



# Healthy Natural Environments

*This resource supports communities across B.C. to incorporate healthy natural environments as they work to create healthy places for all people.*

## What you'll find in this Action Guide:

- A definition of natural environments and other descriptors
- Information on the human and ecological health benefits of natural environments
- Guidance on incorporating equity in planning and improving natural environments
- The role of local governments and provincial legislation in improving natural environments
- Local government tools and examples of action from B.C. communities

Saanich  
Courtesy Province of B.C.



Healthy People



Healthy Society



Healthy Environments

Local Government Action Guides for Healthy Communities

V1.0

# Introduction to Healthy Natural Environments

## Introduction

Community planning that improves the condition and accessibility of a natural environment positively impacts a community’s health. This resource encourages local governments to plan for sustainable land use and equitable access to the natural environment by exhibiting the benefits of healthy natural environments and showcasing innovative examples of positive change occurring across the province.

## Natural Environments

Natural environments are natural spaces and features that are protected and incorporated into the built surroundings and accessible to people.<sup>1</sup> The degree to which natural environments have been modified by human activity varies greatly, from small hiking trails in largely unaltered landscapes to community gardens in urban centres.

## Healthy Natural Environments

**Healthy** natural environments are

- Natural spaces or features that are accessible to all people regardless of age, gender, sex, race, ability, orientation or socioeconomic status.
- Natural spaces that are safe areas in which to play, relax, socialize and appreciate natural beauty.
- Natural spaces or features that provide ecological services, nurture biodiversity and aid a community’s social and economic vitality.

## Green Infrastructure

Green infrastructure describes natural vegetative systems and green technologies that provide society with economic, environmental and social benefits.<sup>2</sup> It is comprised of all natural, semi-natural and artificial spaces and networks that serve multifunctional ecological systems within, around and between urban areas at all spatial scales.<sup>3,4</sup>

## Ecosystem Services

### Making a business case for natural environments

**Ecosystem services** are the contributions of ecosystems to human well-being.<sup>5</sup> They directly or indirectly support an individual’s quality of life and a community’s social, ecological and economic health. Ecosystem services are generally categorized in four domains:

- **Provisioning services:** products obtained from ecosystems such as food, fresh water, wood and medicines.
- **Regulating services:** benefits obtained from the regulation of ecosystem processes such as climate regulation, natural hazard regulation, water purification and waste management, pollination or pest control.
- **Habitat services:** benefits obtained from the provision of habitat for migratory species, including maintaining the viability of species’ gene pools.
- **Cultural services:** non-material benefits obtained from ecosystems, such as spiritual enrichment, intellectual development, recreation and aesthetic values.

To learn how local governments are incorporating cost- and health-friendly ecosystem services into their plans and budgets, see the [Municipal Natural Assets Initiative](#).



## Benefits of Healthy Natural Environments

### The role of natural environments in human health and well-being

#### What is the impact of natural spaces and features on human physical health and well-being?

Numerous studies highlight the link between sedentary living and increased risk of heart disease, obesity, diabetes and other health problems.<sup>6</sup> Design choices made within communities can play a role in helping people live more active lives. By incorporating natural environments that are designed to be accessible and close to where people live and work, communities can encourage people to participate in physical activity and thereby improve health outcomes.<sup>7</sup> Individuals who reside in neighbourhoods containing high levels of greenery or who have easy access to greenspace have been shown to be three times more likely to be physically active than individuals living in environments with low levels of greenery.<sup>8</sup>

Organizations such as [Outdoor Play Canada](#) stress the importance of play in nature for healthy child development, encouraging local governments to increase investment in natural play spaces and examine existing policies and bylaws and reconsider those that pose a barrier to active outdoor play.

#### What is the impact of natural spaces and features on human mental health and well-being?

With mental health now the leading cause of disability worldwide, there is a growing need for preventative measures that contest low levels of mental wellness and mental illness.<sup>9</sup> Evidence supports a positive association between natural environments and mental health.<sup>10</sup> Natural environments provide cognitive and mental restorative benefits such as reduced stress, anxiety and mental fatigue and may reduce feelings of anger, frustration and aggression.<sup>11</sup> In both urban and rural environments, positive mental health benefits can be experienced through direct contact with natural features or immersion in nature; however, merely catching sight or having views of natural environments or greenery has also been shown to be beneficial.<sup>12</sup>



#### What is the impact of healthy natural spaces and features on individual and community social connectedness (and vice versa)?

In urban and rural communities, accessible healthy natural environments increase social well-being by providing places for residents to make new connections and build relationships with friends and family.<sup>13</sup> These interactions, in turn, add to a sense of community safety and trust and support overall community cohesion.<sup>14</sup>

Social connectedness builds a community's social capital; "the collective value of all social networks, and the inclinations that arise from these networks to do things for each other."<sup>15</sup> Social capital is not only supported by healthy natural environments, in turn, it contributes to the creation and maintenance of these spaces.

Increased social capital lowers the cost of working collaboratively by facilitating cooperation and effective communication. It gives community members greater confidence to join in collective activities, such as protecting and maintaining natural environments, knowing others will do so as well. When social capital is strong, people are also less likely to engage in individual actions that result in negative community impacts such as environmental degradation.<sup>16</sup>

For local governments, investing in healthy natural environments concurrently builds social capital and serves as a highly effective way to leverage finite resources.<sup>17</sup>

## Benefits of Healthy Natural Environments

### How are the health benefits of natural environments interconnected?

The positive physical, mental, social and spiritual impacts of healthy natural environments can often be interrelated.

For example:

1. Physical activity often accompanies or is sought out when accessing a natural space or feature (e.g., walking in a park, swimming in a lake) and can subsequently lead to positive effects on mood and stress levels.<sup>18</sup>
2. Social interaction or contact often accompanies or increases when accessing a natural space or feature. These interactions may be planned (e.g., walking in a park with a friend) or unplanned (e.g., meeting new people while swimming at the lake). Increased social contact can have positive effects on mood and stress levels.<sup>19</sup>
3. Individuals often seek natural spaces and features as places to relax and socialize due to their attractiveness and natural beauty. Creating natural environments that are aesthetically pleasing and offer diverse uses encourages positive mental and social wellness.<sup>20</sup>

### What is the role of natural spaces and features in local ecosystems?

A healthy ecosystem is one that is free from, or resilient to, stress and degradation and maintains its organisation, productivity and autonomy over time.<sup>21</sup> Ecosystems are intricate and unique, and proposals to develop natural spaces should consider how changes to these spaces will impact a community's ecosystems and community health.

As population and development in British Columbia grow, human activity continues to alter natural environments, putting pressures on ecosystems in both small and large communities. A holistic systems approach realizes environmental health as an important driver of not just ecological health, but social, economic, physical and mental wellness and allows for a more complete understanding and informed decision-making when investing in a community's healthy natural environment.<sup>22</sup>

The relationship between ecosystem health and public health is the set of ecosystem services provided by natural environments. Healthy natural environments contribute to fundamental ecosystem functions and services, signifying their health and the extent which they are able to provide human health benefits.<sup>23</sup>

### What is the impact of natural spaces and features on planetary health and climate change?

Human health risks associated with climate change and environmental degradation are serious and extensive. They include water and food insecurity, changes in infectious disease patterns, extreme climatic events, declining air quality and low-quality, unsafe housing.<sup>24</sup>

Protecting ecologically sensitive natural environments and improving access to natural environments in sustainable ways can help mitigate greenhouse gas emissions, improve air and water quality and guide safe housing development. Protection of our natural environments not only benefits individual health outcomes; it helps ensure environmental determinants of health are in a state that can support healthy communities.

A holistic systems approach realizes that environmental health is an important driver of not just ecological health, but social, economic, physical and mental wellness. Image of Haida Gwaii courtesy Province of B.C.



## Equity and Healthy Natural Environments

### Natural environments and equity

#### What is the impact of natural spaces and features on those in equity-seeking groups?

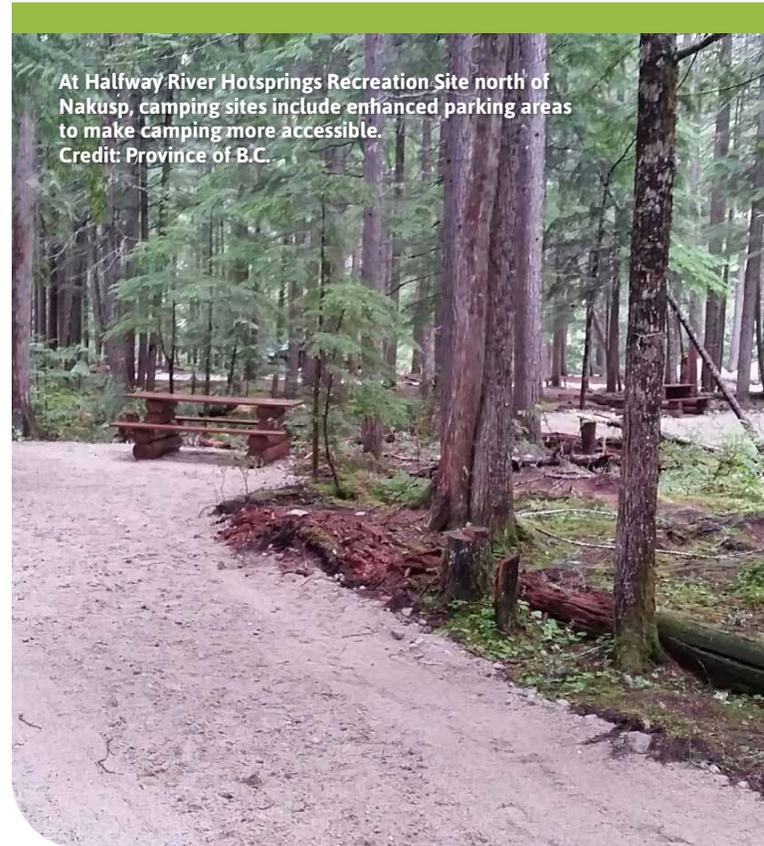
Like many community resources and services, natural environments are often unequally owned, accessed and experienced by community members. Equity-seeking groups face an array of potential barriers to accessing and using natural environments and public spaces equitably. For example, those living in poverty may not have the means to pay registration or permit fees collected for certain park uses or recreational activities. Park spaces and recreational facilities themselves may have been designed or evolved in a manner that doesn't allow access by those with disabilities or mobility issues. Park washroom facilities that don't openly welcome transgender or two-spirit individuals may produce feelings of exclusion or apprehension. In all these instances, equitable access is impeded for the marginalized group and may lead to lower levels of usage.

Marginalization and barriers to equitable access also have the tendency to affect people who are part of more than one equity-seeking group, such as a newcomer to Canada who is also living in poverty. Regardless of education levels, immigrants have been shown to be 50 percent less active, leading to less park usage than the average Canadian in large part because they are less well off financially and face barriers such as differences in language or culture.<sup>25</sup>

#### Equitable access to clean air, water and soil

**Environmental injustice** is the disproportionate exposure of marginalized communities to pollution and its negative effects on health and environment. The definition also extends to unequal environmental protection and environmental quality as a result of laws, regulations, governmental programs, enforcement and policies.<sup>26</sup>

More explicit forms of environmental injustice are now widely understood to be bad planning practice (for example, locating new, below-market housing in areas of heavy industry). However, as awareness of the natural environment's impact on public health outcomes grows, inequitable access to, and use of, healthy natural environments have become larger pieces of the environmental justice movement.<sup>27</sup>



At Halfway River Hotsprings Recreation Site north of Nakusp, camping sites include enhanced parking areas to make camping more accessible.  
Credit: Province of B.C.

Many environmental injustices—as well as their inequitable, negative exposures and health outcomes—are tied to broader social and political structures that have long persisted in marginalizing equity-seeking groups.<sup>28</sup>

Improving environmental justice cannot occur by solely focusing on outcomes (the spatial relationship of unhealthy environments and disadvantaged groups). Greater attention needs to be paid to the processes and structures that lead to or reproduce environmental injustice. Disadvantaged communities deserve better representation, better protections, changes in interrelated systems (e.g., housing) and a larger voice in these processes.<sup>29</sup>

Local governments must try to better understand and work toward improving the inequitable distribution and access to the physical, social, economic and health benefits of natural environments in their community.

## Regulation of Natural Environments

### What role do local B.C. governments play in improving natural spaces and features?

Local governments have the ability to improve natural spaces through several planning and land-use management tools established under the *Local Government Act*. These include:

- Official Community Plans (OCPs)—which establish desired long-term land uses for a community, including parks, open space and natural areas.
- Zoning bylaws—which establish permitted land uses, density and building siting on property and flood-protection regulations.
- Development permit areas for protection of the natural environment—which establish development guidelines to mitigate or eliminate impacts development may have on natural areas.
- Provision of parkland or payment in-lieu for parks by a land owner when they subdivide to create three or more new parcels.
- Development Cost Charges (DCCs) for parkland acquisition—paid by a land owner who subdivides or obtains a building permit.
- For municipalities, tree cutting permit areas—to protect or require replacement of trees removed from property.<sup>30</sup>

The *Community Charter* outlines municipal purpose, directing stewardship of a community's public assets and development of its economic, social and environmental well-being.<sup>31</sup> The *Community Charter* also identifies areas of concurrent authority, between the provincial government and local governments that includes protection of the natural environment, wildlife and the removal and deposit of soil and other material.<sup>32</sup>

Provisioning parkland during development ensures residents have access to healthy natural environments.

Credit: City of Kelowna



### Official Community Plans and Regional Growth Strategies

Official Community Plans (OCPs) and Regional Growth Strategies (RGSs) are the highest-level plans guiding municipalities and regional districts. OCPs must include, among other items, the approximate location, amount and type of present and proposed recreational land uses, and may include policies relating to the preservation, protection and enhancement of the natural environment.<sup>33, 34</sup>

Regional growth strategies must include actions that provide for the needs of the projected population in relation to, among other items, parks and natural areas.

### Zoning Bylaws

Zoning bylaws are the principal tool local governments use to put OCPs in effect (regional districts also use OCPs). Zoning bylaws through the designation of zones on properties establish explicit regulations for permitted land uses, density, and building siting on property. Zones can include uses which specifically permit land uses such as parks, recreation and environmentally sensitive areas. Other municipal bylaws that can directly and indirectly manage the natural environment include erosion and sediment control bylaws and subdivision and development servicing bylaws that administer stormwater management controls, which can alter and affect a community's natural environment.

## Tools for Local Governments

### Tools for Local Governments to Improve their Natural Environment

The following section outlines and exhibits tools and strategies that local governments can use to protect and enhance their natural assets.

More often than not, boundaries defining local government jurisdiction are not the same as the boundaries defined by natural ecosystems or the natural spaces community members have access to. Natural environments that are not operated and maintained by local governments, such as provincial parks and private lands, may still be accessible to the community, and local governments could consider how they can help increase access and steward such spaces for the benefit of their community's health.

As the examples below highlight, partnerships between local, regional and provincial partners, as well as the public and private sectors, are essential for a holistic approach to maintaining a community's natural environment. For the benefit of both the natural environment and community health, local governments could consider their role facilitating positive ownership and stewardship by community members.

### Policy and Bylaws

Only a small amount of a community's tree canopy, vegetation and natural features fall within the public realm (e.g., roadway medians, civic institutions, public parks). Instead, the vast majority of a community's natural spaces and features inhabit privately owned land. Local governments—both regional districts and municipalities—have shared and separate tools to encourage the retention and improvement of natural environments and features that are often inequitably distributed and controlled on private land but serve to benefit the whole community.

### Tree Protection Bylaws

**Example:** The City of Duncan adopted its tree protection bylaw in 2015, joining other local governments seeking to curtail tree removal on private property. City staff and Council recognized that the ecological, environmental and community health benefits of mature urban trees outweigh a property owner's right to unrestrained landscape alteration, and developed the bylaw to meet the recommendations of the 2010 Urban Forest Strategy. Using municipal authority, the City of Duncan strengthened its Tree Protection Bylaw, permitting tree removal on a single-family lot (RS-1) only if a proper replacement is planted and maintained. Reflecting the need for greenery to keep pace with population growth and densification, the updated bylaw requires that two trees are planted for every tree cut on higher density parcels of land. An update to the bylaw in 2018 required that in addition to the existing requirement for listed Significant Trees to have Council approval for removal, Public Works approval is also required for pruning Significant Trees to assure that trees with "Significant" status are further protected.

### Development Cost Charges (DCCs)

Development Cost Charges (DCCs) are monies that municipalities and regional districts collect from developers to assist with the cost of constructing new or expanded infrastructure including sewer, water, drainage, parks and roads. Established by bylaw with the approval of the inspector of municipalities, DCCs collected for parkland help local governments generate funds to acquire land for parks and construct functional infrastructure, such as playground equipment and washrooms.

**Example:** As reflected in their Municipal Natural Asset Management Strategy, the Town of Gibsons' definition of capital projects and municipal infrastructure has grown. Accordingly, council amended their DCC bylaw to be able to collect capital costs under the *Local Government Act* for improvements to natural areas that work effectively as drainage projects and common stormwater services. Natural environments and features that contribute to engineering services, such as the stormwater management services provided by ponds in White Tower Park are seen as sustainable, cost-effective substitutes for traditional engineered assets.<sup>35</sup>

## Tools for Local Governments

### 5% Parkland Dedication

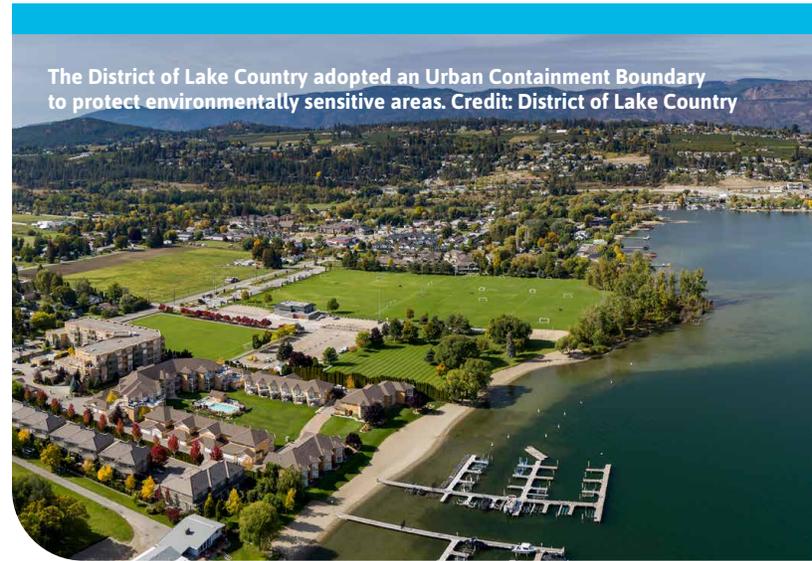
In addition to DCCs, the *Local Government Act* provides a second tool for addressing a community's need for obtaining parkland. It permits local governments to require land owners who are creating three or more new lots through subdivision to either dedicate up to five percent of the land being subdivided for parkland or pay an equivalent value in cash. The cash funds are collected in a specific fund for the local government to subsequently acquire land for new parks that have been identified in its Official Community Plan.<sup>36</sup>

**Example:** The City of Kelowna created its [Parkland Acquisition Guidelines](#) to clearly articulate the city's intentions for parkland acquisition and park development. An extremely beneficial resource for city staff, land developers and the public, these well-defined guidelines detail how the city levies money and land through parkland DCCs and other sources such as an infrastructure levy and park revenues. This clarity means the location, size and configuration of the land to be purchased or acquired is effectively fulfilling community health benefits.

### Urban Containment Boundaries/ Municipal Growth Policies

Urban Containment Boundaries (UCBs) or Growth Containment Boundaries (GCBs) are areas established within Regional Growth Strategies, a tool that may be adopted by regional districts in order to define where community growth can occur. UCBs/GCBs are a tool regional districts, with the support of municipalities, can use to contain urban development while protecting areas for parks, open space and agricultural uses located outside the UCB or GCB. UCBs/GCBs also serve to conserve greenspace and support natural environment and ecosystem health by supplying only limited infrastructure services to lands outside the containment boundary.<sup>37</sup>

**Example:** In July 2019, the District of Lake Country adopted an updated version of its Official Community Plan, which included an Urban Containment Boundary. Intended to guide growth over the next 20 years, the community identified guiding principles to direct development and decision-making to preserve the district's rural and agricultural character, as well as protect and enhance the natural environment while simultaneously creating a vibrant town centre filled



with high-quality services. By creating and signing into bylaw an Urban Containment Boundary, the District of Lake Country is balancing its residents' desires, concentrating growth and protecting the approximately 64 percent of its land base that is identified as environmentally sensitive.<sup>38</sup>

### Incentives for Green Development and Green Infrastructure (Green roofs, shared greenspace, permeable surfaces, and more.)

Tax exemptions or reduced development cost charges are incentives local governments can create for development proposals that incorporate green infrastructure or greenspaces or are designed for lower environmental impact.<sup>39, 40</sup>

**Example:** In partnership with the Northern Development Initiative Trust Fund, the City of Prince George offers an innovative financial program that incentivises environmentally friendly, mix-use development in its downtown core. Pairing this program with flexible zoning (C1), low development cost charges and a revitalization tax exemption bylaw, the City has seen a flurry of development proposals that support lowered carbon emission and healthy natural environments by requiring higher-density water- and energy-efficiency and accessible, shared greenspace<sup>41</sup>. One recent proposal concerning the city's first potential private building to meet passive house standards has put forth livable rooftop patios that integrate the environmental benefits of urban greenery with the social and mental wellness of bringing neighbours together in healthy natural environments.<sup>42</sup>

## Tools for Local Governments

### Assessment and Protection

#### Environmental Impact Assessments (EIAs)

Environmental Impact Assessments (EIA) are a systematic review to detect, estimate and evaluate the environmental effects of a proposed project. They are a critical tool to mitigating ecological stress and degradation and maintaining healthy ecosystems.

For the Province of British Columbia, the Environmental Assessment Act is the mechanism that ensures major projects meet certain thresholds under the Reviewable Projects Regulations and are assessed for their environmental impact. The environmental impact assessment process must include Indigenous groups, affected local governments and all interested parties.

#### Development Permit Areas (DPAs)

The *Local Government Act* grants local governments the ability to designate Development Permit Areas (DPAs) for the protection of the natural environment, its ecosystems, and biological diversity.<sup>43</sup> DPAs are designated in a local government Official Community Plan and outline the special conditions or objectives that justify the designation.

DPAs established for the protection of the natural environment can<sup>44</sup>

- (a) specify areas of land that must remain free of development;
- (b) require specified natural features or areas to be preserved, protected, restored or enhanced;
- (c) require natural water courses to be dedicated;
- (d) require works to be constructed to preserve, protect, restore or enhance natural water courses or other specified natural features of the environment; and
- (e) require protection measures, including that vegetation or trees be planted or retained in order to
  - (i) preserve, protect, restore or enhance fish habitat or riparian areas,
  - (ii) control drainage or
  - (iii) control erosion or protect banks.

**Example:** The City of Vernon's Environmental Management Areas (EMA) Strategy was created to protect, reclaim, enhance, and mitigate negative impacts on ecosystems and natural features through the development approvals process and in concert with the Province's Riparian Areas Regulation. After identifying and mapping the city's environmentally sensitive areas, council amended its Official Community Plan to demarcate all lands classified as either medium- or high-conservation value in the strategy as Environmental Development Permit Areas (EDPA).<sup>45</sup> These EDPAs give the City of Vernon opportunity to guide new development with an emphasis on environmental protection and management. The EMA strategy provides a City-wide approach to managing the City's ecosystems which is coordinated with other OCP priorities. To ensure development permitting processes aren't unreasonably cumbersome, environmental requirements were built into a single streamlined, development application process that necessitates the level of analysis requested at the time of application is consistent and reflects site-specific considerations.<sup>46</sup>

#### Green Infrastructure Networks

Green Infrastructure Networks are interconnected natural and open spaces that conserve ecosystems and functions while providing benefits to both wildlife and people.<sup>47</sup> As development increases, communities must be selective about preservation to ensuring connectivity between large habitat areas.

**Example:** Embedded in its 2014 Biodiversity Conservation Strategy, the City of Surrey's Green Infrastructure Network (GIN), is an interconnected system of natural areas that conserves ecosystems and provides human and community benefits. City staff identified and mapped the most sensitive natural environments in Surrey, a growing urban centre, to acquire and protect these connected spaces in a way that allows ecosystem services and biodiversity to succeed amid population growth and greenfield development. The GIN was developed around three core principles of biodiversity conservation:

1. preserving large core habitat areas,
2. ensuring connectivity between habitat areas and
3. providing a diversity of habitat features throughout the city.

## Tools for Local Governments

### Connecting Culture, Recreation and Economy

#### Edible Public Landscapes

Using food plants as design features, edible landscapes offer social, economic, social, environmental and health benefits by enhancing aesthetic value and promoting food literacy and security. These publicly accessible food sources connect communities with a greater understanding of food and foster multicultural and intergenerational social activities. They can also free up income otherwise used to purchase food, increase adjacent property values, aid ecosystem services such as stormwater management and improve mental wellness through increased greenery.<sup>48</sup>

**Example:** In spring 2019, the Town of Oliver implemented an Edible Pathways Project. Stemming from its Food Secure Plan, these linked edible landscapes aim to engage local businesses and community members and raise awareness of Oliver's long-term food systems strategy.<sup>49</sup> The project's coordinator works alongside Oliver's Food Action Advisory Committee, the Town's Horticulturist and the business community to ensure planters in the town's urban centre are growing vegetables and herbs for community members to harvest and use as needed.<sup>50</sup> Beyond ensuring that healthy, locally sourced food is available to all, the Edible Pathways Projects strengthens Oliver's food culture and is at the heart of a community that values healthy natural environments that produce a diverse culture and local economy alongside sustenance.

#### Seasonality

British Columbia has diverse climates and dramatic seasonality. The way a community's residents interact with their natural environment changes throughout the year; however, local governments can take action to promote interaction with the natural environment regardless of the season.

**Example:** The City of Fort St. John is working to turn its parks, traditionally dormant in the winter months, into year-round spaces for physical and social activity. The city's Winter City Micro-Project Strategy encourages residents to embrace cold-weather pursuits and use outdoor spaces and natural environments throughout the winter. To meet these goals, city staff partnered with



Credit: City of Fort St. John

community members and organizations to develop ideas—such as improved outdoor lighting, sheltered outdoor fire pits and warming shelters near walking paths and outdoor skating rinks.<sup>51</sup>

#### Tourism/Recreation Tourism

Our license plate tells all; British Columbia is beautiful. In 2018, more than six million international visitors travelled to the province in large part to appreciate British Columbia's beautiful natural environments and recreate in them.<sup>52</sup> The economic benefits of the steady-growing recreation tourism industry are immense, and many of the more than 19,000 tourism-related businesses in operation rely on the natural environment.<sup>53</sup>

**Example:** In 2017, "the Western Canada Mountain Bike Tourism Association (MBTA), in partnership with the Canadian Sport Tourism Alliance (CSTA), surveyed mountain bikers to gather data to prepare an economic impact study of mountain biking in the Sea to Sky Corridor, including the communities of North Vancouver, Squamish and Pemberton." Results found that in Squamish alone, mountain biking attracted more than 20,000 visitors, partaking in nearly 100,000 rides and contributing more than \$10 million in the local economy.<sup>54</sup> For those working in related tourism and recreation industries, the results validated the value the trails add to the community. Further, money spent on improving trails, amenities and access to Squamish's natural environment were shown to be a rewarding investment: 2018 saw trail crew members dedicate more than 3,000 hours of work and provide valuable feedback that resulted in access to the outdoors being a primary focus of the District of Squamish's Official Community Plan.<sup>55</sup>

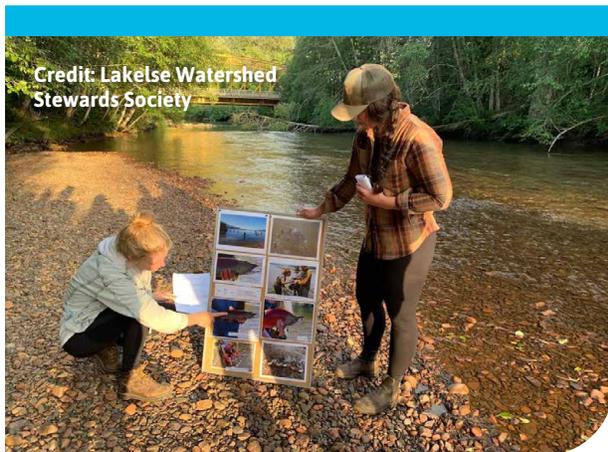
## Tools for Local Governments

### Stewardship and Sustainability

#### Local Environmental Stewardship

Local stewardship opportunities provide individuals, groups or community networks a chance to apply local expertise and knowledge and allow ownership and care for the environment they are connected to, and may depend on. Encouraging local environmental stewardship also helps local governments protect and maximize investments in their natural environment by desirable ecological results as well as also social, mental, physical, cultural and economic health outcomes.<sup>56</sup>

**Example:** Since 2002, the Lakelse Watershed Stewards Society (LWSS) has been working to preserve and protect the quality and health of the Lakelse Watershed near Terrace, BC. With a dedicated team of directors, this volunteer, not-for-profit society has been successful in collaborating and receiving sponsorship from an array of multi-sectoral agencies including BC Parks, Coast Mountain College, the Ministry of Environment, the Ministry of Forests, Lands, Natural Resource Operations and Rural Development, Fisheries and Oceans Canada, the Tsimshian First Nations Treaty Society, the Pacific Salmon Foundation, BC Invasive Species Council, the Terrace Community Forest, LNG Canada, and the Regional District of Kitimat-Stikine. Thanks to its committed members, community volunteers and diverse partnerships, the LWSS has supported its watershed and the natural environment with countless projects including water quality monitoring, habitat restoration, salmon stock assessment, and community engagement through hosting workshops, interpretive walks, and providing trail upgrades and interpretive signage.



Credit: Lakelse Watershed Stewards Society

#### Partnerships/Agreements/Conservation Funds

Formally known as environmental conservation services or local conservation fund services, conservation funds are a local government service with the specific purpose of undertaking environmental conservation and community sustainability projects. Conservation funds are established and financed through legally-binding local government mechanisms, however their formation and success rely on engagement and collaboration with local conservation groups and community members to ensure local needs and priorities are established. Conservation funds allow local for local control and direct community benefits by enhancing ecosystem services and creating physical and social environments that promote healthy communities.<sup>57</sup>

**Example:** In 2008, the Regional District of East Kootenay (RDEK) established the Columbia Valley Local Conservation Fund. The first of its kind in Canada, the fund was approved by a local referendum that received support from the Upper Columbia Valley portion of the regional district. Residents of the Village of Radium Hot Springs, District of Invermere, Village of Canal Flats and RDEK Electoral Areas F and G, which include the communities of Fairmont Hot Springs, Windermere, Panorama, Wilmer, Brisco and Spillimacheen, voted to pay an annual parcel tax of approximately \$20/parcel, money earmarked for projects that will contribute to the conservation of natural resources including water, wildlife, habitat and open spaces. Through to 2019, the RDEK has approved 83 grants totalling \$1.9 million and recipients have used this local investment to leverage six times that amount in additional grant funding to support projects such as the rehabilitation of Abel Creek, ecosystem restoration using prescribed fire burns and the purchase of several conservation properties throughout the Upper Columbia Valley.<sup>58</sup>

## Tools for Local Governments

Trees provide great value to a community but not all trees grow on public land. The City of Courtenay's Urban Forest Strategy takes a collaborative approach with residents to encourage tree canopy growth on both public and private land.  
Credit: City of Courtenay



### Urban Forest/Tree Canopy (Mapping/ Policy)

All communities, even those surrounded by forest, benefit from a healthy tree canopy within their community's built-environment. As one component of the natural environment, urban trees contribute to previously documented positive health linkages.<sup>59</sup> Highlighting urban forests/tree canopies is to recognize the value of planning healthy natural spaces and features in areas that are commonly and publicly accessed. Further, in environments where built form is the dominant landscape, these critical pieces of green infrastructure play an oversized role in maintaining ecosystem services and the community health benefits they afford.

**Example:** Valuing its natural environment, the City of Courtenay has taken a concerted effort to protect and manage its natural beauty by means of its [2019-2050 Urban Forest Strategy](#). The strategy's Tree Protection Bylaw is a key implementation tool within city limits, but Courtenay didn't exclusively rely on this regulatory lever to manage its natural environment; the strategy also focuses on collaboration and stewardship so that all residents take a shared responsibility for its natural resources, which are "unconscious of ownership boundaries,"<sup>60</sup> and so property owners are educated on positive voluntary actions they can take on their land.

## Resources

**Biodiversity Conservation Strategy.** (2014). City of Surrey. [https://www.surrey.ca/files/Surrey\\_BCS\\_Report.pdf](https://www.surrey.ca/files/Surrey_BCS_Report.pdf)

**Connecting Canadians with Nature — An Investment in the Well-Being of our Citizens.** (2014). Parks Canada. [http://www.parks-parcs.ca/english/ConnectingCanadians-English\\_web.pdf](http://www.parks-parcs.ca/english/ConnectingCanadians-English_web.pdf)

**Environmental Development Permit Areas: In Practice and in Caselaw.** (2016). University of Victoria Faculty of Law, Environmental Law Clinic and Deborah Curran & Company. [http://www.elc.uvic.ca/wordpress/wp-content/uploads/2016/04/2016\\_01\\_02\\_EDPA\\_FINAL\\_March31\\_2016.pdf](http://www.elc.uvic.ca/wordpress/wp-content/uploads/2016/04/2016_01_02_EDPA_FINAL_March31_2016.pdf)

**Environmental Influences on Population Mental Health Promotion for Children and Youth.** (2017). National Collaborating Centre for Environmental Health and National Collaborating Centre for Determinants of Health [https://nccph.ca/images/uploads/general/03\\_Environmental\\_MentalHealth\\_NCCPH\\_2017\\_EN.pdf](https://nccph.ca/images/uploads/general/03_Environmental_MentalHealth_NCCPH_2017_EN.pdf)

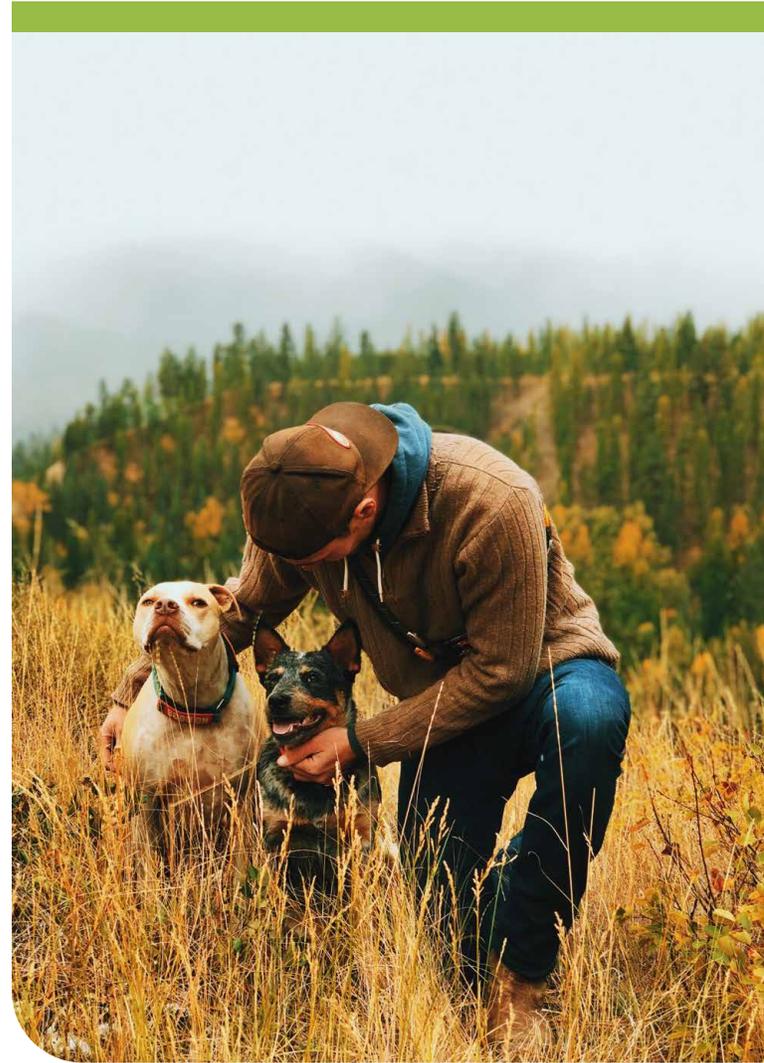
**Green Bylaws Toolkit for Conserving Sensitive Ecosystems and Green Infrastructure.** (2007). University of Victoria Faculty of Law, Environmental Law Clinic and Deborah Curran & Company. [http://www.elc.uvic.ca/press/documents/greenbylaws\\_web1207.pdf](http://www.elc.uvic.ca/press/documents/greenbylaws_web1207.pdf)

**Healthy by Nature.** (n.d.). BC Parks Foundation. <https://www.healthybynature.ca/>

**Mental Health & Well-being: Considerations for the Built Environment.** (2019). BC Centre for Disease Control & BC Children's Hospital. <http://www.bccdc.ca/pop-public-health/Documents/mental-health-built-environment.pdf>

**The National Benefits Hub: Research that Supports Recreation.** (n.d.). Alberta Recreation and Parks Association. <http://benefitshub.ca/>

**The Nature Playbook.** (2017). Canadian Parks Council. <http://www.parks-parcs.ca/english/nature-playbook.php/>



**Parks & Greenspace.** (n.d.). BC Healthy Communities. <https://planh.ca/take-action/healthy-environments/natural-environments/page/parks-greenspace>

**VanPlay Report 1: Inventory and Analysis.** (2019). City of Vancouver. <https://vancouver.ca/parks-recreation-culture/report-1-inventory-and-analysis.aspx>

**Where it all started: Gibsons [case study].** (n.d.). Municipal Natural Assets Initiative. <https://mnai.ca/key-documents/>

## References

- 1 BC Centre for Disease Control. (2018). *Healthy Built Environment Linkages Toolkit: Making the links between design, planning and health, Version 2.0*. Provincial Health Services Authority. Pg. 31. [http://www.bccdc.ca/pop-public-health/Documents/HBE\\_linkages\\_toolkit\\_2018.pdf](http://www.bccdc.ca/pop-public-health/Documents/HBE_linkages_toolkit_2018.pdf)
- 2 Green Infrastructure Ontario Coalition. (2020). *Let's make green infrastructure the new normal*. <https://greeninfrastructureontario.org/>
- 3 Tzoulas, K., Korpela, K., Venn, S., et al. (2007). Promoting ecosystem and human health in urban areas using green infrastructure: A literature review. *Landscape and Urban Planning*, 81. pg. 169.
- 4 Municipal Natural Assets Initiative. (2018). *About MNAI. Making nature count*. <https://mnai.ca/about/>
- 5 Biodiversity Information System for Europe. (n.d.) Topics: Ecosystem services. <http://bit.ly/bioeuropa>
- 6 BC Ministry of Health. (2015). *Active people, active places: British Columbia physical activity strategy*. Province of British Columbia. <https://www.health.gov.bc.ca/library/publications/year/2015/active-people-active-places-web-2015.pdf>
- 7 Lennon, M., Douglas, O., and Mark Scott. (2017). Urban green space for health and well-being: developing an 'affordances' framework for planning and design. *Journal of Urban Design*, 22(6). pgs. 778–795.
- 8 Ibid, pg. 780.
- 9 Wood, L., Hooper, P., Foster, S., et al. (2017). Public green spaces and positive mental health – investigating the relationship between access, quantity and types of parks and mental wellbeing. *Health & Place*, 48. pgs. 63–71.
- 10 Thompson, C.W., Roe, J., Aspinall, P., et al. (2012). More green space is linked to less stress in deprived communities: Evidence from salivary cortisol patterns. *Landscape and Urban Planning*, 105(3). pgs. 221–229.
- 11 Groenewegen, P.P., van den Berg, A.E., de Vries, S. et al. (2006). Vitamin G: effects of green space on health, well-being, and social safety. *BMC Public Health*, 6. pg. 149.
- 12 Ibid.
- 13 BC Centre for Disease Control. (2018). *Healthy built environment linkages toolkit: Making the links between design, planning and health. v.2.0*. Provincial Health Services Authority. pg. 32. [http://www.bccdc.ca/pop-public-health/Documents/HBE\\_linkages\\_toolkit\\_2018.pdf](http://www.bccdc.ca/pop-public-health/Documents/HBE_linkages_toolkit_2018.pdf)
- 14 BC Children's Hospital. (2018) *Mental health and well-being: Considerations for the built environment*. Provincial Health Services Authority. pg. 9. <http://www.bccdc.ca/pop-public-health/Documents/mental-health-built-environment.pdf>
- 15 R, Putnam. (2020). *Social capital primer*. [http://bowlingalone.com/?page\\_id=13](http://bowlingalone.com/?page_id=13)
- 16 Pretty, J. (2003). *Social capital and connectedness: Issues and implications for agriculture, rural development and natural resource management in ACP countries*. Technical Centre for Agricultural and Rural Cooperation. <http://bit.ly/cgsocialcapital>
- 17 Deri, A., Alam, M. (2008). *Climate change and local governments: Discussion paper*. Commonwealth Secretariat. [https://www.researchgate.net/publication/267330177\\_Climate\\_Change\\_and\\_Local\\_Governments\\_Discussion\\_Paper](https://www.researchgate.net/publication/267330177_Climate_Change_and_Local_Governments_Discussion_Paper)
- 18 Thompson, C.W., Roe, J., Aspinall, P., et al. (2012). More green space is linked to less stress in deprived communities: Evidence from salivary cortisol patterns. *Landscape and Urban Planning*, 105(3). pgs. 221–229.
- 19 Ibid.
- 20 Ibid.
- 21 Tzoulas, K., Korpela, K., Venn, S., et al. (2007). Promoting ecosystem and human health in urban areas using green infrastructure: A literature review. *Landscape and Urban Planning*, 81. pg. 169.
- 22 Burke, T., Cascio, W., Costa, D., et al. (2017). Rethinking environmental protection: Meeting the challenges of a changing world. *Environmental Health Perspectives*, 125(3).
- 23 Tzoulas, K., Korpela, K., Venn, S., et al. (2007). Promoting ecosystem and human health in urban areas using green infrastructure: A literature review. *Landscape and Urban Planning*, 81. pg. 170.
- 24 Araos, M., Austin, S., Berrang-Ford, L., et al. (2016). Public health adaptation to climate change in large cities: A global baseline. *International Journal of Health Services*, 46(1). pgs. 53–78.
- 25 Tossutti, L. (2009). Canadian cities and global migration: Comparing local responses to demographic change. *APSA 2009 Toronto Meeting Paper*. pg. 33. <https://ssrn.com/abstract=1452326>
- 26 Maantay, J. (2002). Mapping environmental injustices: Pitfalls and potential of geographic information systems in assessing environmental health and equity. *Environmental Health Perspectives*, 110(2). <https://ehp.niehs.nih.gov/doi/pdf/10.1289/ehp.02110s2161>
- 27 Wolch, J., Byrne, J., Newell, J. (2014). Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'. *Landscape and Urban Planning*, 125. pg. 235.
- 28 Deacon, L., Baxtor, J., Buzzelli, M. (2015). Environmental justice: An exploratory snapshot through the lens of Canada's mainstream news media. *The Canadian Geographer*, 59(4). pgs. 419–432.
- 29 Ibid.
- 30 Diamond Head Consulting. (2014). *Biodiversity conservation strategy*. City of Surrey. pg. 4. [https://www.surrey.ca/files/Surrey\\_BCS\\_Report.pdf](https://www.surrey.ca/files/Surrey_BCS_Report.pdf)
- 31 Government of British Columbia. (2020). *Community Charter. Municipal purposes. Part 2, Division 1, Section 7*. [http://www.bclaws.ca/civix/document/id/complete/statreg/03026\\_02#section6](http://www.bclaws.ca/civix/document/id/complete/statreg/03026_02#section6)
- 32 Government of British Columbia. (2020). *Community Charter. Spheres of concurrent authority. Part 2, Division 1, Section 9*. [http://www.bclaws.ca/civix/document/id/complete/statreg/03026\\_02#section9](http://www.bclaws.ca/civix/document/id/complete/statreg/03026_02#section9)
- 33 Provincial Health Services Authority. (2008). Introduction to planning for health professionals. *Population and Public Health Program*. pg. 5.
- 34 Government of British Columbia. (2019). *Official community plans for local governments*. Province of British Columbia. <https://www2.gov.bc.ca/gov/content/governments/local-governments/planning-land-use/local-government-planning/official-community-plans>
- 35 The Town of Gibsons. (2017) *Advancing municipal asset management: The town of Gibsons' experience in financial planning & reporting*. pg. 19. <https://gibsons.ca/wp-content/uploads/2018/01/GibsonsFinancialPlanningReportJan2018-PRINT.pdf>
- 36 Government of British Columbia. (2020). *Local Government Act. Requirement for provision of park land or payment for park purposes. Part 14, Division 11, Section 510*. [http://www.bclaws.ca/civix/document/id/complete/statreg/r15001\\_14](http://www.bclaws.ca/civix/document/id/complete/statreg/r15001_14)

## References

- 37 The Regional District of Nanaimo. (2019). *Frequently asked questions: What is a regional growth strategy*. <https://www.rdn.bc.ca/1534>
- 38 Lake Country. (2019). *Council adopts new official community plan for Lake Country*. <http://bit.ly/lakecountrynews>
- 39 Government of British Columbia. (2020). Local Government Act. Property tax exemptions. Part 11, Division 4, Section 391. [http://www.bclaws.ca/civix/document/id/complete/statreg/r15001\\_11](http://www.bclaws.ca/civix/document/id/complete/statreg/r15001_11)
- 40 Government of British Columbia. (2020). Community Charter. Revitalization tax exemptions. Part 7, Division 7, Section 226. [http://www.bclaws.ca/civix/document/id/complete/statreg/03026\\_07](http://www.bclaws.ca/civix/document/id/complete/statreg/03026_07)
- 41 City of Prince George. Development incentives. City of Prince George. [https://www.princegeorge.ca/Business%20and%20Development/Economic%20Development%20Documents/Development%20Incentives%20\(WEB\).pdf](https://www.princegeorge.ca/Business%20and%20Development/Economic%20Development%20Documents/Development%20Incentives%20(WEB).pdf)
- 42 Petersen, H. (2019). Innovative five-storey building coming to Prince George's historic George Street. <https://www.princegeorgematters.com/local-news/innovative-five-story-building-coming-to-prince-georges-historic-george-street-1662025>
- 43 Environmental Law Clinic, University of Victoria Faculty of Law, and Deborah Curran and Company. (2007). Green Bylaw Toolkit for Conserving Sensitive Ecosystems and Green Infrastructure. pg. 73. [http://www.elc.uvic.ca/press/documents/greenbylaws\\_web1207.pdf](http://www.elc.uvic.ca/press/documents/greenbylaws_web1207.pdf)
- 44 Government of British Columbia. (2020). Local Government Act. Development permits; specific authorities. Part 14, Division 7, Section. 491. [http://www.bclaws.ca/civix/document/id/complete/statreg/r15001\\_14](http://www.bclaws.ca/civix/document/id/complete/statreg/r15001_14)
- 45 City of Vernon. (2013). Official community plan. Development permit areas. City of Vernon. <https://www.vernon.ca/sites/default/files/docs/bylaws/OCP/26dpas.pdf>
- 46 City of Vernon. (2007). Environmental management areas strategy. City of Vernon [https://www.vernon.ca/sites/default/files/docs/bylaws/OCP/environmental\\_mgmt\\_strategy.pdf](https://www.vernon.ca/sites/default/files/docs/bylaws/OCP/environmental_mgmt_strategy.pdf)
- 47 Diamond Head Consulting. (2014). Biodiversity conservation strategy. City of Surrey. pg. 67. [https://www.surrey.ca/files/Surrey\\_BCS\\_Report.pdf](https://www.surrey.ca/files/Surrey_BCS_Report.pdf)
- 48 Napawan, C. (2014). Design and planning of edible landscapes (as public open space). Department of Human Ecology, UC Davis. <https://ucanr.edu/sites/ucmg2014conference/files/200430.pdf>
- 49 South Okanagan Photos. (2019) Oliver edibles free on Main Street – Vegetable pathways. <https://southokanaganphotos.ca/oliver-edibles-free-on-main-street-edible-pathways/>
- 50 Ibid.
- 51 Kurjata, A. (2018). How Fort. St. John, B.C., is trying to turn '6 months of winter' into a good thing. <https://www.cbc.ca/news/canada/british-columbia/fort-st-john-winter-city-1.4499141>
- 52 Destination British Columbia. (2019). Provincial tourism indicators: 2018 year-in-Review. Destination BC Corp. [https://www.destinationbc.ca/content/uploads/2019/06/Provincial-Tourism-Indicators\\_2018-Year-in-Review\\_FNL.pdf](https://www.destinationbc.ca/content/uploads/2019/06/Provincial-Tourism-Indicators_2018-Year-in-Review_FNL.pdf)
- 53 Destination British Columbia. (2019). Value of tourism: Trends from 2007-2017. Destination BC Corp. <https://www.destinationbc.ca/content/uploads/2019/10/Value-of-Tourism-Full-Report-2017.pdf>
- 54 Western Canada Mountain Bike Tourism Association. (2017). Mountain biking impact study: Squamish. MBTA. <https://www.mbta.ca/wp-content/uploads/2017/04/Squamish-EI-Report-April-3-2017.pdf>
- 55 Squamish Off-Road Cycling Association. (2019). History: From little things, big things grow. <https://sorca.ca/history>
- 56 Bennett, J., Whitty, T., Finkbeiner, E., et al. (2018) Environmental stewardship: A conceptual review and analytical framework. *Environmental Management*, 61(4). pgs. 597–614. <https://link.springer.com/article/10.1007/s00267-017-0993-2>
- 57 South Okanagan-Similkameen Conservation program. (2017). Local conservation funds in British Columbia: A guide for local governments and community organizations. 2nd ed. South Okanagan-Similkameen Conservation Program. <https://soconservationfund.ca/wp-content/uploads/2017/12/Conservation-Fund-Guide-2nd-Edition-2017.pdf>
- 58 Ibid.
- 59 Tree Canada. Compendium of best urban forest management practices. Chapter 3: Benefits of urban forests. <https://treecanada.ca/resources/canadian-urban-forest-compendium/3-benefits-of-urban-forests/>
- 60 Diamond Head Consulting. (2019). Urban forest strategy. City of Courtenay. pg. 17. [https://www.courtenay.ca/assets/Departments/Documents/190710\\_Courtenay%20UrbanForestStrategy\\_FINAL-Reduced.pdf](https://www.courtenay.ca/assets/Departments/Documents/190710_Courtenay%20UrbanForestStrategy_FINAL-Reduced.pdf)



Vancouver, B.C.

## More Information

### Want support or to learn more about improving health and well-being in your community?

Health authorities can support local governments by providing advice and expertise, resources for local government staff and elected officials to develop healthy public policy, community health profiles, and opportunities to work together on joint healthy living actions. You may already have relationships with your health authority. If not, up-to-date contact information for your local health authority lead is available at [www.planh.ca](http://www.planh.ca).

## Acknowledgments

PlanH is a partnership between BC Healthy Communities Society and the British Columbia Ministry of Health. PlanH creates healthier communities by supporting partnerships across sectors, providing learning opportunities, resources, and consultation, and facilitating leading-edge practices and collaborative local action. This guide was produced by BC Healthy Communities Society. The authors acknowledge the contributions of the British Columbia Ministry of Health, the Union of British Columbia Municipalities and all of the communities who shared their stories and projects for this guide.

Copyright August 2020, Ministry of Health | This publication may be reproduced for non-commercial purposes.

[www.planh.ca](http://www.planh.ca) | [info@planh.ca](mailto:info@planh.ca)

