that require less energy to process waste. Energy reduction technology is found once again within the *Air Quality* policy section of the City of Chilliwack OCP. This section outlines that the City should promote energy reduction through energy efficient site and building design.

The City of Chilliwack is not alone in this approach to energy reduction. The City of North Vancouver, within their own OCP, identifies technological approaches to energy reduction. They (City of North Vancouver) propose to promote the increased use of "...renewable energy supply systems..." in order to minimize the consumption of non-renewable energy sources. Additionally, the City of North Vancouver suggests to "...promote energy efficient building design and practices for all development projects and City-owned buildings" (City of North Vancouver, 2002, 48). Not only do these demonstrate a technological approach to achieving energy reduction, but also imply that the City of North Vancouver intends to take a pro-active, or "lead by example" approach to energy reduction. Similarly, both the City of Burnaby and the City of Surrey employ the technological approach as one way to address energy reduction. The *City of Burnaby Official Community Plan 1998, Bylaw No. 10709*, suggests that the City of Burnaby will improve the use and efficiency of energy through improved mechanical systems (lighting, heating, etc) and the application of new energy reducing technologies to both their mechanical systems and to their vehicle fleets. Likewise the City of Surrey incorporates policies, within the *City of Surrey Official Community Plan 1996, By-law No. 12900*, that encourage the implementation of energy reduction technologies such as photo voltaic cells<sup>4</sup> and fuel cells<sup>5</sup>, and energy conserving sewage treatment methods (City of Surrey, 1996, 66).

Incorporating the technological approach as a means of addressing energy reduction appears to be popular among Lower Mainland municipalities. One explanation of the popularity of this approach may be that it offers an opportunity to feel good because something is being done, however it doesn't require society to undergo any significant change in the way it operates. As identified within the perceptual / behavioral

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<sup>4</sup> Photo voltaic cells produce electricity through a chemical action when exposed to light.

<sup>5</sup> Fuel cells produce electricity through the conversion of the chemical energy of hydrogen or natural gas.

barriers section of the literature review, Shivji (1998) notes that society (Canadian) is accustomed to conventional development standards, and anything less than the conventional is perceived as inferior, and is assumed to result in a lower quality of life. As such, incorporating a technological approach to energy reduction, by installing energy reduction technologies or systems, allows society to maintain conventional development standards and lifestyle, while at the same time giving the perceived notion of accomplishing real change or reduction in energy consumption.

While the technological approach implies minimal change in one's lifestyle, this approach does offer some opportunity for overcoming the status quo mentality and initiating change, albeit minor, in society's way of living. One suggested manner in which to bring about this change is to modify the way we live by identifying innovations that society would find acceptable (Skelton, 1995, 10). Implementing technologies to reduce energy consumption (technological approach) such as fuel cell powered automobiles, allows society to live in a manner they are accustomed to, reduce environmental impact, and presents the opportunity to stimulate thought about environmental issues possibly not considered in the past. Stimulating thought about an issue can result in an increased understanding of that issue. The literature review classifies that lack of understanding is a perceptual / behavioral barrier.

Additionally, municipalities that take a proactive technological approach to energy reduction (like the City of North Vancouver and the City of Burnaby) offer an easily implemented opportunity to demonstrate new technologies. While referring to sustainable community design, Perks and van Vliet suggest that demonstration projects offer an opportunity to educate the public and to actually show "...what can be done and what it's like..." (Perks and van Vliet, 1993, 30). Demonstrating new technologies can also help to relieve any perceptual misconceptions or apprehensive feelings that may act as a barrier to acceptance of new ideas or technologies.

### **3.2.3 Environmental Approach to Energy Reduction**

The third approach to sustainable development is the environmental approach. With respect to addressing energy reduction, the City of Chilliwack OCP does not take an

environmental approach, or suggest one within their OCP policies. Not surprisingly, the OCP for the City of North Vancouver, City of Burnaby, City of Surrey, and the City of Langley also do not suggest the environmental approach. While many cities, Chilliwack included, voice concerns, either directly or indirectly, about natural resource limits and reducing our ecological footprint (concerns of an environmental approach), municipalities often do not attempt to make great changes in societal thinking, personal value sets, or the way we live for the sake of improving the state of the environment.

When looking at the political structure of municipalities, the weak adoption of the environmental approach by municipalities becomes apparent. Primarily, the elected municipal representatives, the Mayor and Council, that provide direction as to what issues and projects a municipality will tackle. As identified in Chapter Two, both Fillion (1997) and Teeple (2000) suggest that elected officials will often uphold the status quo and pay close attention to public opinions because of their own desire for election or re-election, even if it means sacrificing sustainability. Fillion (1997) refers to this upholding of the status quo in an attempt to obtain election or re-election, as the *electoral imperative*. The environmental approach to energy reduction requires that society members must change their way of living, and possibly sacrifice their own quality of life for the sake of the environment. A Mayor and Council asking their community to do this is essentially asking their community to go against the status quo, something that may not be popular amongst voting citizens. And as Fillion (1997) identifies, elected officials are often constrained by the electoral imperative, the need to obtain election or re-election. As such, with the desire for election or re-election it is not surprising that the elected municipal representatives would strive to uphold the status quo and avoid an environmental approach to energy reduction.

### **3.2.4 Ecological Approach to Energy Reduction**

The ecological approach attempts to bring together the strengths of the economic, technological, and environmental approaches. Most importantly, the ecological approach attempts to improve a community's quality of life, while at the same time addressing environmental and economic issues. While the City of Chilliwack OCP does not

incorporate the ecological approach in all aspects relating to energy reduction, the OCP does demonstrate some qualities of the ecological approach.

Spain (1995) points out that the ecological approach involves the minimization of land consumption, and the promotion of a compact urban form, achievable through infill development. The *Neighborhood Development, Growth Management and Densification* policy section of the City of Chilliwack OCP identifies policies that promote mixed-use developments (residential, commercial and recreation opportunities combined in one location), and future growth to be directed into "...existing urban areas through infill and densification" (City of Chilliwack, 1998a, 53). While green-field development demonstrates the economic approach, because it achieves little environmental protection, mixed-use infill densification development in contrast can be argued to demonstrate a more ecological approach to energy reduction for the following reasons. First, infill development is either the redevelopment of an already developed area or development of a vacant area in between developed areas. Because infill development involves the development or redevelopment of existing urban areas, it takes away the pressure of developing untouched natural land outside of the urban boundary. Second, densification is the act of increasing the number of dwelling units within an area. By increasing the density of already urban areas this too relieves the pressure to develop over rural natural areas, which is an example of environmental protection. Third, because mixed-use development combines living, working, shopping, and entertainment uses all within a small area, this can reduce the need to travel long distances by automobile, which consumes a large amount of energy. Mixed-use development also offers additional opportunities for energy reduction. By combining uses within a building (e.g. commercial uses with residential apartments above), a reduced amount of energy is required, for services, because there are a reduced number of buildings.

Apart from the densification, infill, and mixed-use development related policies, the City of Chilliwack also demonstrates another example of the ecological approach to energy reduction. Within the *Air Quality Policies* section the City of Chilliwack OCP proposes the objective to "...promote a housing/jobs balance which reduces out-of-community commuting. Encourage local employment to minimize commuting" (City of Chilliwack 1998a, 48), and establishes a corresponding policy to reduce automobile use

by encouraging local economic development. While the original intent of this objective and policy is to reduce air pollution, this is also a method to reducing energy consumption because, through the decreased use of automobiles, comes the decreased consumption of fossil fuels (energy). Furthermore, this is in line with the ecological approach to energy reduction because it is suggesting that, in order to achieve a “housing/jobs balance”, local jobs must be created (economic development) for the benefit of local residents (social equity) so that they will not have to drive long distance and consume increased amounts of energy (environmental protection). This example has direct linkages to an ecological approach to energy reduction, which Jepson (2001) summarizes as the simultaneous act of developing the economy, protecting the environment, and achieving social equity.

This chapter has provided an overview of energy reduction policies found within the City of Chilliwack Official Community Plan (OCP). These policies have been evaluated in contrast to other Lower Mainland municipal OCP energy reduction policies, as well as to concepts identified within the literature review, and have revealed that the City of Chilliwack primarily employs an economic and technological approach to energy reduction. The following chapter reports on the empirical research for this practicum.

## **4.0 Research Approach and Analysis**

The preceding chapters have presented various approaches to sustainable development, barriers to implementing sustainable development policy within a municipal context, introduced the topic of energy reduction, given an example of sustainable development policy found within the City of Chilliwack Official Community Plan, and evaluated the policies in relation to concepts within the literature review and to other Lower Mainland municipal energy reduction policies. In order to further explore the major questions driving this research, this chapter includes the following empirical research.

Since this research is concerned with the implementation of sustainable development at the municipal level, in an effort to better understand the practical realities of sustainable development and bridge the gap between theory and practice, interviews with professionals employed at the municipal level of government and those involved in the municipal development process were conducted. Individuals were sent a recruitment letter asking if they would be willing to participate in the research (Appendix D).

### **4.1 *Semi-Standardized Interviews***

The qualitative research utilized the interview technique of the semi-standardized interview (Patton, 1990). The semi-standardized interview was chosen because of its ability to deal effectively with research constraints of limited time for interviews and only being able to interview each participant once. With the semi-standardized interview approach the interviewer asks each interviewee the same set of pre-constructed questions, in a "...systematic and consistent order..." (Patton, 1989, 17). Berg (2001) states that the rationale of this method is that by offering each participant the same stimulus, the responses to questions will be comparable. In order to retain flexibility to pursue topics that might not have been anticipated, the semi-standardized interview approach allows the interviewer "...sufficient freedom to digress; that is, the interviewers are permitted (in fact expected) to probe far beyond the answers to their prepared and standardized questions" (Berg, 2001, 70).

In total, out of forty people asked, twelve people agreed to participate in the interview: four planners, three municipal politicians, two engineers, one director of a Planning department, one director of a Municipal Development department, and one Chief Administrative Officer, who represented five Lower Mainland Municipalities. Each interview took about one hour and was conducted at a mutually agreeable place and time. Each participant signed an informed consent form prior to the interview. After all the interviews were conducted and transcribed, analysis of the interviews included open coding and axial coding to identify common themes (Berg, 2001). With open coding, the researcher "...carefully and minutely reads the document line by line and word by word..." (Berg, 1989, 121) to identify major themes and patterns. Axial coding is then completed after the open coding process, and involves sorting the data around one category (Berg, 1989, 119).

The interviews were focused on identifying the interviewee's understanding of sustainable development, and determining, through their own opinion, the barriers to implementing energy reduction policy; how these barriers can be addressed; as well as the role of the planner in addressing the barriers.

## ***4.2 Analysis of Interviews***

In total, fourteen questions were asked of each participant. The following sections provide the results of posing those questions. For ease of reference each question is listed. A more detailed set of questions, including the scheduled probes is found in Appendix E. An overall summary of the main themes that emerged throughout the interview process is provided in Section 4.3.

Questions number one and number two, as outlined in Appendix E, are basic questions that were asked at the beginning of the interview, to make the participants, comfortable with the interview process before divulging into the main questions. These first two questions asked the participants, "What is your current professional title?" and "Are you involved with the municipal development process?". All of the participants were able to identify their professional title and how they are involved with the municipal development process. The final interview question, outlined as question number fourteen

in Appendix E, provided a conclusion to the interview by asking the participants “Is there anything else that you would like to add?”. All of the participants responded in a similar fashion by stating that they had nothing else to add.

#### **4.2.1 Are you familiar with the concept of sustainable development?**

The first question sought to determine each participant’s understanding of the concept of sustainable development. Most participants felt that they were familiar with the concept, and described their understanding of sustainable development (SD), by either quoting the Brundtland Commission by suggesting that SD is development “...which meets the needs of the present without compromising the ability of future generations to meet their own needs” (WECD, 1987, 7). They also described sustainable development as development which meets a balance between the three common interests of sustainability: economic growth, social equity, and environmental protection.

While all of the participants described sustainable development as achieving some sort of a balance between the three issues of economic growth, social equity, and environmental protection, a few participants attempted to go beyond the common definition. One participant suggested that sustainable development was more than just about achieving a balance, it is “...an approach to positive human settlement, and an evolutionary process rather than an actual goal”. Another participant stated their awareness of the common definition (The Brundtland Quote), but viewed sustainable development more as self-reliance:

Sustainable development is also about developing a community that is not reliant so much on other communities to survive. It provides the people that live there with all the amenities that they need to live without having to leave the community.

Another participant described sustainable development similar to the other participants, attempting to achieve a balance between economic, social and environmental interests. However, this participant suggested that the balance does not necessarily have to be equal between the three interests:

I think sustainable development is trying to achieve a balance, and not having a negative impact. Or if we do have to have a negative impact in one area, then there is a significant benefit in other areas. An example would be if a development that we know is going to provide a significant number of jobs in the community which would increase the social sustainability of people because they will be able to provide more employment and greater benefit that way, it's going to, from an economic perspective, provide more resources to the City but there is an environmental cost. That's when we really have to be sure that there is enough benefit to justify an environmental infringement.

### ***Interpretive Analysis:***

Most interviewees seemed confident with their understanding of the sustainable development concept, but could only offer a general or conceptual understanding of the term. Furthermore, only a few interviewees were able to expand beyond the conventional definition, originally defined by the Brundtland Commission, and offer a description or example of what sustainable development would look like. One interviewee did attempt to go beyond the basic definition of sustainable development, while another recognized that sustainable development is an approach and not necessarily a definite goal. Overall, there seemed to be a lack of insight beyond the basic definition of sustainable development.

While most of the interviewees appeared to only have a basic awareness of sustainable development, it is presumptuous to assume that this basic awareness can be attributed to a lack of understanding, or a conscious effort to avoid the issue of sustainable development because it is too complex. As the interviewees' professions require a capacity to deal with complex issues, perhaps more information may foster a heightened willingness to embrace sustainable development principles and concepts.

#### **4.2.2 In your opinion, does your municipality have policies which relate directly or indirectly to energy reduction within your Official Community Plan?**

This question was posed to the interview participants to determine knowledge of their own policies, and to identify their understanding of energy reduction and what the topic of energy reduction could include.

All of the participants concluded that they did not have a specific statement within their own Official Community Plan (OCP) that addresses energy reduction. Despite the lack of direct energy reduction policy, many of the participants, who represent different municipalities, did recognize that their municipality indirectly addresses energy reduction within their own OCP. The following separate responses reflect this point:

Indirectly, yes. We always try to encourage densification, and densification in my view is one of the key things to reducing energy use. In a compact community there is less use of gasoline for automobiles, plus with multi-family I feel you would tend to use less energy per unit because you're not typically heating all five sides of the house. So we are in those regards, an indirect manner.

If you're talking about policies that say that we will develop in a manner that is energy efficient or reduces the consumption of energy, I don't think we have any that specifically say that. We have a lot of policies that seek to encourage compact communities, building a sustainable local economy, building a complete community, increasing transportation choice specifically with alternatives to car travel such as bicycle and walking routes, better transit service, those sorts of policies.

Yeah, I think indirectly the OCP may touch on those areas in terms of advocating pedestrian transport, bicycle transportation, and densification.

Our Official Community Plan talks about building compact communities so that we are less reliant of using vehicles, which you could say is energy reduction, if you will, that we want to increase the use of public transit and decrease the use of personal automobiles.

### *Interpretive Analysis:*

All interviewees indicated that their own municipality's Official Community Plan (OCP) lack any specific statements regarding energy reduction. However most of the interviewees either knew, or had a suspicion that in an indirect manner energy reduction was mentioned within the OCP. All four of the planners interviewed not only recognized that their OCP indirectly addresses energy reduction, but could also cite examples, and varying degrees to which their OCP addresses energy reduction. One reason why the planners seemed to have a working knowledge of their community's OCP is that planners are traditionally assigned the role of writing the OCP and are expected to reflect on it when considering community issues and development proposals. That being said, the lack of knowledge of the OCP by other municipal members, who are non-planners, may demonstrate less valuing of a community's OCP. This is surprising because an Official Community Plan is a municipality's foremost document, that includes the major guiding principles and policies of that municipality. An OCP should be important to all key municipal players, and all of these players should have a good working knowledge of the OCP. However, the interviews suggest that this isn't necessarily the case. Arguably, even if energy reduction was directly mentioned within one of the interviewees' OCP, they still may not have been aware of it, and this may lead to an inability to actually implement energy reduction.

Some of the other participants suggested that their municipality's OCP had policies that were indirectly related to energy reduction. These indirect policies commonly revolved around the topic of densification or creating compact communities. While densification does result in the reduced use of energy, the motive for including densification policies in the OCP may not necessarily be to reduce energy consumption. The Lower Mainland region of British Columbia is constrained with physical features (e.g. rivers, mountains) and jurisdictional barriers (e.g. Agricultural Land Reserve<sup>6</sup>) that limit the amount of usable land available for development. Further, Lower Mainland

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<sup>6</sup> The Agricultural Land Reserve (ALR) is a special B.C. provincial land use zone designation given to land in which agriculture is recognized as the priority use. Only agricultural uses are encouraged on ALR designated land, which the province controls. (ALC, 2004)

communities are pressured with the task of providing development for an increasing population. Therefore, the densification policies mentioned may be included in an OCP to reflect the awareness of development pressures and a municipality's responsibility of facilitating development. Some of the participants stated that the densification policies were included because it reflected a sustainable development value, but at the same time could not offer that this was the only motive for including this type of policy.

#### **4.2.3 In your opinion, Is energy reduction a priority for your municipality?**

The purpose of this question was to determine if the participants felt that energy reduction is a priority within their municipality, to help inform the analysis of the following questions related to energy reduction.

With one exception, the participants all felt that energy reduction was not a priority within their own municipality. The following responses reflect this opinion:

No. From my point there isn't any kind of high priority or concern for it (energy reduction).

I don't hear a lot of people picking it (energy reduction) up as a topic. At least nothing up until the last spike in prices at the pumps people did not seem to be talking about it.

It is one of the factors that we may look at in planning, and in engineering, but it might be a stretch to call it a priority.

No, I wouldn't say that it gets a top priority.

#### ***Interpretive Analysis:***

All interviewees, except for one, felt that energy reduction is not a priority for their municipality. Likewise, many interviewees also offered the opinion that generally, the public doesn't hold energy reduction as a priority. However, it was suggested that with the recent spike in gasoline prices, energy reduction might be gaining increased attention. While energy reduction was not believed to be a priority, some of the

interviewees stated that economic development was a priority within their municipality, because they needed to provide jobs, develop land and keep housing prices affordable for their citizens. Municipal priority given to an issue like economic development over an issue like energy reduction reflects the barriers, identified in Section 2.3.1, of competing issues, and attention pressure. In this case, economic development has been given a higher precedence over energy reduction, which creates an obvious competition between the two issues. The reason for economic development taking a higher priority than energy reduction, as suggested by some of the interviewees, may be a result of municipal government feeling pressure from local interests who rate economic development as an immediate concern.

Arguably the impacts of substantial energy consumption may not be realized for another generation. Therefore energy reduction and conservation, is perceived as a future problem. Whereas addressing increasing housing costs and local unemployment is an immediate problem, with an associated attitude that it must be addressed now. Feeling the pressure to address immediate problems over other problems that are perceived to be less imminent is defined as 'attention pressure'. In order for energy reduction to be given more consideration, a municipality's values and priorities, as well as the values and priorities of the municipal citizenry, will have to change.

#### **4.2.4 In your opinion, what do you feel are the most significant barriers limiting the implementation of energy reduction measures within your municipality?**

This question began to draw out some of the barriers, or challenges, that interviewees felt were limiting the implementation of energy reduction within the municipality they work for.

Several of the interviewees noted that a major barrier within their own municipality is that the cost of energy, in various forms (petroleum, natural gas, hydroelectric power), is still relatively cheap. A mutually expressed concern was that because the energy is still cheap, the public generally doesn't worry about conserving energy because our current energy sources seem endless and affordable. In terms of

energy sources being too affordable for the public to pay attention to energy reduction, a politician and a department director offer the following separate responses:

The cost of energy is still way too cheap for individuals, not necessarily a municipality, but for individuals the cost of energy is still far too cheap for us to worry about energy reduction. There isn't motivation, an economic motivation for people generally to say "Oh I should turn my lights off", or "I should turn the heat down", or "I should drive less", so I think that's the most significant reason.

We, unlike many places in Canada and the U.S. (United States of America), have had a pretty good ride with energy prices because of the amount of energy that we have available to us here. We've always had fairly cheap hydropower and so people are not as energy conscious as they are in other cities.

Another mentioned obstacle, in attempting to achieve energy reduction, is the physical landscape that includes varying physical terrain and farmland protected from development, which is characteristic of the Lower Mainland, and as a result spreads out communities. While describing the energy reduction benefit of densification, one interviewee noted the physical landscape acting as an obstacle and countering the positive effects of densification.

I guess one thing to do is to have densification, encouraging densification in core areas, which in turn is less infrastructure cost, and less energy use for travel, transportation. But then of course you've got the problem of hillside development, which is kind of sprawl, and development strewn across the farm areas that requires additional transportation and energy costs because of the ALR (Agricultural Land Reserve).

Similarly, two politicians talked about the challenges of achieving densification and reducing the distance of transportation corridors with physical boundaries acting as an obstacle, which separate urbanized areas throughout the Lower Mainland. These politicians stated the following separate responses:

So what we're doing now as we grow and develop is to pull our community tighter together. But to get from one end of the community to the other, you still have to drive distances. We have the freeway that rips our community in half, so it's not that easy to get from one half of the community to the other.

I think that geographical constraints of the Lower Mainland are going to cause people to look more and more to more compact urban forms of development that reflect bigger cities around the world. We're forced to a kind of London, New York planning not because we're as big as London or New York but because we are geographically constrained with the ocean on one side, the mountains on the other side, the U.S./Canada border on the other side, and then so much agricultural land in between. We just have a different set of problems, and are geographical constraints that force us to move in a different direction.

In addition to the above-mentioned barriers, three municipal planners noted that a serious barrier to achieving energy reduction is a North American lifestyle choice to choose the automobile as the dominant mode of transportation. These planners stated the following separate responses:

The most significant barrier is probably the societal comfort with automobile transportation, and I guess society's expectations. We are providing for that and it's obviously the dominant form of transportation at this point in time and the expectation is that we must provide for that, facilitate that to the greatest extent possible. Additionally the degree to which they (the public) can move around freely in their automobiles, I think, certainly is perceived as a quality of life factor.

I guess there's still the North American lifestyle. The desire of people to get around easily and have the freedom of having an automobile.

The major barrier is a public buy-in to the idea (of energy reduction). Because energy used in North America is essentially a lifestyle decision, and if we want to conserve they must change their lifestyle dramatically. And that would include cutting down on their traveling systems, living closer to their place of work, so they could walk, use transit and maybe give up the car. So I see that lifestyle change would be the biggest barrier.

A few participants questioned if people would willingly make a lifestyle change, and suggested that in order for people to realize that they must change their lifestyle a significant event would be required. For example one response was:

Something huge might have to happen. I mean you take New York and Toronto where they had the black out. I'll bet you dollars to donuts that no one changed their habits. The lights came back on and back to normal. Yeah it'll have to be catastrophic, something huge will have to happen to make people stop and say "hey wait a second, we're going to have to change the way we do things".

### ***Interpretive Analysis:***

The ready availability of energy, in its various forms (petroleum, hydro-electricity, natural gas), being relatively affordable was mentioned frequently as being a barrier to changing lifestyles in order to achieve a reduction in energy consumption, among residents in Lower Mainland municipalities. Many participants seemed to take a narrow approach in analyzing this barrier. For example, many participants felt that people would change their lifestyle if energy prices became unaffordable. However these participants could not offer what would happen if energy then became affordable again. The majority of those who mentioned this barrier associated overcoming it by altering economics, not behavior. The resistance to change was also identified by all four of the planners. However, because planners tend to take a broader perspective when evaluating issues, they offered a contrasting view to the overuse of energy. Three planners argued that the main barrier is not a matter of economics, but lifestyle, and suggested that the root of the lifestyle problem can be associated with that of a North American lifestyle

choice to make the personal automobile the preferred transportation option. Other participants argued that certain elements or conditions in society needed to be altered in order to change lifestyle; the planners argued that lifestyle itself had to change in order to improve society's condition.

#### **4.2.5 In your opinion, what do you feel are the most significant barriers limiting the implementation of energy reduction measures within Lower Mainland municipalities?**

This question challenged the interviewees to think about the barriers as they may apply to other Lower Mainland municipalities, not just their own area. This question was posed to determine if interviewees would feel that there might be barriers that do not apply to their community, but are present in other municipalities.

The overall tone of the interviewees was that the major barriers which limit the implementation of energy reduction measures could be categorized into two broad categories which the respondents commonly called (1) the social challenge, referring to the challenge of altering the dominant North American auto-oriented lifestyle; and (2) the economic challenge, referring to the challenge of offsetting the added cost associated with implementing energy reduction measures. The majority of the interviewees felt that all municipalities within the Lower mainland experience these challenges. However, a few interviewees expanded on these two categories.

One interviewee captured the overall reaction of the auto-oriented lifestyle when comparing large versus small cities:

By being bigger and more urban does not guarantee a lesser consumption of energy (per person) because it still all comes down to the same thing, lifestyle change. People want to maintain their freedom in mobility and the freedom in choosing where they want to work and in choosing where they want to live. Those things don't always come together, especially in the way people are used to living and building a city.

In referring to the economic barriers one interviewee stated:

I guess in terms of building energy efficient buildings and so on and, convincing people to do that and to put the money up now and ask them to expect the pay-back later, we all share those challenges in terms of energy efficiency.

A different interviewee stated that new energy reduction technologies are costlier than traditional building materials and technologies. This particular interviewee lamented that new technologies may bring added liability and potential financial burden upon municipalities that approve these technologies through the issuance of building permits. This is a different type of economic barrier:

It's new, and you hear of the odd thing at a conference where they talk about green buildings and energy reduction and usually some case studies of techniques, so there's the newness of it and many of us just don't like to be at the front end of new technology. If you require something that turns out that it causes a problem you're opening yourself up to liability. Municipalities are very nervous to impose requirements beyond the B.C. Building Code that may open them up to a future lawsuit.

Another interviewee noted that municipal governments set the agenda of how a city should grow and develop. With this thought in mind, this interviewee suggested that a major barrier, which needs to be addressed, is the pro-growth attitude that many municipalities have:

One of the problems for cities has become the "grow or die" kind of attitude that happens everywhere. We (municipalities) become addicted, like crack addicts, to growth. We need it in order to be able to increase our budgets, to be able to get new money to hold taxes down. So, the new growth becomes addictive and so you're reluctant to require growth to fit the kind of over-all plan you've got because unless the timing is right, developers will walk away.

However, this interviewee offered some insight into addressing the growth problem in the two following separate responses:

You've got to discourage uncontrollable growth. And we, as Council, have to be prepared to tell developers to go pound salt if they don't meet the goals that we want to achieve.

You (the municipality) have to get to a point where you're saying "We don't care!", and they (developers) say "Well, we've got a \$10 million development we want to put in your community. You're the luckiest people that ever walked the face of the earth to have us here". But you (the municipality) has to say "No we don't like it, we think it stinks, and you know there's \$10 million somewhere else". That would be impossible for some municipalities to pass up. Some mayors would be doing cartwheels in the street.

### ***Interpretive Analysis:***

Most interviewees stated barriers that were external to the municipal government, and commonly looked outside of their institutional organization for barriers. This lack of looking inward may suggest that the traditional structural framework of a municipal government is a barrier. As Roseland (1992) suggests, municipal departments traditionally follow a fragmented, compartmentalized structure, thus one isolated department does not have the ability, or the tools, to evaluate if they or other municipal departments may be contributing to a problem. Therefore it is easier to look outward for the source of a problem. In addition, the lack of looking inward supports Teeple's (2000) notion that civic employees will tend to adhere to the status quo because it maintains their own employment. Looking inward, and discovering that a degree of change to the government structure is necessary, could lead to the termination of certain positions. As Ley (1983) suggests, it is more advantageous for civic employees to maintain the status quo and preserve their own employment.

Only one interviewee made a connection between a municipality's own agenda, and how that can be applied in a negative manner on the ground through development, especially if that agenda takes a "pro-growth at any cost" position. This "pro-growth at

any cost" position reflects the values of economic growth. As described in Section 2.1.1, economic growth is concerned with generating wealth (money) at any cost, even with an increase in ecological degradation. Alternatively economic development is concerned with creating a long term self sustaining community, improving quality of life, without any impact to the natural environment. The reason behind why a municipal (political) agenda would choose a pro-growth at any cost approach (economic growth), versus an economic development approach, can be attributed to the barrier described as the political term in office, or more specifically what Fillion (1997) describes as the electoral imperative. If public opinion suggests that job creation and lower taxes are of immediate importance, then a municipality may take an economic growth approach to development, because it will produce immediate positive economic results, and secure re-election for local politicians. The environmental negatives may not be realized until after those politicians are out of office, when it is another politician's problem to solve. It is accurate to suggest that as long as politics exists, and there are politicians that seek election, that the political imperative will exist as well. Therefore, if the political imperative is concerned with politicians paying attention to public opinion, in order for energy reduction and sustainable development to be given serious political consideration, public opinion has to change to focus on energy reduction and sustainable development.

#### **4.2.6 Are barriers to implementation of energy reduction measures applicable to some municipalities more than others?**

This question attempted to determine if the participants believed that different municipalities have unique barriers. Some barriers may be local in nature, with only a few exceptions. The majority of the responses reflected an attitude that all Lower Mainland municipalities experience the same barriers, to some degree.

Of those participants who did not believe that the barriers were common to all municipalities, two contradictory viewpoints were represented. These contrary viewpoints revolved around the public's reception to change in lifestyle. Two respondents shared similar viewpoints. These participants felt that in a more urbanized area, there is greater acceptance of lifestyle change and government regulation for the

sake of energy reduction. The first participant stated that within highly urbanized cities "...there is more the expectation of innovation and trying new approaches because the problems become greater so people recognize that they have to try more new ideas". Similarly, the second participant suggests that implementing energy reduction measures is easier in a large city. This participant offers the following response:

I think that as you go out from Vancouver, people become more averse to government interference. However I think that if you live in Vancouver, the government is part of your life, and the City of Vancouver has always been very interactive in how they use bylaws and the way they use things like development permits to have a project pretty well defined before it's rezoned. So I think that as you go in towards Vancouver there would be more acceptance of that type of government policy.

Alternatively, one department director felt that smaller more remote communities would be more receptive to lifestyle changes related to energy reduction because they are not far removed from the energy production as those who live in large cities.

For instance, take a community like Hope or Prince George, or 100 Mile House for example. People tend to rely on other sources of energy. They use wood stoves, wells, things like that. They don't rely on someone else for their lifestyle, and they don't have the attitude of trying to "keep up with the Jones's". Then in the urban environment you tend to turn the light switch on and the light comes on. You don't really care where that power came from. If you're generating that power for yourself, you are more conscious of how much you use, and you are aware of how many lights are on, you're very aware that if you keep the fridge up too high, you're going to run out of power quicker. You know, we (City dwellers) turn the lights on, the fridge up, the furnace full blast, you think it's never-ending. But if you are supplying that for yourself you tend to be more aware of the power level.

### ***Interpretive Analysis:***

While it was initially assumed that the barriers to implementing energy reduction were applicable to all municipalities, an unexpected result came out of the interviews

when interviewees wandered away from the question and started to think about addressing the barriers. Generally it was assumed that the more urbanized a city the greater acceptance there would be to change in lifestyle, and acceptance of additional government regulation because of an assumed higher level of sophistication and understanding. Conversely these same interviewees felt that the more rural the context, the more difficult it would be to change lifestyle because of an assumed lack of sophistication and understanding. However, in terms of energy reduction, one interviewee offered an opinion that was completely contradictory to the popular viewpoint held by all other interviewees. This viewpoint suggested that residents who live in a more rural municipality, where individuals are expected to provide a level of self services (well water, electrical power), would be more accepting of lifestyle change for the sake of energy reduction. This is because they are intimately involved with both the production and consumption of energy, and understanding the true costs of energy waste. This suggests that if people are removed from the production aspect of energy, then they won't be aware of the costs of over-consumption. Although tackling the topic of implementation was not the goal of this question, it did initiate some interesting thoughts of unfair stereotyping that may be present.

#### **4.2.7 In your opinion, how should the barriers to implementation of energy reduction policies be addressed?**

The participants were asked to describe how the barriers to implementing energy reduction policies be addressed. The initial expectation of asking this question was to ascertain how a municipal government should be addressing the barriers, and what actors within the municipal organization had a role. However many of the participants identified the responsibility as lying elsewhere. This view is represented in the following separate responses:

That is where the municipal mandate is limited. It can only do the physical things within a local context. We cannot tell people how to live, that's for another level (of government either provincial or federal) to do.

Government. I think it starts with government, at all levels, federally, provincially, and at the local level. I just think until government is firm about reducing consumption of energy, we'll continue to do what we do. And then part of that would be a massive education program, similar to what we've done with recycling.

It would have to be the government, it would have to be. Not Provincial, but Federal level. Absolutely. Yet likely downloaded to the local level. Yeah, it'll come as a policy that doesn't work and it'll be handed down to the Provinces who will screw it up even further, and then down to us (municipal government) and we will have to try to put pieces together.

Adding to the above three mentioned perspectives, one municipal politician, a mayor, offered the following response:

I think you need to have better examples set for folks so that people that are in leadership positions, the provincial government, the federal government need to show some leadership in the area of energy reduction and maybe make a bigger deal out of it than they do. And not just do it because it makes economic sense but show leadership in the area of energy conservation.

In contrast to the above levels of leadership, one participant offered an alternative source of leadership in the following response:

I would think that a group like UBCM<sup>7</sup> which represents all local governments in B.C. would be a logical place to do it because most municipalities by themselves just don't have the time or the research capabilities to get into it.

One participant expressed that the Federal government is a good place to start because of their much larger resource base. This same participant stated that addressing energy reduction at the municipal level is difficult because of the lack of financial resources and "manpower to really get into something like this (energy reduction) in a large way". In contrast to this response, another participant suggested that leadership in addressing the

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<sup>7</sup> UBCM stands for the Union of British Columbia Municipalities

barriers might be more effective from an alternative source: "There might be an environmental group in town that might support it (energy reduction), or a part of a branch of a bigger environmental group or something".

***Interpretive Analysis:***

The desired result of the question was to determine both how a municipal organization should be addressing, and who within a municipal organization should be addressing, the barriers. There was a tendency for interviewees to offload the responsibility to other levels of government. Although the lack of time and resources was mentioned as a factor for requiring higher levels of government to take a primary role in addressing the barriers, limited insight was offered into what steps or actions were required to actually address the barriers. Responses to this question also revealed a common assumption among interviewees, that higher levels of government actually have additional resources to spare, and that only those with more human and financial resources should be addressing the barriers. The offloading of responsibility onto higher levels of government revealed another observation. An explanation, offered by one particular interviewee, for having either the Provincial or Federal level of government addressing the barriers, is to set an example by those in leadership positions. Interestingly enough, a municipal politician, a Mayor, arguably the most visible position of leadership in a community, offered this position. This response raises the question "Why can't a municipality take a leadership position in addressing energy reduction?"

**4.2.8 In your opinion, what role should the municipal planner play in the implementation of energy reduction policies?**

This is the first of four consecutive questions that were posed to the participant in attempting to determine the role of the municipal planner in addressing barriers, and implementing energy reduction and sustainable development. This particular question was posed to the participant to determine if the municipal planner has an implementation role if energy reduction is a municipal priority.

In responding to this question, many participants reflected on traditional land-use planning as the primary role of the planner. With traditional land-use planning in mind, two participants, both municipal politicians, indicated that traditionally the planner's role is to supply information and comments to the decision-makers on proposed development. These two politicians felt that this role should continue but with the addition of viewing development through an energy reduction lens. One of these politicians stated: "I think if the policies are in place, the planner has to alert Council if we're violating those policies when looking at any kind of subdivision or development".

Another mentioned the 'traditional' role of the municipal planner is that of the legislator, or the person who writes the policies and bylaws. This traditional municipal planning role was also mentioned as a manner in which to implement energy reduction by several other respondents. An engineer, department director, CAO and a planner offered the following separate responses:

I'm not of a planning background but I work with planners quite a bit and I do feel that their role is part of, you know, in my mind taking the concept or idea and developing it into policies. It's converting it from concept to implementation.

The OCP is a good start but this is such a broad document. Yeah, you can have a blurb in your OCP but nine out of ten people don't know an OCP exists, or what the hell it is, so I doubt that would work. Planners would have to implement bylaws to limit energy use somehow.

I think a large way could be through things such as Development Permits if some regulations in the development permit guidelines dealing with energy efficiencies were put in there.

You know, a policy is a policy, and in terms of specific energy reduction policies, I'm not sure what form they would take. But we (Planners) just have to write it (Policies) so it (energy reduction) can be enforced.

### ***Interpretive Analysis:***

Given the apparent limited understanding of the planning profession represented by many of the participants, the results of this question reveal a gap to be addressed. This gap related to the 'traditional' role for planners as only being directly associated with

land use, rather than that of a more holistic planning role providing a variety of skill sets to tackle many different issues. Also, given this limited knowledge of the planning profession, it is not likely that many of the participants could perceive planners in any other role than that of a policy writer or development facilitator.

#### **4.2.9 In your opinion, what role should the municipal planner play in addressing barriers to implementation of energy reduction policies?**

In contrast to the previous question, this question attempted to determine if the municipal planner has a role in addressing the barriers, which limit the implementation of energy reduction policies, especially in a sense where energy reduction may not be a priority to a municipality.

One suggested manner in which the municipal planner should address the barriers to implementing energy reduction was through education. Two participants suggested that, in particular, planners should be educating Council on energy reduction measures and the true costs of not implementing energy reduction measures. These views are expressed in the following separate responses:

I think the municipal planner can only deal with those things (barriers) through education of the municipal council, because it's Council who enacts the policies. It's hard for the planner to get in front of the community and say "this is a good thing" if the council is not on board. So I think that the main role is through technical advice to Council.

I think there is a big role for planners. Councilors, like myself, have to rely heavily on the expertise of our staff. So the community planners have to raise the issues and educate councilors, and then our (Council's) job is to educate the community.

Besides providing technical information and advice to Council, or to try and educate just Council, two planners expressed a broader proactive educational role for the municipal planner. The first planner suggested that in addressing the barriers to

implementing energy reduction, there is a need for providing education to the public which is accomplished by:

Making sure that it's (energy reduction) in the dialogue. That we are aware of it (energy reduction measures) and have it out there as an option. We're involved in some pretty major public processes, and often the public is becoming much more educated because of that.

The second planner suggested that one role for the municipal planner is to coordinate relationships with those who are also advocates of energy reduction, to collectively address the barriers:

Energy reduction is a pretty big term, I guess a lot of things would come under that, so the partnerships could be in different areas, government, non-governmental organizations, or individual advocates of that approach tend to be dispersed throughout different fields, different subject areas that would all be under the heading of energy reduction. Well I think there'd be a certain role (for planners) in forming partnerships, then in working together to form solutions.

### ***Interpretive Analysis:***

As with the previous section (4.2.8), this question produced similar comments revolving around the planner's role and its association with land-use planning and review of land-use development proposals. However two participants, both municipal planners, responded by suggesting that planners should step beyond the isolated role that they are commonly given and accept the role of an educator, and accept the responsibility of educating both municipal decision-makers and the general public. This response of taking on an educational role suggests that planners recognize, within the municipal structure and among the general public, that the lack of understanding about energy reduction is a barrier to implementation. In addition, these comments also suggest a course of action for overcoming this barrier (lack of understanding), in that planners not only need to identify

groups who lack an understanding of energy reduction, but also need to identify opportunities and generate strategies for educating those groups.

**4.2.10 In your opinion, what role should the municipal planner play in the implementation of sustainable development policies?**

This question and the next question, 4.2.11, were posed to participants to again determine the role of the municipal planner. However these two questions took a slightly different approach with the broader topic of sustainable development, which probed participants for further comment.

A most common answer to this question was for planners to get the concept of sustainable development into an Official Community Plan, the reasoning being that the OCP is a municipality's primary policy, reflecting the community's goals and aspirations for the future. Additionally, an OCP is the primary document that influences the creation of all other municipal policies and bylaws. One participant provided the following response which, expressed this view, as well as a caveat that change through an OCP is not immediate:

I think through the formulation of the Official Community Plan. I know that this community's OCP talks about the environment, social issues, and the economy. I think that's the obvious spot where the planner should be taking a leadership role in ensuring that the community is at least heading in the direction. Keep in mind that the shift doesn't move immediately. It takes years to get it shifted.

One planner also suggested that the first step to implementing sustainable development policies is through the utilization of an Official Community Plan:

The Official Community Plan, that's one area where we would influence sustainable development through policy, and just in review of day-to-day development applications. If there is a strong mandate for that (Sustainable Development) to be at the top of the agenda, and have an impact in how we review our development applications, sustainable development goals must first be translated into planning policies in the OCP and then into regulatory areas like the Zoning Bylaw or other municipal bylaws.

Similarly, a second planner agreed that the concept of sustainable development and its goals should be reflected in the OCP. However, in contrast to the above-mentioned view, this second planner suggested that the role of the municipal planner is to first get the concept of sustainable development as a priority with the decision-makers:

We (planners) do have a role, but its something that we can't do alone. Its something that goes all the way to the top and it has to be made a priority at the top.

This same planner felt that the challenge of implementing SD measures would be extremely frustrating if the public doesn't also make sustainability a priority:

At the same time if we don't get public participation, public buy-in, we are not going to see the end result of it (sustainable development). Everything we do would be challenged. In terms of planning we would be challenged from all sides and we wouldn't be achieving much.

A municipal politician also mentioned the importance of the people of a community being onside with the concept of SD. However this respondent suggested that only once the people are 'onside' is it the planner's role to implement sustainable development:

Municipal government is Council lead, which is lead by the people, so the community has to be on-side and develop a vision and a model of values and all that kind of stuff and if they say "Here we go – we want to get into this model", then yeah that's the planners job to make sure that everything gets measured against the values of the organization.

### ***Interpretive Analysis:***

As with previous questions that attempted to determine the role of the planner, as in Section 4.2.8 and 4.2.9, this question stimulated responses that revolved around another traditional role of the planner, that of the legislator. Three of the participants felt that the role of the planner, in implementing sustainable development, was to get the concept of SD into major municipal policy documents, primarily the Official Community Plan. Many of the participants felt that by getting the concept of sustainable development into an OCP, a community's primary guiding policy, planners would have a tool for developing regulatory bylaws and procedures (zoning bylaws, development permits), which they can utilize when evaluating proposed developments. This focus on the planner's role as a legislator, who writes policies, by-laws and rules, reflects two points. First, once again participants reverted back to the traditional role of the planner. This suggests that neither the profession of planning, nor the skills of planners, may be fully realized by some municipal players. As such, this limited understanding of the skills planners can offer may be an important issue for planners and the planning profession to address. Second, the suggestion of the need for more regulatory legislation, in the form of enforceable bylaws, to address the implementation of sustainable development shows a lack of innovative problem solving, or a lack of ability to "step outside of the box". In addition, a regulatory or "stick" approach may produce a negative reaction by the general public, as additional regulations usually do, and may increase resistance to developing innovation or producing real examples of sustainable development. Also, the creation of additional rules and regulations only adds to the already large bureaucracy of the municipal system. As Tomalty and Hendler (1992) suggest, the sheer inertia of municipal bureaucracy is a barrier, which is responsible for slow progress of sustainable development. For that reason, creating more legislation, which only increases the bureaucratic municipal system, may actually reduce the opportunity for sustainable development.

A few of the participants felt that before a concept like sustainable development was in an OCP or was reflected in regulatory bylaws, it (SD) first had to be a priority

with both the public and decision-makers. However these participants could not offer a role for the municipal planner in getting public acceptance and support of the concept.

**4.2.11 In your opinion, what role should the municipal planner play in addressing barriers to the implementation of sustainable development policies?**

This question required a level of assumption, on the interviewee's behalf, that the municipal planner has a role in addressing the barriers. This requested assumption resulted in separate conflicting responses, from the interviewees, revolving around the role of the planner.

One politician immediately questioned whether professional municipal planners even have a role to play, especially if sustainable development values are not part of the overall municipal agenda. For planners who wish to address barriers and implement sustainable development, or an aspect of SD, within a municipality that doesn't wish to make sustainability a top priority, this politician provided the following response:

There are municipalities where it's (Sustainable Development) not important. Should the municipal planner step outside and be doing that anyways? Not if they want to keep their job. If you're working counter to the values of the organization it becomes an ethical question, I guess.

Most planners' responses reflected an attitude that the municipal planner does have a role to play. One response was that despite a situation where sustainable development is not a priority for a municipality, one responsibility of a professional planner is to get sustainability onto work programs, and into Official Community Plans and other guiding documents, which are a reference when dealing with development applications.

Just get it (sustainable development) on your work programs. We don't often implement, we recommend, we guide policies, and I think that it's just a matter of essentially being aware of it and getting it out there to the public's attention and making sure its considered when dealing with development applications.

Another planner responded with the notion that in addressing barriers in order to implement sustainable development, planners are not "...radical trailblazers, but in a subtle way, I think we can influence the way a city develops". Another planner noted that:

I think the only role we can play is moral persuasion, nothing more, nothing else. We could show people what the situation is, what the issues are, what the impact of activities have on our neighbourhood and the environment and the community as a whole and even the region as a whole and try to appeal to people's minds and rational thinking and come back with a rational decision.

Adding to this idea of municipal planners as having a role of influencing development, property developers and the public, another politician offered the following response:

I mean, I appreciate and understand enough about planning that I can recognize when I'm being pushed and pulled into some place I may not want to go, but if planning staff can manipulate us (Council), why can't they manipulate them (developers)? You just facilitate them where you want them to go.

This response suggests a negative role of the planner as a manipulator. While this negative role is not encouraged, and may not actually be carried out by a planner, this comment does give some insight into the role of the municipal planner who can use communication skills to advocate for sustainable development.

### ***Interpretive Analysis:***

This question sought to identify the role of the planner in addressing the barriers to implementing sustainable development. However there was a tendency for all

development is not on a municipal agenda. Because of this assumption, the participants offered conflicting opinions.

Some participants questioned the professional ethics of a planner who steps outside of a municipality's agenda to advocate sustainable development to both the public and members of Council. In contrast to this view, three planners responded by asserting that it was their professional responsibility to advocate sustainable development, especially in a municipal situation where it was not an evident priority. These conflicting perspectives demonstrate, once again, the limited understanding of the planning profession or its scope of concern, by those who are non-planners. One participant questioned the professional ethics of a planner who decides to go outside of the municipal agenda, and suggests that this may be ground for dismissal. However, if sustainable development is outside of the municipal agenda it is unethical for a planner to not address the issue, because the Canadian Institute of Planners (CIP) identifies sustainable development as a professional value, a fact that most of the planners interviewed seemed to pick up on.

#### ***4.3 Overall Summary and Analysis of Interviews***

During the course of conducting the interviews a number of recurring ideas surfaced. One of the most significant findings that emerged was that some participants appeared to only have a basic awareness of sustainable development. In addition, participants did not demonstrate a clear distinction between the approaches to sustainability, the approaches that this practicum has identified as the economic, environmental, technological, and the ecological.

A second significant theme is to confine the planner, and arguably the planning profession, to the sphere of review of land-use development. Only three of the twelve participants mentioned that the scope of planning, or planners' skills, went beyond land-use or that planners should extend their sphere of influence beyond the doors of City Hall to the general public. This general lack of awareness of the planning profession, by some of the participants, is what Witty (2002) identifies as the crisis in planning. Despite the general lack of acknowledgment, by the participants, of the capabilities of the

general lack of acknowledgment, by the participants, of the capabilities of the professional planner, three planners, who participated in the interviews, spoke to a more holistic role for the municipal planner. They suggested the municipal planner should not only be a land-use expert but also: an educator, through informing both Council and the public about energy reduction and sustainable development; a researcher, by investigating new ideas or concepts associated with energy reduction and sustainable development, and reporting those findings back to the Council and the public; a facilitator, by being able to create the necessary conditions to assist in starting a process of change; and a coordinator, by forging relationships and partnerships with other levels of government, organizations, and professions.

The difficulty of getting people to grasp what planners have a capacity for may be ingrained in the dominant traditions of the profession. Over generations planners have been the most identifiable person in land-use planning. As such, it may be difficult to educate people to appreciate that land-use planning is only a part of the emerging post-modern vision of the planning profession.

Another finding produced by the interviews was that, overall, the participants did not feel that energy reduction (taken here as an indicator of sustainable development) is a priority for their municipality (government). This leads to a third significant theme; that of the prevalent tendency for participants to shift responsibility of addressing barriers, of implementing both energy reduction and sustainable development, to other institutions or higher levels of government. In reflecting on the interview results it is not surprising that, overall, participants tended to shift responsibility elsewhere; after all, unless a person or organization feels strongly about an issue, they will not be willing to take a leadership role in advocating for that issue. This tendency to shift responsibility may also be a result of municipal leaders not recognizing that municipal planners have a role in addressing energy reduction or sustainable development. Despite the lack of recognition of the planners role in a municipal setting, arguably this lack of taking responsibility could be categorized as what Fillion (1997) labels as the electoral imperative, the need to be elected or re-elected. The political leaders within a municipal setting are the elected representatives, the Mayor and Council. They are the most visible people who take a leadership role in all major municipal actions. As such, these municipal elected

representatives will be reluctant to compel people to change their lifestyle, a requirement to achieve energy reduction and sustainable development, if they believe that they will not be able to retain their position after the next election. It should be noted that the electoral imperative applies to provincial and federal politicians in the same manner as it does to municipal politicians.

Some participants suggested that despite having in place a leadership initiative to produce an energy efficient or sustainable community, members of that community would only change their lifestyle if a catastrophic event took place, requiring people to think about the consequences of their actions. Likewise, Campbell (1996, 302) argues that the challenge of fostering a sustainable society is that because there is no "...immediate survival or market imperative..." people will have to voluntarily choose sustainable practices. Some municipal planners suggested that the role of the planner is that of an educator, to inform people of the consequences of their actions before those actions resulted in a catastrophic event. One interview participant suggested that the results of an education approach would not be immediate, but may help inform a new generation on how to live with minimal impact on the environment.

Finally, there was no mention of any institutional barriers, or that the municipal structure may be a barrier to innovation, by the participants. This may suggest that when addressing energy reduction, sustainable development, or the challenges of why they cannot be implemented, professionals employed at the municipal level of government and those involved in the municipal development process tend not to look inward to identify and overcome barriers that they may have generated. While interview participants make little mention of institutional barriers, they are among the barriers that limit the implementation of energy reduction or sustainable development, as discussed in the interpretive analysis of Section 4.2.5.

## **5.0 Summary and Recommendations: Think Globally Act Locally**

At the outset of this research, four main objectives driving this research were identified: 1, to determine some of the existing policies at the municipal level aimed at implementing sustainable development principles; 2, to determine the barriers that limit the implementation of sustainable development policy; 3, to determine how these barriers could be addressed; and 4, to determine the role of the planner in addressing the barriers to implementing sustainable development policy. These objectives are listed in section 1.2.

A review of the City of Chilliwack Official Community Plan (OCP) was undertaken to address the first objective, in order to determine some of the existing policies at the municipal level aimed at implementing sustainable development principles. Through a review of the City of Chilliwack Official Community Plan, coupled with a comparison of Chilliwack's OCP to other Lower Mainland municipal OCPs, I identified municipal policies related to sustainable development, and determined that the City of Chilliwack primarily employs an economic and technological approach to sustainable development.

The second objective, was addressed through the literature review, interviews and subsequent analysis to determine the barriers limiting the implementation of sustainable development policy. Through both the literature review and interviews, I determined that there are a variety of barriers that limit the implementation of sustainable development. These barriers were organized into three categories: Perceptual / Behavioral Barriers, Institutional / Structural Barriers, and Economic / Financial Barriers. Furthermore the interview participants felt that some of these barriers were more applicable to some municipalities than others.

Determining how the barriers limiting the implementation of SD should be addressed was the third objective, and became a challenging topic for interviewees to discuss. While the interviewees did identify a variety of barriers, most were quick to shift the responsibility of addressing the barriers onto other, higher levels of government,

including the British Columbia provincial government, and the federal government of Canada.

The fourth objective was meant to determine the role of the planner in addressing the barriers to implementing sustainable development. However, there was no consensus among the interview participants with respect to the municipal planners' role. Generally, the municipal planners viewed the role of their profession as significant in addressing the barriers, and tended to suggest a holistic approach in addressing the barriers. However, as reported in section 4.2.8 and 4.2.9, many non-planners suggested a minor or traditional role for the municipal planner, and some even questioned if planners have a role at all to play.

Based on the results of the research findings, seventeen areas for future action are recommended, and are organized into two major sections: General Recommendations, and Municipal Recommendations. These recommendations are summarized below in Figure 3 and Figure 4.

**Figure 3: Summary of General Recommendations**

<p><b>5.1.1 Promotion of the Planning Profession</b></p> <ul style="list-style-type: none"> <li>• Promotion of planning to general public</li> <li>• Promotion to planning to other development related professions</li> <li>• Promotion of planning at UBCM conferences.</li> </ul>	<p><b>5.1.3 Institutional Change</b></p> <ul style="list-style-type: none"> <li>• Adopt SD as a municipal value</li> <li>• Include planners within policy discussions</li> <li>• Undertake annual SD progress reporting</li> <li>• Foster SD Municipal leadership (Lead by Example)</li> </ul>
<p><b>5.1.2 Increasing Sustainable Development Education</b></p> <ul style="list-style-type: none"> <li>• Educate public and municipal government</li> <li>• Continuing education on SD related topics among professional planners</li> </ul>	<p><b>5.1.4 Resources for Research</b></p> <ul style="list-style-type: none"> <li>• Develop SD resource materials for municipalities</li> <li>• Develop a delivery mechanism for resource materials</li> </ul>

**Figure 4: Summary of Municipal Recommendations**

<b>5.2.1 Increasing Sustainable Development Education</b> <ul style="list-style-type: none"><li>• Educate municipal employees on SD</li><li>• Identify opportunities and educate the public on SD</li><li>• Identify opportunities and include youth in the education of SD</li></ul>
<b>5.2.2 Institutional Change</b> <ul style="list-style-type: none"><li>• Foster a municipal SD decision making framework</li><li>• Explore municipal delivery systems for SD</li></ul>
<b>5.2.3 Incentives for Implementation</b> <ul style="list-style-type: none"><li>• Develop financial incentive programs for SD projects</li></ul>

## **5.1 General Recommendations (Think Globally)**

This section presents recommendations, in a broad context, which I conclude will aid in the implementation of sustainable development. These recommendations are organized into four categories: Promotion of the Planning Profession; Increasing Sustainable Development Education; Institutional Change; and Resources for Research.

### **5.1.1 Promotion of the Planning Profession**

The first step required in achieving a more sustainable community is promotion of the planning profession to government institutions as well as the general public. The scope of planning has evolved to address a variety of environmental, social, economic, and aesthetic interests. As well, the skills of planners have also evolved to include a holistic approach, or utilize a variety of planning “tools” when addressing an issue. Despite these progressive changes in the planning profession, the general public still associates the municipal planner with the traditional role of being concerned with land-use planning. Hodge (2003) notes that traditional municipal planning has been rooted in land-use planning, consequently, modifying the public perception of the role of the planner may be difficult. Therefore promotion of the planning profession is needed to accomplish three objectives; 1, to educate both the public and government institutions as

to what topics are of concern to the planning profession, in order to remove any misconception that a particular planner may have a personal agenda; 2, to educate the public and government institutions as to the skills that planners can contribute; and 3, to provide the public and government institutions with an alternative option for assessing how to address a particular issue. Within British Columbia, the Planning Institute of British Columbia (PIBC), the provincial affiliate of the Canadian Institute of Planners (CIP), should take the leadership role in promoting the planning profession. While PIBC has sponsored public lectures, demonstrations, presentations, and events, which promote and highlight the profession, future events should be promoted in such a manner as to attract a broader audience, and gain the interest of the general public.

Second, in addition to promoting planning to the general public, I recommend promoting the planning profession to other related professions, such as engineers, building officials, builders and developers. This could be accomplished with planners presenting their skills and interests at annual professional conferences sponsored by such organizations as the Association of Professional Engineers and Geoscientists of B.C (APEGBC), Building Officials' Association of BC (BOABC), or the B.C. chapter of the Canadian Home Builders Association (Builders and Developers). Planners promoting their profession and sustainable development, arguably of interest to development professionals, will not only build credibility among other professions as key players in addressing sustainable development, but will facilitate the creation of relationships between planners and other development related professions. This will provide greater access to resources in promoting sustainable development. In addition, the promotion of both the planning profession and sustainable development, by planners, is supported within the Canadian Institute of Planner's *Statement of Values*, which is found in Appendix A.

Third, once relationships have been created between planners and other development professions, I recommend that collaborative research efforts could be undertaken between these groups on sustainable development topics. Furthermore, research results should be presented at annual professional association conferences as well as the annual Union of British Columbia Municipalities (UBCM) conference. The UBCM annual conference offers the opportunity to present research results and case

studies related to sustainable development to a greater audience, an audience which also includes various British Columbia municipal leaders.

### **5.1.2 Education of Sustainable Development**

Decision makers themselves can be barriers to the implementation of sustainable development policy, especially if they have a weak understanding of the concept. This is because if those decision makers don't really know what sustainable development is, then they will likely not be able to understand how to achieve it. Weak understanding of sustainable development also translates into a lack of understanding of the fundamental differences between the various approaches to sustainable development. The general lack of understanding of sustainable development, and its approaches, would explain why some municipal decisions do not achieve sustainability. As such, I strongly recommend that both the public and municipal government be educated on the concept of sustainable development. This can be achieved through a variety of methods. One method is through passive public education, accomplished through public participation found within various development processes or the creation of municipal policy such as an Official Community Plan.

Second, in order to remain current, and retain a significant role in the implementation process, municipal planners must continually educate themselves on topics related to sustainable development. While the Canadian Institute of Planners has a voluntary program, one of the responsibilities of Full Members within PIBC is mandatory participation in the Continuing Professional Learning (CPL) system. The CPL system requires Full Members of PIBC to obtain eighteen Learning Units (LU's), or eighteen hours of professional development activities, in order to "...maintain the highest professional standard and latest knowledge, understanding, skills and abilities relevant to the theory, methods, and practice of planning" (PIBC Website, 2004). While this is an important activity in remaining current on relevant planning issues, planners must also recognize that they must seek out educational opportunities in the topic area of sustainable development, even if there are not incentives or requirements to do so.

### **5.1.3 Institutional Change**

In order to begin the implementation of sustainable development, municipalities must make sustainable development a real priority. Merely mentioning the concept of SD within an Official Community Plan has proven to be ineffective in promoting the concept. In fact, this approach, or lack thereof, to implementing sustainable development is what inspired this practicum research. Therefore I recommend that the concept of sustainable development be made explicit to the public as a municipal value, which will be present in all municipal discussions, especially those discussions related to future development. The daily promotion, within development conversations, of SD as a municipal value will bring more attention to the concept.

Second, having municipal planners within policy development discussions will add a new dimension to the existing conversation. Traditionally, municipalities have looked towards planners to create or implement policy; however, including the planner within policy discussions has been unrecognized by municipal decision-makers as a significant role for the planner. Bloodoff (1995) expresses annoyance with past overlooking of the planners role in implementing sustainable development: “[P]ublic policy development, consensus-building and visioning are our strengths, yet our involvement is at best marginal” (Bloodoff, 1995, 7). Therefore including municipal planners within policy discussions would bring an alternative dimension and direction to the discussion.

Third, once a municipality has adopted sustainable development as a value, and has created plans and policies to reflect that value, an assessment or evaluation method should be implemented to determine if municipal decisions and actions are adhering to those SD plans and policies. Therefore, I recommend that regular progress reports be undertaken by municipal staff and presented to members of municipal Council and department management, to outline if municipal decisions and community development is following SD policies, or if adjustments are required.

Fourth, it is not enough to just request the public to act or for developers to develop in a more sustainable manner; leadership must be provided. Therefore, the final recommendation in this section is for municipal governments to take a leadership, or a lead-by-example role in applying a sustainable development philosophy in every day

action. This can be accomplished through municipal demonstration projects, incorporating building materials and equipment within municipal buildings that reduce environmental impacts, promoting alternative transportation modes, and developing incentives for those who wish to demonstrate sustainable development values.

#### **5.1.4 Resources for Research**

The first recommendation with respect to the tools required for implementation is to develop resource materials for municipalities to draw upon. The research involved in investigating sustainable development measures and policies and related topics requires a considerable amount of time on the part of municipal employees. While municipalities may be interested in sustainable development, they often do not have the time or resources to conduct research or determine how to implement sustainable development policy. Therefore, developing resource materials, or a database of resource material, that highlights case studies, projects and research related to sustainable development would prove to be a useful resource for municipalities.

Once research, case studies and other sustainable development resources have been created, they must be available for people to access. Therefore, a second recommendation is to ensure that resource materials for municipalities are organized, easy to locate, accessible, easy to use, and the existence of the material is actually known of by municipalities. The opportunity for the creation of resource materials is constantly available, and these opportunities could be exploited by a variety of stakeholders, planners, engineers, developers, researchers, policy writers, and universities. The challenge is getting those research products produced in a format that is usable by others, and collecting those documents in one central location. Neufeld and Tokarz (1995, 32) argue that “[A]n essential element of successful planning is the degree to which interests, skills and energy of major stakeholders can be harnessed into a positive force for change”. Therefore, I recommend that PIBC should collaborate with other professional organizations that also value the concept of sustainable development, such as the Professional Engineers and Geoscientists of B.C., the Building Officials’ Association of BC, the B.C. chapter of the Canadian Home Builders Association, and Smart Growth BC, to produce research resources, and jointly collect them in a clearing-house for all to view.

With the easy accessibility of the Internet, it seems appropriate that these research materials could be available on a website, along with links to other Internet sources. Furthermore, such materials could be promoted among the above-mentioned professional organizations, and at major annual conferences held by organizations such as the Union of British Columbia Municipalities.

## ***5.2 Municipal Recommendations (Act Locally)***

This section presents recommendations in a local context for the selected case study, the City of Chilliwack. These recommendations are organized into three categories: Increasing Sustainable Development Education; Institutional Change; and Incentives for Implementation.

### **5.2.1 Increasing Sustainable Development Education**

The empirical research suggested that there is generally a weak understanding of the concept of sustainable development among representatives from a variety of Lower Mainland municipalities. In order for a municipality to implement sustainable development, that municipality has to first understand what sustainable development is. Chilliwack is no exception. Therefore, I recommend that the City of Chilliwack actively seek out opportunities to learn more about sustainable development. These learning opportunities could be in the form of attending conferences, workshops or lectures. One learning opportunity could be in the form of inviting guest speaker(s) to make a presentation at Chilliwack City Hall for City staff and Council. Some of the leading experts in the field of sustainable communities and sustainable development live and work, often as professors at universities, within the Lower Mainland region of British Columbia. Some examples would be Dr. William Rees a professor in the School of Community and Regional Planning at the University of British Columbia; Dr. Mark Roseland, a professor in the Department of Geography and Director of the Community Economic Development Centre at Simon Fraser University; Dr. Ray Cole, a professor in the Faculty of Architecture at the University of British Columbia; Matsuzaki Wright Architects, an architecture firm familiar with green building design; and Michael von

Hausen of MVH Urban Planning and Design Inc, who specialize in, among other things, more sustainable urban design

In addition to seeking out opportunities, such as workshops and guest speakers, another opportunity available to the City of Chilliwack staff and Council to learn more about sustainable development, and how to achieve it, is through the review of documents such as the *B.C. Sprawl Report 2001* (Alexander and Tomalty, 2001), the *B.C. Sprawl Report Economic Vitality and Livable Communities 2004* (Alexander, Tomalty and Anielski, 2004) and the *Smart Growth Toolkit* published by Smart Growth BC. In both 2001 and 2004 Smart Growth BC published the BC Sprawl Report, documents which explored the relationship between the urban form (density and land uses), particularly that of suburban sprawl, and quality of life, livability, infrastructure efficiency, and economic vitality. In the *B.C. Sprawl Report 2001* twenty-four British Columbia municipalities were reviewed, Chilliwack being one of them. Overall, the City of Chilliwack was given a low Smart Growth rank of twenty-two, just two places from the last position, in 2001 (Alexander and Tomalty, 2001). In 2004 the City of Chilliwack was selected as a case study in the *B.C. Sprawl Report Economic Vitality and Livable Communities 2004*. This 2004 report outlines areas for improvement, and recommendations for future action, specifically for the City of Chilliwack. In addition to the sprawl reports, Smart Growth BC has also published a toolkit outlining a variety of methods that municipal governments, specifically British Columbia municipalities, can utilize in attempting to achieve sustainable development.

It is not only necessary to educate staff and elected members of a municipality, but to also make real attempts to educate the general public. Therefore my second recommendation within this section is to actively educate the public at public events and as opportunities arise. In the past the City of Chilliwack has utilized annual events such as the Chilliwack Home and Leisure Show to educate the public on the inner workings of the City, and what services departments offer to the public. In addition, through poster displays and City Staff onsite to talk with the public, the City has taken this type of opportunity to educate the public about emerging city programs, and even some development related issues, such as the reasons for urban densification. It should be noted that the City does not have to wait for an appropriate annual event to educate the public.

With this in mind another related public forum in which to actively participate in public education, is to set up a visual display in active public areas like the local shopping malls. In addition to setting up displays, another opportunity to engage the public, and educate them on the topic of sustainable development, is through including the public as active participants in creating visionary community plans. In 1996 the City of Chilliwack began a two-year process to actively engage the public for their input and opinion on the direction Chilliwack should take over the next twenty years. The end result of this two-year process was the creation of a visionary document entitled *Chilliwack's Future Plan*, which is also known simply as Future Plan. Future Plan involved discussion involving the topics of environmental stewardship, economic development, and quality of life, and used a variety of community feedback mechanisms, including community forums, telephone surveys, focus groups, community meetings and student participation (City of Chilliwack, 1998b, 3). As it has been almost ten years since the process began to create *Chilliwack's Future Plan*, I recommend that the City of Chilliwack revisit this document, and begin another process to engage the public, and generate discussion revolving around the topic of sustainable development in the attempt to create a Plan 2030 visionary document. I recommend that the City of Chilliwack continue to actively seek out opportunities such as the Chilliwack Home and Leisure Show, and visionary exercises, to present the concept of sustainable development, and its related topics, to a variety of stakeholders.

Third, I recommend that the City of Chilliwack be active in educating the public by participating in popular recognized annual events, such as Earth Day, which is held on April 22 every year. Participation in an annual event such as Earth Day, offers not only an opportunity to educate the general public on sustainable development, but it also provides an added opportunity to interact with the youth of the Chilliwack community, and teach them about sustainable development. Furthermore, the City could sponsor an educational incentive, or "carrot", revolving around an Earth Day event. This could be in the form of a scholarship and/or book prize awarded to the top student presentation, project, demonstration, or proposal on a sustainable development related topic.

### 5.2.2 Institutional Change

In order to foster a sustainable culture and reduce environmental impacts, municipal governance and those in decision-making positions must be prepared to adopt a sustainable development attitude. Therefore, I recommend that the City of Chilliwack develop a decision-making framework that attempts to evaluate if a particular action is sustainable or not. While this may appear to be a difficult and lengthy task, I suggest starting by asking two simple, but key, questions (adapted from Badami et al., 1994) when making a decision:

1. Will this decision reduce Chilliwack's ecological footprint?
2. Will this decision improve quality of life for Chilliwack residents?

If the answer to both of these questions is YES, then the decision, and subsequent action, reflects a sustainable development orientation, and a step towards sustainability is taken. If the answer to either, or both of these questions is NO, then the decision, and its subsequent action will likely represent a step away from achieving sustainability.

Adopting a sustainable development attitude, among decision makers, is a vital element to implementing sustainable development at the municipal level. However without appropriate mechanisms to facilitate implementation, those sustainable development attitudes will not be realized. Therefore my second recommendation in this section is for the City to explore innovative delivery systems for sustainable development.

An example of a process that considers sustainability is found in the Resort Municipality of Whistler, British Columbia. In March of 2000 the Resort Municipality of Whistler developed *Whistler. It's Our Nature*, which is a community-wide program that promotes sustainable development practices (Whistler Its Our Nature, 2005). The program involves *The Natural Step*, a sustainability framework that aids in identifying, and determining how to achieve, sustainability goals. The program has also developed a toolkit that other cities can use in achieving sustainable development. Another delivery system for sustainable development to look at is land use zoning, and through a review of the *City of Chilliwack Zoning Bylaw 2001, No. 2800* to identify opportunities for

increased density and mixed uses. One suggestion would be to look for alternatives to the traditional zoning bylaw. An alternative that would achieve land-use designations for selected areas of the city, but which is also flexible enough to allow for innovation in terms of achieving greater densities and mixed-use development. Another suggestion would be to consider vertical zoning, allowing a property to have one zone on top of another. This would allow for traditional commercial developments (professional office space and retail commercial) and high density multi-family residential zones to be combined. A result could be a building that includes a traditional commercial use (offices, grocery stores, gas station, shopping mall, etc.) with an apartment above it to achieve an increase in the residential density of a particular area or neighborhood, such as the Chilliwack Downtown neighborhood. It should be noted that the above recommendation is authorized for local governments under Section 26 of the British Columbia *Local Government Act*.

### **5.2.3 Incentives for Implementation**

One of the barriers, identified in Section 2.3.3 of the literature review, to implementing either energy reduction or more general sustainable development measures in urban settings is the actual increased cost of construction. This increased cost is associated with unconventional building methods, design, and technologies which attempt to achieve sustainability. Some interview participants suggested that implementing sustainable development should be easier in large cities where land prices are high because of the extra cost associated with developing a building, with sustainable development measures, is a small percentage of the overall development cost (land + building). Therefore, the new development can remain competitive in the marketplace. Conversely these same participants suggested that constructing a building, with sustainable development measures, is much more difficult in a small city where land prices are lower. This is because the extra cost associated with implementing sustainable building methods, design, and technologies become a much larger percentage of the overall development costs. In order to recover the added cost of development, in this type of situation, a developer will have to price the development higher than competing buildings and risk pricing it out of the marketplace.

Implementing sustainable development in the City of Chilliwack is similar to the above-mentioned situation of developing in a city where land prices are lower than in a neighboring city. Relatively speaking, land prices in Chilliwack are substantially cheaper than in other more urbanized municipalities in the Lower Mainland. With this in mind, it appears that, in order to achieve more sustainable development in Chilliwack, the financial burden associated with a SD approach will have to be reduced. Therefore, I recommend that the City of Chilliwack develop financial incentive programs to offer to developers who choose to incorporate sustainable development methods.

Currently, the City of Chilliwack has an incentive program, in the form of a property tax bylaw, which reduces the property tax for a period of time and is offered to developers who choose to redevelop, contributing to the revitalization of the downtown area. This property tax bylaw could be used as a template for a similar type of property tax reduction bylaw offered to those who wish to incorporate sustainable development principles into their development. The bylaw could have a limitation on the number of years a reduction would be given, plus a set of conditions to qualify for the incentive. The conditions could be that a development must meet the standards of an R2000 (R2000, 2004) or LEED (C.A.G.B.C., 2004) building. The R2000 standard is a voluntary performance based building standard, which sets criteria for how a home must perform in order to achieve greater energy efficiency, indoor air quality and environmental responsibility. Typically an R2000 home uses approximately 30% less energy than a comparable non-R2000 home (R2000, 2004). LEED (Leadership in Energy and Environmental Design) is a voluntary building standard for projects that demonstrate sustainability by meeting higher performance standards in environmental responsibility and energy efficiency (C.A.G.B.C., 2004).

An additional incentive to offset the cost of developing in a sustainable manner is to offer an award program to highlight sustainable development excellence, with the top prize receiving a financial award. The program objectives are three-fold: first, offering a financial award is an incentive for property developers to incorporate sustainable development measures into their development, which leads the community towards implementing sustainable development; second, offering an award incentive highlights or promotes sustainable development, and provides local built examples of sustainable

development; and third, an award program can contribute to a level of healthy competitiveness among developers to create value-added developments. In order to qualify for the award, developments would have to meet a set of criteria (e.g. pedestrian-oriented, promotes alternative, reduction in energy consumption, reduction in pollution, R2000 or LEED building standards, etc), and the financial awards could be offered in the form of a discount on Development Cost Charges (DCCs). DCCs are collected to put towards the costs associated with development, including future repairs of infrastructure. Arguably, implementing sustainable development measures reduces the strain on City services and infrastructure, and correspondingly reduces the costs of maintaining those services and infrastructure. Therefore, this type of financial award should not put the City into a negative financial situation.

The following section provides some closing remarks following from this research.

### ***5.3 Closing Remarks***

The preceding section introduced seventeen recommendations that are both practical and achievable, and can initiate a move towards implementing sustainable development policies at the municipal level. Initially, at the start of this research, it was thought that in order to realize the implementation of sustainable development policy, considerable institutional change would have to come from our municipalities. However, after conducting the research and talking to several planners, engineers, municipal politicians, department directors, and CAOs about this, it has become apparent that the need for change is not only limited to our municipal institutions, but extends to all members of society. While change isn't limited only to municipalities, the leadership of municipalities in implementing sustainable development can be motivation for others to change, and strive towards sustainability.

In a municipal government context, further research and reflection is always valuable, if not necessary, to ensure adequate delivery of services and maintain a community's quality of life. For the City of Chilliwack, reflection on the lack of effectiveness of past efforts to implement sustainable development policy is necessary. In

order to start on a path towards implementing sustainable development and improving quality of life for the generations of today and tomorrow, change must occur. However change is the result of actions. The City of Chilliwack will have to identify the necessary actions that must be taken in order to realize the successful implementation of sustainable development. The recommendations outlined in this research provide a starting point for making that change. In addition to the recommendations presented here, further research can contribute to understanding and resolving the lack of implementation of sustainable development.

This research identified a number of barriers that limit the implementation of sustainable development policies, in a municipal context. Some may consider this approach to be somewhat negative. Therefore, of key interest for future research, is the identification of strategies that foster creative thinking, and positive attitudes, to accomplish more sustainable development.

The implementation of municipal sustainable development policies is an approach to achieving an improved quality of life, for both present and future generations. However, some municipal decision-makers may mistakenly perceive actions to implementing sustainable development policies as increasing the costs of government. Therefore further research into the cost-savings of pursuing sustainable development policies should also be conducted. An example of cost-savings research is to conduct a pro forma analysis between a traditional development and a development incorporating sustainable development principles.

Finally, this research identified various approaches to achieving sustainable development. However, it should be noted that after reflecting on this research, I take the position that sustainable development is achieved through a more integrated approach, which is represented through the ecological approach.

As a profession whose underlying principle involves striving to improve quality of life, municipal planners are a natural fit as advocates for the sustainable development movement. In addition, with their variety of tools, strengths, and skills in research and communication, consensus building, policy development, and visioning, planners offer a holistic approach to implementing sustainable development policy. While overcoming the

barriers to implementing sustainable development will be a collaborative effort, municipal planners offer the skills to start the process.

In closing, this research is a first step to overcoming the barriers that limit the implementation of sustainable development. It is my hope that this research will inspire further research in developing new strategies to bridge the gap between policy and practice to achieve sustainable development.

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**Appendix A**  
**CIP Statement of Values**

### **CIP Statement of Values**

1. To respect and integrate the needs of future generations. CIP members recognize that their work has cumulative and long-term implications. When addressing short-term needs, CIP members acknowledge the future needs of people, other species and their environments, and avoid committing resources that are irretrievable or irreplaceable.
2. To overcome or compensate for jurisdictional limitations. CIP members understand that their work has a potential impact on many jurisdictions and interests. They must therefore practice in a holistic manner, recognizing the need to overcome the limitations of administrative boundaries.
3. To value the natural and cultural environment. CIP members believe that both natural and cultural environments must be valued. They assume roles as stewards of these environments, balancing preservation with sustainable development.
4. To recognize and react positively to uncertainty. CIP members believe that the long-term future is unpredictable and that adaptable and flexible responses to deal positively with this uncertainty must be developed.
5. To respect diversity. CIP members respect and protect diversity in values, cultures, economies, ecosystems, built environments and distinct places.
6. To balance the needs of communities and individuals. CIP members seek to balance the interests of communities with the interests of individuals, and recognize that communities include both geographic communities and communities of interest.
7. To foster public participation. CIP members believe in meaningful public participation by all individuals and groups and seek to articulate the needs of those interests have not been represented.
8. To articulate and communicate values. CIP members believe in applying these values explicitly to their work and communicating their importance to clients, employers and the public.

Reference: (CIP, 2004)

**Appendix B**  
**Lower Mainland, British Columbia Location Map**

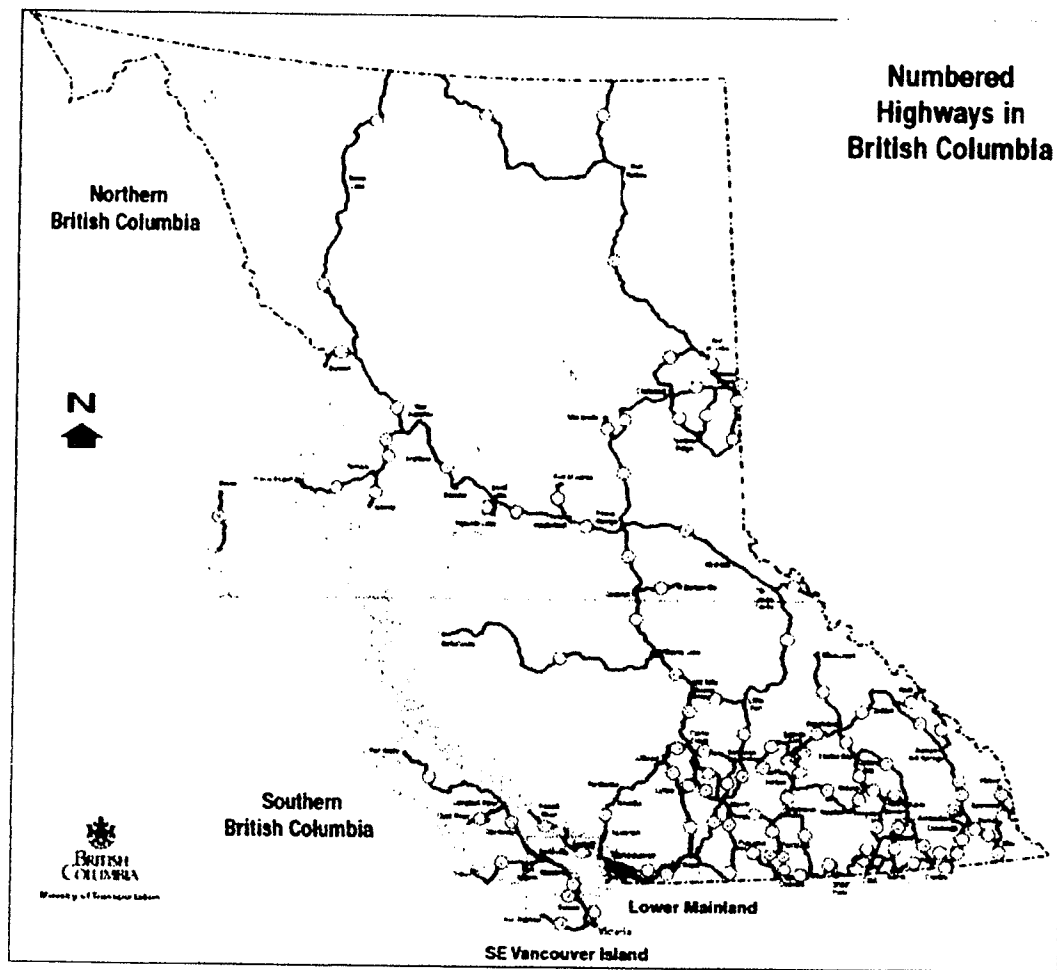


Image Source: (BC Highways, 2003a)

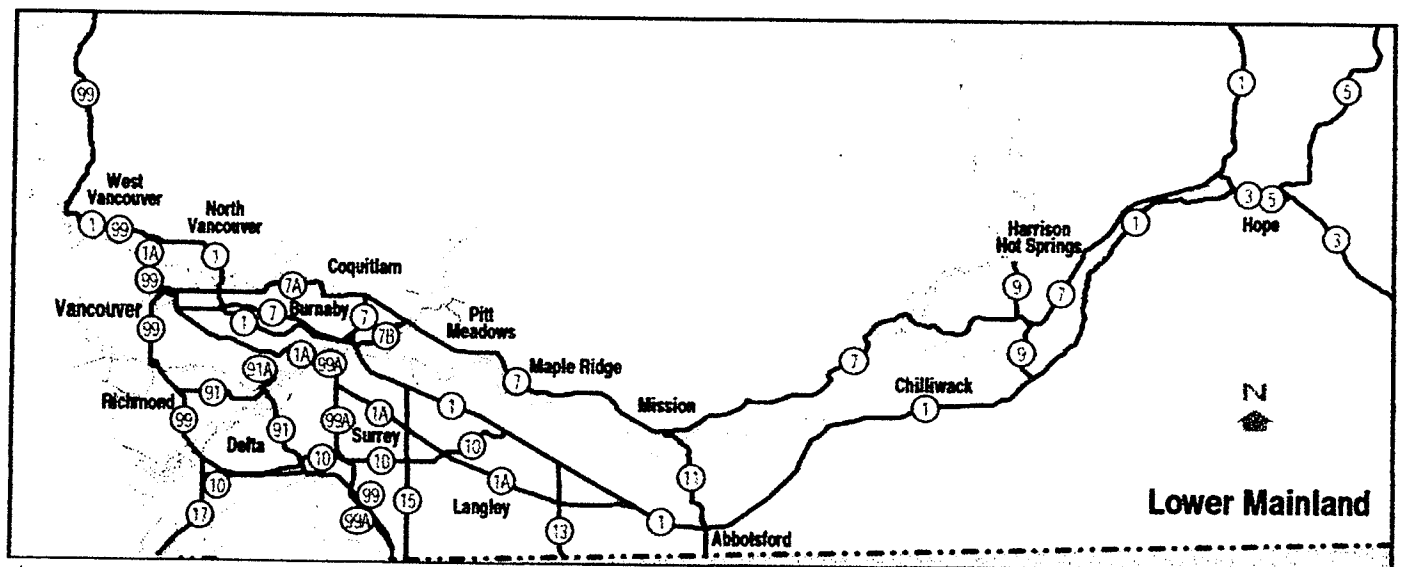


Image Source: (BC Highways, 2003b)

**Appendix C**  
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**Appendix D**  
**Interviewee Recruitment Letter**

## Interviewee Recruitment Letter



UNIVERSITY  
OF MANITOBA

Faculty of Architecture

Department of City Planning  
201 Russell Building  
Winnipeg, Manitoba  
Canada R3T 2N2  
Telephone (204) 474-9458  
Fax (204) 474-7532

Date

Name

Professional Title

City Name

Address

### **Re: Participation in Research for Masters Degree Thesis**

I am a student at the University of Manitoba working on my Masters Degree in City Planning. I am currently in the process of contacting people to request their participation in my thesis research. My research focuses on identifying strategies for overcoming barriers to implementing sustainable development policies at the municipal level. As part of my research, I will be conducting individual interviews in order to determine the barriers to implementing energy reduction policy (an indicator of sustainable development), how these barriers can be addressed, and the role of the planner in addressing these barriers. These individual interviews will be conducted with municipal planners, engineers, department directors, Chief Administrative Officers (CAO), and municipal politicians, from municipalities within the Lower Mainland region of British Columbia.

I will be conducting individual interviews during the months of July and August. The interviews will take approximately one hour and will be arranged at a convenient time and location.

Thank you for your time, and I look forward to your reply.

Sincerely,

Derek Eno

**Appendix E**  
**Individual Interview Instrument**

## Individual Interview Instrument

1. What is your current professional title?
    - How long have you been employed in this position?
  2. Are you involved with the municipal development process?
    - If so how?
- 
3. Are you familiar with the concept of sustainable development?
    - Can you describe to me your understanding of sustainable development?
  4. In this research I am using energy reduction as an indicator of sustainable development.
    - Does your municipality have policies related specifically to energy reduction within your Official Community Plan?
      - If so please outline these policies,
      - In your opinion, have these policies been implemented?
    - In your opinion, does your municipality have policies which relate indirectly to energy reduction within your Official Community Plan?
      - If so please outline these policies.
      - In your opinion, have these policies been implemented?
  5. In your opinion, is energy reduction a priority for your municipality?
    - In your opinion, what rank would be assigned to energy reduction (#1 priority, within top 5, within top 10)?
- 
6. In your opinion, what do you feel are the most significant barriers limiting the implementation of energy reduction measures within your municipality?
    - Please explain?
  7. In your opinion, what do you feel are the most significant barriers limiting the implementation of energy reduction measures within Lower Mainland municipalities?
    - Please explain?
  8. Are barriers to implementation of energy measures applicable to some municipalities more than others?
    - Please explain?
  9. In your opinion, how should the barriers to the implementation of energy reduction policies be addressed? For Example:
    - Who, in your opinion, should be addressing these barriers? Please explain?

10. In your opinion, what role should the municipal planner play in the implementation of energy reduction policies?
  11. In your opinion, what role should the municipal planner play in addressing barriers to implementation of energy reduction policies?
  12. In your opinion, what role should the municipal planner play in the implementation of sustainable development policies?
  13. In your opinion, what role should the municipal planner play in addressing barriers to implementation of sustainable development policies?
- 

14. Is there anything else that you would like to add?