

**THE CONSCIOUS CITY II: TRAFFIC CONGESTION AND  
THE TIPPING POINT IN GREATER VANCOUVER**

by

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Bachelor of Arts, University of Victoria, 1999

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## **ABSTRACT**

*The Conscious City II* explores how broad, long-term change toward sustainability in cities can be fostered, nurtured and facilitated. Using a qualitative, mixed-method approach, this research adapts a model from Malcolm Gladwell's *Tipping Point* framework to explore how social consciousness can be mobilized to achieve change toward sustainability through an analysis of traffic congestion in Greater Vancouver. The results demonstrate the important influence of leadership, context and message on the development of a social consciousness of sustainability. The research also demonstrates the explanatory power of Gladwell's framework and suggests that urban and suburban areas in the Greater Vancouver region are not exposed to the same types of messages, draw on different physical and social contexts, and are subjected to varying levels of effective leadership. The result is two separate, and incompatible mental models of sustainability in the region, both influenced by traffic congestion.

## **DEDICATION**

To my grandparents who taught me the value of academic accomplishment, to my parents who taught me the value of community and to my fellow Urban Studies colleagues who affirmed my belief in the value of collaboration.

## **ACKNOWLEDGMENTS**

I wish to acknowledge my research partner, Graham Senft, for his sense of humour and unwavering dedication to completing this project in the face of many obstacles along the way. I wish to thank my Senior Supervisor, Dr. Meg Holden for her willingness to support this project as a collaborative effort. My gratitude is also extended to the committee members for dedicating their time and contributions to the project.

I also wish to acknowledge the range of dedicated professionals working to inspire change toward sustainability in the Vancouver region, whose valuable insight provided the basis for this work.

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## 1.0 Introduction

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As we move toward an increasingly urban global society, and continue to face major ecological, social and economic challenges, it has been widely expressed in literature across disciplines, international discussion, and applied planning, that urban living will need to be approached in a way that supports prosperous, just and environmentally responsible communities for current and future generations. Various regions around the world have recognized this enormous challenge and many are engaging in practices that encourage these ideals; such regions have been characterized as cities working toward sustainability (Roseland 2005; Hallsmith 2003).

This research project is focused on exploring how broad and long-term change toward sustainability in cities can be fostered, nurtured and facilitated. More specifically, it will explore how social consciousness can be mobilized to achieve change through an analysis of traffic congestion in Greater Vancouver, using a model adapted from Malcolm Gladwell's *Tipping Point* framework. In doing so, this study acknowledges that definitions and meanings of sustainability are varied, diverse, and disputed. For the purposes of this work however, a sustainable city is one that enhances and integrates the economic, social, cultural and environmental well being of current and future generations (ICSC 2006).

In addition to acknowledging the definition presented above, it is critical to appreciate that this work is based on the general understanding that at the core of the concept, or within the principles of sustainability, is a "fundamentally different set of values" than those supporting the foundation of our communities today (Rooney 2006). Traditional social ideology in North America has an overarching emphasis on individual rights,

accountability, and fulfillment of wants. Shifting this norm to help achieve change toward sustainability will require developing a collective will to approach the management of social, cultural, environmental, and economic resources with a global and long-term sensibility. Accordingly, this change in ideology warrants a commitment to engage in processes that enable shared values and further a common purpose. This study has characterized this ideology as *social consciousness of sustainability*<sup>1</sup> and further defines it as: a collective sense of, and responsiveness to, challenges and obligations associated with sustainability, independent of formal government, business and professional institutions, in keeping with the emphasis on voluntary measures that predominate in Canadian urban policy (with Senft 2007).

This project is part of a collaborative effort between Rebecca Holt and Graham Senft, colleagues in the Master of Urban Studies Program at Simon Fraser University (SFU). This work was undertaken together in order to explore these themes at a depth of inquiry that may not have otherwise been possible. This study builds on the analysis and conclusion of the *Conscious City I: Traffic Congestion and Change Toward Sustainability in Greater Vancouver* by Graham Senft. *The Conscious City I* concludes that traffic congestion has an important role to play in fostering a change toward sustainability in the region because of its potential to build a social consciousness in the region. This study will explore social consciousness through traffic congestion by investigating the following research question:

- How can social consciousness be mobilized for change toward sustainability in Greater Vancouver?

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<sup>1</sup> Although the concept of social consciousness could be used to assess a wide range of trends, this research uses the term "social consciousness" to refer exclusively to *social consciousness of sustainability* as per the definition described above.

The following sections in Chapter 1 will establish traffic congestion as a critical urban issue affecting progress toward sustainability in cities, and provide a rationale for investigating this relationship in Greater Vancouver. Next, an explanation of the framework set out in Malcolm Gladwell's *Tipping Point* is provided, followed by a discussion of the motivation for using this theoretical model within this study. A review of the relevant literature is included throughout the discussion in addition to a more formal discussion at the end of the chapter.

## **1.1 BACKGROUND**

### *Traffic*

Traffic congestion is a reality in every major city in North America. Decades of auto-oriented urban development and unrestrained growth in vehicle ownership have yielded sprawling, low-density, single use development designed primarily, and often exclusively, for automobile transportation. The resulting landscape of single occupancy vehicles moving between residential, commercial, and recreational spaces has imposed a wide range of external costs upon society. These include the cost of providing expensive infrastructure and municipal services to low-density developments, increased greenhouse gas emissions from excessive auto use, poor air quality, and extremely high levels of energy use (Newman and Kenworthy 1999). Growing levels of social isolation, increasing rates of obesity and asthma, traffic accidents and poor mobility for non-drivers are just some of the identified social costs (Holtz-Kay 1998).

The impact of traffic congestion on modern urban regions, as described above, is significant; it affects the population universally. The body of literature and research demonstrating that traffic congestion is a symptom of inefficient urban design continues to grow; it also proves that adding road capacity does not alleviate traffic over the long

term (Newman and Kenworthy 1999; Calthorpe 1993; Downs 1992; Zuckermann 1991; Hart and Spivak 1993; Holtz-Kay 1998). In fact, Anthony Downs' work *Still Stuck in Traffic* (2004), articulates that the inherent causes of traffic congestion stem from deeply established patterns of behaviour that reflect treasured social goals of individual freedom and independence (37). Downs notes that changing these behaviours is necessary to truly address congestion, and his research is primarily focused on linking these behaviour patterns and the resulting effects on traffic congestion. Similarly, this study proposes that traffic congestion can be a catalyst for a social reengineering (or shift in social consciousness) of cities and communities towards sustainability.

### *The Region*

This study draws on the Greater Vancouver region for two reasons. First is the region's reputation as a livable city and unique sensibility as a place where residents share a common ideology of appreciation for their surroundings (Montgomery 2006). Among those cities on the path toward sustainability, the Vancouver region is recognized as a leader. As the third largest urban region in Canada, Greater Vancouver represents some 2.3 million residents living within, arguably, one of the most beautiful geographical settings in the world. It has, in recent years, become the subject of international attention for planning initiatives that have created desirable and livable communities, and at the same time fostered employment opportunities and a healthy regional economy. A 'west coast lifestyle' has been shaped and nurtured as the city has grown and densified in its centre. It is generally understood that the spectacular nature of the region's geography has contributed substantially to a unique sensibility among residents that nature as 'place' is superior to artificial or man-made form (Berelowitz 2005). This sensibility has been translated as 'environmentalism' or 'eco-love' and contributes significantly to perceptions of this region as a 'livable city' where the principles of

sustainability are embraced, and a tipping point of sorts may have been reached (Montgomery 2006).

A second motivation for grounding this study in Greater Vancouver has to do with its degree of success in managing transportation demand while taking steps toward sustainable urban development. Regional policy documents such as the Livable Region Strategic Plan (LRSP), Transport 2021, and the Sustainable Region Initiative (SRI) have contributed to this progress. Even as one of the most rapidly growing regions in North America, some significant success has been realized through LRSP, Transport 2021 and SRI goals including: compact and complete communities, transportation choice and a protected green zone (GVRD 1995). According to Statistics Canada, Greater Vancouver is the only metropolitan region in Canada in which the average time spent commuting has not increased over the last thirteen years. In fact, the average round trip commute time in the region went down by three minutes, from 70 to 67 minutes (The Vancouver Sun 2006).

The region has been able to protect the centre city from freeway development, and as such, encourage mixed use density in the core, expand residential and employment opportunities in regional town centres and provide transportation choice in many communities. The City of Vancouver has been particularly successful in achieving critical acclaim for livability – walkable, compact and complete communities.

Along with these successes, however, Greater Vancouver has suffered the fate of all major North American cities and is facing congested highways and roadways throughout the region as the development trend toward low-density, auto-oriented places continues to grow. In fact, the provincial government has proposed a major infrastructure project that would include adding significant capacity to the primary freeway, twinning a bridge

at a crucial water crossing, and adding capacity to the central city roadway network to facilitate ease of goods movement and general traffic flow. This infrastructure proposal, known as the Gateway Program, has generated a regional dialogue over traffic congestion that is clearly divided between those that support additional road capacity and those that do not (Boei and Scott 2006; Kennedy 2006). The impetus for this study was influenced by this dialogue, as well as the idea that a regional social consciousness was, to a degree, apparent within the public discourse over road capacity, traffic congestion, and the principles and goals of the region as a sustainable city.

## **1.2 THEORETICAL FRAMEWORK**

The concept of the tipping point was popularized by Malcolm Gladwell, a writer for *The New Yorker* magazine, and author of *The Tipping Point, How Little Things Make a Big Difference* (2000). After spending many years reporting on business and science for the *Washington Post*, Gladwell was a freelance writer in 1996, when *The New Yorker* published his article entitled "The Tipping Point." The article attempted to explain the cause of a dramatic drop in New York City crime rates in the mid-1990s by considering crime analogous to how an epidemic moves through populations. Gladwell's idea is that social problems behave like infectious agents. He illustrated this concept using the language of epidemiology to compare crime to an outbreak of the flu in Manhattan at Christmas time, as well as the spread of AIDS in the United States since the 1980s (Stewart 2004).

In the article, Gladwell explains that "epidemics are not linear", and "improvement does not correspond directly to effort" and as such, small changes can have big effects, and eventually cause a given phenomenon to change, or *tip* (2000, 11). He notes that social scientists were beginning to apply the framework of epidemiology to human behaviour, proposing that social problems are contagious. Gladwell was careful to highlight

however, that the analogy is not perfect, that not all crime behaves like an infectious disease, but in the proper context, he argues, the analogy is useful (Stewart 2004).

Gladwell continued his research into this theory and in 2000 he published the book *The Tipping Point, How Little Things Can Make a Big Difference*. The book goes much further than simply illustrating how past trends have *tipped*. In fact, Gladwell creates a framework from his epidemic theory that can be used to try to generate future social change. He uses the term *tipping point* to describe the point at which an idea, product, message or behaviour becomes a social epidemic, that is, the point at which it reaches critical mass and becomes commonplace.

The idea that a phenomenon or product could be manipulated so as to generate mass market appeal or a 'tip', made the book particularly popular with the business sector and has since become a 'bible' of sorts for private organizations attempting to make positive market changes (Stewart 2004). The book was a *New York Times* best seller for five months and was on *Business Week's* paperback best seller list for almost two years. Since then, the catch phrase 'tipping point' has been used by many important leaders of industry, other authors and journalists, governments, and academics in reference to a range of ideas, social phenomena and market trends (ibid). The phrase has woven itself into North American pop culture, academia and industry, and is used to describe social change, both positive and negative, across disciplines.

### *The Tipping Point Framework*

Gladwell identifies three factors that are important to bring a given phenomenon, such as social change, to the *tipping point*. The first is the importance of the individual, what Gladwell terms the 'law of the few'. He argues that change is driven by the actions of a small number of key people—people who are exceptional for their social networks, knowledge, or their influence among their peers—whom he identifies as connectors, mavens and salesmen respectively. Gladwell's notion is that "*word of mouth is still the most important form of human communication*" (2000, 32) and connectors, mavens and salesmen are crucial to making a word-of-mouth phenomenon tip.

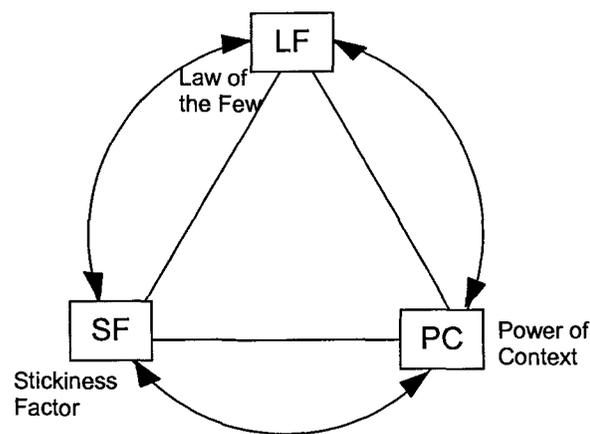
The second condition is the 'stickiness factor', or the appeal of the message. Gladwell argues that for action to take place, the message, whatever it might be, must be practical, personal, and meaningful to the recipient. Stickiness is what makes us remember messages and act upon them.

The third condition, *power of context*, is the most important factor for Gladwell. The *power of context* is the idea that epidemics are highly sensitive to the conditions and circumstances of the time and place in which they occur, suggesting that widespread behavioural change may be attributed to relatively minor adjustments in the external environment. He describes two types of context: temporal/spatial context and social context, both of which he notes are expressly important.

*The Tipping Point* provides a useful perspective from which to consider and explain the dynamic relationships that will affect change toward sustainability. Gladwell notes that the factors described above are a way of understanding why change often happens quickly and unexpectedly, but he also notes they are a way of making sense of the patterns that influence our social arrangements (Gladwell 2006), which is the aspect of

his idea most important to this study. The law of the few, the power of context and the stickiness factor are mutually dependent and influential pieces of the tipping point; linkages and interactions between components are key. In order to describe how this study has conceptualized his model, the following illustration (Figure 1) presents these components graphically.

**Figure 1: Graphic Representation of the Tipping Point Framework**



Adapted from Gladwell (2000)

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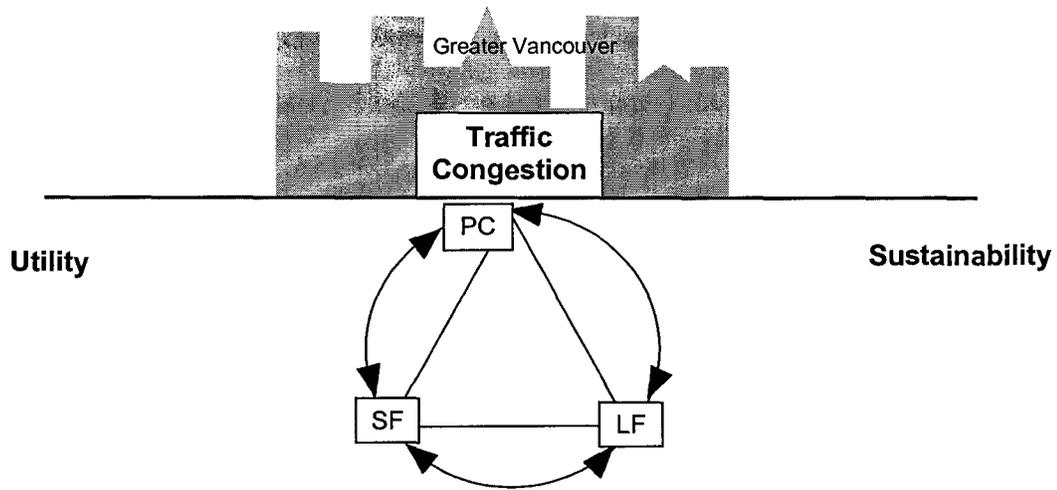
Part of the rationale for choosing Gladwell's framework as a method for theoretical analysis is the recent mainstreaming of the phrase "Tipping Point" in literature and media of all kinds. Since Gladwell published *The Tipping Point* in 2000, this phrase has crept into North American culture and references to a "tipping point" have appeared in publications and media related to peak oil, climate change, ecological sustainability, and urban planning along with many other disciplines (Eilperin 2006; Campbell et al 2004; Harvard Business School Press 2006; Hansen 2006). Political leaders have used the term to describe shifts and changes in everything from economic activities to social

movements to mass product consumption. Malcolm Gladwell himself observes that the tipping point framework, as a theory of social science, can have real relevance to our lives and be used as the basis to foster, create and manipulate positive epidemics and change. As published on his website, Gladwell notes:

*One of the things I'd like to do is to show people how to start "positive" epidemics of their own. The virtue of an epidemic, after all, is that just a little input is enough to get it started, and it can spread very, very quickly. That makes it something of obvious and enormous interest to everyone from educators trying to reach students, to businesses trying to spread the word about their product, or for that matter to anyone who's trying to create a change with limited resources (Gladwell 2006).*

This research is rooted in an attempt to explore the framework's applicability to change toward sustainability and to determine if there is power in this highly compelling, mainstream framework to trigger positive change toward sustainability or mitigate negative change. In doing so, this project explored traffic congestion in the Greater Vancouver region and its resulting effect on the regional social consciousness that supports ideas of sustainability, using the following adapted model (Figure 2):

**Figure 2: Model Adapted from Gladwell**



### **1.3 REVIEW OF LITERATURE**

#### *Systems Theory*

In addition to applying the tipping point framework to assess the role of social consciousness in change toward sustainability, this study will complement current research attempting to explain change toward sustainability in cities. Models and theories used to describe change in the urban context are numerous. Perhaps the most rigorous and overarching is system dynamics or systems thinking. Similar to Gladwell's framework, systems theory is based on the idea that parts of a system behave differently when they are separated from the environment in which they function, or are isolated from other parts of the system. Accordingly, systems thinking is contextual, meaning rather than taking something apart in order to understand it, the theory situates it within the context of the larger whole, and concentrates on the basic principles of organization. Systems Dynamics recognizes that systems are non-linear; a minor change in one system component can cause a significant change in the system overall (Capra 1996).

Systems theory gained authority in urban research in 1972 when the Club of Rome commissioned a group of researchers at the Massachusetts Institute of Technology (MIT) to take on the enormous task of modelling the effects of growth on finite resources at the global scale (System Dynamics Society 2006). The work was called “The Project on the Predicament of Mankind” and the research was conducted by Dennis Meadows, Donella Meadows, Jorgen Randers and William Behrens. Their work was based on the work of Professor Jay Forrester who developed a computer-based, global model capable of identifying specific components of a problem and analyzing the relationships between them (Meadows et al 1972).

The results of the team’s research is published in a book called *The Limits to Growth*, the first comprehensive study to attempt to measure the effects of human life on the planet’s ability to sustain itself (System Dynamics Society 2006). Much criticism followed this publication but this work remains critical to research on the dynamics of change in urban theory. Donella Meadows, a noted urban systems theorist, continued to contribute significantly to the body of urban literature with her work on system dynamics. She emphasized change as a continuous and constant progression, rather than a series of discrete processes. In her work on system interventions, or places to leverage change in a system, Meadows said that identifying and understanding leverage points can serve as a powerful tool to address major social, economic and ecological issues on the global scale (Meadows et al 1972). Her research and writing has been integral to enhancing knowledge and providing insight around growth and sustainability within urban studies and across disciplines.

Fritjof Capra has also explored sustainability and behavioural change through systems theory. Capra has applied the “science of living systems to the creation of sustainable communities” where relationships, connectedness and context are explored (2006, 1).

Capra's research efforts have included work on sustainability in business as well as transformation of worldviews and paradigm shifts in society and across academic disciplines (Capra 2006). In his 1996 book, *The Web of Life*, Capra explores the idea of consciousness and its relationship to systems theory and change. After a thorough review of ecological, mathematical and psychological adaptations of systems theory, Capra articulates the importance of consciousness in change and behaviour modification. He goes even further to suggest that a common consciousness is necessary to build truly sustainable communities, which supports the idea of social consciousness presented in this research.

### *Complex Adaptive Systems*

In addition to Meadows' and Capra's work, many researchers working within the Complex Adaptive Systems (CAS) theory, which parallels System Dynamics in many ways, have also expanded the body of literature on urban change theory. CAS theory is the idea that a system is diverse and composed of multiple, interconnected components that have the capacity to change from experiences and context. CAS theory is applied in an array of disciplines but its development is generally attributed to John H. Holland and Murray Gell-Mann during their work at the interdisciplinary Santa Fe Institute. Research using CAS theory in the urban context with a focus on sustainability is currently being conducted at the University of Calgary through the Immerse Research Group, and attempts to understand "the role played by cities and city dwellers, as entities in the ecological world system" (Jacobson 2006,1). Researchers maintain that understanding this relationship is "crucial if humans are to direct social development onto a sustainable trajectory" (ibid). New projects using CAS to research sustainability include the IHOPE project – Integrated History of People on Earth. Dr. Robert Costanza proposes that we have much to learn from integrating human history with nature, and

suggests CAS theory can help to do this as we understand the past and forecast the future (AIMES 2006).

Simon Levin is also an important contributor to research within complex adaptive systems. In his recent work on the adaptive nature of ecosystems, he explores the conditions under which cooperative behavior emerges and its resulting effect on system strength. He also considers the socioeconomic systems in which environmental management is based, and asks “what lessons can be learned from the examination of natural systems, and how we can modify social norms to achieve global cooperation in managing our common future?” (Levin 2006, 328)

Gladwell’s ideas parallel the works described above in important ways. The tipping point framework most closely resembles that of systems theory and complex adaptive systems in particular, in that it is also non-linear and recognizes that small changes in component parts of a system can have significant effects on the system overall. Meadows’ work on system interventions and leverage points is also echoed in Gladwell’s framework insofar as his notion that change can be effected by deliberately applying or manipulating the dynamics of change in order to influence a system or build momentum. Levin’s application of CAS theory and his inquiry into the conditions under which cooperative behaviour emerges, and how we can “modify social norms to achieve global cooperation in managing our common future” compliments the idea of building social consciousness as a means to achieving change toward sustainability (Levin 2006, 328).

### *Memes*

The idea of memes is another theory of change based in the biological sciences that is linked to some degree with Gladwell’s theory of the tipping point. Richard Dawkins, evolutionary biologist, first created the term ‘meme’ in his 1976 book called *The Selfish*

*Gene* (Grant 2006). Dawkins describes memes as a unit of cultural evolution and compares them to genetic evolution in order to illustrate the transfer of cultural information from one mind to another. The theory is largely concerned with how ideas are replicated. Examples of 'memes' include clothing fashions, songs or tunes, catch-phrases, or even construction techniques. It is important to note that the theory allows for the possibility that successful memes do not necessarily result in positive or constructive change; memes spread because they are appealing or compelling in some form or another, regardless of their true objective value (Grant 2006).

Gladwell himself has noted that the concept of memes is a very similar theory to the tipping point. As discussed on Gladwell.com, he remarks:

*[Memes are] very similar. A meme is an idea that behaves like a virus--that moves through a population, taking hold in each person it infects. I must say, though, that I don't much like that term. The thing that bothers me about the discussion of memes is that no one ever tries to define exactly what they are, and what makes a meme so contagious. I mean, you can put a virus under a microscope and point to all the genes on its surface that are responsible for making it so dangerous. So what happens when you look at an infectious idea under a microscope? I have a chapter where I try to do that (2006,1).*

Gladwell's comments above illustrate that the tipping point framework can account for the importance of the message or stickiness factor in explaining why ideas are contagious or compelling.

### *Diffusion of Innovations*

Early diffusion research by French sociologist Gabriel Tarde was formalized by Everett Rogers in his 1962 Book called *The Diffusion of Innovations*. Rogers identifies four components of the process of diffusion: Innovation, Communication channels, Time and Social systems. Rogers describes the innovation-decision process as one through which an individual passes from first awareness of an innovation to forming an attitude toward it, to a decision to adopt or reject it, to implementation and use of the new idea, to confirmation of this decision (1962). He categorizes adopters of new ideas as innovators, early adopters, early majority, late majority and laggards. He notes that the relative speed with which people adopt innovation, if plotted over time, always results in an S-curve distribution. Only a few individuals adopt the idea at the beginning and as more people begin to accept the innovation, the curve reaches a phase he calls the 'take-off', during which the curve steepens and climbs rapidly until the idea becomes common place (Rogers 1962, 21). Rogers' model has been adapted by Alan Atkisson to support his work and research on sustainability (Atkisson 2006).

Gladwell's work parallels Rogers' to a degree; both theories take into account the importance of human communication networks and social context. Diffusion theory is perhaps more applicable to quantitative research where measurable rates of innovation adoption can be examined. Critics of diffusion theory have suggested that innovation adoption rates can be influenced by a number of other factors, for example, people often adapt technologies to meet specific needs, changing the nature of the innovation as it progresses through the adoption process.

#### 1.4 SIGNIFICANCE OF THE STUDY

As noted throughout the discussion of relevant literature, and particularly within the work of systems theorists Simon Levin and Fritjof Capra, common ideology and shared social norms are integral in creating a more balanced relationship between city dwellers and cities. Part of the challenge then, in moving regions toward sustainability, will be to inspire a common social consciousness. How will this transformation be fostered? Is there a catalyst for change that can be harnessed to create a point at which the principles of sustainability become the norm in an urban context?

This project seeks to build and expand on previously established ideas of how change toward sustainability is linked to social understanding and behaviour through a case study of traffic congestion in Greater Vancouver. *The Conscious City I: Traffic Congestion and Change Toward Sustainability in Greater Vancouver*, by Graham Senft, explored these themes and concluded that traffic congestion in Greater Vancouver can be an important catalyst for building a regional social consciousness under certain circumstances. This study will build on Senft's conclusion and explore how social consciousness can be mobilized for change toward sustainability. In doing so, the study will assess the efficacy of Malcolm Gladwell's tipping point framework as a useful perspective from which to consider and explain the dynamic relationships that will affect change toward sustainability, while building on current approaches such as Systems Dynamics (Capra 1996; Meadows 1999), Complex Adaptive Systems, and the Diffusion of Innovations (Rogers 1962).

The analysis that follows will demonstrate, using a model adapted from Gladwell's framework, how traffic congestion can strengthen or weaken social consciousness in the region through Gladwell's ideas of context, leadership and message. These three factors, as previously noted under section 1.2 Theoretical Framework, are identified by

Gladwell as a way of making sense of the patterns that influence our social arrangements, which is the aspect of the tipping point Framework most important to this study. The research presented here does not attempt to identify or predict epidemic change. Rather, it proposes a method of operationalizing broad change toward sustainability at the level of public consciousness, beyond the traditional systems approach of exploring specific policies, programs and results.

## **2.0 Methodology**

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This chapter provides information about the research design and data analysis procedures of this study. First, the theoretical paradigm guiding the research is presented, followed by a review of the project's approach, including a discussion of the collaborative nature of the research design and data collection. Next, a detailed discussion of the research methods employed is presented. Finally, the strategies for data analysis, and the considerations for developing and verifying conclusions, are discussed.

### **2.1 PARADIGM**

This project explores the nature of the relationship between traffic congestion and change toward sustainability in Greater Vancouver through qualitative, inductive research. A two-stage, mixed-method approach to data collection is employed using a grounded theory approach to data analysis. The grounded theory approach aims to discover the theory implied within the data and understand the research situation. Themes are allowed to emerge from the data and theory is developed to explain new concepts, rather than test a single hypothesis (Glesne 2006; Dick 2005). By continuously comparing data, this study drew on the ongoing interplay between research and analysis in order to explain the research question (with Senft 2007).

The research conducted for this project is the result collaborative efforts between Rebecca Holt and Graham Senft, colleagues in the Urban Studies Program. By working together, the researchers were able investigate topics of mutual interest at a greater depth than may have been possible within the scope of independent projects. Consistent with the constructivist nature of this research, the collaborative approach supported an active learning process whereby meaning was created through shared

experience and interaction (with Senft 2007). In addition, collaborating allowed for enhanced interaction between reading, research and reflection during the analysis. Moreover, this approach is appropriate considering the project's characterization of the role of collaborative and collective value in sustainability and social consciousness (ibid).

Having successfully collaborated on past urban studies projects, the researchers developed a proposal to complete this work based on a collaborative approach to data collection and analysis. The partnership supported a more extensive research scope and by working together, the investigators were able to benefit from each other's unique perspectives as the project progressed. The product of this endeavour is two companion papers, *The Conscious City I: Traffic Congestion and Change Toward Sustainability in Greater Vancouver* by Graham Senft, and *The Conscious City II: Traffic Congestion and the Tipping Point in Greater Vancouver*, by Rebecca Holt. The specific nature of the collaborative research is further discussed in Appendix A.

It is important to note that the collaborative nature of this research was a valuable component of the research methodology. Working together supported the iterative process within the grounded theory approach, improving the validity of the data and the analysis through ongoing dialogue and shared reflection and interpretation (Strauss and Corbin 1994). This process fostered mutual learning throughout the project, contributing to a greater understanding of the subject matter than may have been possible independently. Moreover, complementary interests and experience, along with compatible research skills contributed to a successful and valuable partnership (with Senft 2007).

## **2.2 METHODS**

Data for this study was collected in two stages, using a qualitative, inductive, and intensive approach to data collection. In order to establish the background for the study and inform the remainder of the research, secondary data was collected during Stage One. The second stage of data collection consisted of primary data collected through a series of elite interviews.

A preliminary literature review at the project outset helped to inform the research design and narrow the research questions. Consistent with the grounded theory approach, the literature review was iterative and ongoing throughout the data collection and research analysis; as themes emerged from the data, the literature was consulted and examined again in order to contextualize the contribution of the research findings.

### **2.2.1 Stage One: Secondary Data Collection**

Relevant secondary data was reviewed during the first stage of the research so as to establish the context for the study. A document collection strategy was developed based on four key themes. Relevant documents within each theme were identified and reviewed from a variety of sources, including media reports, editorials, historical planning documents, provincial government reports, municipal and regional government meeting minutes, and municipal and regional planning reports. Table 1 provides a list of reviewed documents according to appropriate themes. These documents provided the foundation for the interview process in Stage Two, helping the researchers to formulate interview questions, consider themes and potential interview participants.

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**Table 1: Document Collection Strategy Secondary Data Analysis**

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<b>#</b>	<b>Analytical Theme</b>	<b>Documents Collected</b>
1	Greater Vancouver as a sustainable region	<ul style="list-style-type: none"><li>• Advancing the Sustainable Region Report, 2006</li><li>• GVRD Sustainability Report, 2003-2005</li><li>• CoV Community Climate Change Action Plan, 2005</li></ul>
2	Transportation planning and traffic congestion	<ul style="list-style-type: none"><li>• Transport 2021, 1994</li><li>• CoV Downtown Transportation Plan, 1997</li><li>• Statistics Canada commute time report, 2006</li><li>• Various media reports, 2004-2007</li></ul>
3	Regional planning and policy	<ul style="list-style-type: none"><li>• Livable Region Strategic Plan, 1996</li><li>• LRSP Review: Implementation Issues, 2006</li><li>• Various media reports, 2004-2007</li></ul>
4	Provincial Gateway Program	<ul style="list-style-type: none"><li>• City of Burnaby public consultation report, 2007</li><li>• Gateway Program consultation summary report, 2006</li><li>• Smart Growth BC Gateway review, 2005</li><li>• Langley Economic Dev. Gateway review, 2006</li><li>• GVRD board reports, 2005, 2006,</li><li>• Livable Region Coalition Gateway report, 2006</li><li>• GVTA board reports, 2005, 2006</li><li>• City of Vancouver Council reports, 2005, 2006</li><li>• Various media reports, 2004-2007</li></ul>

(with Senft 2007)

### **2.2.2 Stage Two: Primary Data Collection**

Primary data was collected during Stage Two. The researchers chose to conduct a series of interviews with knowledgeable experts and regional elites in order to practically assess broad perceptions of concepts such as social consciousness in the region. Interviews are a common method of inquiry in qualitative research and an appropriate choice considering the exploratory nature of this study. In addition, interview data was determined by the researchers to be the most effective method by which gather the type information needed to investigate the research questions and the address the scope of the project.

### *Participant Identification*

During the document review in Stage One, a long list of potential interview candidates was compiled. Possible participants were grouped into six categories consistent with region's transportation and sustainability policy networks: non-government agencies (NGO), elected officials, the media, land use and transportation professionals (practitioners), academia and private industry. To enhance the initial sample of potential interview candidates and to ensure sufficient representation from each category, additional participants were identified using the snowball sampling technique. To facilitate an organized recruitment process, a shared, online spreadsheet was utilized by the researchers to compile contact information for all potential participants.

### *Participant Recruitment*

A total of 40 potential participants from six categories were invited to take part in a research interview. Formal invitations were drafted on university letterhead and sent by email. The invitations also included a short overview of the study. In order to coordinate and organize invitations, responses and appointments, the researchers used a shared, online calendar system.

### *Sampling*

In order to achieve a representative sample, this study employed two sampling techniques. Purposive sampling established the initial group of interviewees chosen from the appropriate categories. This technique helped to ensure information rich interview data. During the interview process, snowball sampling was also used; at the conclusion of each interview, the researchers asked each participant from this initial group for recommendations for further interview contacts. The researchers also invited

people who were named or referred to during the course of the interviews, if appropriate. The study sample includes 19 interviewees (from 40 invitations), grouped within the categories described above. Table 2 provides a summary of the respondent sample:

<b>Category</b>	<b>Invited</b>	<b>Sample</b>
Academia	9	4
NGO	5	2
Industry	12	4
Elected Officials	5	4
Media	3	1
Professional Practitioners	6	4
<i>Total</i>	<i>40</i>	<i>19</i>

(with Senft 2007)

During primary data collection, the researchers required participants to sign an informed consent, authorizing the use of their comments with attribution. This requirement was intended to facilitate flexibility during the analysis and writing process. As the study proceeded however, the researchers determined that the results without attribution were just as valuable, and respondent confidentiality has been maintained. In order to present the results consistently throughout the remainder of the study and between companion papers, each participant has been assigned an identifier code according to their representative category. Table 3 provides the codes and pertinent respondent information.

**Table 3: Interview Respondent Key**

<i>Interview</i>	<i>Respondent Code</i>	<i>Respondent Category</i>	<i>Experience/Education</i>
1	NGO-A	Non-Government Org	Senior representative of regional NGO working to support alternative development strategies
2	NGO-B	Non-Government Org	Senior representative of an NGO working to support regional transportation alternatives
3	EO-A	Elected Official	Suburban elected official
4	EO-B	Elected Official	Suburban elected official
5	EO-C	Elected Official	Suburban elected official
6	EO-D	Elected Official	Urban core elected official
7	MD-A	Media	Regional urban affairs journalist, Journalism teacher
8	LUTP-A	Transportation and Land Use Professional	Regional transportation planning consultant
9	LUTP-B	Transportation and Land Use Professional	Regional transportation planning consultant
10	LUTP-C	Transportation and Land Use Professional	Suburban transportation planner
11	LUTP-D	Transportation and Land Use Professional	Regional land use and transportation planner
12	LUTP-E	Transportation and Land Use Professional	Senior regional transportation authority official
13	ACD-A	Academia	Transportation and urban issues expert
14	ACD-B	Academia	Geographer
15	ACD-C	Academia	Geographer and Urbanist
16	ACD-D	Academia	Geographer and planner
17	IND-A	Industry	Regional transportation industry representative
18	IND-B	Industry	Regional transportation industry representative
19	IND-C	Industry	Development industry representative

(with Senft 2007)

### *Interview Questions*

Interview questions were developed by both researchers in collaboration and reviewed initially by the researchers' senior supervisor. Questions were generated from the literature, the Stage One document review, and the researchers' prior professional and academic experience. Questions were designed to be semi-structured in order to foster

a more casual, conversational tone, and to allow the researchers to respond to spontaneous information and new ideas, while maintaining a focused dialogue. A general interview guide was developed in advance of the data collection, which included three to four questions grouped within the each of study's themes: Greater Vancouver as a sustainable region, transportation planning, traffic congestion, social consciousness and the tipping point framework. Once a preliminary interview guide was established, before the pilot interviews were conducted, four fellow SFU Urban Studies graduate students provided feedback and assisted in question revision.

Interview questions were customized for each individual respondent based on their expertise and respondent category. Certain information was requested from every respondent, and unique perspectives were sought as appropriate.

#### *Pilot Interviews*

In order to test the preliminary interview guide, two separate pilot interviews were conducted before beginning the data collection. The first was conducted with a professional colleague of one of the researchers, while the second pilot interview was conducted with a professional in the transportation planning field, known to both researchers through academic and professional circles. Both pilot interviews were conducted by phone, and the interview guide, project overview and introductory letter were sent via email in advance.

Both pilot interviews were critical to subsequent successful data collection. During the pilots, the researchers learned which questions caused confusion, were too broad or too specific, or were missing from the interview. The pilots also afforded the researchers a chance to practice interview skills, refine questions and conduct preliminary data

analysis. As a result of the pilot interviews, several adjustments were made to the interview guide and the information provided to participants in advance:

1. In order to avoid overly broad and diverse interpretations, questions were more specifically focused on key themes, including Greater Vancouver as a sustainable region, transportation planning, traffic congestion, and the tipping point framework.
2. A graphical representation of the tipping point model was omitted from the background material provided to the interviewees so as to reduce the scope of material to be discussed.

The term *social consciousness* was specifically excluded from the questions, instead, the concept was discussed through regional themes, including housing density and the regional debate on tolling.

#### *Interview Procedure*

After initial email contact with the research participants, an in-person interview meeting time was scheduled. Attempts were made to schedule meetings at convenient locations for the participants in order to minimize travel time. Three interviews were conducted by telephone due to scheduling conflicts or distant locations. Both researchers participated in all interviews.

In advance of the meeting, participants were provided with the interview guide (see Appendix B), along with two pages of project background information, and an informed consent form. Before the start of each interview, participants signed the consent form and were reminded by the researchers that they could refuse questions or withdraw from the interview at any time. No participant chose to withdraw from the interview process. At

the start of each meeting, each interviewee was asked to provide a brief description of his or her education and experience as it pertained to the subject of this research.

The researchers posed questions in a generally alternating format, and discussion was encouraged within the identified research themes. A digital voice recorder was used to document the interview along with field notes taken by both researchers. At the conclusion of each interview, the researchers debriefed in order to discuss thoughts, ideas, emerging themes and any issues that may have come to light. At this stage, interview questions were revised, further interviewees that may have been recommended were considered and emerging themes in the data were noted. Interviewing strategies were also discussed during debriefing; the researchers tested an alternate interviewing process whereby one researcher was tasked with most of the questioning and dialogue and the other researcher was tasked with taking detailed field notes.

### **2.3 DATA ANALYSIS**

The researchers began the analysis while data collection was ongoing. This technique allowed the researchers to consider new information and emerging themes while field work was in progress. Upon the conclusion of the each interview and debriefing session, the researchers transcribed a summary of the voice recording. Comments were paraphrased and coded within the major themes of the study. This task was divided evenly between the researchers; written transcripts were then exchanged and the results were evaluated and compared again.

A second stage of coding was executed for each study according to each of the research questions under investigation. For this study, the second coding stage consisted of grouping comments according to the tipping point framework. Respondent

data was coded according to the power of context, the law of the few and the stickiness factor. Specific discussions on regional tolling and social consciousness were also separated from the original coded data and comments were grouped according to the tipping point within these specific dialogues. In order to explore perceptions, attitudes and behaviours with respect to respondent comments, this work draws on discourse analysis. This method enabled both researchers to evaluate words and phrases used in each interview as well as link common themes and identify broader structures and frameworks within which ideas are produced, structured, and communicated (with Senft 2007).

Upon completion of the coding procedures, further evaluation and review was undertaken between researchers to confirm major data trends, themes and observations.

## **2.4 RELIABILITY & VALIDITY**

In order to ensure a valid and reliable data set upon which to base findings and analysis, the researchers established a sample frame based on a cross section of elites from six representative groups. Through the use of snowball sampling across categories, it became clear that a satisfactory sample had been achieved once ideas began to converge and interviewees began referring back to each other indicating sample saturation.

The researchers confirmed their findings by triangulating interview data, data gathered during the document analysis and experience and observations as participants in three regional forums on transportation, sustainability and behavioural change<sup>2</sup>. Discussions at

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<sup>2</sup> The researchers attended two Future of the Region Sustainability Dialogues hosted by the GVRD. The first was Regional Economy: the world is watching, on September 25<sup>th</sup> 2006; the second was Transportation: We can't get there from here, on October 30<sup>th</sup> 2006; the third event

these public forums provided an additional data source, which was incorporated into the researchers' field notes and used to compare trends and emerging themes from interview data. Furthermore, nine of the project's nineteen interview subjects were either panelists or participants at one of these events. This observation was made after the interviews had all been scheduled. Finally, the researchers' collaborative approach to the research added an additional level of reliability and validity to the findings (see Appendix A for further discussion). Throughout the study, the researchers discussed and compared field notes, interpretations and analysis in order to confirm findings.

Reliable or dependable data is that which is replicable. To address dependability, the data collection and analysis methods were explicit and connected directly to the research questions. The researchers followed clear protocols in order to maintain consistency in data and analysis. Researchers also acknowledged any personal assumptions, values and biases, such as personal political viewpoints, previous perceptions of or interactions with interviewees, and discussed how these might influence the study.

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was a GVRD Sustainability Breakfast on January 11<sup>th</sup> 2007, on the implications of peak oil for transportation planning in the region

### 3.0 Results & Analysis

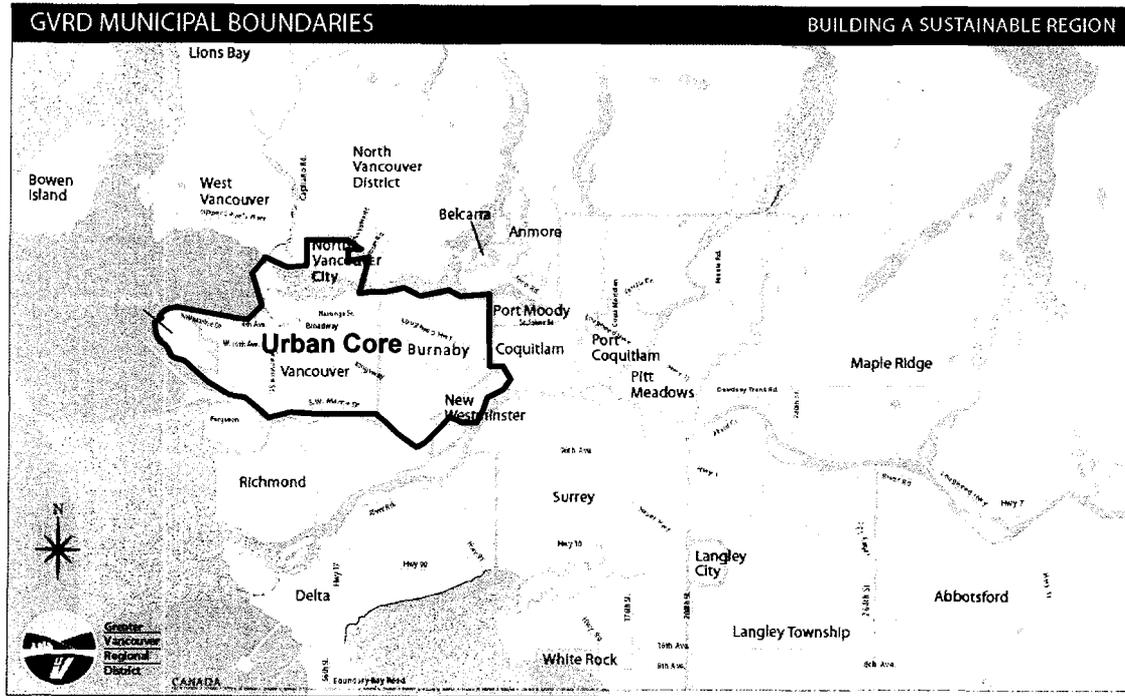
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This chapter will present the results of the study in two parts. First, in order to evaluate the research question within the theoretical framework guiding the investigation, Part 1 will present results of the research organized within the categories of the *Tipping Point: The Power of Context*, the Law of the Few and the Stickiness Factor. The results in Part 2 are presented through a discussion of the Gateway Program and road tolling as a discursive tool used by the researchers to investigate the link between traffic congestion and social consciousness; this analysis is intended to further illustrate how social consciousness is inspired by traffic congestion. The analysis in both Parts 1 and 2 is intended to complement and build on the results presented in *The Conscious City I*, by presenting data to illustrate the significance of context, message and leadership on cultural and social values and our resulting actions. The discussion that follows in Chapter 4 will use Gladwell's adapted model to demonstrate how social consciousness can be mobilized by traffic congestion for change toward sustainability in Greater Vancouver.

*The Conscious City I* concluded that traffic congestion as a catalyst for change toward sustainability in Greater Vancouver is subject to certain key criteria: transportation choice, housing choice and demographics. These results emerged within a clear distinction between perspectives of residents in the core of the region and perspectives of residents living in the suburban areas. This dominant theme of regional dichotomy (core vs. suburban) is also apparent in the results as presented within the tipping point framework. As such, it is important to appreciate that the urban core was identified by interview respondents as the cities of Vancouver, North Vancouver (City), Burnaby and

New Westminster. The remainder of the Region constitutes the suburban area, as illustrated in Figure 3 below.

**Figure 3: Municipalities of the Greater Vancouver Regional District**



(GVRD 2007)

### 3.1 RESULTS PART 1: THE TIPPING POINT FRAMEWORK

#### *Power of Context*

Gladwell identifies the Power of Context as particularly key for a phenomenon to reach a tipping point. He is careful to identify the importance of both physical and social context. During discussions with respondents about the Greater Vancouver region overall, results from the data that demonstrate Gladwell's definition of the Power of Context were generally consistent across all interviewees. Almost all interviewees noted that the unique geographical/physical context in the region, combined with regional governance

and planning (both historic and current) and a longstanding environmental tradition, contribute to the region's perceived success as a livable or sustainable city (NGO-A, ACD-A, ACD-B, LUTP-B, IND-A). These comments demonstrate the physical context under which the city continues to evolve at the regional scale.

Less dominant, but significant in illustrating the importance of social context, were comments made by several respondents concerning the effects of popular choice. It was noted by some participants that people in the region are influenced by what is going on around them, and as such, if the majority of people are using public transit, or living in smaller spaces, it becomes more acceptable to do so. Respondent MD-A notes:

*I think in Vancouver, there is a cultural component to people's transportation choices... I really believe that people's behaviour is in part shaped by what they see happening around them. There are people at work that bike or walk to work, and it makes you think – "oh, they live as far away from work as I do, I could do that too." Whereas out in the suburbs, you can have the exact same person with the exact same vague interests of saving the planet, but they're surrounded by people who are [saying] "oh, they tell me to take the bus, but I have to get my kids here, and I have to be there, so what am I supposed to do?" so, you're embedded in a different type of conversation.*

The preceding comment also alludes to the contrast in physical context that exists in the regional core versus the suburban areas. An auto-oriented physical environment is less likely to foster sustainability based decisions because the built environment prohibits rational choices that support this philosophy. Respondent LUTP-C's comments also support this:

*A great deal of new development [in suburban areas] is not high enough density ...it can't be serviced effectively by transit. That is of course being off-set by the amount of higher density development in the core – it really is two worlds, the core municipalities where the density is increasing is seeing [car ownership decrease] and more trips done by other modes.*

Further demonstrating the importance of the Power of Context, and the contrast in physical context between the regional core and suburbs, respondent ACD-B points out that suburban residents are not likely to perceive their physical environment as “less sustainable” than what exists in the core. Referring to residents of Maple Ridge, he notes:

*They feel they are living in an environmental life, to the extent that they are living in a green, pleasant environment. If you told them they were living an 'unsustainable lifestyle' by virtue of the fact that they were living in a single family detached house on a quarter acre or three acres in Maple Ridge, they would challenge you on that.*

#### *Stickiness Factor*

Gladwell notes that a memorable message will compel people to make choices they may not have previously considered, and the stickiness factor, or appeal of the message, is particularly important in fostering a change in behaviour. Two important themes in the data that relate to the stickiness factor, or message, emerged during the research. First are respondent comments describing the importance of alternatives and choice. Senft notes in the *Conscious City I* that availability and quality of choices for housing and transportation are critical parts of change toward sustainability through traffic congestion;

quality alternatives are compelling and thus create sticky messages which support sustainability oriented choices and resulting behaviour patterns.

However, what is particularly important to understand about the stickiness factor with respect to traffic congestion, is that compelling messages can generate choices aligned with more than one path, and often combine with other, even more compelling factors such as housing affordability or lifestyle. For instance, traffic congestion in places where transportation alternatives are available, convenient and effective may cause people to choose to drive their cars less and use other modes to travel, whereas, in places where these alternatives are not present, it could cause people to change their job or residence in order to better accommodate driving alone. In fact, the single family, detached home as a North American ideal emerged consistently in the data as a more compelling message than traffic congestion and respondents noted that many people are willing to accept the expense of sitting in traffic in order to have an affordable detached home and the associated lifestyle (LUTP-C, EO-D).

In addition, some respondents also noted that long commutes and traffic have become even more acceptable to SOV commuters as lives become more demanding and complicated. Commuters value their time alone in their vehicle to enjoy music, make phone calls, mentally prepare for their work day or unwind after it:

*There are some people who actually like the commute...there are people who really like being in their car... it's kind of their hidden secret of traffic congestion. For some people who have really hectic lives, sitting in the car on a freeway is closest they'll get to a spa...people are enjoying that quiet time (MD-A).*

*Commuting has a social payback; time alone, change between work and home. People like sitting in their cars, talking on the phone, smoking (LUTP-A).*

Consistent with contrasting perspectives within the region, the data presented above illustrates the importance of the stickiness factor, and demonstrates that urban and suburban areas in the region are experiencing conflicting messages, although equally sticky.

The GVRD as an organization emerged as the second important theme within the stickiness factor. Respondents in the Elected Official and Land Use and Transportation Professional categories identified the GVRD as a type of educational institution for municipal representatives and staff, conveying a consistent message of sustainability and supporting the importance of building livable communities (EO-D). ACD-D remarks:

*While GVRD did not have that much clear power...it did have a better database than anyone else, so it knew the facts, it was consistent and it was always there. When people end up on the GVRD board, they get acculturated into the GVRD culture, and it changes them. The GVRD is, if not unique, a very distinctive kind of regional government. I think it has turned out to be one the most effective regional governments on the continent. Because of the expertise they were able to marshal, their planning department was very good, they had exceptionally good people...who tended to become people who had a mission, not just a job. I don't think anyone else can take much of the credit for what happened within the region. The ability the GVRD had to take disparate politicians from across a large region...and somehow they were able to forge a consensus, consistently, to keep moving in a certain direction...they kept at it year after year after year.*

This is particularly significant in that the GVRD was the only identified source of a compelling message of sustainability that spans the entire region and is not urban core or suburban centric. It also demonstrates that part of the stickiness factor is not only a

compelling message, but a consistent one. Moreover, the data also illustrates that the GVRD is recognized for its role as an educator, and as such, not only builds social capital in terms of sustainability (the importance of which follows in the discussion of the Law of the Few), but has also clearly made an effort to support a culture of sustainability, contributing to a regional social consciousness.

### *Law of the Few*

For Gladwell, word of mouth is the most important form of human communication, and he articulates that individuals exceptional for their social networks (connectors), knowledge (mavens) and influence (salesmen) are each vital pieces of social change. Several trends with respect to the Law of the Few were revealed within the data. Interviewees were asked to name specific people or organizations that they felt have contributed significantly to change toward sustainability in the region, and repetition of responses across respondent group indicates that the region does in fact benefit from the law of the few at some level. Table 3 following summarizes the responses:

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**Table 4: People or Organizations of Influence**

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<i>Person/Org</i>	<i>No. of Mentions</i>
Gordon Price	7
Ken Cameron	5
GVRD	5
City of Vancouver	5
BEST	5
SmartGrowth BC	5
Harry Lash	3
David Suzuki	3
Mike Harcourt	3
Patrick Condon	3
Gordon Campbell as LRSP champion <sup>3</sup>	3
The City of North Vancouver	3

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Further analysis of comments concerning people or organizations of influence in the region revealed another important trend in the data. Many respondents named people and organizations of historical importance, and attached their influence to past regional successes. For instance, Harry Lash was noted for his efforts as a planner for the GVRD in the 1970s, and Gordon Campbell was noted for his leadership during his time as Mayor of Vancouver *only*, specifically excluded by respondents as a leader in his current role as provincial premier (ACD-A, ACD-D, LUTP-E). Current leadership was specifically identified as lacking, particularly at the regional government level (IND-A, LUTP-E). It is also important to note that although the GVRD was mentioned as a regional leader, respondents were clear that the organization's mandate is weak, and that it demonstrates leadership through a consistent message more than anything.

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<sup>3</sup> Respondents noted Gordon Campbell as a 'champion' of the LRSP, however it is important to note that although the LRSP was realized in 1996 during his tenure as chair of the GVRD, he was not directly responsible for its development. Further information on the process and history of this policy document and the evolution of the Greater Vancouver's regional government can be found in the forthcoming book *City Making in Paradise* by Michael Harcourt and Ken Cameron (Forthcoming 2007).

Most of the parties that were named as influential would be classified by Gladwell as mavens or connectors; people who are exceptional for their knowledge and networks. There was no complete consensus among all the respondents on even one person or organization of influence, and some respondents noted that they would not consider any individuals or organizations as influential in the region with respect to sustainability issues (LUTP-A, LUTP-D). This result suggests that there is a significant lack of charismatic leadership, or what Gladwell would term 'salesmen', in the region.

### **3.2 RESULTS PART 2: DISCURSIVE ANALYSIS**

The results and analysis that follow are presented within the context of a discussion on the Gateway Program and associated proposed road tolling, used by the researchers as a discursive tool to assess the link between traffic congestion and social consciousness. Respondents were asked to comment on the recent public dialogue around regional road tolling as well as the proposed Gateway Program (which includes tolling to fund a new bridge) in an attempt to assess how the principles and goals of sustainability factored into the discourse.

The results of the discussion were based strongly on the prevailing contrasting perspectives between the urban core and the suburbs, and respondent comments revealed that the nature of the debate over the Gateway Program is largely based on attitudes of utility in the suburbs and attitudes of sustainability in the core. This result suggests that suburban attitudes support methods to maximize traditional ideas of efficiency, individual mobility and convenience (utility) over methods that address the collective benefit over the long term (sustainability).

Comments on the concept of regional tolling as a transportation demand management (TDM) measure illustrate the basis of the utility vs. sustainability debate well.

Respondents stressed that suburban residents view this type of strategy as a further penalty on people who are already penalized by the high cost of housing, fuel and limited transportation choice: *...We paid for that bridge already, why are we paying for that again?...Life's tough enough already! Why are you trying to tax me even more now?* (EO-D). Respondents did indicate that suburban regions are generally in support of tolling on new infrastructure as a mechanism to fund it, they are not however, prepared to accept tolls on any infrastructure for the purposes of TDM (LUTP-C, LUTP-D, ADM-A, IND-C).

The discourse over the same issue in the urban core was described by respondents as supportive of regional road tolling due in particular to the freedom offered to urban residents to choose from a wide range of housing and transportation options (stickiness factor), in addition to the fact that people wished to further benefit from the reduced impact of automobiles and resulting increase in livability this type of tolling would support (LUTP-C, LUTP-D, ADM-A, IND-C). These remarks suggest that attitudes in the core of the region are based on ideas that support the principles associated with the collective benefit of sustainability, or as defined in this research, a social consciousness.

Further evidence in the data that illustrates attitudes of utility in the suburban areas and sustainability (or social consciousness) in the urban core includes the following remarks:

*Congestion is not being linked to land use necessarily in the suburbs. For example, there is major demand for transit in Surrey but not for more compact development (NGO-A).*

*Congestion is not a major factor in terms of social consciousness or behavioural change in the region – except for core parts of the region where transportation alternatives exist (LUTP-D).*

Remarks concerning political leadership (law of the few) within the discussion about the Gateway Program provide further insight into how social consciousness might be linked to traffic congestion. Respondents across categories identified political leadership as especially important in addressing regional traffic congestion with tolling (IND-A, IND-C, LUTP-A, LUTP-E, EO-D, EO-A, ADM-A). Opinions and perspectives on this subject were again at odds based on the urban/suburban perspectives. Some respondents noted that the Gateway Program proposal itself is an example of strong provincial leadership responding to the crisis of congestion faced by suburban commuters. For example, IND-C remarked:

*The only action seen has been the Gateway project, but people are not seeing the benefit because there are steps missing in how the province has approached it.*

Other respondents were critical of the same leadership level, noting that the provincial government's Gateway Program is simply a response to pressure to add road capacity from commuters in SOVs as well as personal political alliances and desires. Respondent EO-D remarks "*Politics are getting in the way, [politicians are] voting for their own interests and alliances rather than the right solution.*" In reference to the provincial government's willingness to consider tolling as part of the Gateway Program proposal, respondent MD-A remarks: "*Tolling on the Port Mann<sup>4</sup> is entirely political to address concerns from the urban core.*"

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<sup>4</sup> The Port Mann Bridge is the main crossing between the north and south sides of the Fraser River, connecting the municipalities of Surrey and Langley with Coquitlam, Burnaby and Vancouver. The volume of traffic using this crossing is high and as a result is the source of a traffic bottle-neck. The Gateway Program proposes to twin the Port Mann Bridge in order to relieve the congestion. The provincial government agreed to consider tolling on the bridge in order to appease opponents to increasing road capacity and the proposal in general.

Political leadership for tolling as TDM at the regional level was also identified as weak by respondent ACD-A in reference to how elected officials internalize the impact of tolling as a strategy on their political future: "*There is a balance between collective benefit and individual cost; no middle ground for politicians*", indicating that municipal and regional officials are reluctant to support a TDM strategy like tolling for fear it would cost them their career in office, although they might understand the collective social benefit overall. This sentiment was echoed again by respondent EO-D in reference to the inability of municipal politicians to publicly support what is best for the region due to the general sentiment of voting constituents or their individual political agenda: "*[She] voted for [the Gateway Program] because she wants to run provincially next time, for the Liberals.*"

Leadership issues were further identified by respondents in the Industry group of interviewees. The public debate over the merits of the Gateway Program has often been centered on the need for more efficient goods movement, and much support for the proposal has come from representatives of the trucking industry as well trade and other industry organizations. Respondents noted that this support for Gateway is largely based on the fact that it is the only proposal on the agenda; no other options with true potential to address traffic congestion have been offered. Interviewees indicated that supporters of the Gateway Program are not necessarily advocates of increased road capacity, they may be willing to accept region-wide tolling as a transportation demand management strategy for SOVs, but no genuine proposal has been brought forth to discuss or debate. Respondent IND-A remarks "*No one is putting it all together, there is no vision... [We're presented with] incremental solutions that politicians cherry-pick.*"

As such, industry feels compelled to support a program that would provide any solution to the problem of goods movement, however temporary it may be. Current regional

leadership, able to bring about any significantly different proposal to the Gateway Program, was specifically noted as lacking:

*Two biggest barriers to change are lack of trust [in politicians and governance], lack of information, not delivering sort of a coherent set of agreed beliefs to people, and governance. The fact that we have 21 municipalities...there is more of an incentive to come up with your own little municipal solution and horse-trade it with somebody else's than there is to work and think as a region. That will be a big problem going into the future (IND-A).*

The data presented above would suggest under Gladwell's model that urban and suburban areas are not exposed to the same types of messages, draw on different physical and social contexts, and are subjected to varying levels of effective leadership. The result is two separate, and incompatible mental models of sustainability in the region, both influenced by traffic congestion. The significance of this result and its relevance to social consciousness is further illustrated by graphic representations of the adapted model in Chapter 4: Discussion.

## 4.0 Discussion & Conclusion

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The purpose of the following discussion is to present the implications of the findings, including how the study can be used to better understand the link between traffic congestion and change toward sustainability. The discussion will draw on the data presented in Chapter 3 and the model adapted from Malcolm Gladwell's tipping point framework to illustrate how social consciousness can be mobilized for change toward sustainability. For ease of reference, the significant themes presented in the discursive analysis are summarized below in Table 5 so that they may be explored within this discussion, and the efficacy of Gladwell's framework can be demonstrated. Finally, the limitations of this study are identified and directions for future research are outlined.

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**Table 5: Summary of Discursive Analysis**

	<i>Perspective</i>	<i>Framework Factor</i>
Urban Core	No support for Gateway Program	Freedom to choose other modes (SF)
	Support for region-wide tolling as TDM	Stronger link between land use and transportation (PC) Political Leadership (LF)
Suburban Areas	Support for Gateway Program	Penalized by lack of choice (SF)
	Support for tolling as infrastructure funding mechanism only	Failure to link land use with transportation options (PC) Political Leadership (LF)

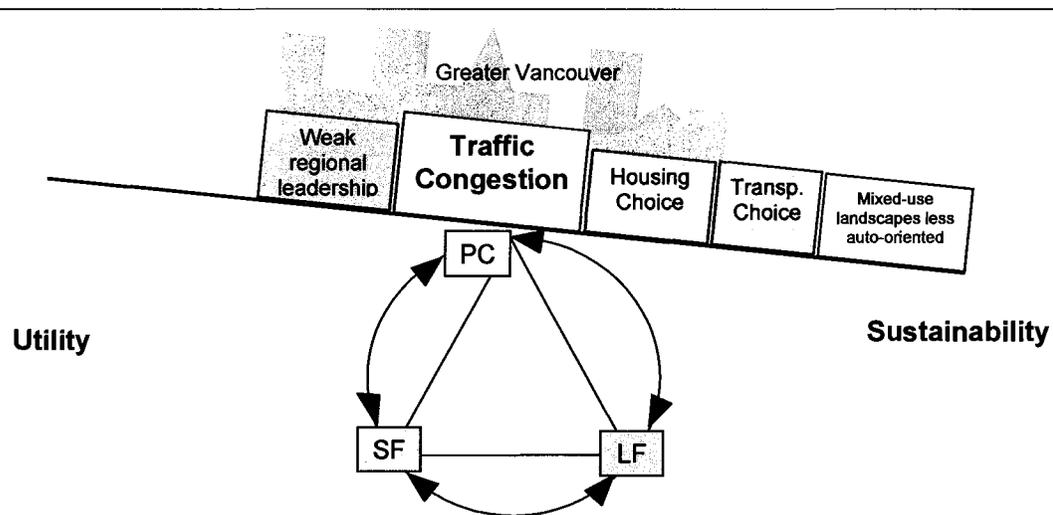
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### *Utility vs. Sustainability*

The analysis in Chapter 3 reinforces the dichotomy between the urban and suburban perspectives identified earlier in the paper, suggesting significant differences in the mental models Greater Vancouver residents use to conceptualize the region and their role within it. These differences can be characterized by the concept of utility in the suburban areas and sustainability in the urban core.

As the data articulate in the previous chapter, social consciousness, or an awareness and responsiveness to the collective ideology of sustainability, is cultivated by the law of the few, stickiness factor and the power of context in the urban core of the region. This is the process by which social consciousness is mobilized for change toward sustainability and as such is illustrated in the following adapted model presented below in Figure 4.

**Figure 4: Adapted Model - Urban Core**

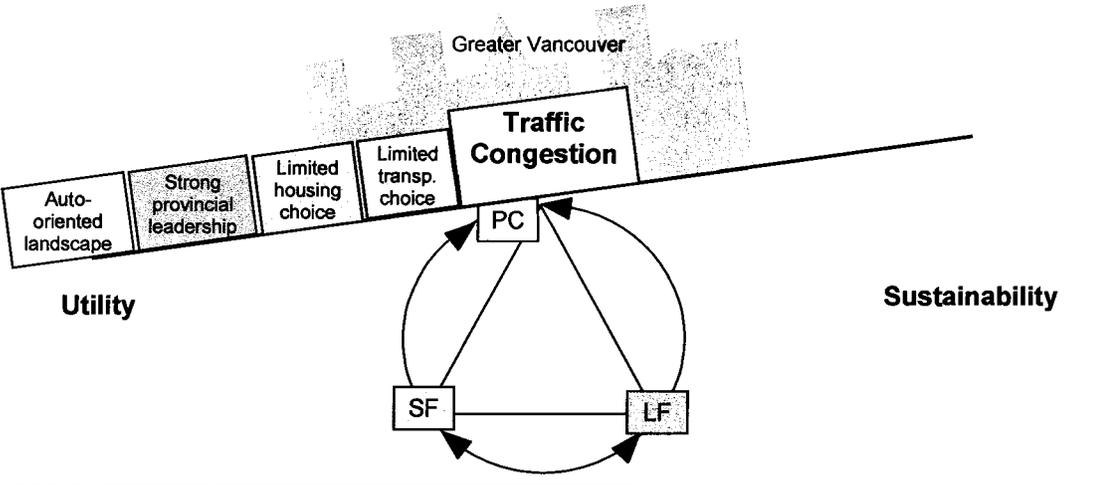


The urban core diagram indicates that traffic congestion in a less auto-oriented, mixed-use landscape (context) with varied transportation and housing choice (stickiness factor), and some leadership at the municipal level (law of the few) can build a social consciousness. The result is public support and demand for strategies and guiding principles that are rooted in sustainability. This is evidenced in the data by support in the urban core for region-wide tolling as a transportation demand management strategy and opposition to the Gateway proposal to increase road capacity.

In contrast, Figure 5 presented below illustrates the situation associated with the suburban regions, where the mental model of utility dominates. The importance of the law of the few, the stickiness factor and the power of context in fostering change becomes especially apparent in this case; provincial support for additional road capacity combined with weak regional leadership, limited transportation and housing choice, and a predominantly single use, auto-oriented landscape, results in a weaker regional social consciousness as demonstrated by public opposition to region-wide tolling, and widespread support for the Gateway Program.

It is important to note that both Figure 4 above and Figure 5 below, show the factors that relate to the Power of Context, the Stickiness Factor and the Law of the Few as having equal weight and influence on the prevailing mental model. Although the model can account for different degrees of influence from each factor (by varying the size and placement of the boxes on the platform), this study did not gather data to assess the degree of influence of each factor. This assessment could however form part of a future study.

**Figure 5: Adapted Model - Suburbs**



Consistent with systems dynamics and complex adaptive systems theory, the model demonstrates that a minor change in one system component can cause a significant change in the system overall. The region as a whole is suffering from a lack of regional leadership and is equally exposed to provincial pressure to support the Gateway Program. Variations in context and message between the urban core and the suburban areas however, have created incompatible ideas of future urban development. Simply put, the outlying regions are speaking a language of utility, where the urban core is speaking a language of sustainability.

Utility versus sustainability is consistent with the literature and ideas discussed in Chapter 1 where Capra, Rooney, Roseland and others have noted that more sustainable communities lie within an awareness of the collective, or as this study has defined it, a social consciousness. Where the results of this study can further contribute is the gap in the literature concerning what factors are most conducive to the creation and operation of sustainability efforts (Portney 2003).

Although this study drew on Malcolm Gladwell's *Tipping Point*– work largely focused on explaining the point at which innovation or trends become commonplace– it is important to reiterate that the research presented here does not attempt to identify or predict epidemic change or a tipping point per se. Rather, it proposes a method of operationalizing sustainability at the level of public consciousness in order to achieve broad and long-term change. Gladwell's framework provides a way of making sense of the patterns that influence and mobilize this social consciousness to achieve change toward sustainability.

In addition to demonstrating the value of the tipping point framework to sustainability research, the study revealed several compelling findings with respect to how the Greater Vancouver region might evolve toward sustainability. Although there were few respondent comments that pertained to the region as a whole, the results that were not core or urban centric, can provide some insight. Table 6 following summarizes the significant region-wide findings:

<b>Table 6: Summary of Region-wide results</b>	
<b><i>Factor</i></b>	<b><i>Summary of Results</i></b>
Power of Context	<ul style="list-style-type: none"> <li>• Region-wide perception of sustainable or livable city based on physical and geographical location &amp; tradition of environmentalism</li> </ul>
Stickiness Factor	<ul style="list-style-type: none"> <li>• Consistency of GVRD message at the political level</li> </ul>
Law of the Few	<ul style="list-style-type: none"> <li>• Historical leadership but lack of strong current leadership</li> <li>• GVRD as a maven</li> </ul>

The summary in Table 6, indicates that the region has a degree of common context due to a region-wide appreciation for the natural environment, has a sticky message at the regional government level– the GVRD was noted as a learning organization for regional government officials and municipal politicians as well as a source of consistent messages rooted in sustainability– and did benefit from effective and charismatic leadership at one time. It was specifically noted that the region is currently experiencing a distinct lack of effective leadership, or what Gladwell would term salesmen. This lack of current regional leadership is an identified vulnerability, and could help explain why the suburban region is susceptible to provincial leaders advocating solutions based in utility, such as the Gateway Program. In addition to identifying vulnerability, the study is able to identify factors contributing to the success of the region as sustainable city. These factors, such as the GVRD as a maven and a common appreciation for the

natural environment, could be used as points of leverage in attempting to narrow the gap in the mental models of sustainability experienced by the urban core and suburban areas of the city.

In summary, the results of the study with respect to the future of the region suggest that the city is poised for change; in order to encourage change toward sustainability, and mitigate mental models of utility, the region will need to leverage past success to further nurture social consciousness, as well as encourage leadership in communities, business and organizations of all kinds. The importance of building a social consciousness of sustainability to accomplish this change on a more global scale, is emphasized in a quote by William D. Ruckelshaus, former head of the U.S. Environmental Protection Agency, as published in the David Suzuki Foundation document *Sustainability within a Generation*:

*Can we move nations and people in the direction of sustainability? Such a move would be a modification of society comparable in scale to only two other changes: the Agricultural Revolution of the late Neolithic, and the Industrial Revolution of the past two centuries. These revolutions were gradual, spontaneous, and largely unconscious. This one will have to be a fully conscious operation, guided by the best foresight that science can provide. If we actually do it, the undertaking will be absolutely unique in humanity's stay on earth (Boyd 2004, iv).*

Considering the imperative of sustainability on the world agenda, urban regions will have to do better at fostering, inspiring and demonstrating values and ideologies associated with prosperous, just and environmentally responsible societies. This study hopes to provide a glimpse into the factors that contribute to the creation and mobilization of

sustainability efforts as regions and global organizations work toward the enormous challenge of building conscious cities.

#### **4.1 LIMITATIONS**

The major limitation of this investigation is that it draws on a theory that is borrowed from a popular culture reference and is not an empirical construct. In addition, the theoretical framework within this study is perhaps most suitable to a qualitative or mixed-method approach to research. Generalizability of the region specific findings is limited, however, the theoretical framework could be used effectively in other studies investigating social change.

#### **4.2 DIRECTIONS FOR FUTURE STUDY**

This study was able to demonstrate the efficacy of the tipping point framework and the model adapted from it within this research project. In order to further assess the framework and demonstrate its value in operationalizing sustainability efforts, future research might consider the assessing the influence of another variable such as fuel prices, climate change or peak oil. To gain further credibility as a theory of social science, the adapted model presented here could be compared to other more established and proven frameworks such as system dynamics.

In addition, as noted in the discussion, this study did not gather data to assess the degree to which each factor influences the mental models. Although the model can account for this variation (by varying the size and placement of the boxes on the platform), the scope of this study did not include this assessment. Further research is needed to investigate these important relationships within the context of the greater Vancouver region.

## **Appendix A: Notes on Collaboration**

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This project is part of a collaborative effort between Rebecca Holt and Graham Senft, colleagues in the Master of Urban Studies Program at Simon Fraser University (SFU). We have included this section in order to describe the motivation for doing joint research, detail our collaborative approach, and present our case for the benefits of collaborative academic work.

### **A tradition of collaboration: context and motivation for collaborative research**

We value the collaborative learning environment fostered by the faculty and students in the Urban Studies program very highly. One of the program's strengths is its support for students who are working full-time, achieved in part by drawing on students' own professional experience and expertise. In particular, the program recognizes that many of its students work in highly collaborative environments in which a team approach is used to generate effective, creative and innovative results. An integrated and collaborative process can yield results that are not only more ambitious than those realized by someone working alone, but results that are especially compelling and successful. Our professional experiences echo this strategy, and we believe that working on academic pursuits in tandem has strengthened our ability to contribute to our respective professional teams.

This project was undertaken jointly in order to explore research themes of mutual interest, at a depth of inquiry that may not have been possible individually. We were interested in exploring connections between social change, sustainability and transportation planning; having worked successfully together on a number of class assignments, we were keen to use our final project to further develop these ideas

through the synergy of collaborative learning. We approached the Urban Studies faculty with a proposal to complete the project in tandem, and upon permission to proceed, developed a joint research policy and evaluation method.

### **The Conscious City I and II: the collaborative approach**

We were asked to propose a method of evaluation that could provide an effective means of evaluating both joint and individual effort. We agreed that the topic to be pursued would be treated as joint intellectual property; as such, if one of us withdrew from the project or program for any reason, the topic would become unavailable to both. We proposed to explore two distinct but linked questions through collaborative research and analysis, although we were required to submit and defend two separate papers.

We began the process with a series of brainstorming sessions to establish the preliminary research questions, methodological approach and theoretical framework for the project. This process was extensive, and required multiple meetings, drafts and revisions. At this stage, we developed each idea collaboratively in order to ensure the development of a solid methodological and theoretical foundation for the research. Following the submission of a joint research proposal, we proceeded to develop the methodological tools for the project, including interview guides and a document collection strategy. We revised the proposal and research materials as necessary following a review by the project supervisor.

The next stage of collaborative work was the data collection itself. Following the development of a system for tracking interview invitations and scheduling, we conducted a total of 19 interviews. We were both equally involved in all interviews. The interview strategy evolved over time, as we refined the interview guides and became more comfortable with the interview process. Initially, we both asked questions and made

short notes. As more interviews were completed, the level and complexity of the discussion increased, and one researcher became responsible for questions while the other made more detailed notes to support the recorded transcript. We debriefed after each interview, identified key themes, compared notes and raised follow-up questions to guide the analysis. As soon as possible after each interview, one of the researchers transcribed a summary of the interview by research question. We split this task equally, and then exchanged and reviewed each written transcript.

Following the data collection and transcription process, we worked together to identify key themes as they related to each research question. Based on these themes, we created outlines for each research paper. Using the outlines we had generated together, we began analyzing the data and writing our own paper. On a regular basis, we met to compare results and review progress. Following the review of the two drafts by the project supervisor, we worked together to address areas of weakness and ensure the effective integration of our analysis and discussion.

Although the research papers have been written separately and address separate research questions, we wish to note that the analytical insight in both papers was a result of ongoing collaborative reflection on the research as a whole. The research and analysis was iterative, in that both research questions were explored together. The process used to separate the research questions was based on the strengths of our previous work and our interest in the themes within the questions

To help facilitate individual evaluation during the collaborative process, and to provide us with an opportunity to reflect on our experience, we each kept a process journal in the form of a weblog, or 'blog'. The blogs serve as personal narratives on the evolution of the project, documenting revisions to the research questions, the methodological

approach, and the theoretical framework. The blogs provide members of the supervisory committee with an ongoing account of the collaborative process through the personal lens and learning of each researcher. The blogs can be accessed at the following web addresses:

Rebecca Holt: [rholt.wordpress.com](http://rholt.wordpress.com)

Graham Senft: [wondercat.wordpress.com](http://wondercat.wordpress.com)

### **Why work collaboratively? The benefits of collaborative academic work**

Collaborative learning is a well-established value in both academia and professional practice. It is based on the understanding that learning is a social process, and the acquisition of knowledge comes mostly through discussion and negotiation (Soller, 2001). The method also implies a belief in the democratic process: all team members are equal in their pursuit of a common goal and their contributions are all equally valuable (Soller 2001). Collaboration is well suited to the inductive approach to knowledge acquisition in qualitative research (Glesne 2006; Dick, 2004); it significantly enhanced the level of dialogue and interaction between researchers during the study, and served as a catalyst for deeper research and reflection. In addition, this approach fit well with the study's focus on the role of collaborative and collective value in sustainability and social consciousness. At the heart of the project's research questions is the idea that the collective impact of humanity and the power of collaboration are key to building better cities.

Advocates of collaborative learning suggest that sharing and exchanging ideas with others promotes critical thinking and enhanced interest among learners (Gokhale, 1995). Johnson and Johnson (1986) note that there is much evidence to support that cooperative groups achieve a greater depth of knowledge and retain information longer

than students working alone. Shared learning encourages critical thinking by making students accountable for their individual learning and providing opportunities to engage in discussion (Totten et al. 1991). Glesne (2006) also stresses the role that collaboration can play in qualitative inquiry. She notes that in collaborative research, all participants are both teachers and learners: “knowledge is not acquired didactically, rather, it is developed inductively through dialogue among reading, individual research, and reflection” (xiv).

In professional practice, particularly in organizations and disciplines working toward change toward sustainability, collaborative work processes, integrated across professional disciplines, are becoming increasingly necessary. The development and enhancement of critical-thinking skills through collaborative learning is required for workers to be able to think creatively, solve problems and make decisions as a team. For example, building professionals are increasingly applying an Integrated Design Process (IDP) as opposed to a conventional ‘top-down’ or hierarchical approach, when developing and designing for the built environment. IDP brings all stakeholders to the table at the earliest possible stages of design and development in order to facilitate the exchange of knowledge and ideas between key and specialized disciplines. Accomplishing this cooperative effort results in creative and innovative solutions for efficient, high performance buildings. In addition, IDP supports an open and synergistic relationship between disciplines, resulting in more opportunity for learning and creative expression (IISBE 2007).

## **Conclusion**

We feel we have benefited significantly from working collaboratively on our final research projects. We acknowledge that a positive and fruitful collaborative experience can only

be possible by establishing and maintaining a strong and equal working relationship in the academic context. The collaborative and interdisciplinary nature of the Urban Studies program, and the support received by faculty and staff, were major contributors to the success of this research team. In particular, the opportunity to explore group learning afforded to both team members during coursework was instrumental in the decision to undertake this research as partners.

In closing, we wish to suggest that the future of academic collaboration in Urban Studies could be further supported by allowing researchers to co-author written work. Although we were generally satisfied with the outcome of this project, we both feel that a co-authored approach would have better suited the intended research objectives of this project. Co-authoring acknowledges ideas generated in tandem and supports efficiencies in writing and research, freeing up more time and scope to devote to exploring themes in greater depth.

## Appendix B: Interview Guide

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**Rebecca Holt & Graham Senft, Fall 2006**

**Final Projects, Master of Urban Studies Program, Simon Fraser University**

### **Interview Objectives:**

1. To determine the role of traffic congestion as a catalyst for change toward sustainability in Greater Vancouver.
2. To explore the role of traffic congestion in bringing about a Tipping Point toward sustainability in Greater Vancouver.

### **Questions for Consideration:**

#### *Introduction*

1. Please tell us about your professional background as it relates to urban issues in Greater Vancouver.
2. What perspective do you bring to these issues? Bias/values?

#### Greater Vancouver as a Sustainable Region

3. Greater Vancouver is widely perceived as a 'green' city, and has been recognized internationally as one of the most liveable cities in the world. In your opinion, what is the difference between liveability and sustainability?
4. Greater Vancouver, through programs such as the GVRD's *Sustainable Region Initiative*, is working toward becoming a more sustainable region.
  - a. How successful has the region been in this effort?
  - b. What are some of the most important examples of progress?
  - c. What are some of the most significant shortcomings?
  - d. Is anything about Greater Vancouver's experience unique?
5. What organizations / institutions have been critical to the success that Greater Vancouver has had in working toward a sustainable region? How?
6. What people have been critical to the success that Greater Vancouver has had in working toward a sustainable region? How?

#### *Transportation Planning*

7. What is the biggest challenge we face with respect to transportation planning in Greater Vancouver today?
8. How can the region most effectively address this challenge?

### *Traffic Congestion*

9. In your view, how does traffic congestion impact the region?
10. How has traffic congestion influenced transportation priorities in the region?
11. In your experience, how do perspectives on traffic congestion differ throughout the region?
12. How has traffic congestion contributed to the regional debate on tolling (both as a funding mechanism and demand management measure)?
  - a. Has congestion fostered a more rational debate about transportation and transportation supply in the region?
13. How does traffic congestion influence behaviour in the region?
  - a. How does congestion influence aggregate housing & work location?
  - b. How does congestion affect aggregate trip generation and mode choice?
14. Do you think traffic congestion has (or will) create a social climate that is more conducive to sustainable alternatives?
15. Do you think congestion can help people recognize the limitations of auto oriented and dependant communities?
16. Do you think congestion can help the region prepare for and/or accept the behavioural change needed to foster more sustainable alternatives?
  - a. Do you think traffic congestion has (or will) create pressure for governments to provide more transportation choice?
  - b. Do you think traffic congestion can encourage people to consider sustainable alternatives outside of transportation?

### *The Tipping Point*

17. What factors do you think will contribute most significantly to a *tipping point* in terms of becoming a more sustainable region?
  - a. Do you think traffic congestion has a role to play in this process?

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