Integrating Outdoor Recreation and Planning: An Integrally Informed Analysis of the Revelstoke, BC Bicycle Network

Submitted by:

Chris Larson

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ABSTRACT

While outdoor recreation resources may be developed as infrastructure to benefit the tourist economy, through community-based planning efforts such developments can achieve a wider range of community benefits. This research project examines the role of outdoor recreation development in urban and regional planning strategies enabling a deeper understanding about how these amenities can enhance our communities and make them more resilient, diverse, and healthy. Stakeholder interviews and user surveys focusing on the implications of the ongoing development of the City of Revelstoke BC bicycle network were conducted to further inform this study. The Integral framework adopted in the analysis proved to be valuable for the inclusion of a broad range of perspectives. Nine recommendations are identified with relevance for the planning profession, suggesting that outdoor recreation can play a significant role in community building, enhancing social equity, and providing a means of urban enhancement. The research findings indicate that collaborative partnerships are vital to the planning process towards creating valued outdoor recreation amenities that align with local community perceptions, while creating a unique community-based experience attractive to tourists.

Keywords: Municipal & Regional Planning; Outdoor Recreation; Mountain Biking; Integral Theory; Adventure Tourism; Active Transportation.
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CHAPTER 1: INTRODUCTION

Outdoor public space can play a variety of roles in the lives of citizens, potentially offering a wide-range of benefits, filling needs for direct physical contact with place and active engagement (Carr, Francis, Rivlin & Stone, 1992; Williams 1995). Carr, Francis, Rivlin and Stone (1992) describe active engagement as activities including jogging and bicycling, through which participants are able to engage specific needs for adventure, challenge, or even risk. Unique outdoor systems comprise identifiable landscapes, a stamp of individuality, and areas for adapted recreational activity (Hough, 1990). Outdoor spaces provide opportunities for recreation and place-making, shaping the distinct character of an urban area. A variety of outdoor spaces are required for an increasing array of active pursuits; diverse social groups require diverse landscapes and options between locations (Hough, 1990). Providing for the increasingly diverse array of outdoor recreational activities has been noted as a challenge in land-use planning (Harshaw, Kozak & Sheppard, 2005).

“Outdoor recreation” is a broad term for experiential activities that take place in natural outdoor settings. Outdoor recreation is playing an increasing role in municipal and regional planning, particularly in recreation planning as trends have shifted towards individual lifetime activities from team sports, and towards an outdoor focus from indoor facilities (Harper, 2009). As a result of the decline of traditional industry and associated lifestyle changes, public recreation service providers have been pushed to broaden the existing scope of leisure opportunities by a general public seeking empowerment and freedom of choice (Karlis, 2004).
The trend towards active living represents a convergence of community planning, health promotion, and outdoor recreation goals. Without community planning, there is little prospect of recreation receiving appropriate priority (Pigram & Jenkins, 2006).

Trail-based outdoor recreation is a more specific categorization that includes hiking, skiing, jogging, and running, as well as bicycling. Trail-based outdoor recreation is also playing an increasing role in many municipalities and regions, particularly with the development of active transportation systems in response to climate action and emissions reduction legislation, as well as policy initiatives such as complete streets, safe routes to schools, and the healthy communities movement. The effects of trail-based outdoor recreation resource development can be perceived to be both positive and negative, ranging from issues of ecological sustainability, economic diversification, urban renewal, quality of life, inclusive access and community development.

Accessible and increasingly popular, bicycling is considered to be a “gateway” activity that can lead to participation in other outdoor activities (Outdoor Foundation, 2010). While the growth of mountain biking through the 1990s contributed to bicycling being one of the more popular forms of outdoor recreation, bicycling has maintained its popularity as a recreational pursuit over time as it is relatively inexpensive and appeals to a broad demographic range (Jenson & Guthrie, 2006). An American study found that 15% of Americans (43.3 million people) participated in bicycling activities annually, amounting to 2.54 billion bicycling outings per year in the United States alone (Outdoor Foundation, 2010). In Canada,
cycling is of particular relevance as both an outdoor recreation pursuit and as a form of active transportation, benefiting from promotion by all levels of governance. Active transportation is generally considered to be a component of an active lifestyle, with the associated infrastructure promoted by health professionals for the related health benefits.

![Image 1: Revelstoke’s bicycle network includes on-street routes and trails providing views of natural landscapes and access to local amenities such as Centennial Park.](image)

Bicycling is one of the most popular forms of active transportation, a broad term that captures any type of human-powered transportation including walking, in-line skating, and skateboarding. Active transportation provides a number of benefits, affecting health, social conditions, transportation, the environment and economy. A well-planned active transportation system with comprehensive facilities and connected network supports and enables residents to use alternative forms of transportation (Manzini & Jegou, 2003). As devoting public space to the car alone is no longer seen as a best practice, forms of transportation alternative to the automobile are seen as a way to reduce direct and indirect transportation costs, improve urban environmental quality and the public realm, and promote physical
wellbeing (Manzini & Jegou, 2003; Lee & March, 2010). Increased demand for infrastructure that supports diverse forms of active transportation has led to the development of community bikeway systems, including both off-street multi-use trail networks and on-street routes in many urban areas.

While multi-use trails are managed differently due to location, types of usage, and environmental factors, they host a range of functions promoting outdoor activity (Gambill, 1998). The term “multi-use trail” generally refers to an off-street path exclusively for non-motorized use, often for recreation including walking, jogging, cycling, and rollerblading, as well as for passive use such as nature viewing and also commuting via active transportation. American participation rates in outdoor recreation are 20 to 25% higher in areas close to such local outdoor infrastructure (Outdoor Foundation, 2010). Multi-use trails are often considered to be primary bikeways and a key component in a community’s active transportation system. The popularity of bicycling as a form of recreation coupled with improvements in municipal infrastructure can lead to increases in the choice of cycling as a mode of active transportation.

A number of positive precedents exist illustrating that the development of recreation-oriented infrastructure can capitalize on unique outdoor assets as a way to drive investment in communities while enhancing livability (Edwards, 2008). In Atlantic Canada small municipalities and rural residents facing a struggling resource-based economy have viewed recreation as an important development issue (Dykeman, 1989). The city of Ogden, Utah has been able to revive its faltering economy recently by focusing on developing its outdoor recreation potential (Best,
Examples of bicycle network development exist in Victoria, Whistler, and Rossland, BC.

At the regional scale, the Galloping Goose and Lochside Regional Trails developed by the Capital Regional District (CRD), form an exemplary 84 km network reaching from Sidney, through Victoria to Sooke, BC (CRD, 2011-b). These regional efforts have spurred additional cycling projects at the municipal level, enhancing connectivity and access. For example the District of Saanich, bordering Victoria to the north, has added 14 km of new trail and has undertaken 30 km of trail improvements over the past five years as part of a Centennial Trails project (District of Saanich, 2011).

Image 2: Whistler, BC offers a range of summer recreation options, including downhill mountain biking.

The Resort Municipality of Whistler has a very diverse network of dedicated bicycle infrastructure ranging from family-oriented terrain, to International Mountain Bicycling Association (IMBA – please refer to Section 2.1.5 for further description of the IMBA) designated Epic Trails (IMBA, 2011), to the advanced downhill mountain biking terrain of the Whistler Resort Bike Park (see Image 2
above). The development of summer recreation opportunities has enhanced Whistler as an international summer destination for adventure tourism. The City of Rossland, BC (“Mountain Bike Capital of Canada”) has many trail-based outdoor recreation amenities, including the Seven Summits mountain bike trail. Built in 2004, the Seven Summits trail has been designated as an “Epic Trail” by the IMBA (IMBA, 2011).

These precedents demonstrate that outdoor recreation actively contributes to a local economy, contributing to the foundation of a stronger, more sustainable, more resilient community better capable of withstanding the pressures of the urbanized world (Roseland with Soots, 2007). Existing research supports the role of bicycling, active transportation and multi-use trails as components in creating valued outdoor space. Through investigating the development of the Revelstoke, BC bicycle network, this research examines how planning can best support outdoor recreation development, and how outdoor recreation resources can complement the local community. The findings of this project indicate that the development of outdoor recreation resources can coincide with local community goals and perceptions.

1.1 Research Problem

Canada has been a statistically urban country since roughly 1924 and has become increasingly urbanized ever since (Bourne, 1991). With the population of rural Canada in decline, small towns have made a range of efforts to remain vital and attractive (Grant, 2008). One such effort is the development of outdoor recreation
infrastructure as economic development strategy. While tourism and the promotion of outdoor recreation have provided an economic stimulus for many former industrial towns, this focus may not be the “magic” solution for rural development in general (Hall and Page, 2006). The development of outdoor recreation infrastructure must ideally involve the integration of many community-based considerations and perspectives to remain viable over the long-term.

Planning for outdoor recreation must address an increasingly complex field of pursuits and perceptions. As a result of the decline of traditional industry and associated lifestyle changes, public recreation service providers have been pushed to broaden the existing scope of leisure opportunities by a general public seeking empowerment and freedom of choice (Karlis, 2004). The increasing array of outdoor recreation activities has been noted as a challenge (Harshaw, Kozak & Sheppard, 2005). The management of outdoor recreation areas has been growing more complicated as an expanding variety of user groups have increased demand and generated conflict on a finite land-base.

As a specific outdoor recreation example, one might consider the range of potentially bewildering sub-disciplines pursued by bicycling enthusiasts (see Table 1 below). These include, but are not limited to: commuting (active transportation), road-riding or touring (recreational bicycle riding on roads), cross-country mountain biking (endurance-based off-road bicycling, potentially including strenuous uphill sections), downhill mountain biking (technically difficult, high-speed gravity-fueled terrain with very limited uphill riding and potentially chairlift-serviced), free-ride mountain biking (stunts-based trails), all-mountain bicycling (a
combination of the three previous disciplines), dirt-jump (stunts without a trail), BMX (racing around an obstacle-filled track), and family-oriented bicycling (trails which support all potential users). Variation in participant motivations - such as competition, fitness, backcountry access, and socializing - offers additional layers of complexity and potential conflict to potentially consider within any one sub-discipline. Also very worthy of consideration are the significant perspectives of those whose pursuits potentially share the same land-base as bicycling enthusiasts, including (but not limited to) those of hikers, forestry interests, naturalists, automobile advocates, off-highway vehicle users, hunting and fishing enthusiasts, nature-enthusiasts, as well as equestrian groups. The landscape of interests in this field is certainly very complicated and potentially very conflicted.

Table 1: A sampling of the variations and sub-disciplines of bicycling.

<table>
<thead>
<tr>
<th>Sub-Discipline</th>
<th>Actions</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commuting</td>
<td>Transportation-based bicycling often on roads</td>
<td>Active transportation</td>
</tr>
<tr>
<td>Road-riding or touring</td>
<td>Recreational bicycle riding on roads</td>
<td>Active transportation or recreation</td>
</tr>
<tr>
<td>Cross-country mountain biking</td>
<td>Endurance-based trail bicycling, often uphill</td>
<td>Active recreation</td>
</tr>
<tr>
<td>Downhill mountain biking</td>
<td>High-speed gravity-fueled bicycling with limited uphill riding</td>
<td>Active recreation</td>
</tr>
<tr>
<td>Free-ride mountain biking</td>
<td>Stunts-based trail bicycling</td>
<td>Active recreation</td>
</tr>
<tr>
<td>All-mountain bicycling</td>
<td>A combination of the three previous disciplines</td>
<td>Active recreation</td>
</tr>
<tr>
<td>Dirt-jump</td>
<td>Stunts without a trail</td>
<td>Active recreation</td>
</tr>
<tr>
<td>BMX</td>
<td>Racing around an obstacle-filled track</td>
<td>Active recreation</td>
</tr>
<tr>
<td>Family-oriented bicycling</td>
<td>Trails which support all potential users</td>
<td>Active transportation or recreation</td>
</tr>
</tbody>
</table>
At the provincial level, British Columbia currently promotes mountain biking to generate adventure tourism activity with mountain biking infrastructure developed as a form of economic development strategy, particularly in rural communities (Mountain Biking BC, 2010). Revelstoke, BC is one such community where this strategy has been employed. The trail systems associated with mountain biking in Revelstoke are local assets and are being promoted to attract tourist activity (Mountain Biking BC, 2010; Revelstoke Chamber of Commerce, 2011-b). Additionally, active transportation initiatives in Revelstoke are expected to enable increased cycling activity based on the development of new and improved bicycle facilities (City of Revelstoke, 2010-b). While these objectives may be considered “hard” or technical, there are clearly additional community benefits that may be enhanced through the development of outdoor recreation infrastructure provided the potential for such enhancements is recognized.

Image 3: The Illecillewaet Greenway River Trail is a multi-use path providing transportation and recreation options for non-motorized use within the City of Revelstoke.

Beyond specific demands, a broad consideration must be given to the wider potential implications of outdoor recreation, including the viability of a
tourist/recreation economy and environmental concerns. The development of outdoor recreation-oriented infrastructure could be used to capitalize on unique natural assets as a way to drive investment in communities while enhancing livability (Edwards, 2008). Recreation can have an ecological cost and there is a growing awareness regarding the environmental impact of recreational activity, often at concentrated sites (Hammit & Cole, 1998). Yet, the recreational use of green-spaces can enhance residents’ connection to nature and ecological processes (Beatley, 2011). Planning for outdoor recreation resource development must address broad perspectives related to various issues including ecological sustainability, economic diversification, and quality of life.

1.2 Research Objectives and Questions

In investigating the implications of the development of Revelstoke’s bicycle network, this research considers the linkages amongst outdoor recreation, the local economy, environment, and community development. The purpose of this project is to identify how outdoor recreation resource development occurs, how this development can be best supported by community planning, and to identify ways and means outdoor recreation can contribute to the local community and our cities becoming more resilient, diverse, and healthy.

The key research questions are:

1. Within the context of community planning in Revelstoke, what role does outdoor recreation play in community building?

2. To what degree does trail-based outdoor recreation infrastructure align with local community expressions, perceptions, and intentions, as well as
municipal and regional planning objectives, such as health, resilience, and sustainability?

3. What role have partnerships between stakeholder groups played in the planning of these projects? How are volunteers, community members, and different levels of government involved in supporting these projects?

4. What lessons can planners learn from the development of Revelstoke’s bicycle network, that have potential to apply more widely?

1.3 Significance of Research

This research project is significant for a number of reasons. For Revelstoke, the community being studied, as well as other communities across Canada and beyond, this research is relevant to support the development of outdoor recreation amenities. While climatic and geographical suitability must be considered in relation to the findings to be derived from this research, many general themes may well have application in other contexts. For planners, this project will enable a deeper understanding of the specific implications of outdoor recreation developments in and around our urban areas and how these contributions can make our cities more resilient, diverse, and healthy. As this research may deepen planners’ understanding related to particular outdoor activities, the lessons learned from this research and the recommendations to be made have the potential to broaden the scope of planning practice.

Specifically, this researcher intends the results to shine a light on the uninformed perceptions some researchers and planners may have related to
outdoor recreation (Jakus, Riddel & Shaw, 2003). This project provides a significant contribution, as researchers have noted that incomplete knowledge of recreation visitors’ values has complicated issues for land-use managers (Brooks & Champ, 2006). As concerns have surfaced related to the impacts of outdoor recreation, the research attempts to achieve a balanced perspective, acknowledging costs and benefits. While recreation can have some ecological cost and there is awareness regarding the environmental impact of recreational activity, outdoor recreation can provide interactions with natural processes and opportunities for education, potentially to the benefit of environmental concerns (Hammitt & Cole, 1998; Frey, 1999). The research explores how the development of outdoor recreation opportunities can be balanced and achieved in consideration of environmental and ecological concerns.

One of the clear contributions that outdoor recreation can make to Canadian communities is in improving the health and the quality of life for residents. A general concern towards improving health and fitness through recreational pursuits has contributed to the popularity of trail systems, fueling demand for multi-use paths, and with users indicating a preference for separate trail facilities (Pucher, Komanoff, & Shimek, 1999). The findings regarding Revelstoke’s bicycle network support multiple health benefits, providing an informative precedent for other municipalities to draw upon, and a contribution to the existing body of research.
While this project applies an Integrally-informed\(^1\) approach to outdoor recreation and the Revelstoke bicycle network as discussed in following chapters (an introduction to Integral Theory is presented in Chapter 2, Section 2.7, while the application of the theory is described in Chapter 3, Section 3.3), this specific focus reflects the potentially wider applicability of an Integral approach to planning practice. Planners must deal with complexity, both in terms of general considerations and when developing outdoor recreation opportunities. Planners face “wicked” problems - societal and political problems that are often not well defined and which cannot be solved in a rational, scientific manner (Rittel & Webber, 1973, p.160). Rittel and Webber (1973) recognized the increasingly heterogeneous nature of society in the post-industrial Western world where “irregular cultural permutations are becoming the rule” (p.167). There is a growing need for awareness of other cultures (and sub-cultures) as globalization and urbanization introduce a need for a multicultural literacy, a need for planners to form new perspectives that can provide opportunities to learn and practice other ways of knowing (Sandercock, 1999). As such, the idea that an Integral approach avoids “one size fits all” solutions is particularly relevant to planners (Esbjorn-Hargens & Zimmerman, 2009, p.483).

1.4 Research Approach

Research for this project followed a fairly linear progression through a literature review, case study investigation, interview/survey data collection and

\(^1\) Capital “I” Integral is used throughout this document in reference to Ken Wilber’s comprehensive model of Integral Theory.
analysis (Berg, 2004). The research process allowed for additions and revisions to the literature review as research was conducted and data collection introduced additional areas of consideration. This combination of methods has enabled the completion of original empirical research that can expand the range of understanding and contribute to planning practice.

The literature review (Chapter 2) for this project included peer-reviewed journal articles, published books and grey literature (technical reports and governmental documents). A review of existing literature was an essential component of this project to offer a broad context for the research (Bui, 2009). By conducting an in-depth inquiry into a specific example, a case study can provide invaluable understanding of a specific phenomenon related to the context in which it is occurring (Gray, 2009). Through the combined process of semi-structured interviewing and questionnaires, primary data was collected from subjects who have directly contributed to, while interacting with, Revelstoke’s bicycle network. While the method of a specific survey questionnaire produced quantitative data, conducting semi-structured interviews allowed the participant an opportunity to reflect and contribute without the commitment of putting a position into writing, generating qualitative data (Gray, 2009). The “Integral Approach” provided a valuable framework for analysis to address the challenge in planning to synthesize an increasingly diverse range of views.

1.5 Bias, Assumptions and Limitations

A researcher inevitably brings the inherent bias of their personal values, beliefs and experiences to a project. While undertaking an internship with the City
of Revelstoke Planning and Development Services department in the summer of 2011, the researcher established contacts and identified several key informants who participated in this research. As an avid cyclist, much of Revelstoke’s bicycle network was explored and documented during this period. While these visits have informed a valuable experiential perspective, they may also bias and limit the researcher to some degree.

The trend of growing interest in outdoor recreation has led to a substantial growth in the participation of outdoor adventure recreation, including trail-based mountain bicycling (Cordell et al., 1999). While mountain bicycling has inherent risks, this project assumes that these associated risks are acceptable, possibly indicating the researcher’s bias as a cycling enthusiast.

Targeting specific residents and participants limits this research project. Research focused on an adult population. While bicycle networks often provide transportation options for youth, those under the age of majority were not included. Likewise, while bicycles are a more affordable transportation option for those who cannot drive an automobile for financial reasons, an economically vulnerable segment of the population was not targeted.

Additionally, the timeframe for this research did not allow for the collection of data from a statistically valid population sample. Thus, a limitation of this research project is that it does not represent the full population of bicycle network users or residents. These and other limitations could be addressed through future research (discussed in Section 4.4).
1.6 Document Organization

This document is divided into four chapters. Chapter 1 serves as an introduction to the topic of the project, stating the objectives and purpose of the research. The second chapter provides a literature review of historical planning approaches towards outdoor recreation, discussing a range of considerations and implications of outdoor recreation resource development. Research methods and findings are discussed in the third chapter, including case study research of Revelstoke’s bicycle network, stakeholder interviews, and user surveys. The fourth chapter provides recommendations and potential next steps - for planners, advocates, and decision makers - to encourage an integrated approach towards the development of outdoor recreation amenities. A list of images, tables, references, and appendices, including copies of the semi-structured interview and survey questionnaire, are included at the back of the document.
CHAPTER 2: HISTORY AND TRENDS IN OUTDOOR RECREATION PLANNING

The role of planning related to outdoor recreation continues to evolve as new trends, approaches, and challenges emerge. Likewise, the priority placed on outdoor recreation by planners varies as initiatives, legislation, and policy shift over time. To provide a context for this project and to clarify the research problem, a broad literature review was conducted into the role of planning in supporting and enhancing outdoor recreation development. Research for this project involved review of many publications including peer-reviewed journal articles, published books, and grey literature (technical reports and governmental documents).

While the literature review did not reveal any primary texts directly focused on the narrow area of research for this project, a number of sources provided inspiration, insight, and influence. Several sources provided general themes and overarching considerations relevant to outdoor recreation planning, other key readings detailed specific concerns in developing outdoor recreation amenities. The theoretical basis for this project has been influenced by the following works and authors: George Karlis, Leisure and Recreation in Canadian Society; Timothy Beatley, Biophilic Cities; Jan Gehl, Cities for People; C. Michael Hall and Stephen J. Page, The Geography of Tourism & Recreation; Sean Esbjorn-Hargens and Michael E. Zimmerman, Integral Ecology: Uniting Multiple Perspectives on the Natural World; as well as the work of David Cole in the field of recreation ecology.

In addition to a historical consideration of outdoor recreation in planning theory, the themes explored in this literature review include health, environmental,
economic, and social implications, as well as a consideration of the rural/urban context. The first section of this literature review discusses approaches to outdoor recreation in North American planning over time, providing a historical context for planning in the present that suggests potential future considerations. The second section reviews literature on various perspectives on how the infrastructure supporting outdoor recreation activity contributes to overall health in a community. Perceptions in literature regarding potential environmental and ecological implications related to a trail-based outdoor recreation network are reviewed in the next section. The literature review is further informed by a fourth section looking at how outdoor recreation interests play a significant economic role across different scales. Outdoor recreation activity can build social connections between and within communities, and literature related to the manifestation of social benefits of outdoor recreation is also reviewed. The final section of the literature review presents research related to the urban/rural context of outdoor recreation activity and how location influences a varied set of concerns related to outdoor recreation planning.

With a strong theoretical basis and an understanding of a wide range of related purposes, particular concerns and perspectives - as well as potential implications - are identified. These support research into the role of planning in the development of outdoor recreation resources, addressing key elements and attributes in alignment with local community expressions and intentions. Themes in the literature review are directly linked to the research methodology of case
study, interviews, and surveys (Chapter 3), and also inform the final recommendations (Chapter 4).

2.1 Approaches to Outdoor Recreation in Planning

An understanding of the role that outdoor recreation has historically held in planning is necessary to understand the present and to anticipate the future. General shifts in planning theory are largely mirrored in the approaches and considerations directed towards outdoor recreation over time. The following six sub-sections present an overview of evolving approaches towards outdoor recreation in (primarily North American) planning starting with 19th century provisions through to potential future considerations.

2.1.1 Outdoor Recreation’s Initial Appearances in Planning

Outdoor recreation has been an area of some level of concern in planning for well over a century: utopian thinkers in the 19th century included opportunities for outdoor recreation in their plans. Ebenezer Howard’s utopian Garden City was envisioned with a ring of parkland around the centre (Fishman, 1982). Frederick Law Olmsted was a proponent of the parks movement. In Public Parks and the Enlargement of Towns, Olmsted (1870) made a case for public parks in the context of urban growth based on civilizing virtues of recreation areas, including public health, civic pride and social contact.

Provisions for outdoor recreation make an initial appearance in the context of Canadian urban planning through the incorporation of urban parks in the mid
1800s, when between 1848 and 1886 Canadian cities including Toronto, Halifax, Montreal and Vancouver all opened parks (Vojnovic, 2006). Similarly in the USA, Boston, Chicago, New York and San Francisco acquired land - between 1850 and 1900 - for major park systems (Banerjee, 2001). These public areas represented an attempt to address concerns regarding public health and the well-being of the urban population, a humanizing movement in the larger context of urban social reform.

It was within the period from 1885 to 1930 that the western parks were established, forming the foundation of Canada's National Parks (Armstrong, 1959; Lothian, 1987). The 1909 formation of the Commission on Conservation fostered concerns for many resources currently utilized for outdoor recreation, including lands, forests, fisheries, and waters (Hodge, 1986). By the mid-1920s, planning had become institutionalized as a profession in Canada; all of the provinces had planning legislation (Hodge, 1986). Early Canadian planners were concerned with the function of the city and generally followed a rational approach, with a belief that technical solutions could be found to planning problems (Hodge, 1986). The Great Depression of the 1930s put a halt to many Canadian planning efforts, while the promotion of zoning constrained planners and limited attention that might have gone into planning (Hodge, 1986).

These general shifts are mirrored in the approach towards outdoor recreation in planning developments and resulting outcomes. In the early 20th century, access to outdoor space was integral to planning concepts in U.S. cities, as progressive reasoning for the provision of open space benefitted health, hygiene and social opportunities, especially for residents of crowded inner cities (Banerjee,
2001). With the Regional Plan Association of America (and the International Congress of Modern Architecture or CIAM) endorsing the provision of outdoor space as essential, the values affixed to parks began to change. Through the 1920s and 30s, the perspective of parks as a source of civic pride and virtue underwent a secular and communitarian transformation, resulting in the formation of a functional view of parks and spaces for outdoor recreation as a public good and service (Banerjee, 2001). As a legislated public good, standards for parks became codified, dictated by committee-developed guidelines focused on basic utility, rather than aesthetics or civic aims (Banerjee, 2001). In the USA, these standards would come to be required under the development legislation of the Department of Housing and Urban Development. Thus, urban parks had become normative institutions (Boyer, 1983). What was once valued as a populist civic movement became institutionalized as a part of the rational city (Banerjee, 2001).

### 2.1.2 Rational Planning and Outdoor Recreation

Rational planning claims to employ objective methods that can be applied to all aspects of the planning process (Allmendinger, 2002). Reason is the main tool in rational decision-making, and as such, it attempts to form a technical science of decision-making (Healey, 2006). Rational planning aims to be logical and follow an orderly path from problem identification through solution. However, it is not possible for a rational planner to gather all relevant information and have insight into all impacts of a decision. While rational planners attempt to serve the common good, the less common good is often overlooked.
The homogenizing influence of rational comprehensive land use planning has been criticized for not reflecting the pluralist nature of society (Galloway & Mahayni, 1977). The resultant cookie-cutter urban parks have been criticized as not being reflective of the inherent social diversity of the neighbourhoods they are in (Hough, 1990), and not providing for an extensive range of existing outdoor recreational activities (Williams, 1995). Outdoor recreational activity is far more extensive and varied than is formally recognized and the range of environments that facilitate recreation use could be significantly extended (Williams, 1995). In consideration of tourism and recreation, Hall and Page (2006) find that the normative planning framework is not flexible. Questioning this traditional approach to urban recreation planning, Gold (1973) found that it could only be considered comprehensive for a relative minority and irrelevant to the majority, calling for arbitrary standards to be re-evaluated, and for the exploration of responsive alternative methods for recreation planning.

The range of interests in outdoor recreation is simply too diverse and evolving for even the most proactive officials to provide for. Predicting trends and tastes to match the potential demand with the supply of recreational space is not realistic. In light of the practical difficulties in estimating true demand, the identification of deficiency in provision is a key element in planning for outdoor recreation (Williams, 1995). In order to bring attention to such deficiencies, outdoor recreation user groups must advocate for themselves.
2.1.3 Evolving Approaches to Outdoor Recreation Planning

Planning in Canada gained renewed interest during the post-World War II period with a backlog of housing matters to deal with (Hodge, 1986). Several urban renewal efforts emerged in the form of major public housing projects built by leveling older areas. While this bulldozer approach to urban renewal would come under heavy criticism, it raised public awareness contributing to local activism in the 1960s (Hodge, 1986). A range of interests surfacing through the 1950s and 1960s saw the rise of the hyphenated planner, one who could take different approaches (economic, environmental, race, and gender) and synthesize them into a more detailed basis for making planning decisions (Rich, 1993). A call to further expand the scope of planning in the context of activism, and an increased recognition of the plurality of values in society, was taken up in advocacy planning.

Advocacy planning emerged as a challenge to the traditional rational approach as planning and renewal affected the lives of more and more people (Davidoff, 1965). Peattie points out that the pressure generated by advocate groups can generate a social policy that is “more sensitive and adaptive to social reality” (1968). Gold (1973) saw the traditional approach to recreation planning as particularly vulnerable to the challenge of advocacy as its values were not shared by users.

Outdoor recreation interest groups have engaged in advocacy to develop management policy acknowledging their activities. Laforest and Phillips (2007) concluded that special interest associations are important mechanisms for interest aggregation, deliberation and debate, and play a vital role in accountability. A
prominent example of such a group is the Outdoor Alliance, a partnership between six groups (including the American Hiking Society and the International Mountain Biking Association) who share the objective of preserving access to outdoor areas. Corey (1971) would identify this trend in advocacy planning as \textit{indigenous-liberation}, where community residents plan and advocate for their own interests and communities \[the Revelstoke Cycling Association (RCA) is the primary advocate for Revelstoke bicycle users to be discussed in the Case Study, Chapter 3 Section 3.1]. While advocate groups have many success stories, their continued efforts validate Corey's (1971) statement that the environmental advocacy associated with planning is “not guaranteed [and] must be continually fought for” (p.53). The efforts of outdoor interest groups can inform planners, changing the way in which they view outdoor recreation and increasing recognition of the variety of outdoor recreational values.

\textbf{2.1.4 Declining Budgets and Changing Tastes}

In the USA, mid-1970s budget cuts to park maintenance led to both abuse and reduced public use, which Banerjee (2001) suggests contributed to a decline of the public realm and increased private control of urban open spaces, resulting in a decline of civility and decorum. People tend to avoid poorly maintained parks and it has been noted that residents respond to signs of incivility in parks and open spaces with fear and avoidance (Wekerle, 1996). It is within this context of decline that Jan Gehl (1971) drew correlations between the quality of functioning outdoor areas and the amount of use they received, and Richard Sennet (1977) described the public
domain as meaningless. The situation of reduced budgets and deteriorating facilities points to a need to combine basic provision and aesthetic quality with a commitment to human enjoyment and well-being (Worpole, 2006).

Changing public tastes in the 1980s saw a convergence of interest between recreation and tourism planning with common goals in terms of provision (Hall and Page, 2006). As well, new environmental and ecological thrusts in the 1990s saw a growth in outdoor activity in the natural environment and general recreation areas, as evident in the growth of Canada’s National Parks system (Karlis, 2004). Public life has been shaped by consumer culture and opportunities offered by the new “experience economy” involving strolling, looking, gazing and walking have reinvented urban areas such as Quincy Market in Boston (Banerjee, 2001). Themed environments based on outdoor recreation have changed the character of many rural communities, with smaller towns such as Squamish, BC branding themselves as the “Outdoor Recreation Capital of Canada” and Rossland, BC claiming to be the “Mountain Biking Capital of Canada” at least in part to attract adventure tourist activity. Such changes represent a further step in the location-shift of outdoor recreation to environments outside of urban areas, and illustrate the changing nature of economic focus in rural areas.

As a result of the decline of traditional industry and associated lifestyle changes, Karlis (2004) claims that public recreation service providers have been pushed to broaden the existing scope of leisure opportunities by a general public seeking empowerment and freedom of choice. The “benefits movement” which focuses on the promotion of the personal, social, economic, and environmental
benefits of parks and recreation is significant, as leisure and recreation have gained recognition as an important avenue for improved health, and the reduction of health care costs (Parks and Recreation Federation of Ontario, 1992; Balmer & Clarke, 1997; Harper et al., 1997). The push towards active living is another example of health and outdoor recreation being bundled together.

A growing interest in improved health and fitness related to recreational pursuits such as bicycling and rollerblading have contributed to the popularity of active transportation trails, fueling demand for multi-use paths, and with users indicating a preference for separate trail facilities (Pucher, Komanoff & Shimek, 1999). In order for planners and policy makers to facilitate these movements in an era of declining budgets, they have had to develop collaborative partnerships with special interest groups and residents.

In Revelstoke, collaborative partnerships of various forms play an important role in the development of trail-based outdoor recreation amenities. The Revelstoke Cycling Association (RCA), City of Revelstoke, Revelstoke Chamber of Commerce, Recreations Sites and Trails BC, and the Columbia Shuswap Regional District have facilitated the planning and implementation of the Revelstoke bicycle network through various levels of partnership. Partnerships and collaborative planning efforts will be discussed in the following sub-section.

### 2.1.5 Partnerships, Co-Management, and Collaborative Planning

Currently, many relationships have developed between users, special interest groups, and planners related to outdoor recreation. There is evidence of
more and more partnership between advocacy groups, planners, and policy-makers, as user organizations are often willing to help educate users regarding codes of conduct and etiquette (Victoria Transport Policy Institute, 2010). Partnerships with community groups can lead, educate and gather public support for green infrastructure projects: the best way municipalities and community groups can produce a lasting presence with these projects may be through such partnerships (Baker, Mahe, Wiseman, & van Vliet, 2009).

Collaborative partnerships may extend to a level of co-management. Co-management is a term that is used broadly to describe a variety of arrangements for collaborative planning, shared decision-making, or joint power sharing between a government agency (the State) and a community-based party or organization of stakeholders (resource users) (Pinkerton, 1992; Roseland, 2005). Co-management is now seen as a tool of good planning practice, recognized as contributing to solving complicated problems, such as management issues related to common pool resources, including water, wildlife, and forests (Roseland, 2005). Co-management approaches can be viewed as a practical solution to the limitations of governing bodies, as responsibility for resource management is shared increasingly with those most affected by resource development (Campbell, 1996; Davis, Hickey & Natcher, 2005). For advocate organizations, greater involvement through co-management can build increased self-determination, while resource managers recognize that there are fewer conflicts and better resource management when stakeholders are directly involved.
One example of co-management in an outdoor recreation context in BC is the relationship between the South Island Mountain Bike Society and the Capital Regional District on Vancouver Island, British Columbia. The South Island Mountain Bike Society (SIMBS) of Victoria, BC is an affiliate of the International Mountain Biking Association (IMBA). Formed in 1988, the IMBA is a non-profit organization with a mission to create, enhance and preserve great trail experiences for mountain bikers worldwide (IMBA, 2011-a). The goals of SIMBS are to promote mountain biking that is environmentally sound and socially responsible, to coordinate and train volunteers to build and maintain trails, and to open more trails to mountain biking on southern Vancouver Island (SIMBS, 2011). SIMBS is a volunteer partner of the Capital Regional District (CRD), performing trail maintenance and development within the Hartland area (see Image 4 below) of the CRD’s Mount Work Regional Park (CRD, 2011-a).

Image 4: A cyclist sampling trails maintained by the South Island Mountain Bike Society within the Hartland area of the Capital Regional District’s Mount Work Park.
Under the guidance of SIMBS - who provide tools and lunch for volunteers - voluntary trail maintenance is conducted on a monthly basis (SIMBS, 2011). By promoting trail maintenance, SIMBS contributes to a sense of place and ownership of these outdoor areas. By facilitating this partnership, the CRD has tapped into the expertise of this specialized community, gained a self-managed, popular asset that promotes an active lifestyle and utilizes potentially undesirable land adjacent to a landfill.

Several other examples of collaborative planning efforts related to outdoor recreation exist. In the formation of the Jasper Community Sustainability Plan, consultants developed a community engagement plan to involve the public in the process (Sweet & Sacret, 2009). In order to adapt a new 2010 Regional Parks Strategic Plan, the Capital Regional District in British Columbia formed a citizens advisory panel and invited various special interest groups to take part in a series of community engagement opportunities (Capital Regional District, 2010). These are just two examples of efforts that demonstrate attempts of planners to involve and engage the community in the planning process.

Rich (1993) explains that the most significant change in planning has been the transition in focus from a very limited elite, “to planning for all members of the community” (p.123). At present, planning “for” outdoor recreation seems to have moved towards planning “with” outdoor recreation enthusiasts - at least in certain cases - as more collective approaches have emerged involving collaboration through consultation and co-management.
The civic spaces that Olmsted once imagined have come to fruition in many places, but through grassroots movements, empowered residents, and interest groups, rather than by grand design. In these cases, a transformation in planning for outdoor recreation is evident. By sharing a stake in the management and policy development related to outdoor recreation, residents are able to connect in a purposeful, yet neighbourly fashion.

### 2.1.6 The Future of Outdoor Recreation Planning

If we consider the past, then we must assume that the future of planning for outdoor recreation will be determined by changing political and social values. When considering outdoor recreation, Hall and Page (2006) stress that planners must not overlook the influences of economic downturn and political will, a lesson that is clear upon historical reflection. In the USA, the near future bodes well with the America's Great Outdoors initiative, however this may not last beyond the end of the political term.

There are several areas for future focus and consideration related to outdoor recreation. Cultural pluralism poses a challenge to recreation planning (Hall & Page, 2006). Planners will have to consider our aging demographics; an incorporation of age-friendly and universal design principles into outdoor recreation resources promotes a healthy lifestyle for all people of all ages (Hodge, 2008). Recreation-oriented development could be used to capitalize on unique outdoor assets as a way to drive investment in communities while enhancing livability (Edwards, 2008).
Tourism and globalization present additional considerations as agents of change related to recreation (Hall & Page, 2006).

With an increasing understanding of the range of associated benefits, broad implications, and the costs involved, outdoor recreation deserves the attention of planners. Likewise, planning offers a means to address the needs of recreation. Karlis (2004) lists a number of factors required to ensure that public sector leisure and recreation continue to exist, including: an active voice from citizens, continued participation, and a sound economy. The Parks and Recreation Federation of Ontario (1992) stress the importance of key stakeholders including the public, administrators and politicians. As Pigram and Jenkins (2006) state, without planning there is little prospect of recreation receiving proper priority. While outdoor recreation planning has come a great distance, and there is much to be positive about in the past, this field requires the attention and priority of planners into the future.

The research literature related to the historical role of planning in outdoor recreation presents a broad, evolving context. Current movements in planning towards more collaborative frameworks can promote the integrated development of contextually appropriate forms of outdoor recreation in alignment with community goals and perspectives. An important objective of this research is to investigate how planning supports outdoor recreation. Revelstoke presents a relevant site for the pursuit of this objective (to be discussed in Chapter 3 Section 3.1) as outdoor recreation is an important local consideration and municipal, regional and advocate planners are active.
2.2 Outdoor Recreation: Benefits to Health

An increasing body of literature depicts how the incorporation of infrastructure supporting outdoor recreation and activity in a community can contribute to overall health in a variety of ways. The “nature tranquility hypothesis” proposing that contact with nature is relaxing and healthful, is ancient in origin (Porteous, 1996, p.135). Research from the public health realm has shown that important health impacts arise from connections to nature (Barlett, 2005). Research has shown that benefits from contact with nature include: improved levels of health directly correlated to levels of greenness in living environments, lower stress levels and lower likelihood of obesity associated with natural features, and green features acting as “pull factors for physical activity” which promote a more active outdoor lifestyle (Beatley, 2011, p.6). While humans require nature in their lives, as the global population becomes increasingly urban it is more difficult to ensure contact (Beatley, 2011). While long-term research is still required in this area, it has been suggested that in recent years, too much time spent inside has contributed to health and behavioral concerns related to a disconnection from nature, with both sedentary youth and adults suffering from “nature deficit disorder” (Louv, 2005).

Several movements promoting active lifestyles focus on the health benefits of outdoor recreation. Healthy Urban Planning focuses on how humans use their environments in consideration of objectives that can benefit quality of life, including healthy lifestyles that encourage activity and access to key community services, including recreation (Barr & Mucha, 2009). As physical activity is a known co-
determinant of health that reduces the risk of coronary heart disease, diabetes, and hypertension while enhancing people's sense of well-being and self-esteem (Pretty & Barlett, 2005), advocates and health officials have mutually beneficial goals that may be achieved through encouraging the development of trails and promoting active lifestyles.

“It's nice to get an extra return on the time that I have to spend commuting to work each day – and that's the physical conditioning that contributes to a healthier heart and lungs. With trails accessible to a growing number of cyclists like me, another source of real satisfaction is becoming a more important part of everyday life” (Dr. Harold E. Varmus, Director of the National Institutes of Health in NBPC, 1995, p.3).

Image 5: On-street cycling is a part of a healthy active lifestyle in downtown Revelstoke, BC.

Research has shown that those who live near trail systems are more likely to engage in outdoor physical activity, such as walking (Pierce, Denison, Arif & Rohrer, 2006). As well, “there may be a synergistic benefit in adopting physical activities while at the same time being directly exposed to nature” (Pretty & Barlett, 2005, p.308-309), as a body of research exists showing “the ability of nature to reduce stress, to enhance a positive mood, to improve cognitive skills and academic performance” (Beatley, 2011, p.4). Many health professionals view trail systems as a financially prudent way to mitigate costs associated with a lack of physical activity,
a recognition that has validated the efforts of trail advocates (Robbins, 2005). This body of research has begun to influence policy. In the Netherlands, the government promotes outdoor recreation as a means to prevent obesity and reduce stress (van Marwijk, 2009). The evidence of related health benefits makes a strong case for the inclusion of green infrastructure components, such as trail systems and on-street bicycle routes, in regional and urban planning concerns.

Given demographic projections, a consideration of aging populations must be made in relation to outdoor recreation (Hodge, 2008; Miller & Kobayashi, 2009). Aerobic exercise has long been an important recommendation for preventing and treating many of the chronic and typically age-associated diseases, improving mental health, promoting social contacts, prolonging independence, and reducing the risk of falls (World Health Organization Ageing and Health Programme, 1998). This is supported by the findings of Reeder and Brown (2005) that recreation negatively correlates with the age-adjusted death rate. In addition to an improved quality of life, there are important economic benefits to an active lifestyle as medical costs are substantially lower for active older people (World Health Organization Ageing and Health Programme, 1998).

The availability of accessible outdoor spaces and walking trails has emerged as a strong theme in age-friendly focus groups (Hallman, Menec, Keefe & Gallagher, 2008). Increasingly, parks provide age-friendly paths for active lifestyles, reflecting a growing interest in exercise and health for our aging population. As parks and trails support an active lifestyle to benefit quality of life and promote good health, it is particularly important to support culturally appropriate community activities that
stimulate physical activity (World Health Organization, 2002). An incorporation of age-friendly design principles into outdoor recreation resources supports a healthy lifestyle for all people of all ages, but the pursuit of active living will not occur without desirable areas for outdoor activity to take place.

Reviewing existing literature reveals support for a prominent role for outdoor recreation (including trail-based recreation and bicycling) in the promotion of a healthy active lifestyle on the basis of enabling connections to nature and physical activity for a range of ages. Through researching the Revelstoke bicycle network, the perceptions of local residents and planners regarding the linkages between trail-based outdoor recreation and community health support future planning initiatives related to outdoor recreation, as presented in Chapter 3 Sections 3.2 and 3.3.

2.3 Outdoor Recreation: Environmental Considerations

Literature on the subject of outdoor recreation generally describes two competing viewpoints - ‘nature’ and ‘recreation’ - as rivals, where recreation negatively impacts nature, and ‘nature’ and ‘recreation’ as partners, where nature and recreation mutually benefit one another (van Marwijk, 2009). Specific local perceptions regarding the environmental and ecological implications of the Revelstoke bicycle network will be discussed in Chapter 3. The following sections present current research and existing theory in literature regarding the environmental and ecological implications of outdoor recreation in greater detail.
2.3.1 Environmental Impacts Related to Outdoor Recreation

Recreation can have an ecological cost and there is a growing awareness regarding the environmental impact of recreational activity, often at concentrated sites (Hammit & Cole, 1998). As active outdoor recreation has grown, there is increasing concern about the resulting pressures on the environment and the vulnerability of natural areas (van Marwijk, 2009). Controversy can arise when enthusiasts “seek to pave trails in woodlands” (Pretty & Barlett, 2005, p.308). The pressures on parks in Canada are enormous and growing, with the impacts of human-use on natural systems requiring constant consideration (Rees, 2000; Hall & Page, 2006). Park users noted facility conditions and litter as the most significant distractions in Yosemite, California (Hammit & Cole, 1998). Environmental impacts within recreation areas can directly affect recreational users, detracting from their experience.

Image 6: The recently developed Frisby Ridge Trail north west of Revelstoke provides a backcountry experience but also has impacts on the alpine ecosystem associated with trail use.

In addition to detracting from the experience of users, it has been suggested that human usage of trails in wilderness can have a significant direct ecological impact. Forman (1995) speculates that trails are comprised of a central strip of
“repeated disturbance” with adjacent affected trail margins, that heavy human usage can limit trail usage by wild animals, while trails increase human access to remote areas where ecological damage can take place (p.172). Ecosystems suffer from trail related damage generally in the form of soil compaction and associated wind or water erosion (Forman, 1995).

To more specifically address such concerns, researchers in the field of recreation ecology have developed a body of knowledge focused on the ecological impacts of recreation. Recreation ecology recognizes that while outdoor recreation may be considered a non-consumptive use, it “inevitably alters attributes of the environment in which it occurs” (Cole, 2004-a, p.1). Put simply, “(a)voiding impact is not an option” (Cole, 2004-a, p.11).

The work of David Cole specifically addresses implications of trail-based outdoor recreation. Key factors in the associated impacts of outdoor recreation include the “amount of use, type and behaviour of use, timing of use, resistance and resilience of the environment, and the spatial distribution of use” (Cole, 2004-a, p.6). Related to trail-based outdoor recreation, terrain and topography are important factors with a major influence (Cole, 2004-b). Time must be a consideration as impacts occur rapidly and are more significant when new places are disturbed (as in new trail construction), while site recovery is slow (Cole, 2004-b).

The scale under consideration is a significant factor when considering the impacts of outdoor recreation. While at a site scale recreational impacts can be severe, they are far less severe from the perspective of landscapes, watersheds, and regions (Cole, 2002, p. 426-427; Cole 2004-b). Impacts associated with outdoor
recreation are highly localized, concentrated on specific trails and destinations, and - despite high levels of visitation - impacts confined to designated trail systems and nodes can be limited (Cole, 2002; Cole, 2004-b). Thus, outdoor recreation impacts can be minimized through management: concentrating use and encouraging the repetitive use of a smaller number of sites (Cole, 2004-a, p.6).

Since avoiding impact is simply impossible, the community, land managers, and advocates ultimately determine the level of acceptable impact associated with outdoor recreation. A “Limits of Acceptable Change” planning approach was developed to address the complicated issues around providing for visitors while managing their impacts (Stankey, et al., 1985; McCool, 1989). While recreation site users may not view their impacts as undesirable, land managers often view site impacts with concern (Cole, 2002). The impact associated with trail construction and maintenance is significant, with pronounced effects on vegetation and soil, and should be minimized (Cole, 2002; Cole, 2004-b). Employing general trail construction guidelines, as well as site-specific strategies and techniques can help resource managers address impacts. Land managers look to standards developed by the International Mountain Biking Association (*Trail Solutions: IMBA’s Guide to Building Sweet Singletrack*) and the Resort Municipality of Whistler (*Whistler Trail Standards: Environmental and Technical Trail Features*). Careful planning can minimize impacts and should include situational analysis, site design, implementation procedures (including trail engineering), and regular monitoring to avoid common problems of erosion, water-saturated soils, and the development of impromptu or braided trails (Cole, 2002).
2.3.2 Ecological Benefits of Outdoor Recreation

The areas associated with outdoor recreation land use can provide a broad range of ecological benefits. Through the creation of parks, preservation of corridors and natural areas, as well as contributions to the local economy, recreationalists can have an influence on the protection of ecosystems and biodiversity (Burger, 2000). Trail networks and greenway systems play an important role in improving connectivity for humans, fauna, and flora.

Much like the development of connective active transportation networks, habitat restoration programs often operate by acquiring lands to develop corridor systems between habitat fragments (Marsh, 2005). Such corridors can maximize the ability of populations to interact throughout the greater landscape and maintain future viability (Perlman & Milder, 2005). In order to maintain healthy ecosystems and help species survive, the creation of corridor preserves can help reduce the isolation and increase the viability of natural reserves, however without a basic knowledge of natural patterns across our regions “it is difficult to plan in a way that reduces the threat of local species extinction” (Perlman & Milder, 2005, p.81). Efforts to develop a network of accessible green spaces are vital steps towards lessening the impacts of landscape barriers on species populations, improving ecological function and overcoming the habitat fragmentation common in urbanized areas (Beatley, 2011).

In describing the emerging concept of green infrastructure, which emphasizes environmental considerations in urban areas, Wilkie and Ascroft (2009) list watercourses, parks, urban forest and recreational pathways as important green
infrastructure elements. A green infrastructure policy framework can guide the creation of a network of parks and environmentally significant areas to ensure that recreation demands and environmental concerns are not in competition (Wilkie & Ascroft, 2009).

Image 7: The Begbie Falls Trail south of Revelstoke provides access and connection to a unique natural feature.

The establishment and maintenance of a regional network of multi-use trails forming functional green corridors linking small and large green-spaces throughout and surrounding urban areas can enhance opportunities for citizens to connect with nature, engage in recreation, and use forms of alternative transportation (Beatley, 2011, p.87). “People who spend time in nature come to relate to it emotionally, and are therefore likely to provide the public support that is essential for nature conservation” (van Marwijk, 2009, p.14). Formalizing trail networks can confine human use to a more specific corridor, minimizing impacts of braided trails on natural habitat (Perlman & Milder, 2005).
Outdoor recreation can have broad and direct environmental benefits, as recreation can encourage a shift in travel modes from auto to active transportation. Recent research suggests that cycling has the potential to be the key to transportation-related emissions reduction, playing an important and beneficial role contributing to ecological and environmental sustainability. The European Cyclist’s Federation (2011) urges politicians to consider cycling as a means to reach emissions goals. Providing infrastructure to create transportation options is vital to reduce transportation-related emissions and fossil-fuel consumption, as after all “(t)he human leg is the only truly sustainable transport means” (Mega, 2010, p.67).

Increasing usage and a growing diversity of values can create conflict within recreational areas, often based on unfounded assumptions regarding associated impacts. A study by Zonneveld (1993) found that conflicts between hikers and trail bicyclists were minimal and decreased as hikers became more aware of trail bicycle use. Despite negative perceptions around the environmental affects of mountain biking, in a recent study prepared for Parks Canada the actual impacts were not found to be significantly greater than impacts from hiking (Quinn & Chernoff, 2010). In the 1994 Park City Agreement, the Sierra Club acknowledged the legitimacy of mountain biking as a form of recreation and transportation, and established methods formed in partnership with the IMBA to reduce environmental impacts (Sierra Club, 2011). Despite assumptions, the reality is that mountain or trail biking is generally not as impactful as perceived and that user groups (hikers and mountain bikers, for example) hold very similar values regarding the conservation of nature despite their different pursuits. The challenge for the planner is in
discovering opportunities for both the preservation of nature and promoting outdoor recreation, combining the benefits of the two pursuits while practicing and enhancing ecological sensitivity.

An important aspect of this research into the Revelstoke bicycle network is an inquiry into the relationship between trail-based outdoor recreation and the environment. Existing literature suggests that trail-based mountain biking has less environmental and ecological impact than may be typically perceived and also that there is potential for bicycling to significantly contribute to a more ecologically sustainable lifestyle. The following chapter presents findings on the environmental and ecological concerns and considerations related to the Revelstoke bicycle network and how the development of the network aligns with local community concerns and perceptions.

2.4 Outdoor Recreation: Economic Implications

Diverse outdoor recreation interests play a significant economic role across national, provincial, regional, and local scales. Outdoor recreation has become a significant industry: the Outdoor Industry Association represents over 4000 companies in the active outdoor recreation business and works to ensure the success of the outdoor industry through influencing federal trade and management policy (Outdoor Industry Association, 2011). The total annual economic contribution of both human-powered and wildlife-based recreation in the USA has been estimated to total seven hundred and thirty billion dollars.
Recreation can be an active component in a local economy, contributing to the foundation of a strong, sustainable community capable of withstanding the pressures of the urbanized world (Roseland with Soots, 2007). Small municipalities and rural communities have recognized the economic potential related to recreation. Ogden, Utah for example, was able to revive a faltering local economy by developing its outdoor recreation potential (Best, 2010). An economic impact study along the Sea to Sky corridor in British Columbia revealed that the mountain biking trail systems of Vancouver’s North Shore, Squamish and Whistler (not including the Whistler Bike Park) collectively generated $10.3 million in spending between June 4 and September 17, 2006 (Western Canada Mountain Bike Tourism Association, 2006), and this activity has likely increased in years since.

Evidence suggests that the development of infrastructure dedicated to forms of outdoor recreation can play an important role in community economic development. Improving bicycle parking, replacing car parking where appropriate, has been shown to have economic benefits for nearby businesses (Lee & March, 2010). New green urban features, such as New York’s High Line Park, have been shown to stimulate urban development, while trees, proximity to parks, and walkable environments are all features proven to enhance a home’s value on the real estate market (Beatley, 2011).

Emerging research shows that natural features such as trails are an amenity for property owners, associated with increased real-estate values. For example, an
analysis of home sales around San Antonio, Texas showed that houses closer to greenways and trails sold for a 2-to-5% greater value than otherwise equivalent homes (Asabere & Huffman, 2007). Studies of rail-trails have shown that the properties adjacent to these corridors sell sooner and at a higher percentage of list prices than other similar homes, and that the trails generate economic activity for the communities through which they pass (Ellin, 1996; Asabere & Huffman, 2007).

As tourism and recreation share engagement in many specific activities, related research often addresses similar areas and resources (Hall & Page, 2006). Tourism is estimated to be the world’s largest industry and can be a powerful tool for economic development (Hall & Page, 2006). While the diversity of recreational interests and global influences related to tourism present unique challenges to planners, recreation and tourism facilities have become significant employers (Wolfe, 2002). Special interest tourism (such as sport tourism or ecotourism) can
help stimulate travel, and as tourists tend to have additional interests, approaches to special interest tourism should also include diverse cultural and educational opportunities (Karlis, 2004). Tourism related to leisure and recreation has revitalized many former resource towns in the western USA (Hall & Page, 2006). Moab, Utah (Image 8 above) is an oft-referred-to example (Fix & Loomis, 1997).

However, outdoor recreation and tourism in rural areas is not necessarily an ideal solution to development, as it can result in environmental harm, social disruption, and a loss of cultural heritage. While the economic contributions related to outdoor recreation can be significant, these developments must be made with thorough consideration of environmental concerns and impacts to local ecosystems. While sustainable ecotourism programs can help ensure best practices are being followed (Honey, 2003), it is suggested that in a weak rural economy, tourism can create unbalanced income and employment distributions and is thus best suited as a supplement to a diverse economy (Hall & Page, 2006).

Strong communities require a holistic approach that provides jobs, but also protects the environment, improves community infrastructure, increases and develops local skills and capacity, strengthens social fabric, and respects heritage and cultural identity (Roseland with Soots, 2007). Community-based planning can facilitate and contribute to such an integrated approach.

Through investigating the development of Revelstoke’s bicycle network, this research examines the connections between outdoor recreation planning, the local economy, and community goals and perceptions. The role of partnerships between the local community advocates, residents, different levels of government, and
business interests is significant in relation to planning for outdoor recreation. Findings related to perceptions of how outdoor recreation resource development in Revelstoke contributes to community economic development are presented in Chapter 3 Sections 3.2 and 3.3.

2.5 Outdoor Recreation: Social Implications

There are a number of social implications associated with outdoor recreation and bicycle networks in particular, including creating opportunities for social interaction as well as providing a more inclusive, socially just transportation network. The lack of transportation options in North America is considered by some advocates to be a form of spatial injustice, where public space is often given primarily to auto-oriented use at the cost of other users. While a well-connected bicycle network offers recreational opportunities for all, it also provides mobility options for those who cannot afford to drive or own a car, as well as safer options for youth. The “complete streets” movement (www.completestreets.org) addresses this issue, calling for roads to be safer, accessible, and inclusive of all users: pedestrians, bicyclists, public transit users of all ages and abilities. Research shows that separate paths and lanes for bicyclists are important features to encourage those unwilling to enter vehicular traffic (Pucher & Buehler, 2009). A well-connected bicycle network is socially inclusive and people-friendly.

Outdoor recreation amenities and bicycle networks create opportunities for community building within a community. Events and festivals that celebrate outdoor activity can build social connections between and within communities,
while promoting an interest in outdoor pursuits. Some successful examples are mentioned include: the BC Bike Race is a staged event that involves over five hundred international participants on a route through nine west coast communities over the course of its weeklong journey (BC Bike Race, 2011); a training program aimed at school-aged children in London, Ontario doubled the number of youth cycling to school at least once per week (Mega, 2010); and the IMBA’s “Take a Kid Mountain Biking Day” event has successfully introduced youth to the pursuit of mountain biking for the past seven years (IMBA, 2011-a). Events and programs such as these constitute community building, and demonstrate that an outdoor active lifestyle can be social, fun, and enjoyable.

![Image 9: Revelstoke’s ‘Stoked to Get Spanked’ race includes a ‘Little Spankies’ category for children, bringing families together for this community event.](image)

Social benefits related to outdoor recreation are also manifested through campaigns and the efforts of community groups. Urban greening projects, including the planting and re-establishment of native species along a green corridor, have shown potential to restore community relationships, strengthen bonds to place, and enhance quality of life (Beatley, 2011). Anchorage’s Trail Watch program addresses
the social obstacle of personal safety by providing volunteer patrols along local pathways (Beatley, 2011). Community groups can often play an important role in exchanging information between users groups and land managers, ensuring continued access and responsible practices. The South Island Mountain Bike Society (SIMBS) hosts introductory and women’s rides, introducing participants to the local trail system while developing community bonds (South Island Mountain Bike Society, 2011). Those joining advocacy or activity groups “seek to make a social contribution and in doing so come to discover a new relationship with place” (Pretty & Barlett, 2005, p.308). Greenways and trail systems can help promote social justice and equality as they pass through a range of neighbourhoods and improve access to nature and alternative forms of transportation for all citizens (Hellmund & Smith, 2006). The social impacts resulting from outdoor recreation and activity can include stronger communities that value their environment through a greater understanding of the natural systems found close to home.

The research literature indicates that outdoor recreation can have a positive social impact. By addressing the populations, events, and organizations associated with the Revelstoke bicycle network, an element of the proposed research project is to examine the social connections created through trail-based outdoor recreation between community members. Special interest groups, events, and programs related to the Revelstoke bicycle network inclusively build a sense of community while demonstrating a healthy outdoor active lifestyle. This research project will demonstrate how planning supports outdoor recreation resources, and how these resources can socially contribute to the local community.
2.6 Outdoor Recreation in Urban and Rural Locations

Planners must address different considerations and perspectives related to outdoor recreation depending on the local context. While outdoor recreation occurs across a range of urban, rural and suburban locations, people often leave urban areas for their recreational pursuits. This creates a varied set of concerns related to planning for outdoor recreation development dependent on urban or rural locations. Facilitation of an active outdoor lifestyle can have many benefits for both urban and rural residents, and attempting to balance differing values is of increasing importance for planners. The following sub-sections present a review of existing literature related to different approaches and considerations related to outdoor recreation in urban and rural contexts.

2.6.1 Outdoor Recreation at Urban Locations

With a lack of funding and little recent expansion of park systems in urban areas, open space amenities that contribute to livability are increasingly in short supply, creating an inequity between a city’s core and suburbs (Banerjee, 2001). The shortage of opportunity for outdoor recreation in urban areas reflects political, economic and technological changes, and contributes to increased recreational use of suburban and rural areas. With the expansion of urban areas, there has been a sort of “inversion” where natural areas that used to be “outside” are now enveloped and contribute to the spatial quality of the city (van der Valk & van Dijk, 2009). To enhance a local sense of well-being, urban fabric must be varied, offering unique urban spaces on one hand and open spaces with natural atmosphere on the other.
(van der Valk & van Dijk, 2009). The lack, and decline, of natural areas in many urban centres presents a pressing need to find and activate new opportunities for the inclusion of nature and related outdoor recreation in cities.

Active transportation corridors are one of the key opportunities to enhance outdoor recreation opportunities, improve sustainability, and to include nature in urban areas. The principle cause of environmental crisis in urban areas is "car mono-culture," where private cars are treated as the only form of transport (Manzini & Jegou, 2003). By substituting trips from the predominant automobile-based transportation system, alternative transportation or multi-modal systems hold promise for improving the overall efficiency of these systems, reducing consumption of non-renewable fuels, promoting health, and potentially contributing to economic and social regeneration (Manzini & Jegou, 2003). Establishing and recognizing key on-street and existing corridors that are often underutilized in urban areas can provide opportunities for active transportation and outdoor recreation as well as a means to enhance and include nature in cities, while providing an asset for urban residents.

Several urban areas have recently invested in bicycle networks to support active transportation. But a bicycle network alone is a simple technical/rational solution and cannot be expected to produce transformative change alone. A well-connected bicycle network is just one element of a healthy, complete community: a human-friendly network must be well connected to diverse human-scale places throughout a supportive community. As such, outdoor recreation development in urban areas must integrate a wide range of perspectives and concerns: physical,
social, political, economic, cultural interactions and relations ultimately all
contribute to making an urban space a place (Corburn, 2009). Through careful
planning and implementation, a bicycle network (or other any other form of urban
outdoor recreation infrastructure) has aesthetic appeal, promotes a unique civic
identity, and generates local pride.

2.6.2 Outdoor Recreation at Rural Locations

While recreationalists primarily look to rural areas as locations for outdoor
activity, rural decline and migration to urban areas is a concern for planners and
rural residents alike. Decline in rural areas is well documented (Cummings, 1989;
towns and smaller cities often rely directly on resource sectors. Decline in these
areas has been more common since the 1990s, often initiated by the loss of
economic opportunities linked to global economic forces and associated with
dwindling employment in resource based sectors, outmigration and closing of
services (Coffey & Shearmur, 2006).

Conversely, rural areas are increasingly significant sites for outdoor
recreation. As people generally leave the city to pursue outdoor recreation activity
(Porteous, 1996; Hough, 2004; Pigram & Jenkins, 2006), areas on the urban fringe
or rural-urban fringe are an increasingly important component of the living space of
urban citizens (Bryant & Mitchell, 2006). Rural settings satisfy in ways urban areas
cannot, allowing urban residents to escape the familiar routine of the city (Hough,
2004; Pigram & Jenkins, 2006). Bryant and Mitchell (2006) describe the variety of
functions rural land uses serve, including the provision of leisure, tourism, natural and cultural resources.

The mainstreaming of the active outdoor lifestyle has increased demands on outdoor sites and front-country areas within a short distance of urban locations (Edwards, 2008). Peri-urban areas often develop recreation and tourism facilities due to accessibility to the urban consumer, providing for a range of activities including agro-tourism, passive activities (landscape appreciation, education) and active use of the environment, such as skiing and bicycling (Bryant & Mitchell, 2006).

That some small cities surrounding large metropolitan areas have come to specialize in leisure and entertainment activities reflects a dependence on larger cities (Coffey & Shearmur, 2006). Rural areas are more often affected by urban values and planning with a focus on a “metropolitan perspective” addressing urban rather than rural needs (van der Valk & van Dijk, 2009). Thus, engaging the local residents in community planning is vital in order to ensure that recreation and tourism developments are reflective of the local sense of place and identity, and that diverse local populations are not excluded (Hall & Page, 2006).

### 2.6.3 Urban/Rural Conflicts

Conflicts regarding outdoor recreation use in rural areas may be seen as a symptom of urbanization. Patrick Geddes long ago voiced concerns regarding the effects of urbanization on the natural landscape and agricultural resources (Hodge, 1986). These concerns continue to be relevant and as urbanization impacts
agriculture, planners must be concerned with the preservation of farmland and natural areas (Caldwell, 2009).

Outdoor recreation can be perceived as being at odds with concerns related to preservation. Perceptions and assumed differences between user groups can heighten potential conflicts and influence management decisions. Recreation and tourism have become increasingly active elements in rural areas acting as agents of change and control, however the wide range of interests with people having differing value-sets can present challenges (Pigram & Jenkins, 2006). In order to facilitate an active outdoor lifestyle for both urban and rural areas, planners must consider and balance differing stakeholder values.

2.7 An Introduction to Integral Theory

A means of addressing the complexity of planning challenges involved in outdoor recreation can be found in an Integral approach. Through incorporating many different perspectives, an Integral approach allows for and encourages cross-disciplinary collaboration (Lundy, 2010). Such collaborative participation has been noted as vital in adapting existing participatory planning practices, as it allows for “joint fact finding” in which parties can both question and present data (Innes & Booher, 2004, p.426). Through an inclusive Integral approach, planners can gain a more representative and comprehensive set of perspectives that may reveal further mutual benefits, yielding complementary outcomes and strengthening collaborative relationships.

“The growing global success of the Integral approach lies in its capacity to address the full complexity of human experience in an increasingly complex world” (Lundy, 2010, p.46).
Planning with an Integral approach can provide a valuable framework to address the challenge in planning to synthesize an increasingly diverse range of views. This emerging Integral approach provides a broad and comprehensive scope of inquiry, attempting to include as many styles and perspectives as possible: ‘comprehensive, inclusive and balanced... leaving nothing out’ (Lundy, 2010, p. 46). The emerging integral perspective can potentially offer a more encompassing formulation than a standard environmental approach or the more recent proliferation of differentiated ecological worldviews (I. Wight, personal communication, October 3, 2011). Employing an Integral perspective can offer greater breadth, relevance and applicability, from which recommendations can emerge.

“What is so fascinating and so refreshing about the Integral approach is that it does not merely posit some new theory thrown into the fray to contradict and compete with other theories. The Integral approach instead concedes that different theories, disciplines, and lines of human inquiry are in important ways correct and it endeavors to advance a framework for honoring the rich multiplicity of truth-claims” (Owens, 2005, p.96).

Applying an integral perspective to a given field of interest can offer a counter-reductionist, multi-perspectival and developmental ethos of inquiry (I. Wight, personal communication, October 3, 2011). “...(A)n Integrally informed approach... challenges us to hold multiple simultaneous perspectives...” (DeKay, 2011, p.xxiv). Integral approaches attempt to include as many styles and perspectives as possible to form an inclusive, comprehensive and embracing view of a topic (Esbjorn-Hargens & Zimmerman, 2009, p.5). The Integral framework is flexible and may be applied to many different situations.
2.7.1 Integral Frameworks

An Integral approach addresses the complexity of planning challenges in part through four perspectives that can contribute to the creation of a more sustainable world (DeKay, 2011, p.17). This Integral model is often called All-Quadrants, All-Levels or AQAL for short (see Table 2). The four perspectives or quadrants considers both interiors and exteriors, individuals and groups, and can consist of experiences, behaviours, cultures, and systems. The four quadrants are a simple model and more complex levels can be identified within each perspective.

Table 2: Integral Theory's AQAL Quadrant Model (DeKay, 2011).

<table>
<thead>
<tr>
<th>I</th>
<th>IT</th>
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<tbody>
<tr>
<td>I</td>
<td>IT</td>
</tr>
<tr>
<td>Individual Interior</td>
<td>Individual Exterior</td>
</tr>
<tr>
<td>Experiences Perspective: engender experience</td>
<td>Behaviours Perspective: enhance performance</td>
</tr>
<tr>
<td>WE</td>
<td>ITS</td>
</tr>
<tr>
<td>Collective Interior</td>
<td>Collective Exterior</td>
</tr>
<tr>
<td>Cultures Perspective: Manifest meaning</td>
<td>Systems Perspective: guide flow</td>
</tr>
</tbody>
</table>

Integral theory suggests that the four quadrants can be expanded further, to identify different levels within the four AQAL perspectives. These levels of complexity or depth reflect growth, development, or evolution of perspective within each quadrant (DeKay, 2011). Esbjorn-Hargens and Zimmerman (2009, p.195-214) illustrate the flexibility and responsiveness of the four AQAL quadrants through an escalating adaptation, expanding each of the four quadrants into three levels to present twelve niches for consideration (see Table 3 below).
To demonstrate the adaptability of this 12-niche framework, Esbjorn-Hargens and Zimmerman (2009) apply this model towards a range of scenarios: environmental concern (p.195-207), an analysis of eco-feminist schools (p.209-211), and a stream restoration project (p.211-214). Applying this 12-niche model to a variety of possible projects suggests the potential for any adaptation aiming towards a more comprehensive vision.

Table 3: 12 niches of environmental concern (Esbjorn-Hargens & Zimmerman, 2009).

<table>
<thead>
<tr>
<th></th>
<th>Interiors Experiences</th>
<th>Interiors Cultures</th>
<th>Exteriors Behaviours</th>
<th>Exteriors Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3rd Level of Complexity</strong></td>
<td>Pneuma</td>
<td>Commonwealth</td>
<td>Skillful-means</td>
<td>Matrices</td>
</tr>
<tr>
<td></td>
<td>Spiritual Realization</td>
<td>Compassionate</td>
<td>Effective Actions</td>
<td>Subtle Systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perspectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2nd Level of Complexity</strong></td>
<td>Psyche</td>
<td>Community</td>
<td>Actions</td>
<td>Institutions</td>
</tr>
<tr>
<td></td>
<td>Psychological Dynamics</td>
<td>Shared Horizons</td>
<td>Intentional Conduct</td>
<td>Social Systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1st Level of Complexity</strong></td>
<td>Soma</td>
<td>Communion</td>
<td>Movement</td>
<td>Intersections</td>
</tr>
<tr>
<td></td>
<td>Somatic Realities</td>
<td>Intercorporeal</td>
<td>Physical Movements</td>
<td>Natural Systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dimensions</td>
<td></td>
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</tr>
</tbody>
</table>

Addressing an additional level of development, DeKay (2011, p.172-176) suggests four levels of complexity (Traditional, Modern, Postmodern, and Integral) within each of the four quadrants of perspective, giving a total of sixteen ‘prospects’ (*The 16 Prospects of Integral Sustainable Design*) to represent the different aspects of a given phenomena (see Table 4).

In establishing an Integral framework for a specific inquiry, as many (or as few) different levels branching out from the AQAL model may be suggested for systems or phenomena as appropriate. Establishing different levels of complexity creates space for the expression of various concerns and values associated with a
given phenomena, presenting an adaptable framework for appropriately deep questioning. Integral frameworks have been established to provide complex lines of inquiry into a wide range of different fields, including ecology, architectural design, and community development.

Table 4: 16 Prospects of Integral Sustainable Design (DeKay, 2011, p.174).

<table>
<thead>
<tr>
<th>Complexity Level</th>
<th>Interior Experiences</th>
<th>Interior Cultures</th>
<th>Exterior Behaviours</th>
<th>Exterior Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Self, intentions and consciousness</td>
<td>Worldview and meaning</td>
<td>Parts and performance</td>
<td>Social and environmental</td>
</tr>
<tr>
<td>Level 4</td>
<td>INTEGRAL Transformative Networking</td>
<td>Self-Mediation</td>
<td>Nature United</td>
<td>Responsive Structures</td>
</tr>
<tr>
<td>Level 3</td>
<td>POSTMODERN Pluralistic Practices</td>
<td>Contextual Mediation</td>
<td>Nature Saved</td>
<td>Cyclic Analogues</td>
</tr>
<tr>
<td>Level 2</td>
<td>MODERN Independent Professionalism</td>
<td>Intellectual Mediation</td>
<td>Nature Used</td>
<td>Building Science</td>
</tr>
<tr>
<td>Level 1</td>
<td>TRADITIONAL Guild Traditions</td>
<td>Sensory Mediation</td>
<td>Nature Managed</td>
<td>Embedded Practices</td>
</tr>
</tbody>
</table>

Given the increasingly complex range of perspectives involved in planning for the development of outdoor recreation amenities, the application of an Integral approach appears to have much potential in this area. In particular, the work of Gordon and Esbjorn-Hargens (2007), as well as Luftig (2008) related to the role of play suggests the potential for further application of Integral theory towards recreation. Considering the complexity of concerns surrounding outdoor recreation in general and the Revelstoke bicycle network in particular, an Integral framework
was employed to develop the survey questionnaire (see Appendix A) described in the research methods presented in Chapter 3.

“Being able to draw on all these perspectives has the possibility of giving us designs that are radically more effective, more beautiful, more meaningful, more fit to context, more just to all living themes, more in alignment with our highest intentions – more Integral Sustainable Design solutions” (DeKay, 2011, p.129).

2.8 Implications of Literature Review

An examination of existing literature supports further research into the role that planning can play in supporting outdoor recreation. The research literature indicates a range of benefits provided by outdoor recreation and associated infrastructure. Many of these benefits related to the social, health and economic realms can be directly attributed to bicycle network infrastructure and related amenities, provided that appropriate consideration is given to the potential environmental impacts and rural/urban contexts. Outdoor space gains value from and can be enhanced by outdoor recreation, but without planning, there is little chance that recreation will receive proper priority (Pigram & Jenkins, 2006). Movements in planning towards more collaborative frameworks supporting community building can promote the integrated development of contextually appropriate forms of outdoor recreation amenities.

In addition to the broad concerns explored through the literature review, research specifically related to mountain bicycling generally falls into three categories:
i) **economic analysis** (Western Canada Mountain Bike Tourism Association, 2006; Asabere & Huffman, 2007; Southwick, Bergstrom & Wall, 2009; Lee & March, 2010),

ii) **environmental and user impact assessments** (Zonneveld, 1993; Cole, 2002 & 2004; Brooks & Champ, 2006; Quinn & Chernoff, 2010), and

iii) **design standards** (Resort Municipality of Whistler, 2003; International Mountain Biking Association, 2004).

While the research in the literature cited above supports planning for recreational mountain bicycling with economic and environmental considerations, failure to build upon this research would limit the broad potential benefit offered by bicycling and trail-based outdoor recreation. There appears to be gaps in the literature related to how specific forms of outdoor recreation may be better integrated in the planning and design of communities for the wider benefit of the existing populace. There are opportunities for additional research and planning recommendations investigating the community building and place-making potential related to outdoor recreation.

The contributions from the literature cited above and a consideration of gaps in existing research leads to the questions posed in the proposed research:

- What role does outdoor recreation play in community building?
- To what degree does trail-based outdoor recreation infrastructure align with local community expressions, perceptions, and intentions, as well as municipal and regional planning objectives, such as health, resilience, and sustainability?
• What role have partnerships between stakeholder groups played in the planning of these projects? How are volunteers, community members, and different levels of government involved in supporting these projects?
• What lessons can planners learn from the development of Revelstoke’s bicycle network, that have potential to apply more widely?

These four questions have been designed to make a contribution to the existing literature through an assessment of the role of planning that better supports and identifies the associated benefits of outdoor recreation amenities in local community development.

In order to gain detailed insight into a practical example of planning for outdoor recreation, a particular community deemed to be informative was selected: Revelstoke has rich pre-existing conditions including a historic community relationship with outdoor recreation, active planning groups and agencies, and an expanding bicycle network. Given the qualitative nature of inquiry into community building and place-making, the data-collection methodology involved a combination of tools, including questionnaires and semi-structured interviews. Considering the complexity of concerns surrounding outdoor recreation revealed through the literature review, an Integral framework was used to develop a survey questionnaire. Chapter 3 describes the research methods employed and findings revealed, including case study research, data collection and analysis, to inform the resulting recommendations presented in Chapter 4.
CHAPTER 3: RESEARCH METHODS AND FINDINGS

The research for this project followed a fairly linear progression through literature review, an investigation into site characteristics, interviews, survey data collection, and analysis. While a review of existing literature informed considerations of how outdoor recreation resource development occurs, how it can be better supported by community planning, and how it contributes to the local community, the research methods employed investigated significant elements specific to the Revelstoke bicycle network. The combination of methods enabled the completion of original empirical research, generating potentially transferable knowledge with the intent to expand the range of understanding and contribute to planning practice.

Through investigating the considerations, perceptions, and implications of the development of Revelstoke’s bicycle network, this research considers the linkages between outdoor recreation, the local economy, environment, and community development. It is important to note that the purpose of this project is to identify how outdoor recreation resource development can make our communities more resilient, diverse, and healthy - beyond the simple inclusion of primary technical elements such as transportation routes and lanes; technical solutions alone will not necessarily yield transformative change within a community.

Based on the 2007 opening of Revelstoke Mountain Resort and initiatives promoting summer adventure tourism, Revelstoke was identified as a potential site for research in September 2010. A preliminary research proposal was then
developed over the spring of 2011. While undertaking an internship with the City of Revelstoke’s Planning and Development Services department in the summer of 2011, contacts were established and key informants potentially willing to participate in the proposed research were identified. Much of the Revelstoke bicycle network was personally investigated and documented during this period, providing an experiential perspective. A research proposal was revised and received final approval in February 2012. Data collection involving face-to-face interviews and surveys largely took place in Revelstoke during the spring of 2012 from April 25 to May 7.

Forming an understanding of existing site characteristics, including existing geographic features, identifying stakeholders, and historic development patterns, is necessary to provide a context for the development of Revelstoke’s bicycle network. An inventory of existing bicycle network components was conducted through intensive site visits and accessible public information. Archival research reviewing site reports, historical accounts, web-based data, and accessible public information informs an understanding of the local cultural context for outdoor recreation resource development in Revelstoke. Research into the background of the community, general history, and site determinants provides a contextual grounding for the project.

Interviews were a key method employed to reveal the role of planning and the relationship between various entities in the development of the Revelstoke bicycle network. A total of six formal interviews were completed. Interview participants were targeted to include provincial, regional and municipal planners,
local bicycle advocates, and related business interests representing a broad range of stakeholders involved in the planning of the network. The semi-structured interview format allowed for a range of distinct responses while directing discussion around four main theme areas: project evaluation, infrastructure, community, and maintenance. The information generated through interviews revealed insights into the complex multi-jurisdictional process involved in the development of Revelstoke’s bicycle network.

A qualitative survey questionnaire targeted bicycle network users to reveal existing perceptions related to the network and to derive community-based recommendations for future initiatives and directions. In demonstrating the flexibility of the 12 niches model described and discussed in Chapter 2 Section 2.7, Esbjorn-Hargens and Zimmerman (2009) suggest the potential of this model for adaptation towards other contexts with an aim towards a deeper inquiry to achieve a more comprehensive vision. With the 12 niche model (see Table 3) providing a framework and based upon Esbjorn-Hargens & Zimmerman’s (2009) niche-specific questions for the design of a stream restoration project, the survey instrument focused on user perspectives related to the Revelstoke bicycle network, to gain a deeper understanding of the implications of outdoor recreation resource development, perceptions in the local community, and to explore the collaborative partnerships required to establish and best support this form of infrastructure in tune with community development and activities. The survey instrument and the analysis of findings was based on this Integral framework.
The intent in employing an Integral approach is to reveal additional considerations required for suggesting sensitive and complementary solutions within the specific contexts of activity, community, and place. By adapting an Integral framework to inform research into the Revelstoke bicycle network, the intent is not just to generate data, but to potentially introduce and bring multiple perspectives together, identifying gaps and overlooked opportunities for success. Through the use of an Integral framework, this research both addresses and potentially reveals a wide set of perspectives.

Thirteen surveys were collected from targeted users of the Revelstoke bicycle network. Survey respondents included 7 males and 6 females ranging from experienced cyclist to new participant, aged from early 20s to over 60, including 4 long-time (life-time) Revelstoke residents. Survey questions were grouped into four theme areas or quadrants for analysis: experiences, cultures, behaviors, and systems.
Image 10: Revelstoke from Mount Revelstoke National Park, looking southwest towards Mount Begbie (left) and Mount MacPherson (right).

Image 11: The dome of the Revelstoke Courthouse and Columbia River, northwest with Frisby Ridge on the right skyline.

Image 12: Grizzly Plaza in downtown Revelstoke with Mount Begbie in the background.
3.1 Revelstoke’s Bicycle Network: a Case Study

Revelstoke is located in eastern British Columbia on the Trans-Canada Highway, roughly 640 kilometres east of Vancouver and 415 kilometers west of Calgary (refer to Image 10 above). The population of Revelstoke is approximately 7,230 (Statistics Canada, 2007). Situated on the Columbia River between the Monashee and Selkirk Mountain ranges, wildlife is common and natural features characterize the landscape. Proximity to Mount Revelstoke and Glacier National Parks, the opening of the Revelstoke Mountain Resort in 2007, and a range of natural geographic features, climatic conditions, and current outdoor recreation-based developments place outdoor activities as a significant influence on the local character and community. Revelstoke provides a particularly relevant case study for this project as outdoor recreation is a long-standing component of the local culture and is currently playing an increasingly significant role in the local economy.
3.1.1 Location, Access, and Geographic Features

Revelstoke is located in relative isolation, without any close neighbours. Via the Trans-Canada Highway, the distance east to Golden is approximately 150 km, while to the west Sicamous is just over 70 km away. The closest major urban centres are Calgary (415 kilometers east) and Vancouver (640 kilometres west). The Upper Arrow Lake separates direct access from communities to the south (see Image 14 above), while there are no significant residential areas to the north.

Access to Revelstoke is typically achieved via motor vehicle on the Trans Canada Highway. The railway through Revelstoke operates primarily for freight and does not provide a transportation option: the ‘Rocky Mountaineer’ passenger train
passes through Revelstoke but does not stop (see Image 15 above). Likewise, the Revelstoke airport does not currently provide regular commercial flights (future expansion may change this), mostly serving local backcountry ski providers. The closest major international airport is in Kelowna, BC, over 180 km away.

![Image 16: Revelstoke sits on the Columbia River between mountain ranges (image © Google Maps, © TerraMetrics; notations by author).](image)

Physical geographic features strongly define Revelstoke. Set within an evergreen rain forest on the eastern bank of the Columbia River at an elevation of 455 metres, the bulk of the community is largely north of the confluence of the Columbia and Illecillewaet rivers (see Image 16 above). This river valley setting puts Revelstoke between the steeply rising mountain ranges, with Frisby Ridge,
Boulder, Begbie, MacPherson, Cartier, and MacKenzie Mountains dominating the viewscapes from town. The distance to neighbouring communities and the imposing mountainous landscape lends a remote quality to the City of Revelstoke, complementing the extensive backcountry adventure recreation opportunities in the area. The compact nature of the community, mountain views, and access to nature create conditions that encourage bicycle use.

3.1.2 Climatic Conditions and Implications

Revelstoke’s climate could be described as moderate with extreme precipitation. In terms of temperature, winter lows in Revelstoke typically drop to minus ten centigrade, while summer highs reach to roughly plus 25 centigrade. Prevailing westerly winds carry moisture that is released as the air ascends the Monashee and Selkirk mountains, creating precipitation and one of the heaviest snow belts in the world (Nobbs, 1998). The average annual snowfall in Revelstoke is over three meters while the average rainfall is 1278 millimeters (CSRD, 2008). High annual snowfalls typically result in access closures along the Trans-Canada Highway through Rogers Pass to the northeast during the winter season, both occasionally on a prolonged basis and more frequently for short-term avalanche control.

Dangerous conditions and the risk of avalanche resulting from high annual snowfalls are infamous in the Revelstoke area: the Rogers Pass avalanche of 1910 claimed over 50 lives in one of the worst railway disasters on record (Parks Canada, 2011-b), while the Boulder Mountain avalanche in 2010 garnered national
headlines (CBC News, 2010). Given the consistency of these avalanche-prone conditions, the Canadian Avalanche Centre has located in Revelstoke, dedicated to public avalanche safety. As the Trans Canada Highway sees constant year-round use, avalanche control and forecasting are a pressing concern in Revelstoke, with national, regional and local implications for transportation, recreation, and public safety (see Image 17 below).

Image 17: Highway stoppages are common east of Revelstoke towards Rogers Pass.

The same geo-climatic factors that create transportation concerns have contributed to a reputation for the area being a backcountry skier’s dream. Revelstoke is on what is known as the “Powder Highway”, a region that includes Golden, Nelson, Rossland and Fernie in southeastern BC (Kootenay Rockies Tourism, 2012). Several backcountry helicopter and cat ski operators serve the Revelstoke area, in addition to the recently (2007) opened Revelstoke Mountain Resort, which provides front-country skiing.

Existing infrastructure for winter tourists can serve summer users as well, when the season changes to permit additional forms of outdoor recreation. Locals involved in the tourist industry increasingly hope to capitalize on Revelstoke’s reputation for snow and backcountry recreation to promote opportunities for
summer recreation-based tourism. Proximity to Mount Revelstoke, Glacier, and Banff National Parks brings tourist traffic through Revelstoke throughout the summer season. The summer season also sees an increase in local bicycle traffic as the mode of transportation shifts from 1-2 % in the winter to 27-36 % in the summer (City of Revelstoke, 2010-b). Residents have indicated that bicycling facilities are the highest priority for transportation system improvement (City of Revelstoke, 2010-b). The development of summer adventure recreation amenities can provide additional opportunities to capture tourist traffic while enhancing the community, providing a range of local benefits.

3.1.3 Revelstoke Development History

Image 18: Rising waters along the Columbia River from the construction of the Revelstoke Dam flooded the old highway north of Revelstoke along with historical and archeological sites.

At least four First Nations groups are known to have used the Revelstoke region (Parks Canada, 2012). While the Columbia River was a transportation route used by indigenous peoples and traders, the terrain and weather characteristic of the Revelstoke area did not encourage settlement (Nobbs, 1998). David Thompson is recognized as the first European to explore the length of the Columbia River in the
early 1800s, travelling past where Revelstoke sits today. However, little is known about life in this area prior to European contact: hydro-electric development along the length of the Columbia River significantly enlarged the waterway, burying many historic and archeological sites (Nobbs, 1998).

Image 19: The Revelstoke Dam sits just north of Revelstoke.

The City of Revelstoke was incorporated in 1899 as a service centre during the Gold Rush, bolstered by the establishment of the Canadian Pacific Railway and the beginnings of the forestry industry (City of Revelstoke, 2009-a). Access to Revelstoke was significantly improved in 1962 with the construction of the Trans-Canada Highway, facilitating tourist activity in the region (City of Revelstoke, 2009-a). The economy in the region was boosted by two hydroelectric projects in 1965, and while an economic downturn accompanied the completion of these projects, forestry, tourism, and transportation (auto and rail) remain the primary sources of income in Revelstoke (City of Revelstoke, 2009-a). While a small single-lift operation had previously existed on Mount MacKenzie, its expansion into the major new downhill ski destination known as Revelstoke Mountain Resort (RMR), upon
opening in 2007, introduced a range of economic, environmental, and social implications for the community. While global economic conditions have restrained its progress, the development of RMR continues today.

### 3.1.4 Cultural Connections to Outdoor Recreation

Recreation has long been a component of local community activity in Revelstoke. The Revelstoke Ski Club dates back to 1893 while the Bicycle Club formed in 1898 (Nobbs, 1998). The historical character of Revelstoke is accentuated by the athletic achievements of local residents, often on local mountains. Ski jumping brought the attention of the world on Revelstoke with local athlete Nels Nelsen setting a world record of 240 feet in 1925 on the ski jump built within Mount Revelstoke Park (Nobbs, 1998). Georgia Engelhard pushed social boundaries by wearing men’s pants in the mountains instead of the traditional skirt when in 1931 she reached 24 summits in the Selkirk Mountains in three weeks (Parks Canada, 2011-a). In 1992 Dinny Harrison became the first Canadian woman to become an internationally certified mountain guide, while in 2010 Greg Hill set a world record by climbing and skiing two million vertical feet in less than a year (Parks Canada, 2011-a). Revelstoke is home to the women’s 2012 Canadian Mountain Bike Downhill Champion Casey Brown and former women’s National Champion Lorraine Blancher.

### 3.1.5 Revelstoke Bicycling Network

Revelstoke’s actively developing bicycle network includes formal and informal on-street routes, on-street lanes, multi-use trails, and purpose-built mountain bike
trails (refer to Table 5 below). This network expands beyond municipal boundaries with many portions crossing jurisdictional boundaries. Municipal plans have proposed a commuter route through the core of urban Revelstoke (refer to Appendix E), formalizing a significant travel corridor for bicycle users.

Table 5: Revelstoke’s Bicycle Network, Governance and Management.

<table>
<thead>
<tr>
<th>System</th>
<th>Category</th>
<th>Status</th>
<th>Governance</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mount MacPherson Network</td>
<td>X-Country, Family</td>
<td>Sanctioned</td>
<td>CSRD - CFD</td>
<td>RCA</td>
</tr>
<tr>
<td>Boulder Mountain Network</td>
<td>Downhill, Free-ride</td>
<td>Partially Sanctioned</td>
<td>CSRD - CFD</td>
<td>RCA</td>
</tr>
<tr>
<td>Frisby Ridge Trail</td>
<td>X-Country, Epic</td>
<td>Sanctioned</td>
<td>CSRD - CFD</td>
<td>RCA</td>
</tr>
<tr>
<td>Sale Mountain - Martha Creek Trail</td>
<td>Downhill, Free-ride</td>
<td>Sanctioned</td>
<td>CSRD – CFD</td>
<td>RCA</td>
</tr>
<tr>
<td>Nels Nelsen Loop Trail</td>
<td>X-Country, Family</td>
<td>Sanctioned</td>
<td>Mount Revelstoke National Park</td>
<td>Parks Canada</td>
</tr>
<tr>
<td>CPR Hill Network</td>
<td>X-Country</td>
<td>Unsanctioned</td>
<td>City of Revelstoke – Private Land</td>
<td>N/A</td>
</tr>
<tr>
<td>Mount MacKenzie – Crowbar Trail</td>
<td>X-Country</td>
<td>Unsanctioned</td>
<td>CSRD – City of Revelstoke – Private Land</td>
<td>N/A</td>
</tr>
<tr>
<td>Mount Cartier Trail</td>
<td>X-Country</td>
<td>Sanctioned</td>
<td>CSRD – CFD</td>
<td>Forest Service</td>
</tr>
<tr>
<td>Bike Routes (on-street)</td>
<td>Commuter</td>
<td>Sanctioned</td>
<td>City of Revelstoke</td>
<td>City of Revelstoke</td>
</tr>
<tr>
<td>Illecillewaet Greenbelt River Trail</td>
<td>Family, Commuter</td>
<td>Sanctioned</td>
<td>City of Revelstoke</td>
<td>Illecillewaet Greenbelt Society, City of Revelstoke</td>
</tr>
</tbody>
</table>
A number of bicycling styles or pursuits are supported by the overall network, including road-riding for recreation and commuting, as well as trail bicycling including cross-country or all-mountain biking (endurance based, potentially including strenuous uphill sections), downhill or free-ride mountain biking (more technically difficult, gravity-fueled terrain often with technical trail features such as drops or jumps), and family (supporting all users) oriented trail riding.

The Revelstoke bicycle network has been featured in various forms of easily accessible online media. The links presented in Appendix F offer trip reports, tourist and trail information, and promotional videos. These varied media offerings provide a snapshot in time of elements of the bicycle network, providing a visual context of bicycling in Revelstoke that complements this case study.
3.1.6 Revelstoke Bicycle Network Stakeholders

Revelstoke’s local bicycle network offers opportunities to explore partnerships between municipal, regional, and provincial governments, special-interest groups; the directly related environmental and economic concerns held by these groups; as well as the community-building and place-making contributions of the bicycle network. Stakeholders in the Revelstoke bicycle network include provincial, regional, and municipal planners, Parks Canada, advocates, tourists, local residents, and funding agencies. Specifically, stakeholders involved in various partnerships related to the bicycle network include: the City of Revelstoke, local business interests (Skookum Cycle and Ski Shop, Flowt Bikes and Skis, forestry companies, the Revelstoke Chamber of Commerce, and various sponsors), the Columbia-Shuswap Regional District, Recreation Sites and Trails BC (the Revelstoke Forest Service/Columbia Forest District), Parks Canada, Revelstoke Cycling Association, Columbia Basin Trust, and local residents. All of these stakeholders provide a role in the planning, funding, development, use, maintenance, and promotion of the Revelstoke bicycle network.

Provincial, Regional and Municipal Planners

Specific provincial policies guide recreation activity on Crown lands in BC. Recreation Sites and Trails BC (RSTBC) is the branch of the Ministry of Forests, Lands and Natural Resource Operations that develops, manages, and maintains trails on BC Crown land (often in partnership with the Ministry of Tourism, Culture and the Arts). RSTBC provides approval authority for developing or maintaining trails under Sections 56 (establishment) and 57 (stewardship) of the Forest and
Range Practices Act (Recreation Sites and Trails BC, 2012). A Recreation Officer is based at the Columbia Forest District office in Revelstoke with the authority to grant such approvals for trail development and maintenance on Crown land surrounding Revelstoke.

Revelstoke lies within “Area B” of the Columbia Shuswap Regional District (CSRD). From their main office in Salmon Arm, the CSRD provides a form of government for the lands immediately surrounding Revelstoke that do not fall within the municipality. Currently, the CSRD does not have a Park Plan for Area ‘B’, although an Electoral Area ‘B’ Official Community Plan (bylaw 850) was adopted in 2008. The CSRD notes that planning for outdoor recreation in Area ‘B’ will be a collaborative process working with other government agencies and volunteer groups (CSRD, 2008). The CSRD has recently provided financial support for the development and maintenance of mountain bike trail projects in the Revelstoke area (CSRD, 2010).

Community planning has played a role within municipal boundaries since 1985, when Revelstoke was one of the first communities in British Columbia to create a Community Economic Development Strategy (City of Revelstoke, 2009-a). The City of Revelstoke has an active planning department. Currently guided by Smart Growth principles under the Director of Planning John Guenther, the City of Revelstoke Planning, Building and Bylaw Department is responsible for the administration of a range of strategic plans, policies and programs to ensure a healthy, resilient and sustainable community (City of Revelstoke, 2011).
Provincial, Regional and Municipal Planning Initiatives

Reviewing existing policy documents provides insight into how planning supports Revelstoke’s bicycle network. Outdoor recreation resource development in the Revelstoke area occurs under policies and plans developed at the provincial, regional and municipal levels.

At a broad scale in BC, climate action legislation including the Greenhouse Gas Reduction Targets Act and Bill 27: the Local Government (Green Communities) Statutes Amendment Act provides an overarching motivation for implementing human-scale approaches to development. Under such legislation and policy, a bicycle network presents itself as an emerging means for municipal planners to retrofit urban areas and achieve more sustainable human-scale environments.

Recreation Sites and Trails BC (RSTBC) provides approval authority for developing or maintaining trails under Sections 56 (establishment) and 57 (stewardship) of the Forest and Range Practices Act (RSTBC, 2012). In 2005/2006 a policy statement titled Authorizing Recreational Mountain Bike Trails on Provincial Crown Land was developed by RSTBC and key stakeholders as a working draft to manage and administer mountain bike trails (RSTBC, 2006). These documents indicate that at the provincial level there is recognition of the benefits and contributions of bicycling.

In addition to typical municipal finance mechanisms, Revelstoke is a participant in the Province of BC’s Resort Municipality Initiative (RMI). Since 2006, the RMI has provided development and financial tools to benefit BC’s resort sector (RuralBC, 2010). In addition to Revelstoke, 13 resort municipalities are eligible to
participate in the RMI, including: the City of Fernie, Town of Golden, Village of Harrison Hot Springs, District of Invermere, City of Kimberley, Town of Osoyoos, Village of Radium Hot Springs, City of Rossland, Sun Peaks Mountain Resort Municipality, District of Tofino, District of Ucluelet, Village of Valemount, and the Resort Municipality of Whistler (RuralBC, 2010). Through the RMI program, Revelstoke has access to an “ongoing incentive based funding stream” to address and support unique challenges and opportunities (RuralBC, 2010). Funding from the RMI goes towards Tourism Infrastructure Projects that are outlined in Revelstoke’s Resort Development Strategy, projects that are undertaken once funding levels and approvals for specific projects are met. Both on-street and trail-based elements of Revelstoke’s bicycle network have been developed with funding from the RMI program.

The planning and development of the bicycling network in Revelstoke is occurring within a wider provincial context of economic development through tourism opportunities: in British Columbia mountain biking is not just permitted, it is supported and promoted as a form of adventure tourism. The Western Canada Mountain Bike Tourism Association (MBTA) began the process of shifting mountain biking from a local activity towards a tourism product with its establishment in 2005, creating Bike Parks BC with destination alpine resorts in 2006 (Tourism British Columbia, 2010). Partnering with Tourism British Columbia to pursue a broader interest in other forms of mountain bike experiences, a community guide was developed (Mountain Bike Tourism: Tourism Business Essentials) in 2008 followed by a marketing plan (British Columbia Mountain Bike Tourism) established
in 2010 to better place BC in the world mountain biking tourism industry (Tourism British Columbia, 2010). While the unique terrain in British Columbia provides specific and unique opportunities for mountain biking, initiatives to formalize approaches and structured support for this activity address a number of additional concerns: unauthorized trails, trail maintenance, sustainable practices, liability, and the diversity of stakeholders (Tourism British Columbia, 2008).

Currently at the regional level, the CSRD does not have a Park Plan for Area ‘B’, although an Electoral Area ‘B’ Official Community Plan (bylaw 850) was adopted in 2008. While the Columbia Shuswap Regional District (CSRD) notes in the Electoral Area ‘B’ Official Community Plan (bylaw 850) that the attractive natural settings surrounding Revelstoke are highly valued for recreation, the majority of land area in Area ‘B’ is managed by provincial resource agencies (CSRD, 2008). The CSRD has recently provided financial support for the development of recent mountain bike trail projects in the Revelstoke area, including the recently constructed Frisby Ridge Trail (CSRD, 2010).

At the municipal level, Revelstoke’s Official Community Plan (2009) states that an increased reliance on cycling as a part of an efficient transportation network is a goal. Both the Comprehensive Transportation Master Plan (2010) and the Community Energy and Emissions Plan (2011-b) support expanding cycling infrastructure and increasing active transportation options. Active transportation initiatives are expected to expose more Revelstoke residents to cycling based on the development of new and improved bicycle facilities (City of Revelstoke, 2010-b). Increasing trail connectivity to support active transportation and an active lifestyle
is a stated objective in the *Parks, Recreation and Culture Master Plan* (2010). The *Revelstoke Community Youth Assessment & Youth Action Plan* (2011) found substantial support for more bicycle trails from youth under 19. Public feedback from the planning processes associated with these documents and other initiatives has repeatedly indicated support for making an expanded and enhanced active transportation bicycling network a priority.

**Parks Canada**

As the City of Revelstoke’s northern boundary is largely shared with Mount Revelstoke National Park, Parks Canada plays a direct role in the provision of local outdoor recreation opportunities. The Soren Sorensen Trail is a multi-use trail on the lower slopes of Mount Revelstoke that is popular with locals. Parks Canada and Revelstoke maintain a shared interest in managing the impacts of growth along their shared boundary. Revelstoke acts as a gateway community to Mount Revelstoke National Park and with the development of Revelstoke Mountain Resort significant changes are expected to present growth pressures (Parks Canada, 2010). An unfortunate recent challenge for Parks Canada has come in the form of budget reductions and associated federal public service job cuts. These 2012 reductions impacted 14 staff (out of 127) from the Revelstoke Parks Canada workforce (*The Revelstoke Current*, 2012). These reductions potentially reduce the ability of Parks Canada to contend with and adapt to any pressures or changing trends.

**Local Advocacy**

The Revelstoke Cycling Association (RCA) is a registered non-profit advocacy group dedicated to supporting and promoting cycling in the Revelstoke area.
Formed in 1994, the RCA has partnered with land managers (including the City of Revelstoke, the BC Ministry of Forests, the Ministry of Tourism, Culture and Arts, and the Columbia Shuswap Regional District) to maintain and construct environmentally sustainable, legally-sanctioned trails for a range of users to the standards established by the International Mountain Bicycling Association (IMBA) (RCA, 2011). The RCA has completed multiple trail projects over the past few years with the added intent to benefit Revelstoke’s tourism economy through the development of summer adventure recreation opportunities (RCA, 2010). The RCA also promotes bicycling activity in the Revelstoke area through organizing numerous events, both competitive and social.

Additional advocate groups related to the Revelstoke bicycle network include the North Columbia Environmental Society (NCES) and the Illecillewaet Greenbelt Society. The NCES promotes community-wide sustainable living, specifically promoting bicycling through an annual bike giveaway in partnership with the RCMP, City of Revelstoke Public Works, and Flowt Bike Shop (The Revelstoke Current, 2011). The Illecillewaet Greenbelt Society manages a 22.4-acre conservation area at the mouth of the Illecillewaet River including a gravel trail network (The Revelstoke Current, 2009). The efforts of the advocate groups have resulted in a bicycle network serving a wide range of resident needs and demands.

**Additional Stakeholders**

The Revelstoke Chamber of Commerce is a non-profit organization made up of businesses and community groups working towards economic development, including tourism marketing and community promotion (Revelstoke Chamber of
Several businesses have an interest in the Revelstoke bicycle network, businesses that can expect both direct (bicycle shops including both Flowt and Skookum) and indirect benefit (hotels and restaurants). Together, the City of Revelstoke Planning, Building, and Bylaw Department and the Revelstoke Chamber of Commerce have facilitated the planning and implementation of outdoor recreation amenities while creating partnerships and linkages between outdoor recreation groups, local economic interests, and community development initiatives. The Revelstoke Chamber of Commerce and Revelstoke Tourism promote the bicycle network as a local asset to attract outdoor adventure tourist activity in the summer season (Revelstoke Chamber of Commerce, 2011-b).

The Columbia Basin Trust (CBT) is a regional stakeholder in the Revelstoke bicycle network. The CBT was created in 1995 to benefit the large region directly affected by the Columbia Basin Treaty and the associated construction of hydroelectric dams (CBT, 2008). The CBT invests an endowment to fund community projects that bring social, economic, and environmental benefit to the Columbia River basin, partnering with existing groups to enhance quality of life for communities within the Columbia Basin (CBT, 2008). Recently the CBT has provided financial support to the RCA for the development of mountain bike trail projects in the Revelstoke area.

3.2 Interview Results: Stakeholder Perceptions

Interviews were conducted with stakeholders involved in planning the Revelstoke bicycle network to generate unique data and address gaps found
through the literature review. Specifically, interview questions related to how forms of outdoor recreation may be better integrated through planning processes and community design for the wider benefit of the existing populace, investigating the community building and place-making potential, as well as the collaborative planning relationships involved in outdoor recreation resource development. Information developed through interviews confirmed and enhanced the findings of case study research, clarifying the relationships, jurisdictions, and agencies involved in planning and developing the Revelstoke bicycle network.

Semi-structured interviews solicited responses around four broad theme areas: project evaluation (establishing a basis upon which the existing bicycle network coordinates with community planning perceptions and municipal objectives), infrastructure (fitting the bicycle network into larger municipal/regional systems and how to improve integration), community (how the bicycle network supports partnerships, local health, and related social implications), and maintenance (discussing the ongoing sustainability, future plans, and risk management of the network) (please refer to the interview guide in Appendix B). The interview responses were grouped into the following themes reflecting the literature review research previously presented in Chapter 2: Planning Approaches, Benefits to Health, Environmental Considerations, Economic Implications, Social Implications, and Urban-Rural (Tourist-Local) Considerations.
3.2.1 Scope of Interviews

A total of six formal semi-structured interviews were completed with key informants targeted to include provincial, regional and municipal planners, local bicycle advocates, and directly related business interests. The informant group included a representative from the Columbia Shuswap Regional District (CSRD), Revelstoke Cycling Association (RCA), Recreation Sites and Trails BC/Columbia Forest District (RSTBC), City of Revelstoke Planning Department (CP), City of Revelstoke Parks and Recreation Department (P&R), and a local retail bicycle shop owner/manager (BI) to represent local business interests (please refer to Table 6 for acronyms).

Table 6: Key informants and associated acronyms.

<table>
<thead>
<tr>
<th>Key Informant</th>
<th>Acronym</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreation Sites and Trails BC – BC Forest Service</td>
<td>RSTBC</td>
</tr>
<tr>
<td>Columbia Shuswap Regional District</td>
<td>CSRD</td>
</tr>
<tr>
<td>City of Revelstoke Planning and Development Services Department</td>
<td>CP</td>
</tr>
<tr>
<td>City of Revelstoke Parks and Recreation Department</td>
<td>P&amp;R</td>
</tr>
<tr>
<td>Revelstoke Cycling Association</td>
<td>RCA</td>
</tr>
<tr>
<td>Local retail bicycle shop owner/manager</td>
<td>BI</td>
</tr>
</tbody>
</table>

A number of attempts were made to include a representative from Parks Canada in the interview process, but all attempts were met with no response. This may be understandably attributed to the timing of the research unfortunately coinciding with Parks Canada job cuts. Given the close relationship between the municipality and Mount Revelstoke National Park, an engaged, coherent, and complementary
planning relationship with Parks Canada would be beneficial; however this may be challenging given recent workforce reductions previously discussed.

The semi-structured interview format allowed for a range of distinct responses, generating information and personal insights that could not have been accessed through literature review or case study research, and revealed aspects of the complex multi-disciplinary and multi-jurisdictional process involved in the development of Revelstoke’s bicycle network.

Analysis of interviews predictably revealed that the scope of the planning and governance related to the development of Revelstoke’s bicycle network generally fell within associated jurisdictional boundaries. Informants from the CSRD and RSTBC focused on the trail network outside of municipal boundaries, whereas the concerns of municipal planners while broad, were focused to a larger degree on the municipal on-street network. Advocates and business interests held an even broader perspective unconstrained by jurisdictional boundaries. While the RCA has historically focused on developing trails on Crown lands outside of municipal boundaries, they have recently begun considering urban trails (RCA, personal communication, April 28, 2012). Business interests presented a broader perspective that largely ignored jurisdictional boundaries.

### 3.2.2 Interview Results: Bicycle Network Planning Approaches

Advocates and government agencies are involved in various planning processes related to the ongoing development of the Revelstoke bicycle network. Interview responses indicate that the planning approaches are different on either
side of the municipal boundary (please refer to Images 21 and 22 below). Within municipal boundaries, the bicycle network is an interdepartmental municipal concern shared by the City of Revelstoke Planning Department, Parks and Recreation, Engineering and Public Works Departments. Outside the municipal boundary, elements of the bicycle network are largely the result of the vision and efforts of the RCA under the authority of RSTBC and the CSRD.

Image 21: At the municipal level, bicycle network planning is City led and provides multiple feedback loops for Council, the community, and additional initiatives (Larson & Guenther, 2012).

The City of Revelstoke Planning Department provides a broad perspective towards the ongoing development of the local bicycle network within the
municipality, referring to community groups and committees as active participants in the municipal planning process:

“A park (or trail) that is City oriented, that vetting would go through a couple of committees, enhancement and the planning commission.”  CP

With a municipal government structure including interdepartmental, committee, and public consultation, planning the bicycle network on municipal lands is a more complicated endeavor (see Image 21 above). Within the municipal boundary, further planning of the bicycle network would be incorporated in the development of a trails overlay for the city to align trails with existing land-uses, a recommendation of the Parks, Recreation and Culture Plan:

“It is getting a trails overlay... integrating that into the land-use and economic components. It starts with a map of those areas. That is one of the implementation strategies in the PRC plan. It takes a fair amount of work.”  CP

Below the broad level of concerns of city planners, the municipal Parks and Recreation Department has a more project-oriented operational focus:

“Parks plans the projects while Public Works builds and maintains.”  P&R

Outside of the municipal border, the planning and vision for the bicycle network is attributed primarily to the RCA, with approvals from RSTBC/Forest Service and support from the CSRD (see Image 22 below). The central role of the Forest Service should be noted in this situation, as a comparable agent for collaboration and permission may be needed in absence of such an agency. Both the
CSR D and RSTBC point to the RCA as providing the vision for the bicycle trail network within their jurisdictions:

“The Forest Service acts as a facilitator. The Revelstoke Cycling Association provides the vision and the Forest Service helps to facilitate this vision. A larger plan for trail expansion is in place and will be built piece-by-piece. Approval for trails comes from Forest Service.” RSTBC

“...the RCA are the ones with the future plan, yeah, and the stated preference is that we (the CSR D) do not, because there are only so many opportunities and people want a backcountry experience, it is just not there for us to be building that. People live out there to be in the backcountry...” CSR D

Image 22: The planning process at a regional level is advocate led and fairly linear, allowing for feedback from other user groups.

Regional informants noted similarities between planning for the bicycle network trails and other outdoor recreation infrastructure, particularly related to the co-management relationship between advocates and the trail systems:
“Similar to other trails: advocates build and maintain so the management is similar.”  CSRD

While the RCA may be providing the vision for this network with success and have three-year plans in place, they recognize room for improvement in their efforts and a potential for a refinement of their vision:

“We have 3-year plans for both the x-country and the downhill areas. But we really need to sit down and specifically go over the overall plan. The overall plan we don’t have to the same degree that we should have. We don’t have the vision that I would like us to have to get a good mix of beginner, intermediate, expert trails.” RCA

It may be no surprise that interview responses indicated a difference in planning approaches at the municipal and regional levels in the Revelstoke area: it stands to reason that concerns within the City boundary would be more plentiful, varied, and complex - and result in a more complicated process than the sparsely populated areas at and beyond the fringe of development. While the approaches may be slightly different, planning for the bicycle network on either side of the municipal boundary is a shared endeavor, characterized by collaborative partnerships.

**Planning Partnerships**

Partnerships form the basis for development of the Revelstoke bicycle network at the planning, construction, use, and maintenance stages (see Table 7 below). Informants at both the regional and municipal levels emphasized the importance of various partnerships:

“I would say that any kind of partnership opportunities can always be strengthened. That would be the biggest one. In the future, I think we will
be playing a supportive role in Area B, so the stronger the partnerships, the smoother the planning together.” CSRD

“Jurisdictional partners are really important: the regional district, and us, and the province, and the federal government, obviously those are important. Internal partnerships are really important too. We find we underestimate those all the time. Working through agencies and groups internally, policy groups that Council has identified as people that need to be tied into this.” CP

While informants suggested various groups they consider to be partners in the planning and development of the bicycle network, the RCA was consistently noted. These inter-agency partnerships form the basis for funding arrangements, strategic planning processes, and ongoing system maintenance to sustain and further develop the bicycle network.

Table 7: Noted partnerships in the Revelstoke Bicycle Network.

<table>
<thead>
<tr>
<th>Key Informant</th>
<th>Partners Noted</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCA</td>
<td>RSTBC (Fire Protection Crews), the City, CBT, CSRD</td>
</tr>
<tr>
<td>CSRD</td>
<td>RCA and the City</td>
</tr>
<tr>
<td>RSTBC</td>
<td>RCA and forest industry groups</td>
</tr>
<tr>
<td>P&amp;R</td>
<td>Public Works</td>
</tr>
<tr>
<td>CP</td>
<td>Jurisdictional partners (province and region), interdepartmental and policy groups, bike shops</td>
</tr>
<tr>
<td>BI</td>
<td>The Nordic club and RCA</td>
</tr>
</tbody>
</table>

With local volunteer advocate groups, particularly the RCA, playing a noted and significant co-management role within the Revelstoke bicycle network, volunteers are significant contributors to the network.

“Volunteer groups do a fairly good job of that (maintenance), the bike groups are active.” CP
It is important to note that the RCA is a volunteer-based advocate organization, a fact made clear in an interview:

“The cycling association (RCA) is big time volunteers. The first couple of trails we built were built totally with volunteers.” RCA

In addition to the RCA, other volunteer groups were mentioned including the Trails Alliance (mountain bike), the saddle club (equestrian), the Revyriders (motor/dirt-bike), and the Outdoors Club. Volunteerism has been and continues to be an important, vital component in the development of the bicycle network, with the RCA being acknowledged in development, maintenance, and future planning roles by interview informants.

The RCA not only provides access to an involved volunteer contingent, this organization also groups several different bicycling pursuits within their area of concern. The RCA credits their success with bringing many sub-groups within the bicycling community together:

“I think a success story of the cycling association is bringing all the different groups together under one banner. I think it has helped with funding.” RCA

From the regional perspective, funding an organized group with access to volunteer labour can be a sound investment:

“Local non-profit groups that build and maintain these trails are key partners, oftentimes they provide volunteer labour, so with a certain amount of taxpayer contribution they are able to do a lot more with the money, because they are able to make use of volunteer time, so they are key partners.” CSRD
However, volunteers alone have not built the network. Access to funding is viewed by advocates as necessary to continue the development and maintenance of the network, funding trail builders in addition to volunteers:

“The first couple of trails we built were built totally with volunteers. We quickly realized that trail building in Revelstoke is very difficult. You can underline “very”! It is very hard work, it is just plain hard work. Laying out the trails is challenging and takes quite a significant skill level to do it properly so that they are going to be sustainable. But physically building the trails is just hard work. If we were going to rely strictly on volunteers we would have 200 metres of trail.”    RCA

While volunteers may not be able to develop or sustain the entire network, planners and funding agencies view an organized advocate group with access to a volunteer workforce and broad area of concern as a solid partner and potentially a good investment.

### 3.2.3 Interview Results: Standards, Risk Management, and Maintenance

The establishment of internationally recognized standards for bicycle-related infrastructure (trails as well as on-street lanes and routes) provides a common goal for advocates and governments to pursue, establishing a basic component of co-management agreements:

“As to design, we would have standards that we would expect them (advocates) to meet. The construction part, if they were the ones applying for the necessary permissions, they would be the ones constructing it. So we as a local government could do that on our own or with a group like RCA. If it is something that RCA has identified and we support it, we can get the necessary permission but they would do the construction work.”    CSRD

At both the regional and municipal levels, it is expected that established standards would be met. Provincial, regional, municipal, and advocate planners all referred to the trail-building standards, in particular those of the IMBA as two informants state:
“For bicycle use, IMBA standards are followed.”  RSTBC

“All the trails we build are built to IMBA recommendations and/or Whistler standards. The intention is that we build everything to IMBA recommendations, which is not so much risk-management as trail-management/trail sustainability, which works into risk-management.”  RCA

The establishment of agreed-upon standards for trail development provides a solid foundation of common ground for the partnerships involved in the Revelstoke bicycle network to work with and literally build upon. Standards allow for land managers to recognize the trails - an asset recognized by local business interests:

“The RCA has gotten all of their trails sanctioned, which is a real positive step forward.”  BI

Like any form of recreation, active outdoor pursuits typically have some associated risk that necessitates the employment of risk management techniques. The Revelstoke bicycle network features the employment of a number of measures to manage associated risks. Planners of on-street routes employ risk management through lane demarcation, signage, (vehicular) speed management, education, and managing intersections. On trails, the risk management techniques mentioned by planners include: following design guidelines (IMBA and/or Whistler standards previously mentioned), trail ratings, signage (on-trail and kiosk), brochures/maps, tree clearing and falling, as well as thinning/brushing for fire-hazard mitigation.

“...on the kiosk and brochure we will do some risk management by posting that all of our trails have hazards and that there may be technical trail features on all of the trails. So that is our version of risk-management.”  RCA

The planners interviewed indicated that risk management is also offered by insurance coverage. Depending on location related to jurisdictional boundaries, insurance for the network is provided by the Municipal Insurance Association,
CyclingBC/RCA, and RSTBC. To address general liability when a local group runs a park, the CSRD provides financial assistance through a grant-in-aid.

Ongoing maintenance is critical to ensure the continued viability of the Revelstoke bicycle network. Interview respondents noted maintenance as a vital element of sustaining the network:

“There are always challenges on the maintenance side because trails don’t survive unless you look after them.” CP

Interview responses indicated that maintenance of the bicycle network is provided primarily by the RCA and Public Works. The City of Revelstoke Public Works department would operate within municipal boundaries while trail maintenance on Crown lands is done by the RCA (“RCA is primarily responsible.” RSTBC), supported by local business interests, the CSRD, and RSTBC (fire protection crews):

“Maintenance, we would be helping out by contributing funds, but the actual work would be carried out by a local group, like the RCA.” CSRD

While an obvious necessity, maintenance can be an issue of contention:

“The RCA is largely responsible. Maintenance has several interesting aspects. One person’s maintenance is another person’s destruction. Anything you are touching on the actual trails... maintenance is a hot-button topic. You build the trails; you have to maintain them. The better the trails are laid out originally, the less the maintenance is going to be, so maintenance and trail layout go hand in hand.” RCA

The challenge in maintenance is thus to ensure the functionality of the bicycle network, to the standards of users and land mangers, while also maintaining the experience that users desire.
3.2.4 Interview Results: Conflicts

Informants generally noted a lack of conflict related to the Revelstoke bicycle network, suggesting that this was related to co-operation between potentially opposing user groups and a perception of cycling being a low-impact activity. The regional planner noted a lack of conflicts:

“No real conflicts. Non-motorized bicycle network is generally popular and seen as low impact.”  CSRD

A supportive and open community-based approach between potentially adversarial user-groups was noted as a contributing factor in the lack of conflict related to the Revelstoke bicycle network by both planners and advocates:

“There are many local rec user groups, largely supportive and complementary to each other, working together to share trails. It's a positive relationship.”  RSTBC

“Revyriders (dirt-bike club) is great to work with, they recognize that the two clubs have to co-exist and are keen to avoid conflict. We are both building trails and there is lots of potential for overlap. So both clubs are going to have to work hard.”  RCA

However, while there may not have been any apparent conflicts associated with the bicycle network, several respondents noted a concern regarding the potential for conflict:

“We haven’t had a lot of conflict, but there is certainly potential.”  RCA

“You get conflicts. For example mountain bikes don’t mix well with horses, so there are those management challenges. Normal conflict with automobiles is always there. There is a fair amount of understanding with bikes... we don’t really get many people complaining as you may in a big city. We are small so we don’t have the same challenge. I think there is respect for the bicycle because of the size.”  CP

“There could be conflicts with the post office and the timing of traffic at this location: the traffic around noon when everyone gets their mail.”  P&R
While the potential for conflicts exists, the relationships built through collaborative planning partnerships appear to minimize the actual occurrence of significant conflict. Furthermore, the suggestion is that management can play a role in the reduction of associated conflicts. While perceptions of conflicts indicate an awareness of potential, there appears to be a general lack of direct conflict and a positive relationship between Revelstoke bicycle network users and other recreation groups.

Interviews of those currently involved in planning related to the Revelstoke bicycle network indicate that many collaborative relationships are active - involving users, special interest groups, municipal departments, and intergovernmental planners. Interview responses provide a portrait of a complex web of partnerships between advocacy groups, forest industry, planners, land managers, and policy-makers working towards overlapping and common goals with shared standards and complementary values:

“Recognizing that this is a working forest, different user groups can successfully work together. The forest industry supports bike trails, but issues arise with unsanctioned trails such as on Boulder Mtn. These issues have been resolved successfully; facilitated by the Forest Service, the RCA and forestry groups are now meeting annually to share plans.” RSTBC

That the planning approaches differ somewhat within the regional and municipal contexts is to be expected, reflecting the differences in stakeholders, land use, and complexity of concerns.

Within the municipality, collaboration occurs through public consultation and internal partnerships, with various levels of municipal government, community groups, and committees of council acting as active participants in the municipal
planning process. Given the complexity of private concerns, varied perspectives, and special interests involved in sharing the limited municipal land base, the approach taken by city planners is collaborative at a level of consultation, with the city typically managing the development and maintenance of the bicycle network within their jurisdiction.

![Image 23: On Boulder Mountain north west of Revelstoke a mountain bike trail ends where a logging cut-block begins: unsanctioned bike trails were erased by planned logging activity encouraging a more active role for bicycling advocates. The Revelstoke Dam is visible in the background.](image)

At the regional level, collaborative partnerships in the Revelstoke area have extended beyond consultation to a level of co-management. Co-management is a term that is used broadly to describe a variety of arrangements for collaborative planning, shared decision-making, or joint power sharing between a government agency (the State) and a community-based party or organization of stakeholders (resource users) (Pinkerton, 1992; Roseland, 2005). Co-management is viewed as a tool of good planning practice, recognized as contributing to solving complicated
problems, such as management issues related to common pool resources (Roseland, 2005). This is particularly evident at the provincial/regional level where the RCA plans, constructs, and maintains elements of the bicycle network in partnership with RSTBC and supported by local business interests and the CSRD.

At present, planning “for” outdoor recreation enthusiasts has moved towards planning “with” outdoor recreation enthusiasts in the case of the Revelstoke bicycle network, as collective approaches have emerged involving collaboration through consultation municipally and co-management regionally. By sharing a stake in the management and policy development related to outdoor recreation, residents have an opportunity to connect in a purposeful, active fashion.

3.2.5 Interview Results: Perceptions of Health

An increasing body of literature depicts how the incorporation of infrastructure supporting outdoor recreation and activity in a community can contribute to overall health in a variety of ways, with several movements promoting active lifestyles to capitalize on the associated health benefits of outdoor recreation (please refer to Literature Review). The fact that many health professionals view trail systems as a financially prudent way to mitigate costs associated with a lack of physical activity supports and validates the efforts of trail advocates (Robbins, 2005).

From the regional perspective, an initiative from the Province of British Columbia (the Provincial Health Services Authority’s Healthy Built Environment: http://www.phsa.ca/HealthProfessionals/Population-Public-Health/Healthy-Built-
Environment/default.htm) to promote healthy land-use and landscapes was recognized as supporting the efforts of developing Revelstoke’s bicycle network:

“The Province has switched focus to promote healthy land-use or landscapes. They have realized that because of the health issues that more and more residents in BC are facing, like obesity, and they have realized how much land use has to do with it, they are moving their resources and staff to focus on the built environment. From a region perspective, we support that because a lot of these policies are good planning policies. So having more trails and less reliance on automobiles, more compact communities and close access to recreational opportunities, it is very much in line with pretty much all planning departments in local government. It is nice to have this support from the provincial ministry of health.”  CSR

As bicycling is just one component of the local active lifestyle in Revelstoke, some informants simply indicated that activity for improved health is just common sense and inherent, yet additional benefits were evident:

“To me it is just a given that you need to do stuff and cycling is stuff. The focus is we build the trails because we are a cycling association, but lots of people walk the trails. Friends of ours have a hiking group, so we went out with them and walked the trails. We build the trails for mountain biking but they are useful for more than that. A lot of them are really good trail running trails. To me, that is why people move to town. The majority of people are moving to town for lifestyle. So that whole fitness outdoors lifestyle is what Revelstoke is and should be promoting, skiing downhill and x-country, touring in the winter, mountain biking, climbing, hiking, walking in the summer.”  RCA

While planning stakeholders perceive linkages between health and the Revelstoke bicycle network, the indication is that more could be done to promote health benefits, particularly through additional events and youth. Two informants commented in this regard:

“There is Bike-to-Work Week and that is about it...”  BI

“Making it more accessible to children. Making sure it is available and accessible and can be used by kids. The school itself could promote this... it would be interesting to see how schools engage with this and remove that barrier.”  CP
As in the literature review, interview research supports a positive role for the Revelstoke bicycle network in the promotion of a healthy active lifestyle. While informants noted that more could be done to enhance this connection, the linkages between trail-based outdoor recreation and community health support future planning initiatives and recommendations related to the bicycle network as presented in the following chapter.

3.2.6 Interview Results: Environmental Considerations

Two competing viewpoints - ‘nature’ and ‘recreation’ as rivals where recreation negatively impacts nature, and ‘nature’ and ‘recreation’ as mutually benefiting partners - are generally described in current literature on outdoor recreation and the environment (van Marwijk, 2009). The considerations of planners regarding the environmental and ecological implications of the Revelstoke bicycle network generally indicated limited direct environmental concerns, and a leaning more towards a perception of ‘nature’ and ‘recreation’ as partners.

While the local natural environment encourages outdoor recreation activity, Revelstoke’s climate does not always encourage bicycling. The municipal planning informant noted the challenges of planning a bicycle route in consideration of the winter season:

“Well, we have a snowbound community so 6 months of the year it’s challenging. I think it is better to think about this in terms of putting bike lanes in the travel-ways first, getting mobility there, managing the safety element of the right-of-ways first. That would help somewhat with snow removal, being already in the travel-way we clear those corridors already.”

CP
The advocate planner informant also voiced these seasonal considerations related to the bicycle trail network:

“There are specifics to trails around Revelstoke because of the amount of snow we get. Some trails are just opening now (April 28, 2012). The upper trails are still toast: we were skiing on them last week.”  RCA

While the climate limits bicycling activity to some degree, developing the network with a four-season perspective in consideration of other forms of compatible recreation can present opportunities to develop additional active outdoor amenities.

When directly questioned about any environmental concerns related to the bicycle network, informants had few concerns to suggest. Statements were brief:

“No.”  BI; “Not really...”  CSRD; “Not really any...”  P&R

Potential areas of concern were noted around water/riparian areas and wildlife:

“Water issues are the large ones. Frisby Ridge, there is a caribou issue there.”  RCA

The indication from informants was that while there is a potential for environmental issues resulting from recreation impacts, these concerns could be managed:

“Key concern is around water, ensuring the management of waterways and maintaining the integrity of waterways and creeks.”  RSTBC

“There is a bit of an environmental and riparian challenge with riding through areas unless they are on managed trails. You want to confine people in riparian areas as much as you can. It can become ad hoc, and you have to be careful that there isn’t chaos. It is not always built very well... if the volume is there, there could be concerns.”  CP

“Frisby Ridge is closed until July 15th for caribou issues. Last year wasn’t a problem, it wasn’t snow-free until August and that was partially why we put
the effort into it, because the number of years it is actually going to be open before July 15 is pretty limited. So that has potential to be an issue for us.”
RCA

These responses suggest that through management the impacts associated with the development of the Revelstoke bicycle network have not exceeded the levels of acceptable environmental impact as perceived by local land managers and planners.

Interview responses supported findings in the literature review that careful planning (including situational analysis, site design, and implementation procedures) can minimize recreation impacts. While the potential for impact to waterways and wildlife patterns exists, employing trail construction guidelines as those suggested by the IMBA and seasonal trail closures are perceived to have allowed resource managers to address potentially unacceptable environmental and ecological impacts.

3.2.7 Interview Results: Related Economic Development

Outdoor recreation plays an economic role across national, provincial, regional, and local scales. Evidence presented in the literature review suggests that the development of infrastructure dedicated to forms of outdoor recreation can play an important role in community economic development. Outdoor recreation can be an active component in a local economy, contributing to the foundation of a strong, sustainable community capable of withstanding the pressures of the urbanized world (Roseland with Soots, 2007).

Key informants confirmed a connection between outdoor recreation and the economy, noting economic development as an associated benefit of Revelstoke’s
bicycle network. In a community known for snow, expanding the potential for generating tourist visits through four-seasons is seen as an important economic consideration in Revelstoke. Economic development was noted by a regional planner as the primary goal for establishing Revelstoke's bicycle network:

“CSRD has an economic focus related to the "Area B" bicycle network, such as the development of signature "Epic" trails." CSRD

Growing local economic activity related to the ongoing development of the bicycle network is noted by the RCA and RSTBC:

“Yeah, big time.” RCA

“There is more and more evidence of visitors from other provinces. Frisby Ridge and Keystone Trails have garnered renown and have attracted visitors.” RSTBC

Municipal and advocate planners noted economic development related to the enhancement of summer activity (bicycling) and recreation providing a draw through four-seasons:

“And then the economic development component, is the tourism component. The recreational component bundles together and creates a diversity of things you can do, so that is an important part of building on the economy. I think those corridors, the greenbelt, the trails that go up into the mountains, create good tourism potential, attraction, with the resort going four-seasons... connecting with mountain biking as Whistler has done.” CP

Getting people to move here and bunk 6 Aussies to a bed from December to March isn’t a problem. Getting people that will want to live here all year round, you need summer stuff as well and that is mountain biking, and hiking, climbing. So having the trail network to the bluffs, mountain bike trails, I think is a significant draw to bring the 30s with kids to town and keep them here.” RCA
While the potential for economic development was evident to informants, capitalizing on this for economic benefit is a secondary priority behind providing, and achieving, a desired lifestyle:

“Recent trail development has generated visits to town, more use, excitement, but I am into it (bicycling) because its what I like to do, not to make money.”  BI

Additionally, having a functioning, connected city that a comprehensive bicycle network would contribute to can have indirect economic benefit as well, as noted by the city planner:

“Connecting places where you want to go: downtown, soccer fields, theatres, events, arts, coffee houses... connecting nodes. If you are a business owner, you want to think about that... proactive...”  CP

Through investigating the development of Revelstoke’s bicycle network, interview research found that perceptions indicate connections between outdoor recreation planning and the local economy. Informants suggest both direct and indirect economic contributions from the Revelstoke bicycle network. The role of outdoor recreation in realizing the four-season potential of Revelstoke, providing an economic stimulus, and enhancing partnerships between the local community advocates and business interests is viewed as a significant component in relation to planning the development of the bicycle network.

3.2.8 Interview Results: Social Considerations

Existing literature indicates that outdoor recreation can have a positive social impact, enhancing community and inclusivity. Interview responses demonstrate that planners in the Revelstoke area recognize a number of social
implications associated with the bicycle network corresponding with the findings of literature review. Literature and interviews both noted related social benefits including, creating opportunities for social interaction and providing a more inclusive, equitable transportation and recreation network.

Revelstoke business interests and planners recognized that a bicycle network can be inclusive and equitable for a wide range of users:

“It creates connections in town, bringing people together. It encourages a range of ages, kids...”  BI

“Range of uses, ages, and abilities, and safety. Age-friendly walking routes, bikes on street can clear conflicts on pedestrian routes.”  CP

While informants indicated that planners do not have a significant role in the promotion of the network through marketing, they do play a role in the development of amenities that support the bicycle network, and potentially support events serving to promote the network and associated activity for locals and tourists, as well as providing an opportunity for community involvement:

“Routes and lanes could promote more use and help direct visitors.”  P&R

“How the public can be involved: involving people in planning the connections. I think that would be an interesting bell-weather to see how that could be promoted.”  CP

A number of potential amenities were suggested to support the Revelstoke bicycle network, including active recreation, active transportation, and infrastructure considerations. Potential active recreation components that would support the Revelstoke bicycle network include a pump-track, BMX track, and mountain bike skills park.

“Pump-track, skateboard park, ramps, all of those things are community assets and are more understood than they used to be...”  CP
Suggestions for active transportation components included bike lanes, educational and directional signage, and parking (including parking for bicycle trailers – see Image 21 below). Supportive infrastructure was suggested such as wayfinding signage (trails, trailhead and kiosk signage), staging areas including “gateways”, washroom facilities, parking lots, and bridge crossings.

“Gateway features encourage use, like at the bottom of Mount Revelstoke.”  
BI

Additional considerations mentioned include supporting a mix between uses (small bikes, large bikes, and pedestrians), dog parks, and building infrastructure to support universal access.

“Building trails that everyone can use. Access points for physical challenges. Building access for all. It is good to think through this, consider these connections and this access for everyone.”  
CP

Image 24: Bicycle parking in downtown Revelstoke: rack placement allows for the use of bicycle trailers supporting family bicycling.
While amenities can be planned and built to support and promote the use of the Revelstoke bicycle network, special events, social gatherings, and regular programs can play a similar role. A regional planner noted the potential for recreation infrastructure to host social events:

“The creation of any park which includes a trail, trailhead or meeting place, it creates the necessary infrastructure to hold events. When those are created, you enable more events to happen because you have created that infrastructure, signage, parking, where people can meet.” CSRD

Informants noted regularly scheduled programs that support and promote the use of the Revelstoke bicycle network, typically organized by local bike shops and the RCA. These programs include group rides, skills clinics, women’s rides, volunteer maintenance events, and regular races (refer to Table 8 below). The Revelstoke bicycle network is also utilized, supported, and promoted by special events noted by informants, including race events, a youth bike rodeo, and bike-to-work week (refer to Table 9 on following page).

Table 8: Regularly scheduled Revelstoke bicycle programs.

<table>
<thead>
<tr>
<th>Program</th>
<th>Pursuit</th>
<th>Organizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday Night Group Rides</td>
<td>X-Country</td>
<td>Skookum Cycle and Ski</td>
</tr>
<tr>
<td>Tuesday Night Shuttle Rides</td>
<td>Downhill</td>
<td>Skookum Cycle and Ski</td>
</tr>
<tr>
<td>Thursday Night Pedal and Pint</td>
<td>X-Country (adult oriented)</td>
<td>Informal (Skookum Cycle and Ski)</td>
</tr>
<tr>
<td>Saturday Skills Clinics</td>
<td>X-Country</td>
<td>Skookum Cycle and Ski</td>
</tr>
<tr>
<td>Women’s Ride</td>
<td>X-Country</td>
<td>Flowt Bikes and Skis</td>
</tr>
<tr>
<td>X-Country and Downhill Race Series</td>
<td>X-Country &amp; Downhill</td>
<td>RCA</td>
</tr>
<tr>
<td>Monthly “Work Parties”</td>
<td>Maintenance</td>
<td>RCA</td>
</tr>
</tbody>
</table>
Table 9: Revelstoke bicycle network - special events.

<table>
<thead>
<tr>
<th>Event</th>
<th>Pursuit</th>
<th>Organizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stoked To Get Spanked</td>
<td>X-Country race</td>
<td>Skookum Cycle and Ski</td>
</tr>
<tr>
<td>Youth Bike Rodeo</td>
<td>Youth bicycling</td>
<td>Skookum Cycle and Ski</td>
</tr>
<tr>
<td>Run Bike Group Parade</td>
<td>Youth bicycling</td>
<td>Skookum Cycle and Ski</td>
</tr>
<tr>
<td>Bike-to-Work Week</td>
<td>Promoting bicycle commuting</td>
<td>Provincial initiative</td>
</tr>
</tbody>
</table>

A city planner noted the value of involvement by bike shops to support and promote bicycling activity:

“The bike shops are great community resources for kids. Kids can go share their ideas.”  
CP

That the local bike shops are so involved in community programming related to the Revelstoke bicycle network reflects the sentiment previously noted, that business interests are often involved for more than simple economic reasons. With heavy involvement in social events and programs, business interests play a significant role in developing and promoting community involvement related to the Revelstoke bicycle network.

While amenities and events can support and promote use of the bicycle network, the network can also serve to highlight local features in Revelstoke; not simply promoting use, but promoting the community itself, local amenities and characteristics. While the existing network was noted for achieving this to a certain extent (“Markets and events downtown are promoted through street closures.” BI), regional and city planners suggested that the place-making potential of the bicycle network could be enhanced through planning processes to better highlight significant local features and amenities:
"The orientation kind of thing, the panels, way-finding, good signage that is bike oriented. Signage that is bike-oriented. How would you know where the rec centre is? Signage on the greenway highlights historical features, but way-finding signage could be included: direction to the bridge, the rec centre. There is room to enhance this."  CP

"Locals would identify these special features, they would be in the plan, and through that process locals would decide how much priority would be given to developing the site for trails or anything else.”  CSRD

By considering and addressing the populations, organizations, events, and local features associated with the Revelstoke bicycle network, the potential social connections can be promoted and enhanced. Special interest groups, events, and programs related to the Revelstoke bicycle network inclusively build a sense of community while demonstrating a healthy outdoor active lifestyle with potential to connect to and promote local amenities. Interview responses demonstrate how planning supports and can enhance the social implications of the Revelstoke bicycle network, and how this resource can complement, contribute to, and strengthen the social fabric of the local community.

“There is a culture around bikes. I think there is a real backcountry, do-it-yourself, independent attitude. Maybe it is the way Revelstoke was built, on the edge of a huge mountain pass and a railroad that had a lot of challenges, and logging is a strong economic driver along with building big dams. We have a lot of independent thinkers here and bikes are like that. Bikes are geared towards that kind of thing. Bike culture is very strong...”  CP

Image 25: On-street cycling is part of an active lifestyle in Revelstoke, BC.
3.2.9 Interview Results: Urban/Rural - Local/Tourist Considerations

Planners must address different considerations and perspectives related to outdoor recreation depending on the local context. While outdoor recreation occurs across a range of urban, rural and suburban locations, people often leave urban areas for their recreational pursuits, traveling for the experience they desire. This creates a varied set of concerns related to planning for outdoor recreation development in rural or resort locations, where balancing urban/rural or tourist/local values and perceptions are of increasing importance for planners.

While Revelstoke is increasingly home to a number of residents attracted by an active outdoor lifestyle, a transient tourist population must also be considered. While these groups may have significant differences, key informants suggested similarities between these two user groups of the Revelstoke bicycle network, particularly trail-based users, indicating that approaches and considerations related to satisfying the needs of local (rural) users were similar to (urban) tourists:

“There are two different users: local and tourist. Their wants are probably similar.” RCA

In a municipality with a growing tourist-based economy, there is recognition amongst municipal planners that consideration must be given to both locals and tourists:

“The network works well for the confident local cyclists. More direction could be provided for visitors/tourists. Routes and lanes could promote more use and help direct visitors.” P&R
“In a resort community you have challenges as you have people from everywhere, coming off the highway going 60 miles an hour. So there needs to be a bit of a shift in perspective.” CP

With these differences under consideration, informants noted that the development of the Revelstoke bicycle network had the potential to serve tourist demands while complementing the local community, building on a culture, and contributing to a desirable lifestyle:

“As far as having trails as a social thing in town, I think it is a fabulous recreational opportunity for town. And it has spin-offs not only for tourism: people are moving to Revelstoke for lifestyle. Part of that lifestyle is of course the ski hill in winter. We want people who are going to move to town and raise kids here, and they are going to open their businesses or whatever.” RCA

“Revelstoke is a ski town, so bicycling in the summer is really complementary, it is just good cross-training. The bicycle network complements the lifestyle, it supports the local active lifestyle.” BI

Indeed, many of the supportive community amenities previously listed such as lanes and way-finding signage were noted both as serving the tourist user, as well as promoting and enhancing local use of Revelstoke’s bicycle network.

Perceptions and assumed differences between user groups can heighten potential conflicts and influence management decisions. Recreation and tourism have become increasingly active elements in rural resort communities such as Revelstoke, acting as agents of change, with a range of interests and differing value-sets - potentially presenting challenges (Pigram & Jenkins, 2006). In facilitating an active outdoor lifestyle for both locals and tourists, interview responses indicate that planners are attempting to consider and balance differing stakeholder values and needs. However, the perceptions and objectives of locals and tourists related to
the Revelstoke bicycle network are actually quite similar, and not as different as one might assume.

“I think having trails is a tremendous advantage to a community, for both locals and tourists. And just having trails so people can go out and have somewhere to walk and cycle and take their kid, I think it is a huge advantage to a community.” RCA

### 3.3 User Survey Results

“I am new to Revelstoke and relatively new to biking recreationally. I have found biking in Revelstoke (both road and mountain) to be incredibly accessible, enjoyable, and non-intimidating!” Survey response

The survey instrument and resulting analysis was based on the Integral framework (the 12 niches model presented in Table 3) developed by Esbjorn-Hargens and Zimmerman (2009). The intent in employing an Integral approach is to reveal additional considerations required for suggesting sensitive and complementary solutions within the specific contexts of activity, community, and place. By adopting an Integral framework to inform research into the Revelstoke bicycle network, the intent is not just to generate data, but to also bring multiple perspectives together, potentially identifying gaps and overlooked opportunities for success.

The forty-two survey questions were grouped into four theme areas for analysis: experiences, cultures, behaviors, and systems (refer to survey instrument in Appendix A). Surveys targeted bicycle network users to reveal existing perceptions related to the network and to derive community-based recommendations for future initiatives and directions. Thirteen surveys were collected from targeted Revelstoke residents that represent users of the local bicycle
network. Of the thirteen surveys, two were not fully complete, with one respondent overlooking a page of the survey while the other failed to complete any of the qualitative questions.

### 3.3.1 Survey Respondents

The initial portion of the survey collected data to enable a brief overview of the respondents. There were thirteen targeted survey respondents in total - 7 males and 6 females. Survey respondents ranged from experienced cyclist to new participant, from early 20s to over 60 years of age. Three respondents were originally from Revelstoke, with the average time of residency being 10 years. Over three-quarters of the respondents noted that recreation opportunities played a role in selecting Revelstoke as a place to live. However, while all of the respondents ride a bicycle for such purposes as recreation, transportation and exercise, the bicycle network played a less specific role in choosing to live in Revelstoke, with slightly less than two-thirds of respondents indicating that the network had no role in their decision.

### 3.3.2 Survey Results: Experiences

Specific survey questions were developed to inquire into the quality of experiences provided by the Revelstoke bicycle network as perceived by local users. Questions under this theme of experiences generated responses regarding subjective elements such as aesthetics and satisfaction based upon their
recreational needs. Responses indicate user preference in terms of specific pursuits, related levels of satisfaction, and suggestions for enhancing the bicycle network.

The most common preference of recreational bicycling amongst respondents was x-country riding, with 84.6% of respondents ranking the network as “good” or “very good” at providing for their use. The majority of suggestions for improving the network for the respondent’s preferred use were through the development of more trails to enhance connectivity and increase variety (56.3%), establishing infrastructure such as signage, bridges, and marked on-street lanes (38%), as well as formalizing the network through legitimizing unsanctioned trails (6.3%).

76.8% of respondents ranked the Revelstoke bicycle network as “good” or “very good” in providing the experience they are after, with 91.7% finding the network at least somewhat aesthetically pleasing. The elements that contributed to the aesthetic appeal of the network included the well-designed and maintained system (76.9% of responses), access or connection to nature (61.5% of responses), and appeal of the associated community (15.4% of responses).

Respondents noted that the experience provided through the bicycle network could be enhanced through further development of trails (46.6% of responses), on-street lanes to provide for commuting and connections to trail systems (33.3%), and the continued provision of related infrastructure such as bicycle parking and bicycle oriented signage (20%).

One respondent provided a negative response related to the aesthetic appeal of the network, noting that the network would be more aesthetically pleasing with
the provision of additional street trees. This could be in response to a recent tree removal program in the city implemented due to failing tree health.

*Implications: Experiences*

The overall response to survey questions on experiences provided by the Revelstoke bicycle network were positive, but indicating room for improvement. Improvements and enhancements could be made to the system through the ongoing development of trails and on-street routes, enhancing connectivity and balanced with providing access to nature, continued maintenance, and development of associated infrastructure. User responses indicated positive support for the current direction of development of the Revelstoke bicycle network, with respondents essentially asking for “more”, with enhancements in the form of provision of associated infrastructure and amenities.

3.3.3 Survey Results: Culture

Survey questions were developed to inquire into shared elements of culture supported by the Revelstoke bicycle network. Questions grouped under this broad theme inquired into perceptions of the collective vision, community implications, and lifestyle influences. Responses give an indication of the practices of users interacting with the bicycle network.

100 % of respondents indicated that the Revelstoke bicycle network promoted community health - through the encouragement of community-based
activity (40 %), providing opportunities for exercise (33.3 %), and supporting alternative forms of transportation (26.7 %).

There is an indication that users are aware of potential impacts on other user groups, with 75 % of responses suggesting some impact on other users. Responses suggested that these impacts may be considered both positive and negative. Negative impacts involved limiting the activity of other users as a result of ongoing network development (21.4 %). Respondents noted positive impacts from the development of the bicycle network, including – as implications - the creation of complementary outdoor recreation opportunities (50 %) and the reduction of automobile use (28.6 %).

Survey respondents suggest that the Revelstoke bicycle network does a ‘good’ (50 %) or ‘satisfactory’ (41.7 %) job of facilitating meaningful encounters between users, as well as providing at least some connections between other local user groups (90 %). Respondents suggested that connections to additional user groups could be enhanced through signage (38.5 %), enhancing the network design to better incorporate multiple uses (30.8 %), and building connections and shared events with x-country ski (15.4 %) and running groups (15.4 %). A number of potential uses were viewed to be incompatible or challenging including motorized users (36.4 %) and equestrians (18.2 %) on trails, and pedestrians (18.2 %) and cars (9.1 %) on the street potion of the network. The lack of compatibility related to certain bicycle disciplines was noted, specifically downhill mountain biking and hiking (18.2 %) being considered incompatible.
Respondents noted a 'good' (54.6 %) or 'very good' (27.3 %) correlation of their perceptions of community values according with the Revelstoke bicycle network. These perceived values were described as: a healthy active lifestyle (38.9 %), outdoor activity (33.3 %), environmental considerations (16.7 %), and community involvement (11.1 %). 90 % of the respondents indicated that the Revelstoke bicycling community is at least somewhat motivated to take responsibility for the network.

**Implications: Culture**

Respondents noted a number of shared cultural elements supported by the Revelstoke bicycle network. Respondents were satisfied with connections to other user groups and indicated complementary uses (running and x-country skiing). While positive implications (such as benefits to health) were noted, a number of potentially negative impacts and incompatible uses were recognized, indicating that bicycle network users empathize with other user groups and are aware of their own potential impacts. There is recognition, by bicycle network users, of their own potentially incompatible impacts on other groups, supporting interview responses related to the desirability of local cooperation and collaboration. Users indicated a good fit between the perceived values of the community and the bicycle network, supporting previous research findings related to Revelstoke’s culture of outdoor activity.
3.3.4 Survey Results: Behaviours

Survey questions were developed to inquire into the behaviours of users of the Revelstoke bicycle network. Under this broad theme, questions asked respondents to provide their perceptions of acceptable behaviours, user-conduct, and associated implications related to the bicycle network. From the responses, there is an indication of user perceptions related to associated actions and activities.

While respondents noted that some impacts (such as wildlife disruption and unsanctioned trails) are unavoidable, the perception is that ecological impacts are largely mitigated by the use of trail building standards (53.8 %), user conduct (30.8 %), and the promotion of alternative transportation (15.4 %). Users of the Revelstoke bicycle network noted that the network is effective at preventing ecological impacts: 30 % rated the network as ‘very good’ in this capacity, 30 % ‘good’, and 40 % perceive the network to be ‘satisfactory’ at preventing ecological impacts. 60 % of respondents indicated that positive user conduct (including safety practices and low-impact use) was the primary behavior that should be encouraged, in addition to community events (races and group maintenance) and shared land use (both receiving 15 % of responses), as well as active transportation (10 %).

Survey respondents mentioned eleven different local organizations or agencies that contribute time and energy to the bicycle network. Of these organizations, the RCA appeared most often, recognized as a contributor by 83.3 % of respondents. 25 % of the respondents noted the local bike retail shops as contributors, while the Columbia Basin Trust and the Revelstoke Trails Alliance were mentioned by 16.7 % of respondents. The perception of 81.8 % of
respondents is that these organizations are either ‘very good’ or ‘good’ at contributing to the bicycle network, with 75 % of respondents describing the level of regular bicycle network maintenance as ‘very good’ or ‘good’. Most respondents perceive the Revelstoke bicycle network to effectively attract users from other places, with 25 % of respondents ranking the network as ‘very good’ and another 50 % offering the ‘good’ ranking.

Respondents felt that additional users could be attracted to use the network through local promotion with maps, signage, and information kiosks (noted by 100 % of respondents), as well as through enhancements to make the network more accessible - such as developing easier recreational trails and more such trails closer to town (noted by 25 % of respondents). 41.7 % of survey responses indicated that the means of encouraging both more users and more tourists were the same, and it was specifically suggested that tourist use was compatible:

“Eco-tourism is a viable market to promote growth in Revelstoke.” Survey response

However, there was no majority opinion expressed as to how users from further away (tourists) could be encouraged to use this network. Suggestions specifically for tourists included targeting hotels and winter tourists (25 %), possibly through Revelstoke Tourism (16.6 %), as well as improving the level of information provided by offering suggested routes, estimated ride times, and difficulty levels (25 %).
Image 26: The Keystone-Standard Basin Trail offers a unique backcountry bicycle experience for locals and tourists alike.

**Implications: Behaviors**

In summary, responses to questions based on behaviors suggest that while some ecological/environmental impacts may be unavoidable, the perception among users of the Revelstoke bicycle network is that potential impacts are largely mitigated through management techniques and user conduct. Local groups, primarily the RCA, are recognized by users as significant contributors and keep the network at a high level of maintenance. While the majority of respondents felt the bicycle network was at least good at attracting users, all respondents suggested that more users could be attracted through local promotion with improved maps, signage, and information kiosks.

**3.3.5 Survey Results: Systems**

Survey questions grouped under the broad theme of systems were developed to inquire into the ability of the Revelstoke bicycle network to connect with, and exist within, larger structures or networks. Questions in this area related to user
perceptions of the bureaucratic, sociopolitical, and ecological systems engaged by the bicycle network. The responses generated by these questions indicate user perceptions regarding the functioning of interactions between the Revelstoke bicycle network and other organizations, agencies, or broad systems.

The majority of respondents perceive the Revelstoke Bicycle Network to be connected to the larger road network at only a ‘satisfactory’ level (54.5 %).

“If the trail system was incorporated with the existing road network better, the system would be a greater success.”  Survey response

The perception is that the bicycle network fits within existing (larger scale) ecological dynamics to a better degree (45.5 % ‘good’ and 45.5 % ‘satisfactory’). Respondents describe the bicycle network fitting existing ecological dynamics through the promotion of active transportation and resulting greenhouse gas reductions (50 %) and limited direct impact on nature/wildlife (50 %).

Respondents rate the success of this system to promote increased bicycle use as ‘good’ (41.7 %) or ‘satisfactory’ (33.3 %), with the support of municipal planners towards bicycle trail network projects rated 90.9 % ‘satisfactory’ or above, and the support of regional planners towards bicycle trail network projects just slightly lower at 90% ‘satisfactory’ or above. Respondent’s perceptions of how the Revelstoke Bicycle Network complements global issues or concerns were either ‘good’ (54.5 %) or ‘satisfactory’ (27.3 %). Several global organizations were suggested as possible sponsors of the network, including the International Mountain Bicycling Association (IMBA, suggested by 25 % of respondents), health promotion organizations such as the World Health Organization or Heart & Stroke Foundation (suggested by 25 % of respondents), as well as resource industry corporations such
as BC Hydro, oil or forestry companies (16.7 % of respondents suggested this). One response directly targeted Parks Canada:

“Parks Canada should look more at being involved with mountain biking and trail running: with the decrease in park visits, it is to their best interests to venture in other sports they have been avoiding for years.” Survey response

Implications: Systems

Survey questions based on systems inquired into the functionality of the Revelstoke bicycle network within larger structures or networks. While respondents perceive the bicycle network to fit within local ecological systems, the responses indicate that bicycles could be better incorporated into existing transportation network. Respondents generally had a positive impression of municipal and regional planners, but felt that more could be done to promote bicycle use. A complementary connection to global concerns was noted with potential for national/international organizations such as the IMBA to sponsor the network.

3.3.6 Summary of Key Survey Findings

Through the analysis of survey questionnaire responses, a number of findings stood out as noted by a majority of respondents. These points of consensus are highlighted as characteristic of user perceptions related to the Revelstoke bicycle network:

- 100 % of respondents indicated that the Revelstoke bicycle network promoted community health.
• 84.6 % of responses ranked the network as ‘good’ or ‘very good’ at providing for their use.

• The RCA was recognized as a contributor to the bicycle network by 83.3 % of respondents.

• 81.9 % of responses noted a ‘good’ or ‘very good’ correlation of their perceptions of community values effectively being associated with the Revelstoke bicycle network.

• The perception indicated by 81.8 % of respondents that local organizations are either ‘good’ or ‘very good’ at contributing to the bicycle network.

• The element that most contributed to the aesthetic appeal of the network was the well-designed and maintained system, referred to by 76.9 % of responses.

• 76.8 % of responses ranked the Revelstoke bicycle network as ‘good’ or ‘very good’ in providing the experience they are after.

• 75 % of respondents described the level of regular bicycle network maintenance as ‘good’ or ‘very good’.

The implication of these points of consensus is that users perceive the Revelstoke bicycle network to promote community health, correlate with perceived community values, provide the experience they seek, and as well maintained and designed by the RCA. Along with insights from the literature review and interview data, these key points inform the recommendations presented in Chapter 4.

While these results present a snapshot in time of perceptions specifically within Revelstoke, an Integral framework allows for a more general and potentially adaptable grouping of findings (as presented in Table 10 on the following page). The range of considerations revealed through these research findings is comprehensive, but easily interpreted, adaptable to other locations and contexts, with potential for application elsewhere. These findings shape the recommendations presented in Chapter 4.
<table>
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<tr>
<th>Interiors</th>
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<td>Cultures</td>
<td>Behaviours</td>
<td>Systems</td>
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<td>Pneuma</td>
<td>Commonwealth</td>
<td>Skillful-means</td>
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<td></td>
<td><em>Spiritual Realization</em></td>
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<td>75% Good/Very Good</td>
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<td></td>
<td>- Engage the broad community</td>
<td>- Consider the environment and other users</td>
<td>- Maps</td>
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<td></td>
<td>- Provide diverse experiences</td>
<td></td>
<td>- Signage</td>
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<td></td>
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<td>- Info kiosks</td>
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<td><strong>2nd Level of Complexity</strong></td>
<td>Psyche</td>
<td>Community</td>
<td>Actions</td>
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<td><em>Psychological Dynamics</em></td>
<td>91.7% Aesthetically Pleasing</td>
<td>81.8% Good/Very Good</td>
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<td>- Design and maintain network</td>
<td>- Healthy active lifestyle</td>
<td>- Local cycling association</td>
</tr>
<tr>
<td></td>
<td>- Connect to nature</td>
<td>- Accessible outdoor activity</td>
<td>- Local bike shops</td>
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<td><strong>1st Level of Complexity</strong></td>
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<td>Communion</td>
<td>Movement</td>
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<td>60% Good/Very Good</td>
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<td>- A connected network</td>
<td>- Specific community-based activity</td>
<td>- Recognize impacts</td>
</tr>
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<td>- Complementary infrastructure</td>
<td>- Exercise</td>
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<td>- Alternative transportation</td>
<td>- User conduct</td>
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Table 10: Summary of Results – Integrally Framed
CHAPTER 4: SYNTHESIS AND RECOMMENDATIONS

“The people part really makes the difference. Having people here that are great resources with the range of skills that are here, and that is probably the best part of all of this. You can have the best trails and all of that but if you don't have the people that are really keen on doing that... that momentum, I have always felt that Revelstoke has that momentum.”  CP

The following section offers recommendations for a more comprehensive and inclusive approach towards the planning and development of outdoor recreation infrastructure. These recommendations present a summary of key findings from researching the Revelstoke bicycle network that are relevant to the purpose of this project: to identify how outdoor recreation resource development occurs, how this development can be best supported by community planning, and to identify ways and means outdoor recreation can contribute to the local community and our cities becoming more resilient, diverse, and healthy.

Through investigating the development of Revelstoke’s bicycle network, this research has generated a number of recommendations by which outdoor recreation development can: be better supported by planning; complement and reinforce local community goals and perceptions; and contribute a range of benefits to the local community. While recreation resources may be developed as infrastructure to benefit the tourist economy, through community-based planning this development can be done in a manner that also provides a wide range of community benefits. This research enables a deeper understanding about the planning of, and the implications of, outdoor recreation developments; how these amenities and infrastructure components can enhance our communities. Acknowledging potential economic and environmental impacts, this research demonstrates that through an
integrated planning approach, outdoor recreation, and specifically trail-based outdoor recreation, can provide a range of positive supportive contributions to more sustainable development at the municipal and regional scales.

It is important to note that the purpose of this project has been to identify how outdoor recreation resource development can make our communities more resilient, diverse, and healthy beyond the simple inclusion of primary technical elements such as transportation routes and lanes. Technical solutions alone do not necessarily yield transformative change within a community. These recommendations are not only based around establishing supportive infrastructure, but also acknowledge related perceptions regarding associated social and cultural implications. Establishing standards around local cultural values based upon user feedback allows planners to preserve and build on key features that align with community-based perceptions, intentions, and expressions. Towards this purpose, research was guided by four key research questions:

1. Within the context of community planning in Revelstoke, what role does outdoor recreation play in community building?

2. To what degree does trail-based outdoor recreation infrastructure align with local community expressions, perceptions, and intentions, as well as municipal and regional planning objectives, such as health, resilience, and sustainability?

3. What role have partnerships between stakeholder groups played in the planning of these projects? How are volunteers, community members, and different levels of government involved in supporting these projects?
4. What lessons can planners learn from the development of Revelstoke’s bicycle network, that have potential to apply more widely?

Guided by these research questions, the following recommendations aspire to facilitate an understanding of the range of benefits associated with the integrated development of outdoor recreation amenities in general, and bicycle networks specifically. The recommendations support the development of community-based collaborative planning processes that will facilitate ongoing, inclusive and productive relationships between stakeholders into the future.

4.1 Recommendations: Responding to the Research Questions

A number of specific action recommendations have evolved from the findings of this project, in response to the research questions exploring matters that should be considered by planners and stakeholders regarding the integrated development of a bicycle network. Outdoor recreation plays a significant role in community building in Revelstoke, with research findings showing that a bicycle network can be a means of urban enhancement - enhancing equity and community while building on pre-existing conditions. Trail-based outdoor recreation aligns well with local community perceptions, as well as municipal and regional planning objectives, with on-going development and maintenance considering local contexts - including community expressions and intentions, as well as geo-climatic and jurisdictional conditions. The development of a local outdoor recreation amenity can have complementary economic benefits, creating an attraction for tourists desiring a unique community-based experience. Partnerships are a complex but vital
component of the bicycle network planning process in Revelstoke, with multiple partnerships yielding multiple benefits through the inclusion of multi-jurisdictional interests and unique user groups, with advocates and planners working together to maintain various networks, manage conflicts, and achieve complementary development.

These findings form lessons for planners that have wider application to other locations and contexts. Each of the following recommendations is general, adaptable to other contexts and locations, suggesting a number of planning strategies through which outdoor recreation can enhance a community, supported by the specific findings of research in Revelstoke. The following sections describe nine action recommendations in greater detail.

**Recommendation 1: Build on Pre-existing Conditions**

Developing a bicycle network presents opportunities to both connect to and highlight meaningful local features in an inclusive, educational and active manner. Incorporate a broad local perspective through references to historical events and connections to key natural features to build and enhance community identity.

Local cultural and geographic elements can present ideal pre-existing conditions for the development of a complete and connected bicycle network. Easy access to natural features and trails, scenic vistas, and the scale of the urban area are conducive factors for bicycling. A culture that supports and promotes an active outdoor lifestyle also lends itself to supporting a bicycle network. These elements all lend themselves to an active outdoor activity such as bicycling.
This relationship with culture and identity goes both ways. While the scale of the urban area, active lifestyles and scenic natural geography all provide positive support for a bicycle network in Revelstoke, incorporating cultural history and connections to local natural features enhances and supports local identity. Establishing links to cultural history suggests and directs connections to the unique local environment. Building connections to unique geographic features enhances both the network and local identity. Regardless of the specific amenities or features at hand, the development of a bicycle network will be well supported when built upon a strong local base.

Image 27: Revelstoke's River Trail provides connections to surrounding natural features such as Mount MacKenzie (left) and Mount Cartier (right).

**Recommendation 2: Utilize a Bicycle Network as a Means of Urban Enhancement**

Outdoor recreation promotes activity in the public realm, enhancing connectivity and the people-friendly dimension of urban areas.
Supporting outdoor recreation involves the creation of important amenities that enhance our urban areas in a number of ways as recreation opportunities draw people into our communities. While many cities’ policies prioritize car-traffic – thus discouraging cycling and pedestrian activity, bicycles are a part of the human dimension of city life (Gehl, 2010). Bicycling infrastructure promotes safety as lanes, medians, roadside trees and associated features tend to slow traffic, while bikes lanes on the right side of vehicle traffic, the slow side, fits with typical traffic patterns and hierarchies. The role bicycling plays in improving the public realm extends to the fringes of a community, where nodes incorporating signage, parking, informational kiosks, and trail access sites create points of identity: distinct places that serve as gathering points and gateways from developed urban settings to green, natural areas.

Image 28: Wayfinding signage along Revelstoke’s River Trail attracts use and provides connections to local history and culture.

The development of infrastructure (bicycle-oriented signage, parking, lanes, and trails) and supportive amenities (BMX track, dirt-jumps, pump-track, skills
park) can increase use and complement an active local lifestyle, while care for such elements of the public realm encourages use. Design criteria can be established for streetscape elements (bike racks, sign posts, garbage bins, and other items) to portray a consistent character significant to local culture and history. With an awareness of the wide range of potential urban enhancements, the development of a bicycle network can coordinate greater community benefit.

**Recommendation 3: Embrace Local Climatic Conditions**

*Building infrastructure that supports use through all four seasons creates opportunities for multiple forms of recreation.*

Bicycling is popular in both hot and cold climate cities, as most winter cities have a number of good cycling days throughout the year. In a recent article by Bicycling magazine (2011 May), frigid Minneapolis ranked as the top bicycle-friendly city in the United States. Oulu, Finland boasts a twenty percent modal share for bicycling despite being located at 65 degrees latitude (Pratte, 2011). A winter season is no reason to ignore the associated seasonal benefits of a bicycle network.

The popularity of bicycling in Revelstoke in the summer season complements activity in the winter in a city that sees more snow than most. The Mount MacPherson trail network hosts mountain bikers in the summer (see Image 26 above) and x-country skiers in winter. The parking lots, signage, and shelters serve both user groups. Many cities that have seasons or regular climatic conditions unfriendly to bicycling have been able to foster rich bicycling activity, adapting to their unique climate and geography to produce something unique.
Development of a bicycle network in consideration of the winter season can have a number of positive outcomes. Aligning bicycle routes along snow clearing routes can allow for a coordinated public works effort, limiting increases to maintenance while enabling winter season cycling activity. Planning bicycle routes in conjunction with x-country ski or snowshoe routes can provide gains for both activities. Supporting multiple uses over multiple seasons produces multiple gains.

**Recommendation 4: Develop Multiple Partnerships to Yield Multiple Benefits**

**Explore opportunities for partnerships and inter-jurisdictional collaboration: developing an integrated bicycle network will require crossing jurisdictional boundaries and involve the private sector.**

An integrated bicycle network will in all likelihood extend beyond municipal boundaries for the provision of both transportation and recreation options. While jurisdictional boundaries can act as barriers, these borders can be seen as opportunities to establish connections and partnerships. Connectivity across jurisdictional boundaries providing access to trail networks are key opportunities: enhancing these points of access encourage use, form unique places as previously
discussed, and also highlight the relationships between agencies (see Images 30 and 31 below). Planners should explore any opportunity for potential inter-jurisdictional partnerships: unconnected stretches of pathway do not encourage use. Municipal, regional, provincial, federal, and private interests should all be involved.

Image 30: Revelstoke access to Mount Revelstoke National Park in 2011.

Image 31: Revelstoke’s enhanced gateway to Mount Revelstoke National Park in 2012 enhances basic access, attracts and encourages use.

While forming inter-jurisdictional partnerships may be ideal, some agencies may lack the ability or the mandate to participate. While Parks Canada has recently
begun to consider mountain biking in their parks, recent budget cuts have likely
decreased their capacity to take on new activities. Alignment of the policies and
perspectives of Parks Canada with the municipality and advocates is an area for
future involvement with potential.

Partnerships can serve as contingencies in many cases, with co-management
arrangements (to be further discussed in following recommendations) serving to
lessen the load of in times of financial restrictions. Jurisdictional partners also
benefit from multi-level policy alignment. Policy has more clout over a larger scale
as more partners join in, thus aligning existing and future policies integrated across
jurisdictional boundaries will have greater benefit than planning constrained to a
specific jurisdiction.

Of course many potential partnerships exist in addition to jurisdictional
relationships. As a bicycle network has many associated benefits, there are several
organizations, businesses, and agencies that can serve as partners, integrating
cycling activity into a community. Schools, retailers, public health interests,
environmental groups, social concerns, tourism promoters, planners and land-
managers all bring varied perspectives that serve in the creation of a complete and
integrated bicycle network. The retail bike shops can prove to be solid community-
mined partners.

The business interests directly involved in the Revelstoke bicycle network
(Flowt and Skookum bike shops) provide more than just retail sales and service:
they offer a range of programs that is inclusive and community-building. This
community-minded programming supports an active, social lifestyle and is in
addition to any municipal recreation programming, providing extra service at no
cost to the municipal budget. The local bicycle retailers also provide sponsorship
for maintenance, regular race series, and special events, as well as promoting the
network through providing trail advice, information, and directions.

Image 32: Bicycle retailers are key partners in the Revelstoke bicycle
network, providing service for locals and tourists.

Those involved in bicycle network planning should be open to the
opportunity to include any potential partner in the process. Multiple partners can
provide multiple benefits. Varied partners provide a wealth of information and can
help share the load in service provision, particularly in an era of declining financial
resources.

**Recommendation 5: Target Advocates and Co-Management Opportunities**

In developing sustainable community-based outdoor recreation
amenities, planners should explore and facilitate partnerships targeting
the unique expertise of community champions and local advocates.
Planning for active outdoor recreation creates opportunities for planners to work with unique partners: mountain bikers, rock climbers, skateboarders, and more. Bicycle advocate groups are increasingly organized, practical, co-operative (with other user groups) and collaborative (with planners and land-managers). Representing diverse bicycling pursuits, bicycle advocate groups present a coordinated and unified approach that has had a positive collective impact on trail users, local businesses, and planners.

Image 33: Local bicycle advocates share their unique knowledge with City staff at a 2011 parks planning public meeting in Revelstoke.

Advocacy groups such as the RCA in Revelstoke (see also discussion of the South Island Mountain Bike Society in Chapter 2 Section 2.5) play a significant role engaging citizens in policy development and planning. The RCA is noted by planners and users alike as an active and involved stakeholder in activities both on crown lands surrounding Revelstoke and within the municipality, presenting information and promoting involvement to their members and planners.
Organizations that promote activity within nature can fill an essential role as advocates for both the responsible conduct of users within our outdoor areas and the convening of citizens who value and enjoy a specific activity. Without the direct participation of the RCA, the experience of citizens within this unique, minority user-group would be under-represented and the specific related amenities not fully valued. Advocacy groups play an important role in the exchange of information between citizens and land managers, working with land managers and decision makers to ensure continued access and responsible practices by users.

Advocates also provide access to a volunteer workforce that is of great value for land managers through co-management arrangements. The RCA is a partner of Recreation Sites and Trails BC (specifically the Columbia Forest Service branch), performing trail maintenance and development on crown lands in the Revelstoke area. Under the guidance of the RCA, voluntary trail maintenance “work parties” are conducted on a monthly basis. By encouraging trail maintenance, advocate organizations contribute to a sense of place, promoting sense of connection and ownership while ensuring the ongoing sustainability of the bicycle network.

**Recommendation 6: Work Together to Manage Conflict and Achieve Complementary Development**

Recognize the opportunity for advocates to work together and engage new communities. Providing the opportunity for complementary and potentially conflicting user groups to engage each other will enhance community relationships and overall recreation system function.

A range of advocate groups play important roles in the planning and development of an integrated bicycle network. Not only bicycle advocates should be
involved, but advocates for other user groups, including motor-biking, off-highway vehicles, hikers, equestrians, environmental concerns, and resource interests, must also be engaged. Including multiple user groups working together in the planning process yields multiple beneficial outcomes: not only can planners access these varied perspectives, but the unique perspectives and specific information can also be shared between user groups leading to enhanced community relationships, and the complementary planning and development of associated networks.

![Image 34: Working with other advocate groups can establish agreed upon codes of conduct for shared use as well as preferred uses that minimize conflicts.](image)

Potential conflicts between potentially conflicting user groups are not a reason to avoid outdoor recreation resource development. While there is a potential for conflict associated with a bicycle network, there is also potential for collaboration. Impacts, both environmental and user-group oriented, may be mitigated through management. Recognizing the potential for conflict allows advocates to establish codes of conduct to manage user behaviours that decrease
the potential for impacts on other user groups. Enabling different and potentially conflicting groups to work together promotes developing inter-personal community-based connections, shared perspectives, and collaboration towards building complementary networks.

**Recommendation 7: Build Equity and Community Through the Bicycle Network**

An integrated bicycle network is a part of both equitable transportation and recreation systems, supporting an accessible active lifestyle for a wide range of ages and incomes.

![Image 35: An integrated bicycle network acknowledges and coordinates with other user groups, allowing for more inclusive age-friendly use.](image)

Developing an integrated bicycle network increases the opportunities for residents of all ages, abilities, and incomes to participate in the community. A consideration of universal access at the design phase can create adaptive recreation opportunities. Providing alternative forms of transportation, social interaction, and
physical activity enhances independence and quality of life for all residents, but particularly for seniors, children, and those who do not drive.

Establishing bicycle network infrastructure alone will not necessarily encourage use. Socially conscious programs associated with the bicycle network provide for support and encouragement that increases use. Golden, BC’s bike share program (http://goldenactivetransportation.com) offers bicycles for short-term use at no to low cost. In Revelstoke, the North Columbia Environmental Society (NCES) promotes community-wide sustainable living and specifically bicycling through an annual commuter bike giveaway. An integrated network includes opportunities for transportation and recreation. Social programs such as group rides also highlight recreational bicycling as a fun activity, and can encourage and promote building the capacity for bicycling as alternative transportation. These programs demonstrate that technical solutions and hard infrastructure are not the whole answer: socially minded programs encourage residents to take up two-wheels and connect with their community.

**Recommendation 8: Maintain Amenities to Sustain Amenities**

**Establish a vision for the future and develop strategies for ongoing maintenance and development of outdoor recreation amenities.**

Establishing a trail network that introduces kilometers of pathway will require maintenance, a significant concern for managers and users. Inadequate maintenance will lead to poor trails that exhibit hazardous conditions and contribute to a lack of use. Prevention is preferable to repair and a well-designed
network can decrease the amount of maintenance required. However, some level of maintenance will be required regardless of design.

Maintenance for on-street bicycle networks can be incorporated with existing public works road maintenance programs for sweeping and snow removal, with provisions for bicycles built in for future street development. The maintenance of trails can be taken on by an advocate organization, as demonstrated in Revelstoke by the RCA. The RCA conducts monthly voluntary trail maintenance work parties that encourage ownership of the trails amongst their members. Through a co-management arrangement an advocate group performs trail maintenance and stewardship, a mutually beneficial arrangement for users and managers.

Relying on the work of volunteers may not be enough. Maintenance and development simply cannot always be done with volunteers who may be unable to take on the amount of work required, and thus supportive funding mechanisms are extremely important. As funding is more likely to occur with an established advocate group, having an involved advocate organization taking ownership of a trail network with a vision in mind is conducive to receiving supportive funding. Establishing a management plan that includes provisions for continued maintenance and development will ensure the ongoing viability of the bicycle network.

**Recommendation 9: Build Local Amenities to Support Tourist Activity**

Building an integrated network that reflects the community and functions well for locals can also be legible and attractive to tourists.
Stimulating economic activity through tourism is a potential benefit of an established and integrated bicycle network. The product that local cyclists want to establish is likely also desirable for cyclists in general. While tourism may not always be the best fit for a community, a bicycle network developed from a local vision will appeal to locals and tourists alike. The local, unique character that is valued and important for local users is also desired by tourists, while in terms of infrastructure, that which serves locals well can also serve tourists. A network that is accessible, scenic, well designed and maintained is the goal of local users, planners, and land managers, elements that also improve the potential of the network for tourists. While active outdoor recreation tourism may not be the whole answer for rural communities, it can certainly be a beneficial component.

Image 36: Revelstoke trails such as the Frisby Ridge Trail offer a unique backcountry bicycle experience desired by locals and tourists.

4.2 Assessment of the Survey Instrument

There are a number of factors to consider in the application of the survey instrument employed in this research. These considerations include the context to
which the framework will be applied, the time-consuming nature of qualitative questionnaires, and the complicated nature of Integral frameworks. A number of respondents provided constructive feedback on the survey instrument that may offer guidance for future research.

Certain participant comments indicated that the survey instrument seemed repetitive, with the scales of inquiry difficult to discern. Responses indicated that larger scale concerns were somewhat unfamiliar to bicycle network users. Two questions regarding connections to larger systems were noted by multiple respondents as not relating well to their perceptions of the bicycle network:

Q34 - To what degree does the bicycle network fit within existing (larger scale) ecological dynamics?

Q41 - Which global organizations can you suggest that could possibly sponsor this network?

Given the isolated and independent nature of Revelstoke, connecting to large or global-scale systems possibly seemed to be an unrelated concept. These questions could potentially be rephrased to more closely reflect larger system associations with the Revelstoke bicycle network, although a follow-up with respondents at a later date could reveal if perceptions of these broad concepts had evolved over time. This area of larger system consideration offers new potential for bicycle network stakeholders to connect with additional advocates and interest groups on a larger scale, building additional community connections and broadening user perspectives.

At forty-two questions and including many long answer questions, the survey took between twenty to forty minutes to complete. Several comments were related to the time-consuming length and nature of the survey. Conducting the survey
questionnaire in a group setting through a workshop format may have streamlined the process to some extent, although administering the survey one-on-one allowed the inclusion of a diverse range of users.

Respondents noted that they found the qualitative nature of the survey thought-provoking. As informed by the 12-niche Integral framework, the resulting questionnaire provided a deeper, more comprehensive method of exploration than would have been otherwise employed. An Integral line of questioning introduced respondents to potentially new considerations and perspectives, possibly initiating transformative change in the value systems of participants. Conducting research in phases over time with the same group of respondents could provide additional insights into the evolving perspectives of bicycle network users and the perceived benefit of considering the additional perspectives presented through the survey instrument.

### 4.3 Integral Approach Assessment

Applied Integral approaches provide a valuable framework to address the challenges in planning to synthesize an increasingly diverse range of views. The complex and inclusive framework of Integral approaches offers a way to change the way we make change, transforming self and community. An Integral approach can reveal additional considerations for developing sensitive and complementary solutions within the specific contexts of activity, community, and place. The characteristics of an Integral approach positively complement planning practice,
addressing the on-going nature of planning processes and rising to the challenge of complexity.

After having completed a significant amount of research into the development of a comprehensive bicycle network, I recognized that I had been largely taking a simple environmental approach (addressing concerns related to equity, economy, and the environment) on a subject that would benefit from more complex questioning. By Integrally informing this research, I was able to identify gaps in both the inquiry, as well as the existing body of research literature. By establishing an Integral framework for the survey questionnaire, the research findings were more inclusive and able to consider more complex concepts related to user perceptions, experiences, and intentions. Survey responses indicated that concepts of larger system associations with the Revelstoke bicycle network were unfamiliar, potentially indicating the introduction of a new perspective to participants. Through this project, the experience of this researcher indicates that employing an Integral perspective is associated with a set of perspectives and associated recommendations having greater breadth, relevance, and applicability than a more simplistic approach.

Through more inclusive and involved processes, an Integral framework introduces considerations that may encourage movement towards a new line of development, a shift towards a new value system and higher level of consciousness. Supporting the evolution of value systems and encouraging a deeper level of consciousness, Integral approaches yield a transformative, developmental result, building perspectives and creating capacity for value shift throughout the process.
For planning practitioners, advocates for outdoor recreation, and stakeholders, there is much to be gained through becoming Integraly informed, while working together, and striving to move forward.

4.4 Further Research

The existing literature discussed in Chapter 2 supports research into the role that planning plays in supporting outdoor recreation, both informing and guiding this project. Movements in planning towards more collaborative frameworks supporting community building can promote the integrated development of contextually appropriate forms of outdoor recreation amenities. While existing research supports planning for bicycling networks with economic and environmental considerations, failure to advance research and address additional considerations limits the broad potential benefit offered by outdoor recreation. This project addresses gaps in the literature related to how specific forms of outdoor recreation may be better integrated in the planning and design of communities for the wider benefit of the existing populace. Guided by the framework and findings of this project, there are opportunities to further the literature, theory and practice through additional research investigating the community building and place-making potential of outdoor recreation amenities.

Several opportunities exist to further the body of research related to outdoor recreation planning and specifically to integrating the planning, development and maintenance of a bicycle network. Supplementary research could be undertaken to confirm the findings amongst additional local Revelstoke populations: this study
surveyed local adult bicycle network users and interviewed stakeholders in the planning process over a two-week period. To provide more detailed and accurate recommendations, surveying a larger sample of the population including non-users, children, and seniors would be valuable. Conducting research in phases over time with the same group of research participants could provide additional insights into evolving perspectives of bicycle network users, planners, and other residents. A similar study could be conducted involving other forms of outdoor recreation to offer comparison, as well as evaluation regarding the applicability of the research methodology.

This research project provides guidance for similar studies and a framework that can be tested in other communities. While this research focused solely on Revelstoke, additional municipalities including both similar rural locations and larger urban centres, could be examined to provide comparison. The City of Rossland, BC ("Mountain Bike Capital of Canada") provides an interesting potential comparative case study due to similar geography and amenities to Revelstoke. The RCA identified the Seven Summits trail in Rossland as a precedent for their Frisby Ridge Trail (Revelstoke Cycling Association, 2010). Similar research could be undertaken in other communities to confirm the findings or to identify different applications and additional considerations.

4.5 Recommendations for Revelstoke

Revelstoke offers an informative case for other communities in terms of both bicycle network development and planning. Local conditions tilt the scales in favour
of supporting an integrated bicycle network, as the active lifestyle culture supports
cycling activity, while the urban scale and geography complement bicycling, likely
contributing more so than any specific planning initiative. An involved advocate
group (the RCA) develops, maintains and sustains the trail network, while active
business owners support the bicycling community. The RCA is a true local asset,
acting as the glue that holds the network together.

The development of the Revelstoke bicycle network is truly representative of
community-based development, with the RCA providing the guiding vision. Unlike
wealthy Whistler, close to Vancouver where a steady stream of visitors (and money)
is less of a concern, the Revelstoke bicycle network illustrates locally-derived
development. Unlike Rossland with its signature Seven Summits Trail, Revelstoke
offers a wide range of alpine cycling options with at least three trails (Frisby Ridge,
Keystone-Standard Basin, and Sale Mountain-Martha Creek) providing unique
backcountry experiences worthy of "Epic" designation. In many ways, Revelstoke is
similar to mountain biking mecca Moab, Utah, with multiple signature trails, except
Revelstoke's compact urban form offers greater proximity to a variety of trails
providing greater ease for bicycle use and trail access. Recent trail development
close to municipal boundaries has improved the accessibility of the Revelstoke
bicycle network.

The research findings identified a number of areas having potential for
enhancement. There is particular room for network improvements in the provision
of family-friendly, commuter, and beginner options. These considerations yield a
number of suggestions:
• **Formalize On-Street Routes**

Within the municipality, imminent development of a proposed on-street commuter route through the core of urban Revelstoke will formalize a significant travel corridor for bicycle users, encourage use, and enhance connectivity. A proposed route approved by Council in 2011 and slated for development in 2012 (see Appendix E) has yet to be implemented. The establishment of this route will greatly enhance network connectivity, as users have demanded.

![Image 37: A bicycle lane on the outskirts of Revelstoke ends just before crossing the Illecillewaet River. Connective lanes through the core of urban Revelstoke proposed for 2012 will create a more complete on-street network.](image)

• **Develop Beginner Trails**

Providing beginner-friendly options would enhance the trail portion of the network with similar benefits: encouraging use and enhancing connectivity.
• *Provide for Improved Wayfinding*

Establishing wayfinding infrastructure (informative directional signage and kiosks) on future and existing routes within the municipality would enhance the experience for locals and greatly assist visitors.

![Image 38: Suggested additions to the Revelstoke Bicycle Network](image)

Image 38: Suggested additions to the Revelstoke Bicycle Network include the continuation of the River Trail and the development of an Arrowhead Branch-line Rail Trail (image © Google Maps, © TerraMetrics; notations by author).

• *Connect the River Trail*

The continuation of the river trail between the Big Eddy Bridge and Centennial Park (see Image 38 above) would enhance the urban portion of the network and also provide greater connectivity. Establishing a multi-use trail here would provide an additional 1.5
kilometers (approximately) to the Revelstoke bicycle network. As the portions of this multi-use trail already in place are beginner-friendly, continuing to similar standards would create a more equitable network supporting a wide range of users.

Image 39: The Illecillewaet Pedestrian Bridge installed in 2012 provides trail-based connectivity for pathway and bicycle network users.

- *Develop an Arrowhead Branch-line Rail-Trail*

A long-term suggestion is for the municipality to explore the establishment of a rail-trail along the historic Arrowhead Branchline railway grade to the north and south of the newly developed Illecillewaet Pedestrian Bridge (noted in Image 38 and as seen in Image 39 above). Potentially stretching for up to 6 kilometers, such a pathway could be developed in sections depending on priorities and funding, providing trail-based connections important to users between residential areas and schools, existing trails both formal (River Trail) and informal (trails around the airport), recreation areas (Revelstoke Mountain Resort) and places of work (downtown and the
hospital). As rail-trails typically support access by all users, this trail would enhance the equitable character of the network. This route also presents an opportunity to connect with both local history (the abandoned Arrowhead Branch-line Railway), as well as natural history prior to dam-related flooding along the Columbia River.

While a number of potential initiatives including those suggested above would enhance the Revelstoke bicycle network, current conditions present a fine example for other municipalities to draw from. Community-based planning, local business and advocate involvement suggests the best is yet to come. Ongoing development of the Revelstoke bicycle network should only serve to improve local conditions for bicycle use and raise Revelstoke’s profile as a provider of outdoor recreation opportunities and practitioner of inclusive community-based planning.

4.6 Conclusion

Through case study analysis, planner interviews, and user surveys, the interconnected roles of provincial, regional and municipal planners, as well as community-minded business interests and volunteer advocate groups in the Revelstoke bicycle network, have proven to be very significant factors in creating a valued whole. An integrated bicycle network can only be the sum of its parts, and without one of these components the end result will not be as valued. This research concludes that the development of outdoor recreation amenities and infrastructure can effectively complement local perceptions, place-making, community building,
and planning goals while enhancing local resiliency, diversity, and health. The framework and recommendations from this research should assist stakeholders including planners and advocates to recognize and achieve the wide range of benefits associated with outdoor recreation resource development.
Epilogue

The wheels of this project began turning when I was six years old and started riding my bike to school, expanding my conception of the world beyond my parents’ yard. Each new city visited by bicycle has provided an opportunity to explore and interpret a new landscape at a human scale, to analyze and experience a new place, identify the nodes (school, hockey rink, soccer field, pool, comic-book shop, bakery, parks with stunts), and assess the networks (trails and streets) that I might frequent or avoid.

![Image 40: The author as bicycle commuter, 1981.](image)

My vision of what an “ideal city” might be stems from these experiences: I imagine a city with rich connections to nature, where unique natural geographic features are respected and celebrated, offering identity to the community. The geographic features that offer shape to the town promote unique forms of recreation, an appreciation of nature, and ecological function. Pedestrian and bicycle networks are connected and prevalent, with services a short walk - and even shorter bike ride - away. Opportunities exist for outdoor recreation within the
urban area and are plentiful at the periphery. On an outing or walk one easily comes across acquaintances and community members. I could easily be describing Revelstoke.

Visiting Revelstoke multiple times in two years allowed me to assess the city, community and its bicycle network over time. This project offered an opportunity to delve into both the perceptions of local community members and planners, as well as my own personal values and ideals. I found many similarities. While bicycling was once my only option for transportation, it is now one of my preferred pursuits based on how my values towards sustainability and health have evolved, both in terms of transportation and recreation. In Revelstoke, it seemed as though I was within a community following a similar path, and over the past two years as new initiatives have developed into local amenities, these values appear to be taking form at a community level, gaining greater traction and increasing momentum.

What I will take away from this research is that with a wide inclusive breadth, community-based planning can support an active and engaged lifestyle. Transformative change cannot occur by simple technical means alone: a broad base of momentum is required that is cultural, psychological, behavioral, and social, as well as incorporated into human and natural environments. I have been inspired by working on a path towards a more inclusive and connected community, towards the development of a complete and equitable transportation network linking complete destinations, while providing diverse and inclusive social opportunities. I have been encouraged by active outdoor recreation as a means of supporting local initiatives, engaging and participating with the community, and finding contextually
appropriate solutions. A recent online trip report referred to mountain biking in Revelstoke as “soul riding”; a description I find absolutely fitting.

While based on a specific local context, the lessons learned through this research are adaptable to other locations and different contexts. While recreating or at work, I am engaged by responding to challenges and problem solving, as well as exploration and gaining new experiences. In planning, as in bicycling, reaching a specific destination or point on a map is not always relevant: the outcomes of planning process, whatever they may be, are significant. Community-based planning done on the basis of local perceptions - formed through past experiences and existing constructions - and considering the history of a place, is a continuous process, taking the next steps (big or small) to move forward, building momentum and maintaining balance as we pedal along the path. I believe community–based planning is transformative and evolving, open to new directions, inputs, and voices, increasingly connected and comprehensive, striving to do more with less, to be sustainable and resilient. This project has shown me that the capacity for active outdoor recreation in achieving these goals is great and should not be overlooked.

REFERENCES


Best, A. (2010). Utah’s secret: changing with the times is part of it. Planning, 76(8), 28-33.


APPENDIX A: Revelstoke Bicycle Network Survey Questionnaire

The Revelstoke area has an extensive bicycle network including both trails and on-street routes. In addition to providing for local recreation, the intent of this development is in part to establish Revelstoke as an adventure tourism destination in the summer season and provide opportunities for active transportation. While recreation resources may be developed as infrastructure to benefit the tourist economy, a wide range of potential community benefits accompany trail-based outdoor recreation infrastructure.

Research Objectives
The purpose of this research is to satisfy the major degree project requirement of the Master of City Planning Degree at the University of Manitoba. Through investigating the development of this bicycle network, the intent of this research is to examine linkages among outdoor recreation, the local economy, environment, and community development. For example, the Frisby Ridge Trail constructed by the Revelstoke Cycling Association (RCA) through funding provided by the Columbia Shuswap Regional District and Columbia Basin Trust, presents an opportunity to explore the role of partnerships between different levels of government and special interest groups in relation to planning for outdoor recreation. This research seeks to examine how outdoor recreation resource development occurs, can be supported by planning, and how it contributes to local community.

Consultation and Methods
This research involves consulting with members from the RCA, community stakeholders including business owners and civic officials, as well as local residents as appropriate to gain an understanding of the implications of outdoor recreation resource development, the ideal community pre-conditions, and the partnerships required to establish this form of infrastructure.

Confidentiality and Consent
Participants will not be identified in any way. Participants will complete questionnaires by hand. All questionnaires collected during the research process will be destroyed upon completion of the thesis. Consent will be obtained from participants in writing. An overview of research results will be given to all participants at the conclusion of the thesis project. The full thesis will be made available to those who are interested, in PDF format, by e-mail.

Questionnaire
Please circle the applicable choice(s) or clearly print your response.
Informant Information
1 - Are you originally from Revelstoke (or local area)? Yes No

2 - How long have you lived in Revelstoke? 

3- Did outdoor recreation play a role in moving/staying here? Yes No

4 - Do you ride a bicycle? Yes No

5 - Did Revelstoke’s bicycle network play a role in moving/staying here?
   Yes          Somewhat          No

6 - For what purpose(s) do you ride a bicycle?
   Recreation  Transportation  Exercise
   All

7 - Related to bicycling for recreation (and/or exercise), what is your preferred type of bike use?
   x-country    downhill    road    BMX/dirt-jump    All

8 - How effective is the Revelstoke Bicycle Network in providing the trails to suit your needs/style?
   Very Good    Good    Satisfactory    Poor    Very Poor

9 - What could be done to improve the network related to your specific preferred use?


Experiences
10 - How effective is the Revelstoke Bicycle Network in providing the experience you are after?
    Very Good    Good    Satisfactory    Poor    Very Poor

11 - How could this experience be enhanced?


12 - Is the Revelstoke Bike Network aesthetically pleasing?
    Yes          Somewhat          No
13 - Please describe how the Revelstoke Bike Network is aesthetically pleasing:

____________________________________________________________________

____________________________________________________________________

Cultures
14 - Does the Revelstoke Bicycle Network promote community health?
Yes Somewhat No

15 - In what ways does the Revelstoke Bicycle Network promote community health?

____________________________________________________________________

____________________________________________________________________

16 - Does the Revelstoke Bicycle Network impact on other uses?
Yes Somewhat No

17 - Please describe how the Revelstoke Bicycle Network impacts other uses:

____________________________________________________________________

____________________________________________________________________

18 - How effective is this network at facilitating meaningful encounters between users?
Very Good Good Satisfactory Poor Very Poor Not Applicable

19 - Does the Revelstoke Bicycle Network provide connections to other local user groups?
Yes Somewhat No

20 - What could be done to enhance sharing of this resource with other compatible users (x-country skiers, trail runners)?

____________________________________________________________________

____________________________________________________________________

21 - What encounters between users should be avoided?

____________________________________________________________________

____________________________________________________________________
22 - How effectively are community values associated with the Revelstoke Bicycle Network?
Very Good    Good    Satisfactory    Poor    Very Poor

23 - What community values are associated with the Revelstoke Bicycle Network?

24 - Is the Revelstoke bicycling community motivated to take responsibility for the network?
Yes    Somewhat    No

Behaviours
25 - How effectively does the bicycle network prevent ecological impacts from users?
Very Good    Good    Satisfactory    Poor    Very Poor

26 - In what ways are ecological impacts prevented or caused?

27 - What kind of behaviors related to the use of or uses around the Revelstoke Bicycle Network should be encouraged/discouraged?

28 - What local organizations volunteer/contribute time and energy to the bicycle network?

29 - How effective are these organizations at contributing to the bicycle network?
Very Good    Good    Satisfactory    Poor    Very Poor
30 - How effectively does this network attract users from other places?
Very Good  Good  Satisfactory  Poor  Very Poor

31 - How can additional users be encouraged to use this network?


32 - How can users from further away (tourists) be encouraged to use this network?


Systems
33 - How well is the Revelstoke Bicycle Network connected to the larger road network?
Very Good  Good  Satisfactory  Poor  Very Poor

34 - To what degree does the bicycle network fit within existing (larger scale) ecological dynamics?
Very Good  Good  Satisfactory  Poor  Very Poor

35 - Describe how the bicycle network fits existing (larger scale) ecological dynamics:


36 - How would you rate the success of this system to promote increased bicycle use?
Very Good  Good  Satisfactory  Poor  Very Poor

37 - How would you rate the support of municipal planners towards bicycle trail network projects?
Very Good  Good  Satisfactory  Poor  Very Poor

38 - How would you rate the support of regional planners towards bicycle trail network projects?
Very Good  Good  Satisfactory  Poor  Very Poor

39 - How would you describe the level of regular bicycle network maintenance?
Very Good  Good  Satisfactory  Poor  Very Poor
40 - How would you say the Revelstoke Bicycle Network complements global issues or concerns?
Very Good   Good   Satisfactory   Poor   Very Poor

41 - Which global organizations can you suggest that could possibly sponsor this network?


42 - Please provide any additional comments or suggestions:


APPENDIX B: Semi-Structured Interview Guide

Revelstoke Bicycle Network Interview Protocol
The Revelstoke area has an extensive bicycle network including both trails and on-street routes. In addition to providing for local recreation, the intent of this development is in part to establish Revelstoke as an adventure tourism destination in the summer season and provide opportunities for active transportation. While recreation resources may be developed as infrastructure to benefit the tourist economy, a wide range of potential community benefits accompany trail-based outdoor recreation infrastructure.

Research Objectives
The purpose of this research is to satisfy the major degree project requirement of the Master of City Planning Degree at the University of Manitoba. Through investigating the development of this bicycle network, the intent of this research is to examine linkages among outdoor recreation, the local economy, environment, and community development. For example, the Frisby Ridge Trail constructed by the Revelstoke Cycling Association (RCA) through funding provided by the Columbia Shuswap Regional District and Columbia Basin Trust, presents an opportunity to explore the role of partnerships between different levels of government and special interest groups in relation to planning for outdoor recreation. This research seeks to examine how outdoor recreation resource development occurs, can be supported by planning, and how it contributes to local community.

Consultation & Methods
My intention is to consult with members from the RCA, community stakeholders including business owners and civic officials, as well as local residents as appropriate to gain an understanding of the implications of outdoor recreation resource development, the ideal community pre-conditions, and the partnerships required to establish this form of infrastructure.

Confidentiality and Consent
Participants will not be identified in any way. Interviews will be recorded digitally, if permission to record is granted by the participant. Hand written notes will be taken for each interview in any case. If permission to record is not granted, only notes will be used. All audio files and interview notes collected during the research process will be destroyed upon completion of the thesis. Consent will be obtained from participants in writing. An overview of research results will be given to all participants at the conclusion of the thesis project. The full thesis will be made available to those who are interested, in PDF format, by e-mail.
Semi-Structured Interview Questions:

Project Evaluation:
1. In what ways will/has the Revelstoke bicycle network meet/met the municipal and user objectives?
2. In what ways does the bicycle network align with community values?
3. How has development of the Revelstoke bicycle network contributed to community economic development?
4. Has the bicycle network created any conflict or complaints in the community? Can you describe some?
5. In what ways will the bicycle network be promoted as a community asset? By whom?
6. Will the bicycle network be promoted locally, regionally, globally? How?

Infrastructure:
7. In what ways does the bicycle network compare to other recreation infrastructure?
8. From your perspective, are these projects considered to be “infrastructure”?
9. What environmental concerns exist related to the bicycle network?
10. What other amenities should be developed to support the network?

Community:
11. What role have partnerships played in these projects? Who do you identify as the partners? How has this changed over time?
12. Did volunteer community members help in the design or construction? In what ways?
13. Who are the active volunteers or community groups that you can identify?
14. Are there any social implications of this bicycle network that you can identify?
15. Are there special social/cultural events associated with this bicycle network that you can identify?
16. How is the bicycle network used to promote community health?
17. What local features are promoted by this system? By whom?
**Maintenance:**

18. Who is responsible for bicycle trail maintenance?

19. Are volunteers active in maintenance?

20. What are the annual costs associated with project maintenance?
21. Who plans for the future of this network? Is there an expansion plan or additional developments under consideration for the network?

22. What risk-management tools are in use? By whom?

23. How is the bicycle network insured? By what agent?

Follow-up questions may be required to clarify or expand upon interview responses. Any follow-up questions will be numbered for consistent data entry. Some examples may include:

- What was effective, what wasn’t?

- What are the barriers?

- What has worked best/worst?

- How could this be improved upon?
APPENDIX C: Informed Consent Form

Research Project Title: Planning for Outdoor Recreation: An Integrally Informed Analysis of Revelstoke, BC’s Bicycle Network

Principal Investigator and contact information: Chris Larson
Email: [redacted]

Research Supervisor and contact information: Dr. David van Vliet
Email: [redacted]

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

1. Purpose of the Research:
The purpose of this research is to satisfy the major degree project requirement of the Master of City Planning Degree at the University of Manitoba. The project is titled Planning for Outdoor Recreation: An Integrally Informed Analysis of Revelstoke, BC’s Bicycle Network. The purpose of this project is to identify how outdoor recreation resource development (ORD) occurs, how ORD can be supported by community planning, and identify ways and means ORD contributes to the local community to make our cities more resilient, diverse, and healthy.

2. Procedures:
You are being asked to participate in an interview and/or a questionnaire asking questions on planning Revelstoke’s bicycle network. The interviews and questionnaires are intended to clarify and illustrate the role of planning and the range of community considerations related to the Revelstoke bicycle network. The interview is expected to take half an hour, while the questionnaire is also expected to take half an hour to complete, for potentially an hour of total time required. Interviews will be recorded and notes taken. The project is expected to include a minimum of eight key informants from various stakeholder groups.
3. **Recording Devices and Data Storage:**
With your permission, interviews will be recorded digitally to ensure an accurate record of responses. Handwritten notes of the interview will be taken. If you do not wish to be recorded, only these notes will be used. You will not be identified in the project documentation. All audio files, interview notes, and questionnaires collected during the research process will be stored securely, and destroyed upon completion of the project. Only the researcher will have access to the interview and questionnaire data. Digital data will be password protected. Physically completed forms and notes will be stored securely in the researchers briefcase while in the field and locked in my home office upon return to Winnipeg. All data gathered (recordings, forms, and notes) will be destroyed at the conclusion of the thesis project (anticipated August 2012).

4. **Risks and benefits:**
There are no particular risks to you in participating in this study. There are no risks associated with this project beyond normal everyday risk. The study does not address personal or confidential issues. The study asks only for your professional knowledge and opinion about planning the Revelstoke bicycle network. However, you should be aware that the general role you played in the planning process will be identified. As such, it may be possible for those with knowledge of the city and planning process to infer your identity. As well, given the small pool of relevant participants, a participant might be identifiable by their choice of words as used in the thesis. Participants will benefit professionally by learning more about successful approaches to bicycle network planning as an outcome of this research.

5. **Confidentiality:**
*Your privacy is important.* You will not be identified in the thesis document. Recordings of interviews, notes taken, and completed questionnaires will be secured during the project and destroyed at project completion, expected in August, 2012. You should be aware that the general role you played in the planning process will be identified. It may be possible for those with knowledge of the city and planning process to infer your identity. Given the small pool of relevant participants, a participant might be identifiable by their turn of phrase as used in the project’s documentation. However, no personal information will be gathered and questions will only relate to your professional expertise on the subject. If at any time you wish to withdraw from the project, your responses will not be used in the final document.

6. **Credit or Remuneration:**
There is no credit, remuneration, or compensation for participant involvement in this study.

7. **Debriefing:**
A summary of research results will be made available to all participants. For those who are interested, the final completed Major Degree Project will also be made available. Feedback will be provided by email in PDF format.
Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and/or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

The University of Manitoba Research Ethics Board(s) and a representative(s) of the University of Manitoba Research Quality Management / Assurance office may also require access to your research records for safety and quality assurance purposes.

This research has been approved by the Joint Faculty Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator (HEC) at 474-7122. A copy of this consent form has been given to you to keep for your records and reference.

Participant’s Signature ___________________________ Date _____________

Researcher’s Signature ___________________________ Date _____________
APPENDIX D: Ethics Protocol Certifications

February 24, 2012

TO: Chris Larson
Principal Investigator

FROM: Wayne Taylor, Chair
Joint-Faculty Research Ethics Board (JFREB)

Re: Protocol #J2012:018
"An Integrally Informed Analysis of Revelstoke’s Bicycle Network"

Please be advised that your above-referenced protocol has received human ethics approval by the Joint-Faculty Research Ethics Board, which is organized and operates according to the Tri-Council Policy Statement (2). This approval is valid for one year only.

Any significant changes of the protocol and/or informed consent form should be reported to the Human Ethics Secretariat in advance of implementation of such changes.

Please note:

- If you have funds pending human ethics approval, the auditor requires that you submit a copy of this Approval Certificate to the Office of Research Services, fax 281-0325. Please include the name of the funding agency and your UM Project number. This must be faxed before your account can be accessed.

- If you have received multi-year funding for this research, responsibility lies with you to apply for and obtain Renewal Approval at the expiry of the initial one-year approval; otherwise the account will be locked.

The Research Quality Management Office may request to review research documentation from this project to demonstrate compliance with this approved protocol and the University of Manitoba Ethics of Research Involving Humans.

Certificate of Completion

This document certifies that

Chris Larson

has completed the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans Course on Research Ethics (TCPS 2: CORE)

Date of Issue: 14 January, 2012
APPENDIX E: Proposed Revelstoke Bicycle Routes
APPENDIX F: Revelstoke Bicycle Network Online Media

General Websites:

Revelstoke Cycling Association (RCA) website:
http://bikerevelstoke.org/

Mountain Biking BC tourism website:
http://mountainbikingbc.ca/community/revelstoke

Recreation Sites and Trails BC:
http://www.sitesandtrailsbc.ca/

Mountain Biking Trip Reports:

2012 Revelstoke mountain biking trip report:

2011 Revelstoke mountain biking trip report:

2009 Revelstoke mountain biking trip report:

Revelstoke Mountain Bike Videos:

Revelstoke free-ride trails video profile:
http://vimeo.com/28030936

Revelstoke bicycle commuting video profile:
http://vimeo.com/40901567

Specialized Bicycles promotional video featuring professional mountain biker Matt Hunter on the Sale/Martha Creek Trail:
http://vimeo.com/15195268

Extra Viewing:

Kona Bikes "How Bikes Make Cities Cool: Portland" video
(inspiration for the Revelstoke bicycle commuting profile video):
http://vimeo.com/38526432