

The Corporation of the  
**Village of Ashcroft**



## ASHCROFT MASTER TRAILS PLAN

TRAILS FOR THE PEOPLE



# ACKNOWLEDGEMENTS



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## NOTICE TO READER

This report utilizes the phrase “**Unceded Indigenous Territory**” when referring to publicly held “Crown Lands”, to reflect recent court decisions that have upheld Indigenous Rights and Title to lands that have not been surrendered or are ceded through treaty, as required through the Royal Proclamation of 1763.

To learn more, visit:

[https://indigenousfoundations.arts.ubc.ca/aboriginal\\_title/](https://indigenousfoundations.arts.ubc.ca/aboriginal_title/)





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# EXECUTIVE SUMMARY

The Village of Ashcroft recognizes the importance of trails and pathways to the community.

The *Official Community Plan* (OCP) includes a policy that states:

**“Encourage the development of trails for walking or cycling between key locations”<sup>1</sup>**

The OCP further addresses trails and pathways:

“Requiring trails, pathways and/or sidewalks to be incorporated within the design of new subdivisions”<sup>2</sup> and

“Working with the community to formalize trails throughout the community”<sup>3</sup>. On page 61 of the OCP Policy number 8.2.1.5 addresses an action item under the leadership of the Village of Ashcroft to:

“Develop a trails master plan to review where trails should be located and how they should be funded”.

THE PRIMARY GOAL OF THIS REPORT IS TO INVENTORY EXISTING TRAIL INFRASTRUCTURE AND IDENTIFY NEW TRAIL ALIGNMENTS, THAT WILL AID IN DEVELOPING ASHCROFT AS BOTH, A RECREATION DESTINATION FOR TOURISM AND RESIDENTS ALIKE. THE SECONDARY GOAL OF THIS PROJECT IS TO PROMOTE A POSITIVE OUTDOOR RECREATION EXPERIENCE THROUGH TRAIL OPPORTUNITIES AND TO PROVIDE RECOMMENDATIONS FOR TRAIL STANDARDS FOR THE CONSTRUCTION OF FUTURE TRAILS.

This document does not suggest or sanction that the trails discussed in the plan are established, legal, or authorized unless clearly identified. All trails are presented in the context of network development for discussion purposes. This includes all attachments and appendices. Trails fall within different governmental jurisdictions. Trail or pathway ownership may be private or public, and users should ensure that they are not in trespass while using, building or maintaining trails within the Village of Ashcroft and surrounding areas.

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1 Page 22, Village of Ashcroft OCP

2 Page 31, Village of Ashcroft OCP

3 Page 46, Village of Ashcroft OCP



# LIST OF FIGURES

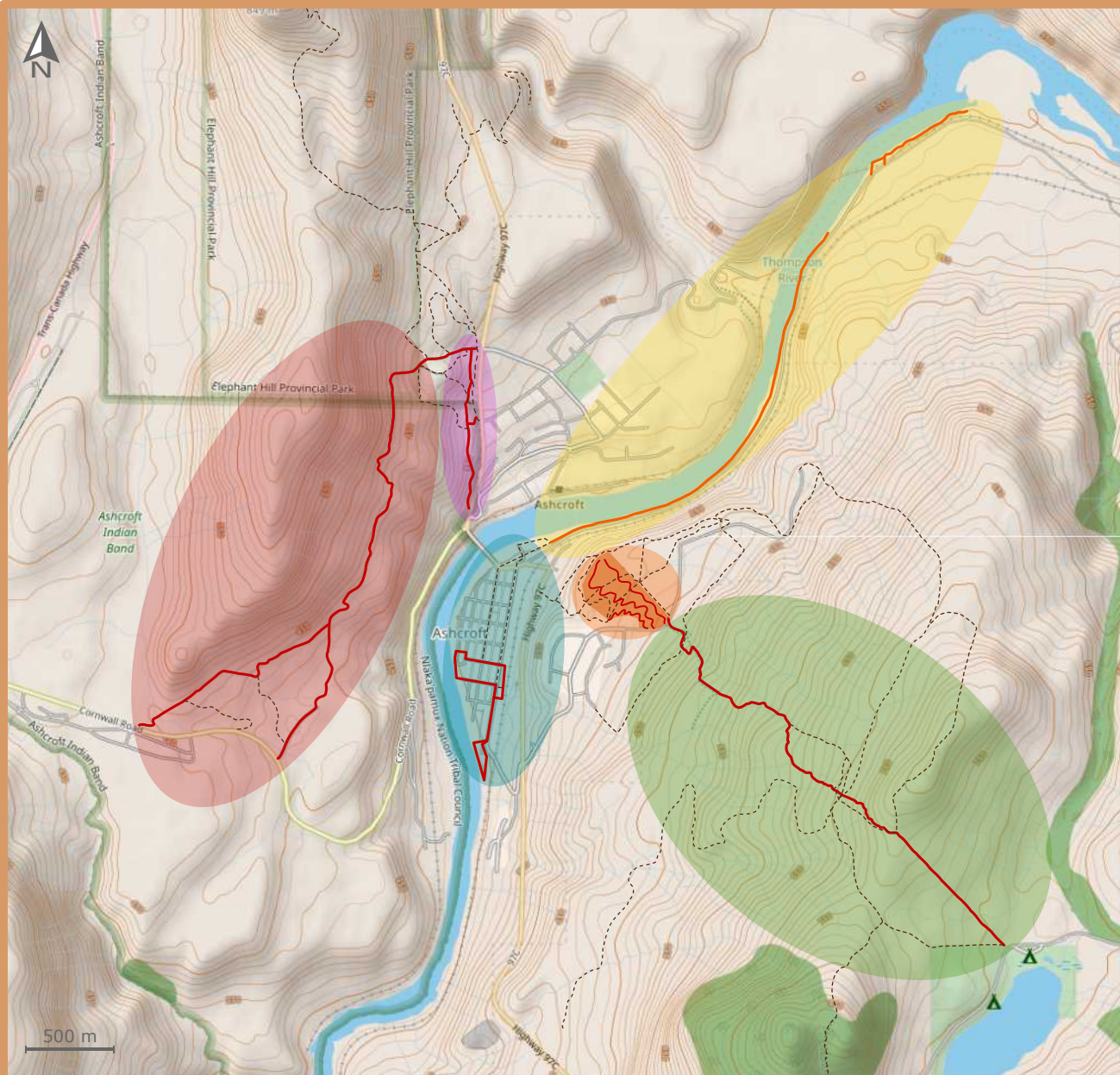


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# ASHCROFT TRAILS GENERAL MAP

-  Proposed trail
-  User groups proposed trail

## ZONES

- |  |   |
|--|---|
|  First Nation |  Urban               |
|  MTB          |  Slough/River access |
|  Multi-use    |  Commuter trail      |





# 1 INTRODUCTION

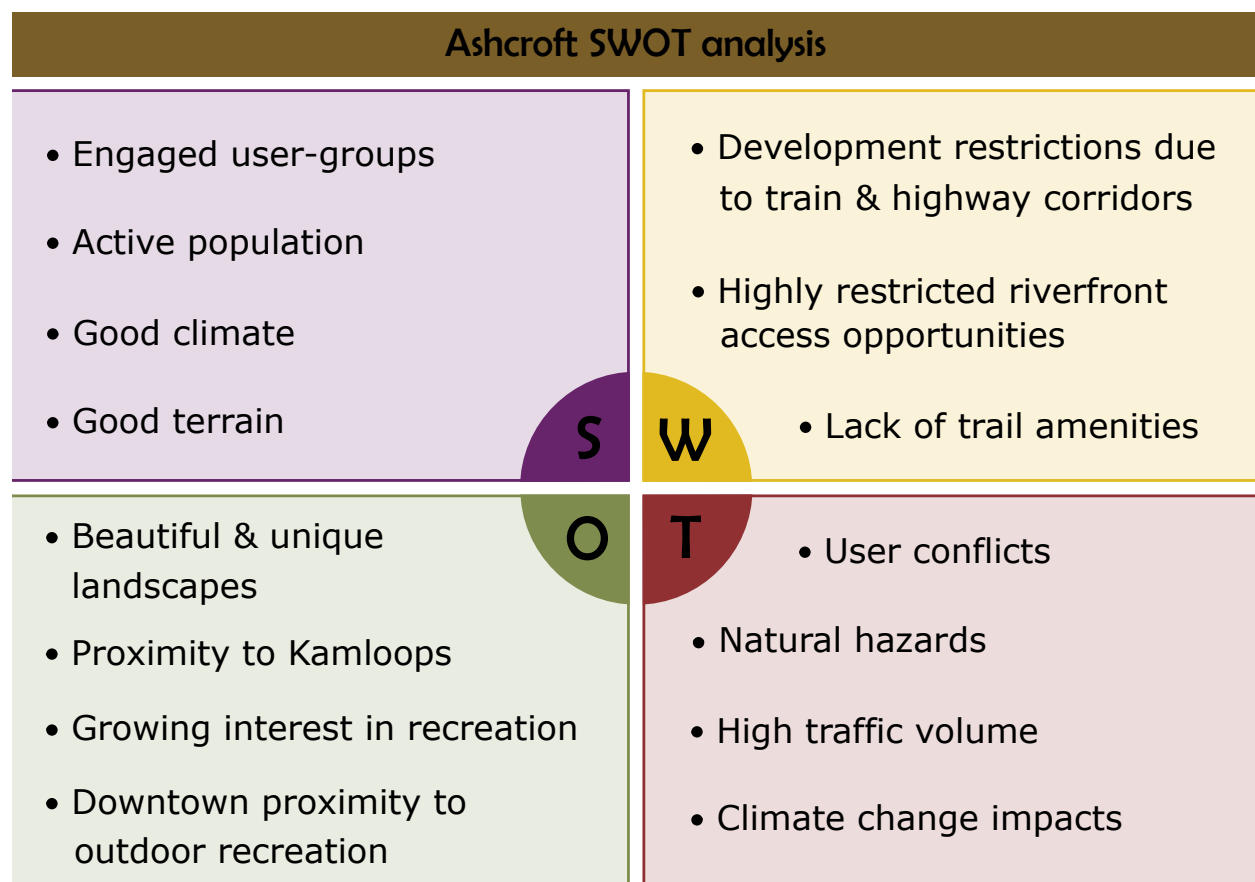
The Ashcroft Master Trails Plan is a planning and strategy document, providing background information, potential future trail development opportunities and an inventory study of existing trails. It describes trail and pathway development criteria, construction standards, recommendations and risk management.

## 1.1 UNDERSTANDING THE MASTERPLAN

The objectives of the Masterplan are to inventory and assess the existing trails, consult with stakeholders and residents to identify their needs and wishes. Prioritize recommended improvements and new proposed trail construction and suggest maintenance strategies and trail-user partnerships.

This plan stands for the Village of Ashcroft's commitment to future trail- and pathway- planning and construction. Great trail systems are achieved by careful planning and stakeholder collaboration.

The consultants applied a SWOT Analysis and the outcome related to trail- and pathway development, is as followed:





## 1.2 PLANNING PROCESS

The Village of Ashcroft initiated the planning process in the fall of 2020. The planning process takes time and involves a number of planning stages:

The following table illustrates the steps and timing in the planning process. The trails task force met regularly throughout the planning process. In-person consultation events were limited to meetings with individuals or small groups, in response to provincial health regulations concerning the Covid-19 pandemic. Trails were hiked to collect information on trail conditions and trail connectivity and environmental concerns.

The Village of Ashcroft's excellent [VILLAGE MAPS](https://ashcroftbc.ca/geographic-information-system-gis/) page<sup>4</sup>, provided information on existing trails and landownership in the downtown and surrounding area.

### PLANNING STAGES

STAGE 1	General area research and map based background studies to gain knowledge on existing infrastructure, community needs and wants and potential conflicts.	November/December 2020
STAGE 2	First round of community meetings via phone interviews with trail users and stakeholders at large.	November/December 2020
STAGE 3	Stakeholder engagement via a web based community wide survey to gain first hand knowledge of community member's insight on trail usage patterns.	December 2020 to April 2021
STAGE 4	Area field assessment by the consultants to GPS/survey existing trails and explore future trail opportunities.	Spring/Summer 2021
STAGE 5	On-site meeting with community members to address concerns, identify opportunities and provide process details.	June 2021
STAGE 6	Second round of meetings with the Trails Working Group and local stakeholders.	November 2021
STAGE 7	Draft Masterplan presentation to refine the document and include additional opportunities.	February 2022
STAGE 8	Final Ashcroft Community Trail Masterplan.	Spring 2022

<sup>4</sup> <https://ashcroftbc.ca/geographic-information-system-gis/>



## 1.3 BUILDING BLOCKS OF THE MASTER PLAN

The Master Trails Plan document is the result of a 14 months process that included a formed trail advisory group, the Village of Ashcroft's general population, stakeholders and trail user groups and Village staff.

The global pandemic caused by COVID-19 has created considerable challenges when it comes to holding meaningful consultations with stakeholders and clients. The benefits of community engagement can not be overstated and effective consultation is obtained ideally via in-person meetings meetings and field trips. The consultants kept key stakeholders engaged throughout the process, as much as the pandemic and the 2021 wildfires would allow. Implementation phases of this master

plan however, need to take the 2020/2021 challenges into account and future partnerships need to be viewed as critical building blocks of trail development.

### 1.3.1 STAKEHOLDERS AND KEY PLAYERS

A number of well organized trail-user groups and trail- and recreational-stakeholders have an interest in trail and pathway development within the Ashcroft and the surrounding areas. In addition informal groups and individual stakeholders contribute to trail planning and sometimes unsanctioned trail construction.

From non-motorized to hikers, from forestry to tourism stakeholders, all play an active role in developing and managing the recreational areas. All stakeholders, organized or not, need to be heard and have a voice in the development discussion.

#### VILLAGE OF ASHCROFT TRAIL PLANNING STAKEHOLDERS

Ashcroft Slough Society

River Path Society

Ashcroft HUB Society

Ashcroft Off Road Cycling Association


The starting point of any strategic trail planing document is a a group of interconnected stakeholders. The activity of each individual stakeholder affects the activity of the others. Certain common objectives must be defined and achieved in a coordinated way. The public sector should be responsible for the future development of the destination.



### 1.3.2 PROVINCIAL PARTNERS AND LAND MANAGERS

BC Parks and the Ministry of Forests, Lands and Natural Resource Operations, Recreation Sites and Trails BC, are the land managers for the areas outside and adjacent to the village boundaries.

BC’s Trails Strategy, developed in a spirit of partnership, addresses trail management and usage, recognizing health, social, environmental, economic and cultural values.<sup>5</sup>



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Trails Strategy for British Columbia
2

The “Trails Strategy for British Columbia” forms the framework for trail planning initiatives in British Columbia

<sup>5</sup> Trails Strategy for British Columbia: [http://www.sitesandtrailsbc.ca/documents/Trail\\_Strategy%20for\\_BC.pdf](http://www.sitesandtrailsbc.ca/documents/Trail_Strategy%20for_BC.pdf)



In 2006, the province created the Ministry of Tourism, Culture and the Arts (MoTCA). MoTCA's responsibility was to assume control and direction of recreation sites and trails in BC, along with partner agencies such as BC Parks, Ministry of Transportation and Infrastructure, and the Ministry of Environment. MoTCA's new Tourism Action Plan provided the platform to develop a Trails Strategy as a means to address key issues facing recreational trail use and development in the province.

The Trails Strategy's vision, is to develop "A world-renowned, sustainable network of trails, with opportunities for all, which provides benefits for trails users, communities and the province."

Officially adopted by cabinet in 2013, the strategy identifies guiding principles, key issues and a planning framework for planning and managing trails in B.C. The Provincial Trails Strategy specifically mentions the establishment of a Provincial Trails

Advisory Body<sup>6</sup> as a key implementation action.

Recreation Sites and Trails BC led the development of the PTAB and worked with the Outdoor Recreation Council of BC on behalf of provincial member groups representing public recreation throughout the province.

Guiding principles of BC's Trails Strategy include:

- Respect and Recognition of First Nations' Interests
- Sound Environmental Stewardship and Management
- Partnerships and Collaboration
- Respect and Understanding among Diverse Trail Interests
- Benefits for Individuals, Communities and the Province

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<sup>6</sup> PTBA Backgrounder: <http://orc.bc.ca/documents/Trails/PTABBackgrounder.pdf>



### 1.3.3 FIRST NATIONS PARTNERSHIPS

Partnerships in trail development, relate to planning, implementing and maintaining trails and trail networks. Meaningful partnerships should also be considered when it comes to the trail construction phase of the project. First Nations communities in BC recognize the value of trail development and started training their own, local First Nations trail crews. In the BC Interior the Williams Lake Indian Band, the Soda Creek Indian Band (Xats'ull First Nations) and the Simpcw First Nations are spearheading this development. Funding agreements for future trails should include a training component for First Nation's trail crews.

First Nations continue to live in the area and are an important part of the Ashcroft community. The First Nations with the closest proximity to the Village of Ashcroft are the Nlaka'pamux Nation communities of Ashcroft Indian Band and Oregon Jack Creek Indian Band and the Secwepemc Nation community of Bonaparte Indian Band.

#### Ashcroft Indian Band

Ashcroft Indian Band's total membership population is 279.9 The number of those which live on an Ashcroft Indian Band reserve is 72. Tragically, 13 homes were destroyed during the 2017 wildfires, fortunately there was no loss of life. Ashcroft Indian Band is part of the Nlaka'pamux Nation but is not affiliated with any tribal council or association.

#### Oregon Jack Creek Indian Band

Oregon Jack Creek Indian Band is located approximately 6 km south of Ashcroft. The total membership population is 68 people<sup>10</sup> and most reside off-reserve. The remaining 16 people live on Paska Island IR #3 and Upper Nepa IR # 6.<sup>11</sup> Oregon Jack is part of the Fraser Thompson Indian Services Society and the Nlaka'pamux Nation Tribal Council.

#### Bonaparte Indian Band

Bonaparte Indian Band is located approximately 15 km north of Ashcroft. Bonaparte Indian Band is a member of the Secwepemc Nation and the Shuswap Nation Tribal Council. A total of 947 people are members of the Bonaparte Indian Band.<sup>12</sup> Of these, 149 live on a Bonaparte reserve, 50 live on other reserves, and 748 live off-reserve.





## 1.3.4 THE INDIGENOUS YOUTH MOUNTAIN BIKE PROGRAM

The Indigenous Youth Mountain Bike Program (IYMBP) is a group of riders, coaches and community leaders who wish to support and encourage Aboriginal youth and communities to participate and excel in the sport of mountain biking. The IYMBP is well situated in providing classroom and field training, workshops and pro-crew education. The IYMBP has helped create numerous partnership agreements between indigenous communities and trail user/stakeholder organizations.

The Indigenous Youth Mountain Bike Program is committed to supporting and encouraging Aboriginal youth and communities to get outdoors, reconnect with nature and live healthier active lives.

The goals and objectives of this program include the following:

- Establish Mountain Biking as a viable option for First Nation communities and Aboriginal youth
- Utilize mountain biking to enhance leadership, team work, self-confidence, and athleticism among Aboriginal youth
- Encourage greater connections to nature and promote healthy active living among Aboriginal youth
- Provide First Nation communities and youth with the skills and abilities necessary to develop and maintain mountain biking infrastructure including skills parks and trail networks
- To foster the development and maintenance of trail networks that are socially and environmentally sustainable and respect Aboriginal Rights and Title and the role of First Nations as the traditional stewards and caretakers of their traditional lands



IYMBP Youth Ride near  
Barrière, BC



### More Trails Close to Home

Trails happen through community partnerships. The relationship between grassroots trail stewardship and advocacy organizations and local retailers who benefit from the work of these groups is essential. IMBA seeks to connect retailers and local mountain biking organizations and offer guidance on how to make these relationships more mutually beneficial. The IMBA Retailer Toolkit guides retailers and local advocates on working together for access, new trail development projects and other trail stewardship activities.



## 2 TRAIL DEVELOPMENT

The British Columbia Ministry of Forests' *Recreation Manual*<sup>7</sup> states:

Trail concept planning is the first phase in the development of a recreation trail. At this stage, broad objectives and the general characteristics of the trail are determined. The concept plan looks to any pertinent plan(s) for direction (especially higher level plans and the district recreation plan).

The concept plan takes many factors into account, including:

- user group requirements;
- recreation features (including landscape features and existing recreation facilities);
- management requirements and needs for trail construction and maintenance.

Guiding principles in trail development, described in the following chapters, include:

- Environmental Sustainability
- Inclusivity
- Recognition of Cultural Values and Heritage
- Safety
- Creating a Healthy Community
- “Community Driven” Development
- Recognition of Partnership Opportunities
- Respectful Communication
- Alignment with Official Community Plan
- Well Maintained and Signed Trails

<sup>7</sup> <https://www.for.gov.bc.ca/hfp/publications/00201/chap10/chap10.htm>



## 2.1 NETWORK AND TRAIL DEVELOPMENT GOALS

Trail planning and construction within the Village of Ashcroft lands, does not fall under the jurisdiction of Ministry of Forests, Lands and Natural Resource Operations (Recreation Sites and Trails BC) and BC Parks. Future projects spearheaded by the Village of Ashcroft, might. We therefore include the following section that lays out a detailed series of goals or guidelines.

The Village of Ashcroft’s role can be compartmentalized into four segments, based on land ownership.

Village of Ashcroft Lands	The Village of Ashcroft is in charge and considered a direct provider. The Village can plan, build, manage and maintain trails on land owned by the Village of Ashcroft
Unceded Indigenous Territories	The Village of Ashcroft can lend support to local user groups, enter into partnership agreements and help create capacity. The Village can provide financial and administrative support, help with funding applications and serve as a liaison between user groups and local First Nations.
Private Lands	Land use agreements between private land holders and trail users groups can be drafted and implemented with help from the Village of Ashcroft.
BC Parks	The Village of Ashcroft can collaborate with BC parks to address economic development opportunities and help with the planning of interconnected trails.





## 2.1.1 DEVELOP AND MAINTAIN AUTHORIZED TRAILS

Section 56 of the Forest and Range Practices Act (FRPA) allows the Minister to order “the establishment of crown land as a...recreation site or a recreation trail...”. To ensure compliance with FRPA Section 57, all new trail construction, rehabilitation and maintenance will be authorized by the Recreation Sites and Trails Branch. The Ministry may not have the capacity to maintain and manage all the mountain bike trails that are proposed to be maintained and to be built in the future (BC Government, Mountain Bike Policy). The MFLNRO’s strategy, therefore is to enter into partnership agreements with mountain bike clubs or other local organizations. Partnership organizations must demonstrate the capacity to manage the trails according to a mutually agreed upon management and operations plan.

<p><b>Section 57 Authorized Trails</b></p>	<p>Section 57 of the Forest and Range Practices Act (FRPA) prohibits construction, maintenance or rehabilitation of a trail or recreation facility unless authorized in writing by the Minister or under another enactment. Section 57 of FRPA applies to all provincial unceded indigenous land outside of parks.</p>
<p><b>Section 56 Established Trails</b></p>	<p>Section 56 of the FRPA enables the Minister to establish, vary the boundaries, or disestablish interpretive forest sites, recreation sites and recreation trails provided they are consistent with any land-use objectives set by government for the area.</p>



## 2.1.2 FOCUS ON ENVIRONMENTAL PROTECTION

Mountain bikers and other non-motorized recreational trail users help protect the environment. Legalized trails have led to a decrease in unauthorized trail construction and trail use. Thoughtful trail planning and trail management helps in the rehabilitation of natural landscapes and funnels recreational users away from sensitive areas. Time spent in the outdoors sensitizes and creates environmental awareness.

### Objectives:

- Build sustainable trails according to the Recreation Sites & Trails Chapter 10, International Mountain Bicycling Association (IMBA) Trail Guidelines and Whistler Standards in order to minimize impact on soil, water resources, wildlife and plants
- Follow Recreation Sites & Trails BC's "Best Management Practices"
- Inspect trails regularly and schedule maintenance accordingly
- Close trails when environmental damage occurs
- Consult with the Senior Ecosystems Biologist, Ministry of Forests, Lands and Natural Resource Operations
- Consult with local environmental groups
- Comply with the Water Sustainability Act (WSA) for all stream crossings

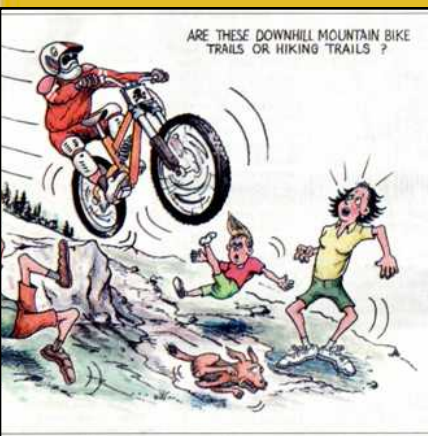
Trail approval and construction will require consultation with the appropriate resource managers to ensure that all planned activities will have no negative impact. Regular trail and TTF inspections will be carried out. As part of the inspections the Ministry of Forests, Lands and Natural Resource Operations will monitor signs of environmental damage. Repairs and maintenance will be carried out by volunteers and hired contractors. It is important to note that some of the proposed networks may fall within areas with drainages that range from narrow to broad. A number of crossings, from bridges to boardwalk sections are required, therefore a notification or authorization may be required for in-stream works under the Water Sustainability Act<sup>8</sup>

### Sensitive Ecosystems

In the process of planning and building trails, builders will strive to minimize the impact on the surrounding natural environment. To meet this goal they need to be aware of, and be extra careful around sensitive ecosystems such as: riparian/wetland areas, woodland meadows and terrestrial herbaceous rocky outcrops. These ecosystem types all fall within the provincial government definition of environmentally sensitive areas, based on the sensitive ecosystem inventory (SEI).

In general, riparian areas are not conducive to mountain biking and will be completely avoided except in the case of a stream crossing. Single track trails will be designed at a minimum width to follow the natural contour of the land in an effort to avoid disturbance of the inherently thin soils and natural drainage patterns. All trail builders and volunteers will be instructed to stay on existing trails and roads as much as possible to avoid unnecessary trampling of surrounding vegetation when hiking in, around, and out of the work area. Everything that is packed in (food, tools, garbage etc.) will be packed out. The trail-building contractor will be responsible for ensuring all of the above goals are met by all trail building staff.

<sup>8</sup> "Working Around Water" Prepared by Robert Van der Zalm and Lisa Nordin (2017), see appendix



## 2.1.3 MANAGE USER CONFLICT

A small and well-connected community offers great opportunities for close working relationships with stakeholder groups. Many of the future trail users are part of a number of groups and organizations. This enables streamlined, direct communications amongst user groups. Shared trail use is often beneficial and will be encouraged where appropriate. Where shared trail use is not a possibility, signs will clearly identify the trails as non-motorized only trails, as per legal trail designation by RSTBC.



Public involvement in trail planning is the first step in conflict avoidance. User groups that come to a common understanding of their relationships with each other, become more supportive of a diverse trail plan that satisfies the interests of all user groups.

Demand for outdoor recreation is steadily growing, while undeveloped, suitable lands are shrinking. This combination can lead to conflict unless planners and land managers take proactive measures. Addressing equity between trail user groups needs to be ranked a high priority when it comes to trail planning.

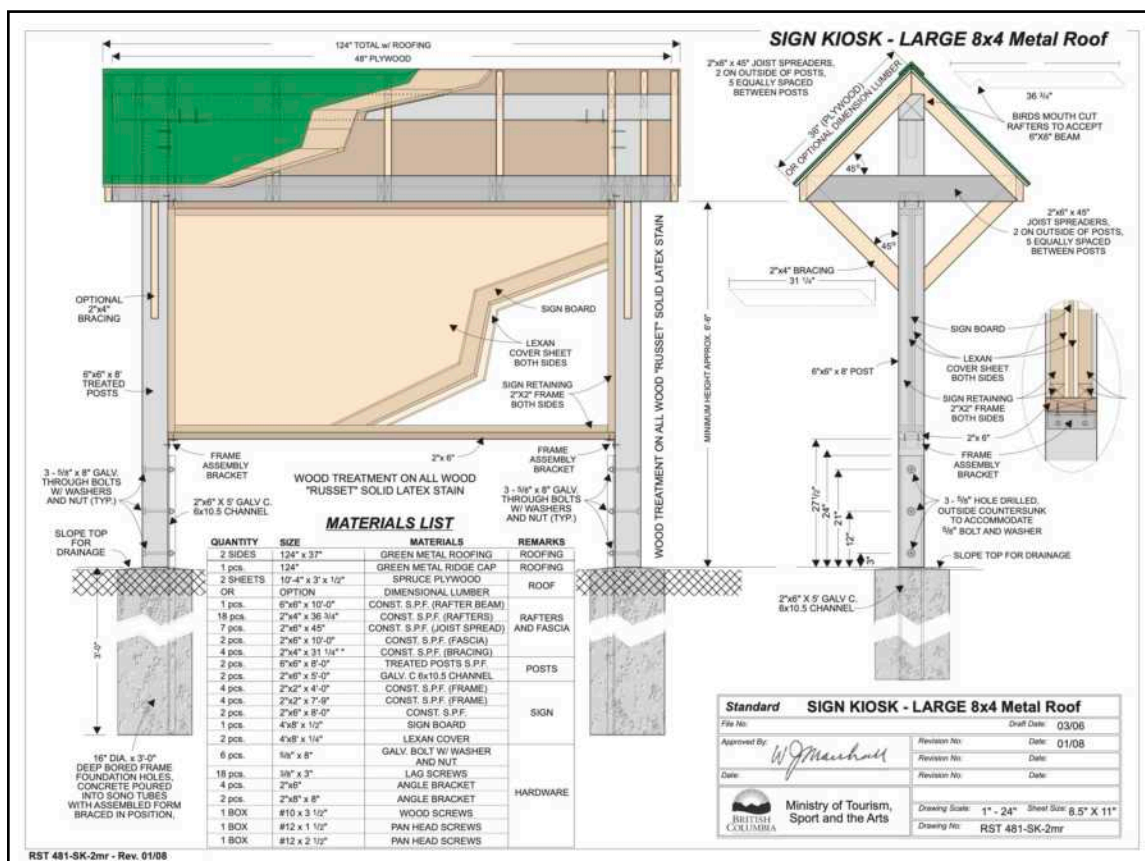
Trail managers need to facilitate dialogue between user groups on an ongoing basis to avoid conflict.

Example of trailhead marker (wand style) clearly indicating prohibited trail use.



Trail signage, both trailhead kiosks and trail markers, are an integral part to the trail user experience. Equally as important are trail infrastructure amenities, such as tables, benches, toilets, viewing platforms and interpretive signs. Trail amenities increase the use and pleasure of the trail network and should be considered in all long term planning. Most amenities are ideally located at trail access points.

All trails need to be clearly identified. Signature trails, serving regional, provincial or national markets require more prominent signage at the trailheads. Adhering to a standardized format is critical. We therefore recommend adopting the RSTBC 2021/22 Sign Standards and suggest the use of the online RSTBC signage creation tool: <https://bc-trails.vercel.app> even if the trails are not situated on unceded, traditional territory. This will help with creating a province wide standard and a user familiarity.



Trailhead Kiosk Sign as per RSTBC Standard





Examples of Trail Amenities

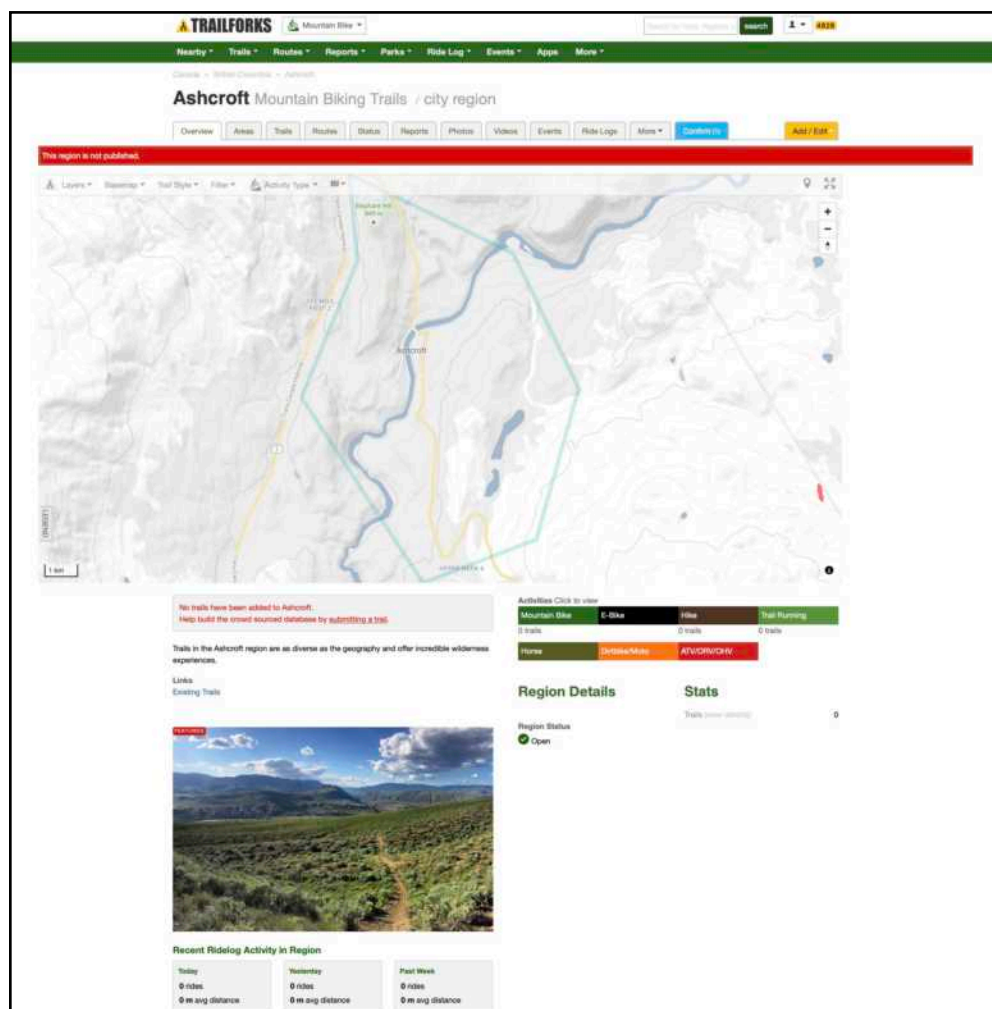


## 2.1.5 TRAILS AND TRAILFORKS

Trailforks used to be a mountain bike trail database & management system for riders, builders, land managers & trail associations. Since 2019 it moved to an all-inclusive user platform, featuring trails for a large number of user groups, from equestrian trail users to motorized and non-motorized user groups. Users can contribute data and the local trail associations have the control to approve & curate the data. Ensuring the best, latest and accurate data. Inclusion in the Trailforks database assures exposure and promotion of the trails and the network.

Trailforks' "Trail Karma" program makes it easy to donate directly to trail stewards. A "Karma" or donation button can be set-up by the local trail association.

*First Journey Trails* submitted the newly created "Ashcroft Region" to Trailforks. As new trails get developed, the data should be uploaded and updated on a regular basis.



Screenshot of *Ashcroft Region* Page on Trailforks





## 2.2 NEW TRAIL CONSTRUCTION & CONSTRUCTION PRINCIPLES

Usually public funded, legal trails are build by, or under the guidance of an experienced trail-building company. Tools used in trail building include chainsaws, pulaskis, mattocks, shovels, tooth and fan rakes, hammers, buckets, 4" and 6" nails, and loppers. Some trails are proposed as machine-build, using a small excavator to further create especially enjoyable rides in a more efficient manner.

Mountain-bike trails will be constructed with the full range of trail difficulty ratings and will be designed to offer the rider a fun, flowing trail that has been built with safety in mind. These trails will be built to last, to shed water, and to require as little maintenance as possible. They will follow IMBA and Whistler Trail Standards. Constructed technical trail features (TTF's) are not a huge priority; however, many small bridges to cross creeks, ravines and wet areas will be required.

Trail concept planning is the first step in recreational trail development. This document takes the following factors into account:

- user group requirements;
- recreation features (including landscape features and existing recreation facilities);
- management requirements; and
- anticipated needs for trail construction and maintenance.

The Canadian Parks Service' Trail manual suggest the following questions be asked prior to any trail development:

- what is the desired level of use?
- what will be the extent of detrimental impact upon the environment? and
- is this level of impact acceptable?

We carefully evaluated the environmental conditions along the proposed trail routes and consider the level of impact fully acceptable. Vegetation, topography, natural features, drainage, soil type, elevation, access, current public use and anticipated future development have been taken into account.

The Village of Ashcroft subscribes to the highest environmental stewardship standards. This includes all stream crossings, as described in 2.2.2

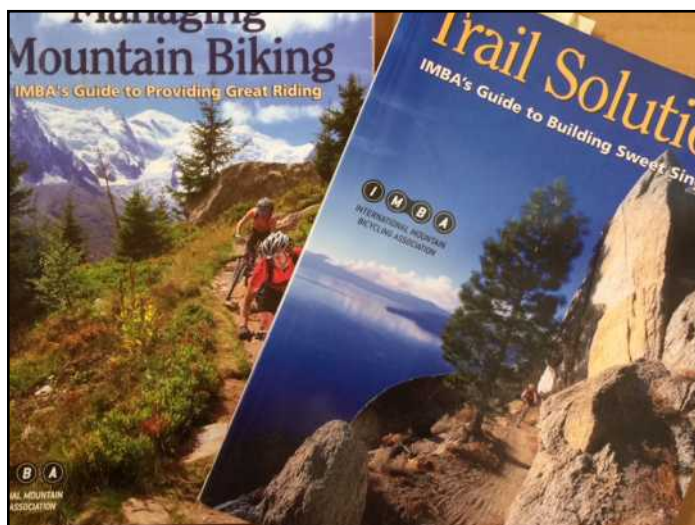


Image: Both, IMBA's "Trail Solution" and "Managing Mountain Biking", are an excellent resource for volunteer and professional trail builders. While aimed at MTB trail construction, the same principles apply to multi-use trail development



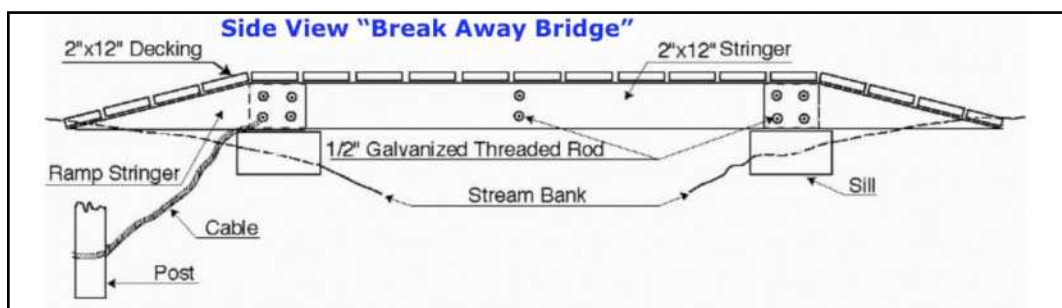
## 2.2.1 WATER CROSSINGS

Many of the proposed new trails, especially the hiking, biking and multi-use trails surrounding the Ashcroft, demand some sort of water crossings. Because of the environmental effects possible with water crossings, careful planning and environmental approvals are a must before work is carried out. Five main options are available when dealing with water crossings. The most expensive and involved is an engineered bridge. The bridge can be constructed from wood or metal or a combination of both. Bridge loads can be high and the engineered bridges can handle a high traffic volume. At this point, we see no need for engineered bridges within the proposed trail networks. Bridges using dimensional lumber or heavy log stringers can be used where smaller spans are required and/or traffic is restricted to non-motorized use. Span length dictates the stringer size and type. Stringer length

must be determined by the crossing width at high water with additional length added to clear the edge of the stream or creek and to allow for cribbing on both sides. Cedar logs need to have a larger diameter due to its softer wood. Culverts are another water crossing method in low volume water flow scenarios. Careful consideration must be given to the correct culvert size and culvert placement, as culverts have a tendency to plug up or wash out. The so-called French Drain water crossing can be built where low flow streams or spring run-off creeks must be crossed. large rocks are placed in the creek bottom, covered with layers of smaller rocks and mineral soil. This creates a water flow-through effect preventing washouts. The simplest form of a stream or creek crossing is the in-stream crossing. The entrance and exit of the crossing must be angled and hardened to prevent erosion.

### Preferred Bridge Construction Method for Trail Networks

A so called “Break-Away-Bridge” is the preferred method for creeks and streams in the Ashcroft area, that are prone to flooding. This bridge is designed to stand independently of the sills. Sills can be made of concrete or pressure treated 12”x12” beams. Sills should be anchored by rebar to avoid relocation when flooding occurs. A galvanized aircraft cable (rated double the bridge weight) is used to secure the bridge to one or two anchor trees. The on- and off- ramps extend into the existing grade to make the transition smooth. A bridge width of 4 feet meets the construction standard, but a 6 feet width is recommended, due to wet conditions in the area.



Example of Break Away Bridge Construction

## Seven main options are possible when dealing with water crossing :

Engineered bridge: the most expensive ones. Bridges can be constructed from wood or metal or a combination of both. Bridge loads can be high and can handle highest traffic volume

In-stream crossing: the simplest form (the entrance and exit of the crossing must be angled and hardened to prevent erosion)

Culvert: for low volume water flow scenarios. Careful consideration must be given to the correct culvert size and placement, as culvert has a tendency to plug up or wash out

The French-Drain: can be built where low flow streams or spring run-off creeks must be crossed. Large rocks are placed in the creek bottom, covered with layers of smaller rocks and mineral soil. This create a water flow-through effect preventing washouts

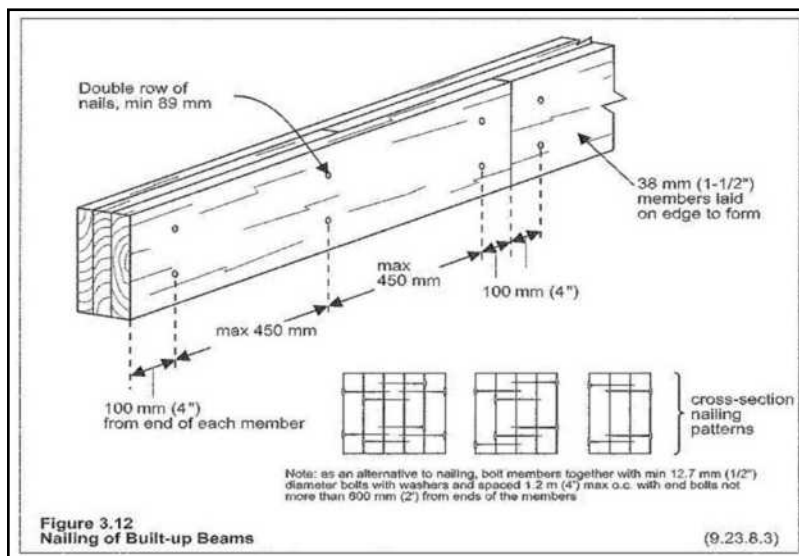
Break-away-bridge: fixed with a steel cable to a rock or a tree to hold up the bridge during springs' high water volume

Log stringers bridge: made from « on-site » materials

Dimensional lumbers bridge: made from cut to size and square beams and boards.

This type of bridge can be used where smaller spans are required and/or traffic is restricted to non-motorized use. Span length dictates the stringer size and type. Stringer length must be determined by the crossing width at high water with additional length added to clear the edge of the stream or creek and to allow for cribbing on both sides.

Sometimes the overall span of the bridge makes the stringers too long to transport and difficult to find custom cut. The solution is be to make them on-site with 2" x 10" boards by laminating them, as shown in the image below.



### Example of Laminated Bridge Stringers

Material needed: beams, board, nails, decking screws and adhesive.

The material will have to be brought on site. As the stringer can be very heavy, we recommend to use an ATV with a steel log skate (photo below), where more conventional methods of transportation are not feasible.





Example of Multi-Use Bridge Construction By First Journey Consulting Crews



## 3 PROPOSED TRAIL CONSTRUCTION PRINCIPLES

### 3.1 UNDERSTANDING AND RESPONDING TO PUBLIC DEMAND

“Increasingly people are requiring more outdoor recreational opportunities on a finite base of public lands, and land managers and policy makers must have credible information in order to make responsible sustainable use decisions.”<sup>9</sup>

Trail use does not work in a vacuum. We develop, maintain and plan with input from a variety of user groups. This allows and encourages users to identify new opportunities. Trails need to have a value or a significant attribute attached to give the rider a meaningful experience. Attributes considered in this document are scenery, accessibility, connectivity and the riding/hiking/running/walking experience. We know users are looking for scenic trails and vistas. There is no shortage of potential for scenic trails in the Ashcroft area.

Accessibility is another major consideration and all proposed trails and trail networks are within a 15 minute drive from accommodation providers and major services. The riding experience will be enhanced by creating professionally built trails with a variety of skill levels in mind.

Amenities are important in providing a positive experience. Kiosks, washrooms, and parking should be considered. Kiosks should feature maps, trail etiquette, trail closures, work in progress and current notices. Signage should be in place not only on the trails, but on major roadways and junctions leading to the trails. Paper maps are being replaced by easy-to-update phone apps (i.e. Trailforks) or downloadable maps, but there still is a need to provide simple trail maps at visitor info centers, bike shops, and accommodation providers.

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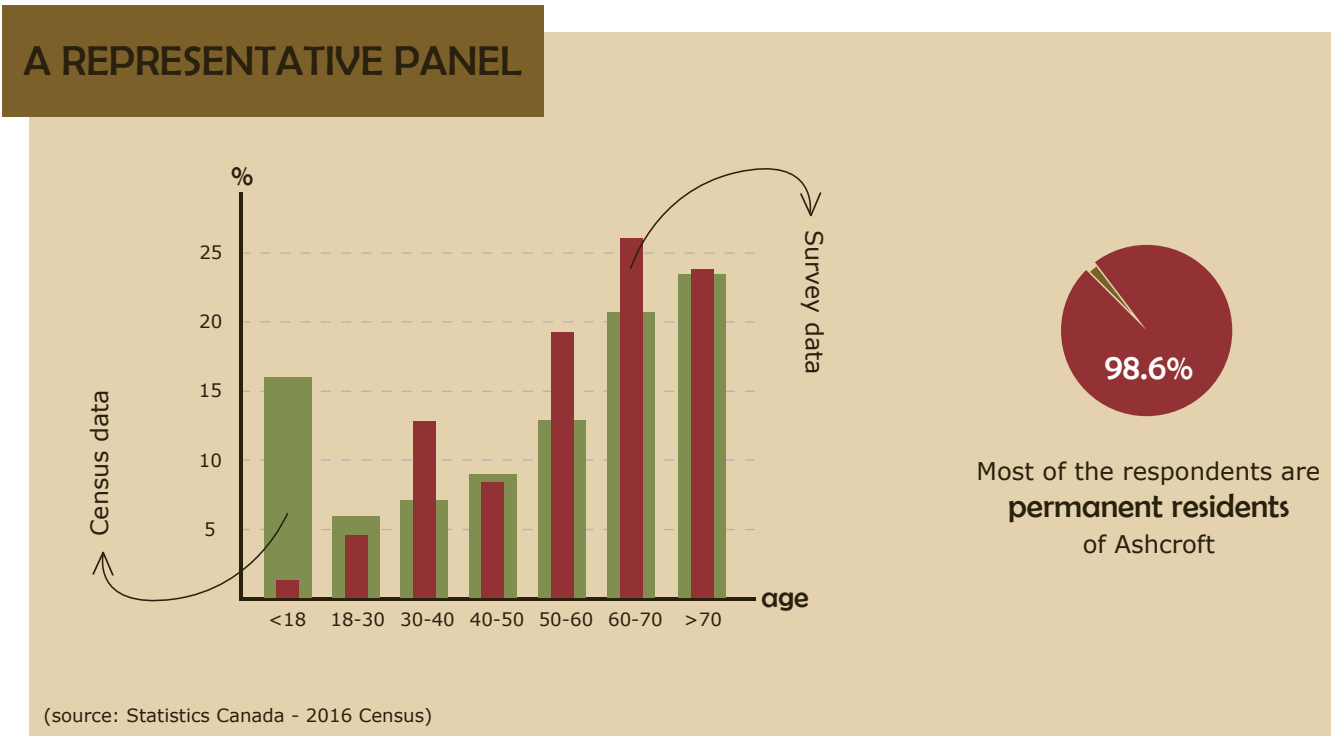
<sup>9</sup> <sup>9</sup>Planning and Managing Environmentally Friendly Mountain Bike Trails, Dr. Pam Foti, Northern Arizona University



### 3.2 ESTABLISHING A COMMUNITY TRAILS VISION

The development of safe and functional multi-use trails for recreation and commuting needs to be based on a vision supported by the community at large. With help from the Ashcroft Trail Advisory Group and input collected during an extensive online survey process, a trails vision was established.

The following infographics display the highlights collected during the stakeholder input process:



Infographic: Representation

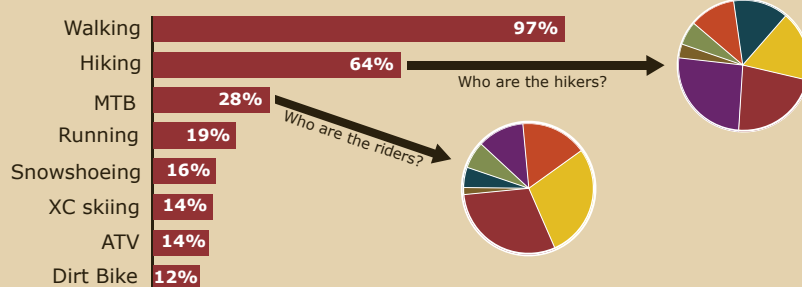
Note: Detailed online survey responses are covered in section 3.3 of this document.





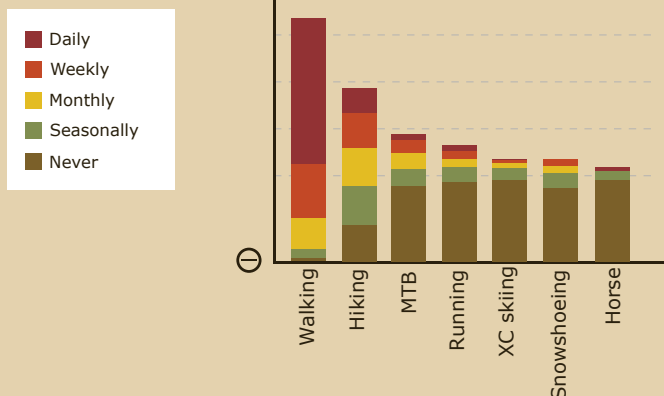
## AN ACTIVE POPULATION

### Trail-based activities participation

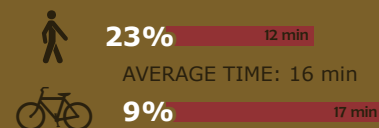


+ wheelchair, road bike, camping, dog walking, geocaching, photography, E-bike, gold panning, horseback riding...

### Frequency



### Users and time of transportation



60%

of the respondents would walk/bike to work if there were trails that allowed for safer routes

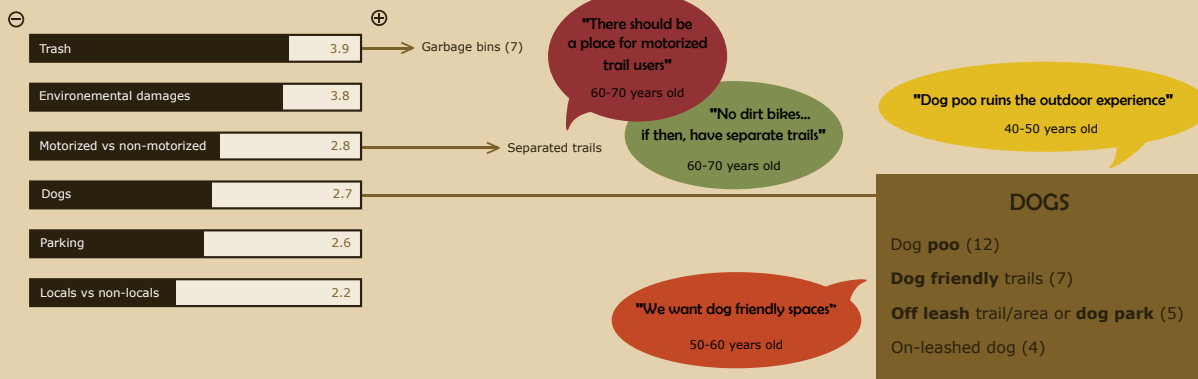
WORK COMMUTING

Infographic: Ashcroft's Active Population

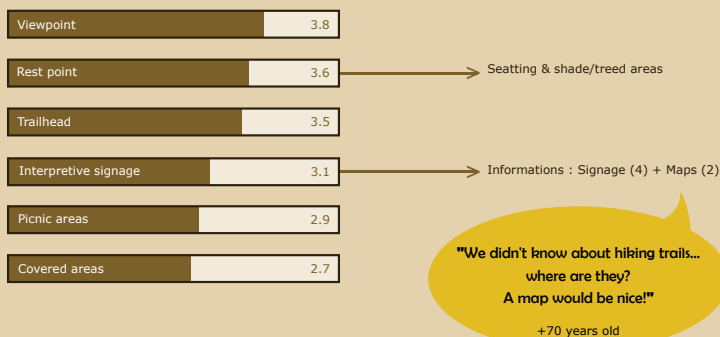
## THE POPULATION'S OPINIONS

70 respondents (32%) expressed at least 1 comment

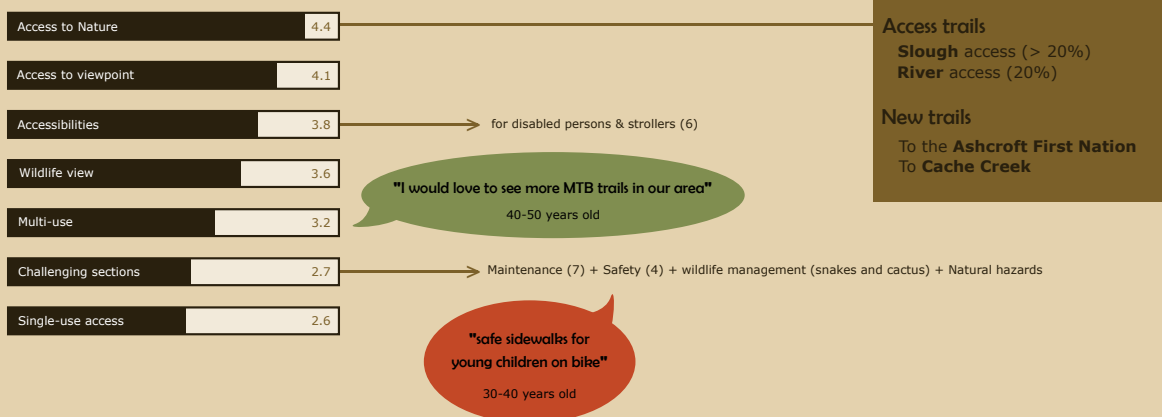
### Concerns



### Trail infrastructures



### Trail aspects



Infographic: Opinions And Input



### 3.2.1 STAKEHOLDER INPUT REPRESENTATIVES

#### Ashcroft Off-Road Cycling Association (AORCA)

Founded in 2021, AORCA's membership is steadily growing and now has 26 members. Travis Storkon, AORCA President & volunteers are exploring future mountain bike development and potential partnership agreements with the Village of Ashcroft and the Ashcroft First Nation.

#### Ashcroft Slough Society

The Ashcroft Slough Society has a current membership of 114 (April, 2021). The grassroots Society is made up of user groups dedicated to re-gaining access to the Ashcroft Slough area<sup>10</sup>. They are advocating for one safe legal access, to replace the three access points historically used, on Evan's road north east of Ashcroft BC. The Society's mission statement declares:

*"The purpose of the Society is to work with stakeholders having an interest, whether it be recreational, cultural, social, artistic, ecological, geological, spiritual, historical or economical, in obtaining safe and legal pedestrian access to the area known as the Ashcroft Slough and sharing the space with all stakeholders."*

#### Ashcroft Pathways to Wellness Task Force

The Ashcroft Pathways to Wellness Task Force is made up of a small group of local volunteers who support Jim Duncan's plan of establishing an official walking trail along Evans Road<sup>11</sup>.

#### Ashcroft HUB

The Ashcroft HUB is an enterprising non-profit society with a mission to reduce the rural population decline by providing more opportunities for wellness, recreation and the arts. Their facility includes a commercial gym, a full-sized gymnasium, a theatre stage, fitness studios & meeting/training rooms. The HUB offers a wide variety of recreational, wellness & arts programs, events & services. The HUB's mission is to: *"Provide a public amenity by operating and maintaining a multi-use recreational facility for the community of Ashcroft; and to undertake activities ancillary and incidental to the attainment of the above mentioned charitable purpose."*

<sup>10</sup> 4.2 Ashcroft Slough Access Trail

<sup>11</sup> 4.1 Ashcroft River Path



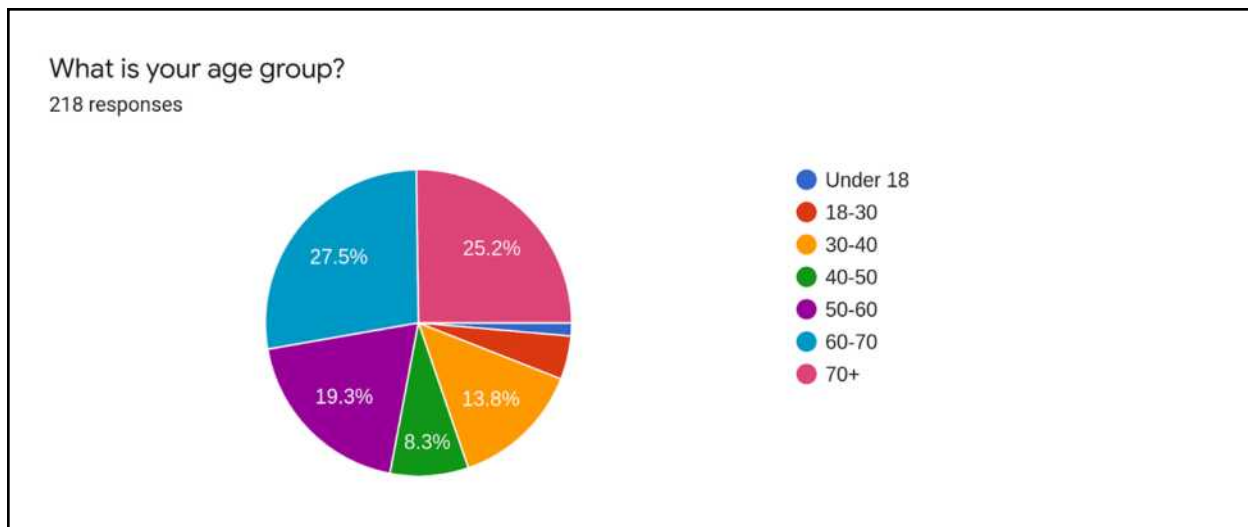


### 3.3 SURVEY RESPONSES

In addition to in-person meetings, person-to-person phone conversations and stakeholder meetings, an online survey was developed. This survey was open to the general public and inquired about how people use the area trails, what features or amenities they would like to see added, how often they use trails and pathways and more.

The online survey was kept open for three months, and collected 219 responses. This figure represents almost 14% of the Village's population. A summary of these responses is provided below. (The full results of the survey are provided in the appendix.)

#### Respondent Descriptive Statistics:

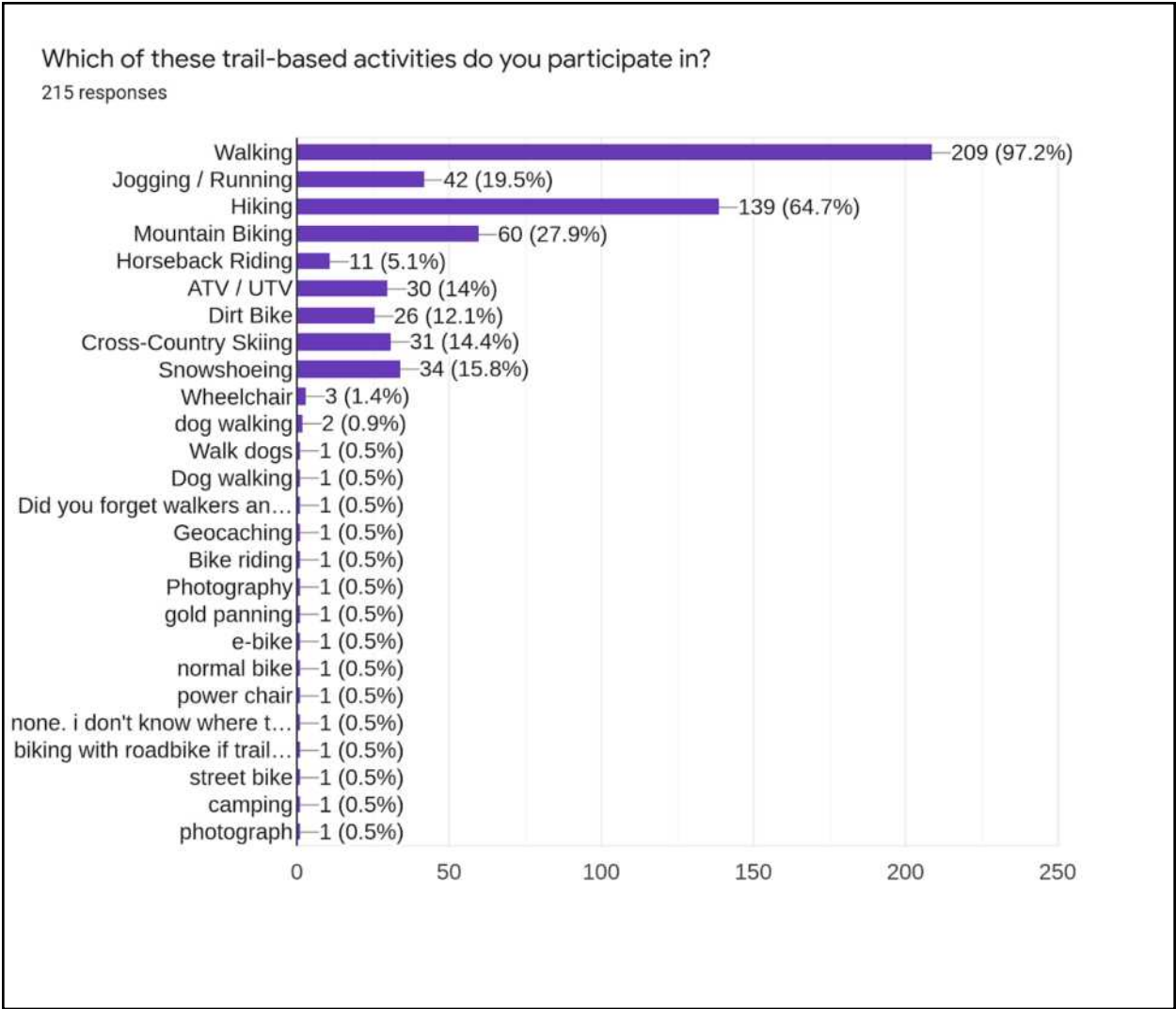


- 219 Respondents
- Average time residing in Ashcroft - 48 Years
- Average number of people under 18 in household - .5
- Average number of people over 18 in household - 1.8



**Resident Activity Participation:**

The top activities for respondents and households were the same - Walking, Hiking, Mountain Biking, Jogging/Running (in order of popularity).



### Active Transportation:

- 35 (9.6%) Respondents walk to work
- 18 (18.9%) Respondents ride to work
- Average active commute was 14 minutes.
- 84 (60.4%) respondents said they would walk or ride to work if there were safer routes (trails and/or pathways).
- The preferred active transportation time is less than 30 minutes.



### Activity Frequency:

Walking (4.2 x Per Week) and Hiking (2.8 x Per Week) are the non-motorized trail activities with the highest weekly participation rate. Jogging/Running (1.6 x Per Week) and Mountain Biking (1.8 x Per Week) are the non-motorized trail activities with the next highest weekly participation rates.

### Concerns About Trails:

Trash and Damage to the natural environment are the two top concerns among respondents regarding trail development. However the greatest number of comments were concerning dogs and trails (both dog friendly trails and dog excrement on trails were mentioned numerous times).

### Trail Facilities:

Respondents were strongly in favour of interpretive signage, rest points (benches, seating), viewpoints/ outlooks, and developed trailheads (parking areas, washrooms, etc.). In the comments access to the river and dog friendly trails were mentioned numerous times.

### Trail Features:

The most sought after trail features by respondents are access to views, access to nature, wildlife viewing and accessibility. Access to the river was mentioned in the comments multiple times.





## 3.4 AREA ASSESSMENT CRITERIA

The review of existing conditions in the area of Ashcroft was conducted throughout 2021 and included:

- Reviewing maps of existing trails to understand the current use pattern.
- Walking/hiking the existing trails to become familiar with opportunities and constraints.
- Field work to better understand environmental and industry concerns.

In addition, the consultants took trail braiding, water drainage, private property and the effectiveness of trails within the larger network context, into consideration.

### AREA SIZE

The area surveyed for future trail development is approximately 60 square kilometers with a perimeter of 32 kilometers.

### ASPECT

In the northern hemisphere south facing slopes are the most ideal for trail construction and trail usage. Aspect is less of a concern in the Ashcroft area, with less precipitation and wide open landscapes in the area.

### SLOPE ANALYSIS

Steep slopes and unstable soils make trail development difficult and costly. Limitations due to unfavourable slopes need to be addressed and taken into account. While the ideal slope range for recreational trail development is between 15% and 30%, many potential trail development zones exceed 70%. Typically attempting to construct sustainable trails on slopes of grade are far too costly or not long term sustainable.

### LANDSCAPE VARIETY

Ashcroft's landscape is dominated by river valleys, bench lands and terraces.

### SOIL QUALITY

Soil texture is determined by the proportion of sand, silt, and clay present in the soil. Soils fall into a textural class defined by the Canadian System of Soil Classification depending on their composition of these mineral particles.

A soil's texture is an important property used to describe a soil because it influences many other soil features. Water holding capacity and infiltration, soil structure, and fertility are among the many features influenced by soil texture.

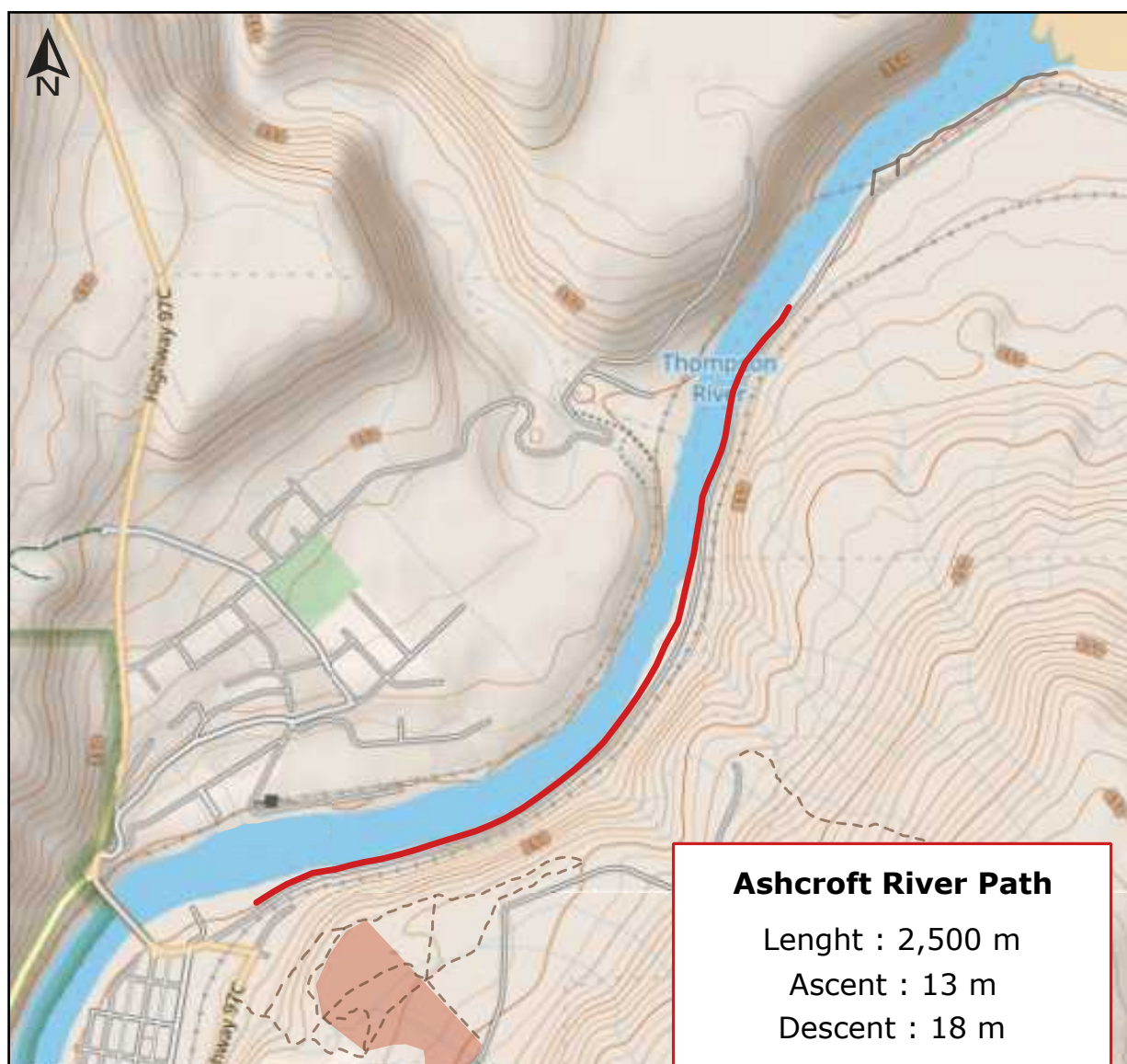
In the Ashcroft area, soils are mostly loam, silt loam or sandy loam. Some well drained areas tend to have more loamy sand while rapidly drained areas (steep slopes) tend to have more sandy loam.



## 4 PROPOSED TRAIL CONSTRUCTION

### 4.1 ASHCROFT RIVER PATH

Much has been discussed when it comes to what is locally referred to as the Ashcroft River Path. Development of this proposed pathway is spearheaded by Ashcroft local, Mr. Jim Duncan, as a connector trail to the popular Thompson River slough area and as a scenic view trail.



Proposed Route of the *Ashcroft River Path*



In 2015 the Ashcroft Village Council voted down the notion of a pathway along Evans Road at their April 13th meeting. Council acknowledged that the road is barely wide enough for the vehicles using it. Therefore creating a trail easement by narrowing Evans Road is not an option.

In an article in the Ashcroft-Cache Creek Journal<sup>12</sup>, former Mayor Jack Jeyes, who is also a retired Ministry of Transportation manager, states:

“There are a number of things that need to happen in order to have a proper walkway. There is no consistent shoulder width, he pointed out. “People think there’s enough room but it’s actually quite narrow.”

Fencing would need to line the river side of the walkway and between that and the cement barricades, there would barely be enough room to walk: in some places there would be no room to walk.

“The costing for something like this is beyond us to build it the way the Village would be required to build it,” he said.

The consultants have carefully evaluated Mr. Duncan’s proposal and have to agree with former Mayor Jeyes’ evaluation. The following *Pro Et Contra*’s have been taken into consideration:

Ashcroft River path	
PROS	CONS
Access to the river & recreational areas	Engineering study needed
Safe walkway as an alternative to Evans Road	High per meter cost for construction budget
Scenic path overlooking the Thompson River	Narrow, unstable shoulder between Evans road and Thompson River
Local volunteer group is spearheading the development (community-driven)	Safety fencing needed for up to 50% of the pathway creating a restricted corridor
Some work completed by volunteers (including benches and portable toilets)	High traffic volume makes pathway unattractive for visitors
Opportunity to plant trees, create shade and stabilize the river bank	Requires excessive amount of concrete cribbing to build up path width and stabilize
Local desire for more trails & pathways	

<sup>12</sup> <https://www.ashcroftcachecreekjournal.com/news/ashcroft-votes-against-evans-rd-walking-trail/>





It is important to highlight the community support for the Ashcroft River Path. A letter of support, dated April 27, 2021, from the Ashcroft Slough Society, expressed the groups support.

Dear Working Group for the Trails Master Plan:

I am writing on behalf of the Ashcroft Slough Society with regards to providing further input for the Working Group responsible for the strategic priority related to the Trails Master Plan.

The Ashcroft Slough Society has a current membership of 114 members. Many of our members walk and cycle regularly or hike around the area. As a group we are keenly interested in having the Village develop a riverine pathway that follows Evans Road along the majestic Thompson River.

To that end, the executive of the Ashcroft Slough Society adopted a motion:

"That the Ashcroft Slough Society strongly endorses the inclusion of a multi-purpose pathway along Evans Road in the Village of Ashcroft's Master Trail Plan for the enjoyment of the public."

Thank you for the opportunity for households to complete an Ashcroft Trail Planning Survey and to also add written comments for consideration.

I hope that the planning consultants will weigh the interest in such a pathway according to the number of individual members we represent.

The Ashcroft Slough Society looks forward to hearing back from you.

Yours truly,  
Dora Winwood, Secretary of the Ashcroft Slough Society

#### ASHCROFT SLOUGH SOCIETY LETTER TO THE TRAIL WORKING GROUP

Additional comments, both PRO and CONTRA have been received through the online community survey and in conversations with Ashcroft locals. Some highlight the importance of this proposed pathway, others comment on the heavy traffic and narrow shoulder. The consultants agree with all reasons brought forward as to why this trail would be a huge community asset. The suggested construction techniques/methods are simply not implementable and cost is prohibitively expensive.




	Description	Comments/Action
ARP 1	<p> <small>           Date &amp; Time: Sun, Sep 21, 2021, 11:48:00 AM            Position: 43.6789° N, 121°16.3477' W (50m)            Altitude: 271m (+3.0m)            Datum: WGS-84            Azimuth Bearing: 085° N085° 341m (+3.0m)            Elevation Grade: +00%            Horizontal Scale: 100%            Zoom: 100%         </small> </p>	<p>N50°43.6789' W121°16.3477'</p> <p>210 m from trailhead west</p> <p>Existing path with a trail tread width of 12"; solid gravelled tread; 45° sloped bank; no space for trail expansion;</p>
ARP 2	<p> <small>           Date &amp; Time: Sun, Sep 21, 2021, 11:48:00 AM            Position: 43.6780° N, 121°16.3573' W (50m)            Altitude: 269m (+3.0m)            Datum: WGS-84            Azimuth Bearing: 085° N085° 341m (+3.0m)            Elevation Grade: +00%            Horizontal Scale: 100%            Zoom: 100%         </small> </p>	<p>N50°43.6780' W121°16.3573'</p> <p>210 m from trailhead west</p> <p>Same location as above, looking west. Existing path with a trail tread width of 12"; solid gravelled tread; 45° sloped bank; no space for trail expansion;</p>
ARP 3	<p> <small>           Date &amp; Time: Sun, Sep 21, 2021, 11:48:00 AM            Position: 43.6810° N, 121°16.3481' W (50m)            Altitude: 294m (+3.0m)            Datum: WGS-84            Azimuth Bearing: 085° N085° 341m (+3.0m)            Elevation Grade: +00%            Horizontal Scale: 100%            Zoom: 100%         </small> </p>	<p>N50°43.6810' W121°16.3481'</p> <p>240 m from trailhead west</p> <p>Existing path with a trail tread width of 12"; solid gravelled tread; 45° sloped bank; very narrow space for trail expansion; high risk of trail erosion;</p>






	Description	Comments/Action
ARP 4	<p>Track Time: Sun Sep 06, 2021, 11:07:00 PCT  Position: 650.423827N / 121°16.0634' W  Altitude: 301m (+3.0m)  Datum: WGS-84  Azimuth/Bearing: 263° 58' 53" W  Elevation Grade: +004%  Horizon Grade: -001%  Zoom: 1.0x</p>	<p>N50°43.7267' W121°16.0634'</p> <p>560 m from trailhead west</p> <p>Existing path with a trail tread width of 12"; solid gravelled tread; 45° sloped bank; very narrow space for trail expansion; high risk of trail erosion;</p>
ARP 5	<p>Track Time: Sun Sep 06, 2021, 11:07:00 PCT  Position: 650.423827N / 121°15.8519' W  Altitude: 301m (+3.0m)  Datum: WGS-84  Azimuth/Bearing: 263° 58' 53" W  Elevation Grade: +004%  Horizon Grade: -001%  Zoom: 1.0x</p>	<p>N50°43.8036' W121°15.8519'</p> <p>910 m from trailhead west</p> <p>Existing path with a trail tread width of 12"; solid but overgrown gravelled tread; 30° sloped bank; less narrow space; less risk of trail erosion; existing bench;</p>
ARP 6	<p>Date: Sun, Sep 06, 2021, 11:07:00 PCT  Position: 650.423827N / 121°15.8524' W  Altitude: 301m (+3.0m)  Datum: WGS-84  Azimuth/Bearing: 263° 58' 53" W  Elevation Grade: +004%  Horizon Grade: -001%  Zoom: 1.0x</p>	<p>N50°43.8032' W121°15.8524'</p> <p>910 m from trailhead west</p> <p>Same location as above looking west. Existing path with a trail tread width of 12"; solid but overgrown gravelled tread; 30° sloped bank; less narrow space; less risk of trail erosion; existing bench;</p>



	Description	Comments/Action
ARP 7	<p>Photo &amp; Thermal Scan, Sep 06, 2021, 11:02:39 PST Position: 43.8382°N / 121°15.7759°W (satellite) Altitude: 302m ± 3.0m Datum: WGS-84 Azimuth Bearing: 204° S24W 3662mils True (+10°) Elevation Grade: -007° Horizontal Grade: -000° Zoom: 1.0X</p> 	<p>N50°43.8382' W121°15.7759'</p> <p>1005 m from trailhead west</p> <p>Drainage tunnel exiting towards Evans Road and leading to drainage culvert.</p>
ARP 8	<p>Photo &amp; Thermal Scan, Sep 06, 2021, 11:04:04 PST Position: 43.8364°N / 121°15.7814°W (satellite) Altitude: 302m ± 3.0m Datum: WGS-84 Azimuth Bearing: 204° S24W 3662mils True (+10°) Elevation Grade: -007° Horizontal Grade: -000° Zoom: 1.0X</p> 	<p>N50°43.8364' W121°15.7814'</p> <p>1005 m from trailhead west</p> <p>Drainage culvert; Existing path with a trail tread width of 12"; solid gravelled tread; 45° sloped bank; very narrow space for trail expansion; high risk of trail erosion;</p>
ARP 9	<p>Photo &amp; Thermal Scan, Sep 06, 2021, 11:04:51 PST Position: 43.8936°N / 121°15.6871°W (satellite) Altitude: 302m ± 3.0m Datum: WGS-84 Azimuth Bearing: 204° S24W 3662mils True (+10°) Elevation Grade: -007° Horizontal Grade: -000° Zoom: 1.0X</p> 	<p>N50°43.8936' W121°15.6871'</p> <p>1200 m from trailhead west</p> <p>No highway barriers in place; No path; 45° sloped bank; very narrow space for trail expansion; high risk of trail erosion;</p>

	Description	Comments/Action
ARP 10		<p>N50°44.0229' W121°15.5585'</p> <p>1400 m from trailhead west</p> <p>Drainage tunnel under Evans Road leading to narrow, open drainage channel; would require bridge construction for pathway;</p>
ARP 11		<p>N50°44.0900' W121°15.5099'</p> <p>1600 m from trailhead west</p> <p>Existing table/bench combination; vehicle pull-out with a much wider area for potential development;</p>
ARP 12		<p>N50°44.3081' W121°15.4376'</p> <p>1950 m from trailhead west</p> <p>No path; 45° sloped bank; very narrow space; highway concrete barrier in place;</p>



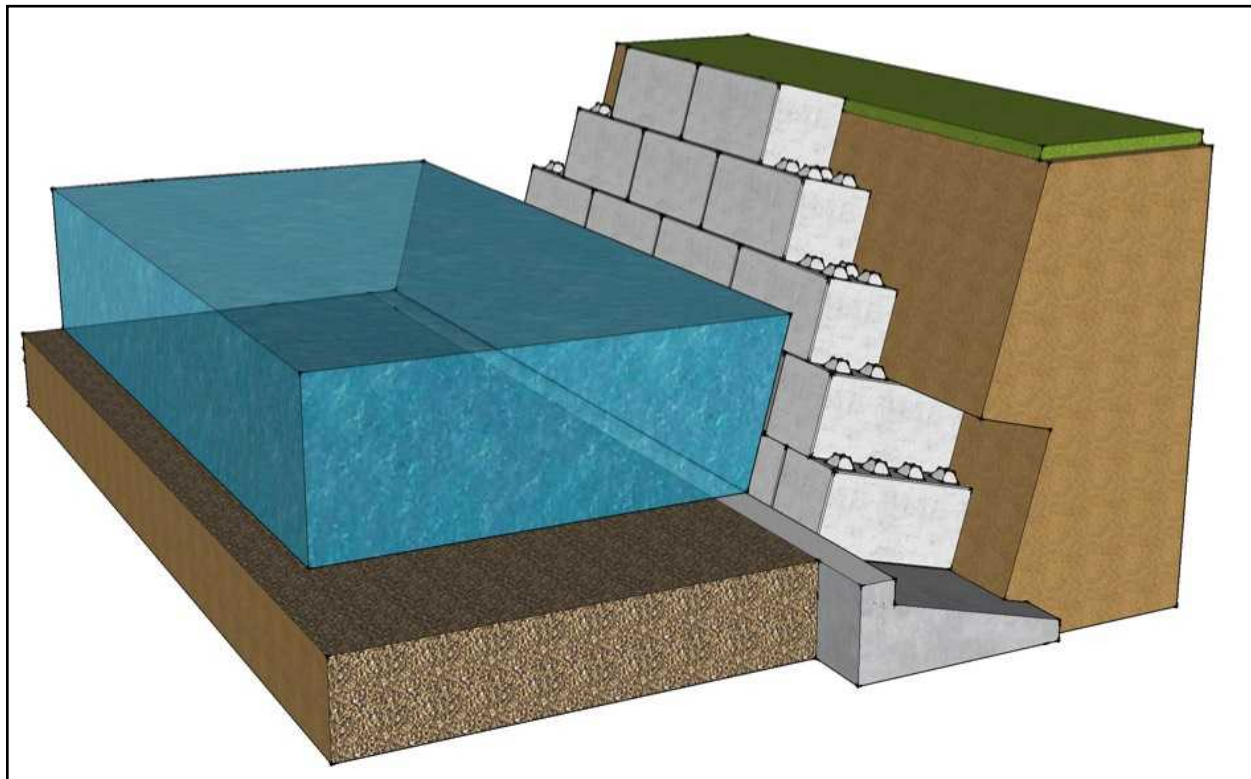
	Description	Comments/Action
ARP 13	<p>Date &amp; Time: Sat, Sep 26, 2020, 11:58:01 PDT  Position: 44.3065° N / 121° 15.4372° W (12.0m)  Altitude: 8250m (26.9m)  Datum: WGS-84  Azimuth Bearing: 081° S79E 1796mils True (±10°)  Elevation Grade: -005°  Horizon Grade: -005°  Zoom: 1.0x</p> 	<p>N50°44.3065' W121°15.4372'</p> <p>1950 m from trailhead west</p> <p>Same location as above looking west; No path; 45° sloped bank; very narrow space; highway concrete barrier in place;</p>
ARP 14	<p>Date &amp; Time: Sat, Sep 26, 2020, 12:00:00 PDT  Position: 44.6047° N / 121° 15.2000° W (8.0m)  Altitude: 8200m (26.9m)  Datum: WGS-84  Azimuth Bearing: 086° N84E 1529mils True (±10°)  Elevation Grade: -013°  Horizon Grade: -002°  Zoom: 1.0x</p> 	<p>N50°44.6047' W121°15.2000'</p> <p>2400 m from trailhead west</p> <p>Approx. 90 meters from trailhead east; boat launch parking area; existing double track;</p>
ARP 15	<p>Date &amp; Time: Sat, Sep 26, 2020, 12:00:24 PDT  Position: 44.6047° N / 121° 15.1987° W (8.0m)  Altitude: 8200m (26.9m)  Datum: WGS-84  Azimuth Bearing: 083° N83E 1470mils True (±10°)  Elevation Grade: -000°  Horizon Grade: -000°  Zoom: 1.0x</p> 	<p>N50°44.6047' W121°15.2000'</p> <p>2400 m from trailhead west</p> <p>Approx. 90 meters from trailhead east; boat launch parking area; existing double track;</p>



One option to build the proposed pathway is to create and/or widen the existing bench by constructing a retaining wall. Retaining walls are often the only option to correct problems caused by steep sidehill areas. Well built retaining walls can transform unusable inclines into usable space for trails and pathways. Despite their simple appearance, retaining walls require professional engineering.

### **Interlocking Concrete Block Retaining Wall**

A typical interlocking concrete block has the following dimensions: 160 cm x 80 cm x 80 cm.



Riverbank Legato Block Wall constructed with inclined front face

### Block Quantity Calculation

Approximately 1/2 of the proposed pathway would require a riverbank block wall to build up the area for the pathway. At seven rows in height (560 cm), with the two bottom row blocks placed side-by-side for stability, an estimated 7,000 blocks would be required. At 2021 material prices, the cost of the concrete blocks is estimated at \$1,120,000<sup>13</sup>.

### Riverbank Retaining Wall Design Considerations

There are a number of other important considerations that may affect the retaining wall design. Some of these considerations are outlined in the following sections.

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<sup>13</sup> 2021 cost of interlocking block is \$160 without delivery charge



### Drainage

Water levels within the ground and the retained fill can have a significant effect on the stability of a retaining wall. The design needs to consider the likely range of water levels and account for the associated water pressures in the calculation of retained pressures acting on the rear face of the wall.

### Flooding

Where applicable, the design flood level should be considered. In assessing the stability of the retaining wall, buoyant densities for materials below flood level should be used.

### Temporary works

In some situations, excavation may be necessary to provide adequate width for the retaining wall. This is particularly relevant when installing a wall to support an existing slope. In this case, attention should be given to providing a stable excavation which may entail the use of temporary support measures.

### Concerns

Because moisture levels in the soil near your shoreline cause an extraordinary amount of ground movement during freeze-and-thaw cycles. This makes it extremely challenging for the retaining wall to remain level and square year after year. Often retaining walls built along shorelines get worn down by wave action, which eventually causes a complete wall failure.

During the winter months, retaining walls give slowly expanding ice sheets something solid and vertical to push against. Potentially the retaining wall will lose the battle against ice jacking.

Retaining walls are very damaging to the near-shore environment. They cause wave action, which scours the riverbed, displaces bottom sediment, and creates a sterile environment devoid of life. Wall structures on a river can disrupt and destroy ecosystems of fish and other wildlife.

## **Conclusion:**

There are many factors to consider when designing a retaining wall. The interlocking block construction method may be used to create cribbing for a trail tread surface that would allow the construction of the Ashcroft River Path. Design and budget calculation are beyond what this document can address. A conservative construction budget estimate, including blocks, delivery, site excavation, road lane closure and engineering study, would be in the 2.5 million dollar range.



## 4.2 ASHCROFT SLOUGH ACCESS TRAIL

In 2008 access to the Ashcroft Slough has been eliminated. Construction began on land adjacent to the slough to establish an “Inland Port” also called the Ashcroft Terminal. The Ashcroft Terminal<sup>14</sup> is an inland port strategically located to help shippers, manufacturers and producers prepare their commodities for export or import. This around the clock operation is steadily expanding and as of today encompasses 60,000 feet of rail track and supporting infrastructure.

The Ashcroft Slough Society<sup>15</sup>, made up of user groups dedicated to re-gain access to the slough, is advocating for legal access. Three historically used access points have been closed to the public.

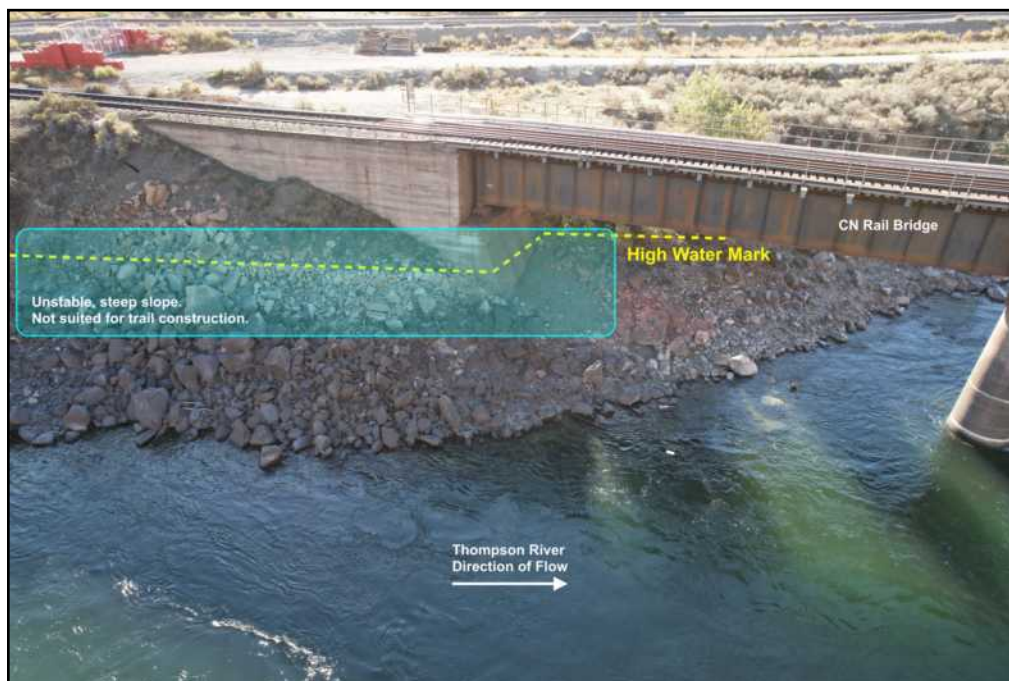
Currently two access options are being proposed. The Ashcroft Terminal (AT) suggests access from under an existing CN Rail bridge, below the high water mark. The Ashcroft Slough Society (ASS) propose an access trail that starts near the CN rail bridge and gains access via a tunnel or culvert under the existing rail track. Both options have been considered by the consultants and the following *Pro Et Contra*’s have been identified:

Ashcroft Slough Access Trail	
ASHCROFT TERMINAL	
PROS	CONS
Inexpensive	Access restricted during spring run-off and high water events
Requires minimum planning	Steep trail grade unsuited for many trail users
	Potentially illegal
	Unstable river bank creating an unsustainable trail tread
	High maintenance requirements
ASHCROFT SLOUGH SOCIETY	
PROS	CONS
Safe & legal pedestrian crossing of CN rail tracks	Easement needed for AT property trail alignment
Rail track crossing outside of Ashcroft Terminal owned property	Cost of tunnelling and engineering study
Excellent visibility adds safety	

<sup>14</sup> <https://www.ashcroftterminal.com>

<sup>15</sup> <https://ashcroftsloughsociety.com>

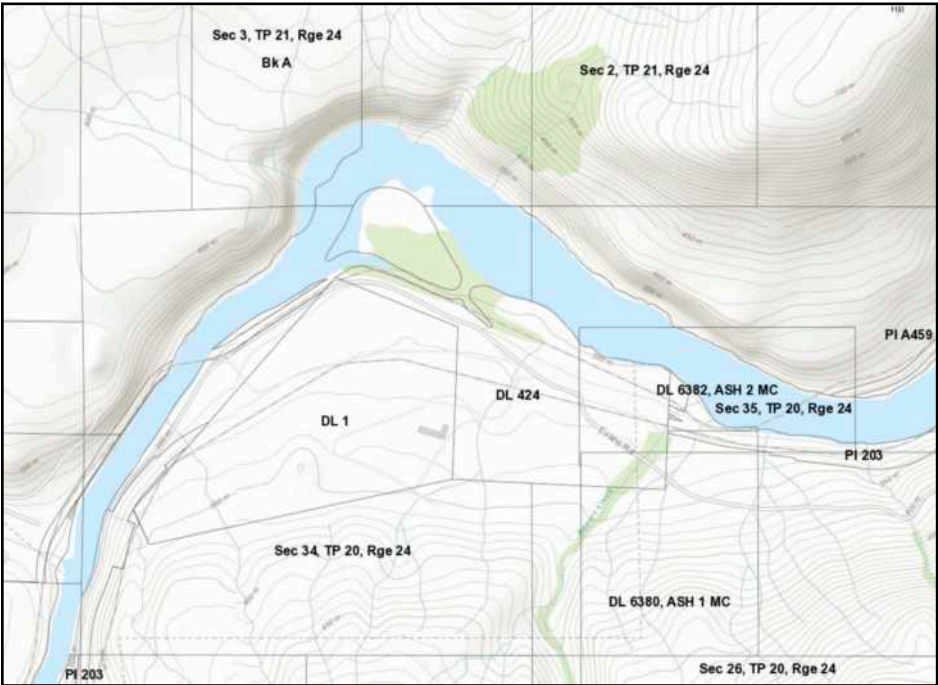




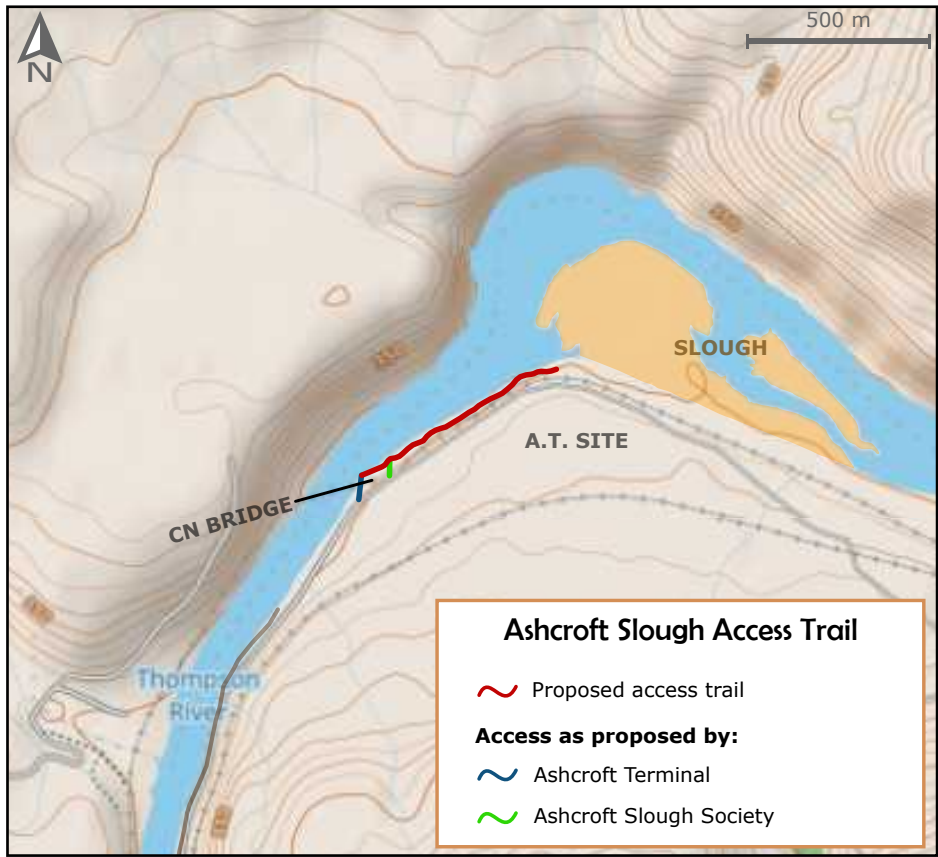
Access as Proposed by Ashcroft Terminal



Access as Proposed by Ashcroft Slough Society






Landownership as per Land Act Survey Parcels






Slough Site Overview & Proposed Access



	Description	Comments/Action
ASAT 1		CN Rail Bridge  High water during spring run-off would eliminate site access via the access option proposed by The Ashcroft Terminal.
ASAT 2	 <div> <p>Date &amp; Time: Sun, Sep 26, 2021, 12:01 PM  Position: N50°44.7343' N / 121°15.0591' W  Altitude: 301 m (989 ft)  Datum: WGS 84  Azimuth Bearing: 089° (approx. 90°)  Elevation Grade: -005  Horizon Grade: null  Zoom: 1.0x</p> </div>	N50°44.7343' W121°15.0591'  Side view of CN Rail bridge;
ASAT 3	 <div> <p>Date &amp; Time: Sun, Sep 26, 2021, 12:03 PM  Position: N50°44.7471' N / 121°15.0637' W  Altitude: 297 m (974 ft)  Datum: WGS 84  Azimuth Bearing: 083° (approx. 90°)  Elevation Grade: -003  Horizon Grade: -001  Zoom: 0.8x</p> </div>	N50°44.7471' W121°15.0637'  Steep, loose slope to the proposed pathway under the CN Rail bridge.



	Description	Comments/Action
ASAT 4		N50°44.7471' W121°15.0637'  Low water scenario under CN Rail bridge;
ASAT 5		N50°44.7471' W121°15.0637'  View from North/East end of CN Rail bridge towards the slough and proposed tunnel option;
ASAT 6		Terminal gate sign;



## 4.3 MOUNTAIN BIKE TRAILS

The potential for mountain bike specific trails in the Ashcroft area is high.

This plan recognizes industry trends and considers the needs of mountain bike trail users in British Columbia. Changing demographics result in changing trail user needs and wants. Climbing- and bidirectional- trails are becoming increasingly popular. Trail based amenities are becoming a must-have for any new network.

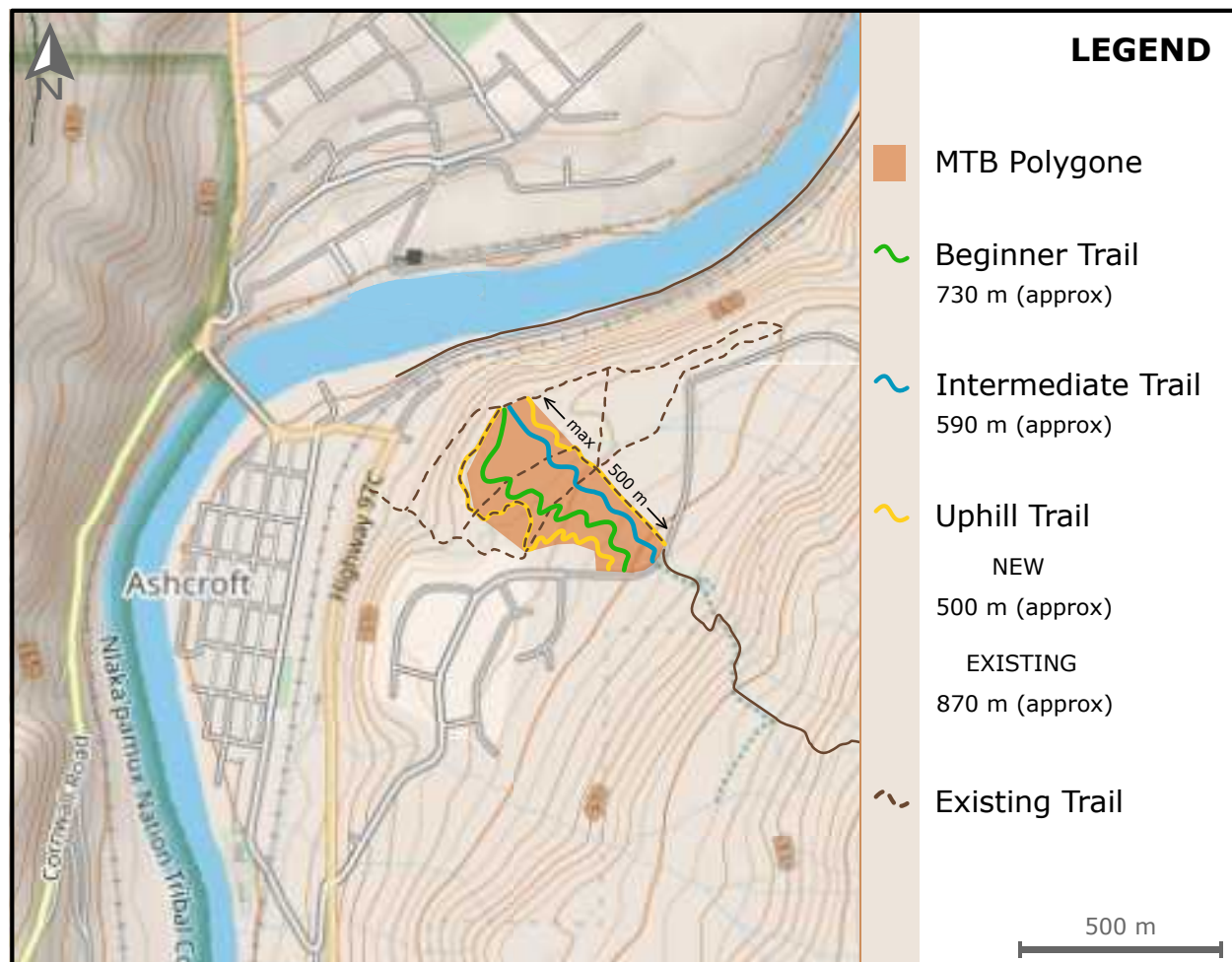
### Basic facts about the mountain bike market<sup>16</sup>

BASIC FACTS ABOUT THE MOUNTAIN BIKE MARKET	
MOUNTAIN BIKERS HAVE SPENDING POWER	Every study shows that mountain bikers have spending power. The cost of the equipment is high and travelling riders spend money on amenities.
NATURE IS THE PRIMARY MOTIVE	Nature is what gets mountain bikers motivated to ride. A great trail disconnects mountain bikers from the hustle and bustle of normal lives.
MOUNTAIN BIKERS ARE HIKERS AND SKIERS	Mountain bikers practice other sports. Favourite alternatives amongst riders are alpine skiing and hiking.
MOST MOUNTAIN BIKERS DON'T COMPETE	Competitions are great to advance the sport of mountain biking, but the racing crowd is just the tip of the MTB market and has little in common with most riders.
MOUNTAIN BIKERS ARE GETTING OLDER AND YOUNGER	The average rider is 40 years old, but the normal curve of distribution is getting flatter at its peak. More and more riders from younger and older generations are getting into the sport.
MOST MOUNTAIN BIKING DOES NOT TAKE PLACE IN THE MOUNTAINS	Most riders live in urban areas and stick to local trails. This fact offers great potential for mountain bike destinations.
THE AVERAGE MOUNTAIN BIKER IS IMAGINERY	There is no average mountain biker. The average rider as described in many studies is a purely statistical figure. New subcultures are emerging rapidly and all have different needs.
TRAILS ARE CRITICAL	While nature is the primary motivator to ride, trails are the key element of the mountain bike experience. Trails have the greatest impact on the economy of the destination.
THE MOUNTAIN BIKING SCENE IS NOT THE MARKET	The MTB scene is not representing most riders. It is crucial to the development of biking as a sport and dictates the progression of bikes and equipment. This is highly important when marketing your MTB destination.

<sup>16</sup> By Darco Cazin, Allegra Tourism

## 4.3.1 MOUNTAIN BIKE TRAIL POLYGON

AORCA, the newly founded Ashcroft Outdoor Cycling Association is proposing multi-use trail development on a gently sloped area below the Mesa Vista Drive. This relatively small, confined area is well suited for beginner and intermediate trails. Proximity to the Village of Ashcroft centre and the Mesa Vista Drive and Heustis Drive neighbourhood, make this a preferred area for new development. New trails will be build to Whistler MTB Trail standards as mountain bike trails, but are proposed as multi-use, non-motorized trails. User conflict between hikers, trail runners and mountain bikers is anticipated to be very low, however creating separate trails for mountain bike use would reduce the risk of conflict with other user groups, and if shared trails are not possible, then a level of co-education of trail users needs to be implemented. Education could be as simple as trailhead signage with shared-use information.



Mountain Bike Polygon as Proposed by AORCA





### Mountain Bike Polygon Development Area

A beginner/intermediate bike skills area could be easily incorporated within the MTB polygon area. A bike skills park can include dirt jumps, technical trail features, a flowy, fun downhill trail and a pumptrack. The park can grow over time. Construction and implementation phases need to be clearly identified within the skills park planning document. Funding and volunteer commitment are the main factors.

The need for recreational facilities for youth and adults continues to steadily rise. Bike parks are fun and healthy places for residents and visitors to get their exercise in. They support a wide age range, from toddlers on run-bikes to anyone that can still ride a bike. Bike parks can serve beginner to intermediate and expert riders, based on the design of bike park features. In many communities whole families adopt the park and make a day of the adventure.

Compared to playgrounds and traditional parks, bike parks offer an incredible value versus the budget spent on them. Well built parks become tourist draws.





Example of Beginner/Intermediate Bike Skills Park. Features include Small Table Tops, Berms and Small Jumps and Rollers.



Sample Images of Wooden TTF's (Technical Trail Features) for Beginner Mountainbikers.





## 4.3.2 EXISTING AND FUTURE MTB TRAIL DEVELOPMENT

The potential for MTB specific trails in the Ashcroft area goes well beyond the polygon proposed in Section 4.3.1. With assistance and support from the Village of Ashcroft, the newly formed AORCA, can engage with Recreation Sites & Trails BC to explore the legalization of existing trails and planning and construction of new mountain bike trails. Climate, terrain, accessibility are all favourable factors in the Ashcroft area, when it comes to MTB trail development.

We recommend a four phased approach, as outlined in the table below:

MTB TRAIL DEVELOPMENT			
Phase	Description	Term	Lead/Partners
1	<u>Mountain Bike Polygon</u> <ul style="list-style-type: none"> <li>➔ Work with AORCA and trail consultant on trail plan for the MTB polygon</li> <li>➔ Implement phased construction projects with pro-trailbuilders and AORCA volunteers</li> </ul>	IMMED (24 Months)	Partnership: Village of Ashcroft & AORCA
2	<u>MTB Trail Masterplan</u> <ul style="list-style-type: none"> <li>➔ Identify and survey final trail alignment</li> <li>➔ Construct new pathway as per trail plan</li> <li>➔ Install signage and trail amenities</li> </ul>	MED (2-5 Years)	AORCA. Village of Ashcroft
3	<u>Legalize &amp; Sign Existing Trails</u> <ul style="list-style-type: none"> <li>➔ Identify and survey existing trails</li> <li>➔ Apply for Section 56 and Section 57 (RSTBC)</li> <li>➔ Install signage and trail amenities</li> </ul>	MED (2-5 Years)	AORCA. Village of Ashcroft & RSTBC
4	<u>New Trail Construction</u> <ul style="list-style-type: none"> <li>➔ Phased trail construction as per trail plan</li> </ul>	MED (3-10 Years)	AORCA. Village of Ashcroft & RSTBC



Existing Single Track MTB Trail East of Ashcroft





## 4.4 HIKING TRAILS

The Village of Ashcroft promotes non-motorized trail use on the Village website:

"For those who like to explore by foot, there are ample opportunities for you to enjoy. What is more, because our climate is so dry, Ashcroft can be the perfect place to escape cloud and rain. Often, when it is raining elsewhere, here it is not! Please be advised that during the summer, it can be hot. It is recommended that people bring plenty of water to drink and protection from the sun. As well, visitors are reminded to watch out for cactus and the occasional rattlesnake. If you don't know where to go, just ask people around town - Ashcroft is a friendly community and residents will be happy to point you in the right direction."<sup>17</sup>

### BASIC FACTS ABOUT HIKING

HIKING CAN HELP REDUCE ANXIETY AND DEPRESSION	Hiking allows you to step away from the normal distractions of everyday life and enjoy some peace while away.
HIKING IS AMONGST THE FIVE TOP OUTDOOR ACTIVITIES	In the last few years, we've seen a large increase in the number of people that actively go hiking.
YOU GET NUMEROUS HEALTH BENEFITS FROM EVEN ONE WALK PER WEEK	Moving around and exercising for just 30 minutes each day can help with fatigue, sleep issues, creativity, and happiness levels. It may seem surprising to hear this, but being outside in nature can help both mentally and physically.
HIKING IS A VERY INEXPENSIVE ACTIVITY	There aren't too many things that are required to begin hiking. If you have a decent pair of shoes and a bottle of water, the only other thing you need to do is find a location to go. Most areas have a few places that could be perfect for hiking and exercise.
HIKING CAN IMPROVE THE OVERALL SLEEP QUALITY	The avoidance of electronics and the natural workout all work together to allow a better night of sleep after hiking.
REGULAR HIKING WILL STRENGTHEN THE HEART, LUNGS AND MUSCLES	Hiking can be an intense full-body workout in that almost every muscle will be used. You may be sore after a full day of hiking, but just know that the feeling is a good thing that is working to help keep your body and heart strong and healthy.
HIKING IS A GREAT WAY TO MEET NEW PEOPLE	Since there are so many people that enjoy hiking it's a great chance to make some new friends or hiking partners. Going to a popular trail and talking to new people is a great way to enjoy the activity and to find new locations to hike.
HIKING HELPS ELEVATE ALL SENSES	With fewer distractions to focus on every sense can be enhanced. Being on a trail will provide many chances like the smell or sight or nature to enjoy each sense.

<sup>17</sup> [Ashcroftbc.ca/trails/](http://Ashcroftbc.ca/trails/)

## 4.4.1 HIKING TRAIL DEVELOPMENT

Ashcroft is surrounded by many existing trails, with some of them featured in the *Gold Country Communities Society's* Trail Guide. Most of the existing trails, frequented by locals and visitors, are located to the east of the village centre. Barnes Lake Road, Highway 97C and the Vista Heights neighbourhood create the approximate boundary of the preferred hiking trail polygon.

Acknowledging the already extensive hiking trail network, based on population and visitation figures, no new trail construction is recommended short to mid-term. What is needed, is trail maintenance, trail improvements and trail infrastructure. Trail infrastructure (or trail amenities) encourages trail use by making the experience safe, comfortable and convenient. While amenities vary from trail to trail, they typically include benches, tables, shaded rest areas, trash receptacles, restrooms, viewing platforms and shelters. In addition, informational trail signage and trail markers are required to inform users.

The Village of Ashcroft recognizes the value of the area's trails. This is evident by promoting the trails via the community website and print publications. Ashcroft's online trail presence<sup>18</sup> is being regularly updated and maintained. Gradually improving the existing trails in partnership with trail user groups, creates opportunities that will move the whole trail network towards an even more desirable and marketable recreational asset.



Hiking Trail Development Polygon

<sup>18</sup> [https://mapping.jugaadinnovation.ca/app/tourism/tourist\\_map.php?muni=Ashcroft](https://mapping.jugaadinnovation.ca/app/tourism/tourist_map.php?muni=Ashcroft)

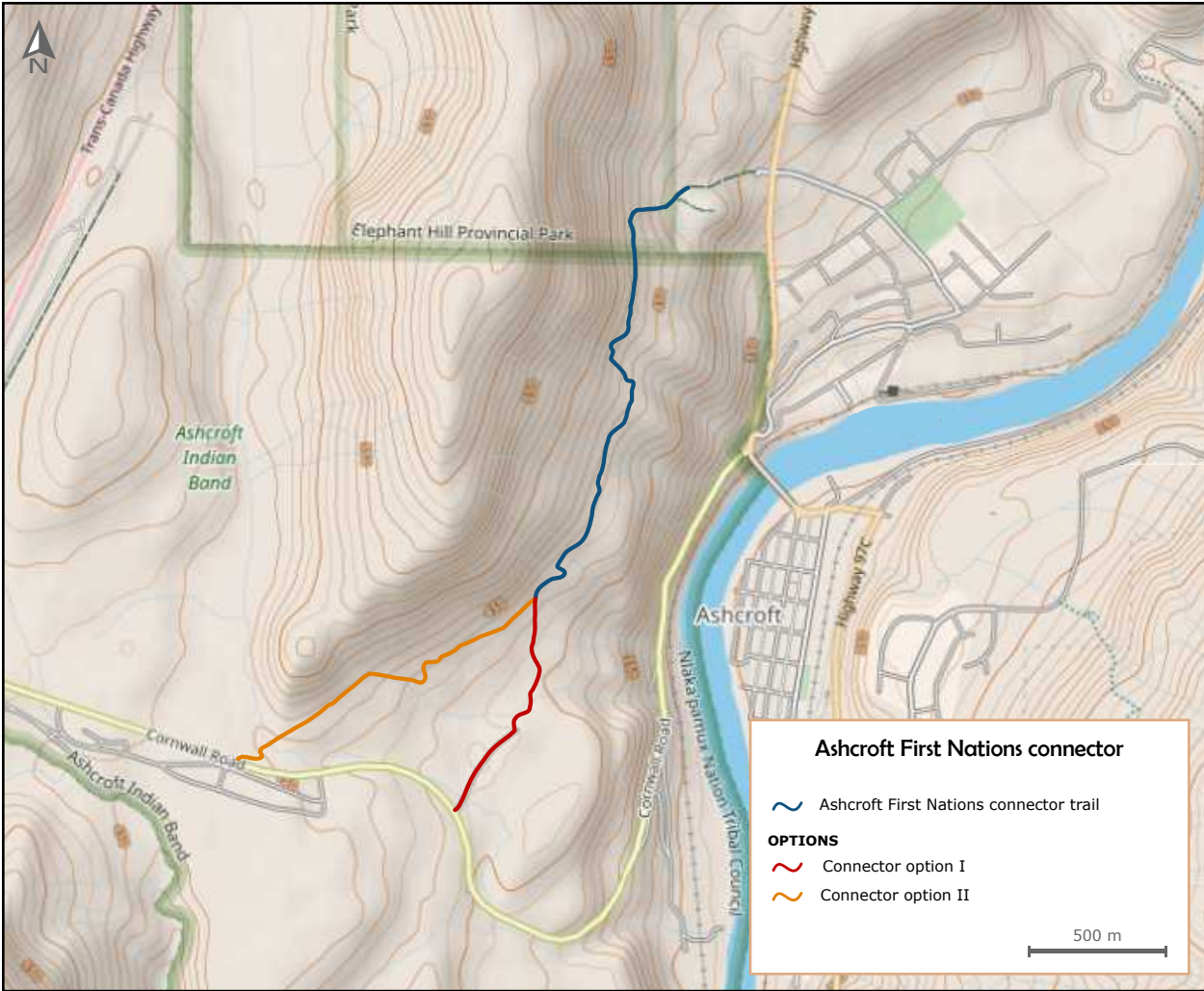




## 4.5 ASHCROFT FIRST NATION CONNECTOR TRAIL

The Ashcroft First Nation considers the safety and health and well-being of their population to be the highest priority. The community is located along Cornwall Road, a busy arterial road west of Ashcroft. Many of the Ashcroft FN members, including youth do not have access and reliable vehicle transportation and as a result they are forced to walk along the busy road which includes no walk way, lighting, and narrow shoulders and poor site lines.

The proposed trail follows an existing single-track path, that needs improvement to provide a safe and convenient alternative for the public to travel between the village and the First Nations community. As part of the design of the trail, benches and shelters for members to rest, are recommended. The route provides good sight-lines to ensure safety for different users including walkers, runners and cyclists. Two options are proposed on the southern end of the pathway, to maximize connectivity and access bench land overlooking the Thompson River.





Interpretive signs detailing the histories of the Indigenous groups that have lived in the Ashcroft area for thousands of years, will add greatly to knowledge and understanding of trail users. Acknowledging the true history of a place helps to achieve a sense of pride and protection of a recreational asset.

Signs should tell the stories of native plants and their traditional usage and highlight unique landscape features along the trail. QR codes can tell stories that incorporate the Secwépemctsin language and/or explain plants and terrain features in more detail.

Hikers, cyclists and horseback riders can discover more about the Indigenous heritage in BC's Interior and the Ashcroft area.

### Proposed Trail Type

#### TYPE II TRAIL:

- plan as surfaced single-track trail
- machine built
- remove all embedded obstacles
- use crushed limestone with fines, well compacted gravel, or existing old roadbeds
- clear width to 5.0 m
- clear height to 2.4 m
- provide 2 - 3 m tread width



Example of Interpretive Trailhead Kiosk



AFN Connector Trail



Option I & II of AFN Connector Trail





## 4.6 EQUESTRIAN TRAILS

Ashcroft offers a highly attractive landscape for equestrian activities and a number of existing businesses cater to horseback riders. From Guest Ranches to equestrian riding centers, horseback riders enjoy access to local neighbourhood trails and are in need of identifying future trail projects. Riders are encouraged to become members of horseback rider groups (e.g. Horse Council of BC, Kamloops Equestrian Society) and become involved in trail maintenance and development. The Trails Master Plan supports working with organized horseback rider groups to ensure that the interests of riders and horses are recognized in the process of trail planning and development. Equestrian use was raised during the planning process but was not a focus of discussion. Local equestrian user groups may wish to engage in specific trail development projects.

The consultants recommend the following points for the identification of future equestrian trail development:

- Trail design is for natural surface trails with a trail width of 3 to 6 feet.
- Equestrian trail use is not encouraged on trails that are prone to erosion and on trails with soft surfaces.
- Trails are expected to have a significant equestrian use level of over 25%.
- Trails will be recognized as destination equestrian trails and are expected to draw horseback riders from outside the Ashcroft area.
- Trailheads will offer supportive infrastructure such as horse-pens, truck-trailer parking and hitching rails.

### 4.6.1 ECONOMIC BENEFITS OF EQUESTRIAN TRAILS

In British Columbia 22,000 households own 95,000 horses, with a capital value of \$500 million, that live on 13,700 horse farms, using 145,000 acres of farmland, with \$2.0 Billion in buildings and equipment, supporting \$740 million in economic activity, 7,200 Full Time Equivalent (FTE) jobs, and providing \$73 million in direct government tax revenue.<sup>19</sup>

Although equine tourism is considered an important and fast growing segment in the Canadian tourism industry, it has not been extensively researched. Many factors are influencing the development of horse tourism. Horse trail availability is a great opportunity for short leisure trips, satisfying current trends in economy and society. Canadians are taking shorter vacations, such as long weekends and overnight trips in order to stay closer to home.

Horses and horse-culture are already a part of Ashcroft's identity. Planning and constructing equine specific or equine-friendly trails in the Ashcroft area, will help in reinforcing equestrian culture. Tourism packages based on horse-riding will greatly benefit from future trail development.

<sup>19</sup> Horse Council BC, 2010 Equine Industry Study





## 4.7 MOTORIZED TRAILS

The Ashcroft Master Trails Plan recognizes the significance of establishing trails for motorized and non-motorized trail users. It is important to cater to a broad variety of trail users, while managing trail user conflicts. The most significant challenge with motorized trail use is the frequent trespass onto non-motorized trails and off-trail use. Research has demonstrated that motorized uses to be substantially more impacting. This means careful planning and trail design is of a higher priority, when it comes to off-road vehicle (ORV's) trails. Construction of motorized trails is often less expensive compared to non-motorized trails.

Considerations in planning and designing motorized trails include:

### MOTORIZED TRAIL PLANNING

Provide easy access to motorized trailheads and create designated off-road vehicle parking at destinations (i.e. view points)

Design parking areas with trailer turnaround options and loading ramps

Avoid sensitive environmental areas, provincial parks and potential trail-user conflict zones

Provide clear informational signage, indicating trail use and safety concerns

Ensure sustainable trail construction

Provide soundscape buffer zones by using natural terrain features, if at all possible

Design trails with good line-of-sight

If possible, design one-way loops to avoid possible user collisions

Avoid trail intersections with non-motorized usage trails, if possible

### 4.7.1 ECONOMIC BENEFITS OF ALL-TERRAIN VEHICLE TRAILS

Development and maintenance of trails that permit off-road vehicles offers great potential. The snowmobile and ATV travel market in Canada is estimated to be 8.4% of Canadians. While sales of ATVs are on the rise, many riders lack access to appropriate places to ride. Expenditures such as food, accommodation, fuel to operate the ATV and to travel to and from the riding area contribute significantly to the local economy.

The Canadian Off-Highway Vehicle Distributors Council has released an Economic Impact Study documenting the economic impact of ATVs for the country during the year of 2015. The study shows an annual spending of \$652 to \$836 million for food and beverages in 2015<sup>20</sup>.

<sup>20</sup> [www.atymb.ca](http://www.atymb.ca)

Paid accommodation by off-road riders amounted to \$334 to \$378 million in 2015. The study shows a national total spending of \$5 to \$6,7 billion dollars in 2015, by the ATV and side-by-side users. The potential to develop a tourism product, catering to the ATV and side-by-side user groups, is significant in the Ashcroft/Cache Creek and Clinton area. Economic spinoffs are already in place and can expand as the trail system grows.

## MOTORIZED OFF ROAD VEHICLES (ORV'S)

All-terrain vehicles (ATV's)



Motorcycles (Dirtbikes)



Snowmobiles



Side-By-Sides



Four-wheel-drive vehicles





## 4.8 URBAN TRAILS & PATHWAYS

An active Ashcroft downtown area helps create an environment that fosters business growth. Ashcroft's economic sustainability is directly linked to a busy downtown core area. Trails and pathways increase the quality of life and also add to the economic prosperity of the Ashcroft downtown area.

An attractive Ashcroft downtown must be complimented by appealing entry gateways to the downtown core. Parking must be highlighted to invite visitors to explore downtown by walking.

Very moderate traffic throughout the downtown core area, invites residents and visitors to explore Ashcroft on foot. Ample parking opportunities further help in creating a "Park & Walk" scenario. Pedestrian sidewalks, in general, are wide enough to accommodate current foot traffic. The existing grid street layout makes it easy to navigate the Ashcroft downtown core, an added benefit to further increase pedestrian traffic.

Pedestrians waiting to cross downtown streets have the benefit of great sightlines for approaching vehicles. As traffic continues to grow, additional street crossings should be considered, to further improve pedestrian safety.

As Ashcroft's downtown continues to grow and evolve, increased pedestrian traffic can be expected. While pedestrians and vehicles must co-exist, future development should emphasize elements that add to a walkable environment. Balancing vehicle and pedestrian traffic in Ashcroft's downtown should be given the highest priority.

### PROPOSED TRAIL TYPE

#### TYPE II TRAIL:

- plan as surfaced single-track trail
- machine built
- remove all embedded obstacles
- use crushed limestone with fines, well compacted gravel, or existing old roadbeds
- clear width to 5.0 m
- clear height to 2.4 m
- provide 2 - 3 m tread width

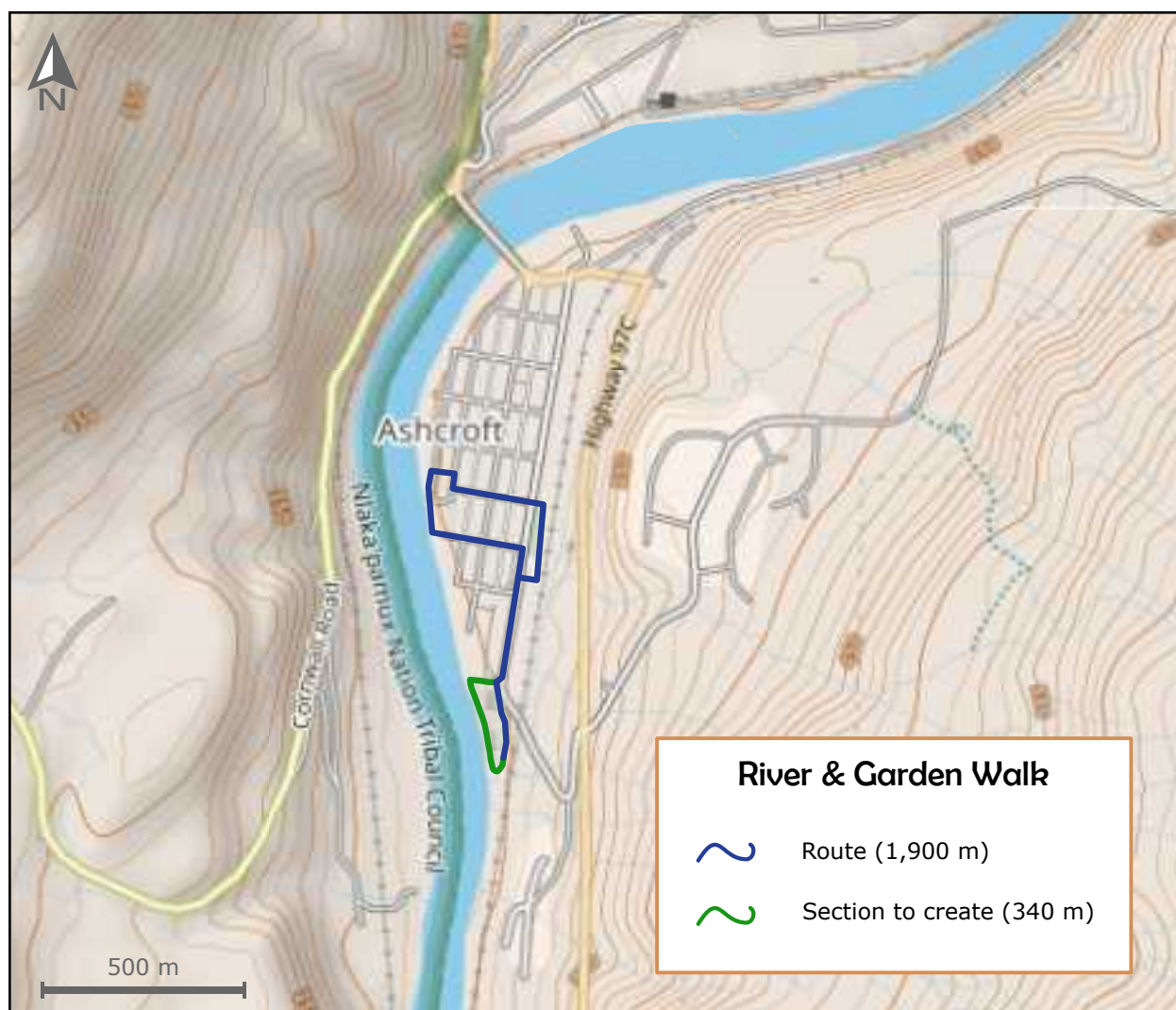




## 4.8.1 RIVER AND GARDEN WALK

The small park area between the Thompson River and Railway Avenue, identified in Ashcroft's 2018 Official Community Plan as a community use area<sup>21</sup>, has been identified as the preferred location for a short trail section, overlooking the river.

The Thompson River offers opportunities to potentially grow economic and social capacities adjacent to the downtown area. This could be achieved through the construction of a pedestrian pathway along the river. Private landownership, steep riverbanks and environmental concerns limit opportunities for a river pathway, that runs the entire length from the *Ashcroft Legacy Park Campground* to the *Ashcroft Cemetery*. As an alternative option, a 340 meter section of a pedestrian esplanade could be constructed adjacent to the *Ashcroft Cemetery*. This proposed pathway, overlooking the Thompson River, will additionally serve as an extension to the existing *River & Garden Walk*.



River & Garden Walk Route

<sup>21</sup> Page 68: Official Community Plan, Schedule B, Land Use Plan

What the proposed pathway is missing in length, can be compensated by adding trail infrastructure such as benches, viewing decks and public art. Trail amenities will slow down foot traffic and invite users to enjoy the esplanade. Esplanades became hugely popular in Victorian times, as areas where couples and families would go for a walk in order to be seen or be part of society. The proposed location invites and encourages locals and visitors to leave the downtown core area and explore the southern end of Ashcroft.

### ESPLANADE

Definition: a level open stretch of paved or grassy ground, especially one designed for walking or driving along a shore



Example of Proposed Viewing Deck





## 4.8.2 DOWNTOWN MOSAIC TRAIL & NORTH ASHCROFT MOSAIC WALK

Glass Mosaics have become a major draw for many visitors to the community of Ashcroft. With over 30 glass mosaics the Ashcroft mosaic walks exemplify how walking can become a new tool for discovery and communication. While not designed as a “classic” art walk displaying art in local businesses, this permanent, outdoor experience benefits businesses by attracting viewers to the village. An online interactive map<sup>22</sup>, showcasing the various walking routes, is being frequently updated to include new additions to the “Art Walk”. Walking tours and pathways can be selected from the drop-down menu on the lefthand side. Displayed tours have clickable icons, allowing the viewing of full sized images.

Marina Papais and her husband Daniel Collett, who either created or inspired most of the artwork, provide additional information on their excellent website:

<https://papaiscollettmosaics.com/ashcroft-mosaic-walk>



Ashcroft's Interactive Mosaic Walk Online Map

<sup>22</sup> [https://mapping.jugaadinnovation.ca/app/tourism/tourist\\_map.php?muni=Ashcroft](https://mapping.jugaadinnovation.ca/app/tourism/tourist_map.php?muni=Ashcroft)





## 4.9 COMMUTER TRAIL (GOVT. STREET HILL WALK)

The proposed multi-use commuter trail will follow the existing, Type IV, Govt. Street Hill Walk. The existing route needs upgrading to a Type II or III machine built trail. We highly recommend, budget dependent, to upgrade to a Type II trail with a tread width of 2 - 3 meters and topped with crushed limestone with fines or well-compacted gravel.

The trail will serve as a lower grade, less steep, connector to and from the proposed Ashcroft First Nation Connector Trail. The trail's main justification is to create an easier path connecting Elm Street and Government Street with the Cornwall Road/Highway 97C intersection. In addition, the pathway will allow better access to the Elephant hill Provincial Park for Ashcroft residents and visitors.

Trail amenities such as interpretive signage, benches/tables, garbage receptacles and a viewing platform would add greatly to the usability and attractiveness of the proposed upgraded trail.



Ashcroft Commuter Trail



Ashcroft Commuter Trails (Govt. Street Hill Walk)

## PROPOSED TRAIL TYPE

### TYPE II TRAIL:

- plan as surfaced single-track trail
- machine built
- remove all embedded obstacles
- use crushed limestone with fines, well compacted gravel, or existing old roadbeds
- clear width to 5.0 m
- clear height to 2.4 m
- provide 2 - 3 m tread width



# 5 CONSTRUCTION BUDGET

## 5.1 GENERAL TRAIL AMENITY COST

Trail amenities are an integral part of trail networks. They increase the trail usage and add to the overall user experience. Most trail amenity elements are universal and not trail user specific.

TRAIL HEAD AMENITIES/INFRASTRUCTURE	
Single Face Kiosk Signage	\$1,800
Picnic Table	\$1,600
Walkway Bench	\$2,600
Dog Bag Dispenser	\$450
Bear-Proof Garbage Receptacle	\$1,800
Trail Marker Post	\$250
Trail Interpretive Signage	\$800
Bike Rack	\$1,000 - \$3,000
Split Rail Barrier	\$350
Split Rail Fence	\$80/m
Chain Link Fence (1.2m)	\$100/m
Pit Toilet Installed	\$3,500





## 5.2 TYPICAL TRAIL CONSTRUCTION COST

Construction cost is difficult to accurately predict. Budget estimating principles are based on access to the construction zone, terrain, trail types and demand. Provincial contractors, trailbuilders and businesses have been consulted. Their quotes and estimates form the base of all budget estimates in this document.

### COST ESTIMATION FIGURES FOR TRAIL CONSTRUCTION

ITEM	UNIT	UNIT RATE
Clearing and pruning trail corridor	l.m.	\$18
New Trail Construction - Singletrack, unsurfaced, hand-built	l.m.	\$32
New Trail Construction - Singletrack, unsurfaced, machine-built	l.m.	\$55
New Trail Construction - Singletrack, crush/gravel, compacted, machine-built	l.m.	\$72
Climbing Turn Construction	L.S.	\$1,000
Rock Armoured Trail Sections	s.m.	\$150
Timber Retaining Wall Construction	l.m.	\$380
Timber Retaining Wall with Deadman Construction	l.m.	\$480
Basic hiking/biking Bridge Construction - Singletrack, treated Decking	l.m.	\$750
Large Span pre-fabricated Bridge	l.m.	\$12,000
Advanced TTF's - Bike Skills Park Features: log rides, wall-rides, ramps	l.m.	\$260

#### Notes To Budget:

- Prices do not include the costs for design or project management
- l.m. = linear meter
- L.S. = Lump Sum
- s.m. = square meter

## 5.3 FUNDING OPPORTUNITIES

A number of funding opportunities are available to non-profit organizations. Trail-user groups can apply for capital project and maintenance grants.

Potential funding organizations:

- Bike BC  
<http://www2.gov.bc.ca/gov/content/transportation/>
- BC Equestrian Trails Fund  
<http://www.hcbc.ca/index.php/membership/funding-forhcbcmembers/bc-equestrian-trails-fund/>
- BC Community Gaming Grants  
<https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/gambling/grants/guide-cgg.pdf>
- Work BC - Job Creation Partnerships  
[www.workbc.ca/Employers/Run-your-business/Community-and-Employer-Partnerships.aspx](http://www.workbc.ca/Employers/Run-your-business/Community-and-Employer-Partnerships.aspx)
- Canadian Off-Highway Vehicle Distributors Council  
Environment and Sustainable Trail Development
- Mountain Equipment Co-Op  
<https://www.mec.ca/en/explore/granting>
- Young Canada Works  
Focus on Historic and Cultural Site Interpretive Projects.





## 6 ACTION PLAN

In order to meet the goals outlined in the Master Trails Plan, a number of recommendations are fundamental.

The Implementation Matrix on Page 70 prioritizes trail projects and outlines project specific steps.

Priorities listed below are universal and apply to all trail upgrade and development projects, described within the plan.

Priorities for implementation include:

Community user groups together with local, regional and provincial governments have an interest in trail improvement and development.

Implementation of the plan will be directed by the Ashcroft Trail Advisory Group, who will assist Major and Council in the decision making process.

Ongoing involvement of all parties will be required to move forward with the various implementation phases.

Implementation of the plan will be contingent on funding opportunities, fundraising and volunteer efforts. The Ashcroft Trail Advisory Group should assist stakeholder groups (i.e. AORCA) with grant and funding applications, based on the project phases described in the Master Trails Plan. Funding opportunities for trail development will continue to evolve and local non-profit stakeholder groups need assistance in seeking out new grants and funding.

The subject of ongoing trail maintenance needs to be considered. Maintenance responsibilities need to be addressed in partnership agreements with local trail user groups. The Village will develop or assist in developing trails, where there is assurance that capacity for ongoing trail maintenance exists.

The Village of Ashcroft will consider the needs of all trail users, including users with disabilities, children/youth and seniors.

Celebrate Ashcroft's history and culture. Historical and cultural aspects of the trail networks need to be recognized. Celebrate and promote trails and trail use by supporting trail based events.

---

### Authors Note:

A substantial amount of the consultants' time was spent on the *Evans Road River Path* and the *Slough Access Trail*. The planners researched alternative options, discussed the projects with colleagues from other firms and kept an open mind, hoping to find solutions for these difficult situations.

We trust, by outlining the constraints, we have given all parties involved in the *Evans Road River Path* and the *Slough Access Trail* project a clear understanding of why these two projects are not feasible as proposed.





## ASHCROFT TRAIL MASTERPLAN IMPLEMENTATION MATRIX

Action Number	Description	Term	Lead	Financial Projection
HIGH PRIORITY INITIATIVES				
1	<u>Ashcroft First Nation Connector Trail</u> ➔ Complete archaeology and cultural heritage study ➔ Flag final trail alignment ➔ Upgrade existing trail tread and construct new trail as per trail plan ➔ Install signage and trail amenities	IMMED (24 Months)	Partnership: Village of Ashcroft & Ashcroft First Nation	High to Very High
2	<u>River And Garden Walk</u> ➔ Identify and survey final trail alignment ➔ Construct new pathway as per trail plan ➔ Install signage and trail amenities	MED (1-5 Years)	Village of Ashcroft	High
3	<u>Mountain Bike Polygon</u> ➔ Work with AORCA and trail consultant on trail plan for the MTB polygon ➔ Implement phased construction projects with pro-trailbuilders and AORCA volunteers	MED (1-5 Years)	Partnership: Village of Ashcroft & AORCA & RSTBC	High
4	<u>Commuter Trail (Govt. Street Hill Walk)</u> ➔ Flag final trail alignment ➔ Upgrade existing trail tread and construct new trail as per trail plan ➔ Install signage and trail amenities	MED (1-5 Years)	Village of Ashcroft	Medium to High
5	<u>Hiking Trails</u> ➔ Improve trailhead facilities ➔ Install trail amenities ➔ Prioritize projects in consultation with user groups	MED (1-5 Years)	Partnership: Village of Ashcroft & RSTBC & user groups	Medium
6	<u>Motorized Trails</u> ➔ Identify motorized trail users and start trail planning process ➔ Engage planning firm to develop construction and budget document	LONG (5+ Years)	Partnership: Village of Ashcroft & RSTBC & user groups	Medium
7	<u>Equestrian Trails</u> ➔ Work with the horse riding community and tourism stakeholders on developing equestrian specific trails	LONG (5+ Years)	Partnership: Village of Ashcroft & RSTBC & user groups	Medium to High
8	<u>Urban Trails &amp; Mosaic Walk</u> ➔ Maintain and enhance urban trail routes ➔ Continue installation of new art displays	LONG (5+ Years)	Partnership: Village of Ashcroft & CoC & Local Arts Council	Medium

### Note to Financial Projections:

- More than \$1,000 are rated LOW
- \$10K to \$50K are rated MEDIUM
- \$50K to \$150K are rated HIGH
- \$150K+ are rated VERY HIGH

PROJECTIONS ARE APPROXIMATE 2022 FORECAST FIGURES

# APPENDIX A

## WORKING AROUND WATER

Working in or around water, builders must take care to minimize the potential risk to aquatic ecosystems and limit water pollution. The Water Sustainability Act defines the terms used to talk about working around water to make the meaning and scope of those terms clear

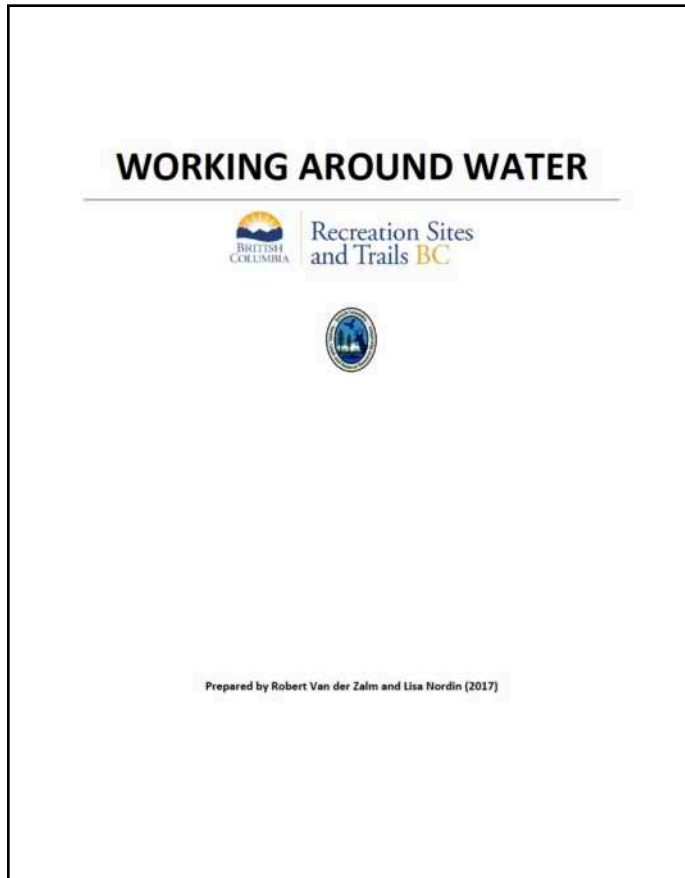


Image: 'Working Around Water' by Robert Van der Zalm and Lisa Nordin, is a great resource for construction projects, that cause modification to the nature of a stream, including any modification to the land, vegetation and natural environment of a stream or the flow of water.

# TRAIL CLASSIFICATION

Trail difficulty rating symbols should be included on all signage at trailheads and trail staging areas. The intent is to provide a universally recognizable difficulty rating system area-wide. The difficulty rating begins with the “Easiest” and progresses to “Expert Unlimited”.

The trail rating system is applicable to motorized and non-motorized trail use.

Unsanctioned trails should not be signed unless it is regulatory or trail closure signage.

Trail Type: Types Canada Trail (TCT) Standards	Low Impact Nature Trail	Unsurfaced Singletrack (hard dirt)	Unsurfaced Single / Double Track (machine built)	Gravel Trail (singletrack)	Gravel Trail (double track)	Paved Trail	Cycle Lanes / Sidewalk	Gravel Road	Paved Road	Unsurfaced Rail Bed	Water Route
Trail Type: Whistler Trail Standards	Type V	Type IV	Type III	Type II	Type I	Type I					
Trail Difficulty Rating: IMBA											
Alberta Trail Classification	Primitive	Primitive	Semi-developed	Developed	Primitive to Semi-developed	Developed	Developed	Semi-developed to Developed	Developed	Primitive	
Trail Difficulty Rating: BCORMA											
Category (TCT)	Greenway Trail	Greenway Trail	Greenway Trail	Greenway Trail	Greenway Trail	Greenway Trail	Greenway Trail	Roadway	Roadway	Yellow Trail	Blowery Trail
Overview	Remote, hiking only trails	Describes many of Canada's hiking and biking trails	Rustic trails for heavier use by less skilled trail users	Widest potential user group on rough surface trail	Widest potential user group on rough surface trail	Popular non-motorized routes	Popular non-motorized routes	Resembles a forest service or wilderness road - Motor vehicles or Highway Traffic Act disallow use	Usually public roads, they require connection	Surface is large enough - can be developed into Type II Gravel Trail (double track)	Established lines of travel along a water course
Appropriate Users	Hikers only Winter activity not expected	Experienced trail users, including hikers, mountain bikers, equestrians	Similar to hard built unsurfaced track Winter activity not expected	All non-motorized modes of transportation	Summer and winter motorized or non- motorized	Pedestrian and non- motorized wheeled transportation, equestrian access	Pedestrian and non- motorized wheeled transportation	Appropriate for multiple users with few restrictions in summer or winter	All users subject to "motor vehicle code", "highway traffic act", etc.	Summer and winter motorized use	All users subject to relevant legislation or regulations, including the Navigable Water Prohibition Act
Material	Anything found in natural landscape	Anything found in natural landscape	Anything found in natural landscape	Compacted gravel or other suitable material	Compacted gravel or other suitable material	Asphalt or chip-seal road surfacing	Moderate engineering, Asphalt or chip-seal road surfacing	Engineered for motorized use ¾ minus crushed gravel	Highly engineered, Asphalt, concrete, pavers	Rail and sleepers removed	Water, with sections of singletrack trail for portaging
Grade	No grade restrictions	Average grade <10%, short sections may be >10%	Average grade <10%, short sections may be >10%	Maximum grade 10%, short sections may be >10%	Maximum grade 10%, short sections may be >10%	Maximum grade 10%, short sections may be >10%	Maximum grade 10%, short sections may be >10%	Maximum grade <10%	Maximum grade <10%	Maximum grade 3-5%	Portage trail <10% Blow grade <Class 1 or 2 white water
Tread Width	0.3 - 0.5m	0.3 - 0.5m	0.5 - 0.7m (1 way) 0.7 - 1.5m (2 way)	1 - 2.5m	2.5 - 3m (1 way) 3 - 4.5m (2 way)	2 - 3m	2 - 3m	0 - 8m (3 - 4m per lane)		3 - 4m	Portage trails 0.5 - 0.7m
Cleared Width	No requirements for cleared width	Tread width plus 0.5m either side	Tread width plus 0.5m either side	Tread width plus 0.5m either side (plus 1m if equestrian)	Tread width plus 0.5m either side (plus 1m if equestrian)	Tread width plus 1m either side	Tread width plus 1m either side			Minimal	Tread width plus 0.5m either side
Cleared Height	2 - 3m	2 - 3m for bikers/hikers 4m for equestrian	2 - 3m for bikers/hikers 4m for equestrian	2 - 4m	2 - 4m	3m	3m				2 - 3m
Maintenance Consideration	Low maintenance, possible erosion or fallen / overgrown vegetation concerns	Erosion mitigation and regular inspection necessary	Erosion mitigation and regular inspection necessary	Low maintenance, occasional grading / smoothing	Low maintenance, occasional grading / smoothing	Regular inspection, immediate repair of damaged sections	Regular inspection, immediate repair of damaged sections	Regular grading / resurfacing	At discretion of agency in charge of maintenance	Little maintenance needed	Low maintenance, possible erosion or fallen / overgrown vegetation concerns

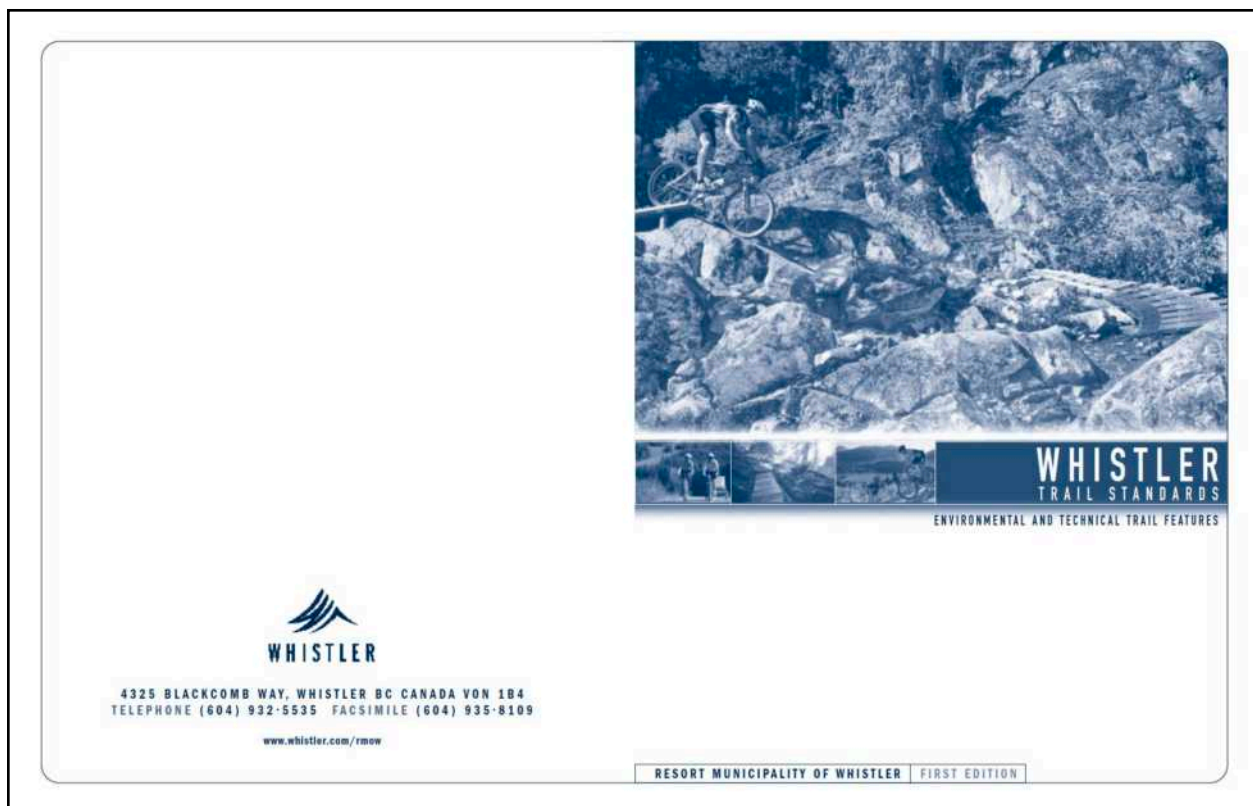


## WHISTLER TRAIL STANDARDS

To establish standards for construction and maintenance the use of a combination of the Provincial Trail Standards, Whistler standard and the IMBA (International Mountain Biking Association) guide for trail building, is the preferred method. The Whistler Trail Standards handbook can be downloaded online, IMBA guides can be purchased off the IMBA website.

The document can be viewed and downloaded here:

[https://www.mbt.ca/wp-content/uploads/2016/04/trail\\_standards\\_first\\_edition.pdf](https://www.mbt.ca/wp-content/uploads/2016/04/trail_standards_first_edition.pdf)



# AUTHOR'S NOTES

As planners, we must not lose sight of the fact that guests are here to have a good time, avoid injury and not get lost.

The evolution of mountain bike trails, recreational equipment, and environmental issues require that this document be amendable.

Thanks to North Shore Mountain Bike Association (NSMBA) and the Whistler Off-Road Cycling Association (WORCA) for reviewing the document and providing feedback. Also thanks to Channa Pelpola, Ken Neave and Jim Richardson for their feedback and insight. Special thanks to Keith Bennett for his feedback, insight and proactive approach to mountain biking.

Cover photos were provided by Bonnie Makarewicz Photography and David Diplock, Director of the North Shore Mountain Bike Association. Trail Type drawings by Jensen Resort Planning.

Andrew Drifort  
Whistler Cycling Committee  
Summer 2003



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# INTRODUCTION

Whistler, British Columbia has been recognized as a premier destination resort for mountain biking. For the most part, this can be credited to the Whistler Mountain Bike Park and a network of valley and off-road trails that provide a recreational and commuter experience for a wide range of residents and visitors. To sustain this experience, the Resort Municipality of Whistler (RMOW) proposes to review, sign, maintain and manage this network of trails throughout the Whistler Valley. This document is not a "how-to" on building or maintaining trails; rather it is the standard by which the trails will be managed within the Whistler Valley.

The Resort Municipality of Whistler's Trail Standards, Environmental and Technical Trail Features was drafted in support of two initiatives identified by Volume One of Whistler 2000: Charting a Course for the Future. The first and foremost initiative described under the priority of Moving Toward Environmental Sustainability, states "We've established a trail hierarchy and environmental standards to ensure the type of trail and its maintenance is appropriate to the setting." A land use compatibility matrix was developed to address this objective. The matrix outlines the Trail Type and Trail Difficulty Level acceptable in distinct land-use classes. As well, environmental guidelines were established to minimize the placement of trails in sensitive environments. The second initiative described under the priority of Enhancing the Whistler Experience states "Whistler is one of the top bike towns in North America, with world-class trails..." Whistler's trails must continue to provide exciting experiences for all levels of riders from families to advanced riders. Attention to providing a challenging experience, maintenance, a seamless network and an easy-to-use trail system will help position Whistler as one of the top bike towns in North America.

Appropriate management of our on- and off-road trail network is intended to elevate Whistler's status as a cycling destination with minimal environmental impact.





## TRAILS AND LAND USE

This section is a macroscopic view of the trails, the environment and where trails may be placed. This section outlines the levels of land protection, trail type descriptions and trail difficulty levels. These three classifications interact together as defined by a compatibility matrix.

### LAND USE DIRECTIONS

Whistler's environmental values and principles direct us to address land use as an important environmental consideration. Whistler's principle of an ecosystem-based approach advises us to mesh our human purposes with the larger patterns and flows of the natural world, and to study these to inform and guide our activities on the land.

From the draft Whistler Environmental Strategy, six land use directions are defined for the Whistler Valley. Each land use direction has a different level of environmental protection. For the purpose of this document, the LRUP and PAN 3 are given the same level of conservation.

**DEVELOPED AREAS** – This land use designation includes industrial, commercial and residential areas.

**RECREATIONAL GREENWAYS** – An important means for creating linkages between the built and natural environments, and between the needs of human communities and natural ecological systems. Incorporating opportunities for both recreational activities and the maintenance of natural features and wildlife habitat, Recreational Greenways are a vital part of environmentally responsible land use planning.

**LRUP** – The Local Resource Use Plan was developed in response to public concerns over logging effects on the visual quality of landscapes and the recreation uses of the land in and near the RMOW. It was a joint effort from the Ministry of Forests, Squamish Forest District, and the RMOW. The LRUP boundaries extend from Ironhorse Falls in the south to Cougar Mountain in the north. LRUP land contains rare and unique species or unique habitat features not found in other ecosystems and are therefore important to protect.

(The Whistler Environmental Strategy, Discussion Paper, September 23, 1992, Foreword; Summary, Page 4; (Vol. 1, Section 4.2, Page 15) Forest Recreation Plan, Whistler Local Resource Use Plan, June, 1995, Page 1; The Whistler Environmental Strategy, Section 4.6, Page 23)



Photo: Whistler Mountain Bike Club

**PAN PROTECTED AREA NETWORK** – Divided into the following three subcategories of protection:

**PAN 3 – RESERVE LANDS** Large tracts of relatively natural land, which could be subject to recreational or other development provided an Environmental Impact Assessment is done. PAN 3 protection is generally used for second growth forests and other natural areas not included in PAN 1 and 2. In cases of development, key ecological components of reserve lands may be subject to PAN 1 or 2 protection after development. Most trail types are acceptable with the exception of paved Type I trails.

**PAN 2 – SPECIAL MANAGEMENT ZONES** Well protected and allow some low-impact human activities or development (creation of trails). Priorities for PAN 2 protection include significant streams and riparian areas, significant old growth forests and wildlife corridors. Only low impact trails such as Trail Type III, IV or V are acceptable to be built in PAN 2 areas.

**PAN 1 – KEY PROTECTED AREAS** Preserved to protect unique and sensitive ecosystems from any human development or use, with the possible exception in individual cases of very low-impact nature trails, boardwalks or wildlife viewing platforms for the specific purpose of habitat protection. Priorities for PAN 1 protection include streams, wetlands, riparian areas, old growth forests, key wildlife corridors and unique or threatened habitat types. No cycling trails are to be built in these areas.

### COMPATIBILITY MATRIX

The Whistler Valley effectively has five land use directions. These land use directions relate to the five trail types (reference to page 6-7) and the first four trail difficulty levels (reference to page 8-9) in the following compatibility matrix. The RMOW will construct new trails only in environments compatible with trails.

		LAND USE DIRECTION				
		Developed Areas	Greenways	PAN 3 (includes LRUP)	PAN 2	PAN 1
TRAIL TYPE	Mountain Bike Trail Difficulty	I	✓	✓	✓	✓
	II	✓	✓	✓	✓	✓
	III	✓	✓	✓	✓	✓
	IV	✓	✓	✓	✓	✓
	V	✓	✓	✓	✓	✓
		✓ = Compatible X = Incompatible G = Grandfather Clause				

TABLE 1 COMPATIBILITY MATRIX

(The Whistler Environmental Strategy, Section 5.1, Page 23)  
(Only hiking trails, in individual cases, on very low-impact nature trails, boardwalks or wildlife platforms for the specific purpose of habitat protection are permitted to be constructed in PAN 1.  
Refer to page 46, this document)

## TRAIL TYPES

Trail Types<sup>a</sup> are a description of non-motorized trail road characteristics. Trail Type I has the highest amount of traffic and the most impact on the environment of the trail types. Conversely, Trail Type V has little traffic and the trail tread is minimal.



TRAIL TYPE I

### TYPE I

- plan as paved double-track trail for smooth, all weather use to provide access to village, parks and subdivisions
- use asphalt or chip-and-seal surfacing
- clear width to tread width plus 0.5 m gravel shoulder and adequate drainage on each side
- clear height to 3.0 m
- provide 2-3 m tread width
- provide illumination for night use if appropriate
- provide interpretive and directional signs, benches, viewing areas where appropriate



TRAIL TYPE II

### TYPE II

- plan as surfaced double-track or single-track trail
- machine built
- remove all embedded trail obstacles
- use crushed limestone with fines, well-compacted gravel, or existing old roadbeds
- clear width to 5.0 m for double-track and 1.6 m for single-track trails
- clear height to 2.4 m
- provide 2-3 m tread width for double-track trails, 1 m for single-track trails
- provide illumination for night use if appropriate

### TYPE III

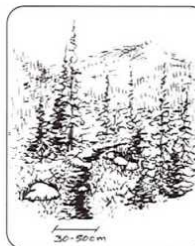
- plan as unsurfaced single-track trail
- may be machine built
- clear width to 1.2-1.5 m
- clear height to 2.4 m
- provide 30-70 cm tread width on native soil



TRAIL TYPE III

### TYPE IV

- plan as unsurfaced single-track trail
- clear width to 1 m
- clear height to 2.4 m
- provide 30-50 cm width tread on native soil, sometimes rough terrain



TRAIL TYPE IV

### TYPE V

- plan as low-impact nature trail or lightly used wilderness trail
- no high impact users, such as motorized vehicles or horses
- clear height to 2.4 m
- provide 30-50 cm tread maximum, avoid tread grubbing, sections of very rough terrain
- in the case of low-impact nature trails use boardwalks to traverse sensitive areas



TRAIL TYPE V

<sup>a</sup> Sources for these classifications are: BC Parks, BC Forest Service and RMOW Park Risk Management, Trail Classifications, Schedule C





## MOUNTAIN BIKE TRAIL DIFFICULTY LEVELS

The following identify all the levels of trail technical difficulty as they apply to mountain bikes, starting with easiest and moving up to expert unlimited. Included are general and detailed descriptions of trails and Technical Trail Features (TTFs). This section quantifies what characteristics compose the trail difficulty for mountain bikes.

**NAME:** Easiest **SYMBOL:** White circle

**GENERAL**

- Fairly flat, wide and paved. Suitable for all users.\*

**DETAILED**

- Maximum grade: 10%
- Preferred average grade: on more than 5%
- Maintain a minimum 2.5 m curve radius
- Usually associated with Trail Type I

**EXPECTED TECHNICAL TRAIL FEATURES**

TTFs are not appropriate for this trail level.

**NAME:** Easy **SYMBOL:** Green circle

**GENERAL**

- Gentle climbs and easily avoidable obstacles such as rocks, roots and pot-holes.\*

**DETAILED**

- Maximum grade: 15%
- Maximum sustained climbing grade: 8%
- Curve radius: 3.4 m minimum
- Usually associated with Trail Type II or III

**EXPECTED TECHNICAL TRAIL FEATURES**

**GENERAL**

- Small roots & logs to cross
- Embedded rocks to avoid
- Wide bridges

**DETAILED**

- Embedded trail obstacles: up to 10 cm
- Logs and roots perpendicular to direction of travel (1:15)
- Bridge minimum 50 cm wide, handrail required if height of bridge above surface exceeds 60 cm
- Rock face descents not to exceed 25%
- No drops
- No jumps

\* Paul Kemm  
\* Paul Kemm  
\* Paul Kemm

**NAME:** More Difficult **SYMBOL:** Blue Square

**GENERAL**

- Challenging riding with steep slopes and/or obstacles, possibly on a narrow trail with poor traction. Requires riding experience.\*

**DETAILED**

- Maximum climbing grade: 25%
- Maximum sustained climbing grade: 10%
- Maximum descent grade on non-rock surface: 35%
- Curve radius: 18 m minimum
- Usually associated with Trail Type III or IV

**EXPECTED TECHNICAL TRAIL FEATURES**

**GENERAL**

- TTF width to height ratio of 1:3
- Small bridges (flat, wide, low and reliable from section to section)
- Small rollable drops
- Small tester-toters
- Small jumps
- Medium sized logs

**DETAILED**

- Embedded trail obstacles: up to 20 cm high
- Elevated bridges: less than 1.8 m (6') high above surface
- Minimum width of flat decking is one-half the height above surface
- For connected sections, the biasing angle between each connected section must be large enough to allow the bicycle to complete transition without requiring any wheel lifting techniques
- Tester-toter: maximum pivot height, less than 60 cm (2') high above the surface
- Minimum width of flat decking is one-half the height above surface at pivot point
- Rock or ramp descents not to exceed 45%
- Drop-offs not exceeding 10 cm high with exit cleared of all obstacles
- Jumps
- No jumps with consequences for lack of speed (for example, coffin jumps or pig jumps)
- Table top jumps maximum height 60 cm (2')
- Jumps maximum height 45 cm (18")

**NAME:** Most Difficult **SYMBOL:** Black Diamond

**GENERAL**

- A mixture of long steep climbs, loose trail surfaces, numerous difficult obstacles to avoid or jump over, drop-offs and sharp corners. Some sections are definitely easier to walk.\*

**DETAILED**

- Maximum climbing grade: 30%
- Maximum sustained climbing grade: 15%
- Usually associated with Trail Type III, IV or V

**EXPECTED TECHNICAL TRAIL FEATURES**

**GENERAL**

- TTF width to height ratio of 1:4
- Elevated bridges and tester-toters, with maximum deck height
- Connected bridges
- Mandatory air
- Larger jumps
- Steep descents with sharp transitions

**DETAILED**

- Elevated bridges: less than 3 m (10') high above surface
- Minimum width of flat decking is one-quarter the height above surface
- Tester-toter: maximum pivot height less than 1.8 m (6') above surface
- Minimum width of flat decking is one-quarter the height above surface at pivot point
- Mandatory air less than 1.0 m (3') vertical
- Rock or ramp descents not to exceed 40%
- Jumps
- Table tops, no maximum height
- No gap jumps or rhythm sections

**NAME:** Expert Unlimited **SYMBOL:** Double Black Diamond

**GENERAL**

- Exceptional bike control skills and balance essential to clear many challenging obstacles. High-risk level. Only a handful of riders will enjoy these rides.
- The RMOW recognizes Expert Unlimited as a difficulty level but due to the small size of the user group, the RMOW will not pursue ownership of these trails, however there may be some of these elements on a trail provided there is a clearly defined alternate route around.

**DETAILED**

- Similar to Most Difficult
- Usually associated with Trail Type III or IV

**EXPECTED TECHNICAL TRAIL FEATURES**

**GENERAL**

- Risk exceeds Most Difficult due to height, width and exposure
- Fall zones may not meet fall zone standards
- The consequences of errors may be severe and rescue may be difficult

**DETAILED**

- Exceeding Most Difficult

\* Paul Kemm  
\* WCH requires "... that a fall protection system is used when work is being done at a place (a) from which a fall of 1 m (3 ft) or more may occur, or (b) where a fall from a lower height involves an imminent risk of injury." Occupational Health & Safety Regulation Book 2, section 2.1.2, page 1-2

## SUPPORTING GUIDELINES AND STANDARDS

This section is a microscopic view of trails. It contains guidelines and standards about the placement of trails, construction and strength of technical trail features and the signing of trails.

### ENVIRONMENTAL GUIDELINES

The benefits of a trail for recreational purposes must be balanced with the desire to protect the environment. All intrusions into the environment have some degree of impact. However, these impacts can be minimized to balance the objective of a recreational experience with minimal impact on the surrounding environment. Trails that adversely impact the environment will deteriorate in time, have a low aesthetic value and incur a high maintenance cost. Trail construction must strive for minimal impact on their surroundings and be designed with consideration for the specific environment and the intended use of the trails.\*

#### TRAIL PLACEMENT GUIDELINES

- Trail placement should avoid hazard areas such as unstable slopes, soil prone to erosion, cliffs, embankments and undercut stream banks, etc.
- Avoid shallow rooted trees with high windthrow potential and snags.
- Avoid routes that impact on wildlife species.
- Avoid critical habitat of rare or fragile plant species. If there are fragile plant communities next to the trail, delineate the trail edges by using logs or rocks.
- Avoid sensitive or fragile archaeological or historic sites.
- Avoid building trails in community watersheds.
- Avoid trail routing that encourages users to take shortcuts where an easier route or interesting feature is visible. If an interesting feature exists, locate the trail to provide the desired access to the trail user. Use landforms or vegetation to block potential shortcut routes.
- Avoid routing a trail too close to another trail section to prevent trail proliferation or shortcuts between the two trails.
- Route trailbeds on bedrock or hard packed surfaces and avoid organic materials.
- Use placed stones in sensitive areas and steep descents to minimize trail erosion.

\* Sources for these classifications are: Ministry of Forests, Recreation Trail Management, Access Near Aquatic Areas, A Guide to Sensitive Watersheds: Design and Management, Province of BC.



### AQUATIC ENVIRONMENTS

- Trail construction of Trail Types III-V near an aquatic area within 30 m of streams and within management zones as per Forest Practice Codes must minimize vegetation removal and soil disturbance. Construction standards should be consistent with trail use, thereby minimizing trail width requirements.
- Structures in direct contact with water should be inert (for example, natural untreated cedar, precast concrete or steel) to avoid water quality impacts associated with chemical leaching from treated wood. Pile supported structures are preferred over slabs or floats for bridges requiring supports in contact with streams.
- Locate bridge crossings to minimize disturbance to streambeds and banks. Sections of the waterway that are straight and where banks are stable are preferred for crossing.
- Construct bridges across streams to top-of-the-bank. This minimizes erosion of stream banks and sedimentation of streams.

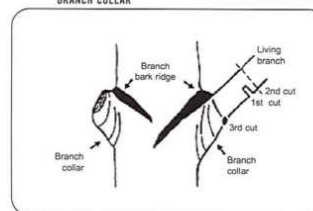
#### GENERAL

- Avoid cutting down live trees.
- Tree branches must be cut at the collar, both longer or shorter are likely to cause infection to the tree (Figure 1).\*
- Cover exposed roots.
- If pretreated wood has been selected for structures being placed in the ground, the structure should be isolated in poly wrap below grade.

#### USE OF MACHINERY

- Limited access trails that penetrate sensitive areas should be constructed manually with materials and equipment that can be easily transported by small work crews.
- If machinery is required, minimum standards as per Forest Practices Code should be adopted (i.e. no machinery within 5 m of any water-body). Low impact construction techniques should be employed such as small underutilized, rubber tired vehicles, and construction pads, platforms or cranes. Prefabricated structures that can be manually assembled on site should be used, if possible.

FIGURE 1 BRANCH BARK RIDGE AND BRANCH COLLAR



\* "Pruning Branches and Trees" (<http://www.mn.dnr.gov/pubs/interim/419-433/419-433.pdf>) (April 7, 2005)

## TTF CONSTRUCTION STANDARDS

Trails with constructed Technical Trail Features (TTF) must exceed a minimum standard to protect the trail user.

### SAFETY

TTFs must exceed the minimum strength and stability standard. Also, the finish must be such that if a rider were to fall, the structure or other protrusions would not increase the degree of the injury.

### STRENGTH AND STABILITY

Each span of the TTF must be capable of withstanding a centered vertical load of 225 kg (495 lb, 2 times heavier rider/bike and gear). Every single rung should be capable of holding a rider/bike and gear's weight.

### TTF DESIGN PHILOSOPHY

#### • Gateways

→ By placing a narrow section or difficult turn early while the TTF is still close to the ground (known as a gateway), inexperienced riders may dismount prior to the TTF getting too high above the ground, where the rider is more likely to be injured should a fall occur. For example, place a 10 cm wide gateway 40 cm off the ground as a gateway to a 30 cm wide section 1.2 m off the ground.

• Make the highest difficulty section visible from the entry.  
→ By placing the difficult section in view, the rider can make an informed decision before they get into trouble with a TTF that may be beyond their ability.  
→ Avoid wide, easy entrances leading to high, narrow exposed features.

### TTF HEIGHT AND WIDTH

As outlined in the Technical Trail Difficulty section, maximum height and minimum width are dependent on the TTFs difficulty. As the height above the ground increases, the consequence of injury in the case of a fall increases.

Height is measured vertically to the lowest point within 1.0 m adjacent to TTF (figure 2). Tread width is the amount of flat tread (figure 3).

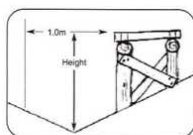
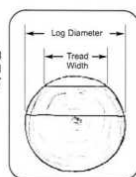


FIGURE 2 MEASUREMENT OF TTF HEIGHT

FIGURE 3 TREAD WIDTH MEASUREMENT



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## FALL ZONE GUIDELINES

Riding a mountain bike on trails and technical trail features involves challenging oneself and with that challenge comes risk of injury. Challenges come from terrain that contains many natural and man made features. Risk is relative to riders skill level in relation to the difficulty of the trail.

### FALL ZONE

The fall zone is the area adjacent to the technical trail feature, bottom of descents and the outside of corners that the rider may deviate into. To help reduce the incidence and severity of injuries, fall zones should be reviewed for hazards. Hazard mitigation efforts can be limited to those items that can be reasonably expected to be reshaped or removed using hand tools while maintaining the natural characteristics of the terrain surrounding the trail.

### METHODS

Methods to reduce risk in fall zones (1.5 m to each side of the trail) include but are not limited to:

- Cutting or digging out any sharp objects
- Trimming tree branches to branch shoulder (see figure 1)
- Covering of hazards is another option if material such as rotten logs, bark, mulch, dirt, etc. is available
- Areas where falls are frequent may need periodic re-covering
- Drilling of sharp points or edges of exposed rocks

NOTE: The fall zone need not be cleared of all foliage; the purpose of fall zone guidelines is to reduce the chance of injury should a fall occur. Replanting of the fall zone with a durable locally occurring species may be considered.

### FOCUS

The primary focus for fall zone clearing should be on trails rated "More Difficult". Riders may be learning to ride TTFs and their fall recovery may not be perfected.



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## CONSTRUCTION PRACTICES

Cross bracing of vertical members is required (figure 4). Also, TTFs should not be mounted to living trees for the following reasons:

- The tree will continue to grow, compromising the integrity of the TTF.
- The tree may sway due to wind, weakening the TTF.
- Nailing to live trees is harmful to the tree.

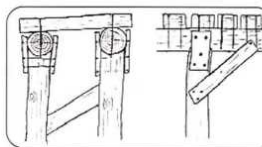


FIGURE 4 BRIDGE STRINGER SUPPORT AND CROSS BRACING

### CONNECTED MEMBERS

The methods for joining members in order of preference is: nuts and bolts, lag bolts, wood screws or arden nails. Ensure two-thirds of nail or screw's length penetrates the stringer. Loading on a member should be done in such a way as not to rely exclusively on the shear strength of the joining method.

### BRIDGE RUNG SPACING

Deck rungs must be placed tightly so that children will not catch their feet between rungs. Arms will not fit between rungs and all users including dogs will use bridges as opposed to walking adjacent to the bridge, compromising the sensitive area the bridge was intended to protect.

An appropriate spacing between rungs is 3 cm to promote drainage of water and mud. Overhang rungs past stringers by less than 5 cm (2 in) (figure 5).

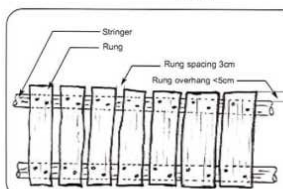


FIGURE 5 BRIDGE RUNG SPACING, RUNG OVERHANG

### BRIDGE SURFACING

It is recommended that wood surfaces with a slope exceeding 10°, with the exception of split wood having a rough surface finish, have an applied anti-slip surface. One recommended material is expanded diamond lath. Chicken wire and rolled roofing material, although popular, are not durable and creating material traps moisture promoting premature rotting. Note: TTFs must be reinforced to withstand the additional loading of anti-slip surfaces against the direction of the breaking forces.

### WOOD PREPARATION

Bark must be stripped off and wood in contact with the earth should be isolated to minimize rotting. For natural rot resistant wood, use cedar.

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## SIGN GUIDELINES

Signs are a necessary component of trail management. They provide the user with information that will allow them to make an informed and educated choice. The hierarchy of signs in Whistler will be comprised of three levels. The first is a Trail Network Sign which contains a map, general information about the area and safety suggestions. The second level is a Trailhead Sign that would contain information specific to the trail. Third, En Route Signs along the trail to promote confidence in the user that they are following the correct route and to be posted on features that are a higher difficulty rating than the trail rating.

### TRAIL NETWORK SIGN

Located at a parking lot or similar entrance to a network of trails. Information for trail network signs may contain a combination of the following:

- Topographical map of area
- IMBA rules of the trail
  1. Ride on open trails only
  2. Leave no trace
  3. Control your bicycle
  4. Always yield trail
  5. Never speak animals
  6. Plan ahead
- Trail etiquette
  1. Stay on trail, no ride-a-rounds
  2. Do not alter trail
  3. Ride don't slide
  4. Avoid riding in muddy conditions
  5. Know your limits
  6. Support trail maintenance
- Safety
  1. Ride in 3's
  2. Carry a flashlight
  3. Carry a full emergency blanket
  4. Let someone know your route, time of return and carry a two-way communication device.
  5. Wear a helmet
- Notes about keeping dogs out of fish bearing streams and educational components
- Information on who to contact with trail maintenance concerns or how to get involved
- Acceptable trail user groups
- Emergency contact phone numbers
- Description of cell phone coverage
- Background information on the surrounding area and trails
- Trail maps for distribution
- Bulletin board
- Reference to web or other resource

### TRAILHEAD SIGN

These signs are to be located at the entrance(s) of a particular trail to provide the user with the information necessary to make an informed and educated decision whether to proceed or not.

#### SUGGESTED INFORMATION

- Trail name
- Topographical map of trail
- Trail length
- Elevation gain and loss
- Use at own risk disclaimer

#### DETAILS

Sign size 140 mm X 170 mm. Selected to be mounted without overhang on 150 mm X 150 mm posts (figure 6).

#### OPTIONAL INFORMATION

- Trail difficulty rating and a written explanation of what the user may encounter on the trail
- Warning and quantity of higher difficulty TTFs if present
- Conditions subject to change
- Inspect TTFs prior to riding
- Time range is complete
- Trail profile
- Disclaimer – most trails will be a level or two harder to ride when slippery

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## CONTACT

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First Journey Trails has completed a large number of trail design and construction projects over the past 8 years. Most recently the Desous Mountain Masterplan and the Bella Coola Valley Trail Masterplan.

Though our primary field of expertise is the design and construction of mountain bike facilities, we offer a comprehensive list of recreational services. Satisfied clients include: municipalities, mountain bike clubs, Ministry of Recreation Sites & Trails, First Nations, and private landowners. Thomas Schoen has been building trails since 1998 in the Interior of BC. He started building multi-user trails as a volunteer in the Wells/Barkerville area on Mt. Murray, Mt. Agnes and the Cornish Mountain trails system. Lately he has been building trails in the McLeese Lake and Williams Lake area and is specializing on TTF's (Technical Trail Features). In 2009 First Journey Consulting entered into a trailbuilding agreement with the District of Wells and carried out the construction of the areas' new multi-use trail network.

Since 2009 First Journey Consulting has authored many trail-planing documents and trail-network masterplans including the masterplan for the Williams Lake Westsyde network, the Desous Mountain Masterplan, the Soda Creek and Deep Creek networks and the Williams Lake Indian Band trail networks.



Thomas is a Director for the Williams Lake Cycling Club, the Aboriginal Youth Mountain Bike Program and is the President of the Cariboo Mountain Bike Consortium. He is a Provincial trail advocate and teaches trail design/building to First Nations trail crews in BC.

We specialize in Trail Network Masterplans, community network development, stakeholder consultations, trail building workshops and First Nation's MTB development projects. Award winning tourism development and consultation background and non-profit management expertise.



